Political stability and economic growth: the role of exchange rate regime

Hadj Fraj, Salma and bouchoucha, Najeh and Maktouf, Samir

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Salma Hadj Fraj

hajfrajsalma@gmail.com

Faculty of Economics and Management, Department of Economics, University of Tunis El Manar

Najeh Bouchoucha

najeh.bouchoucha@hotmail.fr

Faculty of Economics and Management of Sousse, Tunisia

Samir Maktouf

Samir.maktouf@yahoo.fr

Faculty of Economics and Management, Department of Economics, University of Tunis El Manar

Abstract

This paper aims to explore the relationship between political stability and economic growth with a focus on the role of exchange rate regime. We carried out ordinary least squares (OLS), Generalized least squares (GLS) and system generalized method of moments (GMM). We are based on a panel of 50 countries of which 21 are developed and 29 emerging over the period 1996-2013. We found that political stability is not very important in explaining economic

growth, while exchange rate flexibility disrupts the economies of emerging countries and stimulates economic growth in developed countries. The results also show that political stability requires the choice of a flexible exchange rate regime and that exchange rate flexibility leads to political stability in order to stimulate economic growth in emerging countries. However, for developed countries, political stability accelerates economic growth if the exchange rate regime is not too flexible and exchange rate flexibility increases economic activity if the level of political stability is low. Our results show that the nature of exchange rate regime plays a crucial role in the decision to strengthen political and economic stability. The interaction term between political stability and the degree of exchange flexibility is statistically significant, confirming the importance of the theoretical and empirical foundations raised in this research.

Keywords: Exchange rate regime; political stability; Economic growth; GMM system; Panel data

1. Introduction

Previous economic theory has focused on the conditions of market functioning without regard to the role of the state. It is considered a passive or auxiliary actor in the process of economic growth for a long time. In addition, it can encourage trade openness, manage savings and investment, invest in education and know-how in order to ensure macroeconomic stability. More recently, several studies have begun to take into account, in addition to the disciplinary role of the market, the regulatory role of the State to schematize or model the economic situation of the countries. This line of research emphasizes the fundamental role that the State can play in coordinating stabilization efforts or good market governance (Boyer, 2001). Hence the emergence of the concept of "good governance" to emphasize the potential

power of the public authorities in order to achieve a certain level of sustainable and accelerated growth. This notion is therefore invented in the context of a new school of thought that treats the institutional and regulatory environment as a potential determinant of growth and a necessary condition for the take-off of economies.

Despite the large number of recent developments in this area, most deal separately with the effect of political stability or the nature of the exchange rate regime on economic growth. To our knowledge, there is no work that has taken into consideration the simultaneous effect of these two potential growth determinants in a single study. Indeed, our interest lies in overcoming this theoretical and empirical gap by proposing to study the effect of the interaction between political stability and the nature of the exchange rate regime on economic growth. In other words, we seek to show that the link between political stability and economic growth depends on the exchange rate system applied by each country.

The traditional discussions of exchange rate regimes conducted by Obstfeld and Rogoff (1995) focused solely on economic factors as determinants of the choice of exchange rate policy in developed countries. However, the experience of recent years suggests that a wide range of internal and external factors influence this choice. Stein and Jorge (2004) and Markiewicz (2006) suggest that domestic political factors influence the choice of exchange rate regimes and provide a detailed insight into the dynamics of choice. In other words, without denying the importance of economic factors, exchange rate policy depends on the political context in which interest groups, electoral and government issues play a major role.

The purpose of this study is to distinguish between the direct (unconditional) effect of political stability on economic growth and the indirect (conditional) effect through the choice of the most appropriate exchange rate regime for economic growth. Most empirical studies on the determinants of choice of the exchange rate regime and its effects on economic growth,

such as those of Bayoumi and Eichengreen (1998) and Eichengreen and Leblang (2005) focus only on economic factors related to economic growth. optimal monetary zones and financial integration without mentioning the question of governance, particularly political stability.

Several studies such as those by Broz et al (2008) have dealt with the role of political institutions in determining the exchange rate regime according to several visions and contexts. Levy-Yeyati et al (2010), Alesina and Wagner (2006) and Carmignani et al (2008) sought to determine the most relevant factor in choosing the exchange rate regime that ensures economic growth. Indeed, our contribution is to show that the relationship between political stability and economic growth depends on the nature of the exchange rate regime applied and especially the degree of flexibility of the exchange rate. In other words, political stability interacts with exchange rate policy to affect economic growth in an indirect way.

Our study contributes to the literature in several ways: First, the majority of studies examined the direct effect of political stability on economic growth; nevertheless, it neglected the role of exchange regime for 50 emerging and developed countries. In other words, we introduce an interaction term between the exchange rate regime (degree of flexibility) and political stability in order to show that the relationship between political stability and the level of economic growth is conditioned by the nature of the exchange rate regime course. We use the exchange rate classification of Reinhart Rogoff (2010) for the period 1996-2013. This period coincides with the introduction of the Euro and takes into account changes in exchange rate regimes by several countries following the crises of the 1990s. Second, in order to ensure the robustness of the results, we conduct regressions on panel data attempting to address the issues of autocorrelation, heteroscedasticity, and endogeneity. We start our analysis with a regression using the Ordinary Least Squares (OLS) method passing through an estimate by Generalized Least Squares (GLS) and finally an estimation by the Generalized Moment Method (GMM). This approach allows us to analyze the results more reliably and to identify

the type of relationship between political stability and economic growth in a clear, detailed and econometrically sound manner. Third, we attempt to calculate the critical thresholds on the level of flexibility of the exchange rate regime that requires more political stability depending on the nature of the countries (developed or emerging). So, we determine the most appropriate exchange rate regime for economic growth according to the level of political stability.

This rest of the paper is organized as follows: in the first section, we present the theory that relates to the relationship between political stability and economic growth, the direct and indirect effects of exchange rate regime on economic growth and the link between interaction between political stability, the exchange rate regime and economic growth. In the third section we discuss the empirical methodology, the sources of the data and the results of our estimates. In the fourth section we calculate the critical threshold for the degree of exchange flexibility and the level of political stability by country type. In the fifth section, we conclude our work with a conclusion.

2. Theoretical foundation

2.1. Political stability and economic growth

According to Max Weber's political theory, political stability depends on the legitimate use of physical force by the government. If the latter can not provide basic services to people, such as security, food and shelter; he loses the power to enforce laws. Which causes political instability. The latter is associated with the concept of a failing state (Mommsen, 1992).

Improvement of institutional and political factors is necessary to ensure the growth of nations. These factors explain, among other things, the differences in economic growth rates between countries. Indeed, Olson's theory implies that political stability and instability are dichotomous. Instability must reach a certain threshold to disrupt distribution coalitions.

Lesser degrees of instability may not trigger this effect. The discontinuous nature of stability suggests a quadruple typology of political systems. Each type should have a characteristic growth pattern: (1) Chronically unstable states should show continued slow growth. (2) The most stable should grow relatively quickly but with a downward trend over time. (3) The stabilizing political systems - which are moving into a new political model - should experience accelerated growth. (4) Finally, there are diets that become less stable. In fact, Olson does not make an explicit prediction on these destabilization systems, but he deduces that their growth rate would fall sharply.

As such, Goldsmith summarizes Olson's theory by the effect of the exchange rate regime on economic growth. In 2009 economists defined political instability as events or developments that pose a serious extra-parliamentary or extra-institutional threat to governments. Political instability is defined as the propensity to collapse a government (Alesina et al., 1996). This could be due to conflict or fierce competition between different political parties. In addition, government change increases the likelihood of subsequent changes. Political instability tends to be persistent or intermittent.

In this regard, several studies have examined the effect of political instability on economic growth (Aisen and Veiga, 2013, Alesina et al., 1996, Barro, 1991, Bashir and Xu, 2014, Caporale and Leirer, 2010; Cebula 2011, Devereux and Wen 1998, Feng 1997, Fosu 1992, Goldsmith 1987, London and Poole 1989, Radu 2015). As a result, Alesina et al. (1996) studied political instability and growth in a sample of 113 countries during the period 1950-1982. They found that countries with high levels of political instability have low economic growth. This implies that political instability and economic growth are closely linked.

In fact, an unstable political environment can reduce investment activities and growth. Conversely, poor economic performance can lead to the collapse of government and political

unrest. However, they also found that weak economic growth does not affect political instability. In addition, Aisen and Veiga (2013) showed that political instability reduces economic growth using an advanced panel econometric technique based on the GMM system in 169 countries for the period 1960-2004. They also found that political instability significantly reduces GDP growth rates. Gurgul and lach (2013) examined the effect of political instability on economic growth in 10 CEE countries in transition in the period 1990-2009. Their results showed that political stability had a negative impact on economic growth.

On the other hand, few empirical studies have failed to highlight the relationship between political stability and economic growth. One of Goldsmith's (1987) earlier empirical work attempts to test Mancur Olson's theory, in which political instability is treated as an exogenous variable for the Least Developed Countries (LDCs) (Goldsmith, 1987). In another study, Londregan and Poole (1989) found no evidence of slower growth as a result of increased political instability. On the contrary, they argue that weak economic growth increases the likelihood of political instability.

Indeed, political stability can affect economic growth through various channels. The main transmission channel through which political instability can negatively affect economic growth is relative to total factor productivity (Aisen and Veiga, 2013). The accumulation of physical capital and human capital are also other very important channels.

If the future of a country becomes uncertain, it may affect the temporal preference rate of society as a whole by narrowing its time horizon. As a result, less efficient allocation of resources and reduced corporate and government research and development efforts are slowing down technological advances. In addition, consumption, public spending and trade tend to decrease considerably as a result of chronic political instability in developing countries.

In addition, Cooray et al. (2017) studied the role of political institutions, democracy, political rights and civil liberties on trade openness and the participation rate of the labor force in Africa. Their results suggested that the best political institutions improve the participation rate in the labor force. This stimulates the economic development of a country. In other words, political stability can influence economic growth in different ways: it can create an enabling environment for business prosperity, it can attract domestic and foreign investment, and it can create employment opportunities and migrations to cities. All of this leads to an increase in aggregate demand and a boost to a country's economic growth.

