Maraoui, Najia; Hadj Amor, Thouraya; Khefacha, Islem; Rault, Christophe

Working Paper

How Economic, Political and Institutional Factors Influence the Choice of Exchange Rate Regimes? New Evidence from Selected Countries of the MENA Region

CESifo Working Paper, No. 9709

Provided in Cooperation with:
Ifo Institute – Leibniz Institute for Economic Research at the University of Munich

Suggested Citation: Maraoui, Najia; Hadj Amor, Thouraya; Khefacha, Islem; Rault, Christophe (2022) : How Economic, Political and Institutional Factors Influence the Choice of Exchange Rate Regimes? New Evidence from Selected Countries of the MENA Region, CESifo Working Paper, No. 9709, Center for Economic Studies and ifo Institute (CESifo), Munich

This Version is available at:
https://hdl.handle.net/10419/260839

CESifo WORKING PAPERS

9709
2022

April 2022

How Economic, Political and Institutional Factors Influence the Choice of Exchange Rate Regimes? New Evidence from Selected Countries of the MENA Region

Najia Maraoui, Thouraya Hadj Amor, Islem Khefacha, Christophe Rault

CESifo

Impressum:

CESifo Working Papers
ISSN 2364-1428 (electronic version)
Publisher and distributor: Munich Society for the Promotion of Economic Research - CESifo GmbH
The international platform of Ludwigs-Maximilians University's Center for Economic Studies and the ifo Institute
Poschingerstr. 5, 81679 Munich, Germany
Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de
Editor: Clemens Fuest
https://www.cesifo.org/en/wp
An electronic version of the paper may be downloaded
· from the SSRN website: www.SSRN.com
· from the RePEc website: www.RePEc.org
· from the CESifo website: https://www.cesifo.org/en/wp

CESifo *Working Paper No. 9709*

How Economic, Political and Institutional Factors Influence the Choice of Exchange Rate Regimes? New Evidence from Selected Countries of the MENA Region

Abstract

In this paper, we investigate how economic, political and institutional factors affect the choice of exchange rate regimes, using data on eight MENA (Middle East and North Africa) countries over the 1984-2016 period. Specifically, we run random-effects ordered probit regressions of the likelihood of exchange rate regimes on potential determinants of exchange rate regimes. Three important findings emerge from the analysis. i) Political and institutional factors play an important role in determining the exchange rate regime in MENA countries: a democratic political regime and a low level of corruption increases the probability to opt for a fixed regime. While, strong governments, political stability such as less internal conflicts and more government stability, more law and order enforcement and left-wing Government decreases the probability to opt for a fixed regime. ii) Bureaucracy, independent central banks, elections, terms of trade as well as the monetary independence have no effect on the choice of exchange rate regimes. iii) Financial development is not a robust determinant of the choice of exchange rate regimes. Our results still hold when considering alternative specifications and have important implications for policy makers in MENA countries.

JEL-Codes: C230, F330, F550, H800.

Keywords: exchange rate regimes, country risk, political and institutional factors, panel data, ordered probit regression, MENA.

Najia Maraoui
University of Monastir, FSEG Mahdia / Tunisia
marouinejia53@gmail.com

Thouraya Hadj Amor
Business Administration Department
Shaqra University / KSA
thouraya.hadjamor@gmail.com

Islem Khefacha
LaREMFiQ, IHEC of Sousse / Tunisia
islem.khefacha@gmail.com

*Christophe Rault**
LEO, University of Orléans / France
chrault@hotmail.com

*corresponding author

We are grateful to an anonymous referee for very useful comments and suggestions on a previous version of the paper.

1. Introduction

Since the collapse of the Bretton Woods system in 1971 and the move to floating currencies, the choice of the exchange rate regime has been of great importance in the case of emerging market countries and has not ceased to attract attention of economists and policy makers. Indeed, the exchange rate crises that particularly affected emerging countries during the 1990s revived the debate over the choice of the exchange rate regime (Frieden *et al.*, 2001; Álvarez *et al.*, 2011; Berdiev *et al.*, 2012; Rodriguez, 2016). This old debate in international economics of the arbitration between a fixed, floating or intermediate regime has just been renewed following the new international economic and political architecture.

In particular, MENA (Middle East and North Africa) countries, a spacious region has been subjected in recent decades to a number of events and upheavals, such as the 1990 Golf war affecting several countries in the region, the Lebanese civil war that took place until 1990, the Algerian civil war in 1991, and the Arab Spring Revolution of 2011, unleashed in Tunisia and then spread to other countries such as Egypt, Libya, Yemen and Syria. Such wars have generated huge losses on the economic side as well as on the political and institutional situation. Indeed, they have on the one hand, accompanied the spread of the phenomenon of corruption, the aggravation of political instability (government), terrorism, insecurity, the lack of enforcement of laws and norms, and the civilian casualties such as many mortals, increased spending military (Alnasrawi, 1992; Helfont&Helfont, 2012). However, on the other hand, they led to the decline of the various macroeconomic indicators, mainly due to the deterioration of the purchasing power of many countries in the region and the instability of the value of their currencies which is reflected in the weakening of nominal and real exchange rates, a mirror of economic development. Such facts have led some countries like Egypt to devalue its local currency against the dollar and to change its exchange rate regime of an intermediate system to a managed floating and pure thereafter. Other countries, such as Morocco and Tunisia have

opted for more flexibility to encourage more foreign exchange reserves and further limit exogenous shocks (Ghanem, 2009).

These series of new facts translating the new economic, political and institutional framework have come to put the debate on the choice of exchange rate regime in the MENA region back on the agenda. Theoretically, the debate over the choice of the exchange rate regime is based on the publication of Mundell's (1961) article "Optimal currency area". Later, many theoretical as well as empirical literatures have tried to answer this crucial question to identify how countries choose their exchange rate regimes such as Mckinnon (1963), Kenen (1969), Dreyer (1978), Melvin (1985), Savvides (1990) and Eichengreen *et al.* (2003). These authors focus only on economic factors as determinants of exchange rate regime choice in developed countries and emphasize factors related to optimal currency areas, financial integration, monetary autonomy and the nature of shocks.

However, the theory concerning the choice of the exchange rate regime evolved, integrating other current of the new factors: it is the political economy approach that emphasized the role of political and institutional factors in determining the choice of the exchange rate regime. In this context, Frieden and Stein (2001), Markiewicz (2006), Frieden *et al.* (2010) and Rodriguez (2016) suggest that political and institutional factors also influence the choice of exchange rate regimes and provide detailed guidance on the dynamics of choice.

In this regard, the renewed interest in this paper conducted in the MENA region is due to several reasons. Firstly, the new economic and political facts characterizing these economies, which are reflected on the one hand by a dangerous decline in the economic growth of several countries of the region during the last decades and the need to move towards another economic model that can promote stability and development. On the other hand, this economic downturn makes little sense without incorporating it into the increasing degree of political risk through

the deterioration in political stability and institutional quality experienced by most of these economies. In addition, the transition to new exchange rate regimes in some countries to meet certain challenges and constraints has revived interest in the choice of the exchange rate regime.

The main contribution of this paper is to replace political risk by its components in the MENA region, and to determine which of them play a role in the choice of exchange rate regimes by taking into account national and international economic characteristics. To our best knowledge, this is the first study conducted on this issue for MENA countries. Specifically, random-effects ordered probit models of the likelihood of exchange rate regimes on potential (economic, political and institutional) determinants of exchange rate regimes are estimated (in accordance with data properties) for a panel of eight countries for the 1984-2016 period. The empirical results have important implications for policy makers in charge of the choice of exchange rate regimes.

