



Moroccan Dirham Flexibilization and Equilibrium Exchange Rate: A Quest for Grail?

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ABSTRACT

The purpose of this study is to identify the Moroccan dirham misalignment phases over the period 1998T1-2017T4, related to an estimated equilibrium exchange rate, using an *ad hoc* behavioral equilibrium exchange rate econometric model. The overvaluation that may result from misalignments is one of the major arguments in the adoption of the flexibility regime by the Moroccan monetary authorities since 2018. We examine the relevance and the validity of the choice of this new regime in the case of Morocco. The observation of the misalignment graph leads us to the following findings: (1) The highest overvaluation is found in the early 2000s, reaching 35% by 2009 and then decreasing until 2012T2; (2) the largest undervaluation of about 15% is observed around 2014; then from the end of 2015, the misalignments did not exceed $\pm 15\%$.

Keywords: Exchange Rate, Real Equilibrium Exchange Rate, ARDL

JEL Classifications: C 22, F31

1. INTRODUCTION

The Moroccan monetary authorities' decision, in 2018, relating to the Moroccan Dirham's (MAD) exchange rate regime from fixity to flexibility was aimed, in particular, to establish an equilibrium exchange rate by the exchange rate mechanisms market, in place of the price mechanism administered by Bank Al Maghrib (BAM)¹ (Moumni, 2019). Some independence increase in BAM's monetary policy was also expected. According to the Main Stream, the Dirham move to the flexible exchange rate regime would allow Morocco to finish with the trade-off between volatility and misalignments in relation to the equilibrium exchange rate. In this logic, the determination of the value of money by the market gives it the natural role of an adjustment variable allowing the economy to cope with external asymmetric shocks (Aizenman and Hausmann, 2001).

After the Morocco independence, its foreign trade with France represented about 47% of the total. In a context of low economic and financial openness, the structural reforms initiated by the country had not mobilized the exchange rate as an instrument of commercial competitiveness. This lack of an active foreign exchange rate policy led to the Moroccan Dirham pegged exchange rate to the French Franc when it was created in October 1957.

But the shift of most developed countries to the floating rate regime (following the end of the Bretton Woods fixed exchange rate) and the dollar devaluation in 1973 undermine the Franc/Dirham parity. In May 1973, the Moroccan monetary authorities interrupted the arrangement between the Dirham and the French Franc in favor of an administered regime defined by a basket of nine currencies of the main economic partners of Morocco. Since this period, an active exchange rate policy has been put in place in order to handle the effective stability of the national currency with a view to improving the competitiveness of Morocco's foreign trade. In 1980, the strong indebtedness of the country caused the first change

¹ This issue has been the subject of blog posts (www.ledmaroc.ma) and an article in *Critique Economique* n° 38-39, Printemps-été 2019 by Nicolas Moumni.

in the basket of currencies. Since then, the monetary authorities had made several changes in the basket and devaluations between 1990 and 2015 in search of the suitable exchange rate, in order to re-establish Morocco's commercial competitiveness.

In the context of greater international financial integration (Caporale et al., 2009), according to Edwards (1989), the equilibrium exchange rate of a currency ensures both internal and external equilibrium. An overvalued dirham would penalize price competitiveness, the viability of Morocco's external position and therefore its economic performance. Theoretically, the flexible exchange rate regime is supposed to reduce the misalignments, which penalize economic performances, of the observed exchange rate compared to an assumed equilibrium exchange rate (Plihon, 1991). For the standard current, the equilibrium exchange rate must be determined by market forces (FMI, 2017).

The purpose of this study is to try to identify Dirham misalignment phases over the period 1998T1-2017T4, compared to an estimated equilibrium exchange rate, using an *ad hoc* econometric model behavioral equilibrium exchange rate (BBER) by Clark and MacDonald (1997). The overvaluation that may result from misalignments is one of the major arguments in the adoption of the flexibility regime. It will then be necessary to conclude on the role of the Dirham to facilitate the expected adjustment of the new regime.

We organize this work in two sections. First, we will review briefly the main theoretical models of the equilibrium exchange rate, as well as the results of some empirical studies similar to ours. Secondly, we will present and analyze our empirical study. In this quantitative part, we will analyze the behavior of the dirham exchange rate in terms of misalignment, by subjecting it to the empirical tests of the BBER model.

2. EQUILIBRIUM EXCHANGE RATE THEORIES AND EMPIRICAL CHECKS

2.1. Long-term Equilibrium Exchange Rate Models

The determination of the proper (optimal) exchange rate refers to the equilibrium exchange rate concept, which continues to refer to the relative purchasing power parity (PPP) theory developed by Cassel as early as 1916.

The PPP is based on the law of the single price². According to this approach, the forward exchange rate of a national currency against a foreign currency depends on the inflation differential between both currencies. As a result, any deviation from the current exchange rate against an estimated baseline is interpreted as a deviation of the exchange rate from its equilibrium value, subject to verification of certain strong assumptions³.

2 This law stipulates that when the production function of a basket of goods is identical in two countries and that consumers have the same utility function, in the absence of transaction costs and in a situation of equilibrium, the price of basket of goods must be the same in both economies.

