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CREDIT CONCENTRATION AND RISK MITIGATION IN IRAQI BANKS (2010-2019)

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Abstract:

One of the most significant risks that bank management encounters when making loan decisions is concentration risk in a credit portfolio. This risk arises from the bank's concentration in working with a single borrower, a particular economic sector, or a particular geographic area that is sensitive to one or more economic factors, putting the bank at risk of significant losses. Therefore, the concept and various forms of banking concentration risks, such as individual and sectoral concentration risks as well as concentration risks in the credit portfolio's individual components (structural concentration), will be covered in this study. A variety of techniques, including the modified particles method, the Her vandal index, the adjustment factor, and others, will be used to measure the risks of credit concentration. Furthermore, the key strategies for limiting, reducing, or lessening these risks will be covered, including risk transference, covering, and diversification of the loan portfolio, as well as restrictions, specifications, and insurance. As the data demonstrate that there is a credit concentration at the sectoral, structural, and top five operational Iraqi banks levels, an analysis of the credit concentration in the country's commercial banks will be conducted during the 2010-2019 timeframe as part of the research's practical component.

Key Words: Portfolio, Commercial Banks, Credit, Risks.

1. Introduction:

Credit portfolios represent the composition of banking credits, requiring banks to diversify their assets and manage risks. The risk of credit concentration arises due to a discrepancy between concentration and diversification. This risk increases with increasing credit concentration intensity and decreases with increasing diversification. To achieve high returns and minimize risk, banks should diversify their credit portfolios by including a large number of customers from both big and low value operations. This strategy limits the impact of credit concentration on returns and cash flow, preserving the quality of fiduciary assets and portfolio returns. This research provides indicators to measure credit risk, including individual concentration risk, sectoral concentration indicator, and Gini coefficient (G), which can help identify concentration and diversification in the credit portfolio. The research aims to limit credit concentration risk in Iraqi commercial banks by diversifying their loaning portfolio, addressing coverage and risk transference, and analyzing banking concentration from 2010-2019. The findings show that credit concentration is primarily in the community services sector and structural levels, with governmental commercial banks dominating the loans and advances section. The study recommends reducing concentration in the credit portfolio, diversifying it on all levels, and encouraging competition among governmental and private banks to reduce high risk. The research also aims to measure and analyze banking concentration levels.

2. The Concept of Banking Concentration Risks:

According to Flayyih & Flayyih (2019), credit concentration risk is the outcome of a bank's practice of relying heavily on credit and using its funds for certain industries, highly specific operations, or restricted resources in order to secure financing or other services necessary to continue operating. Furthermore, the credit risks associated with a deficiency of a well-diversified credit portfolio indicate the possibility of undue exposure to a particular client, industry, or geographic area. As for Basel Committee, which oversees the supervision and monitoring of banking activities, concentration risks are defined as the potential for one or more risks to result in losses that could be significant enough to jeopardise the safety of the bank or its ability to carry out its core business activities. Nwanna (2019).

Another person described the dangers of concentration as a financial system that indicates the degree of risk in the bank's portfolio resulting from focussing on a certain party, industry, or nation. The fact that the most concentrated portfolios are also the least diversified gives rise to this risk (Ali & Flayyih, 2021). The returns on these assets are therefore more bonding. In Al-Karasneh (2013). Therefore, the credit risks include the potential for the borrower to be unable to repay the loan and any associated interest on the terms set forth when the credit is granted. This could lead to payment delays or non payment altogether, which would impair the bank's internal cash flow and liquidity. Because over 80% of a bank's budget is tied to the result of these risks, credit risks continue to be a key contributor to bank failures even in the face of technology advancements and innovative practices. (Hlebaek and others, 2003)

3. Types of Banking Concentration Risks:

On the level of clients and those associated with them (concentration of one client), which leads to the bank giving credit to one client based on the importance of his position and not giving it to other clients. (Al-Ghandour & Hassan, 2019). The dangers of sectoral concentration arise from a person's extensive exposure to their industry or to related economic areas. Borrowers find it difficult to repay because individuals vary in how sensitive they are to general hazards, and some businesses don't care about the economic conditions in which they operate. Consequently, it is thought to be essential to estimate credit risk using a realistic assessment of stumble. (Skridulyte & Freitakas, 2012). The practice of dividing the loan portfolio into multiple categories based on the kind of loan, such as consumer, real estate, or industrial loans. (Al-Abedi et al., 2022). The bank is able to determine the sector of concentrations when the fractionalising process becomes complex. Even though this approach is regarded as straightforward, the bank will fully reap the benefits of fractionalising the credit portfolio when it extends the fractionalisation procedure to additional categories. For instance, the separation of borrowers according on the type of facilitation, collateral, geographic location, and sector. (Flayyh & Altameemi, 2021).