The remainder of the paper is organized as follows. Section 2 discusses theories of the determinants of exchange rate regimes. Section 3 describes the econometric methodology and the data. Section 4 reports the main empirical results and Section 5 offers some concluding remarks.

2. Theoretical Considerations

Many theoretical and empirical studies have examined the choices of the determinants of the exchange rate regime as a key decision in any economy in order to achieve rapid and stable growth. However, the factors driving the selection of the most appropriate exchange rate regime are inconclusive and is a widely debated topic. Such a subject is not recent and finds renewed interest in the new economic and political context, characterized primarily by the amplification of macroeconomic fluctuations and the multitude of shocks to the economy, but also the

increase in country risk, particularly through political instability and the deterioration of the institutional economy.

2.1 Economic determinants

The traditional criteria for choosing the exchange rate regime arise mainly from the theory of Optimal Currency Area (OCA), determining the choice between a fixed or a flexible exchange rate regime. This is the first approach for the selection of the exchange rate regime developed in the 1960s and initiated by Robert Mundell (1961). This theory builds and extends on three main works by Mundell (1961), Mckinnon (1963) and Kenen (1969). Thus, Mundell (1961) suggests that countries whose capital and labor factors are immobile, are more likely to adopt a flexible exchange rate regime while for countries characterized by the mobility of their factors of production are more likely to choose a fixed exchange rate regime.

Mckinnon (1963) suggests that the more the economy is open, the more the choice for a fixed exchange rate regime. As for Kenen (1969), he suggests that the more the economy is diversified, the more likely is to choose a fixed exchange rate regime and vice versa.

In addition, the level of reserves is considered among the main features of maintaining a fixed exchange rate regime, which consists in having an adequate level of reserve. Indeed, it is generally impossible to establish a fixed regime without having a significant level of foreign exchange reserves.

Mundel (1963) emphasized the character of capital mobility as a determining criterion of the choice of the optimal exchange rate regime and proposed the impossible trinity in 1963 as an explanation for this choice. Since economic policy is based on three main concepts: monetary policy, exchange rate policy and capital account management policy. Mundell's impossible trinity suggested that it is impossible for a country to achieve simultaneously the following three goals: a fixed exchange rate, independence of monetary policy and integration of financial

markets. By using this triangle, three cases can be distinguished. The first scenario states that a country with a fixed exchange rate regime and an independence of monetary policy could not have a perfect mobility of capital. The second scenario is the monetary dependence. We refer to the criterion of an optimal currency area, a fixed exchange rate regime with capital account liberalization prohibiting any independence of monetary policy. While, for the third scenario, a country with perfect capital mobility and autonomy of monetary policy makes it impossible to adopt a fixed exchange rate.

Another determinant intervenes in the choice of exchange rate is the nature of shocks. This is the modern version of the OCA theory that focuses on the importance and nature of the shock and its fundamental effect on the choice of exchange rate regime. Mundell (1963) and Melvin (1985) show in their studies that in case of real shocks[2] a flexible exchange rate regime is more adequate. While in the case of nominal shocks,[3] a fixed exchange rate regime is more appropriate to cope better.

2.2 Political and Institutional Determinants

Political instability may have an effect on the choice of the exchange rate regime. This effect has been the subject of several studies such as that of Edwards (1996), Meon and Rizzo (2002), Alesina and Wagner (2006) and Frieden *et al.* (2001, 2010)[4].

Among the main indicators of political instability, we can quote socio-economic conditions, internal conflicts and government stability. Each indicator can have an effect on the choice of exchange rate regime. The theory of political economy shows a controversy between the authors who integrated political instability in their research and they found mixed results. On the one

[2] Real shocks which are in relation to the terms of trade and are mainly the result of changes in the country's current account, which are in turn generated by a change in imports or exports.
[3] Nominal shocks result from an unexpected variation in the money supply in circulation which makes it possible to change the behavior of economic agents or shocks in relation to the expenditure that are related to the change in consumption, investment or public expenditure.
[4] Frieden *et al.* (2001) is one of the early references followed by Piragic and Jameson (2005).

hand, an unstable government cannot opt to maintain a fixed exchange rate regime. This idea is confirmed by the study of Frieden *et al.* (2001)[5] and Rodriguez (2016). In addition, Edwards (1996) confirmed this idea and used a theoretical model to explain the effects of political instability on the choice of the exchange rate regime. On the other hand, other studies such as Alesina and Wagner (2006) and Honig (2007) have confirmed that an unstable government can favor setting its exchange rate regime.

The choice of an exchange rate regime can also be influenced by the type of political system of both democratic and autocratic countries. The latest work on the effect of democracy on the choice of exchange rate regime has shown that democracy is associated with a flexible exchange rate regime for two reasons. The first reason is that flexibility allows policymakers to conduct an autonomous monetary policy in order to improve internal economic conditions. The second, it is the transparency of monetary commitments and the transparency of the political system are considered as substitutes. While, for autocratic institutions they are generally lack credibility with investors, which is linked to their lack of political transparency and legitimacy, making the adoption of a fixed exchange rate regime more preferable for providing credibility (Broz, 2002; Steinberg *et al.*, 2015).

Elections that occur in democratic institutions allow to choose between a fixed or flexible exchange rate regime. Frieden and Stein (2001) in their book "Currency Game" suggest that elections have an effect on exchange rate policy. Since politicians can avoid depreciation at the time of the elections, they resort to a fixed exchange rate regime by attempting to launch stabilization programs in order to reduce inflation and generate an economic boom. Other studies, contradicting Frieden and Stein (2001) and Hossain (2009) such as the study of Benhard and Leblang (1999) and Carmignani *et al.* (2008) who suggested that it is difficult for the

[5] Frieden et al (2001) suggest that unstable political systems have been associated with larger fiscal deficits, making it more difficult for governments to maintain parity.

government to adhere to a fixed exchange rate regime because of political pressures to support expansionary policies.

The strength nature of the government whether it is a strong or weak government can result in the choice of exchange rate regime. Previous studies have found that a weak government cannot opt for a fixed regime. This result is confirmed by Frieden and Stein (2001) in their famous book "Currency Game". Indeed, this regime requires the government to respond to exogenous shocks with internal adjustment measures and excludes the use of a monetary policy to stimulate the national economy. This idea is also confirmed by Eichengreen (1992), Edwards (1996) and Rodriguez (2016).

Institutional quality also has a significant influence on the choice of exchange rate regime. Among the best-known indicators of institutional quality are corruption, bureaucracy, law and order[6].The existing literature on institutional quality shows that countries with poor institutional quality find it difficult to maintain a fixed exchange rate regime. They often have very high inflation and large continuous devaluations, so they fall freely. While Alesina and Wagner (2006), Honig (2009) and HadjFraj *et al.* (2018) suggest that weak governments with poor institutional quality may adopt a fixed exchange rate regime and this difference in outcome depends on the sample, the political and economic characteristics of a country.

Exchange rate policy and the independence of the central bank[7] are closely related. Indeed, the latter is associated with price stability. Therefore, a country whose central bank is more independent might prefer to fix its exchange rates as a means to provide credibility to lower inflation (Jacome &Vozquez, 2008; Crow &Meade, 2008; Eijffinger and hoeberichts, 2008).Other authors such as Steinberg and Walter (2013) and Berdiev *et al.* (2012) have found that independent central banks correlate with flexible exchange rate regime. Indeed, central

[6] Better institutional quality means a low level of corruption and a high level of law and order enforcement and bureaucracy. Institutions with poor institutional quality are considered weak institutions and vice versa.
[7] A central bank is independent when it is not subject to government guidelines.

bank independence often makes it more difficult to stabilize the exchange rate because it is reluctant to reduce the interest rate and shows that this independence reduces exchange rate stability.