3 Among these assumptions, there is the absence of transaction costs, tariffs and tariff barriers as well as the homogeneity of consumer tastes from one country to another.

The theory of PPP is an important component of the exchange rate literature. Although its methodological approach is practical and useful, the empirical validation of its absolute version has been the subject to a great extent debate, criticism and controversy. Indeed, it is based on restrictive assumptions and suffers from numerous shortcomings. Among its main limitations is the lack of reference to macroeconomic equilibrium and the link between the real exchange rate and the country's external position.

This gap will be filled in 1985 by Williamson who developed the medium-term macroeconomic approach, the fundamental equilibrium exchange rate (FEER) (Bouveret and Sterdyniak, 2005). This is a static model where the equilibrium exchange rate is estimated following the definition of a "sustainable" target of the current balance. The model is based on the assumption of a convergence of the observed exchange rate towards its equilibrium value. Following a similar approach, Edwards (1989) suggests that the equilibrium exchange rate ensures, at the same time, the internal and external balances of the country. The internal balance is the level of production that leads to full employment and sustainable inflation. External equilibrium refers to the level of the current account that can be financed by foreign capital in the medium term.

In 1997, Clark and MacDonald developed the BBER model, entitled BBER. This *ad hoc* econometric model tries to explain rather empirically the trajectory of the real long-term exchange rate according to a vector of fundamental macroeconomic variables (public expenditure, degree of openness of the economy, productivity, the money supply... etc.).

Using the cointegration relationship, the model determines the misalignment by calculating the difference between the current exchange rate and its long-term estimated equilibrium value. This is the approach we use in our empirical study (cf partie 2.1).

In the pure empirical model, Stein and Allen (1997) have proposed a theory of the Natural Real Exchange Rate (NATREX). In this dynamic model, the NATREX allows balance of payments equilibrium in the absence of cyclical factors, flows of speculative capital and changes in foreign exchange reserves.

After this overview of the theoretical models of the equilibrium exchange rate, it is necessary to reappraisal the empirical results of some studies concerning the Moroccan Dirham.

2.2. Empirical Studies on the Dirham Equilibrium Exchange Rate and its Misalignments

The project of Moroccan monetary authorities to move the exchange rate regime towards flexibility took a while to materialize. During this time period, a number of empirical studies have been conducted. We summarize below the main results of these studies.

The study carried out in 2004 by Bouoiyour et al. on the effective long-term equilibrium real exchange rate of the Dirham *vis-à-*

vis the European Union countries⁴ over the period 1967-2000 concludes that the Moroccan currency was overvalued between the mid-1970s and the 1980s, and that it was undervalued between the late 1980s and the 1990s. The Dirham exchange rate had experienced permanent deviations from its long-run equilibrium value.

Similarly, in 2013 Lebdaoui (2013) estimated a long-term relationship between the Dirham and a series of seven fundamental macroeconomic variables⁵ from 1980 to 2012. The author concluded that the Moroccan currency had three periods of under/over-valuation ranging from -2.80% to +2.16% compared to its estimated equilibrium level. For the author, the absorption of these misalignments would require between 5 and 6 years.

In its Article V reports, the CGER (2016b) estimated the Dirham's real equilibrium exchange rate vis-à-vis a sample of Morocco's top 25 trading partner countries over the period 2006-2011. It compared the result of dirham exchange rate regression, on different macroeconomic variables⁶, with a basic estimated value. Three evolutions emerge from this study. During 2006, the real effective exchange rate would have been undervalued related to its equilibrium level. In 2008, the Dirham had moved in the opposite direction before returning to its equilibrium level. From 2008 to 2011, the Moroccan currency had once again turned towards undervaluation in relation to its equilibrium level.

In the same direction, Fadlallah (2016) analyzed the impact of exchange rate deviations from its real equilibrium level on the viability of the Moroccan balance of payments over the period 2006-2011, based on the CGER method. It was based on a sample of 11 trading partner countries in Morocco representing about 82% of its foreign trade with the rest of the world. The level of misalignment was estimated at 3.1% in annual geometric mean. Using estimates from the IMF's macroeconomic approach, Fadlallah (2016) figures a "standard" equilibrium external balance of -3.1% of GDP. During the same period, the average underlying current account balance was -4.5% of GDP. According to the same study, the difference between the two balances would suggest that the Dirham would have been overvalued; their equalization would require a depreciation of the national currency of about 14.7%.

In OCP Policy Center (2016), Ragbi and Baddi sought to understand the impact of misalignment of Dirham on the strategy of diversification of Moroccan exports. After identifying the phases of undervaluation/overvaluation of the Moroccan currency between 1990 and 2014, they concluded that the overvaluation of the Dirham was unfavorable to the

diversification of exports. On the other hand, undervaluation had a rather neutral impact.

In the same context, Bachar analyzed, in OCP policy center (2016) the consequence of misalignment of the Dirham exchange rate on the competitiveness of Moroccan companies over the period 1980-2014. His conclusion is that the overvaluation of the Moroccan currency has negative effects on competitiveness. On the other hand, its undervaluation would not be likely to improve it. The author highlight that despite the advantage conferred by the Dirham statute, the Moroccan production system remains unattractive with regard to the foreign demand.

