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Analysis of the Role of Electronic Payment Systems in Enhancing the Efficiency of Monetary Liquidity in Iraq for the Period (2018-2023)

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Abstract : As a result of the digital transformations the world is witnessing in general, and Iraq in particular, towards adopting electronic payment systems as an alternative to traditional transactions, this shift is expected to impact monetary liquidity within the Iraqi economy. This is especially true given the Central Bank's drive to reduce reliance on cash and enhance financial inclusion. Since electronic payment systems reduce cash circulation, this will contribute to curbing tax evasion, controlling liquidity, and enhancing financial transparency. This research presents the role of electronic payment systems in managing monetary liquidity, focusing on the challenges and opportunities associated with this transformation in the economic structure.

Keywords: Electronic Payment Systems, Monetary Liquidity.

INTRODUCTION: The world has witnessed a fundamental shift in recent years towards adopting electronic payment systems, driven by technological advancements and the desire to increase efficiency and reduce the risks associated with cash transactions. In Iraq, these systems have become a focal point for achieving economic stability and enhancing monetary liquidity in the market. The Iraqi government and financial institutions have begun legislating the use of digital payment methods such as bank cards, electronic wallets, and online payment services to address current economic and financial challenges.

Monetary liquidity directly affects the national economy's performance, contributing to facilitating commercial transactions, stimulating investment, and ensuring price stability. In an economic environment like Iraq's, which faces major challenges, these systems are expected to contribute to reducing the costs of cash management, combating money laundering, and enhancing financial inclusion by bringing broader segments of society into the formal banking system.

Research Methodology

I. Research Importance

The importance of this research lies in addressing a vital issue that affects financial and economic stability in Iraq, as improving financial liquidity is a fundamental pillar for stimulating economic growth and reducing reliance on the oil sector. The research also contributes to highlighting the opportunities provided by electronic payment to enhance financial inclusion, especially since a large percentage of Iraqis do not deal with banks. Furthermore, it provides an analytical perspective on how Iraq can benefit from the digital transformation in the financial sector, contributing to decision-making and developing a more effective monetary policy.

II. Research Problem

The research problem is centered on the following questions:

- What is the extent of the impact of electronic payment systems on monetary liquidity in Iraq?
- What are the challenges that limited the effectiveness of these systems in reducing reliance on cash?

III. Research Objectives

1. Analyzing the reality of electronic payment systems in Iraq during the period (2018-2023).
2. Identifying the impact of using these systems on monetary liquidity in Iraq.
3. Providing recommendations to improve the effectiveness of electronic payment systems in supporting monetary liquidity.

IV. Research Hypotheses

1. There is a positive relationship between the spread of electronic payment systems and the level of liquidity in Iraq.
2. Increased use of electronic payment systems contributes to raising bank deposits and reducing reliance on cash.

V. Research Method

The research adopts the **descriptive analytical approach** to describe and analyze data related to electronic payment and monetary liquidity.

VI. Spatial and Temporal Scope

- **Spatial Dimension:** Iraq.
- **Temporal Dimension:** (2018-2023).

Theoretical and Conceptual Framework

I. Electronic Payment Systems (Concept, Importance, and Types)

1. Concept of Electronic Payment Systems

Electronic payment systems are defined as a payment system built on electronic and information technology (IT) techniques used to create an electronic payment system for collecting values and payment instruments, which is regulated by enveloping banking exchanges with information instead of paper documents (Abdulqadir, 2013: 234). Electronic payment is also defined as a set of electronic tools and transfers issued by banks and institutions as a means of payment, represented by bank cards, electronic money, and electronic checks (Ziyad Ramadan, 2000: 94).

2. Importance of Electronic Payment Systems

The importance of innovating an effective and secure electronic payment system emerged to prevent fraud and theft, relying primarily on the principles of privacy and digital protection. Electronic payment methods allow for the transfer of funds between individuals or groups over the internet in record time, reflecting the speed of completing transactions and overcoming geographical distances (Frank, Binaebi, 201x: P2). These systems also provide essential guarantees, such as the principle of "**Integrity**," and maintain the confidentiality of transactions through content encryption and identity verification. Furthermore, they are of great importance to banking institutions, contributing effectively to **reducing operating and general costs** by up to half compared to traditional methods.

3. Types of Electronic Payment Systems

- **Real-Time Gross Settlement (RTGS) System:** A system that ensures actual settlement for high-value payment orders, improving liquidity management, and eliminating credit and liquidity risks. Officially launched in Iraq on 24/8/2006.
- **Electronic Check Clearing System:** Enables participating banks to exchange electronic checks and payment orders automatically, sending the final net settlement to the RTGS system. It is an effective and secure tool for monitoring large-value amounts.
- **Internal Clearing System:** A system for internal clearing exchange among government banks operating within the country, providing efficiency and transparency in monitoring all transfers. Began operation in Iraqi banks on 1/6/2016 (Haider Kamil Majeed, 2021: 55).
- **Retail Payment System:** Primarily deals with low-value payments such as credit transfers and checks between individuals and companies[38]. The infrastructure was established in Iraq in 2016 (Ali Murtada Rashid, 2016: 82).

II. Banking Liquidity (Concept and Importance)

1. Concept of Banking Liquidity

Liquidity refers to the speed and ease with which assets can be converted into cash without significant loss in value[40]. Current assets (cash and assets convertible to cash within one year) are the most liquid. Generally, it is the banks' **ability to meet expected and unexpected withdrawal demands** and fulfill obligations without resorting to the fire sale of assets. The International Monetary Fund (IMF) defined liquidity as the extent to which financial assets can be sold at or near their market value in a short time.

