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Theoretical Controversies over Exchange Systems and Implications for an African Exchange Model

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Abstract

The choice of an exchange rate regime is of crucial importance in economic policy-decision making. The exchange rate can be set by the monetary authorities or it may fluctuate freely in accordance with the supply and demand for the currencies concerned. Between these two extreme alternatives, there exists an infinity of intermediary regimes. Does an exchange regime have a significant impact on the real economy of a region or a continent? The evolution of the international monetary system since the onset of the 20th century, just as the theoretical debate on the advantages and drawbacks of different exchange regimes, might bring some elements of response to the above question in the African context, without providing a clear-cut or definitive conclusion, however. The occurrence of successive financial and exchange crises since the last decade henceforth raises the issue of regulation of capital flows in African countries, as well as in other developing countries. Africa has to integrate these considerations if she hopes to determine which exchange system is suitable for her.

Keywords: Exchange Regimes, Economic policy, Regulation, Capital flows, Africa

Introduction

Fixed and floating exchange rate systems have succeeded one another and have even coexisted many times during the 20th century. However, although economists such as John Maynard Keynes and Milton Friedman have argued about the advantages and drawbacks of flexible exchange rates, this question remains decisive nowadays. The exchange rate is the operation of converting a national currency into a foreign currency or a conversion between foreign currencies. Among the infinity of intermediary exchange regimes, two alternatives emerge: fixed exchange rate regimes of floating exchange rate regimes.

In a fixed exchange rate system, the national currency of every member country is defined relative to a monetary standard (or key currency). This is about the official parity of currency. The ratio of official parities yields the bilateral parity of the currencies taken two at a time. An exchange rate system is said to be fixed if the exchange rate resulting from the interplay of exchange market forces does not move far away from the official parity, and hence from bilateral parities. This exchange rate stability may result from an automatic mechanism (gold standard) or from the discretionary interventions of central banks in the exchange market.

In a floating (or flexible) exchange system, exchange rates are freely determined in the exchange market through the interaction of supply and demand. The international value of currencies is not therefore defined by a monetary standard; it varies in accordance with market conditions and economic agents' anticipations. The exchange system is said to be a « clean float » when the central banks completely abstain from intervening in the market. It is said to be a «dirty or managed float » when the central banks, though not obliged to intervene, sell or buy currencies to influence exchange rates. Thus, in a region or a given currency area nowadays, should a fixed exchange system, in which public authorities and central banks control the maintenance the nominal parity of a currency, be preferred to a flexible exchange system in which the exchange rates of different currencies fluctuate as a function of the interaction of supply and demand? In other words, does the exchange regime exert a significant impact on the real economy of a region or a continent such as Africa?

This question, which regularly livens up debates in the sphere of economic theory since the post World War II era, has been witnessing renewed interest in developed as well as developing countries since the 90s and the succession of financial and exchange rate crises in Mexico, Southeast Asia, Russia Africa, etc. The controversy does not always lead to a consensus, hence the opportunity to find out why.

The objective of this paper is to show how the international monetary system evolved during the 20^{th} century, just as the theoretical debate pleads in favour of such and such exchange regime. More precisely, the question is to analyze the problems that the existence and growth of exchanges between currencies can generate and the prospects for Africa, by taking the

example of exchange crises. This paper attempts to propose elements of response to the occurrence of successive financial and exchange crisis on the regulation of capital movements.

The paper is divided into two parts. In the first part, we will present both a historical and theoretical outline on exchange regimes. The second part will deal with the consequences of exchange regimes and the lessons drawn from the recent exchange crises for an African model.

1. Historical and Theoretical Outline of Exchange Regimes

Before presenting the foundations of exchange regimes, it is opportune to recall a few historical developments.

1.1 Historical Outline of Exchange Regimes

Two aspects deserve to be given priority: from the gold standard at Bretton Woods and fixed exchange rates versus floating exchange rates.

