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The Impact of Some Monetary Variables on the General Stock Price Index in Iraq for the Period 2004-2023

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Abstract: Iraq is a country worthy of study in this field, given the significant economic and monetary transformations its economy underwent during the period (2005-2024). These transformations included exchange rate fluctuations, changes in inflation rates, and challenges facing economic activity, in addition to the impact of monetary decisions and internal and external economic variables on the Iraqi stock market. Furthermore, the selection of Saudi Arabia and Qatar provides a suitable basis for conducting a comparative study, due to the differences in their economic structures, the variations in central bank policies, and the levels of development of their financial markets. This contributes to analyzing the impact of monetary policy tools on financial market fluctuations and drawing conclusions that can be used to support financial stability and enhance the effectiveness of monetary policies.

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Monetary policy variables are among the basic tools adopted by monetary authorities, represented by the central bank, to influence economic activity and achieve monetary stability. These variables include (money supply, interest rates, exchange rate, and bank credit), as they have a direct role in directing inflation rates and economic growth. Monetary policy seeks, through controlling these variables, to achieve price stability, encourage investment, and maintain balance in the balance of payments. Studying these variables is also necessary to understand the mechanism of transmission of the effect of monetary policy in the macroeconomy. Based on this, the fundamental idea was formed to measure the actual impact of monetary policy variables on the overall performance of financial markets in Iraq. This aims to identify the most influential variables and, through quantitative measurement, determine the strongest impact of these variables on the performance of the Iraq Stock Exchange during the period 2005-2024. Given the critical importance of this research, monetary variables will be reviewed in detail, and their actual impact on the performance of the financial market will be demonstrated. This will be achieved by utilizing modern economic literature on monetary variables and relying on published data from reputable institutions to arrive at the true objectives of the research.

Importance of the Research: The importance of this research stems from the significance of its subject matter, which is the analysis of the relationship between monetary policy and financial market fluctuations, both domestically and internationally. Its importance can be illustrated through the following points:

1. Enhancing the theoretical and applied understanding of the role of monetary policy as an influential tool in the movement of financial markets, and explaining how the impact of monetary changes is transmitted to asset prices, liquidity levels, and investment trends.

2. Shedding light on the Iraqi experience during the period (2005–2024) and the accompanying monetary and economic variables, which make studying this relationship essential for understanding the mechanisms of financial stability in an economic environment that relies primarily on oil revenues and faces frequent shocks.

Research Problem: The research problem can be defined by the following question: What role do monetary policies, through their various tools, play in the fluctuations of financial markets in a sample of different countries?

Research Objective:

The research objective can be defined in a number of points, the most important of which are:

1. To establish the intellectual and theoretical frameworks that explain the nature of the relationship and interrelationships between monetary policy variables and financial market fluctuations, and to review the conceptual development of this relationship in different economic schools.

2. This objective focuses on the actual reality of the countries under study; it aims to diagnose and analyze how these countries (which vary in their levels of financial development and the depth of their markets) have managed their monetary policy, and to compare the legislative and institutional environment of their financial markets to reveal the gap between the Iraqi market and the comparable markets.

It focuses on the purely applied aspect (mathematical and econometric models such as ARDL or others), and its goal is to arrive at accurate figures and ratios that precisely determine the size and direction of the impact (positive or negative, significant or insignificant) in the short and long term.

Research Hypothesis: The research is based on the hypothesis that monetary policy plays a positive and effective role in the financial markets of the countries in the research sample. Section One: Monetary Policy Variables in Iraq: Concept and Importance

2. Methodology

Money Supply:

Money supply is one of the most important monetary variables that receives the attention of monetary authorities (the central bank) due to its direct impact on economic activity, price levels, investment, and employment. The importance of money supply is highlighted by its role in influencing the size of aggregate spending and aggregate demand levels in the economy. An increase in the money supply usually leads to an increase in the purchasing power of individuals and institutions, which contributes to stimulating consumption and investment. Conversely, excessive expansion of the money supply may lead to inflationary pressures and a rise in the general price level. A decrease in the money supply, on the other hand, may limit economic activity and negatively affect growth and employment rates. Therefore, central banks are keen to manage the money supply through a range of monetary tools, such as open market operations, interest rates, and the reserve requirement, with the aim of achieving a balance between providing the necessary liquidity to support economic growth, maintaining monetary stability, and limiting inflation. Measures of money supply can be divided as follows: [1]

Money supply: - It is the sum of currency in circulation and bank deposits with the central bank. These deposits include banks' cash reserves held by the central bank, some of which are mandated by law, while others depend on banks' behavior in terms of their

willingness to add cash reserves exceeding the legally required amount. Since bank deposits constitute part of the money supply, any expansion in the size of cash reserves or newly created deposits will result in an increase in the overall size of the money supply. Therefore, monetary authorities can control changes in the money supply by monitoring the monetary base, as controlling the latter automatically allows them to control the deposits created by commercial banks [2]. Narrow Money Supply: This refers to the currency in circulation outside the banking system, in addition to deposit money or bank money (current accounts). This means that the money supply can be expressed by the following equation: $MS1 = DD + C$

Narrow Money Supply (MS1)

Date (Currency in Circulation)

Currency in Circulation (C)

It is clear from the above that there are two parties that determine the money supply: the central bank and commercial banks. [3].