The partisan theory of macroeconomic policy initiated by Hibbs (1977), which is based on the idea that political parties weigh differently on economic performance (inflation, unemployment ...) may have an effect on the choice of exchange rate regime. Alesina (1988) has proposed an alternative model. He suggests that left-wing parties is more likely to use an expansionary macroeconomic policy so more likely to adopt a flexible exchange rate regime. While the right-wing parties are more concerned with stabilizing the economy so they are more likely to maintain a fixed exchange rate regime.

3. Econometric Methodology and Data

We used annual data over the 1984 - 2016 period for a sample of eight MENA countries: Algeria, Morocco, Egypt, Tunisia, Jordan, Saudi Arabia, Bahrain and Kuwait. We limit ourselves to this sample because the exchange rate regime of certain countries does not change over the course of time and there is a lack of a required data to assess the situation for the MENA region. These data are extracted from different sources namely World Development Indicator (WDI), International Country Risk Guide (ICRG) and Data Base of Political Institutions (DPI).

3.1 Exchange Rate Regime Classification

In our empirical analysis, we used Ilzetzki, Reinhart and Rogoff's (2008) de facto classification updated up to 2016 and divided into two classifications: the first is "fine classification" composed of 15 groups. The second is "coarse classification" which was retained in our study and composed of six groups where the latter is an aggregation of the former[8].This classification

[8] The coarse classification by Reinhart and Rogoff (2008) is the following : 1-No separate legal tender , 1-Pre announced peg or currency board arrangement, 1-Pre announced horizontal band that is narrower than or equal to

has the advantage of looking at what countries actually do, rather than what they say they do. Therefore, they use the actual exchange rates regime. Using this classification, we notice that the exchange rate regimes of the MENA region can be classified mainly into 3 categories, while regime 5 and 6 were not adopted by the sample of MENA countries during the period considered. That's why we limited ourselves to the main groups, fixed, intermediate and floating to facilitate the implementation of our econometric methodology.

3.2 An ordered probit model

Given that there is an order of evolving the exchange rate regime historically in the data, and since the dependent variable (exchange regime) is of the multinomial type, we use an ordered probit model. In addition, given the panel structure of the dataset, the possible existence of unobservable country effects has to be taken into account not to bias the estimation results. Furthermore, as discussed by Neyman and Scott (1948) and Hsiao (2014), estimating a fixed-effects model with small and fixed T transmits the inconsistency of the incidental parameters into the other coefficients. In addition, other research papers such as that of Alain Trognon (2003) shows that, unlike the random effect model, the non-linear framework agrees relatively poorly with the fixed effects. This is empirically confirmed in our investigation when testing for the appropriate form of country- specific effects. Therefore, in what follows, we consider a model with random effects rather than fixed effects[9].

Specifically, the model takes the following form:

$$Y^*_{it} = X_{it}\beta + \mathcal{E}_{it} i = 1,...,N \qquad t = 1,\ldots, T,$$

+/-2%, 1-De facto peg , 2-Pre announced crawling peg , 2-Pre announced crawling band that is narrower than or equal to +/-2%, 2-Defacto crawling peg, 2-Defacto crawling band that is narrower than or equal to +/-2% , 3-Pre announced crawling band that is wider than or equal to +/-2% , 3-De facto crawling band that is narrower than or equal to +/-5%, 3-Moving band that is narrower than or equal to +/-2% (i.e., allows for both appreciation and depreciation overtime), 3 Managed floating, 4-Freely floating, 5-Freely falling, 6-Dual market in which parallel market data is missing.

[9]However, to gain credibility of the results, an ordered probit with country-fixed effects is also estimated as a robustness test.

, where$^{*}_{it}$is a latent (non-observable) variable indicating the exchange rate regime adopted by country i in year t, X_{it}isa vector of exogenous explanatory variables, β is a vector of coefficients for the independent variables. ε_{it} is defined as:

$$\boldsymbol{\varepsilon_{it} = u_i + v_{it}}$$

, where u_i is a country- specific random effect that does not vary over time, and v_{it} is a white noise error term. Following the coarse classification of Ilzetzki, Reinhart and Rogoff (2008) extended to 2016 for the eight MENA countries during the 1984-2016 period of analysis. this variable is determined from the model as follows:

$$Y_{it} = \begin{cases} 0 \quad if \quad Y^{*}_{it} \leq \mu_0 \text{(a fixed exchange rate is adopted by country i in the year t)} \\ 1 \quad if \quad \mu_0 < Y^{*}_{it} \leq \mu_1 \text{(an intermediate exchange rate is adopted by country i in the year t)} \\ 2 \quad if \quad \mu_1 < Y^{*}_{it} \text{(a flexible exchange rate regime is adopted by country i in the year t)} \end{cases}$$

The empirical analysis is based on four models. The first one investigates the relevance of economic and financial variables. The second, combines economic and financial variables with political and institutional variables. In case of non-significance of political risk, we move to the third model. The latter incorporates economic and financial variables with political risk to ensure the non-significance of this factor. If it also remains insignificant, we move to the last specification. The final model includes a combination of economic, financial and political economic variables that determine the exchange rate regimes in MENA country. In a last step, we run a sensitivity analysis to ensure the reliability of results. Our main contribution is to replace the political risk by its components in order to determine which of the seven selected components play a role in the choice of the exchange rate regime.

3.3 Economic, financial, political and institutional data

3.3.1 Economic and Financial variables

This first category includes factors related to geography and trade that are generally associated with optimal currency areas and the impossible trinity. Trade openness and the relative size of the economy are the two main variables that matter for the exchange rate regime. Constant real GDP is an indicator of the relative size of the economy. Trade openness is measured by the sum

of exports and imports of goods and services as a share of GDP. Inflation is measured by the consumer price index expressed in log. Thus, high inflation should increase the likelihood of adopting a flexible regime (Álvarez *et al.*, 2011; Frieden &Stein, 2001).

Domestic credit to the private sector (% of GDP) is used as a proxy for financial development (Rodriguez, 2016). The empirical analysis also uses the ratio of the central bank's international reserves to the money supply (reserves / M2) for measuring international reserves (Calvo and Reinhart, 2002).

Financial openness is a financial variable to learn about the degree of mobility of capital essential factor of the impossible trinity. We use the Kaopen index of Chinn and Ito (2006), Chinn and Ito (2015) as a measure for this variable which is available from 1970 and which is based on four binary nominal variables reported in the IMF's Annual Report on Exchange Arrangements and Exchange Rate Restrictions. Thus, a higher number providing information on low capital mobility. Government spending is measured by general government final consumption expenditure (% of GDP). The foreign direct investment variable is measured by the sum of equity, reinvestment of profits and other long-term and short-term capital divided by GDP. Another economic variable included is monetary independence, it is an index that measures the degree of monetary autonomy. This index varies between 0 and 1. The higher the value, the closer to 1, the greater the monetary independence.

3.3.2 Political and Institutional Variables

The political risk rating is a score that varies between 0 and 100. The lower the total risk point values, the higher the risk and vice versa. This variable consists of 12 components in three sub-categories of risk: political, financial and economic. Seven components were chosen. Government stability is a score that varies between 0 and 12. The lower the value, the more the government is unstable and vice versa. In addition, the internal conflict is a component that varies between 0 and 12, used to assess the political violence in the country and its real or

potential impact on governance. The lower the value, the higher the risk of internal conflict and *vice versa*. Finally, socio-economic conditions, this component aims to assess the socio-economic pressures at work in society that could constrain government action or fuel social dissatisfaction. It gives a value of 0 for poor socioeconomic conditions and a value of 12 for a better condition. These three components are used as proxies for political stability.