2. Importance of Banking Liquidity

Liquidity is crucial for banks as it is key to **public and customer trust** and one of the essential elements for a bank's survival and continuity. Banks aim to achieve security by holding liquid funds to meet customer demands, thereby avoiding bankruptcy. Good liquidity enables the bank to meet creditors' claims and build a good financial reputation, allowing the bank to increase the return on invested funds.

III. The Role of Monetary Liquidity in Iraq

Monetary liquidity plays a vital role in supporting financial stability and stimulating economic growth in Iraq. However, it faces major challenges due to the excessive reliance of the Iraqi economy on **oil revenues**, making it vulnerable to global price fluctuations. When oil revenues decrease, the government may resort to printing money or borrowing from the Central Bank to finance the deficit, which increases monetary liquidity without real productive cover, potentially leading to **inflation**. The Central Bank attempts to control inflation by raising the interest rate or selling dollars in foreign exchange auctions.

IV. The Relationship between Electronic Payment Systems and Monetary Liquidity

Electronic payment systems play a pivotal role in improving the efficiency of bank liquidity management by **reducing**

reliance on paper currency and consequently **increasing the volume of funds available within the banking system**. These systems accelerate the circulation of funds and improve banks' ability to predict and manage cash flows efficiently. They also help alleviate liquidity crises by allowing funds to be transferred between accounts in seconds, reducing the settlement period to the minimum possible.

The Reality of Electronic Payment Systems in Iraq (2018-2023)

Iraq has witnessed a remarkable development in electronic payment systems, supported by the Central Bank of Iraq's (CBI) initiatives and the launch of the National Electronic Payment Platform. Non-cash payment instruments, such as "Qi Card," "MasterCard," "Visa," and electronic wallets, have expanded. However, challenges persist, including weak financial literacy, the concentration of infrastructure in major cities, the continued dominance of cash transactions, and recurring cases of electronic fraud.

The following tables show the evolution of key electronic payment systems:

1. Real-Time Gross Settlement (RTGS) System

The RTGS system's value of transfers showed a continuous upward trend, reflecting its increasing pivotal role in liquidity management at the banking sector level. The number of transfers, however, showed fluctuations, which may reflect macroeconomic changes and exceptional circumstances, such as the COVID-19 pandemic in 2020.

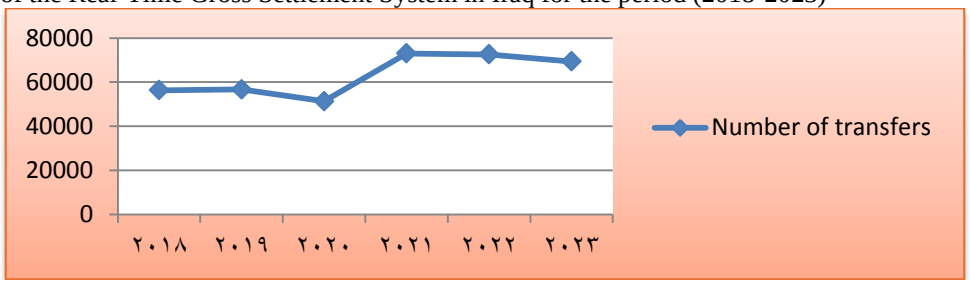
Table 1: Evolution of the Real-Time Gross Settlement System in Iraq (2018-2023) [59]

Period	Number of Transfers	Value (Million IQD)	Growth Rate %
2018	56,342	161,812,789,182	-
2019	56,640	185,628,749,057	14.7
2020	51,337	198,002,415,244	6.6
2021	72,997	200,807,161,150	1.4
2022	72,561	231,379,333,847	15.2
2023	69,386	276,529,208,419	19.5

Source: Researcher's preparation based on the Annual Statistical Bulletin Reports – Central Bank of Iraq, Department of Statistics and Research (2018-2023)

Figure (1)

Development of the Real-Time Gross Settlement System in Iraq for the period (2018-2023)



2. Electronic Clearing System

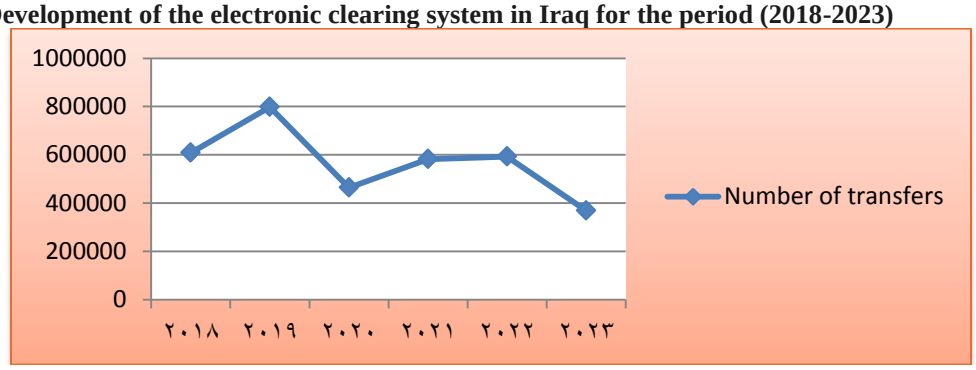
The data for electronic checks (Debit/Drawn Checks) showed a decrease in the number and value of transfers during 2020-2021, attributed to the economic conditions, the repercussions of the COVID-19 pandemic, and weak technical infrastructure in some banks[61]. Conversely, the number and value of credit transfers showed a continuous increase, reaching its peak in 2023 , reflecting an increase in commercial activity and economic growth.