The 19th century is characterized by a period of acceleration of international trade in goods and capital flows. It is during this period that occurred the need for the different countries involved to adopt common rules concerning the relative prices of their currencies. To compensate for uncertainties linked to the volatility of exchange markets, the gold-standard system were then adopted (1870-1914): the conversion rates of foreign currencies into gold were fixed, so that the adjustment of real exchange rates had to be made through prices and the search for competitiveness. This system collapsed with the First World War, notably, owing to the necessity for the stakeholders (i.e. the belligerents) to increase the money supply considerably to finance the war effort, which de facto rendered null and void the anchoring of the money supply on the quantity of gold held by central banks.

During the interwar period, the major industrialized countries did not manage to find stable and efficient methods of coordinating their currencies (hyperinflation in Germany, refusal to

come back to the prewar parity in England), and the crisis of the 1930s as in the aftermath of the Second World War when Western countries had to rebuild a system of regulation and coordination of exchange rate policies. This gave rise to the Bretton Woods system which lasted until the 70s. It was essentially based on fixed parities, following the example of the gold-standard exchange rate, but also on international monetary cooperation, of which the International Monetary Fund (IMF) was the guarantor. The IMF ensured intermediation between the central banks and played the role of regulator of national monetary policies; each country had to pay reserves or quota shares into it, proportional to its economic power.

Bretton Woods, a system of fixed parity, thus gave considerable impetus (or accompanied) the «Thirty Glorious Years », a period marked by unprecedented economic growth, and its disappearance coincided with the serious economic crisis of the 70s. One can already foresee behind this brief historical and simplified presentation, the risks of rhetorical mediocrity and hasty conclusions about the controversy we are dealing with in the present study: that is, fixed exchange rates versus floating exchange rates.

To justify their position, the supporters of a highly regulated system interventionists), which might lead to a quasi-parity of currencies, invoked the contrast between the Thirty Glorious Years and the preceding period or that which was going to succeed it. The lack of coordination in exchange rate policies during the interwar period was accompanied by an economic crisis of an unprecedented scale, and the return of the United States (US) the floating of their currency in 1973 seemed to herald, together with the first oil shock, a new era of instability and crises on the level of international economic and financial flows. Starting in 1960, the US moved away from a certain monetary orthodoxy because of the massive spending caused by the Vietnam War. During the year 1968 the US was no longer able to guarantee the convertibility into gold of the dollar which was the pillar of the system at that time. In 1971, President Nixon announced its suspension before the definitive abandonment of fixed exchange rates 1973. These arguments in favour of fixed exchange rates, even if they need additional explanations, seem nevertheless to be convincing. .

In contrast, for the unconditional supporters of flexible exchange rates, that is, some category of « liberals » they maintained that the virtues of Bretton Woods could only manifest

themselves temporarily, insofar as the time for reconstruction called for some security as to exchange risks, and great power position of the US in 1945, which justified the trust placed or granted to the US dollar as the monetary standard in international trade. But once reconstitution was completed, competition between countries became equitable again, and the rule of the market and competition could once more be considered as a guarantee of economic efficiency provided the prices of different goods, namely foreign currencies, are flexible. The abandonment of the Bretton-Woods system then appears as being logical, for according to Fabre (2008), an economically open country whose growth is low must benefit from a depreciation of its currency which will enable it to boost its external trade, which does not occur in a fixed exchange rate system. Once again, we find these arguments convincing.

Of the preceding two tendencies, we can say that it is careless to consider a method for regulating money as such a decisive explanatory variable in itself. Without knowing whether the return to a flexible system decided on under president Nixon is at the root of the economic slowdown and monetary instability, or whether it is a remedy adopted too late in response to too rigid and inefficient a system, we might say that the "de-convertibilization" of the dollar testifies to a trivial phenomenon: the extraordinary expansion of world trade and growth succeeded in outstripping the idea of anchoring currencies on an existing metal which moreover was available in limited quantities. For that reason, a country like the US was not ready, in the period after the 70s, to be subjected to such a constraint. The relaxation of this constraint would be linked to the more general need to facilitate capital movements in a period when the economy was slowing down significantly. According to Giraud (2001), to finance the increase in public spending when confronted with the growth slowdown of the 70s, governments opened and deregulated their national financial markets in order to borrow from abroad, and they got rid of the monetary system of Bretton Woods which was considered to be too restrictive in terms of international capital movements. .

