The intermediary exchange rate regimes what option is the best for the Algerian exchange regime

انظمة سعر الصرف الوسيطة: ما هو الخيار الأمثل لنظام الصرف الجزائري ؟

Benmessaoud adem[1]
University of Ali Lounici – Blida 02- Algeria
a.benmessaoud@univ-blida2.dz

Guelmine Mohamed Hichem
University of Mouloud Mammeri – tizi-ouzou- Algeria
Mohamed-hichem.guelmine@ummto.dz

Received: 19/06/2023 *Accepted: 14/02/2024* *Published: 03/03/2024*

Abstract:

The aim of our paper is to elicitate the best option (the intermediary exchange rate regime) to accompany our transition from the fixed exchange regime to the floating one, to ensure the stability of the monetary market, and the level of the prices of goods and services that will be endangered in the case of a direct transition.

The best option for the Algerian monetary market is the managed floating regime, in which the manipulation of the national currency will guarantee a smooth accompaniment of the balance of payment situation, managing the foreign currency reserve, while securing the power purchase.

But in fact the Algerian regime is still the centralized system, with the is no manipulation of the national currency, only by pegging it to the dollar, by conducting a devaluation to mitigate the effect of 2014 crisis on the balance of payment, or revaluation to protect the power purchase.

Key words: *intermediary exchange rate regime, managed floating regime, revaluation; devaluation, manipulation of the national currency.*

Jel Classification: C12- C32- G21-F31

ملخص:

الهدف من ورقتنا هو استنباط أفضل خيار (نظام سعر الصرف الوسيط) لمرافقة انتقالنا من نظام الصرف الثابت إلى النظام العائم ، لضمان استقرار السوق النقدي ، ومستوى أسعار السلع و الخدمات التي ستتعرض للخطر في حالة الانتقال المباشر.

أفضل خيار للسوق النقدي الجزائري هو نظام التعويم الموجه، حيث يضمن التلاعب بالعملة الوطنية مواكبة سلسة لميزان المدفوعات ، وإدارة احتياطي العملات الأجنبية ، مع تأمين القدرة الشرائية.

لكن في الواقع ، لا يزال النظام الجزائري هو النظام المركزي ، مع عدم التلاعب بالعملة الوطنية ، فقط من خلال ربطها بالدولار ، من خلال إجراء تخفيض لقيمة العملة للتخفيف من تأثير أزمة 2014 على ميزان المدفوعات ، أو إعادة رفعها حماية للقدرة الشرائية.

الكلمات المفتاحية: *نظام سعر الصرف الوسيط، نظام سعر الصرف العائم الموجه، رفع قيمة العملة ، تخفيض العملة، التلاعب بالعملة الوطنية.*

[1] *- Corresponding author: benmessaoud adem, a.benmessaoud@univ-blida2.dz .*

1. INTRODUCTION

The nature of the exchange rate regime meets the needs of national economies from a fixed regime to a floating regime. Nations opt for a regime that grants advantages in international trade operations or maintains internal stability, such as China, which uses an exchange regime based on the manipulation of its currency to guarantee a competitive advantage for its exports, or Lebanon which opts for dollarization in order to ensure its price stability for goods and services.

In Algeria there is a debate on the nature of the current exchange rate regime and its effectiveness, between the international financial institutions which ensure that our regime is "the managed floating exchange rate regime" . floating exchange rate regime) mirroring the IMF and others who claim that our regime is FIAT (not to be confused with fiat currency), which is the most centralized fixed regime.

Reform in the exchange rate regime in Algeria is subject to conditions that ensure macro-economic stability translated into control over the national budgetary and monetary situation, since the current choice is based on the ability of the monetary authorities to intervene in the market. monetary and financial balance to ensure the national monetary and budgetary balance (like the devaluation of the dinar to contribute to the exceptional receipts of the national budget and even to finance the refinancing operations of the Algerian banking system, or to control the amounts of the outflows of the balance of payment, those of the foreign exchange reserve, and to manage the external debt).

Knowing that the structure of our currency-generating sources dictates the nature of the exchange policy adopted by the central bank, tight by the fluctuation of the prices of fossil energy contracts, Algeria has opted for a centralized fiat to manage the reserve of the currency, but with the new government trend which encourages a diversification of the sources of foreign currency (especially for non-hydrocarbon exports, which according to the quarterly bulletins of the central bank pass from 4.71% of general exports during the years of the crisis a 12.83% during the year 2021), this would allow a transition to a more flexible regime, with a floating of exchange rates to encourage foreign remittances (remittances), which remain at a modest level and even in decline from 2.94 billion dollars in 2017 to 1.95 billion in 2021, a transition from our fixed exchange rate regime, which depletes our foreign exchange reserve, to a floating regime which reduces speculation in the market, and the negative effects of the black market, and which serves to Automatically settle balance of payment imbalances.