3. RESULTS

3.1. Equilibrium Exchange Rate and Dirham Misalignment Estimation by BEER Behavioral Model

We use the BEER behavioral equilibrium exchange model, developed by Clark and MacDonald (1997), to estimate Dirham misalignments over the period 1998Q1-2017Q4. It is an econometric model *ah doc* that does not have subjective underbase⁷. The lack of data in developing countries, as in Morocco, makes this kind of model a reasonable and relatively practical compromise in its implementation. This model aims to explain the evolution of the Dirham long-term real exchange rate according to the basic macroeconomic variables below⁸, using the autoregressive distributed lag (ARDL) bound testing techniques (ARDL)⁹. Next, we calculate the misalignment of the exchange rate, measured as the difference between the observed value of the exchange rate and its long-term value.

3.2. Variables and Data used in the Model

The fundamental variables selected are: the ratio of INR (net international reserves) to GDP (RES), the ratio of government expenditures to GDP (GOV), the ratio of M3 to GDP (MON), the ratio of GDP to the active population (PRO). Data are quarterly and cover the period 1998T1-2017T4. They come from the Haut Commissariat au Plan (HCP), BAM and the IMF.

The graphical representation of the different series (Graph 1) shows a generally stable evolution of the variables, characterized by a saw tooth variation.

For the descriptive statistics of the variables, the volatility of the variables in the model is relatively low. The reserves and the currency being the most volatile while the exchange rate is the

4 In 2016, the EU was Morocco's leading economic partner: first customer with 65% of exports and 1st supplier with 56% of imports

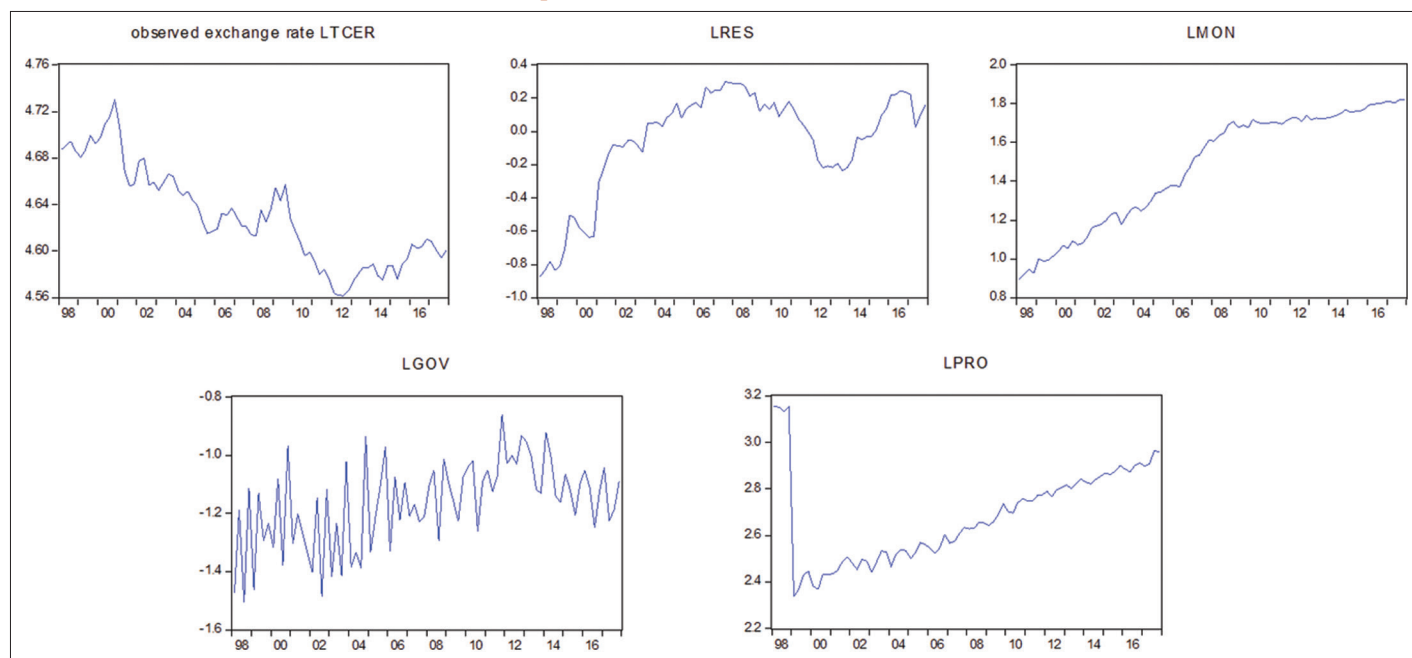
5 These variables are: net real capital flows, terms of trade shocks, the government's fiscal position, the level of foreign reserves, the monetary policy index, and relative productivity.

6 These macroeconomic variables are: trade restraint index, price control, terms of trade, net foreign assets, general government consumption and the productivity gap between Morocco and his 25 partner countries sample.

7 The absence of a theoretical reference of the model is a receptive criticism; it can be counterbalanced by its practical advantage.

8 We tested other models with other variables, including the trade balance and trade openness, both of which were not significant.