During the era of the « Monetary Serpent » at the onset of the 70s, some countries of the European Union (EU) were trying to restore a system of qua-parities between their currencies, while others above all Asiatic countries, opted to peg their currencies to the dollar in the 90s. Today, it is erroneous to believe that exchange rates are perfectly flexible. The post Bretton-Woods years inaugurated a period of « flexibility or dirty float » of currencies except perhaps

for the yen and the dollar: pegging to a foreign currency or to a basket of foreign currencies (quite common), limited fluctuations within predefined norms, gliding parities, but also a single currency, etc.

From the preceding paragraphs, it is opportune at this point to draw implicitly the main theoretical arguments favourable or unfavourable to fixed or flexible exchange rates.

1.2 Theoretical Foundations of Exchange rate Regimes

Today, several studies make it possible to recall a few basic mechanisms through the relative prices of different currencies evolve. These mechanisms are first observed in the medium and long terms, and then in the short term.

In the medium and long terms it is the fundamentals that determine exchange rate movements. Purchasing power parity (PPP) theory[1], which is centred on the « law » of a single price under perfectly competitive conditions where prices tend to become more equal, provides a first possible explanation. Empirically however, the absolute PPP theory has been abandoned little by little in favour of the relative PPP theory, which explains exchange rate movements through inflation differential between countries rather than through prices. At this level once more, empirical verifications seem rather unlikely, thus calling into question the idea of a perfect competition which only impacts on prices (notably, if we take account of major currencies such as the US dollar, the Euro, and the Yen).

However, some economists such as Borowiski et al (2000) and Coudert et al. (2005)) maintain that the trend in the current account balance of a country provides a better explanation of the relative movements of exchange rates: for instance, a structurally surplus country with net holdings of foreign currencies which it sells against national currency, will see its currency appreciate (or will be forced to re-evaluate it), and conversely, when the current account structurally shows a deficit. Although this argument must be completed upstream by factors which determine the trend balance of the current account, it seems to check out for the European area.

In the short run, the factors which explain the evolution of exchange rates are interest rate differentials with foreign rates, and economic agents anticipations. According to the theory of interest rate parity, a country X which remunerate capital better (with higher interest rates) than country Y, normally attracts further capital inflows, which tends to appreciate its currency until it reaches a new equilibrium, such that the additional cost of conversion due to currency appreciation offsets the profit derived from the interest rate differential.

In other words, according to Généreux (2003), if a country offers higher interest rates than other foreign financial places it attracts foreign capital. These capital inflows contribute to the surplus of the capital account and result in a strong international demand for the national currency, and hence in an appreciation of the exchange rate. Conversely, paying lower interest on capital than other foreign countries encourages capital outflows, a deficit in the capital account and a depreciation of the national currency. But short-term changes are the end result of economic expectations, notably, those of speculators. For instance, if most of the agents expect the depreciation of a currency and whatever the validity of their beliefs, they will tend to «get rid » of their assets labelled in the said currency. These expectations, which may be described as self-fulfilling, make it so that exchange rates tend to overreact in the short run relative to what would imply an adjustment by fundamentals notably (Lapan and Enders (1980); Obsfeld and Rogoff (1998); Helpman (1981, 1982), etc.), even if economic agents base their judgement on the knowledge of these fundamentals.

Generally speaking, the evolution of the relative price of different currencies in the short run as in the long run would respond to the law of supply and demand. Short-term anticipations tend to make it possible for exchange rates to overreact around values that are assumed to be true, insofar as they are determined by elements said to be « fundamentals » such as relative prices expressed in terms of PPP or the structural balance of the current account, and which are the expression of a country's competitiveness and its capacity (or incapacity) to attract savings.

In the medium and long terms, fixing nominal exchange rates may seem surprising insofar as structural and real behavioural variables corresponding to an economic rationality (e.g. the search for profitability) would definitively prevail. But if fixing nominal exchange rates

constitutes a somewhat artificial, it may under certain assumptions present some benefits likely to compensate for its drawbacks.

