The Suitable Exchange Rate Regime for the Moroccan Economy

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ABSTRACT: This article has the purpose to analyze the relevance of the current exchange rates regime adopted in Morocco, in view of the proposal of a new exchange rate regime. The methodology followed to provide answers to the above questions will be entered in a dual approach, theoretical and empirical. Analysis of the relevance of the exchange rate regime adopted by Morocco to conclude that it is more appropriate for Morocco to make a change in its exchange rate regime and adopt a more flexible regime.

1. Introduction

The question of choosing an optimal exchange rate regime is one of the most controversial issues in international economics and has not received a definitive answer (El Hammas and Slah, 2006). These difficulties of establishing a consensus on the issue of choosing an optimal exchange rate regime emanate from the variety of factors determining the choice of an exchange rate regime, a conflicting conclusions resulting from the confrontation of these factors and also the problem of quantification and prioritization of these factors (Husain, 2006).

At the empirical level, the analysis of the effective choices made by different countries can distinguish two main periods, namely the operation of Bretton Woods and after that, the collapse of this system. In fact, while during the Bretton Woods international monetary system operating in a system of multilateral fixed exchange rates against the U.S. dollar, the collapse of this system has resulted a variety of choices of exchange rate regimes, generating a significant problems in the classification of exchange rate regimes and an important evolution in these choices based on the economic events happened in the world economy since that time.

In Morocco, the exchange rate regime applicable is qualified (according to the taxonomy of the IMF) Exchange Rate Anchor. It is a system generally part, according to the different categorizations made, rigid fixity regime or intermediate regime, in which the country links (formally) its currency at a fixed rate to another currency or a basket of currencies.

Historically, the analysis of exchange rate regimes adopted by Morocco since independence and the creation of Dirham October 17, 1957 shows that Morocco has remained in the same category of exchange rate regimes despite changes made in 1973 through the adoption of the multi monetary anchor or anchor to a basket of currencies (Aqallal, 1988). In fact, this change concerns only the anchor currency and is not in addition a change in exchange rate regime.

The stability of the exchange rate regime in Morocco triggers the question of the relevance of the choices made by the authorities in this regard and, in light of several considerations, including the fact that:
- Various other market of the national economy has been significant changes in the direction of liberalization. This important liberalization process consisted of the establishment of a competitive framework for the various components of markets, namely the capital markets in the short and medium term (banking system and stock market) and almost all segments of markets for goods and services (price liberalization, removal of monopolies and opening to foreign trade).

- Most countries with similar levels of development to Morocco have made changes in their exchange rate regimes in the direction of flexibility.

This article has the purpose to analyze the relevance of the current exchange rates regime adopted in Morocco, in view of the proposal of a new exchange rate regime. Specifically the purpose of the paper is to answer the following question: the regime of the current exchange rate is optimal? In the event that the answer to this question is negative, a new exchange rate regime will be suggested?

The methodology followed to provide answers to the above questions will be entered in a dual approach, theoretical and empirical. The theoretical approach will be operated through at first, the presentation of synthetic elements relating to the determinants of choice of an exchange rate regime (fixed versus flexible) and verification of these elements in the case of the Moroccan economy, secondly. As for the empirical approach, it will be through watching the exchange rate regimes applicable in countries considered to be comparable to Morocco on the basis of criteria which will be specified below.

2. Theoretical Approach

As noted above, the theoretical approach will focus on the following two components. A first component about the synthesis on the determinants of the exchange rate regimes in economic literature. A second one, related to the application of these criteria to the case of the Moroccan economy. In this regard, in case that the characteristics of Moroccan economy making more advantageous to choose a flexible exchange rate regime, a proposal will be made in this direction and vice versa.

2.1. Determinants of the choice of an exchange rate regime.

Economic literature presents a several determinants of the choice of an exchange rate regime.