3. Result and Discussion

Broad Money Supply (MS2): The broad money supply (MS2) usually includes currency in circulation outside the banking system, current (demand) deposits, savings deposits, time deposits, and sometimes foreign currency deposits, according to the definition adopted by the central bank in each country. These components together are an indicator of the purchasing power inherent in the economy and the amount of liquidity that can be converted into consumer or investment spending. Therefore, the broad money supply is more suitable for analyzing monetary policy and its impact on economic activity. In the broad sense, analyzing the relationship between monetary expansion and price levels, a continuous increase in this supply without a corresponding real growth in output can lead to monetary imbalances and inflationary repercussions. Hence, controlling the growth of the broad money supply becomes crucial within the objectives of monetary policy aimed at achieving monetary and economic stability. [4].

The equation for the broad money supply (MS2) is:

$$= C + DD + SD + TD \text{ (MS2)}$$

Broad Money Supply (MS2)

Currency in circulation outside the banking system (C)

Demand deposits (DD)

Savings deposits (SD)

Time deposits (TD)

The broad money supply (MS3) is defined more broadly by some developed countries due to significant advancements in their monetary and financial sectors, the development of their financial markets, the emergence of intermediary financial institutions, and the creation of new and diverse types of financial derivatives. There are also other types of deposits that are considered to have a broader meaning. Long-term deposits were added to the components of the broadest money supply (MS3) and simultaneously excluded from the components of the broadest money supply (MS2). These deposits are held with intermediary financial institutions other than commercial banks, such as savings and lending banks, and have maturities exceeding two years [5].

Money supply measured by liquidity (MS4): This consists of the broadest money supply (MS3) plus the monetary assets held by specialized banks. It equals ($MS4 = MS3 +$ highly liquid monetary and financial assets). These highly liquid financial assets are payable in short periods ranging from 3 to 6 months. The most important of these are treasury bills issued by governments for short-term borrowing. These are often highly

liquid and can be easily converted into cash balances. However, they are not considered money but are referred to as near-money [6].

Exchange Rate (Rate)

The concept of the exchange rate is one of the most important concepts in the economic and financial world due to the significant impact of the real value of a currency in most economic literature. The exchange rate has been defined as the price of one unit of a currency in units of another foreign currency, i.e., the exchange rate between currencies. Evans defined it as the number of units of the local currency that must be paid to buy one unit of the foreign currency, and vice versa. To study the exchange rate, we must address the following:

Types of Exchange Rates:

Nominal Exchange Rate (NER): The real or nominal exchange rate is the exchange rate between two currencies that takes into account the relative prices in the two countries. It is the exchange rate that reflects the rate at which goods produced in one country can be exchanged for goods produced in another country. The real exchange rate is calculated according to the following equation: $E = e.p * p$

Real Exchange Rate (E)

Nominal Exchange Rate (e)

Price Level in the Local Country (p)

Price Level in the Other Country (p^*) [7]

Real Exchange Rate The real exchange rate (RER) is the nominal exchange rate adjusted for the general price level between two countries. It is used to measure the competitiveness of domestic goods compared to foreign goods. It is calculated using the following formula: $RER = E * (P^*)/P$

Nominal exchange rate (E)

General price level abroad (P^*)

The general level of domestic prices (P). A high real exchange rate means that domestic goods become less competitive compared to foreign goods [8].

c- **The effective exchange rate (RER):** This is an indicator that measures the value of the domestic currency compared to a basket of currencies of major trading partners, not just a single currency. This indicator is usually calculated based on weights that reflect the volume of trade with each country [9].

Exchange Rate Systems

a- **Fixed Exchange Rate System:** This is a system in which monetary authorities intervene to set a fixed exchange rate level in order to control the inflow and outflow of hard currency. Authorities can fix the value of their currency against a single foreign currency, especially when most of their transactions are with one country, or they can fix the value of their currency against a basket of foreign currencies when their transactions are with other countries.

B. **Floating Exchange Rate System:** This concept describes a fluctuating exchange rate of one currency against another. This change occurs based on supply and demand factors. If the demand for a particular currency exceeds its supply in the foreign exchange market, its price will increase, and vice versa [10].

C. **Managed Exchange Rate System:** According to this system, the exchange rate is primarily determined by market forces. However, governments may buy and sell currency or alter the money supply to influence exchange rates. Sometimes, governments act against the direction of private markets, and other times they have target areas that guide their policy actions. The use of this system has declined significantly among countries, with a shift towards fixed and flexible exchange rate systems [11].