2. Consequences of Exchange Regimes and Lessons Drawn from Recent Exchange Crises for an African Model

The consequences anticipated and the lessons drawn deserve to be analyzed with a view to choose or construct an exchange regime model suitable to African conditions. This second part of the paper will attempt to outline these two aspects of the problem.

2.1 Consequences Expected from Fixed and Flexible Exchange Rates

It is opportune at this point to evaluate the advantages and risks of flexible exchange rates. Among the approaches attempting to clarify the theoretical advantages that may be derived from the flexibility of exchange rates, the monetary school is undoubtedly that which has most clearly defined these theoretical advantages.

Firstly, the exchange rate is considered by the monetarists (Friedman (1953), Brunner et Meltzer (1963) etc.) as a price between two currencies, and hence as an adjustment variable that makes it possible to equalize the supply and demand for a foreign currency, that is, according to the supposedly rational choices of economic agents who desire to exchange one currency for another. By considering the rigidity of prices in the short run, Friedman (1962) maintains that the flexibility of nominal exchange rates is the best means to adjust real exchange rates and to restore the current account balance naturally. When this current balance shows a significant deficit, the nominal exchange rate may depreciate under the impact of capital outflows, which then increases the competitiveness of domestic products, and in theory, leads to a net inflow of foreign exchange and to the restoration of financial balance.

Thus, in the short run, depreciation of the domestic currency deteriorates the trade balance, insofar as exports are cheaper than imports. In the medium run however, this price effect is offset by the quantity effect, for the demands for imported and exported goods adjust to new

prices, thus enabling the balance of trade to improve significantly. This phase depends on the way in which demand responds to changes in prices, that is, on the price elasticities of demand for imports and exports.

Secondly, the flexibility of exchange rates makes it possible to maintain the autonomy of monetary policy. If a country is willing to promote an expansionary monetary policy, which usually entails inflation and capital outflows, it can theoretically do so, and this without eventually deteriorating the current balance for, according to Friedman (1968), the deficit generates a depreciation which offsets the inflation differential and restores the trade balance. Monetary policy is then effective in this case. On the other hand, with fixed exchange rates, public authorities are forced to « defend » the parity. To fight against this tendency of the domestic currency to depreciate, the authorities must buy it with foreign exchange. The control of the money supply resulting from this action cancels the initial effects of recovery. In the same vein, a country may channel inflation through flexible exchange rates, but not through fixed exchange rates. In this regard, Mundell (1960, 1961) used the expression « triangle of incompatibilities »[2] to underscore the impossibility of reconciling a regime in which the free mobility of capital exists with an autonomous monetary policy and fixed exchange rates.

Finally, the monetarists start with the basic premise that markets, including the foreign exchange market, have self-regulating virtues. Speculative behaviour may be considered as a stabilizer, for it makes it possible for economic agents to cover themselves against exchange risk. Thanks to the flexibility of exchange rates, the current account balance must theoretically hover around its equilibrium position, a genuine plea in favour of flexible exchange rates. Friedman moreover maintains that the value of a currency must be freely determined in the markets without government intervention. For him, speculation is stabilizing: speculators sell a currency when its price is high and do not buy it when its price is low. One prevents the rise (or fall) of a currency from lasting. Therefore, there is no exchange rate instability: the optimal price of a currency is market-determined.

Keynesian economists (defenders of a fixed or quasi-fixed exchange rate system), consider this theoretical position too simplistic and not supported by facts. Blanchard and Cohen

(2007) lay stress on the risks inherent in too flexible a system and the advantages or gains that may be drawn from fixed or quasi-fixed exchange rates. To the idea that a fixed exchange rate system hampers the automatic adjustment of the current account balance and deprives a country of the autonomy of its monetary system, they answer that this adjustment may operate in the medium term through an improvement in price or off-costs competitiveness, and this without "artificially" benefiting from changes in the price of money. Moreover, a fixed exchange rate system is considered as insurance for foreign investors. This saves them from having to cover themselves systematically to "close" their foreign exchange position, and makes it possible for them to implement their long-term projects with equanimity. The risk of volatility is reduced and becomes quite low.

