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Analysis of foreign trade movement And its impact in Exchange rate Dinar The Iraqi For the duration(2004-2021)

ABSTRACT:

The research aims to study and analyze foreign trade indicators in Iraq, and their impact on the Iraqi dinar exchange rate. Therefore, the research problem was formulated to answer the question: Does foreign trade movement affect the Iraqi dinar exchange rate? Therefore, the time series was analyzed and the significant relationship between foreign trade indicators and the exchange rate was estimated using the VAR model and the Granger test. The test results for the VAR model showed that there was an effect of the volume of foreign trade on the exchange rate of the parallel Iraqi dinar during the research period. The researcher suggested several Recommendations, the most important of which are: The Monetary Authority in Iraq must take effective steps commensurate with the volume of demand for the dollar, especially in the currency sales window and the inclusion of small traders in foreign transactions that take place via the electronic platform to achieve stability in the exchange rate of the Iraqi dinar against the dollar, and to bridge the gap between the exchange rate Formal and parallel.

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Keywords (foreign trade, trade balance, exchange rate, VAR model).

1. INTRODUCTION:

After successive transformations in the global trade scene, interest in the volume of foreign trade is no longer limited to being an economic indicator that reflects the strength and sustainability of countries' economies, but rather it refers more to the relative weight of the country in the political map of the world, as it has become commercial superiority and possessing a larger share of global markets. Evidence of the state's strength and its ability to determine global trade trends. Therefore, the indicators of trade exchange, exports and imports, are among the most important indicators on which the state relies in the process of drawing up economic and trade policies in light of the current global economic changes, and Iraq needs to strengthen its economic relations, especially in the field of foreign trade! Because the Iraqi economy is characterized by instability and its dependence on oil exports as a basis for financing the state's general budget, which is an extended structural crisis, and in light of this, Iraq seeks to meet its needs for goods and services through foreign trade exchange. Accordingly, the current study is an inductive analysis of the impact of foreign trade on price stability. Iraqi dinar exchange rate for the period (2004-2021).

2. METHODOLOGY:

2.1. RESEARCH IMPORTANCE:

The Iraqi economy suffers from prolonged structural imbalances due to its dependence on oil exports, and therefore the importance of the research lies in paying attention to tracking the movement of foreign trade, and the consequent fluctuations in the exchange rates of the Iraqi dinar against the dollar.

37 **2.2. RESEARCH PROBLEM:**

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39 The weakness of local production has opened the door to imports of foreign goods to invade
40 the local market, and this in turn will lead to the exit of hard currency to cover the value of
41 large imports that mostly include consumer goods that contribute to making the non-oil
42 merchandise trade balance in a state of continuous deficit. The research problem is
43 summarized by asking: What is What changes can be made in the Iraqi economy to achieve
44 significant development in non-oil exports and in turn achieve exchange rate stability?.

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46 **2.3. RESEARCH HYPOTHESIS:**

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48 Foreign trade in Iraq plays an important role in the process of economic development, and
49 the monetary authority was able to take some measures that limit fluctuations in the
50 exchange rate of the Iraqi dinar against the dollar.

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52 **2.4. RESEARCH HYPOTHESIS:**

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54 IT AIMS TO ACHIEVE THE FOLLOWING:

- 55 • Analysis of Iraq's foreign trade for the period from 2004-2021.
- 56 • Explaining the extent to which the economic openness followed by Iraq affected the
57 exchange rate.
- 58 • Building a standard model (VAR).

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60 **2.5. TIME LIMITS:**

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62 THE RESEARCH INCLUDES A TIME SERIES EXTENDING FROM THE YEAR
63 (2004 - 2021).

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65 **2.6. SPATIAL LIMITS OF RESEARCH:**

- 66 • The Iraqi economy.

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68 **3. THEORETICAL FRAMEWORK OF FOREIGN TRADE AND EXCHANGE RATE :**

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70 **3.1. The concept of foreign trade:**

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72 Foreign trade is one of the branches of economics that specializes in studying foreign
73 relations and economic transactions between countries, which are represented in capital
74 movements and the exchange of goods and services, as well as the settlement of debts,
75 with the aim of seeking to achieve economic gains for the state and to achieve a balance
76 between the sides of liabilities and assets, and in addition to achieving development goals.
77 These trade policies are pursued by countries of the world to influence the movements of
78 goods, services, and capital between different countries. There have been many different
79 formulas for defining foreign trade as "the most important form of economic relations under
80 which goods and services are exchanged between countries in the form of exports and
81 imports." Foreign trade is also known as "a branch It is one of the branches of economics
82 that is concerned with studying economic transactions taking place across national borders.
83 It is defined as (the import and export operations carried out by the state, whether visible or
84 invisible. It also represents the activities of trade exchange of goods and services between
85 different countries of the world in order to achieve benefits. exchange between countries)
86 (Al-Alwani et al., 2022: 79).

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89 **3.2. Theories explaining foreign trade: (Juwaid: 2013, 126), (Al-Kildar and Nasser: 2014,
90 28-29).**

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92 1- David Hume's theory: It summarizes David Hume's vision in foreign trade about the
93 economic progress and prosperity in any country that will help other countries, and that is
94 because of the integration of these countries in pursuing international action, as one

