CHOOSING AND ASSESSING EXCHANGE RATE REGIMES: A SURVEY OF THE LITERATURE

SELECCION Y EVALUACION DE LOS REGIMENES CAMBIARIOS: UNA REVISION DE LA LITERATURA

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Abstract

This paper attempts to provide a comprehensive overview on the theoretical and empirical analysis of the selection and assessment of exchange rate regimes. The literature can be divided into two main groups: classical and modern. The first group refers to earlier studies examining the differences between floating and fixed exchange rate regimes. The second group is focused on the trade-off between credibility and flexibility, the economic performance and currency crisis, among others. In addition, this paper reviews why many countries follow de facto *regimes different from their* de jure *regimes.*

Keywords: *Exchange rate, currency crisis, optimal currency area.*

JEL Classification: *F02, F31, F33, F36.*

Resumen

Este artículo pretende dar una visión general sobre el análisis teórico y empírico de la selección y evaluación de los regímenes cambiarios. La literatura se puede dividir en dos grupos principales: clásicos y modernos. El primer grupo se refiere a los primeros estudios que analizan las diferencias entre los regímenes de tipo de cambio fijo y flotante. El segundo grupo se centra en el trade-off *entre credibilidad y flexibilidad, el desempeño económico y las crisis cambiarias, entre otros. Además, este documento analiza por*

qué muchos países siguen un régimen cambiario de facto, *diferente a su régimen* de jure.

Palabras clave: *Tipo de cambio, crisis cambiaria, área monetaria óptima.*

Clasificación JEL: *F02, F31, F33, F36.*

I. INTRODUCTION

In the last fifty years, the choice of an exchange rate regime has been key to determining economic policy. Following the collapse of Bretton Woods' architecture of fixed exchange rates in the early 1970s, the wave of financial crises in the 1990s and the introduction of the Euro, there has been continued debate about the exchange rate regimes most suited to particular countries or groups of countries.

Over the years, theoretical explanations for exchange rate regime choice have expanded the shock vulnerability theory to factor in the following: the optimal currency area (OCA) theory, the "impossible trinity constraint" in times of high capital mobility, time-inconsistency issues associated with regime choice, the influences on economic performance, the balance sheet effects for financially dollarized economies and the role of currency crises. Empirically, the range of methods has expanded similarly. While some consensus has appeared to take shape in terms of the theoretical debate on the determinants of exchange rate regime choice, empirical evidence suggests no such consensus has formed here.

This paper sets out to review the main theories and empirical methods employed in selecting an appropriate exchange rate regime. In order to achieve this, the paper is organised as follows: Section 2 introduces the distinct classifications of exchange rate regimes (official exchange rate regimes versus those in practice) and the different theoretical approaches which illustrate how an optimal exchange rate regime is determined. Section 3 reviews the relevant empirical methods, and finally, a summary is provided in Section 4.

II. CHOOSING AN EXCHANGE RATE REGIME

The selection of an exchange rate regime has been at the centre of the debate in international macroeconomics for a long time. This section, examines the distinct classifications (*de jure* and *de facto*) of exchange rate regimes. Secondly, theoretical and empirical literature on the choice of exchange rate regimes is surveyed.

2.1. Exchange Rate Classifications: *De Jure* versus *De Facto*

In order to study the selection of an exchange rate regime, it is necessary to employ the proper classifications for exchange rate systems. Until the late 1990s, most

studies on the choice of exchange rate regimes focused on official regimes[1]. Recently, numerous empirical studies of exchange rate regimes have provided evidence that the evaluation of adjustments in central parities and foreign exchange market interventions can generate considerable differences between the official arrangements and the *de facto* regime adopted by a country (see Ghosh *et al.*, 1997; Ghosh *et al.*, 2002; Calvo and Reinhart, 2002; Levy-Yeyati and Sturzenergger, 2005). A vast range of empirical literature classifies exchange rate regimes as either *de jure* or *de facto*[2]. The former establishes a list of regimes based on the official exchange rate regimes declared by governments and usually collected by the International Monetary Fund (IMF). In other words, countries are classified by what they declare they do. The IMF's classification scheme has expanded from the very rough "peg or not" dichotomy in the 1970s and early 1980s, to a four regime classification in the 1980s and most of the 1990s, and finally to a scheme of eight regimes since the year 1998.

The first column in Table 1 presents a list of the eight categories of exchange rate regimes actually used in the *de jure* classification and widely employed in literature on the subject (Frankel, 1999; Edwards and Savastano, 1999; IMF, 1999; Ghosh *et al.*, 1997; Ghosh *et al.*, 2002). They run the gamut from monetary union to crawling peg and floats with varying degrees of intervention, and are arranged from top to bottom by the relative stability they afford the nominal exchange rate or, inversely by the degree of flexibility that they impart to the economy. However, several attempts have been made to adjust this classification, or to offer altogether new ones based on observed behaviour of the exchange rate, which results in a classification of *de facto* exchange rate regimes.

De facto exchange rate regimes organise countries by what they do. This sorting attempts to ensure that the official classifications are consistent with actual practice. A country might experience very small exchange rate movements but a high relative variability in reserves and interest rates, even though the monetary authorities have no official commitment to maintaining the parity. This behaviour is often referred to as the "fear of floating" phenomenon (Calvo and Reinhart, 2002). In many cases central banks attempt to stabilise the exchange rate because they view devaluations or depreciations as probable causes for adverse effects on the balance sheet, particularly when countries have high debts in a foreign currency (Calvo and Reinhart, 2000). Alesina and Wagner (2006) present one possible reason for fear of floating. They suggest that countries with relatively poor institutional quality are less able to stick to their announcements of fixing the exchange rate and therefore abandon it more often. In contrast, countries with relatively good institutions display fear of floating, perhaps to signal their differences from those countries incapable of maintaining promises of monetary stability. Barajas *et al.* (2008) present another reason. These authors suggest that international capital markets might reward countries that are

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[1] One early exception is the work developed by Holden *et al.* (1979), which constructed an empirical index to measure exchange rate flexibility.

[2] For a further discussion on the issues involved in classifying exchange rate regimes, see Nitithanprapas and Willett (2002).

classified as flexible, and once this "flexibility" is announced, there appears to be no punishment for fear of floating[3].

On the contrary, a country may manifest to have a pegged exchange rate, while in fact it carries out frequent changes in parity. This behaviour is called the "fear of pegging" phenomenon (Levy-Yeyati and Sturzenergger, 2005). Genberg and Swoboda (2005) suggest that countries actively using monetary policy instruments to stabilise their exchange rate may rationally not want to announce and commit to a fixed exchange rate due to the fear of being subjected to speculative attacks. Moreover, Levy-Yeyati *et al.* (2013) updated their data set to cover the period 1974-2004, and examined the relationship between exchange rate depreciations, growth and productivity in developing countries. Their results reveal that in most cases (and increasingly so in the 2000s) intervention has been aimed at limiting appreciations rather than depreciations, often motivated by a neo-mercantilist view that a depreciated real exchange rate serves as protection for domestic industries. Authors called this behaviour the "fear of appreciation".

TABLE 1

DE JURE AND *DE FACTO* CLASSIFICATION SCHEME

De Jure	*De Facto* by Reinhart and Rogoff	*De Facto* by Levy-Yeyati and Sturzenegger
(1) Currency Union (2) Dollarization (3) Currency Board (4) Conventional Peg (5) Crawling Peg (6) Bands (7) Managed Float (8) Pure Float	(1) No separate legal tender (2) Pre announced per or currency board arrangement (3) Pre-announced horizontal band that is narrower than or equal to ± 2% (4) *De facto* peg (5) Pre-announced crawling peg (6) Pre-announced crawling band thatis narrower than or equal to ± 2% (7) *De facto* crawling peg (8) *De facto* crawling band that is narrower than or equal to ± 2% (9) Pre-announced crawling band thatis wide than or equal to ± 2% (10) *De facto* crawling band that is narrower than or equal to ± 5% (11) Moving band that is narrowerthan or equal to ± 2% (12) Managed floating (13) Freely floating (14) Freely falling (15) Hyperfloating	(1) Fixed (2) Crawling Peg (3) Dirty Floats (4) Flexible

Sources: Levy-Yeyati and Sturzenegger (2005); Reinhart and Rogoff (2004).

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[3] For a discussion on "fear of floating" in terms of the optimal ex post monetary response to external shocks see Gallego and Jones (2005).

Over time, the *de facto* classifications have become increasingly relevant in empirical research on exchange rate regimes. This new classification led to a re-evaluation of many hypotheses that had been tested using the *de jure* classification, and many results were overthrown. The most prominent *de facto* exchange rate arrangements are the classifications made by Reinhart and Rogoff (2004) and Levy-Yeyati and Sturzenergger (2005). The new classification scheme constructed by Reinhart and Rogoff (2004) reclassified exchange rate regimes by focusing on market-determined dual and parallel exchange rates, as well as a statistical analysis of observed behaviour in the exchange rate for 153 countries over the period 1946-2001. If there is a parallel market in the country, they proceed to a statistical classification based on the percentage of the nominal exchange rate in absolute value and on the probability of remaining in a band of fluctuation. If there is a single foreign market, they test if the announced regime matches the statistical *de facto* classification. By combining official announcements, inflation performances and the volatility of exchange rate movements, they are able to distinguish among 15 *de facto* exchange rate regimes (see Table 1). These authors distinguish floating in countries with high inflation (freely falling) from other types of floating. They defined a category of "freely falling" rates when annual inflation equals or exceeds 40% and when, in these episodes of inflation, there is no official announcement of the exchange rate regime by the authorities[4]. In the same way, they identified a special sub-category of freely falling, called "hyperfloats". This last category refers to those episodes that fall under the classic definition of hyperinflation (a monthly inflation rate of 50% or more) developed by Cagan (1956). These periods of macroeconomic instability and very high inflation rates are often reflected in high and frequent exchange rate depreciations.