The concentration in the components of the credit portfolio: If the components of the credit portfolio are closely related to one another, then any risk that affects one of them will also affect the other elements. This is what would happen if the management had focused entirely on one economic activity or sector or on a particular type of credit in a particular way. To mitigate these risks, bank management must spread out credit risks by adhering to the policy of diversification, which, to put it simply, means dividing up the credit into multiple divisions. (Flayyih & Maseer, 2021)

4. Conditions for Assessing Credit Concentration Risks:

There are many different ways to measure concentration, including the Lorenzo Curve and Kay, Shannon entropy, Gini coefficient, Herfindahl-Himman, and others. However, given its specialisation, the latter is thought to be the most significant of these measurements, making it the most used in scientific research that discusses concentrations in general and credit concentrations in particular. The characteristics of this index express the concentration of the banking industry as a whole (RASHID et al., 2021), and the Herfindahl-Himman index can be measured using the following equation (Battal & Al-Dulaimi, 2018):

$$HHI = \sum_{i=1}^{n} \left(\frac{Xi}{X}\right)^2$$

As: Xi: the value of the credit facilitations granted by the bank (i)
X: Group of credit facilitations granted by the bank, and after that:
n: Number of economic sectors or number of industries or number of funded geographical regions.

4.1 Assessing Personal Concentration Dangers:

One of the two following approaches can be used to measure individual concentration risks in relation to hirings for a single client and related parties:

A. Granularity Adjustment:

This approach measures individual credit concentration using granularity adjustment (GA), which is based on the following formula (Mohammed et al., 2021) (Mhaibes, 2018) to estimate the capital required to meet the risks of concentration in only the company's loan portfolio:

GA = EAD * Hirschman-Herfindahl Index *C (1)

On the other hand, Exposure at Default (EAD) is a measure of the bank's overall hirings for businesses, including small and medium-sized businesses, without taking allocations into account. The Herfindahl-Himmann Index counts the number of customers in relation to the total number of bank hires; the percentage runs from zero, which denotes the lowest level of concentration, to one.

B. Individual Concentration Index (ICI):

The following formula (Al-Mamluk, 2020) is used to determine the individual concentration index utilising the Hervandal index (IV), Herfindahl (HI), and the adjustment factor (AF):

$$ICI = HI * AF = \frac{\sum_{i=1}^{1000} x^2}{[\sum_{i=1}^{1000} x]^2} * \frac{\sum_{i=1}^{1000} x}{\sum_{i=1}^{1000} y} * 100 = \frac{\sum_{i=1}^{1000} x^2}{\sum_{i=1}^{1000} x \Sigma y} * 100$$

On the other hand, X: Indicates the total number of bank hires for each customer or clients connected to the largest 1000 clients in the segmentation portfolio; small and medium-sized businesses are included in this group (Al-Janabi & Mhaibes, 2019).
Ỵ: Indicates the total number of hires made by each company and segmentation portfolio, provided that no risk-reduction methods are used to lower it (collateral is not taken into mind).

4.2 Index of Sectoral Concentration:

To measure the risks of concentration at the level of economic sectors and to estimate the amount of capital required to meet these risks, banks must employ the sectoral concentration index (SCI) method. The sectoral concentration index is calculated using the bank's total hirings in companies across the twenty sectors. The following formula is used to determine the sectoral concentration index (SCI) (Saad & Ibrahim, 2020):

$$SCI = \frac{\sum_{i=1}^{20} x^2}{[\sum_{i=1}^{20} x]^2} * 100$$

On the other hand, X: Stands for the worth of private hiring across all industries.