Corruption is a score varying between 0 and 6. 0 for higher corruption and 6 for lower corruption. Also, law and order are two sub-categories. The sum of these two sub-components is equal to a score that varies between 0 and 6. A high score is given to a country with a judicial system, while a low score (1) indicates a very high crime rate if the law is ignored. Finally, the bureaucratic quality is a score varies between 0 and 6. The strong points are granted to the countries where bureaucracy has strength and expertise. While the weak points correspond to countries that do not have a strong bureaucracy because of a change of government. Thus, these last three components are used as proxies for measuring institutional quality.

Another institutional component is used as a measure of democracy. It is a score that varies between 0 and 6. The highest score corresponds to democracies, while the lowest score corresponds to autarchies.

The analysis uses three other indicators from the World Bank's 'Database of Political Institutions' (DPI). Government strength is measured by the number of years that the incumbent has in office (Edwards, 1996). Long executive mandates indicate strong governments. Besides, the variable "elections" means that in the case if there was an executive election this year the variable takes the value 1 otherwise 0. The expected effect of these variables also is positive. The left-wing government is a variable dummy takes the value of 1 for the left part and 0 in the other case (right or centrist party).

Finally, the analysis includes the turnover rate of central bank governors[10] as a proxy for measuring central bank independence (Cukierman, 1992). This rate is calculated as number of changes of central bank governors divided by the term of office. This index varies between 0 and 1. The higher the value of the index, which is close to 1, the greater the independence of the central bank (Ghrissi&Smida, 2009) [11].

4. Econometric Results

4.1 Descriptive statistics

Table 1 : Descriptive statistics

Categorical Variable	Total Observations	Outcome s	Observations	Percentages
Exchange Rate regime	264	0	124	46.97
		1	100	37.88
		2	40	15.15

Table 1 shows the distribution of exchange rate regime during the period of analysis. The first remark is that the exchange rate regime of MENA countries can be categorized primarily into three categories (0, 1, 2). The second is that the regime most used by these countries is the fixed exchange rate with a percentage of 46.97% while the least popular regime is the flexible regime with a percentage of 15.75.

Table 2 shows the distribution of exchange rate regimes for subperiods using the coarse classification. The first remark is that MENA exchange rate regimes can be classified mainly using 3 categories.

[10] Cukierman (1992) argued that in the cases of countries where the rule of law is less strongly embedded in the political culture, there can be wide gaps between the formal, legal institutional arrangements and their practical impact, the turnover rate of central bank governors is a good proxy for central bank independence than measures based on central bank laws.

[11] The data of this study is available from the corresponding author. See table 5 for further details.

Table 2: The number of transitions in the exchange rate regime for the sample of countries over the 1984-2016 period

Year \ Err[12]	Fixed	Intermediate	Flexible
1984	3	2	3
1990	16	12	20
1995	14	14	12
2000	20	15	5
2005	20	20	
2010	22	18	
2016	29	19	

Nota.
3: indicates the number of times that a fixed exchange rate regime was adopted by the sample of countries during the year 1984.
5: indicates that during the period from 1996 to 2000 the flexible exchange rate regime was used 5 times by the sample of countries.
19: indicates that during the period from 2011 to 2016 the intermediate exchange rate regime was adopted 19 times by the sample of countries.

4.2Estimation results

Table 3 presents the estimated coefficients of random-effect ordered probit models for the choice of the exchange rate regime. We can distinguish the estimation results of three models as well as the basic one (1).

[12] Exchange rate regime.

Table 3: Determinants of exchange rate regimes in MENA, 1984-2016. Dependent variable: exchange rate regime (Elzetzki, Reinhart and Rogoff classification). Estimate: Ordered probit regression with random effects[13]

	(1)	(2)	(3)	(4)
GDP	-0.644 (0.017)**	-0.534 (0.032)**	-0.613 (0.024)**	-0.561 (0.022)**
Inflation	0.496 (0.000)***	0.530 (0.000)***	0.485 (0.000)***	0.539 (0.000)***
Financial Development	-0.207 (0.338)	-0.303 (0.271)	-0.141 (0.566)	-0.375 (0.117)
Government expenditures	2.007 (0.002)***	2.168 (0.001)***	1.95 (0.003)***	2.213 (0.001)***
Trade openness	-0.017 (0.027)**	-0.015 (0.062)*	-0.017 (0.024)**	-0.014 (0.071)*
International reserves	0.591 (0.002)***	0.706 (0.001)***	0.550 (0.006)***	0.742 (0.000)***
Financial opening	-1.115 (0.015)**	-0.915 (0.048)**	-1.084 (0.019)**	-0.929 (0.043)**
CBI		-0.430 (0.485)		-0.350 (0.560)
Left wing dummy		1.116 (0.004)***		1.123 (0.004)***
Political Risk		-0.008 (0.605)	-0.008 (0.582)	
Prob (chi 2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***
N	*216*	*205*	*216*	*205*

****** p < 0.01***
***** p < 0.05***
**** P < 0.1***
P-values are reported in parentheses

[13] To avoid the endogeneity problem, the independent variables are lagged by one year.

In the first model, all coefficients are statistically significant except for financial development. The negative coefficient of GDP indicates that countries with high GDP are more likely to favor a fixed exchange rate regime. This result confirms the study of Sfia (2007) stating that countries with large economic size opt for a fixed exchange rate regime.

However, inflation has a positive coefficient, which means that a low level of inflation is associated with a fixed exchange rate regime. This result is in line with the study made by Frieden *et al.* (2001) and Rodriguez (2016) and Liu *et al.* (2020).

The government expenditure ratio is positive, showing that an increase in public spending decreases the likelihood of having a fixed regime. Indeed, an increase in public spending strengthens the economy but it also generates inflation, which leads to a drop in investment and private consumption resulting from an increase in taxes and thus a reduction in household income. On the contrary, a fixed regime favors investment and reduces inflation. Such result coincides with that found by Bornukova Kateryna (2004).

In contrast, the effect of trade openness is negative, implying that the probability of choosing a fixed exchange rate regime is greater in countries with high activity with the rest of the world. This result is comparable to that found with Frieden *et al.* (2001), Piragic and Jameson (2005), Markiewicz (2006), Frieden *et al.* (2010) and Rodriguez (2016). As for the reserve ratio, its effect is positive, which means that the probability of having a fixed exchange rate regime is low in countries with an adequate level of reserve stocks. It is well-known that a fixed exchange rate regime requires a large international reserve stock. However, given the macroeconomic shocks to which the sample of countries are affected and the fragility of their financial system, the choice of a more flexible exchange rate system encouraging exports remains more favorable to absorb these economic risks, and in particular to avoid crises of exchange rates whose experience in emerging countries has shown how violent they can be. Therefore, the accumulation of reserves which actually reflects an exchange rate strategy to achieve growth

bases on exports probably relies for a reason of prudence on the part of monetary authorities, which makes it a form of « Precautionary wealth » to reduce macroeconomic risks. Thus, increasing international reserves may reduce the likelihood of adopting a fixed exchange rate regime. Our result confirms the interpretation of Calvo and Reinhart (2002) who suggest that floating-oriented countries should keep a large stock of reserves to protect themselves in the event of a currency crisis. A Similar result was found by Frieden *et al.* (2001), Rodriguez (2016), and Liu *et al.* (2020). Finally, the coefficient of financial openness is negative, indicating that a country with high capital mobility has a high probability of adopting a fixed exchange rate regime also the similar result was confirmed by Rodriguez (2016).