For a good transition from the exchange rate regime to the floating regime without repercussions on the stability of our national economy, we can opt for intermediate exchange regimes which represents a compromise between the fixed and floating regimes which combine the stability of the first and the independence in terms of monetary policy from the latter, from the regimes that accompany the final transition to a floating regime.

This transition will have to respect the economic rules translated by scientific models (like the Mundell - Fleming model), which anticipates the behaviour of the markets with the choices adopted in terms of exchange rate regime.

It should also be noted that a transition of the exchange rate regime will not take place without an accompanying regulatory framework, and with the announcement of the reform of the law on

currency and credit (ordinance 03-11) to accompany the changes and the evolution of the Algerian economic scene, one of the most important axes of the reform is the transition of our exchange rate regime to a floating regime.

Although the Algerian legislator has tried to make the regulation of foreign exchange and capital movements from and to abroad more flexible, such as regulation 14-04 setting the conditions for the transfer of capital abroad under the investments abroad by economic operators, or regulation 16-04 relating to the rules applicable to current transactions with foreign countries and to currency accounts which is a reform of regulation 11-06, giving the possibility of repatriation of revenue from export has a 360-day deadline, and even grant an exemption from bank domiciliation formalities, exports of digital services and start-ups, and services of non-commercial professionals in 2021.

But on the other hand, we have noted delays in the implementation of numerous instructions and regulations which ensure an effective transition of the exchange rate regime, such as regulation 16-01 where the central bank authorizes the opening of exchange offices for the purchase and sale of banknotes denominated in foreign currency against the national currency, or the application of regulation 20-04 to ensure an interbank market in foreign currency that meets the needs of national economic operators.

So it's a whole package of necessities and modalities that accompany this transition, we are trying to draw the attention **to the best options for the Algerian monetary authority to ensure a healthy transition to a system floating exchange rate?**

In our paper will try to test 2 hypotheses, to understand the function and effect of the Algerian exchange rate regime, and what role the money devaluation has to secure the stability of the balance of payment:

H_0: the null hypothesis meaning there isn't a direct relation between money devaluation and the situation of the balance of payment.

H_1: there is a direct relation between money devaluation and the situation of the balance of payment.

THE METHODOLOGY OF THE PAPER:

our research follow the hypothetico-deductive model, assuming that our exchange rate regime is not the managed floating regime (not following the IMF, and our central bank reports), then will observe the effect the management of the exchange regime to mitigate the negative effect of the 2014 crisis.

Our data a summarized historically by financial quarters in the test of the hypotheses, (from central bank data)

In our data analysis, we used the vector autoregressive model (the VAR granger causality tests between devaluation, and the balance of payment), and the cholesky impulse test to observe the development of the effect of the variables on themselves).

The objectives of the paper:

- Present the basic concepts of exchange rate regimes, and know the factors controlling the policies of monetary authorities in choosing these regimes, clarifying the fundamental differences between the different regimes.
- Presentation of the reality and evolution of the Algerian exchange system, and its management by the central power, with its positive and negative aspects.
- Present the options that the Algerian regime can adopt, during the process of transition to a floating exchange rate system, and the possible scenarios for each option, and its effects, in particular on the local balance of payments, and the national economy in his outfit.

2. Intermediate exchange rate regime:

Intermediate exchange rate regime refers to a transitional arrangement between a fixed exchange rate regime and a floating exchange rate regime. This regime is often adopted by countries as they undergo economic and monetary reforms, allowing for a gradual adjustment in their exchange rate system.

We will delve into the characteristics, advantages, and challenges associated with the intermediate exchange rate regime.

2.1 of the Intermediate Exchange Rate Regime: The intermediate exchange rate regime involves managing or allowing the exchange rate to fluctuate within a specific range or band. This transitional phase aims to strike a balance between the stability of a fixed exchange rate and the flexibility of a floating exchange rate. Key features of the intermediate exchange rate regime include:

2.1.1 **Managed Floating**: Under this intermediate regime, the central bank may intervene in the foreign exchange market to influence the exchange rate within the specified band. Such interventions can be aimed at maintaining stability, managing excessive volatility, or supporting economic objectives.

2.1.2 **The crawling peg exchange rate system**: is a monetary policy framework that combines elements of a fixed exchange rate and a flexible exchange rate regime. Under this system, a country's currency is pegged to a reference currency or a basket of currencies, and the exchange rate is adjusted gradually over time within a predetermined range.

The crawling peg exchange rate system involves pegging a country's currency to a reference currency or a basket of currencies. The exchange rate is adjusted periodically by a fixed amount or a predetermined rate of change. The crawling peg allows for flexibility within a defined range, providing stability while accommodating gradual adjustments over time.

The crawling peg exchange rate system will bring stability to the financial market, by fixing the exchange rate of a country's currency to a reference currency or a basket of currencies, and this provides a stable anchor for the exchange rate, and will allow gradual adjustments to the exchange rate, a rate of adjustment determined by the country's economic conditions, policy objectives, and external factors (Williamson, 1999).