2.2. Exchange rate regime and economic growth

The literature on the relationship between the exchange rate regime and economic growth supports a positive relationship in the medium term. The effect of the adopted exchange rate system on economic growth can be observed directly through shock adjustments or indirectly on investment, trade and financial development. This literature also suggests that the choice of the exchange rate regime can not have consequences for long-run economic growth, but the impacts essentially influence the shock adjustment process. Aizenman (1994) indicated that the effect of the exchange rate regime appears on the speed of adjustment to disturbances and on random shocks that can disrupt the internal economy.

However, subsequent literature suggests that the flexible exchange rate regime positively affects economic growth (Sokolov and Mark, 2011), while the fixed exchange rate regime leads to an economic recession (Levy-Yeyati and Sturzenegger, 2003). On the other hand, the intermediate exchange rate is positively correlated with economic growth (McCauley, 2012).

In this context, some authors analyze the effects of the exchange rate regime on economic growth through the study of its effects on the general level of prices or wages. Boyer (1978) shows that the magnitude of the change caused by the exchange rate shock is transmitted to

the real economy and represents one of the important determinants of the chosen exchange rate regime. He specifies that the fixed regime is more suitable in the case of a purely monetary shock, but the flexible regime carries out in case of real shock. He also points out that the administered float becomes more appropriate in case of two simultaneous shocks (monetary and real).

In the same vein, Boyer (1978) and Aizenman Joshua (1994) analyzed the effects of shocks on consumption without taking into account its effects on output. From a consumer point of view, they showed that the fixed exchange rate is preferable in the event of a real shock: the greater the effect of the real shock on supply, the more consumers prefer a fixed regime to maintain their prices. consumption levels. In this case, the balance of payments mitigates the impact of the shock and minimizes the risks that may threaten the consumer basket. But in the case where the real shock affects the supply and demand of money and the parity of purchasing power, the desires of a floating regime increase.

2.2.1. Direct effect of exchange rate regime on economic growth

The previous economic literature shows that the analysis of the effectiveness or importance of an exchange rate regime should not refer only to the real long-run equilibrium variables, but the adjustment process must be taken into account short term. In other words, the performance of a foreign exchange regime in terms of economic growth can be assessed according to the speed of adjustment to the disruptions that affect economic activity.

In this sense, several studies have focused on the exchange rate regime as an economic policy(Aizenman (1994).For example, Friedman (1953) supports the adoption of a flexible regime by emphasizing its ability to isolate in case of foreign shocks while this analysis is part of a context of low capital mobility. This gap justifies the extensions of the analysis conducted by Mundell (1963), which shows that inflationary capacities are inversely

proportional to the mobility of capital. Subsequent research distinguishes between monetary and real shock and takes into account the size of the economy in addition to the degree of mobility of the factors of production.

Other studies have been based on the assumption of price rigidity or nominal wages to study the choice of the exchange rate regime. Indeed, Boyer (1978) shows that the exchange decision depends essentially on the amplitude and the variance of different shocks that can affect the economy. He is interested in the study of a small economy exposed to three different types of shock: internal, real or monetary and external. He concluded that the nature of the monetary or real shock is the primary determinant of a foreign exchange decision, while location matters little. Thus, it advocates that a fixed exchange rate regime is more suitable in the event of a monetary shock thanks to the intervention of the monetary authorities on the exchange markets, whereas a flexible regime is more favored in the event of a real shock.

2.2.2. Indirect effect of the exchange rate regime on economic growth

Economic theory shows that the exchange rate regime can indirectly influence economic growth through other factors such as investment, the volume of international trade, price stability, the autonomy of monetary authorities, financial development and economic growth. commercial opening.

Investment: Aizenman (1994) showed that investment tends to increase following the minimization of economic uncertainty, real interest rates and exchange rate variability under the fixed exchange rate regime. However, the removal of an important adjustment mechanism such as the exchange rate may increase protectionist pressure and reduce capital inflows as a result of the exchange rate problem, which can negatively affect the level of investment.

However, Funke and Ralf (2001) point out that currency volatility can only have a negligible effect on investment volumes without taking into account the type of exchange rate regime.

International Trade: The exchange rate regime can affect economic growth through the volume of international trade, whereas previous studies raise an ambiguous relationship. Previous literature focuses on risk aversion to explain the effect of exchange rate volatility on economic activity. Some studies argue that volatility can be beneficial for international trade. For example, Franke (1991) has shown that exchange rate volatility can create favorable conditions for trade and profitable investment. Other studies point out that hedging techniques allow companies to minimize currency risk (Viaene and de Vries, 1992). In the same context, they found that the use of a single currency by two countries increases trade by more than 300%. Based on the model of Frankel and Rose (2002), they found that countries with a single currency tend to increase their trade.

Price stability: The objective of economic policy is to choose an exchange rate regime that ensures sustainable and sustained economic growth. Indeed, the exchange rate regime influences stability and macroeconomic competitiveness. The fixed exchange rate regime is considered the most appropriate for achieving the objective of economic stability. However, it has limitations because stability is assured only when the economy is not affected by an asymmetric shock, while the fixed exchange rate is unable to reduce the effect of a nominal exchange rate shock. . Therefore, a fixed exchange rate regime is considered optimal only if countries achieve an optimal currency area (OMA), ie, to the extent that price variation and factor mobility allow for absorb economic imbalances without recourse to the adjustment of the nominal exchange rate. Hence the fixed exchange rate is considered the most suitable for reducing inflationary effects.

Financial development: the exchange rate regime could influence economic growth through its effects on the level of development of financial markets. Flexibility arrangements are usually accompanied by high volatility in the nominal exchange rate, which can have negative effects on the real economy unless the financial sector can absorb currency shocks and provide agents with hedging instruments appropriate.

Thus, it is sometimes recommended that an economy must first ensure a relatively developed financial system to benefit from a flexible exchange rate regime. Several emerging economies have underdeveloped markets and find it difficult to manage a flexible exchange rate regime. Indeed, Aizenman and Hausmann (2000) showed that because of the situation of their financial markets, exchange rate anchoring gains are more beneficial for emerging countries than for industrialized economies. However, the adoption of a fixed exchange rate regime in an economy where the financial market is underdeveloped increases the risk of suffering a banking crisis. As argued by Chang and Velasco (2000), hard pegging can reduce the likelihood of a balance of payments crisis only by increasing the likelihood of a banking crisis. Although a walled financial sector is often a necessary condition for adopting a floating exchange rate regime, a strong and well-developed financial sector is important for economic growth, regardless of the nature of the exchange rate regime. Furthermore, Levine (1997) concluded how the level of development of the financial system - reflected in its ability to perform certain functions such as mobilizing savings, helping to allocate capital and facilitate management risk-can stimulate economic growth through its effects on capital accumulation. In addition, empirical evidence supports the view that the proper functioning of the financial market contributes to economic growth (Beck et al., 2000).

Trade openness: the degree of openness of the economy to international markets is also seen as a factor influencing economic growth. The literature on endogenous growth establishes a positive link between trade openness and economic growth, which means that

the more open countries have more opportunities for higher levels of economic growth. Their argument is that these economies are already supposed to develop their capacity to absorb technological breakthroughs and take advantage of large markets (Edwards 1993, Barro and Sala-i Martin 1995). Thus, to the extent that the nature of the exchange rate regime affects the volume of international trade, the degree of exchange rate flexibility could affect economic growth.

2.3. the interaction between political stability and exchange rate regime

Several studies point out that the fixed exchange rate regime allows governments to conduct a monetary policy that avoids the problem of time inconsistency, increases credibility, and maintains a low or moderate rate of inflation (Giavazzi and Pagano, 1988). In this case, the fixed exchange rate regime can be considered as an attractive solution for countries with weak institutional capacity or characterized by low political stability and seeking to maintain low inflation rates. In other words, the adoption of a fixed regime in the case of political instability reduces investor uncertainty, improves the investment environment of the country concerned and is a factor stimulating economic growth.

Drazen (2002) and Frieden (2002) argued that the fixed exchange rate regime allows governments in countries with weak institutional frameworks to be less vulnerable to pressure from interest groups. This allows policymakers to be more flexible in terms of achieving development goals and economic growth rather than allocating public resources in unprofitable business in the form of rents. Thus, in terms of credibility, a fixed exchange rate regime is an easy commitment to audit and the government would not be able to deal with the problem of limited public trust. The disadvantage of this type of regime is that it limits the flexibility of monetary policy and, therefore, the tradeoff in this case is between credibility and flexibility. This dichotomy could be challenged by the fact that it may be difficult for

governments characterized by institutional fragility to support a fixed regime. Therefore, good governance, by reducing corruption and promoting political stability and empowerment of politicians, can strengthen the capacity of public authorities to maintain a fixed exchange rate. As a result, governance (political stability) reduces the likelihood of speculative attacks on the local currency, which can lead to sustained and accelerated economic growth.

In a context of poor institutional quality (political instability), governments subject to pressure from interest groups (or in the presence of wars or social unrest) may not be able to support a fixed exchange rate regime inversely to previous arguments . In fact, Edwards (1996) has analyzed the conditions under which political stability and government strength affect the exchange rate. It concludes that weaker governments working in unstable political environments are unable to maintain a fixed regime, which reduces the likelihood of adopting such a regime. In this case, poor governance forces some countries to adopt a flexible exchange rate regime, although it is not the most appropriate for its objective of economic growth especially for small emerging countries. In other words, the regulatory and institutional environment influences the choice of the exchange rate regime and subsequently the risk of being exposed to the vulnerabilities of global markets, which is reflected in the level of economic growth. Thus, the nature of the exchange rate regime affects the effect of political stability on economic growth as a flexible regime reduces the need for improved governance through increased flexibility to self-regulate short-term imbalances, which is not the case for the exchange anchoring regime.

Inflation and fiscal policy should influence the choice and stability of the exchange rate regime (Tornell and Velasco, 2000). They also suggested that the fixed exchange rate regime could save countries from tax shocks that require increased spending. On the contrary, they suggest that the flexible exchange rate regime imposes greater fiscal discipline, arguing that fixed exchange rate regimes postpone the cost of deficits and lead to fiscal and political

imprudence. Thus, we believe that political stability can reduce the adverse effects associated with a fixed regime leading to more rapid economic growth. So, political stability can stimulate economic growth in the case of a fixed exchange rate regime by imposing more restrictions on public spending and reducing budget deficits. On the other hand, in the case of a flexible regime, the problem of political instability can be solved (substituted) by greater associated budgetary discipline.