The second model combine economic, financial, political and institutional variables. The results for the economic variables are similar to the first model. For political and institutional variables, we note that the central bank independence variable is not significant. The effect of the variable left-wing dummy is positive and significant suggesting that left-wing governments have a lower probability of choosing a fixed exchange rate regime in the MENA study panel. In fact, the left-wing parties implement policies that improve growth against stability. They have more preferences to manage the national economy and more likely to use an expansionary macroeconomic policy but less likely to adopt a fixed exchange rate regime. This result is confirmed by the partisan theory initiated by Hibbs (1977) and extended by Alesina (1988), Berdiev *et al.* (2012) and Liu *et al.* (2020). As for the effect of political risk, it turns out to be negative, which reveals that in a situation of political uncertainty the probability of maintaining a fixed exchange rate regime is less preferable. However, this effect is not significant in the MENA region.

To investigate the robustness of our findings we introduce only the political risk with the economic and financial variables in a third model. The findings are identical to what previously was found, while the political risk remains insignificant. Finally, the fourth equation drops

political risk factor and shows that all economic, financial, political and institutional variables remain significant except central bank independence, and have the same signs as in the other three specifications.

4.3 Sensitivity analysis and Robustness checks

Table presents a sensitivity analysis using the same estimation methodology by adding a variable from DPI and ICRG in order to have the effect of the latter on exchange rate regime choice

The first model provides an estimate of the basic equation by including the monetary independence of Aizenman *et al.* (2008) to account for other factors of the impossible trinity. The estimated coefficient of this variable is negative and not significant. This can be explained by the fact that in the MENA region, these countries do not attach importance to monetary independence in the choice of exchange rate regime. This result confirmed those found by Rodriguez (2016).

The second model reports estimates of the basic equation and adds a measure of foreign direct investment. The estimated coefficient of this variable being negative and significant, it means that a high degree of foreign direct investment increases the probability to opt for a fixed regime. This result is confirmed by Bornukova Kateryna (2004). The main results are similar to those found previously.

The third econometric model considers the estimate of the basic equation adding terms of trade which is considered a measure for real shocks. The estimated variable is not significant, suggesting that in the case of the selected MENA region, this external shock does not play a role in the choice of the exchange rate regime.

As for the fourth equation, we introduce in the basic equation socioeconomic conditions as proxy for political instability. The coefficient of this variable is negative, but not significant,

which indicates that socio-political conditions such as unemployment, poverty ... do not play a role in the choice of the exchange rate regime.

The fifth model presents an estimate of the basic equation by integrating government stability[14] as a proxy for political instability and as a component of political risk. This variable is positive and significant, which suggests that a country in a situation of political stability (high government stability) has a low probability of maintaining a fixed exchange rate regime. On the contrary, a country in a situation of political instability favors a fixed exchange rate regime. In fact, in a situation of political instability, investors have lost their confidence in the country, leading to a decline in economic activity, which is driving governments to opt for a fixed exchange rate regime as a tool to strengthen credibility, increase confidence in the national currency, and thus control inflationary expectations. This result is similar to the study of Alesina and Wagner (2006) and Honig (2007).

Model six, estimates the basic equation and incorporates another component of political risk, namely the internal conflict[15] also used as a proxy for political instability. The effect of this variable is positive and significant, which means that in a situation of political stability (low level of terrorism, political violence and disorder), the probability of having a fixed exchange rate regime is low. The results of these three specifications lead us to conclude that political stability decrease the likelihood of maintaining a fixed regime.

We introduce in the seventh equation an additional measure of corruption, which represents a component of political risk studied as a proxy for institutional quality[16]. The coefficient of this variable is negative and significant, meaning that in the case of a low(high) corruption a fixed exchange rate regime is more(less) likely. Indeed, countries with strong corruption have poor

[14] The higher the value, the more the government is stable and vice versa.
[15] The higher the value, the lower the risk of internal conflict, which implies a situation of political stability.
[16] The higher the value, the lower the level of corruption, which implies a better institutional quality.

macroeconomic management where a flexible exchange rate regime is more appropriate in order to improve economic activity.

We are also incorporating another measure of institutional quality, a component of political risk, namely law and order. The estimate of equation eight shows that this institutional quality proxy suggests that a high level of law enforcement and order decreases the probability to adopt a fixed regime. Indeed, a good law enforcement and order improves the institutional quality that promotes credibility and values confidence in the national currency, hence the appreciation of the exchange rate and the improvement of the economic situation, so he is more likely that a flexible exchange rate regime will be chosen.

The nine model incorporates the basic equation with another additional measure of political risk that is bureaucracy, also used as a proxy for institutional quality. The effect of this variable is positive, indicating that a high level of bureaucracy decreases the probability of maintaining a fixed exchange rate regime. However, this effect is not significant in the case of the entire eight MENA countries.

The results of these last three components (corruption, law and order and bureaucracy) which are used as proxies for institutional quality reveal that the influence of these factors is not decisive, because they have contradictory impacts on the choice of exchange rate regimes.

Equation (10) incorporates another component of political risk that is democracy. Unlike the previous literature, the estimated coefficient of this variable is negative and significant, which indicates that democracy is linked to a fixed exchange rate regime.

Table 4: Sensitivity analysis (all the independent variables are lagged by one year)