And several countries had chosen this system to achieve their macro-stability objectives , like Morocco (Moroccan Dirham), historically employed a crawling peg exchange rate system, with the dirham pegged to a basket of currencies, and the exchange rate is adjusted periodically by a fixed amount to maintain stability and competitiveness, or the Venezuelan Bolívar (VEF), where Venezuela previously implemented a crawling peg system, and the bolívar was pegged to the U.S. dollar and adjusted periodically by the central bank. However, the country faced significant challenges in managing the system effectively amid economic instability.

Advantages of the Crawling Peg Exchange Rate System:

- ✓ **Stability and Predictability**: The crawling peg system provides a degree of stability and predictability for businesses, investors, and the economy as a whole. The fixed reference rate or currency basket serves as an anchor, reducing uncertainty and facilitating planning and decision-making.
- ✓ **Flexibility**: Unlike a fixed exchange rate regime, the crawling peg allows for gradual adjustments to the exchange rate. This flexibility enables the currency to respond to changing economic conditions, reducing the risk of abrupt shocks and imbalances.
- ✓ **Policy Autonomy:** The crawling peg system allows policymakers to maintain a certain degree of control over the exchange rate. They can adjust the rate of crawling and intervene in the foreign exchange market when necessary to manage volatility or achieve policy objectives.

Challenges and Considerations:

- ✓ **Exchange Rate Management**: Effectively managing the crawling peg exchange rate system requires continuous monitoring of economic conditions and external factors. Central banks need to make timely and appropriate adjustments to the crawling rate to maintain stability and address macroeconomic objectives.
- ✓ **Market Expectations and Speculation**: Market participants' expectations and speculative activities can influence the exchange rate within the crawling peg system. The central bank's actions and communication play a crucial role in managing market expectations and reducing the potential for disruptive speculation.
- ✓ **External Shocks:** While the crawling peg system provides some flexibility, it may still be vulnerable to external shocks, such as fluctuations in the reference currency or changes in global economic conditions. Adequate policy responses and coordination are necessary to mitigate the impact of such shocks (Kenneth S.Rogoff, 2003).
- ✓ **Credibility and Communication**: Maintaining credibility is crucial for the crawling band system to be effective. Clear communication of policy objectives, the rate of crawling, and the willingness to intervene when necessary helps build market confidence and reduce uncertainty.
- ✓ **Exchange Rate Management**: Effectively managing the exchange rate within the crawling band requires continuous monitoring and assessment of economic conditions. Central banks need to make appropriate interventions and adjust the rate of crawling based on evolving circumstances.
- ✓ **Market Expectations**: Market participants' expectations and speculations can influence the exchange rate within the crawling band system. The central bank's actions and policy signals play a significant role in managing and aligning market expectations.

The crawling peg exchange rate system offers a balance between stability and flexibility, allowing for gradual adjustments while maintaining a fixed peg to a reference currency or currency basket. It provides stability, predictability, and policy autonomy to countries. However effective exchange rate management, consideration of market expectations, and responses to external shocks are crucial for the successful implementation of the crawling peg system. The examples of Morocco and Venezuela highlight the diverse experiences and challenges associated with this exchange rate framework (Farrell, 2013).

2.1.4 A currency basket peg: is a monetary policy framework in which a country's currency is pegged to a basket of foreign currencies rather than a single currency, this approach allows for greater stability and diversification in the exchange rate, reducing dependence on a single currency.

A currency basket peg involves fixing the exchange rate of a country's currency to a weighted average of several major foreign currencies; the composition of the currency basket varies depending on the country's economic and trade relationships. The weights assigned to each currency in the basket are determined based on factors such as trade volumes, economic ties, and policy objectives (Takagi, 1986), unlike a fixed exchange rate regime tied to a single currency (e.g., the U.S. dollar), a currency basket peg includes several currencies, this diversification reduces the risk associated with fluctuations in any one currency, and reduces the vulnerability to shocks associated with a single currency peg and can help promote a more stable business environment.

This system is chosen by countries that want to insure a ensuring competitiveness with various trading partners, a currency basket peg can be beneficial for countries with significant trade relationships with multiple countries. And it aligns the exchange rate with the country's overall trade balance, so weights assigned to each currency in the basket reflect their importance in the country's economic relationships, and these weights can be periodically adjusted to reflect changes in trade patterns or policy priorities.

And by pegging to a basket of currencies, a country can reduce its dependency on a single currency, especially if its economy heavily relies on trade with multiple countries or a specific region.

The currency basket peg offers an alternative to a single currency peg and provides exchange rate stability through diversification. While it can enhance stability and reduce dependence on a single currency, careful consideration of the currency composition, policy coordination, and monitoring of exchange rate movements are essential for successful implementation. Several countries and institutions have adopted currency basket pegs, showcasing its relevance in today's global economy.