The results represented in Reinhart and Rogoff (2004) suggest that since the 1980s over 50% of *de jure* floats were *de facto* pegs, and approximately half of *de jure* pegs were floats. Moreover, they find numerous cases where the announced *de jure* band is much wider than the *de facto* band. Similarly, Levy-Yeyati and Sturzenergger (2005)[5] constructed a *de facto* classification based on data obtained on the behaviour of three variables: changes in the nominal exchange rate, the volatility of these changes, and the volatility of international reserves from all IMF reporting countries over the period 1974-2000. They use cluster analysis to classify countries into four main groups of pegged, intermediate (crawling peg and dirty floats), flexible, and inconclusive[6] exchange rate regimes according to the following principle: pegged rate regimes should face a low volatility in the exchange rate and in variations of the exchange rate but a high volatility of foreign reserves, as countries use reserve assets to intervene in the foreign exchange market with the objective of stabilising the exchange rate. Intermediate regimes should face a medium level of volatility in the exchange rate, low volatility in the variations of the exchange rate, and medium to high volatility

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[4] Also, they label an exchange rate as freely falling during the six months immediately following a currency crisis, but only for those cases where the crisis marks a sudden transition from a fixed or quasi fixed regime to a managed or independently floating regime.

[5] Their analysis is based on the Holden *et al*. (1979) framework.

[6] For an analysis on this methodology see Levy-Yeyati and Sturzenergger (2002).

in international reserves[7]. In contrast, flexible rate regimes should be characterised by high volatility in the exchange rate and in its rate of change but low volatility in international reserves, since the exchange rate is allowed to fluctuate freely, and interventions, which may cause high volatility in international reserves, should be less frequent. They label it inconclusive regimes, as the actual policy intention of the authority is difficult to infer when the foreign exchange market is tranquil. Their results suggest that 26% of the countries examined follow an exchange rate arrangement that is different from their *de jure* regime.

Other authors have proposed alternative methods in the classification of exchange rate regimes (Bailliu *et al.*, 2001; Poirson, 2002; Shambaugh, 2004; Dubas *et al.*, 2005; Bérnassy-Quéré *et al.,* 2006; Frankel and Wei, 2008). Bailliu *et al.* (2001) developed a classification based on the level of volatility in the observed nominal exchange rate. These authors take into account external shocks and revaluations, finding substantial differences in how exchange rate regimes are classified, depending on the methodology used. They also find that over 50% of the countries identifying themselves as floaters actually follow more rigid arrangements. Likewise, Poirson (2002), following the fear of floating approach, uses an alternative flexibility index based on the movements in exchange rates and international reserves. Dubas *et al.* (2005) propose an econometric procedure for obtaining an "effective" *de facto* exchange rate regime classification. These authors employ the *de facto* classifications as outcomes of a multinomial logit choice problem conditional on measures of the volatility in a country's effective exchange rate, bilateral exchange rate, and foreign reserves.

In order to investigate how a fixed exchange rate affects monetary policy, Shambaugh (2004) created a *de facto* coding system which focuses exclusively on the volatility of the exchange rate, dividing regimes into pegs and non-pegs. On the other hand, Bérnassy-Quéré *et al.* (2006) present an empirical method for identifying *de facto* exchange rate. They define an exchange rate basket peg as any stable linear combination of the variations of bilateral exchange rates against the dollar, the euro and the yen. Similarly, Frankel and Wei (2008) propose a new approach to estimating countries' *de facto* exchange rate regimes. They suggest simultaneously estimating the implicit currency weight in the basket that anchors the home currency when the hypothesis is a basket peg with little flexibility, and the degree of flexibility around that anchor when the hypothesis is an anchor to the dollar or some other single major currency, but with a possibly substantial degree of flexibility around that anchor.

Additionally, critics constantly moved away from the official International Monetary Fund classification to construct a *de facto* classification system in 1999[8]. The new IMF classification combines the available information on exchange rates and monetary policy frameworks, and the formal or informal policy intentions of

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[7]   To discriminate between crawling peg and dirty floats, two measures are constructed for the volatility of the exchange rate: the average of the absolute monthly percentage change in the exchange rate, and the standard deviation of the monthly percentage change in the exchange rate, both being calculated for a calendar year. Reserves volatility is measured by the average of the absolute monthly change in net dollar reserves divided by monetary base of the previous month taken in dollars as well.

[8]   Habermeier *et al.* (2009) provide information on revisions to this classification system in early 2009.

authorities, with data on actual exchange rates and reserve movements to reach an assessment of the actual exchange rate regime. However, it can be argued that the new IMF classification system is still one of the *de jure* regimes, since it still relies heavily on official information and looks mainly at the behaviour of official exchange rates (Reinhart and Rogoff, 2004).

In spite of the fact that the evolution of exchange rate arrangements and the association between exchange rate regimes and economic performance looks very different when viewed through *de facto* schemes, this does not imply that official regimes are irrelevant; even if they do not always coincide with the *de facto* regimes. Official regimes are likely to guide the financial market expectations on exchange rate developments and affect international financial policy decisions. Also, the use of interest rates and changes in gross international reserves as proxies for intervention in exchange rate markets has serious drawbacks. In some countries, movements in central bank foreign reserves can be linked to reserve management strategies, the servicing of foreign debt or payments for bulky purchases such as oil imports, and not necessarily used for exchange rate stabilisation motives. In many countries, interest rates are set administratively. As a consequence, statistics might diverge from reality for data on foreign exchange reserves (Bubula and Otker-Rober, 2002; Ghosh *et al*., 2002)[9].

In summary, *de facto* measures vary considerably depending on the methodology used to assess regimes. However, all these methodologies lead to the same conclusion: *de facto* exchange rate regimes are different from *de jure* regimes, and the discrepancies between the two are not uncommon. The most complete *de facto* exchange rate classifications are made by Reinhart and Rogoff (2004).

2.2. Theoretical Considerations

The theoretical literature on the selection of an exchange rate regime is vast and can be divided into two broad categories: classical and modern theories[10]. In the classical exchange rate literature, the choice is often portrayed as being either a completely fixed exchange rate regime or a fully flexible one. The general assumption in this kind of literature is that the prices of commodities are relatively sticky compared to exchange rates, implying that shocks to the economy may lead to fluctuations in economic activity. Major contributors in this literature include Friedman (1953), Fleming (1962), Mundell (1961, 1963), McKinnon (1963), and Kenen (1969), among others. Friedman (1953) argued that, in the presence of sticky prices, floating rates would provide better insulation from foreign shocks by allowing relative prices to adjust faster. Moreover, Mundell (1963) explored the role of capital mobility in the choice of exchange rate regimes. With this approach, known as exchange rate

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[9] See Rogoff *et al.* (2003) for a comparison of the main features of various *de facto* classifications.

[10] For a survey on the issue of exchange rate regime choice for both industrial and emerging countries from an historical perspective see Bordo (2003). Wickham (1985) provides a survey of the literature on optimal exchange rate regimes for small open developing countries and Frenkel and Rapetti (2012) applies a historical analysis of exchange rate regimes adopted by the major countries of Latin America since the 1950s.

policy and the absorption of real and nominal shocks, the choice between fixed and floating depends on the sources of the shocks, whether they are real or nominal, and the degree of capital mobility. In an open economy with capital mobility, a floating exchange rate provides insulation against real shocks such as changes in the demand for exports or in the terms of trade, because the exchange rate can adjust quickly to restore equilibrium, as in Friedman (1953), rather than requiring price level changes. On the contrary, a fixed exchange rate is desirable in the case of nominal shocks such as a shift in money demand, because money supply automatically adjusts to changes in money demand without requiring changes in the interest rate or in the price level (Mundell, 1963; Fleming, 1962)[11].

The key assumption in the Mundell-Fleming framework is that perfect capital mobility implies international arbitrage across countries in the form of uncovered interest parity. This model concludes that it is impossible to simultaneously achieve the three domestic goals of: exchange rate stabilisation, capital market integration and independent monetary policy. This is otherwise known as the impossible trinity or the trilemma.

Similarly, Boyer (1978), Henderson (1979) and McKinnon (1981), following the analysis of Poole (1970) on optimal monetary policy instruments, argue that fixed exchange rates perform better in terms of output stability in the presence of monetary shocks originating in the domestic economy, while flexible rates perform better in the presence of real shocks (terms of trade, natural disasters, etc.). Their analysis suggests that countries exposed to a large real supply side shocks should opt for flexible exchange rates, while countries suffering from large monetary and financial market disturbances should peg their exchange rates. Recent evidence to support this idea comes from Broda (2004) and Ramcharan (2007).