- 95 country witnessed that it will positively affect other countries neighboring it. For example,
96 (France, Germany, Italy) experienced their feelings in Britain, and the economic
97 backwardness as the countries will have a real impact on the national economy and
98 economy.
- 99 2- The absolute view of Adam Smith appears to be: This future theory constitutes an
100 explanation of how to control trade between countries. It is by the economist Adam Smith
101 in 1776, as these trends are manifested in the international division of labor and depend
102 on the existence of a difference in production costs between one country and another.
103 This theory is summarized by each country's specialization in what By producing goods,
104 it will have an absolute external advantage in its production and trade between countries,
105 and it will be beneficial to all participants.
- 106 3- David Ricardo's relative view: At this moment, the English economist David Ricardo
107 responded to the questions I planned in Adam Smith's theory, which explains (if a country
108 does not absolutely choose to produce any alternative compared to its competitors from
109 other countries? Or a particular country realizes it) with an absolute advantage? In
110 producing all offers to other countries, does this mean that there are no gains in trade
111 between the two countries? In his book (Principles of Political Economy and Taxation) in
112 1817, he presented his view of relativity, as its essence was always that for the
113 establishment of commercial trade between countries, it is not necessary for the state to
114 have an absolute advantage in producing a particular characteristic, but rather that the
115 control of foreign trade depends on the difference in the relativity of goods between
116 countries and not on Absolute costs. Hence, the country's gains from trade are achieved
117 even when the external costs of producing all its products are greater than for firms that
118 provide commercial products.
- 119 4- Jon Stuart Mill Theory: Jon Stuart Mill's theory (1806-1873) was concerned with
120 introducing the demand side into the analysis with the aim of determining the rates of
121 trade exchange between countries because each country's desire to offer its exports of
122 goods depends on the amount of its imports, meaning that exports change according to
123 the rates of exchange. The prevailing trade relations between the countries participating
124 in foreign trade, and based on that, he defined the concept of balance between the
125 countries actually participating in foreign trade, as the country in which exports are equal
126 to imports is the other countries participating with it in foreign trade, meaning that the
127 supply of country (A) for its commodity represents its demand On the country's
128 commodity (B) and vice versa, the deviation that occurs in the rate of international trade
129 from the rate of domestic trade increases that country's gains from foreign trade. This
130 came because the previous theories (the theory of absolute advantage and the theory of
131 comparative advantage) relied in their interpretation on the establishment of Foreign
132 trade between countries is on the supply side without paying attention to demand.
133 Therefore, this theory is a notable development in classical thought, as it was considered
134 the correct direction in foreign trade, and a step forward, and it still forms the basis of
135 most modern theories.
- 136 5- Linder Estevan's theory of similarity of tastes: The essence of this theory stems from his
137 reliance on the demand side in explaining the phenomenon of international exchange,
138 and proving the error of relying on the supply side, as Linder concluded that individual
139 income levels affect the intensity of foreign trade (as a measure of the volume of foreign

140 trade between Countries) with regard to industrial products, and it was also stated in
141 Linder's interpretation that there is a difference between two types of goods:
142 - Primary products: It is believed that their exchange takes place according to comparative
143 advantage and that the advantage is determined by the proportions of production factors.
144 The abundance of factors of production leads to their prices falling and the price of the
145 product falling, while the scarcity of factors of production leads to their prices rising and
146 the price of the product rising.
147 - Manufactured goods: Linder believes that there is a group of factors that determine
148 potential exports and imports, and there is a group of factors that determine actual
149 exports and imports. From the above, it can be said that Linder Estevan's hypothesis has
150 been proven correct in the country of Sweden, to which Linder belongs, and its validity
151 has not been proven in the rest of the other countries.

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3.3.The concept of exchange rate :

154 The exchange rate is considered to be the mirror in which the country's commercial position
155 with the outside world is reflected, through the relationship between exports and imports.
156 Exchange rates are a tool for linking the local economy to the global economy. On the one
157 hand, and on the other hand, importing goods from a foreign country increases the demand
158 for The currency of this foreign country and that exporting goods to foreign countries
159 increases the supply of this country's currency in the national market, or in other words,
160 imports increase the demand for foreign currencies and increase the supply of the national
161 currency in global markets, while exports increase the foreign demand for the national
162 currency and increase the supply Foreign currencies in the national market. Accordingly, the
163 exchange rate was defined as "the number of units of local currency that are exchanged for
164 one unit of foreign currency." It was defined as "the number of units of foreign currency that
165 are paid for with one unit of the national currency." The researcher defined it as an exchange
166 process for the national currency. In foreign currency and vice versa, that is, it is a tool that
167 links the national economy that is open to the outside world with the rest of the world's
168 economies. This is achieved through knowing international costs and prices, and thus
169 facilitating international commercial transactions. (Hamilton, 2018:2).

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3.4. Specific theories of the exchange rate:

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174 1- **Gustav Castle Purchasing Power Parity Theory:** After 1914, the Swedish
175 economist Gustav Castle issued his book entitled ((Money and Foreign Exchange
176 Rates)), which adopted the Purchasing Power Parity Theory, as he believes that
177 the price of any currency is determined according to the purchasing power of this
178 currency in the local market compared to By its external purchasing power, that is,
179 the relationship between the currency of a particular country and the currency of
180 another country is determined according to the relationship between the prevailing
181 price levels in both countries. That is, the exchange rate of a country is determined
182 by the ratio that is determined between the level of internal prices denominated in
183 the national currency and the level of world prices denominated in foreign
184 currency. (Stockman, 1980:678).

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186 2- **Balance of Payments Theory :** The balance of payments and its various
paragraphs are among the basic sources of a country's demand for foreign
currencies and then the country's supply of the local currency because it is the

187 decisive factor in determining the exchange rate of the local currency. The
188 exchange rate is determined according to the forces of supply and demand for the
189 local currency and external demand. on her. Therefore, the balance of payments
190 theory depends on the final results in the balance of payments of a country in
191 determining the exchange rate. It is summed up in the fact that the exchange rate
192 is part of the price theory and is then determined in light of the rule of supply and
193 demand, and this is called the "equilibrium exchange rate." When there is a
194 surplus in the balance of payments, this means that there is an increase in
195 demand for the national currency and then an increase in its external value, while
196 the opposite happens in the event of a deficit in the balance of payments, which
197 means an increase in the money supply of the currency and then a decrease in its
198 external value. (Al-Hiti, et al. :2010,11).