Table 2: Evolution of the Electronic Clearing System in IQD in Iraq (2018-2023)

Period	Debit Transfers (Checks)		Credit Transfers	
	Number of Transfers	Value (IQD)	Number of Transfers	Value (IQD)
2018	608,503	31,361,203,736,777	507,057	3,452,160,461,951
2019	798,193	38,356,902,543,073	3,401,830	8,822,634,362,478
2020	464,465	25,273,460,099,307	6,320,751	14,483,854,443,703
2021	582,205	22,793,710,963,977	10,970,578	22,326,522,805,855
2022	592,994	30,340,585,074,970	15,323,780	30,313,612,069,051
2023	369,210	25,796,671,166,887	17,350,642	37,412,396,838,959

Source: Researcher's preparation based on the Annual Statistical Bulletin Reports – Central Bank of Iraq, Department of Statistics and Research (2018-2023)

Figure (2). Development of the electronic clearing system in Iraq for the period (2018-2023)



3. Retail Payment System

The retail payment system showed a massive increase in the number and value of transfers in 2019 (797% growth rate) due to the CBI's electronic payment initiatives and the private sector's increased provision of Point-of-Sale (POS) devices. While the value continued to increase, the significant drop in the growth rate in 2023 (17%) is attributed to a lack of confidence in digital systems, low cultural and social adoption in Iraqi society, and economic/political instability.

Table 3: Evolution of the Retail Payment System in Iraq (2018-2023)

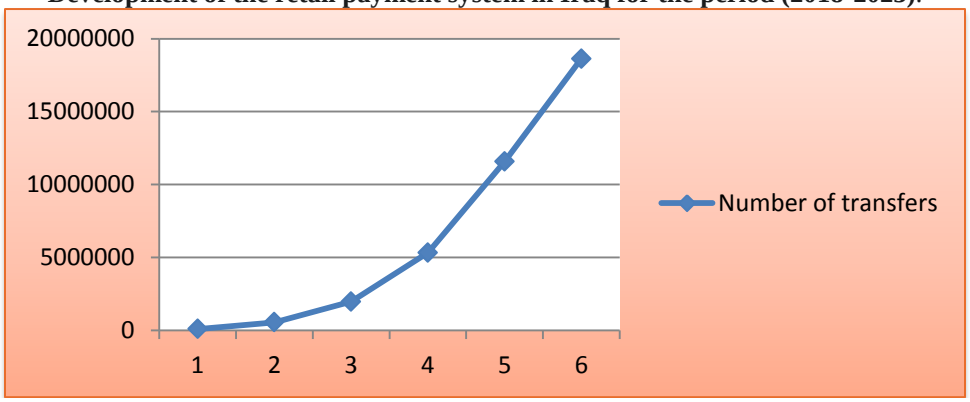
Period	Number of Transfers	Value in Local Currency / (Million IQD)	Growth Rate %
2018	101,775	34,189,267,053	-
2019	556,029	306,743,152,817	797

2020	1,974,186	1,449,226,871,049	372
2021	5,325,320	3,903,071,030,830	169
2022	11,568,090	8,209,444,155,607	110
2023	18,624,624	9,622,262,090,515	17

Source: Researcher's preparation based on the Annual Statistical Bulletin Reports – Central Bank of Iraq, Department of Statistics and Research (2018-2023)

Figure (3).

Development of the retail payment system in Iraq for the period (2018-2023).



4. Internal Clearing System

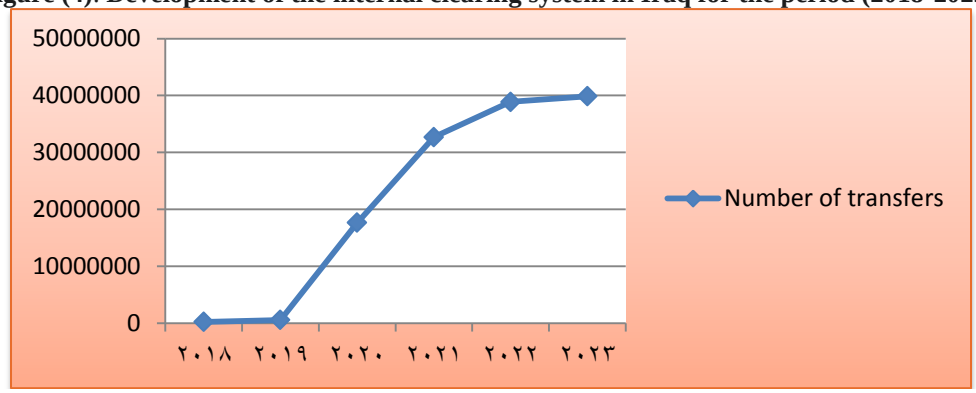
This system is designed for the **internal clearing exchange** among **government banks that do not possess a comprehensive banking system**, meaning its operation is confined within the country. It enables the participating bank branches to **electronically send and receive payment order files and checks** among themselves[2]. Furthermore, it provides the bank's General Management with **efficiency, accuracy, and transparency** in monitoring all transfers, and also offers a database for all transfers conducted through this system[3]. This system commenced operations in Iraqi banks on **June 1, 2016**. We observe in Table (4) that Iraqi Dinar (IQD) transfers in **2018** recorded **673,004** transfers [5]with a value of checks (CH) amounting to **25,003,210,714,672 IQD**. Conversely, in the years **2019 and 2020**, the number of transfers decreased to **412,114** transfers with a value of **18,793,063,496,232 IQD**, at a growth rate of **18.79%**. In the years **2021 and 2022**, the number of transfers increased to **503,703**, despite a decrease in value to **17,818,385,328,779 IQD**, with a growth rate of **17.81%**. For **2023**, the number of transfers reached **360,875**, and the value of check (CH) transfers in IQD was **18,221,225,191,587 IQD**, with a growth rate of **18.22%**. Regarding the value of **Credit Transfers (CT)** in IQD, it reached **3,149,779,240,683 IQD** in **2018** with **218,735** transfers. This period continued to see an increase from 2019 to 2023 at varying rates, reaching a value of **59,051,150,748,774 IQD** with **39,859,679** transfers in **2023**, representing a growth rate of **14.60%**. This increase is attributed to the **Central Bank of Iraq's strict measures** regarding the foreign currency sale window. The objective of these measures is to **tighten control over the use of the dollar**, **combat money laundering**, and **reduce the gap** between the official and parallel exchange rates.