On the other hand, Mundell (1961) stressed the fundamentals of the optimal currency area (OCA) theory, defining the characteristics of areas for which it is optimal to have a single currency regime. The OCA approach weighs out the trade and welfare gains from a stable exchange rate against the benefits of exchange rate flexibility as a shock absorber in the presence of nominal rigidities. According to Mundell (1961), the advantages of fixed exchange rates increase with the degree of economic integration between countries[12]. Based on Mundell (1961), McKinnon (1963) advanced the criterion for defining the degree of openness of an economy. He also points to economic size and openness as important fundamentals of the OCA theory,

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[11] This model was extended by Dornbusch (1976), a study demonstrating that sticky nominal output prices can induce overshooting behaviour in exchange rates.

[12] Bayoumi (1994) provides a formal OCA model with microeconomic foundations and Melitz (1995) developed a theory on optimum currency area based on the idea of selecting monetary union partners with which the covariances of equilibrium real exchange rates is low. His model has been extended to compare choices between regimes of pegged rates, currency boards and dollarization. In addition, Alesina and Barro (2002) and Alesina *et al*. (2002) examined theoretically and empirically the determinants of OCAs. While Edwards (2006) evaluated optimal currency area criteria from a Latin American perspective, and Tavlas (2009) presents a critical survey on the benefits and costs of a common currency area in Southern Africa.

and argues that small and open economies are more likely to adopt fixed exchange rate regimes than large and relatively closed economies[13].

In the same way, Kenen (1969) argued that product diversification in trade should be considered a major determinant of whether an area should adopt a fixed exchange rate regime or not. A country is more likely to adopt a fixed exchange rate regime if its trade is heavily concentrated on a particular currency area. Kenen (1969) also suggests that countries with very concentrated production structures are more likely to adopt flexible exchange rates than countries with highly diversified production, as exchange rate changes are almost equivalent to changes in the relative output prices and are, therefore, more useful to cope with the demand shocks from the former. In general, the OCA theory suggests that countries which are highly integrated with each other in terms of trade and other economic and political relations, as well as those with a high degree of symmetry in their business cycles, are likely to constitute an OCA[14].

The collapse of the Bretton Woods system in 1973 set the stage for more diversified choices in exchange rate regimes (from pure floats through many intermediate arrangements to hard pegs like currency boards, dollarization, and currency unions), and opened the door to modern literature on the subject of exchange rate regime selection. A part of this literature emphasises the credibility aspects of monetary policy and exchange rate regimes mainly to combating inflation and avoiding financial crises.

The environment of high inflation in many countries at the end of the 1970s and during the 1980s introduced a new approach to exchange rate selection, focused on the transmission of inflation between countries and the use of exchange rate policies to achieve low inflation rates. Building on the theory developed by Barro and Gordon (1983a,b) on monetary policy credibility, some of the literature of the 1980s developed the idea that a fixed exchange rate could help import credibility of low inflationary policies from a foreign central bank[15]. Numerous authors emphasised the credibility gains from adopting a peg arrangement (Giavazzi and Giovannini, 1989; Dornbusch, 2001; among others). The main argument in favour of fixed rates is their ability to induce discipline and make the monetary policy more credible because the adoption of lax monetary (and fiscal) policies would eventually lead to an exhaustion of reserves and the collapse of the fixed exchange rate system, thus implying a big political cost for policy-makers. In the same way, some empirical studies introduced considerations on optimal macroeconomic stabilisation, adding proxies for various types of shocks (see, for example, Melvin, 1985; Savvides, 1990, 1993). These authors find that the presence of domestic nominal shocks raises the likelihood of a currency peg, while real shocks reduce it.

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[13] Some authors point out that foreign shocks are more important in countries that are more open, increasing the appeal of floating rates as a shock absorber (Mussa *et al.*, 2000).

[14] Additional OCA criteria, such as the degree of labour mobility, wage flexibility or the existence of fiscal transfers among the members, relate to the cost of processing the necessary adjustments in the case of asymmetric shocks among member countries when independent monetary policy has been foregone.

[15] Velasco (1996) presents a survey on the sustainability of fixed exchange rates considering a dynamic version of the Barro and Gordon framework, and Benigno and Missale (2004) present an open economy version of the Barro and Gordon model.

On the contrary, another line of research supporting the floating exchange rate was initiated in the late 1970s. This line is based on the theoretical work on credibility and time-inconsistency of Kyndland and Prescott (1977). According to this approach, floating regimes provide maximum discretion for monetary policy, but discretion comes with the problem of time-inconsistency. That is, if a government tends to misuse its discretion and cannot keep its promise of low inflation today, it will be difficult to get people to believe its future policy announcements. As a result, governmental restraints need to be established to ensure that discretion is not misused and economic policies are consistent and sustainable, so as to avoid episodes of inflation. Therefore, designing a set of domestic institutions that will produce low inflation and long run expectations of low inflation is consistent with the monetary independence associated with floating exchange rates (Svensson, 2000). Factoring in various institutional and historical characteristics like independence of the central bank, several hypotheses were then developed as an approach to the exchange rate regime selection (Cukierman et al., 1992; Tornell and Velasco, 1995). The idea is that, independent central banks' use of inflation targeting probably solves the time-inconsistency problem, bringing credibility for monetary policy without abandoning the floating exchange rate (Larraín and Velasco, 2001). Similarly, countries with a history of high inflation could adopt a fixed exchange rate regime or a currency board, but without the appropriate fiscal institutions, it would not be enough to secure credibility. The attraction to a pegging regime would be lowered as the degree of independence afforded to the central bank increases (Rogoff, 1985). Other studies have emphasised the trade-off between credibility and flexibility (Rogoff, 1985; Edwards, 1996; Frankel, 1996). According to this argument, a flexible regime allows a country to have an independent monetary policy, providing the flexibility to accommodate domestic and foreign shocks, while a fixed exchange rate regime reduces the degree of flexibility to accommodate such shocks, but imparts a higher degree of credibility (Giavazzi and Pagano, 1988; Mendoza, 2001).

More recent theoretical and empirical literature considers the influence of political variables on exchange rate regime choices. This approach to exchange rate determination uses exchange rate rules as a policy crutch in credibility-challenged economies[16]. The policy crutch is intimately related to the credibility gains from adopting a fixed regime when countries have a weak institutional credibility. Governments with a low inflation bias but low institutional credibility have a difficulty in convincing the public of their commitment to nominal stability, and may adopt a fixed exchange rate as a policy crutch to reduce inflationary expectations. In addition, some authors argue that a fixed exchange rate disciplines the government because any fiscal excess might result in a currency crisis (Aghevli et al., 1991; Levy-Yeyati et al., 2010). Conversely, other researchers suggest that a flexible exchange rate system has advantages from a political economy perspective, as flexible rates lower the political costs of exchange rate changes (Aghevli et al., 1991; Edwards, 1996; Edwards and Savastano, 1999; Poirson, 2002). Poirson (2002) points out that when a country lacking political

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[16]   The precursors are based on Barro and Gordon (1983b).

stability has an incentive, *ceteris paribus*, to let its exchange rate float, it would be difficult for the government to gather support for the unpopular measures that may be required to defend a fixed regime. Edwards (1996) introduces variables that measure the degree of political stability and the strength of the government. He finds that weaker governments and political instability tend to increase the likelihood of flexible exchange rate regimes. His results contradict the policy crutch approach. Similarly, Berdiev *et al.* (2012) provide evidence that government ideology, political institutions and globalization are important determinants of the choice of exchange rate regimes. Particularly, they find that left-wing governments, democratic institutions, central bank independence and financial development increase the likelihood of choosing a flexible regime, whereas more globalized countries have a higher probability of implementing a fixed regime. In contrast, Bird *et al*. (2012) find that selected political variables are generally insignificant in affecting shifts in exchange rate regimes, although political variables may influence the size of shifts, once they happen.

Moreover, the issue of exchange rate regime selection has also been analysed from a point of view incorporating their influence on economic performance, mainly its impact on inflation and growth (Ghosh *et al*., 1997, 2002; Rogoff *et al*., 2003; Levy-Yeyati and Sturzenegger, 2001, 2003b; Bailliu *et al*., 2001, 2003; Husain *et al*., 2005; De Grauwe and Schnabl, 2005; Bleaney and Francisco, 2007, among others). Earlier studies indicate that, compared to floating regimes, pegged exchange rate regimes are associated with lower inflation and slightly lower output growth. In addition, some research suggests that countries with fixed exchange rates can achieve price stability, but that this presents some problems reaching other macroeconomic objectives, particularly fiscal balance, competitiveness, and growth (Nashashibi and Bazzoni, 1993). More recently, some studies found that pegged regimes posed no significant impact on inflation but confirmed the lower correlation between pegged regimes and per capita output growth.

On the other hand, many empirical studies took into account the level of a country's debt, the ability of a country to borrow in its domestic currency, and international reserves for the selection of an exchange rate system. However, the results of these empirical studies are not robust in terms of the choice of an exchange rate regime (Juhn and Mauro, 2002; Velasco, 1996; Benigno and Missale, 2004). In that order, the balance sheet exposure of exchange rate changes in financially dollarized economies has been studied by recent literature (Calvo and Reinhart, 2001; Calvo, 2001). Effects on the balance sheet in financially dollarized economies are particularly relevant in countries with important foreign liabilities (private or public), because they may be more prone to fixed regimes (either *de jure* or *de facto*) owing to the inherent currency imbalance and the deleterious impact of pointed nominal depreciation in the currency on the solvency of financial institutions (Levy-Yeyati *et al*., 2010).