2.1.1. The size of an economy

Usually used in the economic literature without being defined very precisely, the size of a country is the concept that tries to understand the economic dimension of a country and, through a set of economic variables such as GDP and/or population (mainly the number of inhabitants) and/or such geographical area. The size of a country or an economy is an important structural factor in the choice of exchange rate regime as much as the smaller the size of the economy of a country is, the more the country has an interest in adopting a fixed exchange rates regime. Inversely, the more the economy of a country has a large size, the more the country will take advantage of a flexible exchange rate (Chung and Yang, 2000). This relation between size of an economy and the choice of exchange rate regime can be shown through the following demonstrative elements:

- The exchange rates regime chosen by a country is the result of a cost / benefit analysis of each type of exchange rate regime, that is to say, an arbitration between the potential benefits and costs may be generated by the application of each type of exchange rate regimes (fixed or flexible) ;
- The importance of benefits and costs is influenced by the size of an economy.

The influence of size on the magnitude of the benefits of stability fixed exchange rate regimes: The influence of size on the magnitude of the benefits of stability fixed exchange rate regimes (and conversely the costs of instability flexible exchange rates regimes) is due to the correlation between the size and the degree (and also the mode) of external openness of an economy (financial and trade openness).

Indeed, the smaller the average size of a country is, the more its degree of openness or trade integration (its related trade represented by exports and imports reported on the production (GDP) or on the consumption) is relatively high (Alesina et al., 2000) and conversely, large countries are relatively closed as much as their related trade is low (Husain, 2006).

In addition, more the relative importance of trade is high, more microeconomic and macroeconomic benefits of stability of fixed exchange rates regimes (indicated above) become important.

The elements of the economic literature highlighting the economic size influence on the choice of an exchange rate regime may be released from the theory of optimum currency area.

In fact, the theory of optimum currency area (OCA), introduced by Mundell (1961) and further developed by McKinnon (1963) and Kenen (1969), explains the economic criteria that a group of countries have interest in forming a monetary union by adopting a single currency (or common

currency).These desirable economic criteria for countries to consider the formation of a regional monetary arrangement are in fact essentially the same criteria for the fixity of exchange rates.

Among the most important economic criteria at this level emerge the economic size, which may be deducted from the contribution of McKinnnon the OCA theory which introduced the criterion of economic openness (the latter being related to the size as indicated above), or formulated differently, the ratio of exchangeable to non-exchangeable (Daly, 2007).

McKinnon states in this regard that more trade integration of an economy is high with the rest of the world, or more precisely with the most important trading partner (Levy-Yeyati et al. 2006), higher are the benefits of implementing a fixed exchange rate with the country or group of countries with which it has business relations (Daly, 2007) and, owing to the fact that the fixity of exchange rates between currencies permit to reduce or eliminate what he calls money illusion discouraging trade.

The influence of size on the magnitude of fixity costs: Developed by Calvo and Reinhart (2002), the thesis of the "fear of floating" that is to say the reluctance of a number of emerging countries to let the exchange rate float freely, despite the official announcement of floating, revolves around a set of arguments explaining why these countries are reluctant to let their exchange rates float (Husain, 2006). Including the effects of size on the magnitude of the transmission degree of an exchange rates to prices in domestic currency (Daly, 2007) effect called "pass-through" which tends to be stronger in emerging countries and small countries in general, as shown in several studies (McCarty, 1999) and, because of its positive correlation (all else being equal: the real exchange rate etc.) with the openness degree and the size of the economy (Allegret, 2005).

2.1.2. Diversification

Diversification of production structures or of exports is the concept that apprehends the differentiation degree of the production and exports of an economy, namely the diversity of sectors and lines of business in an economy.

The diversity of sectors and industries can be measured by a simple indicator, the share of raw materials in a country's exports and GDP. This ratio is negatively correlated with diversification insofar as more this ratio is higher, the less diversified the economy and vice versa (Husain, 2006).

The criterion of diversification of an economy or of exports as a determinant of the choice of an exchange rate regime was introduced in 1969 by Kenen in the context of the literature developed on the theory of optimum currency areas (Daly, 2007).

In fact, according to the approach of Kenen (1969), more diversified is the economies (that is to say, the less specialized), better it had to choose a fixed exchange rate regime because the disadvantages of fixed exchange rates regime are less important in the case of a diversified economy (Husain, 2006). Conversely, a less diversified economy that is to say, it is more specialized, has an interest in adopting more flexible exchange rate regime.