9 The bound testing approach of cointegration (ARDL), developed by Pesaran et al. (2001), is increasingly used because of some of the advantages it offers over traditional methods. First, it is not necessary for all variables to be I (1); they can be I (0) or/and I (1). Then, it is shown that the ARDL behaves better in the case of small samples. In addition, this procedure allows variables to have different optimal offsets. Finally, ARDL involves the establishment of a single equation, thus facilitating implementation and interpretations.

Graph 1: Evolution of the different variables

least volatile, with regard to the standard deviation. The RES and MON variables are normally distributed.

(Jarque-Bera probability > 5%) while the REER, GOV and PRO are not. The calculation of the different correlation coefficients shows a negative impact of all the variables on the REER.

The following model is used for empirical tests¹⁰: (All variables are expressed in logarithm)

$$LTCER_t = \alpha_1 LRES_t + \alpha_2 LGOV_t + \alpha_3 LMON_t + \alpha_4 LPRO_t + \epsilon_t \quad (1)$$

The ratio of INR to GDP (RES) allows us to capture the impact of reserves on the real exchange rate. The extent of government intervention determines the sign of the RES variable. If RES is significant, it would mean that a priori there is no government intervention.

The ratio of government expenditures to GDP (GOV): we used the share of government expenditures in GDP as the proxy for public consumption. The sign of this variable remains ambiguous. The EER tends to appreciate if non-tradable expenditure is favored and depreciated when more is spent on purchases of tradable goods (Diboğlu, 1996; Iossifov, 2007).

The ratio of M3 to GDP (MON) purpose is to assess the effectiveness of monetary policy. Theoretically, when this ratio increases, the price level increases, leading to an appreciation of the REER.

¹⁰ To allow smoothing of the series and to take into account a possible non-linearity of the relationship between the real effective exchange rate and its fundamentals, all the series have been transformed into logarithms (except the trade balance containing negative values), which will also allow the interpretation of coefficients in terms of elasticity.

The ratio of GDP to the labor force (PRO): Balassa (1964) and Samuelson (1964) have shown that the price level of non-tradable goods increases with the level of development and that the real exchange rate tends to appreciate. But according to Edwards (1989), technical progress can lead to a depreciation of the EER, when the resulting supply effect exceeds the demand effect (MacDonald and Ricci, 2003).

3.3. Results of Our Empirical Study

3.2.1. Stationarity of series and test of causality

The Toda and Yamamoto causality test and hence the ARDL estimate do not require the series to have the same degrees of integration; however, they are valid only if the series are integrated of order at most equal to 1.

To test the presence of the unit root in the series of our variables, we applied the tests of Augmented Dickey-Fuller (ADF) and of Philips Perron (PP). The MON, TCER and RES series accept the existence of unit roots whereas the tests carried out on their first difference series confirm the hypothesis of their stationarity. They are then integrated of order 1. The other variables have proved stationary. Our variables are integrated of order 0 or 1.

This allows us to apply the tests of causality of Toda and Yamamoto and consequently the model ARDL for the cointegration.

The presence of unit root would make it necessary to differentiate the series to carry out standard tests of the Granger type. But this transformation of series would lead to an interpretation in terms of short-term causality. To analyze the long-term relationship between non-stationary variables, the approach of Toda and Yamamoto (1995) has the advantage of adopting a VAR with variables in level. We find that the REER is not caused by any of

its explanatory variables and that MON does not induce any of the variables in the model.

After estimating the three types of models¹¹ using the fundamental variables described above, we used the trend model with reference to the AIC information¹² criterion.

The F-statistic of the cointegration test, known as the terminals (carried out by E-views 9), confirms the existence of a long-term relationship between the variables. In fact, the values observed exceed the critical value of the upper limit at the threshold of 5%. This gives the possibility to estimate the long-term effects of the variables retained on LTCER.

Empirical robustness tests of the models (Breusch-Godfrey and Jarque-Bera) confirm the absence of serial correlation, the absence of heteroscedasticity, and the normality of residues (Table 1).

3.2.2. Long and short term relationship, equilibrium and misalignment rate

We display, from the estimation of short-term effects established between the REER and its fundamentals, that there is an error-correcting mechanism since the error correction coefficient is significant and negative. The long-term equilibrium then converges significantly (at 1%), with a shock resorption speed: $|V_a|^t = |-0,24|^t$. This means that when the REER moves away from its equilibrium level, it adjusts nearly 24% in the next quarter if there is a shock. Thus the elimination of 95% of a shock on the real exchange rate

requires on average 2 years and 1 month¹³. On the other hand, in the long run, all variables are statistically significant. The long-term TCE equation being given by:

$$LTCER = -0.14*LRES^{**} + 0.18*LMON^{***} - 0.41*LGOV^* + 6.20^* + 0.01*t^{***}$$

[-2.647445]	[1.715309]	[-3.180173]	[6.700616]	[1.822760]
-0.97*LPRO^{**}	+6.20^*	+0.01*t^{***}		
[-2.168212]	[6.700616]	[1.822760]		

(2)

Values in square brackets are t-statistics

*, **, ***: Significant at 1%, 5% and 10%

The CUSUM and CUSUMQ tests allow us to verify the stability of this long-term relationship since the curve is inside the corridor (Graph 2).