The optimal choice of an exchange rate regime has been analysed from the point of view of fiscal policy sustainability. The exchange rate regime plays an important role in determining external debt and debt service burden, as well as the sustainability of both. Firstly, because of its direct effect on their size and, secondly, because of its effect on competitiveness and growth, particularly in developing countries which have a large amount of debt denominated in a foreign currency (Tornell and Velasco, 1994;

Calvo *et al*., 2003). Large depreciations lead to a growth in public sector debt and to substantial deteriorations in the sustainability of fiscal positions. Early literature suggests that fixed exchange rate regimes provide more fiscal discipline than flexible exchange regimes, since fiscal profligacy is deterred by the risk of losses in foreign reserves or the build-up of public debt. However, in countries with a pegged exchange rate and a tax base highly dependent on international trade, an overvaluation of the real exchange rate would tend to undermine tax revenues and results in a widening of the fiscal deficit (Tanzi, 1977; Nashashibi and Bazzoni, 1993). Furthermore, some authors explore the hypothesis that the selection of an exchange rate regime following a sudden stop in capital flows may be influenced by fiscal costs (Calvo *et al*., 2003; Galindo and Izquierdo, 2003).

Until recent years, many studies favoured intermediate regimes (e.g. adjustable pegs and exchange rate bands) as an optimal choice in the face of the presumably dominant trade-off between credibility (associated with fixed exchange rates) and flexibility (associated with floating regimes). However, the general trend towards full or large capital mobility has shifted attention on to the implications of capital movements in the choice of exchange rate regimes[17]. The currency crises of the 1990s (European Monetary System in 1992, Mexico in 1994, East Asia in 1997, Russia in 1998, Brazil in 1999, Turkey and Argentina in 2001) involved combinations of some form of intermediate exchange rates with high capital mobility (Hausmann *et al*., 1999)[18]. Such combinations are exposed to speculative attacks resulting from fundamental policy inconsistencies (Krugman, 1979) or self-fulfilling expectations that arise in the context of multiple equilibriums (Obstfeld, 1996)[19]. Some authors highlight the inconsistency between fiscal policy fundamentals and the exchange rate peg that leads to currency crises (De Kock and Grilli, 1993; Daniel, 1997, 2001; Corsetti and Mackowiak, 2005, among others). On the other hand, several studies suggest that countries exposed to large capital flows (countries with an open capital account) must avoid unstable exchange rate regimes and are left with two corner solutions: a hard currency peg (such as a currency board, dollarization or monetary union)[20] or pure floating exchange rate regimes. This point of view has been called

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[17] In the 1990s, two major trends changed the conventional analysis of optimal exchange rates. Firstly, surges in capital flows once again led to the rapid growth of debt stocks in emerging economies and secondly, the type of flows changed substantially, as initially the most significant part of these increasing flows (and debts) were portfolio flows. When these flows started to decline (after 1998), foreign investment flows become dominant.

[18] Early studies of Holden *et al.* (1979) point out that higher capital mobility increases the likelihood of fixing the exchange rate.

[19] Important factors that reduce the risk of speculative attacks are the availability of foreign currency reserves to defend a fixed exchange rate, and the consistency of macroeconomic policies. Sustainable public finances are a key factor in this regard.

[20] It is worth noting from the outset that a monetary union and dollarization are conceptually distinct, a monetary union involves the establishment of a new central bank that can be administered by representatives from all the countries using the new transnational currency while dollarization, in contrast, implies the adoption of the currency of another country.

the "hollow-out hypothesis" or the "bipolar view"[21] (Eichengreen, 1994; Obstfeld and Rogoff, 1995; Fischer, 2001).

Over the course of the 1990s, the bipolar view has become a new orthodoxy in the selection of an exchange rate regime. Some empirical research points out that, since the early 1990s, there has been a continuous fall in the number of countries that maintain some type of intermediate exchange rate regime, and a continuing rise in the number of countries with both pure floating rates and hard pegs. This polarisation has led some authors to conclude that intermediate exchange rate regimes in countries open to international capital flows (with open capital accounts) or integrating their domestic capital markets with global capital markets are not sustainable for extended periods, and that these countries should move away from the middle towards both extremes of the exchange rate spectrum (Eichengreen, 1994; Obstfeld and Rogoff, 1995). Hence, they must either float freely or fix truly and thus find credibility under a hard peg regime[22].

The first empirical work on the bipolar view was undertaken in Caramazza and Aziz (1998). These authors point out that 87% of developing countries had some type of pegged exchange rate in 1975, but that this proportion fell to well below 50% in 1996. They also suggest that countries in the 1990s opted more for flexible exchange rates than hard pegs. Similarly, Fischer (2001) documented the case for the hollowing-out hypothesis or bipolar view by examining the evolution of exchange rate regimes in a large sample of countries for over the period between 1991 and 1999. His work shows a trend in moving away from intermediate regimes towards floating regimes, but there is no evidence to suggest that the intermediate exchange rate regime is disappearing, except for industrialised countries. Nonetheless, such increase in the number of pegs in industrialised countries (from 5% to 50%) in the 1990s is mainly related to the introduction of the Euro Zone and some transitional economies (see Rogoff *et al*., 2003).

On the other hand, the study developed by Fischer (2001) indicates that the number of emerging market countries with intermediate regimes declined from 21 countries (64%) in 1991 to 14 countries (42%) in 1999. Likewise, the number of developing countries with intermediate exchange rate regimes decreased from 62 countries (59%) to 48 countries (36%) in the same periods. In both cases, the increase in floating was more important than fixed regimes. However, the work developed by Fischer (2001), like most studies on exchange rate regimes up until that moment, is based on the *de jure* scheme or the official classification of exchange rate regimes. On the contrary, some empirical studies using the *de facto* classification had no founded support for the bipolar view (Masson, 2001; Bubula and Otker-Rober, 2002; Rogoff *et al*., 2003; Bérnassy-Quéré *et al*., 2006). Bubula and Otker-Rober (2002), using a monthly database on IMF *de facto* classifications, find that intermediate regimes have been more prevalent than suggested by the *de jure* classification in the period between

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[21] It is also referred to as the missing middle, or the hypothesis of the vanishing intermediate regime.
[22] Some studies indicate that the currency crises of the 1990s and increasing capital mobility brought the impossible trinity hypothesis to the forefront and resulted in the bipolar view of exchange rate regimes (Fischer, 2001).

1990-2001. While Levy-Yeyati and Sturzenergger (2005), using their own *de facto* classification, find evidence of the bipolar view during the 1990s, but not for countries with limited access to capital markets. According to their study, there is a reduction in the number of countries using intermediate exchange rates from 62% in 1991 to 32% in 2000. Nonetheless, the authors find important representations in each of the three categories (fixed, intermediate, and floating). Their results also suggest that the recent increase in the number of *de jure* floats goes hand in hand with an increase in the number of the *de facto* dirty float (fear of floating). On the contrary, Bérnassy-Quéré *et al.* (2006), using their own *de facto* classification, find that intermediate regimes have been declining after the 1997-1998 crisis, but only to the benefit of hard pegs, not of free floating regimes. However, the decline of intermediate exchange rate can be explained by the launch of the European Monetary Union. These authors show that when Euro Area countries have been removed from the analysis, the proportions of free floats, intermediate regimes and hard pegs remain almost the same before and after the crises. Similarly, McKinnon and Schnabl (2004) show for the post-crisis East Asian countries that exchange rates are much less flexible than suggested by IMF classifications.

In addition, Bird and Rowlands (2005), using a *de facto* classification, examine the link between exchange rate regimes and IMF programmes (as a proxy to the balance of payment difficulties) and find strong evidence suggesting that countries with intermediate exchange rate regimes are less likely to go to the IMF than others. Moreover, the results provided by Combes *et al.* (2012) reject that intermediate regimes are more vulnerable to crises compared to the hard peg and the fully floating regimes.

On the other hand, Frankel (1999) stressed that the relative difficulty in verifying intermediate regimes, particularly broad band regimes pegged to a basket of currencies, is also a critical factor in explaining why intermediate regimes are less viable than corner solutions. In addition, some authors suggest that intermediate regimes are, and will continue to be, a viable option especially for emerging markets (Frankel, 1999; Frankel, 2003; Williamson, 2000; Masson, 2001; Bubula and Otker-Rober, 2002; Husain *et al.*, 2005)[23]. Moreover, Willett (2002) affirms that it is possible for intermediate exchange rate regimes to remain stable, but this requires exchange rates and domestic macroeconomic policies to be mutually determined in a consistent manner, and Bérnassy-Quéré and Coeuré (2002) illustrate how intermediate exchange rate regimes are potentially superior when there is a trade-off between stabilisation and disinflation. Notwithstanding, dollarization has perhaps become the leading theoretical and policy debate of the past ten years (Calvo, 1999, 2001; Hausmann and Powell, 1999; Calvo and Reinhart, 2001; Alesina and Barro, 2001; Dornbusch, 2001; Edwards, 2001). An important part of the modern literature on exchange rate regimes with particular focus on central bank credibility considers the adoption of a foreign

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[23] Williamson (2000) proposed alternative crawling band regimes satisfying the BBC rules: Basket, Band, and Crawl.

currency (dollarization) as a means to buying a credible policy of price stability[24]. Dollarization also eliminates the role of short-run discretionary government policies that can give rise to inconsistencies in other policies, and further avoids speculative attacks and currency crises[25]. Dollarization can be viewed as the extension to a fixed exchange rate regime, to the point where the possibility of parity changes is ruled out completely[26].