This approach is essentially based - referring to the scheme from the beginning that is to say, the cost-benefit analysis and impact structures of an economy on the costs and benefits ampleness of an exchange rate regime, on the links between diversification and rigidity costs of a fixed exchange rates regimes, particularly those related to adjustment costs of goods and services markets and labor market.

In fact, less the economy is diversified, or in the extreme case of a single export product, more terms of trade are likely to experience significant disruptions, thus exerting pressure on the exchange rate. This pressure will have important costs in terms of negative impact on the business if there is no adjustment in the exchange rate variability (Horvath, 2003).

2.1.3. The nature of shocks affecting the economy (reel shocks and nominal chocks)

The economic literature on the determinants of exchange rate regimes, especially on the links between economic shocks and type of exchange rate regimes retain the distinction reel shocks – monetary shocks as the most relevant to address the choice of an exchange rate regime.

In fact, while the shocks affecting the economy are from real origins, (internal or external) such as those on productivity (related to technology) or those on the terms of trade which influence relative prices, a flexible exchange rate regime is more favorable (Allegret, 2005).

This binding is due to the flexibility associated with floating exchange rates regimes which allow amortization the shocks costs to the economy since the adoption of flexible exchange rates regime will benefit in the occurrence of a negative shock such as a decline in the productivity of factors of production, mitigation through changes in the exchange rate (depreciation of the exchange rate) the potential negative effects of such shocks namely a foreign demand decrease for domestic

products, a negative effect of the current account balance and overall balance of payments (Daly, 2007).

This attenuation through the depreciation of the exchange rate (improving the competitiveness price of domestic products) and compensates the initial effect to mitigate the negative impact on the external accounts (Allegret, 2005).

In contrast, in the case of a fixed exchange rates regime, duration and costs of adjustment will be higher: degradation of the current account balance and the overall balance of payments in general, contraction of the money supply and amplification of the initial decline in the demand for products in the country.

Furthermore, the economic literature on links between impacts and choice of exchange rate regimes, considers that when economy is affected by monetary shocks, fixed exchange rates regime is more appropriate as it allows a better adjustment to equilibrium.

This literature thus considers that following a monetary shock, for example, an increase of holding money (demand for currency) interest rate increases, putting a potential dampening effect of aggregate demand for consumption domestic products and those external (imports) and therefore lower the rate of activity or the national product.

This effect can be mitigated or exacerbated by exchange rate regime. Indeed, in the case of a fixed exchange rates regime, the decline in demand (due to an increase in interest rate currency himself due to the increase of holding money) above mentioned results in an increase in foreign exchange reserves (which may be amplified by capital inflows due to increasing interest rates in the event / in the case of high capital mobility).

This growth in foreign exchange reserves increases the money supply offsetting the recessionary impact on the economic activity of the increase in money demand.

Conversely, a decline in demand for holding money (or an increase in the velocity of money) led to the increase in imports and to foreign exchange reserves losses in a fixed exchange rates regime that generates an offsetting contraction of the money supply there by leading to a partial compensation) to the initial shock. Conversely, under a floating regime, this shock results in depreciation, this exacerbates the initial shock effects (worsening of imports, inflationary etc…).

This regulator effect of a fixed exchange rate regime mainly through the impact of changes in foreign exchange reserves on the effect offer cannot be made in the case of a of flexible exchange rates regime. Indeed, in the latter case the exchange rate regime, the increase in domestic interest rates and/or reduced demand resulting in an appreciation of the exchange rate which is likely to lead to a worsening of initial shock and, through lower exports (Husain, 2006).

2.2. Application of choice criteria for exchange rate regimes in the case of Morocco.

As indicated above, the analysis of the relevance of the current exchange rates regime in Morocco will be conducted through the application of selection criteria for exchange rate regimes (size, diversification and the nature of economic shocks) to the case of Morocco.

Each of these criteria will be apprehended through synthetic and measurable indicators may allow us to draw conclusions about the relevance of the exchange rate regime adopted in Morocco.

In this regard, the criterion on the size will be apprehended through the indicator of Exchange rate pass-through (ERPT). This indicator is often the most used in terms of comparability between countries, but especially one of the channels through which the size act on the choice of exchange rate regimes.