	M.I (1)	F.D.I (2)	Terms of Trade (3)	Socio-eco (4)	G.S (5)	Conflict (6)	Corruption (7)	Law (8)	Bureaucray (9)	Democracy (10)	Elections (11)	Years in office (12)
G.D.P	*-0.358*	*-0.484*	-0.321	*-0.369*	*-0.592*	-0.699	*-0.688*	-0.693	-0.560	-0.872	-0.563	- 0.448
	*(0.017)***	*(0.055)***	(0.046)**	*(0.218)*	*(0.029)***	(0.013)***	*(0.018)****	(0.015)***	(0.021)**	(0.010)***	(0.021)**	(0.126)
Inflation	*0.525*	*0.630*	0.515	*0.626*	*0.673*	0.583	*0.623*	0.608	0.533	0.647	0.532	0.558
	*(0.000)****	*(0.000)****	(0.000)***	*(0.000)****	*(0.000)****	(0.000)***	*(0.000)****	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Financial Development	*-0.505*	*-0.302*	-0.447	*-0.259*	*-0.422*	-0.690	*-0.257*	-0.572	-0.374	-0.295	-0.374	-0.431
	*(0.019)***	*(0.220)*	(0.066)*	*(0.303)*	*(0.089)**	(0.010)***	*(0.301)*	(0.033)**	(0.118)	(0.269)	(0.117)	(0.077)*
Government Expenditures	*3.110*	*1.693*	2.856	*2.234*	*2.601*	2.177	*2.430*	2.301	2.254	2.790	2.235	1.965
	*(0.000)****	*(0.017)***	(0.000)***	*(0.002)****	*(0.000)****	(0.002)***	*(0.000)****	(0.001)***	(0.001)***	(0.000)***	(0.001)***	(0.005)***
Trade Openness	*-0.022*	*-0.014*	-0.021	*-0.019*	*-0.013*	-0.008	*-0.015*	-0.011	-0.014	-0.005	-0.014	-0.014
	*(0.001)****	*(0.083)**	(0.001)***	*(0.033)***	*(0.109)**	(0.312)	*(0.065)**	(0.172)	(0.071)*	(0.610)	(0.069)*	(0.114)
International Reserves	*0.893*	*0.722*	0.871	*0.715*	*0.833*	0.839	*0.774*	0.873	0.743	0.711	0.743	0.760
	*(0.000)****	*(0.000)****	(0.000)***	*(0.001)****	*(0.000)****	(0.000)***	*(0.000)****	(0.000)***	(0.000)***	(0.001)***	(0.000)***	(0.000)***
Financial Opening	*-1.990*	*-0.933*	-0.920	*-0.778*	*-1.056*	-1.153	*-1.004*	-0.883	-0.916	-1.443	-0.944	-1.315
	*(0.020)***	*(0.044)***	(0.026)**	*(0.094)**	*(0.022)***	(0.014)***	*(0.031)***	(0.053)**	(0.045)**	(0.005)***	(0.041)**	(0.011)***
I.C.B	*-1.970*	*-0.291*	-0.842	*-0.149*	*-0.176*	-0.203	*-0.446*	-0.081	-0.391	-0.714	-0.373	0.376
	*(0.088)**	*(0.644)*	(0.149)	*(0.807)*	*(0.778)*	(0.761)	*(0.471)*	(0.898)	(0.518)	(0.255)	(0.537)	(0.528)
Left wing dummy	*0.051*	*1.094*	0.992	*1.254*	*1.145*	0.880	*1.108*	1.384	1.161	1.308	1.111	1.013
	*(0.000)****	*(0.006)****	(0.000)***	*(0.003)****	*(0.004)****	(0.031)**	*(0.006)****	(0.002)***	(0.004)***	(0.004)***	(0.004)***	(0.009)***
Additional Variable	*-0.282*	*-0.157*	-0.374	*-0.297*	*0.150*	0.192	*-0.370*	0.217	-0.215	-0.484	0.163	0.040
	(0.695)	*(0.009)****	(0.450)	*(0.156)*	*(0.025)***	(0.003)***	*(0.066)**	(0.096)*	(0.556)	(0.000)***	(0.497)	(0.000)***
Prob (chi 2)	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Number of observations	*188*	*204*	*188*	*205*	*205*	*205*	*205*	*205*	*205*	*205*	*205*	*205*

****** p < 0.01***
***** p < 0.05***
**** P < 0.1***
p-Values are reported in parentheses.

Indeed, countries of the MENA region are autocratic countries, and given that this region has experienced a slowdown in their economic growth more precisely in recent years where the use of a fixed exchange rate regime is more appropriate in order to improve economic growth. Eventually, additional research is still necessary for each country of the MENA region in order to know the reality behind the differences in the results that can be linked to the national culture (Cao *et al.*, 2020), or to the political and economic characteristics of a country.

Finally, in order to explore other policy aspects, two other variables account for the effects of political variables on the process of choice of exchange rate regime, namely the elections and the years in office. The first variable is integrated in equation eleven and shows that elections are not involved in the choice of the exchange rate regime of some MENA countries. The last model (12) incorporates an additional measure of number of years in office used as proxy for the government's strength. It suggests that the effect of this variable is positive and significant. Consequently, a strong government (that has been in power for or more than 10 years) is less likely to be associated with fixed exchange rate regime. Indeed, when it comes to strong governments, they will be successfully able to manage the economy and achieve growth. These governments prioritize economic development and contribute to full employment in the country through the use of an expansionary fiscal policy. In addition, the flexible exchange rate regime promotes transparency and good governance, reduces fragility in the face of shocks and privileges the adoption of an autonomous monetary policy. Therefore, a strong government can be tied to a floating exchange rate regime.

As a robustness check, estimations of ordered probit models with fixed effects have been carried out, and they confirm the results of the estimations with random effects in the sense that the signs of the impacts (positive or negative) of the different variables previously discussed remain the same in both cases. However, a notable difference is that the size of the impacts is

sometimes different. Besides, our results are robust to the inclusion of time dummies to account for the "global crisis".

Finally, table 5 summarize our results, and those found by previous studies.

Table 5: Variables definition, sources, nature, expected signs, references and actual signs of each determinant

Variables	Variables sources	Nature of the variable	Expected signs	References	Actual sign of of each determinant
GDP	WDI (World Development Indicators)	Economic variable	(+)	Rodriguez (2016)	(–)
			(–)	Sfia (2007)	
Inflation	WDI	Economic variable	(+)	Frieden and Stein (2001) Álvarez et al (2011) Rodriguez (2016)	(+)
Financial Development	WDI	Economic variable	(+)	Markiewicz (2009) Frieden et al (2010)	(–)
			(–)	Levy-Yeyati et al (2010) Berdiev et al (2012) Rodriguez (2016)	
Government expenditures	WDI	Economic variable	(+)	BornukovaKateryna (2004)	(+)
Trade openness	WDI	Economic variable	(–)	Frieden et al (2001) Piragic and Jameson (2005) Markiewicz (2006) Frieden et al (2010) Rodriguez (2016)	(–)
monetary independence	Aizenman, Chinn and Ito (2010) updated up to 2014	Economic variable	(–)	Mundell (1963)	Not significant
International reserves	WDI	Economic variable	(+)	Calvo and Reinhart (2002) Rodriguez (2016) Liu et al (2020)	(+)
			(–)	Lahrèche (2000)	

				Yougbare, L. (2009).	
Financial opening	Chinn M. et Ito H. (2006) updated up to 2015	Economic variable	(–)	Berdiev et al (2012) Levy-Yeyati et al (2010) Rodriguez (2016)	(–)
F.D.I	WDI	Economic variable	(–)	Bornukova Kateryna, (2004).	(–)
Terms of Trade	WDI	Economic variable	Not significant	Rodriguez (2016)	Not significant
CBI	calculation done by the author	Institutional variable	(+)	Berdiev et al (2012) Steinberg and Walter (2013)	Not significant
			(–)	Jacome and Vozquez, (2008) Crow and Meade (2008) Eijffingerand hoeberichts (2008)	
Left wing dummy	DPI (Database of Political Institutions)	Institutional variable	(+)	The partisan theory Alesina (1988) Rodriguez (2016) Liu et al (2020)	(+)
Elections	DPI	Political variable	(+)	Benhard and Leblang (1999) Carmignani et al (2008)	Not significant
			(–)	Frieden and Stein (2001) Hossain (2009)	
Political risk	ICRG (International Country Risk Guide, The Political Risk Services Group (2016)).	Political variable	(–)	Rodriguez (2016)	Not significant
Years in office	DPI	Political variable	(–)	Edwards (1996) Frieden and Stein (2001) Rodriguez (2016)	(+)

Political stability	*Internal conflict	ICRG	Political variable	(+)	Alesina and Wagner (2006) Honig (2007)	(+)
	*Socioeconomic condition	ICRG				Not significant
	*Government stability	ICRG		(–)	Edwards (1996) Frieden *et al.* (2001) Rodriguez (2016)	(+)
Institutional quality	*Corruption	ICRG	Institutional variable	(+)	Honig (2009) Hadj Fraj et al (2018)	(–)
	*Law and order	ICRG				(+)
	*Bureaucray	ICRG				Not significant
				(–)	Frieden et al (2001)	
Democracy		ICRG	Institutional variable	(+)	Broz (2002) Steinberg et al (2015) Rodriguez (2016) …	(–)

The differences between our results and those from previous papers can be explained mostly by countries' sample selection and estimation periods that are different. Besides, from table 5 it can be seen that our study also differs from most previous ones by allowing several institutional, and political factors to have an influence on the exchange rate in the specific economic and politic context of the MENA region. Indeed, our sample includes eight MENA countries which have specificities, as the degree of financial development, the central bank independence, the political risk… etc. Furthermore, the economic and political context of the MENA region being different from that of other regions (such as Latin America for instance), it is not surprising to get different results. This is all the more true as most previous studies haven't accounted for the possible links between exchange regime and political risk components (such as internal conflicts, socioeconomic conditions, law and order and government stability) in the modelling. For instance, Edwards (1996) found on panel of 63 countries during the 1980-1992 period, that political instability and the strength of government (weak government) are linked to a flexible exchange rate regime. The same result was obtained by Frieden *et al.* (2001) for a panel of Latin American countries during the 1960-1994 period. Rodriguez (2016) only focused on the effect of political stability for a sample of 20 Latin American countries during the 1985-2010 period.