The OCA criteria developed by Mundell (1961), McKinnon (1963) and Kenen (1969) are the basis for countries to evaluate the adoption of dollarization (although the context is different from the original application of the OCA theory)[27]. In addition, other studies have discussed the dollarization in terms of a dynamic general equilibrium framework (Mendoza, 2001; Schmitt-Grohé and Uribe, 2001). Dollarization leads to lower inflation and real interest rates, but its impact on economic growth is not as clear (Edwards, 2001; Edwards and Magendzo, 2001, 2003b). Edwards and Magendzo (2003a) find that currency unions and dollarized countries have lower inflation than countries with a domestic currency, but dollarized countries have lower growth and higher volatility than countries with a domestic currency, while currency unions have a higher growth and a higher volatility than countries with their own currencies[28].

In summary, in classic literature, the relative incidence of nominal and real shocks becomes a key criterion in the selection of an exchange rate regime. The issue stressed in modern literature takes two paths, while researchers in the 1980s concentrated on studying the implications of exchange rate regimes as stabilisation instruments or as credibility enhancers, in recent years the debate has focused on how different regimes may act as external shock absorbers or provide a shield against speculative attacks.

III. ASSESSING EXCHANGE RATE REGIMES

In this section, more recent empirical approaches used to evaluate the selection of an optimal exchange regime are reviewed. In general, there are three main approaches: economic performance, currency crisis, and optimal currency area criterion.

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[24] For a discussion on the pros and cons of dollarization see Alesina and Barro (2002); Chang and Velasco (2003); Levy-Yeyati and Sturzenegger (2003a); Berg and Borensztein (2003), and Larraín and Tavares (2003), among others.

[25] For a discussion on the conditions under which emerging countries will benefit from giving up their currency see Mendoza (2002) and Alesina et al. (2002).

[26] The choice of dollarization is considered to involve a trade-off between credibility and flexibility.

[27] OCA issues defined the debates that led to the European Monetary Union. However, the focus of the dollarization debate in developing economies differs substantially from that of the European Monetary Union debate.

[28] Countries that are smaller in size and have deeper trade linkages are more likely to adopt pegs or dollarization (Calderón and Schmidt-Hebbel, 2005; Iman, 2010).

3.1. Economic Performance Criterion

Since inflation and growth may influence a government's choice of exchange rate regimes, some empirical studies have attempted to explain the impact of exchange rate regimes on economic performance. This empirical analysis can be grouped under two categories: country-specific studies and multi-country studies. Country-specific investigations have had a difficult time unravelling the independent effects of the nominal exchange rate regime on macroeconomic performance: the detection of regularity associated with a particular regime in one study was followed by a counter example in another study. Multi-country studies have also found it difficult to make generalisations. Ghosh *et al.* (1997); Ghosh *et al.* (2002); Levy-Yeyati and Sturzenegger (2001, 2003b); Rogoff *et al.* (2003); Husain *et al.* (2005); De Grauwe and Schnabl (2005); Coudert and Dubert (2005); Bleaney and Francisco (2007); Petreski (2009), and Klein and Shambaugh (2010) conducted comprehensive multi-country studies.

Ghosh *et al.* (1997) examine the effects of the nominal exchange rate regime on inflation and economic growth using data from 135 countries during the period of 1960-1989. Their results suggest that both the level and variability of inflation is markedly lower under fixed exchange rates than under floating exchange rates. However, their study fails to find a robust link between growth and exchange arrangements. Similarly, Ghosh *et al.* (2002) confirmed that there is a negative association between fixed exchange rate regimes and inflation, but they do not find evidence of a strong link between exchange rate regimes and economic growth. Conversely, Levy-Yeyati and Sturzenegger (2001, 2003b) demonstrate that developing countries with pegged regimes are associated with lower inflation than developing countries using floating arrangements, but that pegged regimes are associated with slower growth.

Rogoff *et al.* (2003) study the link between exchange rate regimes and economic performance. Their results suggest that, for countries at a relatively early stage of financial development and integration, fixed or relatively rigid regimes appear to offer some anti-inflation credibility gain without compromising growth objectives. On the contrary, for developed countries that are not in a currency union, relatively flexible exchange rate regimes appear to offer higher growth without any cost to credibility.

On the other hand, Husain *et al.* (2005) find that developing countries adopting fixed exchange rates present lower inflation than developing countries with flexible rates. Similarly, De Grauwe and Schnabl (2005) analyse the impact of the exchange rate regime on inflation and output in South Eastern and Central Europe for the period 1994-2004. Their results reveal a significant impact of fixed exchange rates on low inflation as well as a highly significant positive impact of exchange stability on real growth. Also, Coudert and Dubert (2005) analyze interesting aspects of the *de facto* regimes followed by major Asian countries over the period 1990-2001. Their results show that pegs are associated with weaker growth than floating exchange rate regimes, while fixed exchange rate regimes are associated with better performances in terms of inflation.

In the same way, Bleaney and Francisco (2007) examine the relationship between exchange rate, inflation and growth in 91 developing countries over the period 1984-2001. They distinguish between three exchange rate regime categories: floats, easily adjustable peg (soft peg) and those where adjustment is harder (hard pegs, defined by use of a shared currency or a currency board system). Their results suggest that floats have growth rates similar to soft pegs and only slightly higher inflation; while hard pegs have lower inflation and slower growth than other regimes. Moreover, Petreski (2009) investigate the relationship between exchange rate regime and economic growth in 169 countries covering the period 1976-2006, but his results show that the exchange rate regime is not statistically significant in explaining growth. Observation of *de facto* versus *de jure* regime doesn't matter either. Similarly, Klein and Shambaugh (2010) study the effects of the exchange rate regime on inflation and economic growth. Their results suggest that pegged exchange rates can help discipline policy in a way the can temper inflation. Also, it supports the view that there is little impact of exchange rate regime on long-run growth.

3.2. Currency Crises Criterion

Early empirical research on currency crises focuses on the description of stylised facts regarding the period preceding the currency crisis, or on testing specific theoretical models of crises using standard econometric methods (signalling approach). However, more recent empirical studies go beyond explaining the causes of a currency crisis. They do not differentiate between various indicators, but consider a wide range of variables that can help in constructing a system for predicting a currency crisis.

Numerous empirical analyses use the technique of a discrete dependent variable (probit and logit) associated with a set of exogenous continuous variables in a currency crisis. While the dependent variable of a currency crisis remains a binary or multinomial variable, the independent variables are continuous. This approach provides the possibility for evaluating a formal model of the relationships between various indicators including exchange rate arrangements and the discrete occurrence of a currency crisis. The prediction model is simply interpreted as the probability of a currency crisis occurrence. Eichengreen *et al*. (1996) were among the first to use a probit regression; they applied it to data obtained on twenty industrialised countries in the period 1959-1993 in order to empirically identify the determinants of a currency crisis. One of the most important novelties introduced in their analysis is the contagion effect. These authors also use the definition of a currency crisis based on an index of speculative pressure.

Frankel and Rose (1996) applied probit regressions to yearly data for 100 developing countries over the period 1971-1992 and defined a currency crisis that only assumes the occurrence of successful speculative attacks. In addition, an important amount of subsequent research applied the binomial probit model, but these empirical analyses differed in the choice of indicators, the sample of countries, the definition of a currency crisis, the prognostic time horizon and the frequency of used data. However, some authors argue that non-ordered multinomial approaches are preferable than binary or ordered choice structures. Von Hagen and Zhou (2007) analyse the choices of

exchange rate regimes in developing countries using a non-ordered multinomial framework. The authors found that currency-crises risks variables are determinants of exchange-rate regimes. In the same way, Asici (2011) applied a multinomial logit framework to 163 developed and developing countries over the period from 1990 to 2007. His regression results suggest that countries experiencing crisis are those that have chosen regimes inconsistent with their individual features.

On the other hand, numerous empirical studies have argued that probit and logit models tend to lead to a limited definition of currency crises. Those authors have tried to resolve the problems inherent in the signalling approach and the discrete choice approach of currency crises using alternative models (Cerra and Saxena, 2002; Martinez Peria, 2002; Abiad, 2003; Arias and Erlandsson, 2005; Chen, 2005). Jeanne and Masson (2000) and Fratzscher (2002), among others, use the Markov-switching model developed by Hamilton (1990) in order to encompass the possibility of multiple equilibriums. The contributions of these models, in comparison to the models using the index of speculative pressure, is that the parameters evaluated in the model and the data obtained reveal the state of the economy, so the model does not depend on an arbitrary decision on the time of onset of the currency crisis, based on the signal provided by the index of speculative pressure. Similarly, a significant part of contemporary literature on the subject focuses on improving Hamiltons' framework to allow Time-Varying Transition Probabilities (TVTP) to study currency crises (Cerra and Saxena, 2002; Martinez Peria 2002; Abiad 2003; among others).

In addition, Abiad (2003); Arias and Erlandsson (2005), Chen (2005) and Cruz-Rodríguez (2011), among others, construct early warning systems using a Markov-switching model with time-varying transition probabilities to help predict currency crises.