The criterion of real shocks will be apprehended through the indicator of climatic conditions and their impact on economic growth.

Regarding the criterion of diversification, it will be understood through the indicator of the share of primary products in exports and that of Herfindahl.

2.2.1. Analysis using the method Exchange rate pass-through (the ERPT)

The concept of exchange rate pass-through (ERPT) literally means the percentage change in domestic currency import prices resulting from a 1% change in exchange rate of a country. However, in practice the most commonly used definition of ERPT is that wide which means the change of domestic in consequences of changes in the nominal exchange (Rowland, 2004).

The ERPT is - among other factors determining the choice of exchange rate regimes, the most important element as described above. In this regard, the evaluation of the optimality of exchange rate regime adopted in Morocco requires testing of ERPT to assess the relevance of that choice.

The ERPT Analysis in the case of Morocco will be referring to an econometric study made by (Ragbi, 2013), this study used the two structural VAR following models:

The objective of the first is to establish the relation between short-term price of exchangeable and the real effective exchange rate. As for the second, it serves to capture the short-term dynamics between the prices of non-exchangeable and the real effective exchange rate.

In the first estimation method, the over-optimization problems have been corrected by using a structural VAR. In a second time, there was a use of a Bayesian VAR (BVAR).

The scan tool will econometrics and classical estimates will be done by OLS.

Selected variables

There are four main variables:

o gap_t(MLB) positive (or negative) representing the excess demand (or excess offer) ;

o s_t is the effective real exchange rate,

o icp_t is the index of consumer prices of tradables and

o $ipch_t$ represents the harmonized price index of partner countries.

<u>**first model :**</u>

The unrestricted VAR model takes the following form:

$$A(L)y_t = u \quad \text{with} \quad A(L) = \sum_{t=0}^{p} A_t L^t$$

$A(L)$ is a polynomial matrix(4×4) where L is the delay operator;

$y_{it} = [\Delta ipch_t, \Delta s_t, \Delta icpt_t, \Delta gap_t]$ the vector of endogenous variables expressed in logarithms. Finally, u_{it} is the series of innovations. These are assumed to be a linear combination of independent distributed shocks e_{it}.

The matrix presentation of shocks is as follows:

$$\begin{pmatrix} u_t^{ipch} \\ u_t^{s} \\ u_t^{ipct} \\ u_t^{ipct} \end{pmatrix} = \begin{pmatrix} 1 & \theta_1 & \theta_2 & \theta_3 \\ \alpha & 1 & \theta_4 & \theta_5 \\ \beta\gamma & 1 & \theta_6 \\ \delta\chi\varphi & 1 \end{pmatrix} \times \begin{pmatrix} e_t^{ipch} \\ e_t^{s} \\ e_t^{ipch} \\ e_t^{gap} \end{pmatrix}$$

The structural VAR model used allows to impose restrictions based on a contemporary theoretical a priori to determine the various shocks. Thus, restrictions were imposed on the structure of the β matrix for the determination of structural shocks.

1. Price shock modeling to partners countries as an independent shock variables constituting our system countries, namely:

$$u_t^{ipch} = e_t^{ipch}$$

2. Unexpected movements in the exchange rate are independent of other macroeconomic variables in the model:

$$u_t^{ipch} = e_t^{ipch}$$

3. Unexpected movements in the CPI are due to unexpected movement of foreign prices and structural shocks of the exchange rate.

$$u_t^{ipch} = \beta e_t^{ipch} + \gamma e_t^{s} + e_t^{ipct}$$

4. The unexpected movement of the output gap may be due to an unexpected movement of oil prices, instant response to a structural shock on the exchange rate and structural price shock exchangeable goods, namely:

$$u_t^{gap} = \delta e_t^{ipch} + \chi e_t^{s} + \varphi e_t^{ipch} + e_t^{gap}$$