Table (4): Evolution of the Internal Clearing System in Iraqi Dinar in Iraq for the Period (2018-2023)

Transfers in IQD (Debit)			Transfers in IQD (Credit)		
Number of Transfers	**Value of Checks CH (IQD)**	**Growth Rate (%)**	**Number of Transfers**	**Value of Credit Transfers CT (IQD)**	**Growth Rate (%)**
673,004	25,003,210,714,672	-	218,735	3,149,779,240,683	-
628,183	28,266,410,821,586	28.26	569,061	12,229,617,531,674	288.27
412,114	18,793,063,496,232	18.79	17,646,418	26,464,458,931,600	116.40
472,504	19,242,450,058,331	19.24	32,705,691	45,954,382,083,110	73.65
503,703	17,818,385,328,779	17.81	38,887,041	51,529,260,820,298	12.13
360,875	18,221,225,191,587	18.22	39,859,679	59,051,150,748,774	14.60

Source: Prepared by the researcher based on the Annual Statistical Bulletin Reports – Central Bank of Iraq, Department of Statistics and Research for the period 2018 to 2023.

Figure (4). Development of the internal clearing system in Iraq for the period (2018-2023).



Source: Prepared by the researcher based on the data in Table (4).

V. The Role of Electronic Payment Systems on Monetary Liquidity

The topic of **electronic payment** is considered one of the important axes in the **modern economy**, especially in light of the accelerated **digital transformation** witnessed by the financial and banking sector globally, from which Iraq has not been excluded. These systems have become **vital tools** that contribute to **facilitating the flow of monetary liquidity** and **accelerating the movement of funds** between individuals and institutions alike. This leads to a reduction in the time and effort required to complete financial transactions and **limits the excessive reliance on paper currency (cash)**[17]. Reducing reliance on traditional cash transactions not only contributes to **improving operational efficiency** but also plays an effective role in mitigating the phenomenon of **cash hoarding**, which was one of the basic obstacles to liquidity movement within the banking system. By its nature, hoarding leads to **freezing large amounts of money outside the official economic cycle**, thus limiting the ability of banks to redirect these resources

towards productive sectors. With the integration of **electronic payment methods** and their widespread use, it has become possible to **attract these funds towards the banking sector**, which **raises the level of available liquidity** and enhances the potential for **lending and investment**. One of the most prominent direct results of using electronic payment systems is the ability to **track the movement of funds with high accuracy**, which contributes to **raising the efficiency of collection and payment operations** in both the public and private sector. Previously, collection operations required significant time and effort and sometimes faced difficulties related to delays or evasion of payment. However, with electronic payment, collection operations are now carried out **instantly and securely**, which **increases the efficiency of public finance** and reduces financial default rates in institutions. These digital transformations also **reduce the freezing periods of funds** between different transaction stages, which positively reflects on the **velocity of money circulation** within the economy and thus **increases the effectiveness of the financial system**.

Furthermore, providing **flexible and secure payment methods** encourages citizens to **open bank accounts** and use them regularly, which leads to an **increase in the volume of bank deposits**, representing one of the most important sources of finance and investment in the economy. The **monetary liquidity available within banks** enables them to **meet short-term financial obligations**, whether these obligations are directed towards individuals, such as personal loans, or towards institutions in the form of commercial financing, or even towards the state through public debt instruments[26]. The greater this capacity, the more it indicates an **improvement in economic health indicators and the soundness of the banking system** as a whole, especially when coupled with confidence indicators among those dealing with the banking system. Despite the numerous advantages of electronic payment systems, a set of **structural challenges** still hinders their widespread adoption in Iraq. Chief among these challenges is the **weak technological infrastructure**, which includes **limited internet networks** in some areas and the **instability of electricity systems**, negatively affecting the efficiency and security of electronic payment systems. **Administrative corruption** also plays a negative role in disrupting digital transformation projects and the modernization of the banking sector, as poor management or conflicts of interest can hinder the implementation of technological initiatives or direct them towards non-transparent goals. Additionally, **community awareness** regarding the role of electronic payment still needs reinforcement[31]. Many individuals, especially in rural or less-educated areas, prefer traditional cash transactions either due to a **lack of trust in banking institutions** or **ignorance of the benefits of digital alternatives**.