199 **3- Critical theory:** Identifying the features of monetary theory in explaining
200 exchange rate changes is through studying the effect of both the interest rate and
201 the quantity of money in determining the exchange rate. This theory focused on
202 the fact that the exchange rate is a monetary phenomenon affected by the real
203 determinants of the demand for money. The money supply in each country is
204 determined independently by the monetary authorities represented by the central
205 bank, while the demand for money depends on the level of real income and the
206 interest rate, as the interest rate has an important influence in determining the
207 exchange rate. Increasing the interest rate in a country leads to an increase in the
208 movement of money. Capital towards these countries, which increases the
209 demand for their currency, thus leading to an increase in the exchange rate, and
210 the opposite happens if the interest rate is reduced. However, the interest rate is
211 not isolated from the money supply, but rather they can work in two opposite
212 directions, each canceling out the effect of the other, and preventing any change in
213 the exchange rate. If, for example, there is no expected change in the money
214 supply in the near future, the exchange rate will not be greatly affected, given that
215 the exchange rate Nominal interest will fall as a result of the expected decline in
216 the money supply (Kravis & Lipsey, 1978:5).

217 **4- The theory of financial asset market fluctuations:** This theory is concerned
218 with determining the balanced exchange rate and depends on the freedom of the
219 markets and market forces to achieve the equilibrium of the exchange rate as well
220 as the equilibrium of the balance of payments. The French economist Jack Arts,
221 who is one of the experts of the International Monetary Fund, explained this
222 theory, as the factors that The exchange rate is determined according to this
223 theory by the foreign demand for local financial assets and the local demand for
224 foreign financial assets. It is noted that the exchange rate changes whenever there
225 are unforeseen changes in the financial markets and the financial assets the state
226 owns compared to the changes that occur in the value of the financial assets
227 owned by foreigners. This is on the one hand, and on the other hand, this theory
228 focused on the experiences available to individuals in maintaining local and foreign

229 financial assets, and according to what this theory determines, the demand for the
 230 local currency increases with the decrease in foreign interest rates, and the
 231 demand for local securities decreases with the decrease in the local interest rate,
 232 and vice versa. Therefore, the return on local financial assets plays a fundamental
 233 role in determining the level of the exchange rate at which individuals determine
 234 the stock of foreign financial assets that they hold. Whenever the outflow of foreign
 235 financial assets is greater than their inflow, the situation becomes unsuitable for
 236 the local currency exchange rate because the more... As the ratio of foreign to
 237 local financial assets decreases, the local currency exchange rate deteriorates,
 238 hence the importance of this theory (Nicita, 2013:7).

239 **4. ANALYSIS OF THE DIALECTICAL RELATIONSHIP BETWEEN FOREIGN** 240 **TRADE AND THE EXCHANGE RATE IN IRAQ :**

241 **4.1. Analysis of the volume of foreign trade and the trade balance in Iraq:**

242 Foreign trade represents the movement of capital between the two countries. The trade
 243 balance is one of the important indicators for measuring the volume of international trade,
 244 and the main and effective axis in the structure of the balance of payments because of the
 245 difference it represents between the value of exports and the value of imports, which reflects
 246 a major impact on the structure of the Iraqi economy. For further clarification, we use Table
 247 (1). The following:
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249 **Table 1. The volume of trade exchange and changes in the trade balance in Iraq for**
 250 **the period (2004-2021) billion dollars:**

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Change in trade exchange %	Volume of trade exchange	Change in trade balance %	Trade balance	Imports (CIF)	Exports (FOB)	The year
---	39,112	---	-3,492	21,302	17,810	2004
11.7	43,699	-205	3,695	20,002	23,697	2005
12.6	49,236	219	11,822	18,707	30,529	2006
14.1	56,212	94	22,968	16,622	39,590	2007
67	93,897	46	33,555	30,171	63,726	2008
-22.8	72,454	-78	7,110	32,672	39,782	2009
22.9	89,091	103	14,435	37,328	51,763	2010
35	120,312	170	39,048	40,632	79,680	2011
18	142,006	18	46,410	47,798	94,208	2012
-1.2	140,216	-15	39,322	50,447	89,769	2013
-7.8	129,180	-1	38,780	45,200	83,980	2014
-27.7	93,375	-76	9,279	42,048	51,327	2015
-24.6	70,375	31	12,221	29,077	41,298	2016
19.4	84,065	154	31,053	26,506	57,559	2017
40.8	118,374	75	54,344	32,015	86,359	2018
10.6	131,002	-40	32,168	49,417	81,585	2019
-33	87,737	-81	5,883	40,927	46,810	2020
29.8	113,931	447	32,235	40,848	73,083	2021

279 Source: Central Bank of Iraq, General Directorate of Statistics and Research, Statistical Bulletin.

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281 From the data in Table (1), it is clear that the trade balance in Iraq for the year 2004
282 recorded a deficit of (-3,492) billion dollars, with a trade exchange volume of (39,112) billion
283 dollars. This is attributed to the changes that affected the political situation in Iraq, as well as
284 the change in economic policies that caused... In the decline in the volume of trade in
285 exports and imports (Economic Report, 2004: 21). It then took an upward path until the year
286 2009, when the trade balance recorded a decline of (7,110) billion dollars, at a negative rate
287 (-78%), with trade exchange amounting to (72,454) billion dollars, with a change rate of (-
288 22.8), due to the repercussions of the global crisis that struck the country. world, which was
289 negatively reflected in the decline in exports and imports (Economic Report, 2009: 42), and
290 then the trade balance took a fluctuating path until the year 2020, as it recorded a decline
291 amounting to (5,883) billion dollars, by a negative rate of (-81%), and with a volume of trade
292 exchange amounting to (87,737 billion dollars, with a negative change rate of (-33%), as
293 a result of the decrease in exports and imports due to the global crisis that struck the world
294 and health isolation measures as a result of the (COVID-19) pandemic (Economic Report,
295 2020: 54-56), then rising to (\$32,235) billion in 2021, with a change rate of (447%)%, and
296 for further clarification, we use Figure (1), which shows the developments in foreign trade
297 and the trade balance in Iraq for the period under discussion: -