Interest Rate

Interest rates are one of the most important pillars of any country's economy and have a significant impact on various financial and monetary decisions, such as borrowing, investment, and saving. This is because they represent the cost of borrowing money or the return on investment. The interest rate is determined based on several factors (such as the supply and demand for credit, inflation expectations, and monetary policy decisions made by central banks). Changes in the interest rate have a significant impact on the economy because they directly affect consumer spending, business investment, and overall economic growth. Therefore, it is essential for individuals, companies, and policymakers to understand the dynamics of interest rates accurately. Higher interest rates can increase the cost of borrowing and make it more difficult for individuals and companies to obtain credit, which may lead to a decrease in consumer spending and business investment, and consequently, a slowdown in economic growth. Conversely, lower interest rates make it easier for individuals and companies to obtain credit and increase consumer spending and business investment, thus boosting economic growth. The types of interest rates are as follows: [12].

1. Simple interest rate: If interest is calculated regularly on the original amount throughout the loan period, it is called simple interest. The formula for calculating simple interest is: $r \cdot t \cdot S$. $I = p$

- Principal (p)
- Annual interest rate r)
- Time (t)

2. Compound Interest Rate: Also called interest on interest, compound interest is the return resulting from reinvesting earned interest. Some lenders prefer the compound interest method, meaning the borrower will pay more interest on both the principal and the accrued interest from previous periods. The bank assumes that at the end of the first year, the borrower owes the principal plus the interest for that year. The bank also assumes that at the end of the second year, the borrower owes the principal plus the interest for the first year and the interest on the first year's interest, and so on. The following formula is used to calculate compound interest: $\text{Compound Interest} = (\text{interest rate} + 1)^n \cdot p$ [13].

Inflation Rate

Inflation is one of the economic problems that monetary policy seeks to address because it leads to a rise in the general price level. Therefore, the inflation rate is considered one of the most important indicators reflecting price stability, as inflation targeting has become part of In monetary policy literature, central banks aim to keep inflation rates at a minimum by implementing tight monetary policies such as raising interest rates or reducing the money supply. It's important to note that the inflation rate is not a direct monetary policy tool, but rather a targeted variable. The concept of inflation is not limited to a rise in the prices of a single commodity or a limited group of commodities; it refers to a general and sustained increase in the overall price level, leading to a decrease in the purchasing power of money and a decline in its real value. The inflation rate is of great importance in economic policymaking because it reflects the degree of economic stability. It is also a key indicator used by central banks when formulating and implementing monetary policy. Most monetary authorities strive to maintain low and stable inflation rates to achieve a balance between economic growth and price stability.

The inflation rate is calculated based on the percentage change in the Consumer Price Index (CPI) or other price indicators over a specific period. This rate is used to assess the rise in the cost of living and measure the level of monetary stability within the economy. High inflation leads to several economic effects, most notably the erosion of individuals' real incomes, a decline in purchasing power, and increased uncertainty among investors. In addition to its impact on savings and investment rates and interest rates. Conversely,

maintaining a moderate inflation rate contributes to boosting economic activity and stimulating investment, while Credit also plays a role in creating monetary balance. Therefore, the importance of credit for banks can be viewed from the customer's perspective first, and from the bank's perspective second. The customer sees obtaining credit, whether an advance or a loan, as a way to cope with emergencies and exceptional circumstances. It also supports their financial situation in their daily lives and secures the necessary funds to improve their standard of living and achieve social well-being without creating financial problems, especially if the customer plans the use of the borrowed funds properly. From the bank's perspective, the volume of credit it provides to customers is also of great importance. This is because the performance of banks depends heavily on the efficiency and size of their loan portfolios. Consequently, banks must organize their funding sources and direct them towards these portfolios according to sound banking principles and standards [14].