4.3 Gini Coefficient (G):

The primary application of the Gini Coefficient is as a gauge of overall inequality. However, as the Gini Coefficient computes to bank b in time t as follows, it may also be utilised to ascertain the concentration and diversification of a loan portfolio:

$$G(x) = 1 - \frac{2}{n} * \sum_{j=1}^{n} vj - \frac{1}{2}$$

Whereas:

$$vj = \sum_{i=1}^{j} x\hat{}i$$

Where the relative exposure share to the credit portfolio is denoted by xˆI (Hammoud, 2019)

5. Instruments to Reduce Credit Concentration Risks:

When concentration and diversification diverge, the risks of credit concentration arise. These risks increase when the limit of credit concentration rises and fall when the credit concentration rises, which is known as the reverse state of credit concentration. This was based on establishing boundaries for credit concentrations and striking a balance between diversification and concentration (Ali, 2015). According to the Basel Committee's 2003 report, the reasons why banks fail include inadequate management and credit monitoring, the adoption of high-risk credit portfolios to achieve high profit rates, and a failure to follow banking regulations and customs when granting credit or concentrating in granting credit, whether it be geographically or qualitatively. Political pressures also exist to force banks to grant credit that exceeds the central bank's permitted limit, in addition to other risks associated with banking operations including interest price, market, and conversion risks. Al-Taei (2012). Banks could additionally use a collection of instruments and techniques that are represented in the following to lower the risks associated with credit concentration:

5.1 Diversify the Loan Portfolio:

Banks actively manage their portfolios to create adjustments and diversify activities to address existing concentrations and prevent future ones. Diversification achieves high interest for banks by diversifying loans to different borrowers, economic sectors, and geographical regions. It is crucial to control credit concentration risks, as concentration on certain sectors may lead to stumbling loans during economic circumstances like inflation or financial recession.

5.2 Limitation:

Since the bank can decide the credit limit in a variety of ways, levels, and conditions, it is now necessary to set up systems to estimate the credit ceiling for all sorts of loans due to unforeseen changes in the circumstances of financial firms, industries, and geographical regions. Determining the bank's exposure to losses from loans given to a single customer or a group of customers whose financial situations are interconnected is the primary cause of this (MHAIBES & MAHMOOD, 2020).

5.3 Insurance:

Represented by the bank's request that the client furnish collateral to protect the bank against the risk of nonpayment to the insurance company; in the event that the client fails to make the required payments by the due date, the bank is entitled to collect the necessary collateral from the insurance provider (Salman et al., 2021).

5.4 Coverage:

Banks transfer risks to other parties through direct or indirect means, such as selling assets or securitizing credit portfolios. These procedures control interest price volatility, conversion rate prices, and liquidity shortages. Basel Committee II limits credit concentration by setting a credit ceiling for one client, ranging from 10%-25% of paid capital, and limiting it to 25% to avoid large exposure to risks.

5.5 Capital Buffer:

In accordance with the first pillar of the Basel Committee II's decision, which is to handle times of crisis and the occurrence of losses due to credit concentration and the adoption of credit portfolios of high risks, the bank could retain additional capital above the minimum limit for monitored capital. When this money is used, it is reconstructed from the profits made, which will result in a decrease in the amount of profit that is dispersed (Al-Ghandour & Hassan 2019). The bank's dependence on it will lower the risks to their lowest levels since, as previously said, there are a number of instruments and techniques to limit and minimise the risk of concentration in the loan portfolio.

6. Findings: Iraqi Commercial Banks' Credit Concentration over Time (2010-2019)

6.1 Concentration by Sector:

Although this percentage continued to decline from 49.8% in 2010 to 36.9% in 2019 (Al-Tameemi & Abd-Alghafur, 2020), table (1) makes it evident that the community services sector has accumulated the largest percentage of the total credit granted by Iraqi Commercial Banks. This clearly demonstrates the dominance of the community services sector over the cash credit that Iraqi Commercial Banks offer.

Construction and commerce sectors in Iraq have the highest percentages of loans granted, with construction at 26% in 2014 and commerce at 20.4% in 2012. These sectors are crucial for the country's economic growth and development projects, as they provide more collateral than other sectors, highlighting the importance of these sectors for Iraqi banks. The dominant economic activities (building, construction, restaurants, hotels, commerce) and limitations of other activities (industrial and agricultural) contribute to the sectoral distribution of banking credit in Iraq from 2010-2019.