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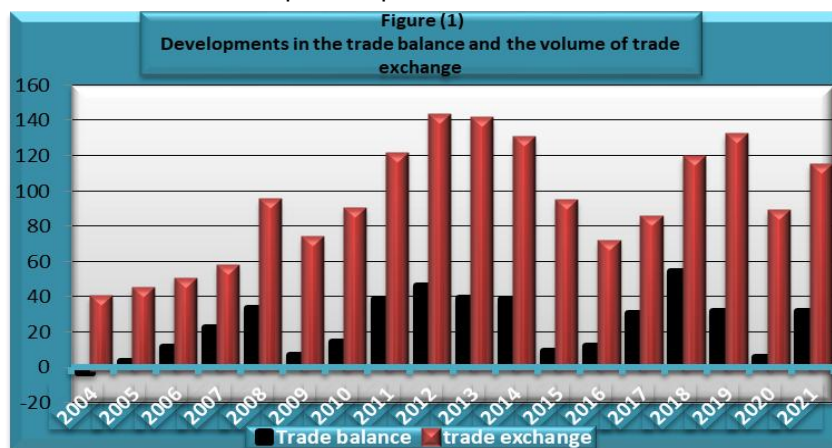
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4.2. Foreign trade of the most important trading partners with Iraq:

Foreign trade in Iraq is closely linked to the development plans set by the government, as Iraq relies mainly on oil exports to finance development projects, and imports in turn contribute to providing the requirements for economic growth, such as the machinery and equipment needed to build and develop infrastructure in Iraq, and these requirements cannot be provided. Except through foreign trade, which makes Iraq linked to international economic relations with most of the major global economies, and Table (2) represents Iraq's trade with the most important trading partners for the period (2004-2021) and according to the following:

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Table.2.Geographicaldistribution of(Exports) values in Iraq for the period (2004-2021) milliondollars:

Growth rate %	Geographic area					The year
	Asian countries	Other European countries	European Union countries	Americas countries	Arab countries	
- -	2,155	131	3,127	10,819	1,556	2004
6.1	2,292	393	6,277	13,185	763	2005
65.8	4,427	443	7,406	16,922	949	2006
33.9	6,215	317	9,422	21,694	1,425	2007
47.6	10,005	510	15,167	34,922	2,294	2008
-68.4	5,047	1,144	10,291	19,557	867	2009
147	21,953	1,289	11,155	15,886	1,155	2010
50.3	36,310	2,279	13,801	24,024	2,853	2011
16.7	42,914	2,693	16,311	28,393	3,371	2012
24.3	54,758	629	13,465	17,325	3,501	2013
-10.3	49,381	252	14,781	16,124	3,023	2014
-65.9	25,544	130	7,646	8,341	1,564	2015
-2	25,022	0	9,896	3,574	1,836	2016
-27	19,034	2,171	17,113	2,442	10,002	2017
107	55,848	624	17,424	11,091	1,369	2018
-1.	55,218	412	17,113	6,442	2,398	2019
-41	36,550	323	323	5,999	1,616	2020
44.1	56,838	502	9,328	3,627	2,512	2021

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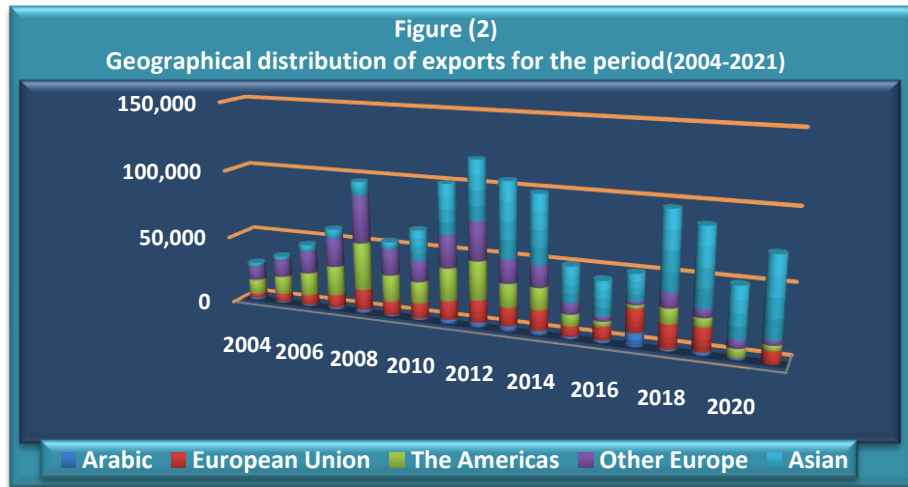
Source: Central Bank of Iraq, General Directorate of Statistics and Research, Statistical Bulletin.