Therefore, the success of electronic payment systems requires an **integrated effort** from governmental, banking, and academic bodies to **disseminate financial literacy** and provide **appropriate incentives** for using these systems[33]. One important solution is to build **strategic partnerships** between local banks and financial technology (FinTech) companies, which have the ability to design flexible payment solutions that suit the reality of the Iraqi market[34]. Work must also be done to **formulate policies and legislation** that regulate the operation of these systems, **protect users' rights**, and ensure a balance between digital innovation and financial security requirements.

Analysis of the Relationship Between RTGS and Liquidity

Table (6) illustrates the evolution of the relationship between the

Real-Time Gross Settlement (RTGS) system and liquidity (Total Liquid Assets). The value of financial transfers via the system **increased significantly** from **161,812,789,182 million IQD** in 2018 to **276,529,208,419 million IQD** in 2023, reflecting the expanded use of electronic payment systems and increased reliance on them for major banking transactions.

- The **number of transfers** rose from **56,342 operations** in 2018 to peak in **2021** at **72,997 operations**, before relatively declining to **69,386 operations** in 2023.
- **Liquid Assets (Total Liquid Assets)** reached their **highest relative level in 2022** at **4,214,559,815,063 million IQD** , coinciding with the recording of the **highest liquidity ratio** at **54.9%**. This reflects the banking system's ability to maintain a high level of liquidity to meet increasing obligations.
- However, **2023 showed a decline in the liquidity ratio to 47.5%** despite the increase in the value of transfers, suggesting potential **pressures on liquidity management**.
- The fluctuation in liquidity ratios, especially the drop in **2020** due to the repercussions of the **COVID-19 pandemic** and the decline again in **2023** after the 2022 peak, reveals **genuine challenges** in the field of liquidity management.

This confirms that maintaining stable liquidity levels is an **essential condition for the sustained growth** in the use of electronic payment systems.

Table (6): The Relationship Between the Real-Time Gross Settlement (RTGS) System and Liquidity (Total Liquid Assets) in Iraq for the Period (2018-2023)

Period	RTGS System		Liquidity	
	Number of Transfers	**Value of Transfers**	**Total Liquid Assets**	**Contribution Ratio (%)**
2018	56,342	161,812,789,182	3,510,038,810,889	46.1
2019	56,640	185,628,749,057	4,296,961,783,726	43.2
2020	51,337	198,002,415,244	5,229,857,771,896	37.86
2021	72,997	200,807,161,150	4,943,553,942,639	40.62
2022	72,561	231,379,333,847	4,214,559,815,063	54.9
2023	69,386	276,529,208,419	5,821,667,545,663	47.5

Source: Prepared by the researcher based on the Annual Statistical Bulletin Reports and Financial Stability Reports – Central Bank of Iraq (2018-2023)[45].

Analysis of the Relationship Between RTGS and Short-Term Liabilities

Table (7) shows that the value of financial transfers gradually rose to **276,529,208,419 million IQD** in 2023 , reflecting increased reliance on digital payment tools and the shift toward a non-cash economy. Liquidity was measured using the indicator of the **ratio of transfer value to short-term liabilities**.

- The liquidity ratio reached **102.2%** in 2018, a very high value indicating a **large surplus liquidity** in the system.
- A gradual rebalancing occurred, with a progressive decrease from 2020 to 2023. The ratio reached **57.6%** in 2023.
- This gradual decline indicates that **short-term liabilities grew at a faster pace than financial transfers**, leading to the **absorption of some of the surplus liquidity**.
- The level of **short-term liabilities** recorded its **highest level in 2023** at **4,800,854,312,829 million IQD**. This growth necessitates a re-evaluation of liquidity and risk management mechanisms, and also reflects **positive growth towards the digital economy**.

Table (7): The Relationship Between the Real-Time Gross Settlement (RTGS) System and Liquidity (Short-Term Liabilities) in Iraq for the Period (2018-2023)

Period	Transfers		Liquidity	
	Number of Transfers	**Value of Transfers**	**Short-Term Liabilities**	**Contribution Ratio (%)**
2018	56,342	161,812,789,182	1,583,295,393,170	102.2
2019	56,640	185,628,749,057	1,931,620,697,783	96.1
2020	51,337	198,002,415,244	2,394,225,093,639	82.7
2021	72,997	200,807,161,150	2,179,133,599,023	92.1
2022	72,561	231,379,333,847	3,505,747,482,530	66.0

2023	69,386	276,529,208,419	4,800,854,312,829	57.6

Source: Prepared by the researcher based on the Annual Statistical Bulletin Reports and Financial Stability Reports – Central Bank of Iraq (2018-2023).

Analysis of the Relationship Between Electronic Clearing and Liquidity

A. Electronic Clearing vs. Total Liquid Assets (Table 8)

- The **number of electronic transfers** peaked in 2019 at **798,193** transfers, but fell sharply in **2020** to **464,465** due to the **COVID-19 pandemic**.
- The **liquidity ratio** (Liquid Assets to Total Assets) also decreased in 2020 to **37.8%**.
- **2022 witnessed an exceptional situation**, as the liquidity ratio reached **54.9%** [57], reflecting a large increase in confidence in the use of digital banking services.
- In **2023**, despite a sharp decline in the number of transfers to **369,210** , the liquidity indicator remained high at **47.5%**, which points to the continued efficiency of the banking system in providing sufficient liquidity.