In our study, we shed more light on the institutional and political determinants of the exchange rate regime in the MENA Region. In particular, we showed that a high level of government stability and less internal conflict, as well as the left-wing government influence the exchange rate regimes in MENA countries by decreasing the probability to adopt a fixed regime. We also found that strong governments have a low probability to favor a fixed regime. On the contrary, as shown by table 5, democratic institutions and a low level of corruption increase the probability to choose a fixed regime. But, bureaucracies, elections, terms of trade, independent central bank, as well as monetary independence and the socioeconomic conditions have no effect on the choice of exchange regimes in the MENA region. Finally, we found that financial development is not a robust determinant of the choice of exchange rate regimes as it is not significant in several specifications.

5. Conclusion

The process of choosing the exchange system is very complex. It is considered as one of the main choices of macroeconomic policies because the exchange rate is a variable that determines both trade flows of goods and services and exerts a significant pressure on the balance of payments, the general level of prices, as well as other key macroeconomic variables. According to the theoretical and empirical economic literature on the choice of exchange rate regimes, it follows that this old debate in international economics is still gaining attention and is particularly acute in the case of emerging countries that have experienced a succession of economic and political crises. Indeed, the main economic reflections offer an exhaustive review of the literature and reveal that this choice of type of exchange rate regime is dependent on the economic characteristics of the country such as the size of an economy, inflation, the level of international reserves, financial development as well as commercial and financial openness. (Mckinnon, 1963; Kenen, 1969; Dreyer, 1978; Melvin, 1985; Yougbare, 2009).But such a choice also depends on the political risk of the countries which results mostly in the political instability, the institutional quality, the elections, the strength of the government, the ideology

of part, and the independence of the central bank (Edwards, 1996; Frieden *et al.*, 2001; Berdiev *et al.*, 2012; Rodriguez, 2016; HadjFraj *et al.*, 2018).

Nevertheless, existing studies failed to reach consensus on the importance of political and institutional factors determining the exchange rate regime. Indeed, authors have found mixed results and obtained ambiguous conclusions about the effect and importance of economic, political and institutional factors in the choice of the exchange rate regime.

From this perspective and following the various political and economic upheavals which struck the MENA region, the architecture of these countries has changed both economically and socially. As a consequence, there was a particular need to review the criteria according to which the exchange rate regime has been chosen in this region. Besides, to our best knowledge, no other studies have been conducted on this issue for MENA countries, incorporating the country risk factor, as well as political and institutional factors as potential determinants of the choice of exchange rate regimes. These considerations led us to conduct an empirical study and to estimate random-effects ordered probit models of the likelihood of exchange rate regimes on potential determinants of exchange rate regimes for a panel of eight countries for the 1984-2016 period

Our econometric results (which are robust to alternative specifications) confirm the importance of economic, financial, political and institutional factors for MENA exchange rate policy. A large stock of reserves and an increase in government spending decrease the probability to choose a fixed regime. While, low inflation, a large country, a high level of trade openness, financial openness and foreign direct investment increase the probability to opt for a fixed regime. With regard to political and institutional factors, such as a more law and order enforcement, political stability (a high level of government stability and less internal conflict) and the left-wing government influence the exchange rate regimes in MENA by decreasing the probability to adopt a fixed regime. Likewise, strong governments that are long-term

governments with more years in office have also a low probability to favor a fixed regime. However, democratic institutions, a low level of corruption increase the probability to choose a fixed regime. Besides, bureaucracies, elections, terms of trade, independent central bank as well as monetary independence have no effect on the choice of exchange regimes. Finally, financial development is not a robust determinant of the choice of exchange rate regimes in MENA countries as it is not significant in several specifications.

On the policy front, our findings suggest that the choice of exchange rate regimes should be made (at a given time) according to the degree of importance accorded to the above-mentioned (significant) factors, which are called to evolve both in time and in space. No exchange rate regime is therefore universal or eternal (Frankel, 1999). Since all the fixed, intermediate and flexible regimes have advantages and disadvantages and it is imperative to evolve in parallel according to the economic and financial, but also the political and institutional characteristics of the country.

References

1. Afonso A., Rault C. (2009). Spend-and-tax: A Panel Data Investigation for the EU. *Economics Bulletin*, 29(4): 2542-2548.

2. Aizenman, J., Chinn, M. D., &Ito, H. (2008). Assessing the emerging global financial architecture: Measuring the trilemma's configurations over time. *National Bureau of Economic Research.*

3. Aizenman, J., Chinn, M., &Ito, H. (2015). Notes on the trilemma measures.

4. Alesina, A. (1988). Macroeconomics and politics. *NBER macroeconomics annual*, (3), 13-52.

5. Alesina, A., & Wagner, A. F. (2006). Choosing (and reneging on) exchange rate regimes. *Journal of the European Economic Association*, *4*(4), 770-799.

6. Al-Marhubi, F. A. (2000). Corruption and inflation. *Economics Letters, 66*(2), 199-202.

7. Alnasrawi, A. (1992). Iraq: economic consequences of the 1991 Gulf War and future outlook. *Third World Quarterly, 13*(2), 335-352.

8. Álvarez, P., Pérez, J. L., Queijeiro, V., &Vicente, M. R. (2011). The determinants of the choice of exchange rate regimes in Latin America: a mixed multinomial logit approach. *Cuadernos de economía, 34*(95), 55–61.

9. Berdiev, A. N., Kim, Y., Chang, C. P. (2012). The political economy of exchange rate regimes in developed and developing countries. *European Journal of Political Economy*, *28*(1), 38-53.

10. Bernhard, W., &Leblang, D. (1999). Democratic institutions and exchange-rate commitments. *International Organization, 53*(1), 71-97.

11. Broz, J. L. (2002). Political system transparency and monetary commitment regimes. *International Organization, 56*(4), 861-887.

12. Calvo, G. A., & Reinhart, C. M. (2002). Fear of floating. *The Quarterly Journal of Economics, 117*(2), 379-408.

13. Cao, Z., El Ghoul, S., Guedhami, O., & Kwok, C. (2020). National culture and the choice of exchange rate regime. Journal of International Money and Finance, 101, 102091.

14. Carmignani, F., Colombo, E., & Tirelli, P. (2008). Exploring different views of exchange rate regime choice. *Journal of International Money and Finance, 27*(7), 1177-1197.

15. Chinn, M. D., &Ito, H. (2006). What matters for financial development? Capital controls, institutions, and interactions. *Journal of development economics, 81*(1), 163-192.

16. Clark, W. R.,& Hallerberg, M. (2000). Mobile capital, domestic institutions, and electorally induced monetary and fiscal policy. *American Political Science Review, 94(*2), 323-346.