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A- Geographical distribution of the volume of foreign trade in Iraq (exports):

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From the data in Table (2), it is clear that the geographical distribution of Iraq's exports to the most important trading partners in 2004 amounted to (10,819) billion dollars for the countries of the Americas, (3,127) billion dollars for the European Union countries, and (2,155) billion dollars for the Asian countries. As for the other European countries and the Arab countries, It amounted to (\$131 billion and \$1556 billion, respectively, for the same year, due to the political changes that occurred after 2003. Then, it took a fluctuating path until 2009, when it reached (\$19,557) billion for the countries of the Americas and (\$10,291) billion for the countries of the Union. The European and (5,047) billion dollars for the Asian countries. As for the other European countries and the Arab countries, they amounted to (1,144 billion dollars and (867) billion dollars, respectively, with a negative growth rate of (-68.4%). This is attributed to the global crisis that struck the world. It then took an unstable path until the year 2021, as the volume of foreign trade of Iraq's exports recorded an increase with a positive growth rate of (44.1%) and reached (56,838) million dollars. Asian markets, which are among the largest trading partners and a major market for Iraq's exports, especially oil, followed by the European Union countries, amounting to 9,328 billion dollars. The countries of the Americas amounted to (3,627) billion dollars, in addition to the Arab countries and other European countries, which amounted to (2,512) billion dollars and (502) billion dollars, respectively, (The Economic Report, 2021: 55). For further clarification, we use the following figure (2):



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365 **B- Geographical distribution of the volume of foreign trade in Iraq (imports):**

366 Imports contribute to providing the requirements for economic growth, such as machinery
367 and equipment necessary to build and develop infrastructure in Iraq. These requirements
368 can only be provided through foreign trade, which makes Iraq linked to international
369 economic relations with most of the major global economies. From the data in Table (3), it is
370 clear that foreign trade in Iraq, represented by imports with the most important trading
371 partners in 2004, was led by the European Union countries, the Asian countries, and the
372 Arab countries, respectively (9,064) billion dollars, (3,983) billion dollars, and (2,373) billion
373 dollars, followed by the countries of the Americas and the other European countries,
374 respectively. (1,861) billion dollars, (0.404) billion dollars, and then took a fluctuating path
375 until the year 2014, as Iraq's imports with the most important trading partners recorded a
376 positive growth rate amounting to (68.2%), led by the Asian countries, which amounted to
377 (29,301) billion dollars, followed by Iraq's imports. Of the Arab countries, it amounted to
378 (29,301) billion dollars, then the European Union countries amounted to (29,301) billion
379 dollars. As for the rest of the trading partners, the countries of the Americas and other
380 European countries, respectively, recorded about (3,867) billion dollars, and (3,164) billion
381 dollars for the same year, The commodity composition of imports was primarily machinery
382 and transportation equipment, followed by various manufactured goods and manufactured
383 goods, and then mineral fuels, lubricating oils, etc., to continue after that in a state of
384 fluctuation until the year 2021, as Iraqi imports were recorded for the most important trading
385 partners. A negative growth rate of (-16%) for the Asian countries, the European Union, and
386 the Arab countries, respectively. (28,890) billion dollars, (5,565) billion dollars, (3,100) billion
387 dollars, followed by the countries of the Americas, which amounted to (2,159) billion dollars,
388 and the other European countries amounted to (0,851) billion dollars. For further clarification,
389 we use the following figure (3):

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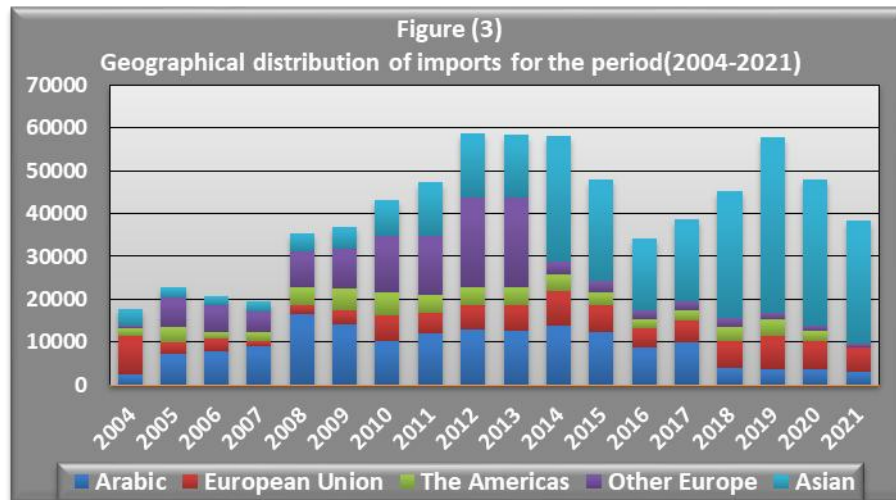
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Table .3 .Geographical distribution of (Imports) values in Iraq for the period (2004-2021) billion dollars:

Growth rate%	Geographic area					The year
	Asian countries	Other European countries	European Union countries	Americas countries	Arab countries	
—	3,983	0,404	9,064	1,861	2,373	2004
-45	2,530	6,975	2,685	3,546	7,198	2005
-14	2,194	6,226	2,946	1,650	7,855	2006
2.4	2,249	4,733	1,271	2,190	9,035	2007
59.6	4,082	8,590	2,307	3,976	16,399	2008
22.3	5,104	9,475	3,348	5,001	14,068	2009
50.2	8,432	13,253	5,885	5,248	10,399	2010
40.2	12,615	13,925	4,881	4,101	11,903	2011
16.4	14,864	20,929	5,918	4,190	12,816	2012
-0	14,811	20,855	5,897	4,175	12,770	2013
68.2	29,301	3,164	8,029	3,867	13,889	2014
-21.7	23,568	2,665	6,251	3,034	12,406	2015
-33	16,793	1,899	4,454	2,162	8,839	2016
12.5	19,034	2,171	5,039	2,442	10,002	2017
44.8	29,800	2,039	6,199	3,280	4,046	2018
32.4	41,212	1,441	7,910	3,767	3,601	2019
-18	34,148	1,006	6,577	2,552	3,664	2020
-16	28,890	0.851	5,565	2,159	3,100	2021

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Source: Central Bank of Iraq, General Directorate of Statistics and Research, Statistical Bulletin..