Based on our results, we find that there is a positive and significant long-term relationship between the REER and MON.¹⁴ This relationship is negative and significant between the REER and the other three fundamentals, namely RES¹⁵, GOV¹⁶ and PRO.

The equilibrium real exchange rate can be calculated from the long-term relationship. BEER equilibrium real exchange rates are not smooth and have fluctuations, sometimes more pronounced than those of current real effective exchange rates (Graph 3).

To overcome this high volatility of the EER estimated on the basis of observable fundamentals, it would be more appropriate to consider, as an equilibrium exchange rate, its long-term trajectory.

The objective here is to measure the difference between the observed exchange rate and the exchange rate calculated by

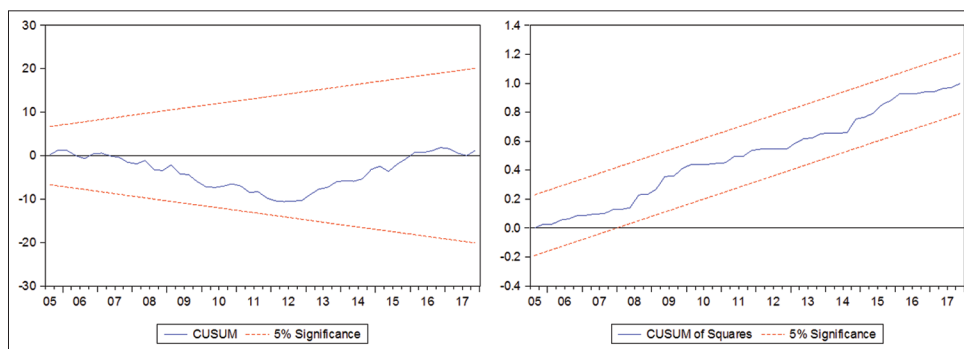
11 With trend, with constant and without trend or constant.
 12 The AIC criterion is a compromise between the bias (which decreases with the number of parameters) and the parsimony (willingness to describe the data with the smallest possible number of parameters), unlike the Bic (Schwartz) which is more suitable for large samples and which leads to more parsimonious models.

Table 1: Robustness and normality tests of the model

Test type	Test of	Values (probability)	Finding (%)
Autocorrelation of errors	Breusch-Godfrey BG	0.009618 (0.9223)	P>5
Normality	JarqueBerra	0.809961 (0.66699)	P>5
Heteroscedasticity	Breush-Pagan-Godfrey BPG: ARCH:	0.797142 (0.6993) 0.232717 (0.6311)	P>5 P>5

13 The formula of the speed of adjustment is given by: $1-|V_a|^t = 1-\rho$; $|V_a| = |-0.24|$ is the speed of adjustment, $\rho=0.05$ is the magnitude of the shock, t is the number of years to calculate.
 14 Same sign is obtained by Lebdaoui (2013) and by Rault et al (2009).
 15 Same sign is obtained by Lebdaoui (2013).
 16 The same sign is obtained by Lebdaoui (2013) and Bouiyouir et al (2004), while the sign found by Fadlallah (2016) is positive.

Graph 2: Stability test of the model coefficients



eliminating the temporary shocks in order to deduce, subsequently, the level of misalignment. The Hodric Prescott (HP) filter applied to the calculated EER is then used to dissociate the short-term and long-term trends. The use of the HP filter then provides a trend that will be considered as the desired level of balance (Graph 4).

The equilibrium real exchange rate can be calculated from the long-term relationship:

$$TCECAL = -0.14LRES + 0.18LMON - 0.41LGOV - 0.97LPRO + 6.20 + 0.01@TREND \quad (3)$$

Misalignment is defined as the difference between the actual (observable) real effective exchange rate and its (fundamental) equilibrium level. A positive difference indicates an overvaluation of the currency. When negative, this corresponds to a situation of undervaluation. The calculation method is based on the assumption that

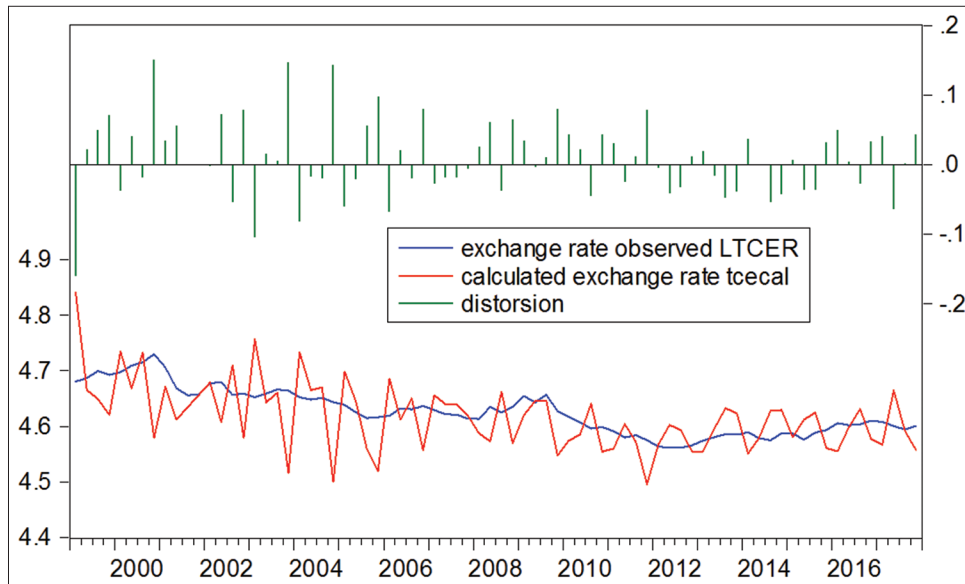
the real exchange rate estimated by the model corresponds to the long-run equilibrium consistent with the country's economic fundamentals.