Many transition and developing countries have a blatant corruption problem affecting tax revenues, particularly in resource-rich countries (Rafael and Alberto, 1999). A closely related literature deals with the influence of interest groups on fiscal policy, arguing that interest groups tend to waste income (Lane and Tornell, 1996). This effect stems from the fact that uncoordinated interest groups do not take into account the external effects of their behavior and that, as a result, the resources are overexploited. On the basis of this literature, we can ask ourselves whether a particular exchange rate regime could encourage stable governments to be less tolerant of corruption or other forms of appropriation of fiscal resources. In the case of a fixed exchange rate regime, the public authorities are obliged to maintain a fixed parity of the national currency with respect to the reference currency. This commitment limits the waste of resources as a certain level of foreign reserves, mainly from the sale of raw materials in many developing countries, is needed to intervene in the foreign exchange market when needed. In this sense, the adoption of a fixed exchange rate regime reduces corruption and bureaucracy, and reinforces the effect of political stability on economic growth by improving the stock of savings and reversible funds from petrodollars. In addition, in the case of a flexible exchange rate regime, the free floating of the local currency reduces the constraints on policy makers allowing more corruption and the agents serve their personal interests without being sanctioned. Indeed, the flexible exchange rate regime gives agents more chances to be more corrupted by the fact that it does not take into account an external

constraint, namely the current account balance and the power parity purchase, which can weigh heavily on economic growth.

A wealth of literature has examined the link between monetary policy and the quality of institutions in relation to macroeconomic performance (Rogoff, 2004). This literature has focused on the institutional independence of the central bank or other institutional solutions leading to low inflation (Siklos, 2000). Again, there is evidence that countries with low institutional quality (political instability), particularly those with high levels of corruption and rent seeking, often have inefficient monetary policies. In this context, the fixed exchange rate regime does not make it possible to achieve both the two internal objectives of reducing inflation and the central bank autonomy that is necessary to achieve the objective of price stability and the external objective of foreign exchange fixation. So, we can argue that in the case of poor institutional quality, exchange rate flexibility provides more autonomy for the central bank, allowing price self-regulation in markets positively affecting economic growth.

Alesina and Wagner (2006) focused on the choice of the exchange rate regime in terms of economic growth according to the institutional quality of the countries. Based on the classification of Reinhart and Rogoff (2004), they found, on the one hand, a U-shaped relationship between corruption and the degree of fixity of the exchange rate, that is to say in a in a corrupt environment, exchange fixity decreases economic growth to a certain level of corruption from which nominal exchange peg becomes more appropriate for this type of savings. On the other hand, countries with good institutions tend to have a flexible exchange rate regime. They interpreted this as proof that countries with good institutions can afford to have a flexible exchange rate regime, while countries with bad institutions need a fixed exchange rate regime.

Thus, we can use the degree of financial exposure to explain the effect of the exchange rate regime in relation to political stability on economic growth. The degree of exposure to external risk can be defined as an imbalance between the debt and the assets of a country or economic agent denominated in different currencies. Private, public, national and foreign economic agents consider the fixed exchange rate regime an implicit or explicit guarantee against currency risk and external exposure can be accelerated by inadequate supervision and regulation of the financial system (Claessens, 2003). . Hence a fixed exchange rate regime accompanied by political stability stimulates economic growth by reducing the risks of imbalance that may exist through unexpected exchange rate movements in the case of a flexible regime.

In addition to the risks associated with external exposure, the fixed exchange rate regime is sometimes subject to speculative attacks and a better quality of institutions (political stability) can mitigate these adverse effects. For these reasons, we expect that the effect of institutional quality on economic activity will depend on the nature of the exchange rate regime, in particular a fixed exchange rate regime requires the improvement of the quality of the institutions in order to stimulate economic growth.

In most underdeveloped countries with a nominal currency peg, companies and banks are weakly capitalized and depend on external financing to continue their operations. When speculative pressures emerge, the monetary authorities intervene, either to abandon the fixed exchange rate regime and allow the depreciation of the national currency, or to increase the interest rate in order to limit the movement of capital and stabilize the fluctuation of the rate of interest exchange. In this case, political instability implies that a sharp depreciation of the currency has adverse effects on economic growth. On the one hand, it deteriorates the net assets of companies and banks, and on the other hand it increases the interest rate which, in turn, increases the debt service entailing more risk for domestic borrowers. The experience of

Asian countries shows the resilience of economies to such shocks, it can be enhanced by the level of political stability. These facts lead us to believe that better institutions (political stability) are needed to stimulate and sustain economic growth in countries that adopt a fixed exchange rate regime where the market does not operate freely.

Rodriguez (2017) studied 20 Latin American countries over the period 1985-2010 using an ordered probit model. He concludes that the fixed regime is more widely adopted by small open economies where trade and financial flows are well controlled in stable and well-developed institutional and regulatory environments. In the case of a fixed exchange rate regime, the good quality of the political institutions and the credibility of the resulting monetary authority stimulate economic activity by promoting the savings and confidence of the agents, which has a positive impact on the volume investment. It has also proved that democratic institutions help to ensure lasting political stability, encouraging the adoption of a flexible exchange rate regime for reasons of long-term economic growth.

3. Data and methodologies

In this study, we analyze the direct and indirect effects of political stability on the economic growth of 50 emerging and developed countries (Insert Table1). We will estimate the indirect effects through the exchange channel. Our study contributes to enriching the previous literature on economic growth in several directions. We use the exchange rate classification of Ilzetzki, Reinhart and Rogoff (2008) for the period 1996-2013[1]. This period coincides with the introduction of the Euro and takes into account changes in exchange rate regimes by several countries following the crises of the 1990s.

Our contribution consists of integrating a term of interaction between the exchange rate regime and political stability to show that the relationship between political stability and

[1] We use the de facto exchange rate classifications originally developed by Reinhart and Rogoff (2004) and recently updated by Ilzetzki, Reinhart and Rogoff (2008).

economic growth is conditioned by the nature of the exchange rate regime. We perform regressions on panel data by attempting to solve autocorrelation, heteroscedasticity and endogeneity problems. We begin an Ordinary Least Squares (OLS) regression using a generalized least squares (GLS) estimate to arrive at an estimate by the generalized moment method (GMM). This approach allows us to analyze our results more reliably and allows us to study empirically and in a clear way the relationship between political stability and economic growth.

The advantage of our approach is to evoke an interacting relationship between political stability and the exchange rate regime that can affect the traditional relationship between political stability and economic growth. To our knowledge, this topic has not captured the attention of previous work and may have very important economic implications for policy makers. In addition, this approach allows us to determine critical thresholds on the level of flexibility of the exchange rate regime that requires more political stability depending on the nature of the countries (developed or emerging). Similarly, we can get an idea of the most appropriate exchange rate regime for economic growth according to the level of institutional development and political stability.

In this work, we estimate our models using only panel data based on the following econometric methods:

- **The static panel method**

Panel data econometrics can be used to process double-dimensional information, a chronological (time) dimension, and a transversal dimension (statistical entities). He is interested in the optimal combination of these sources of information and has many advantages. A double-dimensional sample makes it possible to verify the presence of unobservable individual or temporal heterogeneity that can be correlated with the explanatory

variables of the model (chronological or transversal series do not control this heterogeneity, which leads to a biased estimate). Panel data reduces the risk of multicollinearity due to the high variability of data due to a large amount of information.

- **Dynamic Panel Method (GMM)**

This method makes it possible to provide solutions to the problems of simultaneity bias, inverse causality and omitted variables. A dynamic model is a model in which one or more dependent variables are delayed. The GMM method is based on the orthogonality conditions between the lagged variables and the error term, both in first and in system differences. There are two methods: GMM in first difference and GMM in system.

$$\Delta y_{i,t} = \alpha \Delta y_{i,t-1} + \beta \Delta X_{i,t} + \Delta \Sigma_{i,t}$$

- ✓ **GMM in first difference (Arellano and Bond, 1991)**

The difference GMM method was developed by Arellano and Bond (1991). It has been widely used in the econometric literature. This method consists in taking for each period the first difference of the equation to eliminate the specific effects of each individual, then to instrument the explanatory variables of the first difference of the equation by their delayed value. Blundell and Bond (1998) argued that this procedure can be improved by using the GMM-System estimator.

- ✓ **GMM in system (Blundel and Bond, 1998)**

According to the simulations proposed by Monte Carlo, Blundell and Bond (1998) have shown that the GMM regression estimation in the system is more efficient than the first difference GMM estimate. The regression of GMM in system combines for each period the equations of the first differences with the equations in level.

In the first difference equation, the variables are instrumented by their delayed values of at least one period and in the level equation they are instrumented by their first differences. The equation result in system is estimated simultaneously by the generalized moment method.

$$\Delta y_{i,t} = \alpha \Delta y_{i,t-1} + \beta \Delta X_{i,t} + \Delta \nu_t + \Delta \varepsilon_{i,t}$$

$$y_{i,t} = \alpha y_{i,t-1} + \beta X_{i,t} + \nu_t + \varepsilon_{i,t}$$

This method makes it possible to control the specific effects and the potential endogeneity of the explanatory variables. The GMM regression efficiency is based on the validation of two hypotheses, the exogeneity of the instruments and the non-correlation of the residues. The autocorrelation of the residues is estimated by a test proposed by Arellano and Bond. He showed that the difference equation introduces a first-order autocorrelation, whereas the verification of the autocorrelation of the residuals is carried out from the second order. The validity of the delayed variables as instruments is verified by the Sargan test, this test has been replaced by the Hansen test which is robust in the presence of heteroscedastic errors. The null hypothesis of the Sargan or Hansen test due to the lack of correlation between the over-identified instruments and the error term.

The GMM method in the system is considered advantageous compared to other regression methods for the following reasons:

- It allows the unobservable specific effect to be controlled because in the dataset the first difference must be taken into account to implement in the estimation, eliminating the unobservable term from specific countries.

- In addition, it controls the potential endogeneity of all explanatory variables, including the lagged value of the dependent variable, by appropriately using the deferred values of variables as instruments.