China is the major example of this case, by adopting this system evolving from a fixed peg to the U.S. dollar to a managed float against a currency basket. The People's Bank of China uses a basket of currencies, including the U.S. dollar, euro, Japanese yen, and others, to guide the renminbi's exchange rate.

And we should also note that Special Drawing Rights (SDR): The International Monetary Fund's SDR is a widely recognized example of a currency basket peg. The SDR consists of a basket of major currencies, including the U.S. dollar, euro, Japanese yen, British pound sterling, and the Chinese renminbi.

The national exchange rate is calculated based on **a trade – weighted effective exchange rate index**, in which the rate is adjusted according to the trade volume between the nations.

And the rate is calculated according to this formula:

$$\textbf{Trade – weighted effective exchange rate index} = \left(\pi^{N}_{i=1}\right) \frac{(e^{i}_{t})}{(e^{i}_{o})} \quad / \sum \alpha_i = 1$$

N: Partners / competitors nations.
e^{i}_{t} : the exchange rate of the reference country j, vis-a-vis the exchange rate of the country, at the moment t (the number of units of currency of the country j, of a unit of the currency of the country i).
e^{i}_{o}: the exchange rate of the country j, vis-a-vis the exchange rate of the countries i, at the base year.
α_i : the weighting of the bilateral exchange rate of the country j, vis–a–vis the currency of the country. (Zribi, 2020)

This system can brings a positive dynamic to support the trade policy of a country and exchange currency reserve, but it comes also with several challenges, by complicating a country's monetary policy framework. The central bank needs to monitor and manage the exchange rate vis-à-vis multiple currencies, which may require more sophisticated policy tools, and Coordination with other central banks or currency issuers in the basket to maintain the stability that this system brings. This coordination ensures that the policies and actions of those countries do not significantly disrupt the pegged currency's value.

And also the central bank should determine the appropriate currencies and their weights in the basket require, because while a currency basket peg reduces reliance on a single currency, it does not eliminate all exchange rate risks, movements in the currencies included in the basket can still impact the pegged currency, albeit to a lesser extent.

So this decision-making process is guided by a careful consideration. economic factors, trade relationships, and policy objectives.

2.2 Advantages and challenges of the Intermediate Exchange Rate Regime:

After presenting a group of intermediate exchange rate regime, we observe that this type of regimes offers several potential benefits to countries undergoing economic transitions to insure what we call a smooth transition, without instabilities and disruptions that could leads to major crisis, caused by a sudden shift from a fixed to a floating exchange rate. (Mark stone, 2008)

The major advantage that could offer this type of regimes is the adaptation to a changing environment conditions, through the gradual adjustment reducing the negative effects in case of instability in the demand on the currency, or fixing a structural crisis like the one Algeria faced after 2014 when the oil and gas prices dropped, and the public revenues and the currency exchange reserve were affected badly from it, so changing in the money value, reduce the affects of the crisis of the payment balance and government budget.

The intermediate regime provides policymakers with a degree of flexibility in managing the exchange rate; it allows them to influence the currency's value to support economic objectives such as export competitiveness, price stability, or external balance,

And finally and especially for countries with high inflation or external vulnerabilities, choosing a currency band will provide a level of control over the market, and it helps to reduce excessive currency fluctuations.

The challenges of the Intermediate Exchange Rate Regime: while the intermediate exchange rate regime offers benefits, it also poses certain challenges and considerations:

- ✓ Credibility and Commitment: Maintaining the credibility of the exchange rate regime is crucial. The central bank's ability to adhere to the specified band and intervene effectively in the foreign exchange market is essential for market confidence and stability.
- ✓ Policy Coordination: The success of the intermediate regime relies on effective coordination between monetary and fiscal policies. Inconsistent or conflicting policies can undermine the stability and effectiveness of the exchange rate management.
- ✓ Market Expectations: Managing market expectations becomes crucial in the intermediate regime. Clear communication of the central bank's policies and objectives can help minimize uncertainty and speculative activities in the foreign exchange market.
- ✓ Gradual Transition: The duration of the intermediate regime should be carefully planned to ensure a smooth transition to a more flexible exchange rate system. Prolonged reliance on the intermediate regime may create dependencies and hinder the adoption of necessary structural reforms (Isama Kato, 2004).

Several countries have adopted the intermediate exchange rate regime during their economic transformations. Examples include China's managed float of the renminbi, India's managed exchange rate regime during the 1990s, and various exchange rate bands implemented by European countries before the adoption of the euro.

The intermediate exchange rate regime serves as a transitional arrangement that facilitates the adjustment of exchange rate systems during economic and monetary reforms. It combines elements of fixed and floating exchange rate regimes to strike a balance between stability and flexibility. By carefully managing the exchange rate within a specified band, countries can navigate through economic transitions while maintaining stability.

3. The exchange market in Algeria:

The exchange market in Algeria has a long and complex history. It has been through periods of both stability and instability, and it has been affected by a number of factors, including the country's political and economic situation, as well as global economic trends.