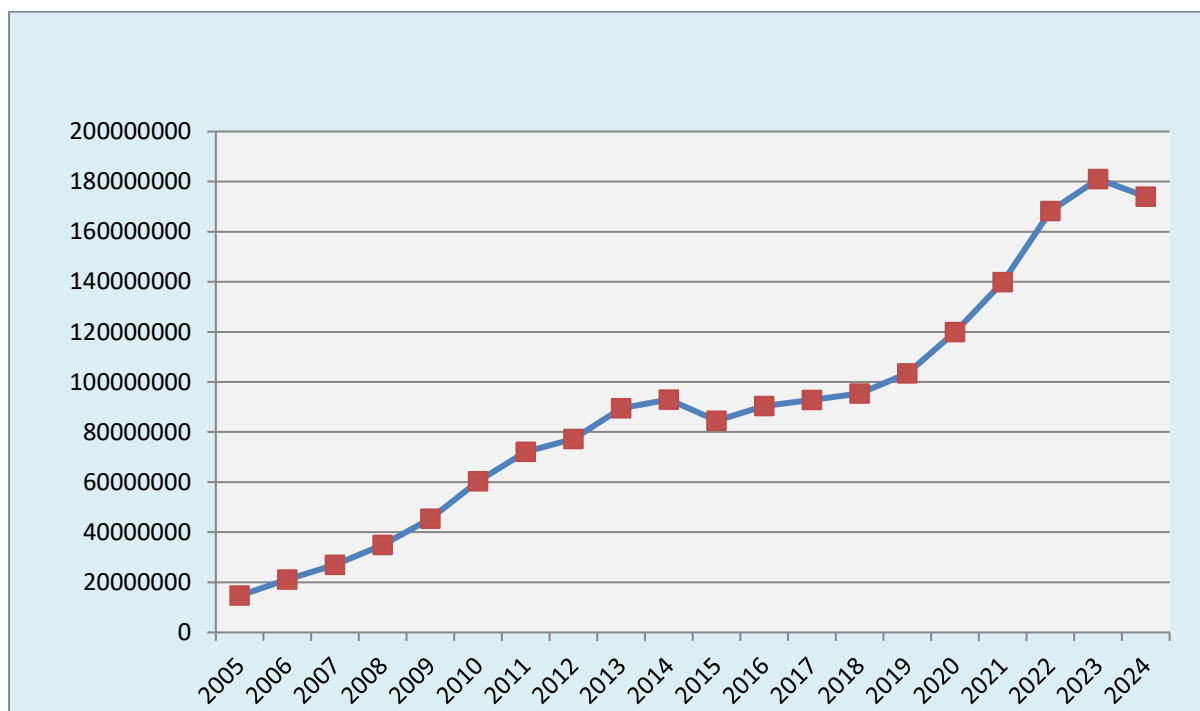
1. M2 Money Supply

Table (1) reflects the broad money supply (M2) in Iraq for the period 2005–2024. A clear upward trend in the money supply is observed in the table, as the money supply increased from (14,684,000) million Iraqi dinars in 2005 to approximately (174,000,000) million dinars in 2024. This reflects the continuous expansion in economic activity and the expansionary monetary policy pursued by the Central Bank of Iraq during most of the study period. The first years of the study, i.e., the period 2006 to 2010, witnessed high growth rates in the money supply, with the annual change rate reaching (43.56%) in 2006 and (32.90%) in 2010. This is attributed to the rise in oil revenues and increased government spending following the improvement in global oil prices, in addition to the expansion of the banking system and the increase in deposits and circulating liquidity in the Iraqi economy. In the years 2011–2014, the increase in the money supply continued, but at a relatively lower pace, growth rates ranged between 6.94% and 19.53%, reflecting the Central Bank's attempt to strike a balance between supporting economic activity, maintaining monetary stability, and curbing inflationary pressures. In 2015, the annual change rate declined by 9.10%, attributed to the financial crisis Iraq faced due to the global drop in oil prices, coupled with increased military expenditures related to the war against ISIS. This negatively impacted liquidity and economic activity. The years 2016–2019 saw a gradual recovery, registering moderate growth rates of 7.03%, 2.64%, 2.73%, and 8.44%, respectively. The money supply also increased during the period 2020–2022, explained by the expansionary monetary and fiscal measures implemented by the government and the Central Bank to address the economic repercussions, as well as improved oil revenues and increased public spending. Growth rates slowed in 2023 and 2024. (7.61%) and (3.87%) respectively, indicating that monetary policy is geared towards limiting monetary expansion, controlling inflation rates, and achieving greater monetary stability.

Table 1. Money supply M2 in Iraq for the period 2005-2024 (million dinars).

year	M2	% Rate of change	year	M2	Rate of change
2005	14684000	—	2015	84527272	9.10–
2006	21080000	43.56	2016	90466370	7.03
2007	26956076	27.87	2017	92857047	2.64
2008	34919675	29.54	2018	95390725	2.73
2009	45437918	30.13	2019	103441131	8.44
2010	60386086	32.90	2020	119906260	15.92
2011	72177951	19.53	2021	139886100	16.66
2012	77187497	6.94	2022	168202000	20.24
2013	89512076	15.97	2023	181000000	7.61
2014	92988876	3.88	2024	174000000	3.87–

Source: Prepared by the researcher based on data from the annual reports of the Central Bank of Iraq for the period (2005-2024). The growth rate was calculated by the researcher according to the formula: $\text{Growth Rate} = 100 * (\text{Previous year} - \text{Current year}) / (\text{Previous year})$.