Empirical work shows the existence of several econometric methods to identify potential determinants of economic growth. These studies are distinguished according to the econometric method and or according to the sample. Notwithstanding the different methods used, all these studies seek to study the behavior and contribution of the economic, financial and institutional variables that stimulate the economic growth of the countries. We will then analyze some problems that may appear related to the estimation of economic growth such as simultaneity.

The evolution of new econometric methods has allowed researchers to broaden their fields of study in the analysis of economic growth. Studies have used the ordinary least squares method extensively, and some recent studies have used similar methods, but the problem of endogeneity is quickly raised in the analysis of economic growth.

Economists assume that the problem of endogeneity is linked to the fact that economic growth affects certain explanatory variables, namely political stability, the nature of the exchange rate regime, because in this case the level of political stability depends on the endogenous variable. In this case, the orthogonality condition between the lagged variables and the error term is not satisfied since the dependent variable (economic growth) is presented on both sides of the equation. This simultaneity leads to biased estimates, which are corrected by several econometric methods.

The literature shows that economists have used many econometric methods to correct this bias. The Hausman test (1978) makes it possible to detect the presence of simultaneity and emphasizes the need to use the instrumental variable method. In the case of simultaneity, the

OLS method applied to an economic growth function will make it possible to estimate the contributions of different variables to explain this problem. To correct simultaneity, the technique of instrumental variables and double least triple least squares methods is more appropriate for the OLS method. Some studies have shown that the method of double and triple least squares is optimal than the OLS method because of the problem of endogeneity.

In most studies that are based on instrumental variable analysis, double and triple least squares and simultaneous equations, have shown that in order to solve the endogenous problem, the choice of instruments used does not follow any logic. The GMM method solves the problems of endogeneity and determines the validity of the instruments, but this method is little applied to the estimation of economic growth. Political stability and the exchange rate regime are correlated with the term error. This correlation is due to the simultaneity relationship between political stability and the level of economic growth. The OLS method is biased and inconsistent even though the term error is not auto-correlated. We therefore use the GMM method, based on the work of Arellano and Bond (1991) to overcome the endogeneity problem.

To identify the potential determinants of economic growth, we use a set of variables that form a large consensus in the previous literature. Specifically, we use development indicators extracted from World Bank statistics and International Monetary Fund (IFS) financial statistics in addition to the political stability variable, which is an indicator of the Kaufman et al (2010) base. The explanation of the variables used and their sources are presented in Table 2.

Insert Table 2

In this section, we attempt to schematize our empirical approach to estimate the effect of political stability on economic growth. First, we perform a simple regression on static panel

data to specify the nature of the model to apply (fixed or random effect). Next, we use the generalized moment method (GMM) in order to solve the problem of endogeneity and to correct the bias associated with static method regression (OLS).

We used the previous literature review to derive the following hypotheses to verify: i) political stability positively affects economic growth; (ii) exchange rate flexibility stimulates economic growth; and (iii) The effect of political stability on economic growth depends on the degree of exchange rate flexibility.

Regarding the choice of variables introduced in the models of economic growth, we indicated that the Solow model is generally taken as a basic empirical model of economic growth. It includes four determinants of economic growth, initial income, human and physical capital accumulation rates, and population growth. For the simplicity of our model, we analyze these determinants according to the Foreign Direct Investment (FDI) variable.

We have chosen this indicator because we consider that the attractiveness of foreign direct investment depends on demographic variables such as life expectancy, the ratio of labor force to total population and the population growth of the countries of destination[2].

Durlauf, Johnson, and Temple (2005) have discussed empirical literature on economic growth to examine the categories of variables below.

- ✓ **Macroeconomics and the external environment:**

A stable macroeconomic environment is characterized by low and predictable inflation, structural fiscal deficits and a limited gap between the real exchange rate and its equilibrium level, which gives important signals to the private sector about the commitment and the

[2] Countries with low incomes are assumed to be far from stable and are more likely to experience high levels of economic growth according to convergence theories and are more attractive for foreign direct investment.

credibility of the authorities of a country and also enables the efficient management of their business in order to increase the profitability of investments.

In this article, the impact of macroeconomic stability is determined by the real exchange rate, the real interest rate, the level of inflation, and financial development. Several studies have considered these ratios as measures of economic stability.

The argument is that all these factors affect private productivity and can reduce savings and growth because of the distorting effects of credit and foreign exchange policies.

The relationship between trade and the external environment is captured by the degree of trade openness and measured by imports plus exports as a percentage of GDP (Levine and Renelt 1992, Frankel and Romer 1999). A large literature that estimates the impact of financial development on economic growth by combining financial development with the ratio of private credit to GDP or the market capitalization stock on GDP. this measure is sometimes criticized because it does not take into account the complex multidimensional nature of financial development, we also consider another indicator, the aggregate index created by Svirydzenka. (2016) based on nine indices that summarize the state of depth, access and effectiveness of financial institutions and markets. Our goal is to determine which financial development measure is better (the more robust).

- ✓ **The institutions**

The role of institutions in the process of economic growth has been the source of a considerable research debate. In this article, we examine the hypothesis that political stability is a significant determinant of economic growth.

We use the de facto exchange rate classifications of Reinhart and Rogoff (2004). In this context, we note that there are three de facto classifications proposed respectively by Reinhart

and Rogoff (2004), Levy-Yeyati and Sturzenegger (2005) and Shambaugh (2004). Our study is based on the de facto classification of exchange rate regimes developed by Reinhart and Rogoff (2004). Presently, our data on the exchange rate regime are extracted from the updated version of this database by Ilzetzki, Reinhart and Rogoff (2008).

The advantage of this classification is to guarantee a database over a long period and a large number of samples. The classification (IRR) presents 14 categories of exchange rate from less flexible to more flexible. The highest values indicate the most flexible exchange rates. We chose this classification because it is based on parallel market exchange rate data, which makes more sense in the de jure classification that is based on official IMF exchange rate data.

The IMF's classification is based on the choice of regimes announced by countries and known in the exchange rate choice literature as de jure categorization. The de jure classification is an anticipatory approach in that it allows to observe the political intentions of the authorities. This classification makes it possible to evaluate the credibility of political authorities and the effects of declarations on the expectations of economic agents. Nevertheless, the de facto classification was provided to describe exchange rate practices and to capture the choice of exchange rate regimes under the observed data base and not on expectations. We therefore use the de facto classification to study the relationship between political stability and economic growth.

Insert Table 3

3.1. Descriptive statistics and correlation matrix

Table (4) shows all the variables used in our model. The main conclusion we can draw from table (4.a) is that, on average, the countries studied have a positive growth rate of about 3%, whereas this rate is negative for some countries. Similarly, while some countries have

low levels of inflation, others are characterized by runaway inflation environments that exceed 950%. Our sample is diversified in terms of openness, attractiveness of foreign direct investment, financial development and quality of institutions (political stability). This table shows that, on average, developed countries have a low economic growth rate of 1.94% (4.b) than that experienced by all emerging countries, which exceeds 4.15% (4.c) on average in the period studied. This result can be explained by the theory of conditional convergence such that countries far from their steady state grow faster than those close to their equilibrium point. Thus, the main conclusions that we can draw from this table is that the inflation rate is more volatile in emerging countries as it knows aberrant rates and is close to 1000% (4.b) while it varies between 1.87% and 15.43% in developed countries. In addition, the political stability is more remarkable in the industrialized countries since it reaches 0.93% on average and records a maximum positive level 1.90 and a negative minimum level of the order of -0.60. On the other hand, the level of political stability is generally low in the emerging countries since on average this variable is of the order of -0.29 and can even arrive at too low levels of -2.83 (4.c). For the other indicators, the descriptive statistics indicate similar results and do not detect any major differences between the two country samples.

Regarding Skewness statistics, we note that all are different from Zero implying that all the variables are asymmetric for both the global sample and for the other two country samples. This allows us to interpret positive values as a distribution on the right and negative values as a distribution on the left. Similarly, the Kurtosis test is used to measure the degree of flattening of the distribution. All values of Kurtosis are greater than 3 which shows the existence of a sparse and flattened distribution. For the Jarque-Bera test, which is frequently used to test the normality of the variables, we can interpret that all the values are significant at the 5% threshold, making it possible to reject the hypothesis of normality of the distribution.

Insert Table 4

Before turning to empirical analyzes that seek to study the relationship between political stability and economic growth through the choice of the exchange rate regime, we will study the level of dependence between variables. To do this, we present the Pearson correlation matrix in Table (5). Our results allow us to conclude that the data do not present a problem of multi-collinearity since all the coefficients are weak. They do not exceed 0.5 except for the interaction between financial development and the level of openness that reaches 0.594, between FDI and financial openness (0.6730), political stability and financial openness that reaches 0.549 in the case of emerging countries and between FDI and the level of openness which reaches 0.553 in the case of the global sample. Overall, we can accept that our variables do not have collinearity problems and that our data can be the subject of unbiased and robust tests.

Insert Table 5

3.2. Results and discussions

In this section we attempt to examine the relationship between political stability and economic growth using a sample of 50 developed and emerging countries. To do this framework, we are based on the specification of the panel data as follows:

$$RGDP_{i,t} = \alpha + \beta_1 RER_{i,t} + \beta_2 INFL_{i,t} + \beta_3 RIR_{i,t} + \beta_4 OPEN_{i,t} + \beta_5 FINDEV_{i,t} + \beta_6 FDI_{i,t} + \beta_7 EXCHANGE_{i,t} + \beta_8 SP_{i,t} + \mu_i + \varepsilon_{i,t} \quad (1)$$

Where $RGDP_{it}$ refers to the deflated growth rate of real GDP per capita, RER_{it} is the real exchange rate, the real interest rate; $INFL_{it}$ is inflation rates as measured by the consumer price index of country i during period t; $OPEN_{it}$ is measured by the sum of exports and imports relative to GDP; $FINDEV_{it}$ is a composite index based on nine indices. It helps to verify the effectiveness of financial institutions and markets; FDI_{it} refers to the ratio of foreign direct investment to GDP; $EXCHANGE_{it}$ refers to the degree of flexibility of the

exchange rate regime applied by an economy i to a time t; SP_{it} refers to political security and the absence of violence and manifestation, it is an indicator of the basis of Kaufman et al. (2010) ; α is a constant; ε_{it} is the error term of the model; μ_i represents the individual effect, β_1 ... ... β_n are the parameters to be estimated, i indicates the individuals (i = 1 ..... 50) and t is the time (t = 1996 ... 2013).