3.3. OCA Criterion

The theory on Optimal Currency Area (OCA) (Mundell, 1961) seeks to organise the economic considerations that motivate the choice of an exchange rate regime[29]. The OCA criterion argues that the symmetry of business cycles is an important argument for a common currency. An important part of empirical literature uses Structural Vector Autoregressions (SVAR) to measure the degree of synchronisations (symmetries) in business cycles and the contemporaneous correlation of shocks between countries. An interesting finding in papers using the structural VAR methodology is that results can differ, whether the focus is on the correlation of shocks or business cycles. Another part of empirical literature has looked at measures in business cycle synchronicity and at tests for the presence of common features or common cycles. Markov-switching ARs and VARs have also proved useful tools, following the work developed by Hamilton (1989) and Krolzig (1997); this procedure can also be used to identify a common cycle (Artis *et al*., 2004). The estimate of the so-called classical cycle, as distinct from the growth cycle, has also been carried out and is now making a comeback.

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[29]   See Dreyer (1978) and Heller (1978) for early empirical work on the OCA approach.

In summary, the literature on the subject suggests that links between exchange regimes, macroeconomic performance, and currency crises could be good indicators in determining the choice of an exchange rate regime. Establishing links between countries' exchange rate regimes and their macroeconomic performance will, of course, depend on whether those exchange rate regimes are classified as *de jure* or *de facto*. This is particularly true for emerging and developing countries where the *de jure* announcement to float, for example, has been known to not typically resemble a *de facto* fully floating exchange rate.

IV. CONCLUSION

The literature on the selection of exchange rate regimes can be divided into two main groups: classical and modern. Classical literature refers to earlier studies which examined systematic differences between floating and fixed exchange rate regimes. The analysis in these studies is closely related to the literature on the choice between fixed and flexible regimes. Firstly, on the nature of the shocks generated by changes in trade flows and by a deterioration in the terms of trade, and secondly, on the optimal currency area theory. This period was characterised by strict controls on capital flows, relatively stable exchange rates, low inflation, high growth and a rapid increase in trade.

The breakdown of the Bretton Woods system, the periods of high inflation in the 1970s and 1980s, and the currency crises that occurred in the international financial market in the 1980s and 1990s led to a second significant development in this literature. The relevance of the exchange rate regime for macroeconomic performance became a key issue in international macroeconomics and the choice between alternative regimes focused on the trade-off between credibility and flexibility.

The financial deregulation in domestic economies and the reductions of barriers to financial flows initiated in the 1970s took the form of rapidly expanding financial flows among mature economies and, later, between them and developing economies. The debate on exchange rate regimes has become increasingly concerned with the need to mitigate the potential deleterious effects of abrupt changes in the direction of capital flows, and hence with the question of exchange rate regime sustainability and credibility of domestic policies. The succession of currency crises in the second half of the 1990s has led to a polarisation in the exchange rate regime debate between what has come to be known as a "bipolar view" or "corner solution". However, the evidence found in this literature reveals that the popularity of intermediate regimes declined in the 1990s. It is unclear at this point whether they are in the process of becoming extinct. In effect, the stronger evidence for the bipolar view comes from industrialised countries where most have adopted exchange rate regimes at one end of the two extremes. However, for emerging and developing countries, intermediate regimes remain an option, though less so than a decade ago. Moreover, some studies using alternative classification schemes do not find important bipolar views, contrary to those studies based on official classifications.

An important part of the modern literature on exchange rate regimes, with particular focus on central bank credibility, considers that adopting a foreign currency (dollarization) buys a credible policy of price stability and avoids speculative attacks and currency crises. Some empirical evidence confirmed that dollarized countries have lower inflation than countries with a domestic currency, but that dollarized countries have lower growth and higher volatility than countries with a currency of their own. In this context of increasing capital flows and large external shocks, the exchange rate debate is focusing on the trade-off between inflation and growth.

To conclude, the empirical and theoretical literature on the relationship between the selection of exchange rate regimes, currency crises and fiscal stances has developed progressively in the post-war period, becoming clear that the choice of an optimal exchange rate regime is one of the most complicated issues addressed by economists today. This paper has examined the various exchange rate classifications and surveyed the theoretical and empirical literature on the selection of exchange rate regimes. While some consensus has appeared to take shape in terms of the theoretical debate on what determines the choice of an exchange rate regime; empirical evidence suggests that no such consensus exists.

REFERENCES

ABIAD, A. (2003). Early-Warning Systems: A survey and Regime-switching approach. *Working Paper* WP/03/32, International Monetary Fund.

AGHEVLI, B.B.; M.S. KHAN and P.J. MONTIEL (1991). Exchange rate policy in developing countries: Some analytical issues. *Occasional Paper* 78, International Monetary Fund.

ALESINA, A. and R.J. BARRO (2001). "Dollarization", *American Economic Review* 91 (2), pp. 381-385.

ALESINA, A. and R.J. BARRO (2002). "Currency Unions", *Quarterly Journal of Economics* 117 (2), pp. 409-436.

ALESINA, A.; R.J. BARRO and S. TENREYRO (2002). Optimal Currency Areas. *Working Paper* 9072. National Bureau of Economic Research.

ALESINA, A. and A. WAGNER (2006). "Choosing (and reneging on) exchange rate regimes", *Journal of the European Economic Association* 4 (4), pp. 770-799.

ARIAS, G. and U.G. ERLANDSSON (2005). Improving early warning systems with Markov Switching model. *Mimeo*, Lund University.

ARTIS, M.; H.-M. KROLZIG and J. TORO (2004). "The European business cycle", *Oxford Economic Papers* 56 (1), pp. 1-44.

ASICI, A.A. (2011). "Exchange rate regime choice and currency crises", *Economic Systems* 35 (3), pp. 419-436.

BAILLIU, J.; R. LAFRANCE and J.-F. PERRAULT (2001). Exchange Rate Regimes and Economic Growth in Emerging Markets. In *Revisiting the Case for Flexible Exchange Rates*, pp. 317-345. Bank of Canada.

BAILLIU, J.; R. LAFRANCE and J.-F. PERRAULT (2003). "Does exchange rate policy matter for growth", *International Finance* 6 (3), pp. 381-414.

BARAJAS, A.; L. ERICKSON and R. STEINER (2008). "Fear of declaring: Do markets care what countries say about their exchange rate policies?", *IMF Staff Papers* 55 (3), pp. 445-480.

BARRO, R.J. and D.B. GORDON (1983a). "A positive theory of monetary policy in a natural rate model", *Journal of Political Economy* 91, pp. 589-610.

BARRO, R.J. and D.B. GORDON (1983b). "Rules, discretion, and reputation in a model of monetary policy", *Journal of Monetary Economics* 12, pp. 101-121.

BAYOUMI, T. (1994). "A formal model of optimum currency areas", *IMF Staff Papers* 41 (4), pp. 537-554.

BENIGNO, P. and A. MISSALE (2004). "High public debt in currency crises: Fundamentals versus signaling effects", *Journal of International Money and Finance* 23, pp. 165-188.

BERDIEV, A.; Y. KIM and C.P. CHANG (2012). "The political economy of exchange rate regimes in developed and developing countries", *European Journal of Political Economy* 28 (1), pp. 38-53.

BERG, A. and E.R. BORENSZTEIN (2003). "The pros and cons of full dollarization", in Salvatore, D., J.W. Dean and T.D. Willet, editors, *The Dollarization Debate*, pp. 72-101. Oxford University Press.

BERNASSY-QUERE, A. and B. COEURE (2002). The survival of intermediate exchange rate regimes. *Working Paper* 2002-07, CEPII.

BERNASSY-QUERE, A.; B. COEURE and V. MIGNON (2006). "On the identification of *de facto* currency pegs", *Journal of the Japanese and International Economies* 20 (1), pp. 112-127.

BIRD, G. and D. ROWLANDS (2005). Bi-polar disorder: Exchange rate regimes, economic crises and the IMF. *Discussion Papers in Economics* DP 07/05, University of Surrey.

BIRD, G.; A. MANDILARAS and H. POPPER (2012). Explaining shifts in exchange rate regimes. *Discussion Papers in Economics* DP 13/12, University of Surrey.

BLEANEY, M. and M. FRANCISCO (2007). "Exchange rate regimes, inflation and growth in developing countries - An assessment", *The B. E. Journal of Macroeconomics* 7 (1), pp. 1-18.

BORDO, M.D. (2003). Exchange rate regimes choice in historical perspective. *Working Paper* WP/03/160, International Monetary Fund.

BOYER, R.S. (1978). "Optimal foreign exchange market intervention", *Journal of Political Economy* 86, pp. 1045-1055.

BRODA, C. (2004). "Terms of trade and exchange rate regimes in developing countries", *Journal of International Economics* 63 (1), pp. 31-58.

BUBULA, A. and I. OTKER-ROBER (2002). The evolution of exchange rate regimes since 1990: Evidence from de fact policies. *Working Paper* WP/02/155, International Monetary Fund.

CAGAN, P. (1956). "The monetary dynamics of hyperinflation", in Friedman, M., editor, *Studies in the Quantity Theory of Money*. Chicago: University of Chicago Press.

CALDERON, C. and K. SCHMIDT-HEBBEL (2005). Choosing and exchange rate regime. *Working Paper* 494, Central Bank of Chile.

CALVO, G. (1999). On dollarization. *Mimeo*, Department of Economics, University of Maryland.

CALVO, G. (2001). "Capital markets and the exchange rate: With special reference to the dollarization debate in Latin America", *Journal of Money, Credit, and Banking* 33 (2), pp. 30-45.