Source/From the researcher's work based on the data in Table (1)

Exchange Rate

The Central Bank of Iraq has adopted the currency sale window as a means to ensure and stabilize the dinar's exchange rate. It has given government banks a significant role in buying and selling dollars and has also established a number of basic criteria for dollar sales to banks, companies, and all financial transfers. These criteria include their compliance with international standards and requirements, as well as the Anti-Money Laundering and Counter-Terrorism Financing Law, through the results of the Central Bank's evaluation of the performance of compliance officers, reporting units, and risk management. [15]. Table (2) reflects the development of the Iraqi dinar exchange rate against the US dollar during the period (2005–2024). The exchange rate reached approximately (1469) dinars per dollar in 2005, then the Iraqi dinar continued its gradual improvement during the following years, reaching (1255) dinars per dollar in 2007. This was a result of the Central Bank of Iraq's monetary policy aimed at supporting the value of the dinar and controlling inflation rates through the use of currency auctions and raising interest rates. The improvement in the exchange rate continued during the period (2008–2013), with the price stabilizing approximately at around (1170–1166) dinars per dollar. This reflects the success of the Central Bank of Iraq in achieving a degree of monetary stability and maintaining the stability of the official exchange rate despite the economic and security challenges that Iraq faced at that time. In 2015, the exchange rate rose to (1190) dinars per dollar, a change of (2.06%) compared to 2014. This is attributed to the financial pressures that the Iraqi economy was subjected to as a result of the decline in global oil prices and the increase in government spending related to the war. In response to terrorist attacks at the time, the Central Bank adjusted the official exchange rate of the dinar to

preserve foreign reserves. This rate remained relatively stable until 2020. However, in 2021, the exchange rate underwent a significant change, rising to 1,460 dinars per dollar, a change of 22.69%. This resulted from the Iraqi government and Central Bank's decision to devalue the dinar to address the financial crisis stemming from declining oil revenues and the budget deficit, as well as to boost public revenues and reduce pressure on the national budget. The exchange rate remained at this level during the period 2022–2024, reflecting the monetary policy's focus on stabilizing the new rate and maintaining relative stability in the exchange market.

**The exchange rate of the Iraqi dinar against the dollar for the period 2005-2024
(Iraqi dinar/dollar)**

year	exchange rate	Rate of change %	parallel exchange rat	Rate of change %
2005	1469	--	1472	-
2006	1467	-0.14	1475	0.20
2007	1255	14.45-	1267	14.10-
2008	1193	4.94-	1203	5.05-
2009	1170	1.93-	1182	1.75-
2010	1170	0.00	1185	0.25
2011	1170	0.00	1196	0.93
2012	1166	0.34-	1233	3.09
2013	1166	0.00	1232	0.08-
2014	1166	0.00	1214	1.46-
2015	1190	2.06	1247	2.72
2016	1190	0.00	1275	2.25
2017	1190	0.00	1258	1.33-
2018	1190	0.00	1209	3.90-
2019	1190	0.00	1196	1.08-
2020	1190	0.00	1234	3.18
2021	1460	22.69	1474	19.45
2022	1460	0.00	1482	0.54
2023	1460	0.00	1474	0.54-
2024	1460	0.00	1482	0.54

Source: Prepared by the researcher based on data from the annual reports of the Central Bank of Iraq for the period (2005-2024)



Source/From the researcher's work based on the data in Table (2)

Interest Rate:

The data in Table (3) reflects the developments in the interest rate. It is noted that there are clear fluctuations in real interest rates during the period 2005 to 2024 between a decrease and an increase, as shown below. We note that it rose from (7%) in 2005 to (20%) in 2007, recording its highest level during the study period. After 2007, the interest rate began to gradually decrease, as it declined to (16.8%) in 2008 and then to (8.8%) in 2009, and the decrease continued to reach (6%) during the period (2011–2015). This indicates that the Central Bank adopted a more flexible monetary policy with the aim of supporting economic activity and stimulating investment. The table also reflects a state of relative stability of the interest rate at the level of (4%) during the period (2017–2022), which reflects the direction of monetary policy towards maintaining the stability of the financial and monetary environment. In 2023, the interest rate rose to (7.05%), recording a positive change rate of (76.25%) compared to 2022, which is a remarkable increase that can be explained by an attempt to confront inflationary pressures and maintain the stability of the exchange rate. However, 2024 witnessed a decrease to (5.5%) and a negative change rate of (21.99%), which indicates a trend towards easing monetary tightening after the improvement of some economic indicators.

Annual Interest Rates in Iraq for the Period 2005-2024

year	Interest rate	% Rate of change	year	Interest rate	% Rate of change
2005	7.00	--	2015	6.00	0.00
2006	16.00	128.57	2016	4.30	28.33–
2007	20.00	25.00	2017	4.00	6.98–
2008	16.8	16.00–	2018	4.00	0.00
2009	8.80	47.62–	2019	4.00	0.00
2010	6.30	28.4–	2020	4.00	0.00
2011	6.00	4.76–	2021	4.00	0.00
2012	6.00	0.00	2022	4.00	0.00
2013	6.00	0.00	2023	7.05	76.25
2014	6.00	0.00	2024	5.50	21.99–

Source: Prepared by the researcher based on data from the annual reports of the Central Bank of Iraq for the period (2005-2024).



The figure is the work of the researcher based on the data in Table 4.