In order to examine the effects of political stability on the level of economic growth we start our analysis by the application of a simple regression by the OLS method and then by the GMM method in system that we justify the choice. This step consists of evaluating the direct effect of political stability. In the second stage, we highlight the indirect effect of political stability on economic growth through the choice of exchange rate regime. To do this, we introduce an interaction variable that allows us to test the effect of political stability on the choice of exchange rate regime.

3.2.1. Result of estimation of the direct effect of political stability on economic growth by the ordinary least squares method (OLS)

Fisher's test shows that the model is globally significant (column 2). Thus, the Haussman test shows that the fixed-effect model is preferable to the one with a random effect. By rejecting the hypothesis of homoscedasticity, the Breush-Pagan test reveals the existence of heteroscedasticity in the model to be estimated. Similarly, the Wooldridge test shows the presence of a problem of autocorrelation[3]. In order to correct the reported problems of heteroskedasticity and auto-correlations we present the results of generalized least squares (GLS). Thus, in order to take into account the endogeneity problem of Hausman Durbun wu, we present in the following subsection the results of the Generalized Moments method

[3] Wooldridge's test suggests the rejection of Hypothesis H0, which proves the existence of auto-correlation at the level of errors.

(GMM) which makes it possible to correct the standard deviations by the Eicker-White method.

Table (6) shows that the variable associated with political stability are negative and statistically insignificant. This result should be considered with caution since the estimates are not robust and may give biased results. On the other hand, when we took into account the problem of heteroscedasticity (column 3), the coefficient becomes positive and significant at the 5% threshold. This proves that political stability can enhance economic growth in the overall sample studied. This result is confirmed by the previous work of Rodrik et al. (2002) who showed that institutions have a larger quantitative effect on human capital accumulation than on overall factor productivity. Likewise, they are needed to attract foreign direct investment and promote economic development. From these results, we can conclude that political stability can be an important determinant for economic development.

The exchange rate coefficient is positive and statistically significant at the 5% level (columns 2 and 3). This implies that the flexible exchange rate regime improves economic growth in most of the countries studied, while the fixed regime destabilizes the level of economic growth. In this sense, Mundell's (1963) showed that the exchange rate regime is a prime factor in economic policy. He studied the effect of flexible exchange rate regimes on economic policy. He found that this kind of exchange rate regime helps to protect the economy from external shocks, but his studies are analyzed in a period characterized by low capital mobility. Similarly, Chang and Velasco (2000) showed that the adoption of a fixed exchange rate regime reduces balance of payments imbalances, but increases the probability of banking crises. On the other hand, the flexible exchange rate alone can reduce the effect of these crises when savings are denominated in national currency and the central bank acts as lender of last resort.

The real exchange rate variable is negative and statistically significant at the 1% level. This means that the fluctuation of the real exchange rate negatively affects economic growth. This variable becomes insignificant when the problem of heteroscedasticity of residues is taken into account. This result is expected because the unexpected fluctuation of the exchange rate in both cases (an appreciation or depreciation) affects the balance of trade and capital movements. Hence, (mostly emerging) countries apply a fixed exchange rate regime to reduce uncertainty and exchange rate fluctuation that disrupts macroeconomic stability. This result confirms the results found by Caputo (2009), who estimated the effect of the de facto exchange rate regime on both the persistence of real exchange rate distortions and the average real appreciation rate.

The variable associated with the inflation rate is negative and statistically significant at the 1% level. This result is logical because in an unstable macroeconomic environment characterized by a high level of inflation, expectations are difficult, breaches are generally wrong and the long-term investment decision falls. Hence, the negative sign of the inflation variable reduces economic growth and economic development.

The variable that measures the level of financial development is negative and statistically significant at the 1% level. This can be explained by the fact that a level of financial development not associated with good quality of institutions (political stability) can have adverse effects on economic growth. In the same context, massive capital movements can bring about exchange rate fluctuations that are undesirable by economic agents.

The financial opening ratio is negative but not significant. The coefficient associated with FDI is positive and statistically significant, indicating that foreign direct investment stimulates economic growth and promotes the exchange of investment funds between countries.

Similarly, the coefficient associated with the real interest rate is negative and statistically significant at the conventional thresholds for all models. This result implies that any increase in the real interest rate increases the cost of capital and reduces the incentive for investment, thus slowing economic growth (crowding out effect).

3.2.2. Estimation result by the Generalized Moments Method (GMM)

In this section, we test the effect of political stability on economic growth using the GMM generalized moments method based on the following model:

$$RGDP_{i,t} = \alpha + \partial RGDP_{i,t-1} + \beta_1 RER_{i,t} + \beta_2 INFL_{i,t} + \beta_3 RIR_{i,t} + \beta_4 OPEN_{i,t} + \beta_5 FINDEV_{i,t} + \beta_6 FDI_{i,t} + \beta_7 EXCHANGE_{i,t} + \beta_8 SP_{i,t} + \mu_i \quad (2)$$

Table (7) presents the results of the estimation by the GMM method in system. We observe that the results of the autocorrelation test accept the null hypothesis of absence of second-order autocorrelation as well as for the validity of the instruments Hansen's (1982) over-identification test proves the absence correlation between the error term and the instrumental variables. Our results show the validity of the instruments used according to the Hansen test and the AR autocorrelation test (2). In fact, the estimates of our model by the GMM method in system give statistically and economically satisfactory results. This improves the robustness of our conclusions and allows us to better interpret the results of the estimation.

The lagged real GDP per capita growth rate coefficient is positive and statistically significant at the 1% level. This implies that the level of current economic growth depends on previous levels in the sense that sustained and sustainable growth enables infrastructure development, and encourages and attracts investment. In other words, last year's level of growth is an accumulation of wealth and a considerable development of the financial and economic infrastructure that leads to increased productivity and increased consumer

purchasing power and leads to a high level of savings to finance the investment of the current year. This behavior can be explained by an inter-temporal choice of economic agents according to Fisher's theory concerning the notion of wealth according to interest rate and income, as well as Friedman's permanent income theory when current consumption depends on income later.

The coefficients of the exchange rate, inflation, interest rate, financial opening and financial development keep the same sign as in the estimation by the method OLS and GLS. While the coefficient associated with FDI, the exchange rate regime and political stability becomes insignificant relative to OLS results.

3.2.3. Result of estimation of the indirect effect of stability on economic growth

Several previous studies such as those of Levy-Yeyati and Sturzenegger, F (2000) and Edwards and Levy-Yeyati (2005) have focused on the study of the relationship between political stability and economic growth and the relationship between the regime exchange and economic growth, nevertheless, in our knowledge, no work has analyzed the relationship between political stability and economic growth conditioned by the choice of exchange rate regime. Hence, our contribution is to test the effect of the exchange rate regime on the relationship between political stability and economic growth.

Taking into account equation (1) and in direct relation with our contribution, we introduce the interaction term between political stability and the exchange rate regime (SP * EXCHANGE) in order to test the effect of political stability on economic growth in the presence of exchange regimes.

To estimate this equation, we use the OLS method to check the significance of the coefficients, despite the fact that this method remains biased because it does not take into account the problem of endogeneity. For this reason, we switched to the GMM method.

3.2.3.1. Result of estimation by the method OLS

We estimate in this part the indirect effect of political stability on economic growth across the exchange rate channel in the equation that takes the following specification:

$$RGDP_{i,t} = \alpha + \beta_1 RER_{i,t} + \beta_2 INFL_{i,t} + \beta_3 RIR_{i,t} + \beta_4 OPEN_{i,t} + \beta_5 FINDEV_{i,t} + \beta_6 FDI_{i,t} + \beta_7 EXCHANGE_{i,t} + \beta_8 SP_{i,t} + \beta_9 (SP * EXCHANGE)_{i,t} + \mu_i + \varepsilon_{i,t} \quad (3)$$

As explained previously, the expected sign of β_8 is ambiguous Si $\beta_8 > 0$ the conventional view that political stability stimulates economic growth. Alternatively, $\beta_8 <0$ implies support for unconventional vision, in which case political instability is associated with improved economic growth. The expected sign of β_7 , which represents the direct effect of the exchange rate regime on economic growth, is also theoretically ambiguous. The expected sign of the coefficient of the interaction term β_9 is also uncertain and an empirical question. If β_9 takes the same sign of β_9 , then the direct effect of political stability will be reinforced at higher levels of degree of exchange rate flexibility. On the other hand, if β_9 and β_8 are opposite signs, more flexible exchange rate levels will weaken the direct effect of political stability.

In both the OLS and GLS estimates, the applied Fisher test indicates that all models are globally significant. The Haussaman test shows that the fixed-effect model is preferable to the random-effect model. By rejecting the hypothesis of homoscedasticity, the Breush-Pagan test reveals the existence of a heteroscedasticity in the estimated model. Wooldridge's test suggests the acceptance of hypothesis H0, which proves the presence of an auto-correlation problem at the level of errors (Insert Table 8).

Table 8 presents the results of the regression of the conditional effect of political stability on economic growth by the OLS and GLS method of equation (3) and for the global sample. The results imply that the direct effect of the exchange rate regime is insignificant

with a positive coefficient. The coefficient associated with the interaction term between political stability and exchange rate flexibility and non-significant (OLS, GLS). In order to test whether the effects of political stability, the exchange rate and their interactions differ between developed and emerging countries, we estimate the model separately for each sample.

The coefficient associated with political stability is positive and statistically level of political stability by the government leads to increased productivity, attraction and incentive to investment and leads overall to economic stability.

3.2.3.2 Result of the estimation by the GMM method

Using the model of Arellano and Bover (1991), the dynamic model for estimating the conditional effect of political stability on economic growth through the exchange rate channel takes the following form:

$$RGDP_{i,t} = \alpha + \partial RGDP_{i,t-1} + \beta_1 RER_{i,t} + \beta_2 INFL_{i,t} + \beta_3 RIR_{i,t} + \beta_4 OPEN_{i,t} + \beta_5 FINDEV_{i,t} + \beta_6 FDI_{i,t} + \beta_7 EXCHANGE_{i,t} + \beta_8 SP_{i,t} + \beta_9 (SP * EXCHANGE)_{i,t} + \mu_i + \varepsilon_{i,t} \quad (4)$$

Insert Table 9

Table (9) presents the results of the GMM system estimates that take into account endogenous variables. The instruments used for system regression are the values of variables delayed by at least one period. The test that is usually used to test the validity of the instruments is Hansen's, while the second-order auto-correlation test is Arellano and Bond. In our case, these two tests validate the instruments used and confirm the robustness of the methodology used. More specifically, the Hansen statistic verifies the validation of the instruments used and the autocorrelation test R (2) validates the hypothesis of no second-order autocorrelation of the residues. The estimation method GMM makes it possible to correct the

bias of the estimation by the method OLS and GLS in the sense that it takes into account problem of the endogeneity of the dependent variable.