The first exchange market in Algeria was established in 1964, shortly after the country gained independence from France. The market was initially small and illiquid, but it grew rapidly in the following decades. By the early 1990s, the exchange market was one of the most active in Africa.

However, the Algerian exchange market was also subject to a number of problems. The country's political instability in the 1990s led to a decline in foreign investment, which in turn led to a decline

in the value of the Algerian dinar. The government also imposed a number of restrictions on the exchange market, which made it difficult for businesses and individuals to trade foreign currency.

In recent years, the Algerian government has taken steps to liberalize the exchange market. The government has removed some of the restrictions on foreign exchange transactions, and it has made it easier for businesses and individuals to trade foreign currency. As a result, the exchange market has become more active and the value of the Algerian dinar has stabilized.

However, the Algerian exchange market still faces a number of challenges. The country's economy is still relatively small and underdeveloped, and it is vulnerable to fluctuations in the global economy. As a result, the exchange market is likely to remain volatile in the future.

Here are some of the key events in the history of the exchange market in Algeria:

- **1964:** The first exchange market in Algeria was established in Algiers, the capital city. The market was initially small and illiquid, but it grew rapidly in the following decades. By the early 1990s, the exchange market was one of the most active in Africa.
- **1990s:** The Algerian exchange market declined due to political instability and economic problems. The country was in the midst of a civil war, and the economy was struggling. As a result, there was a decline in foreign investment, which in turn led to a decline in the value of the Algerian dinar. The government also imposed a number of restrictions on the exchange market, which made it difficult for businesses and individuals to trade foreign currency.
- **2000s:** The Algerian government began to liberalize the exchange market. The government removed some of the restrictions on foreign exchange transactions, and it made it easier for businesses and individuals to trade foreign currency. As a result, the exchange market became more active and the value of the Algerian dinar stabilized.
- **2010s:** The Algerian exchange market became more active and the value of the Algerian dinar stabilized. The government continued to liberalize the exchange market, and the economy began to grow. As a result, there was an increase in foreign investment, which in turn led to an increase in the value of the Algerian dinar.

The future of the exchange market in Algeria is uncertain. The country's economy is still relatively small and underdeveloped, and it is vulnerable to fluctuations in the global economy. As a result, the exchange market is likely to remain volatile in the future.

Here are some of the challenges that the Algerian exchange market faces in the future:

- **Political instability:** Algeria has a history of political instability, which has made it difficult for the country to attract foreign investment. This has hurt the economy and made it difficult for the Algerian dinar to maintain its value.
- **Economic problems:** Algeria's economy is still relatively small and underdeveloped. This makes the country vulnerable to fluctuations in the global economy, which can have a negative impact on the exchange market.
- **Government restrictions:** The Algerian government still imposes some restrictions on the exchange market. These restrictions make it difficult for businesses and individuals to trade foreign currency, which can limit the growth of the exchange market.

Despite these challenges, the Algerian exchange market has the potential to grow in the future. The country's economy is growing, and there is an increasing demand for foreign currency. As a result, the exchange market is likely to become more active in the future.

The algerian managed float regime:

According to IMF, the Algerian exchange rate regime follow the managed float regime, which is a type of exchange rate system in which the central bank intervenes in the foreign exchange market to influence the value of the currency. However, unlike a fixed exchange rate system, the central bank does not set a specific exchange rate target. Instead, the central bank uses a variety of tools, such as buying and selling foreign currency, to keep the exchange rate within a desired range.

There are several reasons why a country might choose to adopt a managed float regime. One reason is to provide more flexibility for the central bank to manage monetary policy. For example, if the central bank wants to lower interest rates, it can buy foreign currency, which will increase the supply of money in the domestic economy. This can help to lower interest rates and stimulate economic growth.

Another reason for a country to adopt a managed float regime is to reduce the risk of currency speculation. Currency speculation is when investors buy and sell currencies in the hopes of making a profit from changes in the exchange rate. If a country has a fixed exchange rate system, currency speculators can easily make a profit by buying and selling the currency before the central bank intervenes to correct the exchange rate. This can lead to large swings in the exchange rate, which can be disruptive to the economy.

A managed float regime can also help to protect a country's balance of payments. The balance of payments is a measure of the flow of money into and out of a country. If a country has a trade deficit, it means that it is importing more goods and services than it is exporting. This can lead to a decline in the value of the currency, which can make it more difficult for the country to export its goods and services. A managed float regime can help to prevent the currency from depreciating too much, which can help to protect the country's balance of payments.

Advantages and disadvantages of managed float regimes

There are both advantages and disadvantages to using a managed float regime.