Inflation Rate:

Inflation is one of the most significant problems facing global economies because it reflects an imbalance between supply and demand. The Iraqi economy experienced fluctuating inflation rates during the study period. It reached 36.9% in 2005 and continued to rise in 2006, reaching 53.2% due to the deteriorating security situation. In 2007-2009, the inflation rate decreased to -2.8% due to coordinated fiscal and monetary policies aimed at achieving economic stability and combating inflation and recession. These policies included the Central Bank's proactive approach to curbing inflation. However, inflation rose again in 2010-2012 due to rising global oil prices, before declining once more to 1.85% in 2013 and then to 2.24% in 2014. In 2015, Iraq's inflation rate reached 1.43% due to a decline in global oil demand and a rise in the dollar's value. This was compounded by the lingering effects of the global financial crisis, which impacted the economy and led to lower prices for imported goods. Monetary policy was implemented to contain inflation. During the years 2016-2019, the inflation rate steadily decreased from 0.5% in 2016 to -0.19% due to the Central Bank's austerity measures. In 2020, it reached 0.57%. However, in 2021, inflation rates surged to unprecedented levels, driven by increased demand for foreign currency. In 2022-2023, the inflation rate reached 4.9% due to disruptions in global supply chains, which affected not only the energy sector but also all types of consumer goods and services, including construction.

Inflation rate in Iraq for the period 2005-2024

year	Inflation rate in I	% Rate of chang	year	Inflation rate in Iraq	% Rate of chang
2005	36.9	--	2015	1.43	-36.16
2006	53.2	44.17	2016	0.5	-65.03
2007	30.8	-42.11	2017	0.19	-62.00
2008	2.66	-91.36	2018	0.38	100.00
2009	-2.8	-205.26	2019	-0.19	-150.00
2010	2.45	187.50	2020	0.57	400.00
2011	5.6	8.04	2021	6.1	970.18
2012	6.05	-69.42	2022	4.9	-19.67
2013	1.85	21.08	2023	4.4	-10.20
2014	2.24	21.08	2024	2.8	-36.36

Source: Prepared by the researcher based on data from the annual reports of the Central Bank of Iraq 1- Initial General Estimation of the ARDL Model for the General Index Function of Stock Prices in Iraq

Table (6) shows the results of the unit root test, indicating that the study variables are stationary at the first level and difference. This justifies the use of the Autoregressive Distributed Lag (ARDL) methodology and the Bounds Test to detect a long-term equilibrium relationship between the variables under study. Accordingly, the standard model for the general index function of the Iraq Stock Exchange (ISX) was estimated. The estimation results, presented in Table (84), show that the model as a whole is statistically significant. The F-statistic value reached approximately (19.89298) with a probability of (0.000011), indicating the model's significance at the (1%) level. This reflects the ability of the explanatory variables to strongly explain the changes in the general index. The explanatory power of the model, according to the coefficient of determination (R-squared), reached approximately (0.884), indicating that the independent variables (money supply, interest rate, and inflation rate) explain approximately (88%) of the changes in the general index of stock prices. The stocks, while the adjusted R-squared coefficient of determination reached approximately 0.839, reflecting high explanatory power after correcting for degrees of freedom. The Durbin-Watson statistic value reached 2.103, indicating the absence of autocorrelation issues in the model residuals, thus confirming the model's

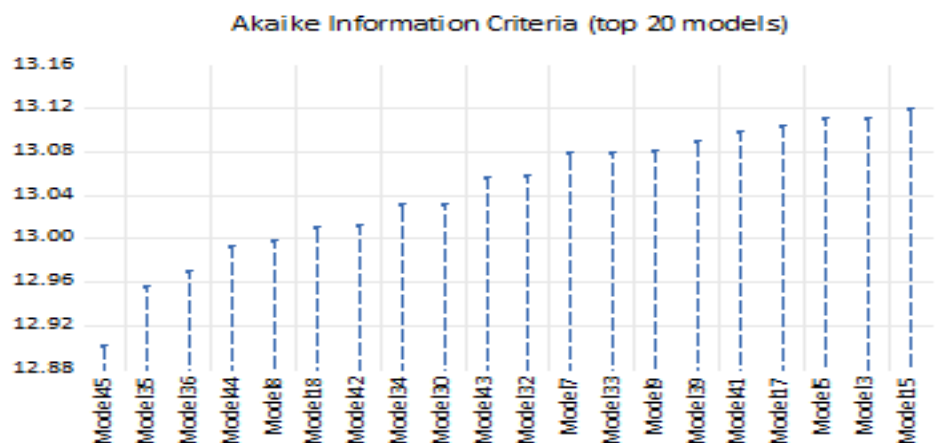
standard validity. Regarding model selection, the ARDL(1,1,0,0) model was adopted according to the AIC information standard, reflecting the suitability of this model for representing the dynamic relationship between variables during the study period. Table (6) Baseline Estimation (ARDL) of the General Stock Price Index Function infor the period (2005-2024).