The coefficient associated with delayed growth is statistically significant and positive, implying that the growth rate depends positively on its lagging from previous years. Hence, we can conclude that a good financial and economic infrastructure, an optimal combination of production factors and a better strategy applied to attract and incentivize foreign direct investment today will ensure economic growth soon (in the long term). Indeed, state intervention is necessary to ensure stability and economic development according to the Keynesian theory that supports the inability of the market to self-regulate itself. Table (9) shows that most variables retain the same signs found by the OLS and GLS method.

3.2.4. Result of the estimation by the method OLS and by nature of country

Table (10) illustrates the results of the OLS, GLS and GMM regression of equation (4) for sub-samples from developed and emerging countries where the economic growth rate is the dependent variable. The Fisher test shows an overall significance of the fixed-effect model. Thus, the Haussaman test shows that the fixed-effect model is preferable to the one with a random effect. The Breush-Pagan test confirms the existence of a heteroscedasticity in the model to be estimated and the Wooldridge test concludes the presence of an auto-correlation problem. To account for these problems, we presented in addition to the OLS regression the results of the generalized least squares (GLS) and the Generalized Moments in System (GMM) method which takes into account the endogeneity of the variable dependent. According to the results presented in columns (4) and (7), we find that our data verify the hypothesis of absence of second-order auto-correlation (autocorrelation test) AR (2) as well as The instruments used are valid (Hansen's over-identification test (1982)), hence the robustness of the results obtained.

It can be seen that the direct effect of political stability on economic growth is significant and positive for both types of countries. The coefficient associated with the exchange rate regime is statistically significant and positive for developed countries and negative for emerging countries. This result shows that the floating exchange rate regime is the most appropriate for promoting the economic growth of developed countries. Unlike emerging countries the fixed exchange rate is preferable for security reasons against exchange rate fluctuations and contagion possibilities. We also note that the coefficient associated with the retarded growth rate is positive is statistically significant at the 1% threshold. This result implies that the level of current growth depends on past levels in both developed and emerging countries.

Regarding the exchange rate coefficient, it seems to be negative and statistically significant for both developed and emerging countries. This means that the high volatility of the exchange rate negatively affects economic growth. Regarding the coefficient of inflation, it is a potential determinant of the recession in emerging countries and positively affects the economic activity of developed countries. Thus, openness positively affects the economic growth of the developed countries and negatively the economic activity of the emerging countries since they are less developed.

We note that the financial development coefficient is not significant for the two samples. The variable that measures foreign investment flows is positive and statistically significant. This result indicates that investment and capital flows boost productivity and promote economic growth.

For the interest rate coefficient, it is insignificant and positive for the developed countries and negative and statistically significant for the emerging countries. This result

implies that the high interest rate prevents agents from investing and leads to a decline in the rate of economic growth.

Table (11) illustrates the effect of political stability on economic growth by type of country and by degree of exchange flexibility. All models are globally significant according to the Fisher test and the Haussmann test accepts the null hypothesis of a fixed effect. The results presented in this table show that political stability positively and significantly affect economic growth in developed countries. However, this effect is negatively significant in emerging countries. The coefficient associated with the interaction term between the level of political stability and exchange rate flexibility is significant suggesting that the effect of political stability on economic growth depends on the exchange rate regime.

In other words, Table (11) illustrates that the coefficient associated with political stability is positive and statistically significant at the 1% level in developed countries. This proves that raising the level of political stability stimulates economic growth in developed countries. This result is consistent with previous studies that have shown that good institutions can stimulate economic growth by facilitating economic development through an adequate legal and regulatory framework. Certainly, political stability and a necessary factor make it possible to ensure security and the absence of violence, which encourages investment and increases productivity and promotes economic development.

The coefficients associated with the interaction variable between the political stability exchange rate regime are of opposite sign. For developed countries, the interaction coefficient is negatively significant at the 5% level. This result shows that the positive effect of political stability weakens when the exchange rate says more flexible. In other words, the relationship between political stability and economic growth first increases to a certain level of exchange flexibility and then decreases (it is a U-reversed relationship). The coefficient associated with

the exchange rate variable is positive and statistically significant at the 5% level. This implies that the flexible exchange rate regime is an important determinant for economic growth in the industrialized countries, unlike the purely fixed regime that leads to a lower growth rate.

The positive effect of flexible exchange rate regime is explained by the level of political stability of the countries. This result of the interaction variable can be explained in another way and that the positive effect of the exchange rate flexibility is weakened with a higher level of political stability whereas the positive effect of a high rigidity of change can be considered as an important factor to ensure a high level of political stability. Similarly, these findings can confirm a U-reversed relationship between the degree of exchange rate flexibility and economic growth according to the level of political stability of countries and proves that the degree of exchange rate rigidity is more preferable for growth in the economy framework of political stability and for developed countries.

For emerging countries, we observe that the effect of political stability on economic growth is positive and statistically significant at the 5% level. This result shows that the level of political stability is low in these countries and suffers from a problem of political security, the agents do not respect the laws and the rules imposed by the State and the parallel markets are very developed in these economies. . The establishment of a new legal framework and the fight against stowaways and all attempts to make laws and institutionalization (institution building) can negatively affect investment decisions and even lead to capital flight that comes into the Most cases of money laundering and corrupt behavior.

According to our results the effect of political stability on economic growth depends on degree of flexibility such that the negative effect of political instability weakens with the degree of exchange flexibility and the positive effect of political stability can be felt for high levels of exchange rate flexibility in emerging countries. These results allow us to conclude a

U-shaped relationship between the level of political stability and economic growth according to the level of exchange rate flexibility adopted by emerging countries.

Indeed, increasing political stability reduces the pace of economic growth as the exchange rate becomes more flexible to a certain critical level beyond which the relationship between improving political stability and the level of growth becomes positive and important. Similarly, the exchange rate flexibility in emerging countries is associated with price fluctuations and destabilizes economic growth, a negative and significant effect at the 5% threshold of the EXCHANGE variable. The coefficient of the interaction variable between SP and EXCHANGE is positive and statistically significant at the 5% level. This implies that the negative effect of political stability is weakened with exchange rate flexibility and the positive effect of exchange fixity can enhance the level of political stability. We can conclude that the fixed exchange rate regime is a necessary element to ensure a desirable level of political stability that favors the economic growth of emerging countries. Most controls variables keep the same signs as the overall sample estimate.

4. Determination of critical thresholds

To determine the critical thresholds of the variables of interest that we have already studied their interactions, we are based on the estimation by the GMM method presented in equation (4):

$$RGDP_{i,t} = \alpha + \partial RGDP_{i,t-1} + \beta_1 RER_{i,t} + \beta_2 INFL_{i,t} + \beta_3 RIR_{i,t} + \beta_4 OPEN_{i,t} + \beta_5 FINDEV_{i,t} + \beta_6 FDI_{i,t} + \beta_7 EXCHANGE_{i,t} + \beta_8 SP_{i,t} + \beta_9 (SP * EXCHANGE)_{i,t} + \mu_i + \varepsilon_{i,t} \quad (4)$$

4.1. Determination of the critical threshold for the degree of exchange flexibility by country type:

$$\frac{dRGDP}{SP} = \beta_8 + \beta_9 EXCHANGE = 0$$

$$EXCHANGE = -\frac{\beta_8}{\beta_9}$$

Coefficients	β_8	β_9	Degree of critical flexibility ($-\frac{\beta_8}{\beta_9}$)
Global sample	-.2130245	.01302	16.361
Developed countries	1.231442	-.081953	15.026
Emerging countries	-1.409295	.1509112	9.338

These results show that any increase in the level of political stability favors economic growth in developed countries as long as the level of exchange rate flexibility is less than 15,026. Beyond this threshold of flexibility, increasing the level of political stability does not stimulate economic growth but, on the contrary, can negatively affect economic growth (recession). For emerging countries the relationship is different such that political stability reduces the level of economic growth only when the level of exchange rate flexibility is lower than 9.338 but from this level of flexibility of the exchange rate regime any strengthening of the level of the Political stability promotes economic development.

4.2. Calculation of the critical threshold for the level of political stability by country type

$$\frac{dRGDP}{dEXCHANGE} = \beta_7 + \beta_9 SP = 0$$

so

$$\text{SP} = -\frac{\beta_7}{\beta_9}$$

Calculation of the critical threshold for the level of political stability

Coefficients	β_7	β_9	Level of critical political stability ($-\frac{\beta_7}{\beta_9}$)
Global sample	-.0048969	.01302	0.376
Developed countries	.1111419	-.081953	1.356
Emerging countries	-.2905179	.1509112	1.925

According to these results we can conclude that exchange rate flexibility in developed countries stimulates economic activity as soon as the level of political stability does not exceed 1.356. This result shows that any additional flexibility in the exchange rate can negatively affect the level of economic growth. For emerging countries, when the level of political stability is below 1.925, the fixed exchange rate is more appropriate for economic growth. On the other hand, if governments decide to strengthen the quality of institutions and ensure a higher level of political stability, the floating exchange rate regime becomes more optimal and improves the economic growth of emerging countries.

Conclusion

The aim of the present study is to examine the direct effect of political stability on economic growth. Then, we analyze the role of exchange regime in the relationship between political stability and economic growth for 50 countries, 21 developed countries and 29 emerging countries during period 1996-2013. Our results showed that political stability alone can not explain economic growth. We can conclude that this conclusion contradicts the results of some previous studies that prove that political stability improves economic growth without taking into account the effect of the exchange rate regime (Mădălina Radu 2015).