17. Crowe, C., &Meade, E. E. (2008). Central bank independence and transparency: Evolution and effectiveness. *European Journal of Political Economy, 24* (4), 763-777.

18. Cukierman, A., Web, S. B., &Neyapti, B. (1992). Measuring the independence of central banks and its effect on policy outcomes. *The World Bank economic review, 6*(3), 353-398.

19. Dreyer, J. S. (1978). Determinants of exchange-rate regimes for currencies of developing countries: some preliminary results. *World Development*, *6*(4), 437-445.

20. Drine I., Rault C. (2006). Testing for inflation convergence between the Euro Zone and its CEE partners. *Applied Economics Letters* 13 (4), 235-240.

21. Edwards, S. (1996). The determinants of the choice between fixed and flexible exchange-rate regimes. *National Bureau of Economic Research.*

22. Eichengreen, B., &Leblang, D. (2003). Exchange Rates and Cohesion: Historical Perspectives and Political Economy Considerations. *JCMS: Journal of Common Market Studies, 41*(5), 797-822.

23. Eijffinger, S. C., &Hoeberichts, M. M. (2008). The trade-off between central bank independence and conservatism in a New Keynesian framework. *European Journal of Political Economy, 24*(4), 742-747.

24. Fraj, S. H., Hamdaoui, & M., Maktouf, S. (2018). Governance and economic growth: The role of the exchange rate regime. *International Economics, 156*, 326-364.

25. Frankel, J. A. (1999). No single currency regime is right for all countries or at all times. *National Bureau of Economic Research*.

26. Frieden, J., &Stein, E. (2001). *The political economy of exchange rate policy in Latin America: an analytical overview*. In J. Frieden & E. Stein (Eds). The currency game: exchange rate politics in Latin America (pp. 1-19). Baltimore: Johns Hopkins University Press.

27. Frieden, J., Ghezzi, P., & Stein, E. (2001). *Politics and exchange rates: across-country approach to Latin America*. In J. Frieden &E. Stein (Eds). The currency game: exchange rate politics in Latin America (pp. 21-64). Baltimore: Johns HopkinsUniversity Press.

28. Frieden, J., Leblang, D., &Valev, N. (2010). The political economy of exchange rate regimes in transition economies. *Rev Int Organ, 5*(1):1–25.

29. Ghanem, D., Bismut, C. (2009). The choice of exchange rate regimes in Middle Eastern and North African countries: An empirical analysis. *LAMETA Working Paper (2009-10),* 1-38.

30. Ghrissi, M., &Smida, M. (2009). Evaluation du degré d'indépendance de la Banque Centrale de Tunisie.

31. Hausmann, R., Panizza, U., &Stein, E. (2001). Why do countries float the way they float?. Journal of development economics, 66(2), 387-414.

32. Helfont, S., &Helfont, T. (2012). Jordan: Between the Arab spring and the gulf cooperation council. *Orbis*, *56*(1), 82-95.

33. Hibbs, D. A. (1977). Political parties and macroeconomic policy. *American political science review*, *71*(4), 1467-1487.

34. Honig, A. (2009). Dollarization, exchange rate regimes and government quality. *Journal of international Money and Finance, 28*(2), 198-214.

35. Hossain, M. (2009). Institutional development and the choice of exchange rate regime: a cross-country analysis. *Journal of the Japanese and International Economies*, *23*(1), 56-70.

36. Hsiao, C. (2014). Analysis of panel data. *Cambridge University press* (54).

37. Ingram, J. C. (1962). A proposal for financial integration in the Atlantic community. *Factors Affecting the United States Balance of Payments, Government Printing Office, Washington.*

38. Jácome, L. I., & Vázquez, F. (2008). Is there any link between legal central bank independence and inflation? Evidence from Latin America and the Caribbean. *European Journal of Political Economy*, *24*(4), 788-801.

39. Kateryna, B. (2004). *Determinants of Exchange Rate Regime Choice in Cis Countries* (Doctoral dissertation). Economics Education and Research Consortium.

40. Kenen, P. (1969). The Theory of Optimum Currency Areas: An Eclectic View. *Monetary Problems of the International Economy*, 41-54.

41. Lahrèche-Revil, Amina. "Les régimes de change." *L'économie mondiale* (2000): 93-103.

42. Leblang, D. A. (1999). Domestic political institutions and exchange rate commitments in the developing world. *International Studies Quarterly, 43*(4), 599-620.

43. Levy Yeyati, E., Sturzenegger, F. (1999). Deeds vs. words: classifying exchange rate regimes. *Universidad Torcuato Di Tella,* 34p.

44. L'horty Y., Rault C. (2003). Why is French Equilibrium Unemployment so high? an Estimation of the WS-PS Model. *Journal of Applied Economics* 6 (1), 127-156.

45. Liu, J., Wei, W., Shi, Y. B., & Chang, C. P. (2020). The nexus between country risk and exchange rate regimes: A global investigation. The North American Journal of Economics and Finance, 51, 100842.

46. Markiewicz, A. (2006). Choice of exchange rate regime in transition economies: An empirical analysis. *Journal of Comparative Economics, 34*(3), 484-498.

47. McKinnon, R. I. (1963). Optimum currency areas. *The American Economic Review*, *53*(4), 717-725.

48. Melvin, M. (1985). The choice of an exchange rate system and macroeconomic stability. *Journal of Money, Credit and Banking, 17*(4), 467-478.

49. Méon, P. G., & Rizzo, J. M. (2002). The viability of fixed exchange rate commitments: does politics matter? A theoretical and empirical investigation. *Open economies review, 13*(2), 111-132.

50. Mundell, R. A. (1961). A theory of optimum currency areas. *The American economic review, 51*(4), 657-665.

51. Mundell, R. A. (1963). Capital mobility and stabilization policy under fixed and flexible exchange rates. *Canadian Journal of Economics and Political Science, 29*(4), 475-485.

52. Neyman, J., &Scott, E. L. (1948). Consistent estimates based on partially consistent observations. *Econometrica*, *16*(1), 1-32.

53. Piragic, S.,& Jameson, K. P. (2005). The determinants of Latin American exchange rate regimes. *Applied Economics, 3*(13), 1465-1474.

54. Reinhart, C. M.,&Rogoff, K. S. (2008). Is the 2007 US sub-prime financial crisis so different? An international historical comparison. *American Economic Review, 98*(2), 339-44.

55. Rodriguez, C. M. (2016). Economic and political determinants of exchange rate regimes: The case of Latin America. *International Economics, 147*, 1-26.

56. Savvides, A. (1990). Real Exchange Variability and the Choice of Exchange Rate Regime by Developing Countries. *Journal of International Money and Finance, 9*, 440-454.

57. Scitovsky, T. (1973). Notes on the producer society. *De Economist, 121*(3), 225-250.

58. Sfia, M. D. (2007), « The choice of exchange rate regimes in the MENA countries: a Probit Analysis », The William Davidson Institute, No. w899.

59. Steinberg, D. A., Koesel, K. J., &Thompson, N. W. (2015). Political regimes and currency crises. *Economics&Politics, 27*(3), 337-361.

60. Steinberg, D., & Walter, S. (2013). The Political Economy of Exchange Rates. *Handbook of Safeguarding Global Financial Stbility: Political, Social, Cultural, and Economic Theories and Models, 2*, 27-36.

61. Yougbare, L. (2009). *Effets macroéconomiques des régimes de change : essais sur la volatilité, la croissance économique et les déséquilibres du taux de change réel* (Doctoral dissertation). és sciences économiques, Université d'Auvergne-Clermont-Ferrand I, 324p.