The matrix of contemporary effects finally takes the following form:

$$\begin{pmatrix} u_t^{s} \\ u_t^{ipct} \\ u_t^{ipcnt} \\ u_t^{gap} \end{pmatrix} = \begin{pmatrix} 1 & 0 & 0 & 0 \\ \alpha & 1 & 0 & 0 \\ \beta\gamma & 1 & 0 \\ \delta\chi\varphi & 1 \end{pmatrix} \times \begin{pmatrix} e_t^{s} \\ e_t^{ipct} \\ e_t^{ipcnt} \\ e_t^{gap} \end{pmatrix}$$

<u>**second model :**</u>

The VAR model can be presented as follows:

$$y_{i,t} = c_i + \beta_{i1}y_{i,t-1} + \beta_{i2}y_{i,t-2} + \cdots + \beta_{in}y_{i,t-2} + \xi_{i,t}$$

Where β_{it} it is the coefficient estimate for each delay with exogenous variables:

$$\beta_{it} \rightsquigarrow N(1, \gamma_i^2)$$

Estimation methods used

o <u>Identification of the order of integration of the series using the unit root test of Dickey and Fuller</u>

Before econometric treatment, it is necessary to ensure the stationarity of the variables. A time series is stationary if its expectation and variance remain unchanged over time. In other words the stationary series has neither seasonal nor trend. Dickey and Fuller (1979, 1981) have developed a test that can not only detect the existence of a trend, but also to determine the right way to stationary a series.

The unit root test indicates the order of integration of the series. It therefore follows that a series is integrated of order 1 whether to differentiate once before stationary. It is important to note that the choice focused on the Augmented Dickey Fuller is justified by the fact that it takes into account the number of delay. This is the test that takes into account the assumption that there is no reason for that, a priori, the error is uncorrelated.

Thus, the unit root tests and stationary were performed on the variables of interest.

The unit root tests and stationary say all series is characterized by a deterministic trend (DT) except for the case of "HICP" whose stationary is verified. In this perspective, the non-stationary series have been corrected to avoid the tendency to lead to series without unit roots.

o <u>impulse responses</u>

The estimation of SVAR models and BVAR analysis allows the impulse responses.

To emphasize that the increase in the exchange rate corresponds to a depreciation or decrease the value of the national currency. The results of dynamic models suggest a positive impact of the exchange rate leads to an increase in inflation related to the prices of tradable and non- tradable goods. The degree and response time of two awards at a depreciation of the currency in the two different models. Thus, we observe that under the SVAR model, the reaction of the two prices is instantaneous. In contrast, the price index of tradables reacts in a significant manner in comparison with the price index for non-tradables. This confirms the assumption that prices exposed sectors are more sensitive to variations in the exchange rate as the prices of sheltered sectors. Moreover, the reaction of the two prices under the BVAR models is not instantaneous. The increase in inflation of tradables and non-tradables is observed after a period of 3 and 4 quarters respectively. The difference between the two reactions is in line with contemporary restrictions introduced in SVAR models.

Results of the econometric study: Model results suggest that the pass-through is incomplete in Morocco and the transmission of exchange rate changes to prices of tradable goods is higher than posted price of non-tradables. Thus, the pass-through to prices estimated by the SVAR and BVAR tradable goods was 29% and 10% respectively. While the pass-through to the prices of non-tradables is estimated at 1% in both models.

These results confirm the predictions emerging from the application of the main lessons of the economic literature on the determinants of ERPT effect in the case of Morocco.

Indeed, the literature states that the effect of ERPT is negatively correlated with the degree of opening of the Moroccan economy and the mastery of inflation.

In this regard, and given the relatively large opening of the Moroccan economy and also controlling inflation in Morocco, the effect of ERPT is relatively low in Morocco (Ragbi, 2013).

2.2.2. Application of the criterion of economic shocks in the case of Morocco.

Morocco knows the real cyclical shocks to variable extent due primarily to the impact of climatic conditions (mainly the level of rainfall) on agricultural production and hence the primary sector.

This in turn influences impact overall economic activity and economic growth in general.

Table 1 describes these cycles and their relations with climatic conditions for the period 1990-2011.