Our results showed that the flexible exchange rate regime destabilizes the economic activity of emerging countries while the fixed exchange rate regime favors the economic growth of these countries. As a result, the fixed exchange rate regime stimulates economic growth in emerging countries where market mechanisms do not work or weakly and the intervention of the monetary authority in the foreign exchange market can ensure economic stability. Hence our results are based on the assumptions of the Keynesian theory that requires the intervention of the state to achieve full employment and ensure stable and sustained economic growth in the long term. For developed countries, the floating exchange rate regime stimulates economic growth in a way that is too significant and the autonomy of the supervisory authorities that ensures instant and more effective intervention in the markets concerned.

In this respect, political stability is a potential determinant of economic growth in developed countries provided that the exchange rate regime is not purely flexible. Political instability may be beneficial in emerging markets provided that a fixed exchange rate regime is applied and political stability ensures more growth if such countries choose to relax their exchange rate policies. Otherwise, emerging countries can benefit from political stability if they choose a high level of exchange rate flexibility. To achieve these results, we used a static regression that analyzes the direct relationship between the level of political stability and economic growth and indirect relationship across the exchange rate channel. First, we performed an OLS regression and then proceeded to GLS regression because of a heteroskedasticity and auto-correlation problem according to the Breusch-Pagan and Wooldridge tests. Finally, we carried out an analysis by the GMM method which makes it possible to take the problem of endogenicity while testing for the validity and reliability of the instruments used.

We can conclude that political stability improves the economic growth of developed countries up to a certain higher threshold of exchange rate flexibility beyond which the strengthening of the level of political stability becomes inappropriate to the economic situation. Likewise, the increase in degree of exchange rate flexibility is important for economic growth up to a certain level of maximum political stability that must not be exceeded to ensure economic development.

For emerging countries, political stability only becomes important to accelerate economic take-off from a certain level of exchange flexibility. Similarly, high flexibility and change requires a well-developed institutional framework and tighter political stability to ensure market efficiency and better allocation of resources.

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Table 1: Country Classification by Type of Exchange Rate Regime Applied

Developed countries	Emerging countries
Australia	Argentina
Austria	Brazil
Belgium	Bulgaria
Canada	Chile
Denmark	China
Finland	Colombia
France	Croatia
Germany	Czech Republic
Greece	Egypt
Ireland	Hong Kong
Italy	Hungary
Japan	India
Netherlands	Indonesia
New Zealand	Korea Rep
Norway	Malaysia
Portugal	Mexico
Spain	Morocco
Sweden	Pakistan
Switzerland	Peru
United Kingdom	Philippines
United States	Poland
	Russia
	Singapore
	South Africa
	Sri Lanka
	Thailand
	Tunisia
	Turkey
	Venezuela

Source: Reinhart Rogoff(2004)

Table 2: Descriptions and Data Sources

The variables	Definition of the variables	Sources
RGDP	Deflated growth rate of real GDP per capita	world Bank
EXCHANGE	It is the regime or system of exchange that represents all the rules and instruments that organize the framework in which the nominal value of the national currency is determined. It is between 1 and 14, the highest value of which corresponds to an economy that applies a more flexible exchange rate system (more floating regime).	Ilzetzki, Reinhart et Rogoff (2008)
SP	This variable measures the probability of destabilization or overthrow of government by unconstitutional or violent means, including terrorism, it is an indicator of the basis of Kaufman et al (2010).	world Bank
RER	This variable refers to the real exchange rate, defined as the relative price of tradable and non-tradable goods in an economy	International Financial Statistics: IFS
INFL	This is the rate of inflation calculated on the basis of the consumer price index	International Financial Statistics: IFS
RIR	This is the real interest rate, corresponds to the inflation-adjusted loan interest rate (GDP deflator)	World Bank and International Financial Statistics: IFS
FINDEV	It is a composite index based on nine indices. It helps to verify the effectiveness of financial institutions and markets. It varies between 0 and 1 and developed countries have the highest scores.	IMF/Data.world https://data.world/imf/financialdevelopment-fd
OPEN	It indicates the degree of trade openness measured as the sum of exports and imports relative to GDP.	world Bank
FDI	This is foreign direct investment measured by the ratio of net inward flows of foreign investment to GDP.	world Bank

Table 3: Exchange Rate Classification Algorithm (de facto classification of IRR)

Typologies of exchange rate regimes		
Natural classification	**Fine classification(IRR)**	**Aggregate classification**
No separate legal course	1	Fixed exchange regime
Pre announced peg or currency board arrangement	2	
Pre-announced horizontal band that is narrower or equal to +/- 2%	3	
De facto peg	4	
Pre-announced crawling peg	5	intermediate exchange regime
Crawling pre-announced band that is narrower or equal to +/- 2%	6	
Crawling peg de facto	7	
Crawling de facto band that is	8	

narrower or equal to +/- 2%		
Crawling pre-announced band that is wider or equal to +/- 2%	9	
Crawling de facto band that is narrower or equal to +/- 5%	10	
Moving band that is narrower or equal to +/- 2% (ie allowing both appreciation and depreciation over time)	11	
Managed float	12	flexible exchange regime
Freely floating	13	
Freely falling	14	

Source :Gnimassoun,B(2015)

Table 4: Descriptive Analyzes

a. Global sample

	RGDP	RER	INFL	RIR	FINDEV	OPEN	FDI	EXCHANGE	SP
Mean	3.2265	99.4650	6.6702	5.3673	0.5497	84.8455	4.5047	7.4444	0.2225
Maximum	18.2870	234.614	958.527	93.9374	1.0000	458.332	87.4430	15.000	1.9000
Minimum	-13.127	46.2260	-5.9920	-70.964	0.1446	14.9330	-16.071	1.0000	-2.8300
Std. Dev.	3.4224	16.9048	33.4974	9.4796	0.2247	69.0837	7.0129	4.3636	0.9502
Skewness	-0.5940	2.3842	25.730	1.8232	-0.0002	2.9562	4.4162	-0.2897	-0.7002
Kurtosis	5.2943	18.487	726.614	31.9016	1.7519	13.2333	34.4136	1.6203	2.7656
Jarque-Bera	250.328	9847.46	197349	31822.5	58.4154	5237.96	39931.1	83.9772	75.6029
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Observation	900	900	900	900	900	900	900	900	900

b. Developed countries

	RGDP	RER	INFL	RIR	FINDEV	OPEN	FDI	EXCHANGE	SP
Mean	1.9498	98.0750	1.8723	3.7120	0.7479	76.6417	4.70256	6.1296	0.9320
Maximum	6.5570	151.858	15.4340	12.7166	1.0000	202.850	87.4430	13.0000	1.9000
Minimum	-8.5390	71.5810	-5.2050	-5.6348	0.3840	18.7560	-5.6710	1.0000	-0.6000
Std. Dev.	2.3953	10.4656	1.9229	2.5911	0.1169	38.9388	7.9611	5.1730	0.4607
Skewness	-1.3357	1.0452	1.3615	0.0672	-0.170	1.0742	4.7388	0.2167	-0.7456
Kurtosis	5.5507	6.9207	11.2002	4.1933	2.5862	3.5597	38.4120	1.2168	3.4086
Jarque-Bera	214.877	310.943	1175.88	22.7138	4.5262	77.6368	21165.4	53.0422	37.6570
Probability	0.0000	0.0000	0.0000	0.0000	0.1040	0.0000	0.0000	0.0000	0.0000
Observations	378	378	378	378	378	378	378	378	378

c. Emerging countries

	RGDP	RER	INFL	RIR	FINDEV	OPEN	FDI	EXCHANGE	SP
Mean	4.1510	100.471	10.1446	6.5659	0.4061	90.7862	4.3614	8.3965	-0.2912
Maximum	18.2870	234.614	958.527	93.9374	0.8539	458.332	50.7420	15.000	1.3500

Minimum	-13.1270	46.2260	-5.9920	-70.964	0.1446	14.9330	-16.071	2.0000	-2.8300
Std. Dev.	3.7444	20.2840	43.6429	12.1150	0.1676	83.9871	6.2411	3.3660	0.8802
Skewness	-0.9546	2.1693	19.8451	1.2246	0.7903	2.5961	3.6579	-0.4831	-0.3513
Kurtosis	5.7203	14.6248	429.114	20.096	2.9079	9.5985	20.6274	2.3604	2.4846
Jarque-Bera	240.244	3348.66	398348	6488.07	54.5353	1533.38	7922.42	29.2031	16.5174
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002
Observations	522	522	522	522	522	522	522	522	522

Table 5: Correlation Matrix

a. Global sample

	RGDP	RER	INFL	RIR	OPEN	FINDEV	FDI	EXCHANGE	SP
RGDP	1.0000								
RER	-0.0304	1.0000							
INFL	-0.0464	-0.1560	1.0000						
RIR	-0.1018	0.0806	-0.3016	1.0000					
OPEN	0.0355	0.0048	-0.0466	-0.1021	1.0000				
FINDEV	-0.2119	-0.0447	-0.1682	-0.1164	0.2495	1.0000			
FDI	0.0492	0.0106	-0.0379	-0.0483	0.5531	0.1316	1.0000		
EXCHANGE	0.0670	-0.1006	0.0077	0.1124	-0.1521	0.0100	-0.2206	1.0000	
SP	-0.0904	-0.0177	0.0036	0.0717	0.2291	0.1746	0.1745	-0.1244	1.0000

b. Developed countries

	RGDP	RER	INFL	RIR	OPEN	FINDEV	FDI	EXCHANGE	SP
RGDP	1.0000								
RER	-0.2297	1.0000							
INFL	0.2596	-0.3958	1.0000						
RIR	0.0397	0.0065	-0.0839	1.0000					
OPEN	0.0397	-0.1285	-0.0245	-0.1901	1.0000				
FINDEV	0.0083	0.1448	-0.1064	-0.3845	0.1061	1.0000			
FDI	0.0938	-0.0797	-0.0034	-0.1975	0.4977	0.0848	1.0000		
EXCHANGE	0.1481	0.2110	0.0573	-0.0173	-0.3358	0.2717	-0.2363	1.0000	