Advantages

- **More flexibility for monetary policy:** A managed float regime gives the central bank more flexibility to manage monetary policy. This is because the central bank can buy or sell foreign currency to influence the exchange rate, which can then affect interest rates.
- **Reduced risk of currency speculation:** A managed float regime can help to reduce the risk of currency speculation. This is because the central bank can intervene in the foreign exchange market to prevent large swings in the exchange rate.
- **Protection for the balance of payments:** A managed float regime can help to protect the balance of payments. This is because the central bank can intervene in the foreign exchange market to prevent the currency from depreciating too much.

Disadvantages

- **Costly for the central bank:** A managed float regime can be costly for the central bank. This is because the central bank may need to buy or sell large amounts of foreign currency to influence the exchange rate.
- **Difficult to manage:** A managed float regime can be difficult to manage. This is because the central bank must constantly monitor the exchange rate and intervene in the market when necessary.
- **Can lead to instability:** A managed float regime can lead to instability in the foreign exchange market (.N.Cooper, 1971). This is because the central bank's interventions can sometimes be unpredictable, which can lead to speculation and volatility.

A managed float regime is a compromise between a fixed exchange rate system and a free-floating exchange rate system. It allows the central bank to have some control over the value of the currency, while also allowing the exchange rate to fluctuate in response to market forces. Managed float regimes are used by many countries around the world, and they can be a useful tool for managing monetary policy and protecting the balance of payments.

4. RESULTS AND DISCUSSION

4.1 The relation between the Algerian devaluation of the dinars and the balance of payment:

Following the vector regression model VAR, using the data from the first half of 2014 until the second half of 2021, to estimate the relation between the money devaluation and the balance of payment and the level of imports and exports:

Table 01: the evolution of the money devaluation, and imports and exports, and the situation of the balance of payment, in Algeria in the 2014 – 2021 crisis period:

Years	**2014 S1**	**2014 S2**	**2015 S1**	**2015 S2**	**2016 S1**	**2016 S2**	**2017 S1**	**2017 S2**
The average semi-annual dinars exchange rate	78.4019	82.6539	95.8159	104.9715	108.77476	110.1722	109.5082	112.4138
imports(B $)	30.1	29.54	27.59	25.06	25.12	24.31	24.74	24.25
Exports (B $)	32.45	27.52	19.06	15.50	13.08	16.23	16.83	17.73
Balance of payment situation (B $)	-1.32	-4.56	-14.38	-13,16	-14.65	-11.42	-11.06	10.7
Years	**2018 S1**	**2018 S2**	**2019 S1**	**2019 S2**	**2020 S1**	**2020 S2**	**2021 S1**	**2021 S2**
The average semi-annual dinars exchange rate	114.9052	118.3026	118.9665	119.1596	124.452	129.151	133.3231	136.8356
imports(B $)	24.34	24.23	24.06	20.57	17.97	17.58	18.94	18.52
Exports (B $)	20.46	20.66	17.92	17.39	11.11	10.82	17.27	21.29
Balance of payment situation (B $)	-7.93	-7.89	- 10.02	-6.9	-6.93	-9.44	-4.38	+2,9

Source: *the central bank quarterly statistics bulletins 28, 33, 41, 46, 57, the central bank of Algeria (algeria, 2014.2016.2018.2019.2022)*

we must put the note on the fact that after both the Q-stat and Dicky fuller tests on the stationarity of the series, we found that the balance of payment, and exports are stationary, but the money devaluation, , imports series are not stationary.

Figure 01: the relation between the money devaluation and the balance of payment:

VAR Granger Causality/Block Exogeneity Wald Tests
Date: 06/15/23 Time: 00:16
Sample: 2014S1 2021S2
Included observations: 13

Dependent variable: DX

Excluded	Chi-sq	df	Prob.
DY	5.550957	2	0.0623
DZ	3.972327	2	0.1372
DW	7.150276	2	0.0280
All	20.40396	6	0.0023

Dependent variable: DY

Excluded	Chi-sq	df	Prob.
DX	4.832599	2	0.0893
DZ	3.374113	2	0.1851
DW	5.037560	2	0.0806
All	7.009586	6	0.3200

Dependent variable: DZ

Excluded	Chi-sq	df	Prob.
DX	2.236936	2	0.3268
DY	8.953225	2	0.0114
DW	23.09522	2	0.0000
All	55.03536	6	0.0000

Dependent variable: DW

Excluded	Chi-sq	df	Prob.
DX	0.709249	2	0.7014
DY	1.093330	2	0.5789
DZ	2.207831	2	0.3316
All	4.615095	6	0.5940

The sources: E-*views – 10 VAR Granger Test*

According to the E-views 10 VAR granger test, the money devaluation (y) will have no immediate effect on neither the balance of payment (x), nor the level of imports (w), but what is strange about this model is the results of the balance of payment as a dependent variable, where only the imports effect it, not the exports which is not realistic.

4.2 The integration of the national crude oil price:

According to Christopher Sims if we witness **a puzzling results**, like the ones we had previously, we must integrate commodity prices, because this later serves as " an information variable ", which can help the central bank to set their devaluation policy.