Table (8): The Relationship Between the Electronic Clearing System and Liquidity (Total Liquid Assets) in Iraq for the Period (2018-2023)

Period	Transfers		Liquidity	
	Number of Transfers	**Value of Transfers**	**Total Liquid Assets**	**Contribution Ratio (%)**
2018	608,503	3,136,120,373,677	6,802,864,151,143	46.1
2019	798,193	38,556,902,543,073	8,925,208,922,007	43.2
2020	464,465	25,273,460,099,307	6,675,504,516,457	37.8
2021	582,205	22,793,710,963,977	5,611,450,261,934	40.6
2022	592,994	30,340,585,074,970	1,006,651,772,056	54.9
2023	369,210	25,796,671,166,887	5,466,676,140,814	47.5

Source: Prepared by the researcher based on the Annual Statistical Bulletin Reports and Financial Stability Reports – Central Bank of Iraq (2018-2023)[61].

B. Electronic Clearing vs. Short-Term Liabilities (Table 9)

1. The ratio of transfer value to **Short-Term Liabilities** (Liquidity indicator) showed clear fluctuation, starting at **102.2%** in 2018.

2. The ratio declined sharply in 2022 to **66.0%**, which is considered a **negative indicator** reflecting ** significant pressure on liquidity.

3. The decline continued in 2023, reaching **57.6%**.

4. The volume of **Liquid Assets** (available cash) recorded its lowest level in 2021 at**2,475,256,204,100 million IQD** , before rising again in 2022 and then slightly decreasing in 2023 , reflecting the continuation of economic challenges or a change in usage patterns.

Table (9): The Relationship Between the Electronic Clearing System and Liquidity (Short-Term Liabilities) in Iraq for the Period (2018-2023)

Period	Transfers		Liquidity	
	Number of Transfers	**Value of Transfers**	**Short-Term Liabilities**	**Contribution Ratio (%)**
2018	608,503	3,136,120,373,677	3,068,610,933,147	102.2
2019	798,193	38,556,902,543,073	4,012,164,676,698	96.1
2020	464,465	25,273,460,099,307	3,056,041,124,462	82.7
2021	582,205	22,793,710,963,977	2,475,256,204,100	92.1
2022	592,994	30,340,585,074,970	4,597,058,344,692	66.0
2023	369,210	25,796,671,166,887	4,478,588,744,251	57.6

Source: Prepared by the researcher based on the Annual Statistical Bulletin Reports and Financial Stability Reports – Central Bank of Iraq (2018-2023)[68].

Analysis of the Relationship Between Retail Payment and Liquidity

A. Retail Payment vs. Total Liquid Assets (Table 10)

a. The **number of financial transfers witnessed a gradual and notable growth**, rising from **3,327** in 2018 to **29,704** transfers in 2022 , reflecting an **increased reliance on electronic payment and transfer tools**.

b. The **liquidity indicator** (**Liquid Assets to Short-Term Liabilities**) showed a gradual improvement from **46.1%** in 2018 to **54.9%** in 2022, a ratio considered ideal.

c. However, the indicator **declined to 47.5% in 2023** , which may suggest the use of a portion of liquid assets in investment areas or to cover financial obligations.

d. The **Total Liquid Assets** recorded a **notable increase** in 2021 to **89,581,182,266,009**, indicating an increase in deposits or a decrease in non-liquid assets, increased depositor confidence, and limited investment opportunities.

Table (10): The Relationship Between the Retail Payment System and Liquidity (Total Liquid Assets) in Iraq for the Period (2018-2023)

Period	Transfers		Liquidity	
	Number of Transfers	**Value of Transfers**	**Total Liquid Assets**	**Contribution Ratio (%)**
2018	3,327	659,829	14,321,993,492,407	46.1
2019	5,046	1,126,126	26,067,731,481,481	43.2
2020	9,935	6,170,086	16,322,978,835,978	37.8
2021	11,709	3,636,996	89,581,182,266,009	40.6
2022	29,704	7,417,380	13,510,710,382,513	54.9

2023	24,625	9,124,965	19,210,452,631,578	47.5

Source: Prepared by the researcher based on the Annual Statistical Bulletin Reports and Financial Stability Reports – Central Bank of Iraq (2018-2023)[75].

B. Retail Payment vs. Short-Term Liabilities (Table 11)

- The **Liquidity Ratio** (Liquid Assets to Short-Term Liabilities) was very low in 2018 (**102.2%**), indicating fragility in the monetary situation at that time.
- The ratio gradually declined in the following years, reaching **57.6%** in 2023. This suggests a **relative weakness in the capacity of available liquidity to cover short-term obligations**.

Table (11): The Relationship Between the Retail Payment System and Liquidity (Short-Term Liabilities) in Iraq for the Period (2018-2023)

Period	Transfers		Liquidity	
	Number of Transfers	**Value of Transfers**	**Short-Term Liabilities**	**Contribution Ratio (%)**
2018	3,327	659,829	64,509,784,735,812	102.2
2019	5,046	1,126,126	11,718,272,632,674	96.1
2020	9,935	6,170,086	74,608,053,204,353	82.7
2021	11,709	3,636,996	39,489,641,693,811	92.1
2022	29,704	7,417,380	11,238,454,545,454	66.0
2023	24,625	9,124,965	15,841,953,125	57.6

Source: Prepared by the researcher based on the Annual Statistical Bulletin Reports and Financial Stability Reports – Central Bank of Iraq (2018-2023)[79].