CALVO, G. and C. REINHART (2000). Fixing for your life. *Working Paper* 8006, National Bureau of Economic Research.

CALVO, G. and C. REINHART (2001). "Reflections on dollarization", in Alesina, A. and R.J. Barro, editors, *Currency Unions*, pp. 39-47. Stanford: Hoover Institution Press.

CALVO, G. and C. REINHART (2002). "Fear of Floating", *Quarterly Journal of Economics* 117 (2), pp. 379-408.

CALVO, G.; A. IZQUIERDO and E. TALVI (2003). Sudden stops, the real exchange rate and fiscal sustainability: Argentina's lessons. *Working Paper* 9828, National Bureau of Economic Research.

CARAMAZZA, F. and J. AZIZ (1998). Fixed or flexible? Getting the exchange rate right in the 1990s. *Economic Issues* 13, International Monetary Fund.

CERRA, V. and S.C. SAXENA (2002). "Contagion, monsoons, and domestic turmoil in Indonesia's currency crisis", *Review of International Economics* 10 (1), pp. 36-44.

CHANG, R. and A. VELASCO (2003). "Dollarization: Analytical issues", in Levy-Yeyati, E. and F. Sturzeneger, editors, *Dollarization: Debates and Policy Alternatives*. The MIT Press.

CHEN, C. (2005). How well can we predict currency crises? Evidence from three regime Markov-switching model. *Mimeo*, Department of Economics. University of California, Davis.

COMBES, J-L.; A. MINEA and M. SOW (2012). Crises and exchange rate regimes: Time to break down the bipolar view. *Mimeo*. School of Economics, University of Auvergne.

CORSETTI, G. and B. MACKOWIAK (2005). "A fiscal perspective on currency crises and the original sin", in Eichengreen, B. and R. Hausmann, editors, *Other People's Money: Debt Denomination and Financial Instability in emerging Market Economies*. The University of Chicago Press, Chicago.

COUDERT, V. and M. DUBERT (2005). "Does exchange rate regime explain differences in economic results for Asian countries?", *Journal of Asian Economics* 16 (5), pp. 874-895.

CRUZ-RODRIGUEZ, A. (2011). "Prediction of currency crises using a fiscal sustainability indicator", *Revista de Análisis Económico* 26 (2), pp. 39-60.

CUKIERMAN, A.; S.B. WEBB and B. NEYAPTI (1992). "Measuring the independence of Central Banks and its effects on policy outcomes", *World Bank Economic Review* 6, pp. 353-398.

DANIEL, B.C. (1997). Fiscal policy and the predictability of exchange rate collapse. *Working Paper* WP/97/133, International Monetary Fund.

DANIEL, B.C. (2001). "A fiscal theory of currency crises", *International Economic Review* 42 (4), pp. 969-988.

DE GRAUWE, P. and G. SCHNABL (2005). "Exchange rate stability, inflation and growth in (South) Eastern and Central Europe", *Review of Development Economics* 12 (3), pp. 530-549.

DE KOCK, G. and V. GRILLI (1993). "Fiscal policies and the choice of exchange rate regime", *The Economic Journal* 103, pp. 347-358.

DORNBUSCH, R. (1976). "Expectations and exchange rate dynamics", *Journal of Political Economy* 84, pp. 1161-1176.

DORNBUSCH, R. (2001). Fewer monies, better monies. *Working Paper* 8324, National Bureau Economic Research.

DREYER, J.S. (1978). "Determinants of exchange rate regimes for currencies of developing countries: Some preliminary results", *World Development* 6, pp. 437-445.

DUBAS, J.M.; B.-J. LEE and N.C. MARK (2005). Effective exchange rate classifications and growth. *Working Paper* 11272, National Bureau of Economic Research.

EDWARDS, S. (1996). The determinants of choice between fixed and flexible exchange rate regimes. *Working Paper* 5756, National Bureau Economic Research.

EDWARDS, S. (2001). "Dollarizations myths and realities", *Journal of Policy Modeling* 23 (2), pp. 249-265.

EDWARDS, S. (2006). "Monetary unions, external shocks and economic performance: A Latin American perspective", *International Economics and Economic Policy* 3 (3-4), pp. 225-247.

EDWARDS, S. and I. MAGENDZO (2001). Dollarization, inflation and growth. *Working Paper* 8671, National Bureau Economic Research.

EDWARDS, S. and I. MAGENDZO (2003a). A currency of one's own? An empirical investigation on dollarization and independent currency unions. *Working Paper* 9514, National Bureau Economic Research.

EDWARDS, S. and I. MAGENDZO (2003b). Strict dollarization and economic performance: An empirical investigation. *Working Paper* 9820, National Bureau Economic Research.

EDWARDS, S. and M. SAVASTANO (1999). Exchange rates in emerging economies: What do we know? What do we need to know? *Working Paper* 7228, National Bureau Economic Research.

EICHENGREEN, B. (1994). *International Monetary Arrangements for the 21st Century*. Brooking Institution, Washington, D.C.

EICHENGREEN, B.; A.K. ROSE and C. WYPLOSZ (1996). "Contagious currency crises: First tests", *Scandinavian Journal of Economics* 98, pp. 463-484.

FISCHER, S. (2001). "Exchange rate regimes: Is the bipolar view correct?", *Finance & Development* 38 (2).

FLEMING, M.J. (1962). "Domestic financial policies under fixed and under floating exchange rates", *IMF Staff Paper* 9, pp. 369-379.

FRANKEL, J.A. (1996). The endogeneity of the Optimal Currency Area criteria. *Working Paper* 5700, National Bureau of Economic Research.

FRANKEL, J.A. (1999). No single currency regime is right for all countries or at all times. *Essays in International Finance* 215, Princeton University.

FRANKEL, J.A. (2003). Experience of and lessons from exchange rate regimes in Emerging Economies. *Research Working Papers* RWP03-011, John F. Kennedy School of Government, Harvard University.

FRANKEL, J.A. and A.K. ROSE (1996). "Currency crashes in emerging markets: An empirical treatment", *Journal of International Economics* 41, pp. 351-366.

FRANKEL, J. and S.-J. WEI (2008). "Estimation of *de facto* exchange rate regimes: Synthesis of the techniques for inferring flexibility and basket weights", *IMF Staff Papers* 55 (3), pp. 384-416.

FRATZSCHER, M. (2002). On currency crises and contagion. *Working Paper Series* 139, European Central Bank.

FRENKEL, R. and M. RAPETTI (2012). "Exchange rate regimes in the major Latin American countries since 1950s: Lessons from history", *Revista de Historia Económica* 30 (1), pp. 157-188.

FRIEDMAN, M. (1953). "Choice, chance, and the personal distribution of income", *Journal of Political Economy* 61 (4), pp. 277-290.

GALINDO, A. and A. IZQUIERDO (2003). Sudden stops and exchange rate strategies in Latin America. *Working Paper* 484, Inter-American Development Bank.

GALLEGO, F. and G. JONES (2005). Exchange rate interventions and insurance: Is fear of floating a cause for concern? *Working Paper* 326, Central Bank of Chile.

GENBERG, H. and A.K. SWOBODA (2005). "Exchange rate regimes: Does what countries say matter?", *IMF Staff Papers* 52 (Special Issue), pp. 129-141.

GHOSH, A.R.; A.-M. GULDE; J.D. OSTRY and H. WOLF (1997). Does the nominal exchange rate regime matter? *Working Paper Series* 5874, National Bureau of Economic Research.

GHOSH, A.R.; A.-M. GULDE and H.C. WOLF (2002). *Exchange Rate Regimes: Choices and Consequences*. The MIT Press.

GIAVAZZI, F. and A. GIOVANNINI (1989). *Limiting Exchange Rate Flexibility*. Cambridge: The MIT Press.

GIAVAZZI, F. and M. PAGANO (1988). "The advantage of tying one's hands: EMS discipline and central bank credibility", *European Economic Review* 32, pp. 1055-1075.

HABERMEIER, K.; A. KOKENYNE; R. VEYRUNE and H. ANDERSON (2009). Revised system for the classification of exchange rate arrangements. *Working Paper* 09/211, International Monetary Fund.

HAMILTON, J.D. (1989). "Analysis of time series subject to changes in regimes", *Econometrica* 57 (2), pp. 357-384.

HAMILTON, J.D. (1990). "A new approach to the economic analysis of nonstationary time series and the business cycle", *Journal of Econometrics* 45, pp. 39-70.

HAUSMANN, R.; M. GAVIN; C. PAGES-SERRA and E. STEIN (1999). Financial turmoil and choice of exchange rate regimen. *Working Paper* 400, Inter-American Development Bank.

HAUSMANN, R. and A. POWELL (1999). Dollarization: Issues of implementation. *Mimeo*, Inter-American Development Bank.

HELLER, H.R. (1978). "Determinants of exchange rate practices", *Journal of Money, Credit, and Banking* 10, pp. 308-321.

HENDERSON, D.W. (1979). "Financial policies in open economies", *American Economic Review* 69 (2), pp. 232-239.

HOLDEN, P.; M. HOLDEN and E.C. SUSS (1979). "The determinants of exchange rate flexibility: An empirical investigation", *Review of Economics and Statistics* 61 (3), pp. 327-333.

HUSAIN, A.M.; A. MODY and K.S. ROGOFF (2005). "Exchange rate regime durability and performance in developing versus advanced economies", *Journal of Monetary Economics* 52, pp. 35-64.