Agriculture and Fishing	Mining	Manufacturing Industry	Water, Electricity and Gas	Trade, Restaurants and Hotels	Transportation, Storage and Transportation	Finance & Insurance	Community Services	Outside World	Construction	Years
4.9	0	4.6	0.3	18.4	1.7	1.8	49.8	0.1	18.5	2010
6.4	0	12.3	0.4	17	4.4	0.6	38.2	0	20.7	2011
6	0	5.2	0.6	20.4	6.6	0.8	37.6	0.5	22.4	2012
6	0	5.5	0.4	16.2	8.1	2.3	34.9	0.7	25.9	2013
5.7	0.1	5.8	2.8	14.3	6.3	3.1	35.8	0.1	26	2014
5.5	0	6.5	2.2	14.2	5.9	3.6	38.9	0.1	22.8	2015
5.7	0	5	3.93	15.2	7.46	2.26	39.02	0.08	21.3	2016
4.59	0	4.56	6.04	16.07	6.96	2.76	38.19	0	20.78	2017

Iraqi Central Bank, department of cash and financial stability, financial stability report 2016, page 11; Iraqi Central Bank, department cash and financial stability, financial stability report 2019, page 13 are the sources used in the researcher's work. The sectoral distribution of cash credit in the Iraqi banking industry from 2010 to 2019 is displayed in Form (1).

Source: from the work of the two researchers, based on table (1).

6.2. Structural Concentration:

The Iraqi commercial banks are working to provide a variety of services to various economic sectors so that they can carry out their various activities. These services fall under the umbrella of cash credit and include financing the purchase of fixed or currently traded assets, facilitating payment and import operations, and financing short-term expansion needs. Table (2) provides information on how the credit facilitations are distributed by type. Due to its significant impact on the bank's longevity and ability to meet its long-term objectives, the acquisition of loans and advances accounts for the majority of credit granted by Iraqi commercial banks. It is regarded as one of the bank's most fertile assets due to the attractive returns it generates when managed effectively and responsibly, but it is also one of the least traded assets in terms of liquidity because it cannot be converted into cash until its due date.

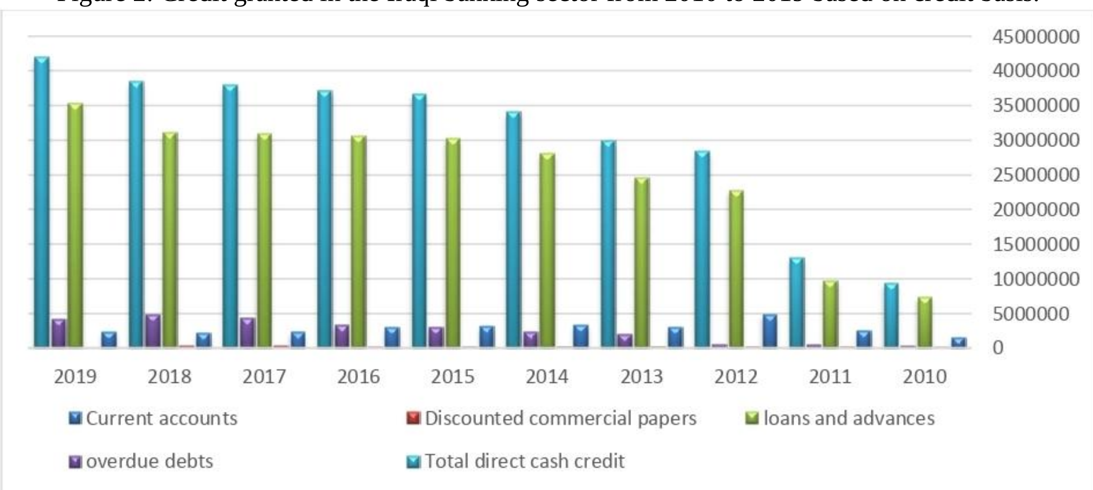
In order to stimulate the nation's economic development process, the Central Bank of the commercial banks helped it record 7407000 million Iraqi dinars in 2010 and rise to 35410267 million in 2019. This was followed by a section on current accounts, or overdrafts, which are typically given to finance working capital and have a one-year term unless the client renews it. In 2021, Abdul Rahman et al. After reaching 1609000 Iraqi dinars in 2010, it continued to rise during the study period until it reached 2408755 Iraqi dinars in 2019. Then came the section on overdue debt, which is the money that was paid late or stumbled to be paid on time due to political or economic reasons. This was followed by the section on discounted bills, which included some instruments, bills of exchange, and letters of exchange. The last is regarded as a global tool to equalize debts and is important because it is simple to transfer the money by discounting it in banks (Amin, 2006).