Table 02: the development of the Algerian crude oil contracts prices from 2014 until 2021

unit: dollar/barrel

Years	**2014 S1**	**2014 S2**	**2015 S1**	**2015 S2**	**2016 S1**	**2016 S2**	**2017 S1**	**2017 S2**
The contract prices	109.9	90.4	58.2	47.2	40.6	48.2	50.9	57.4
Years	**2018 S1**	**2018 S2**	**2019 S1**	**2019 S2**	**2020 S1**	**2020 S2**	**2021 S1**	**2021 S2**
The contracts prices	71.57	71.01	66.40	62.85	40.26	43.94	65.59	77.52

Sources: the central bank quarterly statistics bulletins 28, 33, 41, 46, 57, the central bank of Algeria *(algeria, 2014.2016.2018.2019.2022)*

This last serie is stationary according to **Dicky-Fuller** and **Phillis-Perron,** and the granger test after the integration of the commodity prices will give those results:

Figure 02: the VAR Granger causality tests between money devaluation, the balance of payment, imports, after the integration of crude oil prices

VAR Granger Causality/Block Exogeneity Wald Tests
Date: 06/15/23 Time: 00:53
Sample: 2014S1 2021S2
Included observations: 13

Dependent variable: DX

Excluded	Chi-sq	df	Prob.
DY	5.294569	2	0.0708
DZ	3.669979	2	0.1596
DW	5.827463	2	0.0543
E	1.137662	2	0.5662
All	17.14284	8	0.0287

Dependent variable: DY

Excluded	Chi-sq	df	Prob.
DX	2.408545	2	0.2999
DZ	1.615182	2	0.4459
DW	3.179672	2	0.2040
E	0.334851	2	0.8458
All	4.426434	8	0.8167

Dependent variable: DZ

Excluded	Chi-sq	df	Prob.
DX	4.441311	2	0.1085
DY	31.61078	2	0.0000
DW	24.17516	2	0.0000
E	19.93691	2	0.0000
All	321.7633	8	0.0000

Dependent variable: DW

Excluded	Chi-sq	df	Prob.
DX	3.760913	2	0.1525
DY	7.325874	2	0.0257
DZ	2.213392	2	0.3306
E	6.892671	2	0.0319
All	17.15280	8	0.0286