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4.3. Analysis of the Iraqi dinar exchange rate against the dollar:

The exchange rate is an important tool that plays an influential role in the economies of all countries, especially in Iraq, as the Iraqi political system witnessed changes after 2003 that

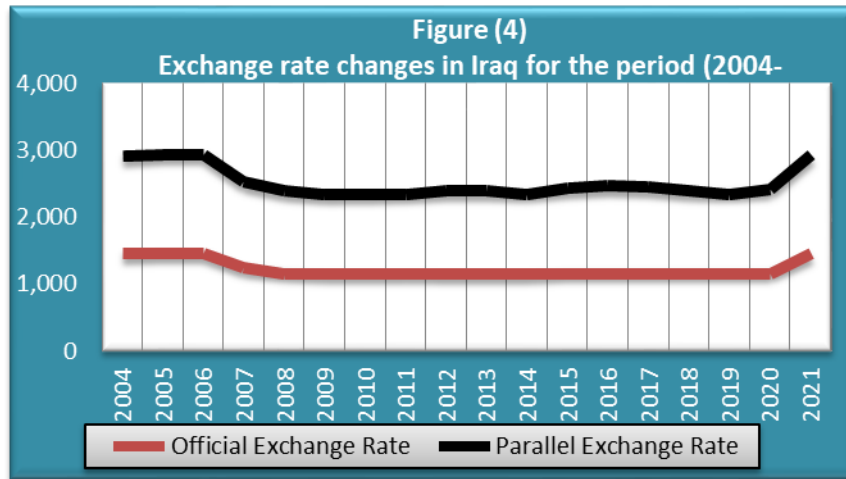
408 led to changes in the directions of economic policies in Iraq and the pursuit of external trade
 409 openness, and the issuance of some laws contributed to this, especially Central Bank Law
 410 No. (56) of 2004 and Banking Law No. (94) of 2004, in addition to Investment Law No. (13)
 411 of 2006. There are two foreign exchange rates against the Iraqi dinar: the official rate
 412 determined by the monetary authority and the parallel rate determined by the market .
 413

414 **Table .4.Developments in the Iraqi dinar exchange rate against the dollar for the**
 415 **period (2004-2021)**

Gap (exchange rate)	Growth rate %	Exchange rate (parallel)	Growth rate %	Exchange rate (the official)	The year
0	- - -	1,453	- - -	1,453	2004
0.20	1.9	1,472	1	1,469	2005
0.5	0.2	1,475	-0	1,467	2006
0.9	- 15.2	1,267	-15.6	1,255	2007
0.8	-5.1	1,203	-5	1,193	2008
1	-1.7	1,182	-1.9	1,170	2009
1.2	0.2	1,185	0	1,170	2010
2.2	0.9	1,196	0	1,170	2011
5.7	3	1,233	-0.3	1,166	2012
5.6	-0	1,232	0	1,166	2013
4.1	-1.4	1,214	0	1,166	2014
4.7	2.6	1,247	2	1,190	2015
7.1	2.2	1,275	0	1,190	2016
5.7	-1.3	1,258	0	1,190	2017
1.5	-4	1,208	0	1,190	2018
0.5	-0.9	1,196	0	1,190	2019
3.6	3.17	1,234	0	1,190	2020
1.6	17.7	1,474	19.7	1,450	2021

420 Source: Central Bank of Iraq, General Directorate of Statistics and Research, Statistical Bulletin.
 421

422 From the data in Table (4), it is clear that the exchange rate of the Iraqi dinar (official and
 423 parallel) against the dollar reached (1,453) dinars in 2004, and then took a fluctuating path
 424 until the year 2015, when it reached (1,190) dinars, the official Iraqi dinar exchange rate
 425 against the dollar. With a positive growth rate of (2%), while the exchange rate of the Iraqi
 426 dinar in the parallel market reached (1,247) dinars, with a growth rate of (2.6) dinars, this is
 427 due to the Central Bank issuing new instructions for buying and selling foreign currency
 428 requiring the strengthening of the balances of banks wishing to buy with their
 429 correspondents abroad. To finance legally permitted banking operations to ensure price
 430 stability and to finance trade and other operations, which reflects the growing gap between
 431 the official exchange rate and the market exchange rate (Economic Report, 2015: 38). Then
 432 the official exchange rate maintained its stability, while the parallel market exchange rate
 433 took a fluctuating path until the year 2021, as it reached (1,474) dinars, the parallel market
 434 exchange rate at a rate of 17.7%, and the official exchange rate reached 1,450 dinars, with a
 435 growth rate of (19.7%). (The Economic Report, 2020: 9). For further clarification, we use
 436 Figure (4) as follows:
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5.Measuring the impact of foreign trade on the Iraqi dinar exchange rate according to the (VAR) model:

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5.1.Description of search variables:

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At this stage, the model variables will be described, because it is an important step to clarify the dependent and independent variables, according to the following table (Gujarat, 2015:150):

Table .5.Description of research variables:

Now-And	Rum- -g	Variables	T
Independent	V	The trade Exchange	1
Continued	P	Parallel Exchange rate	2

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-Source: Prepared by the researcher.

5.2.Stability test (ADF) for the research variables:

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In order to know the stability of the time series or not, for the research variables, we will test the stationarity of the time series values to avoid spurious regression using the program (Eviews.10) (Gujarat, 2015: 157), so the test was conducted based on the expanded Dickey-Fuller test, and the results shown were reached. In Table (6) below:

Table .6.Testing the stability of time series of research variables

Augmented Dickey-Fuller test statistic								
Variables	Estimated Value	Critical Val			Prop	Level	1St Difference	2St Difference
		1%	5%	10%				
P	3.380478-	2.728252-	1.966270-	1.605026-	0.0024			***
V	3.549108-	2.717511-	1.964418-	1.605603-	0.0015		**	

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475
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Source: Prepared by the researcher based on the program (E-Views10).
(*) is stable at the level (**) is stable at the first difference (***) is stable at the second difference.