SP	0.2614	-0.0446	0.1326	0.0094	0.3834	-0.1883	0.1226	0.1320	1.0000

c. Emerging countries

	RGDP	RER	INFL	RIR	OPEN	FINDEV	FDI	EXCHANGE	SP
RGDP	1.0000								
RER	-0.0143	1.0000							
INFL	-0.1084	-0.1751	1.0000						
RIR	-0.1879	0.0785	-0.3308	1.00001					
OPEN	-0.0042	0.0195	-0.0638	-0.1165	1.0000				
FINDEV	0.0536	-0.0225	-0.1337	0.0328	0.5943	1.0000			
FDI	0.0453	0.0578	-0.0519	-0.0289	0.6730	0.3810	1.0000		
EXCHANGE	-0.1351	-0.3420	-0.0434	0.1341	-0.1544	0.1460	-0.2036	1.0000	
SP	-0.0547	0.0269	-0.0671	-0.0018	0.5493	0.4743	0.4382	-0.0135	1.0000

Table 6: Results of estimation by the OLS method

Variables	Fixed effect	Least Generalized Squares (LGS)
RER	-.0352626 (0.000)	.0067354 (0.338)
INF	-.0176989 (0.000)	-.0090106 (0.008)
RIR	-.0940958 (0.000)	-.0615388(0.000)
OPEN	-.0099509 (0.148)	-.0016203 (0.486)
FINDEV	-1.099468 (0.517)	-3.522999 (0.000)
FDI	.0568067 (0.005)	.0424404 (0.004)
EXCHANGE	.1424943 (0.021)	.0778157 (0.002)
SP	.3140556 (0.368)	.2535342 (0.044)
Constant	9.680545 (0.000)	3.94896 (0.000)
Observation	900	900
Number of groups	50	50
R-squared	0.0149	
R-squared within	0.0871	
R-squared between	0.0144	
Fischer Test prob> F	0.0000	0.0000
Hausman Test prob> $chi2$	27.27 (0.0003)	
Breusch pagan Test prob> $chi2$	3856.84 (0.0000)	
Wooldridge Test prob> $chi2$	35.532 (0.0000)	
Hausman Durbun wu Test Prob>chi2	119.69 0.0000	

Note: The values in parentheses are the P-value.

Table 7: Result of the estimation by the GMM method in system

Variables	GMM
$RGDP_{i,t-1}$	.2146241 (0.000)
RER	.0016462 (0.808)
INF	-.0089002 (0.000)
RIR	-.0503706(0.013)
OPEN	-.0009916 (0.603)
FINDEV	-3.238329 (0.000)
FDI	.0284143 (0.176)
EXCHANGE	-.0027514 (0.931)
SP	-.1138868 (0.428)
Constant	4.405169 (0.000)
Observation	850
Number of groups	50
Hansen Test	25.01
Prob > chi2	(0.103)
AR(2)	-2.38 (Pr > z = 0.118)

Note: The values in parentheses are the P-value.

Table 8: Result of estimation of the indirect effects of political stability on economic growth by the OLS method

Variables	**Fixed effect**	Least Generalized Squares (LGS)
RER	-.0333724 (0.000)	.0067614 (0.337)
INF	-.0177823 (0.000)	-.0090732 (0.008)
RIR	-.0932275(0.000)	-.0617611(0.000)
OPEN	-.0100605 (0.144)	.0017714 (0.454)
FINDEV	-1.348901 (0.431)	-3.531617 (0.000)
FDI	.0577088 (0.005)	. .0424359 (0.005)
EXCHANGE	.1936313 (0.733)	.1414768 (0.627)
SP	.1324374 (0.033)	.0837881 (0.004)
EXCHANGE*SP	. -.0612665 (0.256)	-.0125948 (0.669)
Constant	9.512792 (0.000)	3.879617 (0.000)
Observation	900	900
Number of groups	50	50
R-squared	0.0153	
R-squared within	0.0885	
R-squared between	0.0119	
Fischer Test	0.0000	0.0000
prob> F		
Hausman Test	27.64	
prob> $chi2$	0.0000	
Breusch pagan Test	4244.01	
prob> $chi2$	(0.0000)	
Wooldridge Test	37.098	
prob> $chi2$	0.0000	

Hausman Durbun wu Test	158.60
Prob>chi2	0.0000

Note: The values in parentheses are the P-value.

Table 9: Result of indirect effect estimation of political stability by the GMM method

Variables	MMG
$RGDP_{i,t-1}$	.2148733 (0.000)
RER	.0011367 (0.863)
INF	-.0088856 (0.000)
RIR	-.0506513(0.013)
OPEN	-.001063 (0.586)
FINDEV	-3.207206 (0.000)
FDI	.0284737 (0.176)
EXCHANGE	-.0048969 (0.878)
SP	.2130245 (0.023)
SP*REGIME	.01302 (0.621)
Constant	4.465602 (0.000)
Observation	850
Number of groups	50
Hansen Test	24.87
Prob > chi2	0.1130
AR(2)	-2.37
Pr > z	0.118

Note: Values in parentheses are P-Value

Table 10: Direct effect of political stability on economic growth by country type

	Developed countries			Emerging countries		
Variables	OLS	GLS	GMM	OLS	GLS	GMM
$RGDP_{i,t-1}$			.3879045 (0.000)			.2486758 (0.000)
RER	-.0421708 (0.012)	-.0375049 (0.003)	-.0267079 (0.010)	-.0376046 (0.111)	-.0068681 (0.423)	-.0100428 (0.361)
INF	.2410439 (0.001)	.0315178 (0.579)	.090223 (0.114)	-.0162939 (0.000)	-.0136802 (0.000)	-.0195551 (0.000)
RIR	.1369893 (0.124)	.0379935 (0.433)	.0785549 (0.214)	-.0890062 (0.000)	-.0727974 (0.000)	-.1063626 (0.000)
OPEN	.0327322 (0.009)	.0035713 (0.043)	.0043539 (0.098)	-.0072979 (0.399)	-.0129976 (0.001)	-.0190643 (0.010)
FINDEV	-2.055668 (0.299)	1.62792 (0.194)	2.378282 (0.111)	2.505911 (0.322)	3.563252 (0.325)	5.769741 (0.216)
FDI	.0534928 (0.004)	.0327917 (0.023)	.0370158 (0.002)	.0882907 (0.017)	.0729657 (0.032)	.1098055 (0.014)
EXCHANGE	.0036918 (0.067)	.0833243 (0.011)	.031081 (0.062)	-.2936826 (0.000)	-.2652167 (0.000)	-.3597577 (0.000)
SP	2.102287 (0.000)	.9671632 (0.005)	.8390259 (0.001)	.7250146 (0.025)	.0194927 (0.018)	.145226 (0.019)
Constant	6.983684 (0.010)	2.967858 (0.043)	.6721567 (0.639)	10.61562 (0.000)	7.157923 (0.000)	9.053815 (0.000)
Observation	378	378	357	522	522	493
Number of groups	21	21	21	29	29	29
R-squared	0.0892			0.0633		

R-squared within	0.2111			0.1355		
R-squared between	0.0024			0.0004		
Fischer Test prob> F	0.0000			0.0000		
Hausman Test prob> $chi2$	31.18 (0.0000)			19.33 (0.0132)		
Breusch pagan Test prob> $chi2$	206.23 (0.0000)			1135.26 (0.0000)		
Wooldridge Test prob> $chi2$	30.176 (0.0000)			23.751 (0.0000)		
Hausman Durbun wu Test Prob>chi2	63.53 (0.0000)			95.96 (0.0000)		
Hansen Test Prob > chi2			18.21 (0.151)			15.24 (0.155)
AR(2) Pr > z			-2.27 (0.123)			-2.99 (0.113)

Note: Values in parentheses are P-value

Table 11: the indirect effect of political stability on economic growth through the exchange regime

	Developed countries			Emerging countries		
Variables	OLS	GLS	GMM	OLS	GLS	GMM
$RGDP_{i,t-1}$			.3970066 (0.000)			.1548128 (0.000)
RER	-.0374006 (0.025)	-.0371958 (0.003)	-.0216663 (0.070)	-.0379899 (0.000)	-.0063766 (0.456)	-.0074983 (0.356)
INF	.1950735 (0.006)	.0241999 (0.668)	.1024511 (0.062)	-.0166405 (0.000)	-.0133781 (0.000)	-.0136768 (0.000)
RIR	.1360713 (0.024)	.0407582 (0.396)	.0925317 (0.161)	-.0884482 (0.000)	-.0717881 (0.000)	-.0687517 (0.000)
OPEN	-.0286651 (0.022)	-.0028242 (0.454)	-.0032128 (0.252)	-.006667 (0.440)	-.0115678 (0.002)	-.0132617 (0.002)
FINDEV	-1.718801 (0.383)	1.540656 (0.217)	2.504397 (0.015)	1.598591 (0.534)	3.42747 (0.007)	3.946614 (0.007)
FDI	.0572648 (0.002)	.0311392 (0.031)	.0356663 (0.001)	.0925419 (0.012)	.0856847 (0.013)	.0611427 (0.216)
EXCHANGE	.2385605 (0.008)	.1729195 (0.005)	.1111419 (0.015)	-.2325324 (0.010)	-.2218216 (0.000)	-.2905179 (0.000)
SP	3.331161 (0.000)	1.493798 (0.002)	1.231442 (0.000)	- .922215 (0.011)	-1.21879 (0.050)	-1.40929 (0.010)
SP*EXCHANGE	-.2170034 (0.011)	-.0921519 (0.009)	-.081953 (0.031)	.1877691 (0.066)	.12882 (0.048)	.1509112 (0.067)
Constante	4.701472 (0.094)	2.496455 (0.093)	-.4803722 (0.789)	10.42145 (0.000)	6.550461 (0.000)	6.581036 (0.000)
Observation	378	378	378	522	522	493
Number of groups	21	21	21	29	29	29
R-squared	0.1180			0.0777		
R-squared within	0.2257			0.1416		
R-squared between	0.0319			0.0049		
Fischer Test prob> F	0.0000			0.0000		
Hausman Test prob> $chi2$	33.38 0.0000			16.39 0.0592		

Breusch pagan Test prob> $chi2$	344.10 0.0000			767.22 0.0000		
Wooldridge test prob> $chi2$	30.752 0.0000			23.663 0.0001		
Hausman Durbun wu Test Prob>chi2	68.04 0.0000			97.45 (0.0000)		
Hansen test Prob > chi2			17.99 (0.155)			16.92 (0.150)
AR(2) Pr > z			-2.30 (0.222)			-1.80 (0.172)

Note: Values in parentheses are P-value