Thus, the overvaluation of the real exchange rate of a country can be explained by two categories of reasons: either by the appreciation of the local currency compared to that of the partners, or by the increase of the local inflation compared to the partners, or because of a depreciation of the equilibrium exchange rate as a result of a deterioration in the fundamentals of the country. We then propose the formula for calculating the misalignment index (Graph 5) using the trends determined by the HP filter:

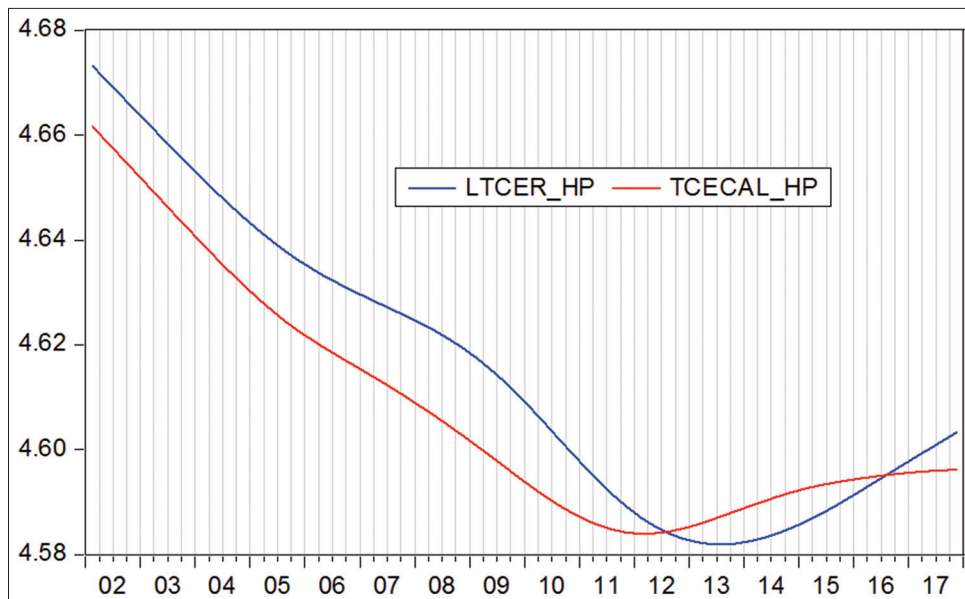
$$\text{Misalignment} = \frac{LTCER_{hp} - TCECAL_{hp}}{LTCER_{hp}} * 100 \quad (4)$$

The misalignment Graph 5 shows three distinct periods: First, a period of overvaluation from 2002T1 to 2012T2, followed

Graph 3: Distortion between observed and calculated exchange rates



Graph 4: Exchange rate trend observed and calculated (by HP filter)



by assessment period until 2016T2; then again a period of overvaluation.

In addition, we found some correlation between misalignment and INR. The Graph 6 shows a lagged impact of the RIN trend on that of the misalignment, either in a period of underestimation or overvaluation, in terms of the direction of variation. The INRs are a key determinant in the evolution of the Dirham exchange rate.

Table 2: Causality test

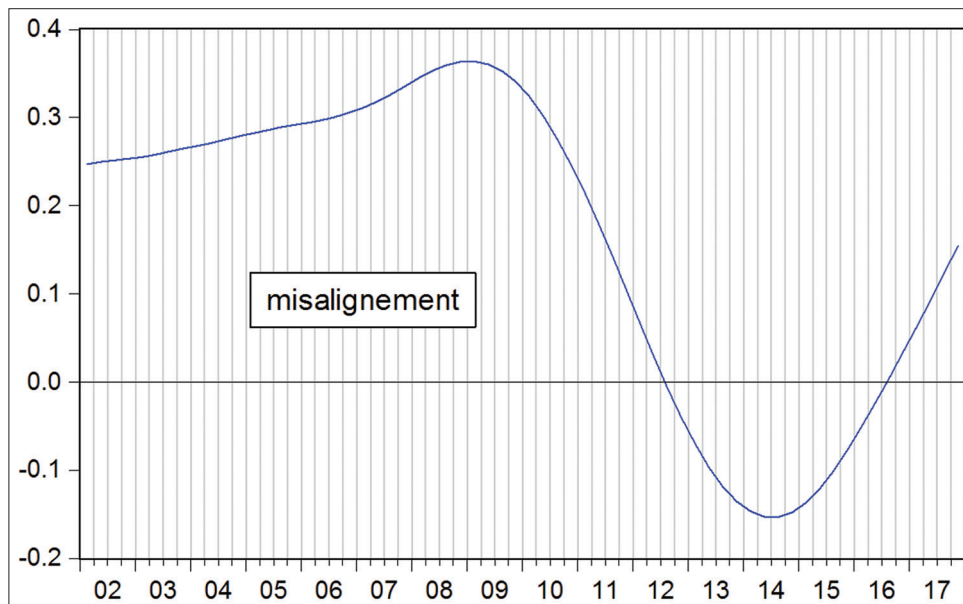
Pairwise granger causality tests			
Sample: 1998Q1 2017Q4			
Lags: 2			
Null Hypothesis:	Obs.	F-statistic	Prob.
MES does not granger cause RIN	62	4.78565	0.0120
RIN does not granger cause MES		18.9631	5.E-07