Dependent Variable: ISX
 Method: ARDL
 Date: 07/04/26 Time: 02:20
 Sample (adjusted): 2006 2024
 Included observations: 19 after adjustments
 Maximum dependent lags: 2 (Automatic selection)
 Model selection method: Akaike info criterion (AIC)
 Dynamic regressors (2 lags, automatic): M2 IR INF
 Fixed regressors: C
 Number of models evaluated: 54
 Selected Model: ARDL(1, 1, 0, 0)
 Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ISX(-1)	0.495909	0.180176	2.752365	0.0165
M2	-7.46E-06	3.62E-06	-2.061343	0.0599
M2(-1)	1.15E-05	3.79E-06	3.042844	0.0094
IR	5.640162	10.91586	0.516694	0.6140
INF	-0.606531	3.278933	-0.184978	0.8561
C	-94.77846	137.8984	-0.687306	0.5040
R-squared	0.884408	Mean dependent var	392.2488	
Adjusted R-squared	0.839950	S.D. dependent var	325.6348	
S.E. of regression	130.2742	Akaike info criterion	12.82925	
Sum squared resid	220627.9	Schwarz criterion	13.12749	
Log likelihood	-115.8779	Hannan-Quinn criter.	12.87972	
F-statistic	19.89298	Durbin-Watson stat	2.103309	
Prob(F-statistic)	0.000011			

Source: Prepared by the researcher based on the results of the statistical program (12Eevuse).

Figure (1) shows that the optimal lag period for the model is (1,1,0,0) according to the Akaike criterion, as it gives the lowest optimal range value.



Bounds Test for Cointegration of the General Index Function of Stock Prices in Iraq

The results of the Bounds Test indicate that the F-statistic value reached (4.038805), which falls within the critical range between the lower (I(0)) and upper (I(1)) values. Accordingly, the results tend to support the existence of a cointegration relationship at a significance level of (10%), with indefinite uncertainty at the more stringent significance levels (5% and 1%). Accordingly, the judgment of the existence of a long-term equilibrium relationship was reinforced by relying on the results of the Error Correction Model (ECM), which provides additional evidence of cointegration between the variables.

F-Bounds Test Test Statistic	Value	Null Hypothesis: No levels relationship		
		Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	4.038805	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Results of the Long-Term Relationship of the General Stock Price Index (ISX) Function in Iraq

The results of estimating the long-term relationship within the framework of the ARDL model, as shown in Table (2), indicate a significant effect of the money supply (M2) on the general stock price index. The effect coefficient reached (8.06E-06) with a probability value of (0.0026), demonstrating that an expansion in the money supply contributes to supporting a rise in the general index in the long run. Neither the interest rate (IR) nor the inflation rate (INF) registered any statistically significant significance at the (5%) level, with probability values of (0.6325) and (0.8577) respectively. This indicates their limited direct impact on the general index during the long run. The constant term (C) showed a statistically insignificant value, reflecting its weakness in explaining long-term changes in the model. The results confirm that the money supply is the most influential variable in determining the movement of the general stock price index in the long run, while the effects of both the interest rate and inflation remain statistically insignificant. During the study period.

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M2	8.06E-06	2.17E-06	3.721743	0.0026
IR	11.18877	22.84787	0.489707	0.6325
INF	-1.203218	6.579266	-0.182880	0.8577
C	-188.0185	285.6109	-0.658303	0.5218
EC = ISX - (0.0000*M2 + 11.1888*IR -1.2032*INF - 188.0185)				

Error Correction Model (ECM) for the General Stock Price Index (ISX) Function

The results of the Error Correction Model (ECM) in Table (88) indicate the existence of a long-term equilibrium relationship between the variables, supported by a mechanism to correct short-term deviations towards the equilibrium path. The error correction parameter (CointEq(-1)) was negative and statistically significant at the (1%) level, reaching (-0.504091) with a probability value of (0.0002), which confirms the fulfillment of the stability condition for the model. This result indicates that about (50.4%) of the short-term imbalances are corrected within one period, which reflects a medium to high speed in returning to long-term equilibrium. As for the short term, the results showed that the change in the money supply (D(M2)) negatively and significantly affects the general index,

indicating the existence of immediate negative effects of monetary policy before they turn into positive effects in the long term.

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M2)	-7.46E-06	2.59E-06	-2.881462	0.0129
CointEq(-1)*	-0.504091	0.098095	-5.138829	0.0002

Diagnostic Tests of the Estimated Model

Diagnostic tests are a crucial step in ensuring the quality of the standard model and its freedom from standard problems that could affect the accuracy of the results.

Autocorrelation Test

The results of the Breusch–Godfrey Serial Correlation LM test in Table (4) indicate the absence of an autocorrelation problem in the residuals of the estimated model. The results show that the F-statistic value was (0.374335) with a probability of (0.6962), while the Obs*R-squared value was (1.210754) with a probability of (0.5459), both of which are greater than the significance level of (0.05). Therefore, the null hypothesis, which states that there is no autocorrelation in the random errors, is accepted, and the alternative hypothesis is rejected. This demonstrates the independence of the residuals and the stability of the model in this respect.