IMAN, P. (2010). Exchange rate choices of microstates. *Working Paper* WP/10/12, International Monetary Fund.

IMF (1999). Exchange arrangements and currency convertibility: Developments and issues. *World Economic and Financial Surveys*, International Monetary Fund.

JEANNE, O. and P.R. MASSON (2000). "Currency crises, sunspots and Markov-switching regimes", *Journal of International Economics* 50, pp. 327-350.

JUHN, G. and P. MAURO (2002). Long-run determinants of exchange rate regimes: A simple sensitivity analysis. *Working Paper* 02/104, International Monetary Fund.

KENEN, P.B. (1969). "The theory of optimum currency areas: An eclectic view", in Mundell, R.A. and A.K. Swoboda, editors, *Monetary Problems of the International Economy*. The University of Chicago Press.

KLEIN, M.W. and J.C. SHAMBAUGH (2010). *Exchange Rate Regimes in the Modern Era*. The MIT Press.

KROLZIG, H.-M. (1997). International business cycles: Regime shifts in the stochastic process of economic growth. *Applied Economics Discussion Paper* 194, Department of Economics, Oxford University.

KRUGMAN, P. (1979). "A model of balance of payments crises", *Journal of Money, Credit and Banking* 11, pp. 311-325.

KYNDLAND, F.E. and E.C. PRESCOTT (1977). "Rules rather than discretion: The inconsistency of optimal plans", *Journal of Political Economy* 85, pp. 473-493.

LARRAIN, F. and A. VELASCO (2001). Exchange rate policy in emerging market economies: The case for floating. *Essays in International Finance* 224, Princeton University.

LARRAIN, F. and J. TAVARES (2003). "Regional currencies versus dollarization: Options for Asia and the Americas", *The Journal of Policy Reform* 6 (1), pp. 35-49.

LEVY-YEYATI, E. and F. STURZENEGGER (2001). "Exchange rate regimes and economic performance", *IMF Staff Paper* 47 (Special Issue), pp. 62-98.

LEVY-YEYATI, E. and F. STURZENERGGER (2002). A *de facto* classification of exchange rate regimes: A methodological note. *Mimeo*, Universidad Torcuato Di Tella.

LEVY-YEYATI, E. and F. STURZENEGGER (2003a). "Dollarization: A primer", in Levy-Yeyati, E. and F. Sturzeneger, editors, *Dollarization: Debates and Policy Alternatives*. The MIT Press.

LEVY-YEYATI, E. and F. STURZENEGGER (2003b). "To float or to fix: Evidence on the impact of exchange rate regimes on growth", *American Economic Review* 93 (4), pp. 1173-1193.

LEVY-YEYATI, E. and F. STURZENERGGER (2005). "Classifying exchange rate regimes: Deeds vs. words", *European Economic Review* 49, pp. 1603-1635.

LEVY-YEYATI, E.; F. STURZENEGGER and P.A. GLUZMANN (2013). "Fear of appreciation", *Journal of Development Economics* 101, pp. 233-247.

LEVY-YEYATI, E.; F. STURZENEGGER and I. REGGIO (2010). "On the endogeneity of exchange rate regimes", *European Economic Review* 54 (5), pp. 659-677.

MARTINEZ PERIA, M.S. (2002). "A Regime-switching approach to the study of speculative attacks: A focus on EMS crises", *Empirical Economics* 27 (2), pp. 299-334.

MASSON, P.R. (2001). "Exchange rate regime transition", *Journal of Development Economics* 64 (2), pp. 571-586.

McKINNON, R.I. (1963). "Optimum Currency Areas", *The American Economic Review* 53 (4), pp. 717-725.

McKINNON, R.I. (1981). "The exchange rate and macroeconomic policy: Changing postwar perceptions", *Journal of Economic Literature* 19 (2), pp. 531-537.

McKINNON, R. and G. SCHNABL (2004). "The East Asian dollar standard, fear of floating, and original sin", *Review of Development Economics* 8 (3), pp. 331-360.

MELITZ, J. (1995). "A suggested reformulation of the theory of Optimal Currency Areas", *Open Economies Review* 6, pp. 281-298.

MELVIN, M. (1985). "The choice of an exchange rate system and macroeconomic stability", *Journal of Money, Credit, and Banking* 17 (4), pp. 467-478. Part 1.

MENDOZA, E.G. (2001). "The benefits of dollarization when stabilization policy lacks credibility and financial markets are imperfect", *Journal of Money, Credit and Banking* 33, pp. 440-474. Part 2.

MENDOZA, E.G. (2002). Why should emerging economies give up national currencies: A case for institutions substitution. *Working Paper* 8950, National Bureau Economic Research.

MUNDELL, R.A. (1961). "A Theory of Optimum Currency Areas", *American Economic Review* 51 (4), pp. 657-665.

MUNDELL, R.A. (1963). "Capital mobility and stabilization policy under fixed and flexible exchange rates", *Canadian Journal of Economics and Political Science* 29, pp. 421-431.

MUSSA, M.; P. MASSON; A. SWOBODA; E. JADRESIC; P. MAURO and A. BERG (2000). Exchange rate regimes in an increasingly integrated world economy. *Occasional Paper* 193, International Monetary Fund.

NASHASHIBI, K. and S. BAZZONI (1993). Alternative exchange rate strategies and fiscal performance in Sub-Saharan Africa. *Working Paper* WP/93/68, International Monetary Fund.

NITITHANPRAPAS, I. and T.D. WILLETT (2002). Classifying exchange rate regimes. *Mimeo*, The Claremont Colleges.

OBSTFELD, M. (1996). "Models of currency crises with self-fulfilling features", *European Economic Review* 40, pp. 1037-1048.

OBSTFELD, M. and K. ROGOFF (1995). "The mirage of fixed exchange rates", *Journal of Economic Perspectives* 9 (Fall), pp. 73-96.

PETRESKI, M. (2009). Analysis of exchange-rate regime effect on growth: Theoretical channels and empirical evidence with panel data. *Economics Discussion Paper* #2009-49. Kiel Institute for the World Economy.

POIRSON, H. (2002). How do countries choose their exchange rate regime? *Working Paper* WP/01/46, International Monetary Fund.

POOLE, W. (1970). "Optimal choice of monetary policy instruments in a simple stochastic macro model", *Quarterly Journal of Economics* 84 (2), pp. 197-216.

RAMCHARAN, R. (2007). "Does the exchange rate regime matter for real shocks? Evidence from windstorms and earthquakes", *Journal of International Economics* 73 (1), pp. 31-47.

REINHART, C. and K.S. ROGOFF (2004). "The modern history of exchange rate arrangements: A reinterpretation", *Quarterly Journal of Economics* 119 (1), pp. 1-48.

ROGOFF, K.S. (1985). "The optimal degree of commitment to an intermediate monetary target", *Quarterly Journal of Economics* 100, pp. 1169-1190.

ROGOFF, K.S.; A.M. HUSAIN; A. MODY; R. BROOKS and N. OOMES (2003). Evolution and performance of exchange rate regimes. *Working Paper* WP/03/243, International Monetary Fund.

SAVVIDES, A. (1990). "Real exchange rate variability and the choice of exchange rate regime by developing countries", *Journal of International Money and Finance* 9, pp. 440-454.

SAVVIDES, A. (1993). "Pegging the exchange rate and the choice of a standard by LDCs: A joint formulation", *Journal of Economic Development* 18 (2), pp. 107-125.

SCHMITT-GROHE, S. and M. URIBE (2001). "Stabilization policy and the costs of dollarization", *Journal of Money, Credit, and Banking* 33 (2), pp. 482-509.

SHAMBAUGH, J.C. (2004). "The effect of fixed exchange rates on monetary policy", *Quarterly Journal of Economics* 119 (1), pp. 330-357.

SVENSSON, L. (2000). "Open economy inflation targeting", *Journal of International Economics* 50, pp. 155-183.

TANZI, V. (1977). "Inflation, lags in collection and the real value of tax revenue", *IMF Staff Paper* 24 (1), pp. 154-167.

TAVLAS, G.S. (2009). "The benefits and costs of monetary union in Southern Africa: A critical survey of the literature", *Journal of Economic Surveys* 23 (1), pp. 1-43.

TORNELL, A. and A. VELASCO (1994). Fiscal policy and the choice of exchange rate regime. *Working Paper* 303, Inter-American Development Bank.

TORNELL, A. and A. VELASCO (1995). Fixed versus flexible exchange rates: Which provides more fiscal discipline? *Working Paper* 5108, National Bureau of Economic Research.

VELASCO, A. (1996). "Fixed exchange rates: Credibility, flexibility and multiplicity", *European Economic Review* 40, pp. 1023-1035.

VON HAGEN, J. and J. ZHOU (2007). "The choice of exchange rate regimes in developing countries: A multinomial panel analysis", *Journal of International Money and Finance* 26 (7), pp. 1071-1094.

WICKHAM, P. (1985). "The choice of exchange rate regime in developing countries", *IMF Staff Paper* 32, pp. 248-288.

WILLETT, T.D. (2002). Fear of floating needn't imply fixed rates: Feasible options for intermediate exchange rate regimes. *Mimeo*, The Claremont Colleges.

WILLIAMSON, J. (2000). *Exchange Rate Regimes for Emerging Markets: Reviving the Intermediate Option*. Institute for International Economics. Washington, DC.