Otherwise, the Granger causality test indicates that INRs cause misalignment (Table 2).

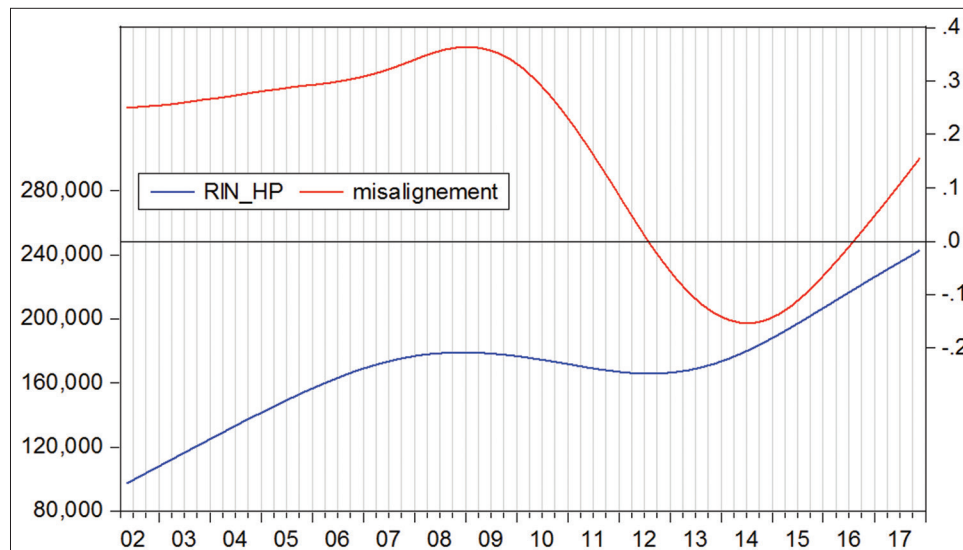
In a 2016 study, BAM estimated the equilibrium exchange rate over the period 2007-2015 using the BEER, FEER and external sustainability methods. The BEER methodology estimates the relationship between the real effective exchange rate and its long-term determinants. For the latter, the BAM study selected three variables: The terms of trade, the ratio of FDI to GDP and trade openness measured by the ratio between the sum of exports and imports and GDP. Considering the estimate of the equilibrium exchange rate by the BEER method, the comparison of our misalignment graph and that of BAM (Graph 7¹⁷) reveals trends going, overall, in the same direction between 2008 and 2013.

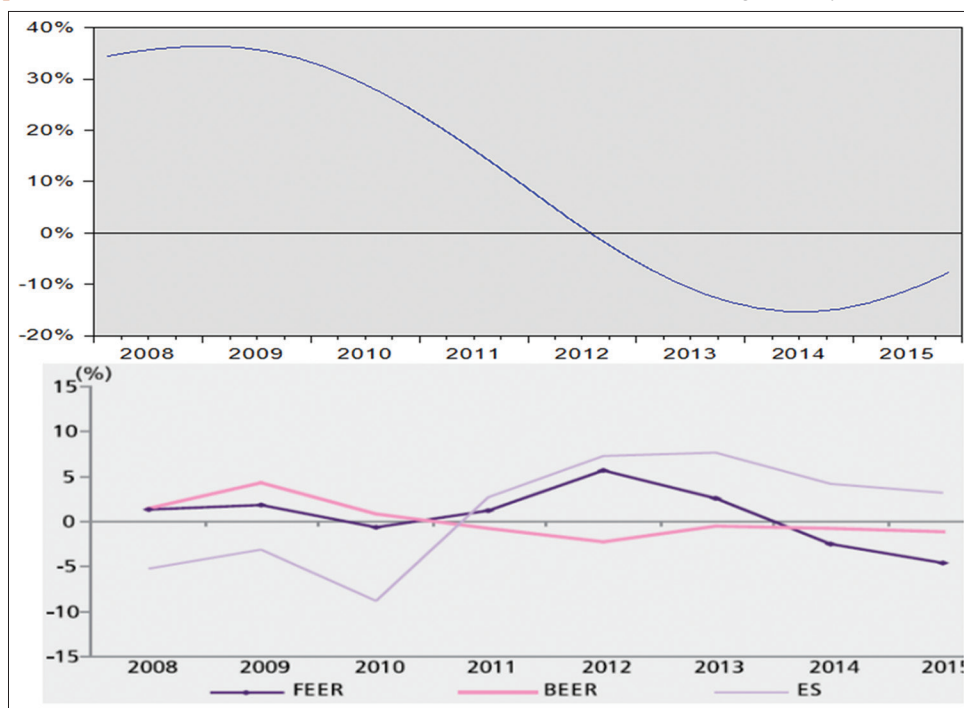
¹⁷ Source of the graph representing the FEER, BEER and ES methods: BAM (2016), annual report.