Source: Prepared by the researcher based on:

A. Annual Statistical Bulletin Reports, Central Bank of Iraq, Department of Statistics and Research for the period 2018 to 2023.

B. Financial Stability Reports, Central Bank of Iraq, Department of Statistics and Research, Monetary and Financial Stability Division for the period (2018-2023).

In **Table (12)**, the number of financial transfers initially reached about **(673,004)** in **2018**, then declined in **2019** to **(628,183)**. This downward trend continued, reaching its lowest level in **2020** with **(412,114)** operations, which is largely attributable to the negative economic repercussions of the **COVID-19 pandemic**. Subsequently, the number witnessed a relative recovery in **2021** and **2022**, reaching **(472,504)** and **(503,703)**, respectively, before sharply declining again to **(360,875)** operations in **2023**. This trend indicates **fluctuation in financial activity**, with clear instability in the number of executed transactions.

Regarding the **value of transfers**, it reached approximately **(250,032,107,114,672 Iraqi Dinar)** in **2018** and increased in **2019** to **(282,664,108,211,586 Dinar)**. However, it experienced a sudden drop in **2020** to about **(18,793,063,496,232 Dinar)**. After this sharp decline, the values stabilized at relatively low levels during the subsequent years, ranging from **(17,818,385,328,779 to 19,242,450,058,331 Dinar)** until **2023**. It is worth noting that the large gap between the 2019 data and what followed may be due either to a **change in measurement units** or **fundamental shifts in the nature of transfers**.

As for **Monetary Liquidity** (the ratio of liquid assets to short-term liabilities), it rose from **(46.1%)** in **2018** to **(43.2%)** in **2019**, then to **(37.8%)** in **2020** and **(40.6%)** in **2021**, reaching its highest level in **2022** at **(54.9%)**. This

means that liquid assets almost fully cover short-term liabilities, an **indicator of strong liquidity** in the financial system. In **2023**, the indicator slightly declined to **(47.5%)**. It is observed from the analysis of the indicators that the rise in liquidity has, in some years, coincided with a decrease in the number and value of transfers, particularly in **2020**. This correlation may be explained by the relevant institutions **reducing their involvement in high-volume financial activities** while focusing on **enhancing cash reserves** to cope with the economic challenges resulting from the global health crisis. In **2022**, the liquidity indicator peaked despite transfer values remaining at their lower levels, reflecting a greater emphasis on the **prudent management of liquid assets**.

Table (12): The Relationship Between the Internal Clearing System and Liquidity (Total Liquid Assets) in Iraq for the Period (2018-2023)

Period	Transfers		Liquidity	
	Number of Transfers	**Value of Transfers**	**Contribution of Internal Clearing System to Liquidity**	**Total Liquid Assets**
2018	673,004	250,032,107,114,672	46.1	5,423,667,486,913
2019	628,183	282,664,108,211,586	43.2	6,543,150,653,450
2020	412,114	18,793,063,496,232	37.8	4,971,709,919,638
2021	472,504	19,242,450,058,331	40.6	4,739,519,718,800
2022	503,703	17,818,385,328,779	54.9	3,245,607,528,010
2023	360,875	18,221,225,191,587	47.5	3,836,047,408,755

Source:
Prepared by the researcher based on:

- Annual Statistical Bulletin Reports, Central Bank of Iraq, Department of Statistics and Research for the period 2018 to 2023.
- Financial Stability Reports, Central Bank of Iraq, Department of Statistics and Research, Monetary and Financial Stability Division for the period (2018-2023).

Table (13) data shows that the number of transfers recorded a total of **(673,004)** operations in **2018**, then decreased in **2019** and **2020** to **(628,183)** and **(412,114)**, respectively, against a backdrop of economic challenges that may include reduced economic activity or the impact of the **Corona pandemic**. Subsequently, the number gradually rose in **2021** and reached its peak of **(503,703)** in **2022**, before significantly declining to **(360,875)** operations in **2023**.
The **value of transfers** was high in **2018** and **2019**, reaching **(250,032,107,114,672)** in 2018 and **(282,664,108,211,586)** in 2019, then continued to **fluctuate** from **2020 to 2023**, reaching **(18,221,225,191,587)** in 2023, possibly due to an economic slowdown or weak liquidity.
Regarding **short-term liabilities**, the data shows a volatile relationship: in **2018**, it reached **(102.2)**, indicating a **liquidity surplus**. Over the years, this gradually decreased, reaching **(57.6)** in **2023**. The **contribution ratio** witnessed a significant decrease from **2018 to 2020**, reaching **(2,446,498,112,668)** in 2018 and continuing its decline until 2020 to reach **(2,272,438,149,483)**, before gradually rising during 2022 and 2023 to **(3,163,407,151,317)** in 2023.

Table (13): The Relationship Between the Internal Clearing System and Liquidity (Short-Term Liabilities) in Iraq for the Period (2018-2023)

Period	Transfers		Liquidity	
	Number of Transfers	**Value of Transfers**	**Ratio of Transfer Value to Short-Term Liabilities**	**Contribution Ratio**

2018	673,004	250,032,107,114,672	102.2	2,446,498,112,668
2019	628,183	282,664,108,211,586	96.1	2,941,353,883,575
2020	412,114	18,793,063,496,232	82.7	2,272,438,149,483
2021	472,504	19,242,450,058,331	92.1	2,446,498,112,668
2022	503,703	17,818,385,328,779	66.0	2,699,755,352,845
2023	360,875	18,221,225,191,587	57.6	3,163,407,151,317

Source:
Prepared by the researcher based on:
a. Annual Statistical Bulletin Reports, Central Bank of Iraq, Department of Statistics and Research for the period 2018 to 2023.
b. Financial Stability Reports, Central Bank of Iraq, Department of Statistics and Research, Monetary and Financial Stability Division for the period (2018-2023).