Table 1. Relation between climatic conditions, growth of the primary sector and growth rate of GDP for the period 1990-2011

Year	climatic conditions	Growth of the primary sector	Growth rate of GDP
1990	Irregular rainfall in time and unevenly distributed in the territory.	-5.0%[*]	4.1%*
1991	Sufficient rainfall and relatively well distributed across the country and over time.	21.7%[*]	7.2%[*]
1992	Rainfall deficit compared to the average of the last ten years.	-36.9%[*]	-3.8%[*]
1993	Insufficient Rainfall	-4.7%[*]	-1.7%[*]
1994	Very sufficient rainfall	61.4%[*]	10.6%[*]
1995	More severe drought than those observed during the 1992 and 1993.	-43.9%[*]	-6.6%[*]
1996	Abundant and well distributed rainfall	78.0%[*]	11.8%[*]
1997	Droughtyear	-26.5%[*]	-2.2%[*]
1998	Abundant rainfall but unevenly distributed in time.	27.9%[*]	7.7%[*]
1999	Severe drought	-16.7%[*]	-0.1%[*]
2000	year marked by drought	-15.7%[*]	1.0%[*]
2001	Late and deficient rainfall with a significant increase in temperatures.	19.1%[**]	6.5%[**]
2002	Sufficient rainfall, although unevenly distributed in time.	5.6%[**]	3.2%[**]
2003	Sufficient Rainfall	18.0%[**]	5.2%[**]
2004	Adequate and abundant rainfall.	1.9%[**]	4.2%**
2005	Drought	-17.7%[**]	1.7%[**]
2006	Abundant and well distributed rainfall in time and space.	21.0%[**]	8.0%[**]
2007	National average cumulative rainfall down by two-fifths over the previous year.	- 20.0%[**]	2.7%[**]
2008	Improvement of the national average cumulative rainfall	16.6%[**]	5.6%[**]
2009	cumul pluviométrique moyen national en nette évolution	30.6%[**]	4.9%[**]
2010	average cumulative rainfall up to about 7%, reaching 568mm.	-1.6%[**]	3.7%[**]
2011	Rainfall inputs favorable both in terms of volume and in terms of temporal and spatial distribution.	5.6%[**]	5.0%[**]

* growth base 1998,
** growth base 1980

The analysis of the table above shows that economic growth is known large variations from year to year is in the space of two years directly related to climatic conditions.

In fact, except in cases of succession of similar climatic conditions (good weather or bad weather), the succession of years in different climatic conditions produce large variations in economic growth (*i.e.* 1995-1996; 1993-1994 etc.).

2.2.3. Application of diversification criterion in case of Morocco.

As indicated above, several indicators are used to grasp the degree of diversification of economy. Among the apprehension of diversification of an economy the most widely used indicators, there are the Herfindahl index and the concentration estimated by the medial.

> **Concentration index: Medial**

The concentration index expresses the number of markets or products achieving 50% of exports. Indeed, when this number is low, it means that the economy is poorly diversified and conversely, the higher the number, the greater the economy is considered diverse.

> ➢ **Herfindahl index**

The Herfindah index used to assess the concentration of the distribution of exports by product. It is defined as the complement of the sum of square units (P_i) of an aggregate component (j) at a time (t). It is estimated by the following formula:

$$H_j = 1 - \sum_i^n P_i^2 \quad \text{with} \quad P_i = \frac{X_i}{\sum_i^n X_i}$$

X_i represents the export of commodity *i* and *n* represents the number of products exported. The value of this indicator is between 0 and 1.

When the value of H is close is 0, it means that the degree of diversification of the economy is very low (high specialization). Indeed, when the products exported by a country are few, their shares in total exports are significant and the sum of their squares therefore tends to 1.

The study of the diversification of the Moroccan economy in terms of these two indicators can highlight the following results:

> ➢ **Medial**

Table 2 shows the number of products providing half of exports during the period 2005-2010.

Table 2. The number of products providing half of exports during the period 2005-2010.

Year	2009	2010	2005-2009
Agriculture and forestry	2.7	2.7	2.7
Agro Industry	4.8	5.5	4.8
Electrical and electronic	2.3	1.6	1.8
Energy	1	0.5	0.8
Mechanical and metallurgical	8.8	7.8	8.8
Mines	0.7	0.6	0.6
Fishery	1.5	1.7	1.6
chemical and para-chemical	1.9	1.8	2
Textile and clothing	16.6	16.9	14.5
Total	24.8	17.9	20.7

Source: Provisional data from the Office des Changes, NFTC calculation.