5.3.Estimating and analyzing variables according to the (VAR) model:

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5.3.1. 1- Model evaluation:

After determining the degree of slowness of the model, then comes the stage of estimating parameters and determining statistical significance. Accordingly, the test was conducted according to the (VAR) model, following its basic steps and according to the following results of Table (7): -

Table 7. Estimating the model according to the VAR methodology

Vector Autoregression Estimates		
Date: 09/09/23 Time: 16:05		
Sample (adjusted): 2006 2021		
Included observations: 16 after adjustments		
Standard errors in () & t-statistics in []		
Vector Autoregression Estimates	V	P
P(-1)	0.852957	-84.29788
	(0.37667)	(119.941)
	[2.26446]	[-0.70283]
P(-2)	-0.365565	-46.20481
	(0.38596)	(122.898)
	[-0.94716]	[-0.37596]
V(-1)	-0.001323	0.563841
	(0.00097)	(0.30761)
	[-1.36965]	[1.83295]
V(-2)	0.001355	-0.257283
	(0.00090)	(0.28677)
	[1.50426]	[-0.89718]
C	649.4719	233926.8
	(449.912)	(143262.)
	[1.44355]	[1.63285]
R-squared	0.695702	0.796517
Adj. R-squared	0.543553	0.692645
Sum sq. resid	57558.47	5.84E+09
S.E. equation	72.33663	23033.67
F-statistic	3.089221	3.314168
Log likelihood	-88.20676	-180.4209
Akaike AIC	11.65084	23.17761
Schwarz SC	11.89228	23.41904
Mean dependent	1254.938	99466.44
S.D. dependent	90.26514	29290.92
Determinant resid covariance (dof adj.)	2.71E+12	
Determinant resid covariance	1.28E+12	
Log likelihood	-268.4451	
Akaike information criterion	34.80564	
Schwarz criterion	35.28851	
Number of coefficients	10	

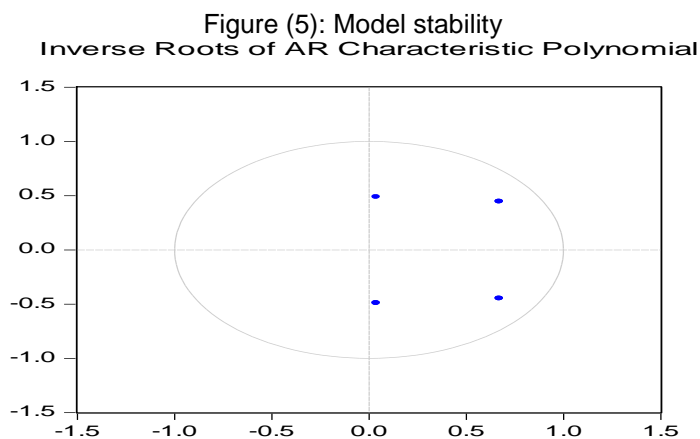
Prepared by the researcher based on the outputs of the (E-Views10.) program.

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489 From the data in Table (7), it is clear that the results of estimating the VAR model, explained
490 by the coefficient of determination (R²), amounted to (0.69), meaning that some of the
491 changes that occur in the exchange rate of the Iraqi dinar for the parallel market are sourced
492 from changes in the volume of foreign trade of the most important trading partners with Iraq.
493 As for other changes, they occur as a result of other factors, including the lack of control
494 over foreign transfers and the smuggling of hard currency despite the deterrent measures by
495 the monetary authority, especially after the adoption of Money Laundering Law No. (39) of

496 2015. As for the value of (F), it reached (3.0), in order to ensure the stability of the model,
497 the following test must be conducted:

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502 Through Figure (5), it is clear that the roots are all within one circle, and therefore it is
503 possible to conduct many tests to measure the relationship between the (parallel) Iraqi dinar
504 exchange rate and the volume of trade exchange of the most important trading partners with
505 Iraq.

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507 **5.3.2. Converting the estimated model into a system:**

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509 After the steps of estimating the variables for the dependent and independent variables and
510 conducting a stability test for the model, the model was converted into a system, as shown in
511 Table (8) below:

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Table (8) Converting formulas into a system

System: UNTITLED				
Estimation Method: Least Squares				
Date: 09/15/23 Time: 04:11				
Sample: 2006 2021				
Included observations: 16				
Total system (balanced) observations 32				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.852957	0.376670	2.264464	0.0337
C(2)	-0.365565	0.385958	-0.947162	0.3538
C(3)	-0.001323	0.000966	-1.369652	0.1846
C(4)	0.001355	0.000901	1.504260	0.1467
C(5)	649.4719	449.9121	1.443553	0.1630
C(6)	-84.29788	119.9406	-0.702830	0.4895
C(7)	-46.20481	122.8980	-0.375961	0.7105
C(8)	0.563841	0.307613	1.832955	0.0804
C(9)	-0.257283	0.286768	-0.897182	0.3793
C(10)	233926.8	143262.5	1.632855	0.1167
Determinant residual covariance		E+121.28		
Equation: P = C(1)*P(-1) + C(2)*P(-2) + C(3)*V(-1) + C(4)*V(-2) + C(5)				
R-squared	0.529047	Mean dependent var	1254.938	
Adjusted R-squared	0.357791	S.D. dependent var	90.26514	
S.E. of regression	72.33662	Sum squared resid	57558.46	
Durbin-Watson stat	1.597299			
Equation: V = C(6)*P(-1) + C(7)*P(-2) + C(8)*V(-1) + C(9)*V(-2) + C(10)				
R-squared	0.546516	Mean dependent var	99466.44	
Adjusted R-squared	0.381613	S.D. dependent var	29290.92	
S.E. of regression	23033.67	Sum squared resid	5.84E+09	
Durbin-Watson stat	2.077116			

Prepared by the researcher based on the outputs of the (E-Views10.) program.