Breusch–Godfrey Serial Correlation LM Test:

Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.374335	Prob. F(2,11)	0.6962
Obs*R-squared	1.210754	Prob. Chi-Square(2)	0.5459

The problem of heterogeneity of variance.

The results of the ARCH test in Table (10) showed that there was no problem of heterogeneity of variance in the estimated model, as the value of (F-statistic) reached a probability of (0.1008), and the value of (Obs*R-squared) reached a probability of (0.0904), all of which are greater than the level of significance (0.05). Therefore, the null hypothesis, which assumes homogeneity of the variance of errors, is accepted, and the alternative hypothesis is rejected, which indicates that the variance of errors is stable over time, and thus the model has good standard properties. Enhances the reliability of results.

Heteroskedasticity Test: ARCH

F-statistic	3.031925	Prob. F(1,16)	0.1008
Obs*R-squared	2.867532	Prob. Chi-Square(1)	0.0904

Ramsey RESET Test for the General Index Function of Stock Prices in Iraq

The results of the Ramsey RESET test in Table (12) indicate the absence of a model misspecification problem. The F-statistic value was (0.448959) with a probability of (0.5155), and the Likelihood Ratio value was (0.697877) with a probability of (0.4035). All values are greater than the significance level of (0.05). This confirms the null hypothesis, which states that the model is correctly described and free of formulation errors. This indicates that the estimated model is well-defined and accurately reflects the relationship between the variables.

Ramsey RESET Test**Equation: UNTITLED****Omitted Variables: Squares of fitted values****Specification: ISX ISX(-1) M2 M2(-1) IR INF C**

	Value	df	Probability
t-statistic	0.670044	12	0.5155
F-statistic	0.448959	(1, 12)	0.5155
Likelihood ratio	0.697877	1	0.4035

Testing the stability of the estimated model using the CUSUM test. The stability test for the estimated (ARDL) model in Table (13) is one of the most important tests that aims to ensure that the data used in the research is free from any structural changes in it, using the cumulative sum of residuals (CUSUM) test. This test is one of the tests that clarifies two important matters, which is indicating the presence of any structural change in the data, and the extent of stability and consistency of the long-term parameters with the short-term parameters. Such tests are always accompanied by the (ARDL) model.

4. Conclusions

1- The analysis demonstrated that the effectiveness of monetary policy tools in guiding and stabilizing financial markets varies significantly depending on the degree of economic and institutional development, and the level of governance and transparency enjoyed by central banks and stock exchanges in Iraq.

2- The research revealed that the chronic structural challenges in the Iraqi economy, namely its one-sidedness and excessive dependence on oil revenues, severely limit the ability of the Central Bank of Iraq to use its traditional tools to positively influence the Iraqi stock market.

3- The research concluded that the instability of the Iraqi dinar exchange rate against the US dollar and the disruptions in the currency auction window represent a direct negative shock that increases risk levels and price volatility within the Iraqi stock market, thus weakening the efficiency of financial allocation.

4- Based on trading indicators (number of listed companies, trading volume, value of traded shares), it is evident that the Iraqi market still falls within the category of "weak efficiency," making it more vulnerable to external and internal shocks. 5. The standard model shows that the money supply (MS2) is the monetary variable that best reflects latent purchasing power and domestic liquidity, and that its uncontrolled growth without a real increase in GDP leads to inflation in financial asset prices followed by sharp fluctuations.

7. The results showed that the behavior of participants in financial markets depends on the assimilation of available information and proactive monetary decisions, which reduces the effectiveness of discretionary (sudden) monetary policies and increases the importance of adopting monetary policies based on fixed and transparent rules.

Recommendations

1. Work to reduce sharp fluctuations in parallel exchange markets by improving the efficiency of the currency auction window and simplifying official banking procedures, given the significant impact of local currency stability on stimulating long-term financial investment. 2. The research recommends that central banks (particularly in Iraq) adopt clear rules for the growth of the money supply (M2) that are commensurate with real GDP growth rates.

3. Activate open market operations and expand the issuance and trading of treasury bills and government bonds through financial exchanges, using them as a key dynamic

tool for absorbing or injecting banking liquidity without resorting to direct administrative interventions.

4. Work to increase the geographical reach of banks and develop the infrastructure of banking and digital services, which will contribute to attracting idle savings (hoarding outside the banking system) and directing them towards investment vehicles and financial markets.

5. Support the market with modern legislation and technologies that enhance its operational efficiency, and strive to move it from a level of "weak efficiency" to "nearly strong efficiency" by obligating listed companies to apply the highest standards of governance and periodic financial disclosure.

6. Encourage the introduction of diverse and new financial instruments in emerging markets (such as preferred stocks, Islamic bonds and sukuk, and regulated financial derivatives) to protect investors from price risks and hedge against sudden fluctuations.

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