Indeed, half of the total value of exports from Morocco is made on average 22.4 products during the period 2005-2010.

The analysis of the medial also confirms the persistence of a high concentration of exports. Thus, 0.8% of the total number of products exported, or 22.4 products constitute 50% of exports. Due to the increase in specific prices for certain products, the level of concentration was higher in 2008.

> ➢ **Herfindahl index**

The high concentration of exports on certain products, a fact that the Herfindahl index approaches 100% in some areas and tends to lower levels for others during the period 2000-2010.

Indeed, analysis by sector can raise differences between economic sectors: low-level diversification of mining and energy (43.1% on average) and degree of diversification relatively higher level sector textile and clothing (97.6% on average).

3. The Empirical Approach

The empirical approach is to compare the system of exchange rates existing in Morocco with those in force in a number of comparable countries in Morocco on the criterion level of per capita income.

The choice of this criterion is justified, besides the availability of data for this indicator, the significant correlation between per capita income and the level of development and the choice of exchange rate regimes. Indeed, the observation of the choices made by different countries in the choice of exchange rate regimes shows that the underdeveloped countries tend to opt for pension fixed exchange rate and conversely, developed countries opt for floating regimes (Rogoff et al., 2004).

The reasons behind these choices, as reflected in the literature on the subject is found in the fact that the dominant criterion in the criteria for selection of exchange rate regimes explained above, is essentially that of size.

Indeed, the Underdeveloped countries generally consist of small countries opting for pension fixed exchange rates to take advantage of the effect of stability that give them a diet fixed exchange rates on foreign economic transactions including their exports, imports and also foreign direct investment and foreign debt, particularly the public.

Underdeveloped countries avoid operating in this choice disadvantages associated with potential effects of plans flexible exchange rates and their corollary variability on their external transactions and their effects on the transmission of exchange rate changes on domestic prices (Rogoff et al., 2004). In contrast, developed countries benefit plans flexible exchange rates for inverse reasons as those fixed (Rogoff et al., 2004).

Moreover, in the case of emerging countries, su-offs listed are more complicated to the extent that these trade-offs do not show a clear and definitive optimal choices or at least a sustainable optimality. Thus, the emerging countries are given the configuration of their capital markets candidates for adoption of a system of flexible exchange rates. These countries will, however, in view of the inherent mainly to the above size indicated interest to opt for pension fixed exchange rates.

However, currency crises that hit the country during the 1990s which remain associated with the regime of fixed exchange rate adopted by these countries (they are not the only factor, since other more important elements such deep debt short term these countries, etc..) constituted warning against these regimes exchange rate for the country and forced these countries to opt for schemes more flexible exchange rates such as those qualified intermediaries such bands slippery or bands etc. monitored.

Table 3 shows the exchange rate regimes adopted in countries with a comparable level of income per capita in Morocco (lower middle income category as classified by the World Bank 2011).

Table 3. The exchange rate regimes adopted in countries with a comparable level of income per capita in Morocco

Exchange rate regime	Country
Dollarized regime	Kiribati, Kosovo, Marshall Island, Micronesia, East-Timor, Tuvalu
Currency board	Djibouti
Conventional peg	Belize, Bhutan, Cameroun, Cape Verde, Republic of Congo, Ivory Coast, Fiji, Lesotho, Sao Tomé and Principe, Senegal, Swaziland, Turkmenistan
Stabilized arrangement	Angola, Egypt, Guatemala, Guyana, Iraq, Loa PDR, Ukraine, Vietnam
Pegged exchange rate within horizontal bands	Tonga
Crawling peg	Bolivia, Honduras, Nicaragua, Uzbekistan
Other managed arrangement	Namibia, Nigeria, Paraguay, Syria, Solomon island, Soudan, Vanuatu, Yemen
Floating	Armenia, Georgia, Ghana, India, Indonesia, Moldavia, Mongolia, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Zambia

The analysis of this table can be concluded that among the 53 countries, only 13 countries have a system of exchange rate similar to that existing in Morocco. However, at the country level, 33 countries have adopted schemes more flexible exchange rate as in force in Morocco, while only 7 countries adopt more rigid regimes that exist in Morocco exchange rate.