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5.3.3. Analysis of response functions for variables:

For the purpose of tracking the time course of sudden changes and shocks to which the model may be exposed, and the extent to which other variables respond to any change, we resort to this test, according to the results shown in Table (9) as follows:

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Table (9) Response functions for variables

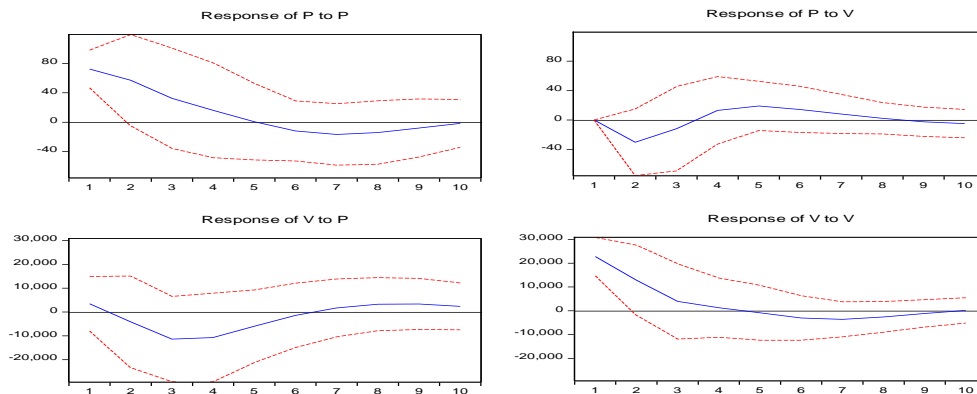
Response of P:		
Period	P	V
1	72.33663	0.000000
2	57.12296	-30.13143
3	32.45354	-11.83989
4	16.24634	13.12290
5	0.763396	19.11632
6	-11.89771	14.37246
7	-16.64601	8.137952
8	-14.03923	2.334193
9	-7.925465	-2.408412
10	-1.635502	-4.948281

Prepared by the researcher based on the outputs of the (E-Views10.) program.

From the data in Table (5), it is clear that the extent of the response of the dependent variable (P), the parallel Iraqi dinar exchange rate, to sudden changes was large in the first year, while the independent variable (V), which is related to the volume of trade exchange, had a very low rate, after which it took an oscillating path, as shown. In Figure (6) below:

Figure (6) Response function

Response to Cholesky One S.D. (d.f. adjusted) Innovations ± 2 S.E.



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5.3.4. Analysis of variance for variables:

After conducting the analysis of the response functions, we conduct the analysis of variance, which is a tool to determine the amount of variance in the prediction of the research variables and to identify the explanatory power of the dependent and independent variables, the percentage of errors, as well as sudden changes in the model variables, according to Table (10):

Table (10) Analysis of Variance

Variance Decomposition of P:			
Period	.S.E	P	V
1	72.33663	100.0000	0.000000
2	96.97177	90.34507	9.654926
3	102.9414	90.10954	9.890463
4	105.0385	88.93967	11.06033
5	106.7666	86.08899	13.91101
6	108.3847	84.74280	15.25720
7	109.9570	84.62829	15.37171
8	110.8742	84.83724	15.16276
9	111.1832	84.87448	15.12552
10	111.3053	84.70999	15.29001

Prepared by the researcher based on the outputs of the (E-Views10.) program.

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5.3.5. Causal analysis of the research variables:

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From the results of the Granger test shown in Table (11), it is clear that the best lag period is (4). Therefore, there is a causal relationship between the two variables (the parallel Iraqi dinar exchange rate, the volume of foreign trade exchange), and therefore we reject the alternative hypothesis and accept the null hypothesis.

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Table .11.Granger causality test for the relationship between variables:

Null Hypothesis	Towards the relationship	F-Statistic	Prob	Lag
V does not Granger Cause P		11.8520	0.0092	4
P does not Granger Cause V		5.35944	0.0471	

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Prepared by the researcher based on the outputs of the (E-Views10.) program.

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632 **Conclusions:**

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- 634 1- The weakness of local production has opened the door to imports of foreign goods to
- 635 invade the local market, and this in turn will lead to the exit of hard currency to
- 636 cover the value of large imports that mostly include consumer goods that contribute
- 637 to keeping the non-oil merchandise trade balance in a state of continuous deficit.
- 638 2- During the research period, most of the exports in the period (2004-2010) headed to
- 639 the countries of the Americas, in addition to imports, but after that they headed
- 640 towards the Asian countries.
- 641 3- The results of the VAR model showed that there was an effect of the volume of
- 642 foreign trade on the exchange rate of the parallel Iraqi dinar during the research
- 643 period.
- 644 4- According to the Granger causality test, it was found that there is a causal
- 645 relationship between the volume of foreign trade and the exchange rate of the
- 646 parallel Iraqi dinar.

647 **Recommendations:**

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- 649 1- Bold steps must be taken that contribute to boosting the economy, addressing the
- 650 structural imbalance that Iraq has suffered through successive crises, and activating
- 651 the role of other sectors to address the imbalance in the trade balance.
- 652 2- Focusing imports on essential goods, especially investment goods, and not following
- 653 the policy of dumping consumer goods that can be produced locally.
- 654 3- Stimulating investment by activating investment channels, especially in non-oil
- 655 fields and employing a policy of customs and tax exemption.
- 656 4- The monetary authority in Iraq must take effective steps commensurate with the
- 657 volume of demand for the dollar, especially in the currency sales window and
- 658 include small traders in the transactions that take place through the electronic
- 659 platform to stabilize the exchange rate of the Iraqi dinar against the dollar and bridge
- 660 the gap between the official and parallel exchange rates

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689 Hind Abdel Ghafour Odeh. APPENDIX

690 **Economic reports :**

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692 (2004-2021).
- 693 2- Republic of Iraq, Central Bank of Iraq, Statistical Bulletin, various years
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