Graph 5: Misalignment graph



Graph 6: Correlation between misalignment and INR



Graph 7: Reconciliation of our result to that of BAM on the estimation of misalignment by the BEER method

4. CONCLUSION

Our empirical study allows us to identify phases of distortion (overvaluation and underestimation) in relation to the estimated equilibrium exchange rate. The observation of the misalignment graph leads us to the following findings: (1) The highest overvaluation is found in the early 2000s, reaching 35% by 2009 and then decreasing until 2012T2; (2) the largest undervaluation of about 15% is observed around 2014; then from the end of 2015, the misalignments did not exceed $\pm 15\%$.

Recall that the debate on the choice of the optimal exchange rate regime in developing and emerging countries was revived following the various capital account crises that affected a number of emerging countries during the 1990s (Allegret, 2007; Allegret et al. 2008). Monetary or financial crises Southeast Asian countries (Thailand and Indonesia), which resulted in large capital outflows, led to sharp declines in the exchange rate of their currencies and raised doubts about fixed exchange rate regimes.

In the IMF Working Paper (2018), Ghoh and Ostry recommends that emerging and developed countries, whose financial integration increases significantly, adopt a regime of free floating of their currencies. The Moroccan monetary authorities have also relied on the argument of the country's economic openness and its greater financial integration in the transition to the flexibility of the Dirham in 2018 (Frankel et al., 2004). However, the role of credit in the transmission of monetary policy (Moumni and Nahhal, 2016) as well as the other economic and institutional specificities of Morocco are not likely to allow the Dirham to play this role of variable adjustment and the Moroccan economy to face asymmetric external shocks!

The theoretical argument used in the case of Morocco is that the fixity of the exchange rate regime does not make it possible to cope

with exogenous asymmetric shocks given the rigidity of the labor market. According to the standard theory, while the absence of real wage flexibility, the flexibility of the Dirham exchange rate would facilitate the adjustment. Is this assertion grounded in the case of Morocco? According to the HCP and the Ministry of economy and finance (2018), the unemployment rate was 10.2% at the end of 2017 that of young people aged 15-24 reached 26.5% (and 42.8% in urban areas). This situation is in fact an element of salary flexibilization. Moroccan companies have an "exorbitant" power to award wages for the first job.¹⁸ The labor market in Morocco, because of an excess of labor (often very qualified), is de facto very flexible.

When economies were relatively outward-looking, the exchange rate reflected the real economy, resulting from the state of the balance of payments on transactions in goods and services (Aglietta and De Boissieu, 1999). As the opening of the capital account leads, theoretically, to greater capital mobility, the exchange rate will be more likely to vary according to asset portfolio arbitrage. Currencies would be more in line with the state of supply and demand for foreign exchange. But in Morocco, portfolio investments do not lead to the development of an interbank foreign exchange market where the Dirham exchange rate would be the equilibrium variable. The volumes traded are very modest.

According to Moody's (2019), in the 3rd quarter of 2017, the need for foreign exchange sales related to import / export represented 40 billion MAD and the average net foreign exchange position of Moroccan banks was 4.4 billion MAD. Banks' foreign currency deposits are estimated at only 4.6% of the total amount of their deposits.

¹⁸ Some companies go as far as not paying young graduates (engineers in particular) during the first 6 months arguing to provide them with a first experience.

With regard to anchoring expectations, in the gradual process of flexibility of the Dirham, Bank Al Maghrib aims to change the nominal pegging of the exchange rate to the interest rate in order to stabilize the expectations of economic agents. Theoretically, the transparency of the central bank and regular communication on the key interest rate are intended to set the expectations of operators on long-term interest rates thus reducing the risk premium on the financial markets. However, the impact of this transmission must be put into perspective, given that from 2000 to 2016, BAM changed its key rate only 11 times, whereas during the same period, the ECB made 43 changes. Similarly, the narrowness of the Moroccan bond market, its informational opacity, the absence of market makers and issuer rating significantly reduce its efficiency. In addition, the chronic lack of liquidity and depth of the stock market (dominated by 5 to 6 banks) of the Casablanca Stock Exchange is a factor that is unfavorable to its development.

Also, in the historical regime of hard anchoring, the control of the capital account had an essential function of “safety valve.” (Benlamine, 2018) But if floating capital flows had to increase massively in the Dirham’s flexibility regime, this would limit the effectiveness of monetary policy (Mundell, 1963) and (Krugman 1998).

From the above, we consider that the economic and institutional specificities of Morocco do not allow, in a clear manner, the Dirham exchange rate to effectively fulfill its role as an adjustment variable in a flexible exchange rate regime!

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