4. Conclusion

Analysis of the relevance of the exchange rate regime adopted by Morocco to conclude that it is more appropriate for Morocco to make a change in its exchange rate regime and adopt a more flexible regime. This conclusion follows from the application of various determinants selection criteria for exchange rate regimes whether those "theoretical" or empirical.

Indeed, at the level of theoretical criteria, applying the criteria of size, diversification and economic shocks concluded that the negative effects likely to be generated by the implementation of

more flexible exchange rate will be small-scale (analysis of ERPT) and conversely the establishment of a more flexible regime will mitigate the negative effects due to real economic shocks and the low diversification of the Moroccan economy.

In addition, the empirical analysis also showed that it is relevant for Morocco to adopt a more flexible exchange rate regime in light of the fact that the majority of countries comparable to Morocco (33 out of 53 countries) have a more flexible exchange rate regime than that adopted by Morocco.

References

Alesina, A., R.J. Barro and S. Tenreyro. (2000). Optimal Currency Areas. In: Gertler, M., Rogoff, K. (Eds.), NBER Macroeconomics Annual, Cambridge, MA: MIT Press, pp. 301-345

Allegret, J.P. (2005). Exchange Rate Regimes in Emergency Markets: what are the perspectives for 21 century, Edition Vuibert.

Aqallal, A. (1988). La balance marocaine des paiements, Fedala Edition.

Calvo, G.A., Reinhart, C.M. (2002) Fear Of Floating. Quarterly Journal of Economics, 107(2), 379-408.

Chung, C.S., Yang, Y. (2000). Appropriate Exchange Rate Regime in Developing Countries: The case of Korea, Korean Institute for International Economic Policy (KIEP).

Daly, S.M. (2007). "The Choice of Exchange Rate Regime for Emergency market". MPRA Paper No. 4075.

Dickey, D., Fuller, W. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. Journal of the American Statistical Association 74(366), 427–431.

Dickey, D., Fuller, W. (1981). "Distribution of the Estimates for Autoregressive Time Series with Unit Root." Econometrica 49, 1057–1072.

Levy-Yeyati, E., Sturzenegger, F., Reggio, I. (2006). "On the Endogeneity of Exchange Rate Regimes." Harvard University, Faculty Research Working Papers Series, November.

El Hammas, H., S. Slah. (2006). "Choice of an optimal exchange rate regime and economic growth, case of Tunisia." Communication to IX AISPE Conference.

Henry, G.M. (2004). Dollar : la monnaie internationale, Histoire, mécanismes et enjeux, Studyrama.

Horvath, J. (2003). "Optimum currency area theory: A selective review." Bank of Finland Institute for Economies in Transition, Discussion Papers No 15.

Husain, A.M. (2006). "To Peg or not to Peg: A template for Assessing the Nobler", IMF Working Paper.

Kenen, P. (1969), "The Theory of Optimum Currency Areas: An Eclectic View," in Robert Mundell and Alexander Swoboda (eds), *Monetary Problems of the International Economy*, Chicago: University of Chicago Press (1969), pp.41-60.

McCarthy, J. (1999). "Pass-Through of Exchange Rates and Import Prices to Domestic Inflation in Some Industrialized Economies." Staff Report Number 111, Federal Reserve Bank of New York, 2000.

McKinnon, R. (1963), "Optimum Currency Area", American Economic Review, September, 717-725.

Mundell, R. (1961), "A Theory of Optimum Currency Areas", American Economic Review, 657-665.

Ragbi, A. (2013). Ciblage d'inflation et flexibilisation du régime de change au Maroc, Thesis of Economics, Mohammed V – Rabat Agdal University.

Rogoff, K.S., A.M. Husain., A. Mody, R. Brooks and N. Oomes. (2004). "Evolution and Performance of Exchange Rate Regimes." IMF Occasional Paper.

Rowland, P. (2004). Exchange Rate Pass-through to Domestic Prices: The Case of Colombia. Revista ESPE, 47, 106-125.