Table 2: Granted credit according to credit basis in the Iraqi banking sector in the duration of (2010-2019)

Years	Total Direct Cash Credit	Overdue Debts	Loans and Advances	Discounted Commercial Papers	Current Accounts
2010	9413000	275000	7407000	122000	1609000
2011	12994000	459000	9743000	194000	2598000
2012	28438688	497870	22850336	191357	4899125
2013	29952012	1994459	24700569	181923	3075061
2014	34123067	2361133	28195535	185310	3381089
2015	36752686	3079653	30297202	153858	3221973
2016	37180123	3346490	30612337	154033	3067263
2017	37952829	4340568	30967053	295405	2349803
2018	38486947	4880628	31128596	283912	2193811
2019	42052511	4147527	35410267	85962	2408755

Source: The Iraqi Central Bank's annual economic report, published over a number of years by the General Directorate of Statistics and Research.

Figure 2: Credit granted in the Iraqi banking sector from 2010 to 2019 based on credit basis.



Source: from the work of the two researchers based on the data from table (2).

6.3 Concentration of credit to the top five commercial banks in Iraq:

Because the value of this indicator ranges from zero as a minimum to 10,000 as a maximum, the highest concentration point was in 2012, when it reached 2462.4%. Government banks continued to dominate the larger percentage of credit provided by the banking sector, as the percentage of credit offered by the largest five governmental banks reached 80.2% of the total cash credit for the market share of the governmental banks to be high. The degree of credit concentration for the largest five banks in 2019 was 2029.61 points, lower than the year 2018 when it reached 2060.34 points.

Not to mention the banking awareness for the governmental banks via various visual and audio means of communication, and the services they provide even to retirees by giving them advancements, as it is shown in the following shape (Salman, 2019), the credit concentration in governmental banks reveals its influence in dominating the banking sector. This is a natural result of its network of branches that are spread throughout Iraq, the ease of access to its services, and its clear developmental role by increasing the credit it provides in comparison to banks in the private sector.

Figure 3: The credit concentration to the largest five Iraqi commercial banks for the duration (2010-2019)

Source: from the work of the two researchers, based on the Iraqi Central Bank, department of cash and financial stability 2019, page 17.

7. Conclusions:

Since credit is the foundation of all banks and embodies their primary function as a financial intermediary between savers and investors, its significance is particularly noteworthy. Credit activity generates the majority of a bank's revenue, regardless of how diverse or varied its other operations are. In light of this, credit is the largest stake and most significant component of an investment portfolio since it aims to maximize returns while lowering risk.

As the banks' loan portfolios hold a significant position within the financial institution's items, the study's importance essentially comes down to discussing the topic of credit facilitations portfolio concentration with regard to Iraqi commercial banks, the risks associated with it, and how to limit it. This is because the management's efforts and decisions are primarily focused on creating a good loan portfolio that generates high returns for the banks with the lowest possible levels of risk, where the bank's capital is distributed among various loan types that vary in the size of the risks associated with them. There is a general orientation for Iraqi commercial banks during the study to follow the policy of concentration in the credit portfolio, to achieve a high return regardless of the degree of risks the banks are exposed to or that might cause a stumbling in repayment, based on the data and information analysis results that have been relied upon through the analysis done using the Hershman index (HHI).

First, a number of conclusions were drawn: The bulk of credit granted by Iraqi commercial banks during the study period was in the community services sector, indicating a credit concentration at the sectoral level. Second, the acquisition of the loans and advancements section over the majority of the credit indicates a structural level of credit concentration in Iraqi commercial banks. This is because the loans and advancements section is regarded as one of the bank's most private assets due to the returns it can produce if properly managed. Third: The report suggested that efforts be made to lessen the degree of concentration in the commercial banks' credit portfolio at all sectoral and structural levels, as government banks still hold a greater share of credit than other banks. To encourage competition between governmental and private commercial banks by creating the right conditions, such as permitting governmental associations to deposit in private banks. This process should not be restricted to governmental banks because of the significant role it plays in boosting public confidence in them and the advantages of the advanced banking services offered by private commercial banks.

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