VI. Challenges Facing the Impact of Electronic Payment on the Liquidity Index

1. Weak Financial Literacy

Weak financial and digital literacy leads to a decrease in the use of electronic payment and, consequently, reduces the flow of monetary liquidity through official channels. This lack of awareness hinders the development of digital payment and negatively affects the economy because individuals and companies **lack the knowledge** of how to use electronic payment tools (such as electronic wallets and online bank transfers). They tend to rely on **cash transactions**, and reliance on cash limits the flow of funds and impacts economic growth by **reducing efficiency and productivity**. It is essential to **promote financial and digital inclusion** through awareness programs, financial education, providing the necessary infrastructure for electronic payment, and offering incentives for its use (Laila Abdul Karim Mohammed, 2022: 4).

2. Weak Trust in Banks

When the **public's confidence in the banking system is shaken** due to economic or political crises, they resort to **cash hoarding**, which reduces the liquidity flowing through banks and **threatens financial stability**. This behavior weakens banks' ability to meet withdrawal demands and increases the **risk of banking crises**. Liquidity shortages lead to difficulties for banks in meeting their financial obligations, such as deposit withdrawals, making payments, and financing loans, which could potentially lead to financial crises (Ahmed Abdul Aleem, 2023: 15).

3. Weak Internet Coverage and Payment Networks

If there are issues with the **internet network**, whether weak coverage or service outages, it will affect the ability of individuals and businesses to conduct online transactions. Disrupting the systems that support payment services, whether they are bank systems or payment service providers, will lead to the **stoppage of these services** and **hinder the flow of funds**, impacting their ability to purchase goods and services and potentially leading to the cancellation of commercial operations, which negatively affects liquidity in the markets (Wasan Hadi Fijjan Najm, 2024: 11).

4. The Shadow Economy (Black Economy)

The **informal economy** affects liquidity by **reducing banking oversight** of financial transactions. When a large number of economic activities rely on cash and transactions are not disclosed, **liquidity moves outside the scope of banking control**, which reduces the effectiveness of payment systems in regulating it and prevents accurately determining the volume of circulating liquidity. This impacts banks' ability to manage risks and meet credit demands (Arab Monetary Fund, 2015: 26).

5. Costs of Using Payment Systems

High fees and commissions associated with some electronic payment methods lead individuals and merchants to **prefer cash transactions**, which may result in an **increase in cash hoarding outside banks**. This reduces the volume of funds available for lending and investment, potentially affecting liquidity in the banking system (National Cybersecurity Center, 2025: 14).

Conclusions and Recommendations

First: Conclusions

1. **Electronic payment systems in Iraq** witnessed a **remarkable development** during the period (2018-2023). The

value and number of transfers through the **Real-Time Gross Settlement (RTGS)** system and the **Electronic Clearing** system increased, reflecting a significant growing reliance on these systems. This indicates a behavioral and economic shift towards moving away from cash transactions.

2. The **banking liquidity index** experienced various fluctuations during the mentioned period, where the ratios of liquid assets to total assets and short-term liabilities showed **volatility**. This is due to the economic and political factors experienced by the Iraqi economy. This volatility is attributed to the presence of **gaps in risk management** or a **lack of economic diversification**, which places increasing pressure on the financial sector, thus disrupting the ability of this index to meet its short-term obligations and reducing its effectiveness.

3. Despite the development in electronic payment systems, there are still **challenges affecting banking liquidity**, such as the impact of current deposits and global oil price fluctuations. This reflects a challenge in **building trust** and **deepening financial inclusion**.

4. The **digital transformation** in the Iraqi financial sector opens up new horizons for **enhancing financial inclusion** and **reducing reliance on cash**, contributing to the **stability of the national economy**.

5. Transfers in Iraq witnessed **clear growth** before being affected by the **Corona pandemic in 2020**. The banking system maintained liquidity, which reflects **resilience** and the ability to adapt to economic changes, and reflects **positive effects** between the rise in liquidity and the expanded use of electronic payment instruments.

Second: Recommendations

1. The **necessity of continuing to develop the technological infrastructure** for electronic payment systems to ensure their sustainability and operational efficiency, guaranteeing the speed and reliability of transactions, thereby **solidifying public confidence** in the digital system as an effective alternative to cash.

2. **Encouraging the use of digital payment methods** among community members and companies to **increase financial inclusion** and **reduce the risks** associated with cash transactions.

3. **Enhancing supervision and oversight** of electronic payment systems to ensure transaction security and **combat money laundering**.

4. **Developing flexible monetary policies** that adapt to economic and political changes to **ensure the stability of banking liquidity**.

5. **Working to diversify revenue sources** and **reduce reliance on the oil sector** to achieve greater economic stability that positively affects liquidity.

6. **Raising public awareness** about the importance of electronic payment systems to increase their acceptance and use.

7. **Continuous review of accounting standards** and their application to ensure transparency and accuracy in measuring liquidity indicators.

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