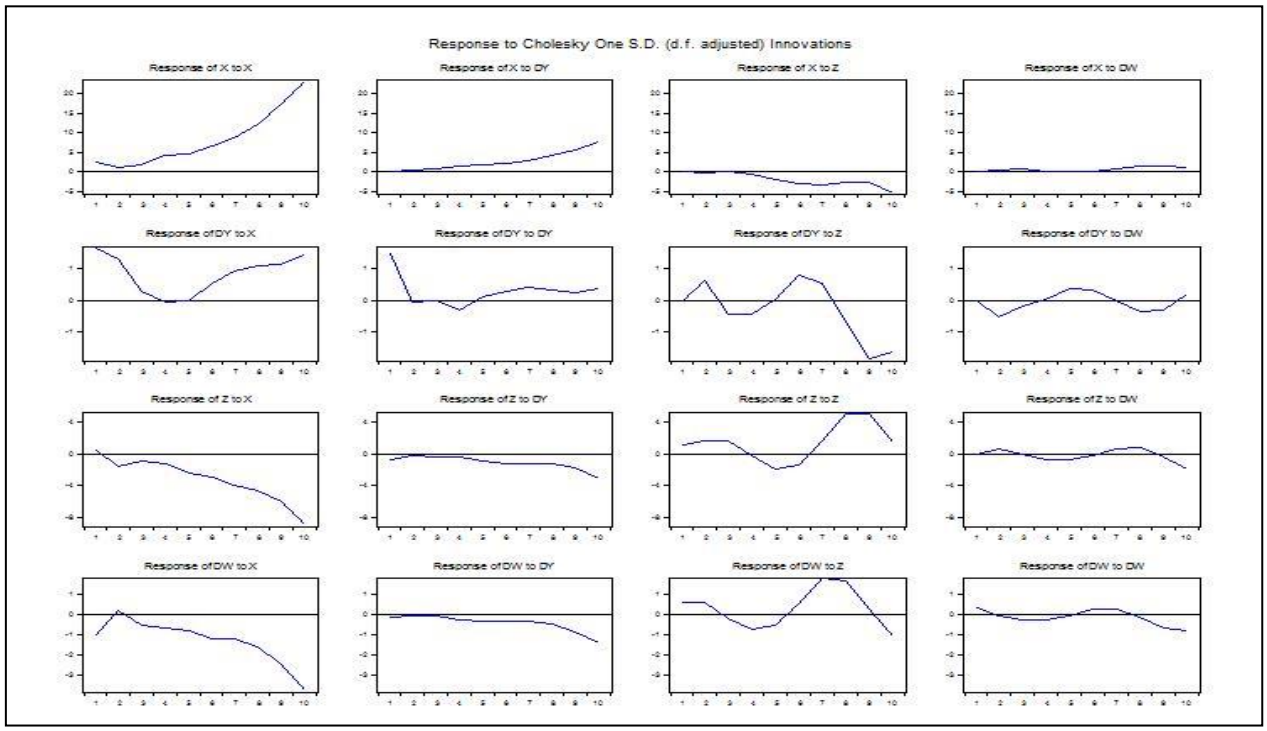
Dependent variable: E

Excluded	Chi-sq	df	Prob.
DX	0.203024	2	0.9035
DY	6.171096	2	0.0457
DZ	2.575351	2	0.2759
DW	1.264536	2	0.5314
All	27.39075	8	0.0006

The sources: E-*views – 10 VAR Granger Test.*

According to this model, the money devaluation will affect the level of the imports and exports directly, but no significant direct affect on the balance of payment, which will push us to conduct the cholesky test, to observe the development of the effect on the money devaluation on the balance of payment.

Figure 03: the new cholesky test after the integration of the commodities prices



The sources: E-*views – the Cholesky impulse test, after the integration of the commodities prices*

According to the Cholesky impulse test, the balance of payment will be affected by the money devaluation after half period (meaning after one trimester), pushing it higher until the last period, meaning if the government want to continues it policy based on the management of the foreign currency reserve, so the government don't have to face the external debt as a resort.

4. CONCLUSION

The Algerian exchange regime is a unique one, meaning that we adopt according to the regulations of the monetary market the managed floating regime, and that what lead the international monetary fund to put Algeria in the list of countries that adopt that kind of regime, but in reality following the policies of the central bank we discover a centralized fiat regime in which there is no manipulation of the money only a fixed devaluation or reevaluation of the currency.

This devaluation or reevaluation is a tool to manage a broken economy, sensible to the fossil fuel market in it resources of the foreign currency, that what led the central bank to adapt a devaluation policy to manage the foreign currency reserve, and mitigate the effect of the 2014 crisis, by halting the imports and stabilizing the balance of payment.

5. Bibliography List :

1. *Richard .N.Cooper (1971), currency devaluation in developing countries, essays in international finance, Princeton university press, number 86 ;*
2. *Shinji Takagi (1986), begging to a currency basket, finance and development, international monetary fund.*

3. *Isama Kato, Merith Uctum , Fixed, Float, or intermediate: A cross country, time serie analysis of exchange – rate regime, Economitric society 2004 north American winter meeting 291- econometric society, California-USA, 03-05 january 2004;*
4. *Kenneth S.Rogoff, Aasim M.Husain, Ashoka Mody, and others, evolution and performance of exchange rate regime, IMF working paper, international monetary fund, USA, 2003.*
5. *algeria, t. c. (2014.2016.2018.2019.2022). the central bank quarterly statistics bulletins number 28.33.41.46.57. algeria.*
6. *Terrence W. Farrell (2013), Floating of the TT dollars: 20 years later, detailed website: www.trinidadexpress.com (consulted on: 10/03/ 2023).*
7. *Mark stone, Harald Anderson, Romaine Veyrune (2008), Exchange rate regime, detailed website: www.imf.org (consulted on: 20/03/ 2023).*
8. *John Williamson (1999), Crawling band or monitoring bands: how to manage rates in a world of capital mobility, detailed website : www.piie.com (consulted on 23/03/ 2023).*
9. *Zribi, Y. (2020). Taux de change effectif, mesure et évolution. tunis: institu tunisien de la compétitivité et des études quantitatives.*

6. Citations[1]:

.N.Cooper, R. (1971). currency devaluation in developing countries. (P. u. press, Éd.) essays in international finance(86).

algeria, t. c. (2014.2016.2018.2019.2022). the central bank quarterly statistics bulletins 28.33.41.46.57. algeria.

Farrell, T. W. (2013,). Floating of the TT dollars: 20 years later. Consulté le mars 10, 2023 , sur Trinidad express : www.trinidadexpress.com

Isama Kato, M. U. (2004). Fixed, Float, or intermediate: A cross country, time serie analysis of exchange – rate regime. Economitric society 2004 north American winter meeting 291- econometric society. california .

Kenneth S.Rogoff, A. M. (2003). evolution and performance of exchange rate regime. working paper, international monetary fund, New York.

Mark stone, H. A. (2008). Exchange rate regime. Consulté le mars 20, 2023, sur International Monetary Fund: www.imf.org

Takagi, S. (1986, september). begging to a currency basket. (i. m. fund, Éd.) finance and development.

Williamson, J. (1999). Crawling band or monitoring bands: how to manage rates in a world of capital mobility. Consulté le 03 23, 2003, sur Peterson institute for international economics : www.piie.com

Zribi, Y. (2020). Taux de change effectif, mesure et évolution. tunis: institu tunisien de la compétitivité et des études quantitatives.