Finally, the studies by Mundell (1961, 1962, 1963) lead economists (notably, Allegret et al. (2000), Allegret (2005), Gnos (2000, 2003) etc.) to wonder about the potentialities and the beneficial effects of monetary integration (adoption of a single currency), a sort of culmination of the fixed exchange rate system which may actually settle the controversy over the optimal degree in the flexibility of currencies. According to the theory of optimal currency areas[3], though monetary integration deprives the countries that adopt it of the possibility of implementing a unilateral domestic monetary policy, it provides them with some advantages that may enable them to reduce or even eliminate the transaction costs linked to exchange rates, to render the comparison of prices between countries easier, to stimulate competition, and under a fixed exchange rate system, to insure foreign investors against exchange risk. Moreover, the adoption of a single currency provides these benecial effects only if workers and capital are sufficiently mobile within the currency area considered or only the countries of this area are subjected to symmetrical shocks, which does not seem to be the case in the euro currency area.

In the final analysis, this brief theoretical review makes it possible to realize the complexity which governs the choice of a exchange rate regime on a sphere going from the free fluctuation of currencies to monetary integration, insofar as it is very difficult, as stated by Amina (2007), to assess the causality relations linking up an exchange system with the fundamental variables or macroeconomic objectives such as unemployment, growth, inflation, or long-term financial equilibrium. A categorical consensus would have no meaning insofar as

an exchange system is more or less advantageous for a country according to its economic situation at a given time.

As an example, a country that has a relatively low cover rate (5 to 8% of GDP) will justifiably prefer a flexible exchange rate regime, for he is less exposed to reversals of the international situation. It will also favour the autonomy of its monetary policy. On the other hand, a very open country will find it interesting to peg its money to those of its major trade partners. That way, this country gives up its monetary autonomy and at the same time reduces the risks linked to changes in exchange rates likely to alter its competitiveness, and generally its current account balance.

The arbitrage issue between different exchange rate regimes would be pertinent only if one considers particular cases, and not by dwelling on theoretical considerations that are too general, too ideological and finally too unproductive. Finally, since the prosperity of an economy may also be mainly explained by domestic variables, it seems to us essential not to wonder about the issue as to whether the exchange rates must be fixed or flexible, but about why the monetary system is confronted with crises that are occurring with increasing frequency, and that are difficult to regulate or prevent. But before dealing that issue, what are the prospects for an African exchange regime model?

2.2 Lessons Drawn from Recent Crises and Prospects for African Countries

According to Fabre (2008), the choice of fixed exchange rates not only means the renunciation of the autonomy of monetary policy but also of the security of international transactions, whereas the choice of floating exchange rates, in addition of the fact that it provides the central bank and the government with more room for manœuvre in terms of economic policy, it may render foreign investment more risky and first requires a high degree of confidence in the currency. Great economic powers alone can opt for a strong flexibility in their exchange rates. This economic power or else a belief in it, confers to their currencies the confidence enabling them to keep some autonomy in their monetary policy and not to dread exchange rates crises too much. This is the case for economic areas such as the US, Japan and the EU.

As to Africa region, its economies are still weak. In order for it to become powerful, it will have to achieve the total integration of its currencies into a single currency. The latter will make it possible for the region to acquire greater internal and external confidence, and also to keep some autonomy in its monetary policy. From the onset of the 18th century to the present, different exchange regimes have followed one another and have coexisted. Given that the exchange regime chosen by a country exerts a significant influence on the success of its macroeconomic policies, such as growth and full employment policies, Africa has the duty to look constantly for an exchange system that most be as competitive as possible.

Since the 19th century, and following the first floating experiences in Latin America up to the present, the supporters and opponents of either floating or fixed exchange rates have argued about the question of the respective benefits and drawbacks of these two exchange systems. In 1973, the supporters of the floating seemed to have won the duel inview of the fact that after a long domination of the fixed exchange system, the Bretton-Woods system was dismantled and many great currencies began to float. Nevertheless, the defects of floating exchange rates were revealed in the 80s. Some countries have tried to return to fixed exchange rates, but these attempts have ended in failure. Today, we are thus witnessing the coexistence of several exchange systems which range between two extremes, namely, the clean float and the clean peg (indexation).

Africa should organize herself into an optimal currency area defined as geographic sphere bringing together several countries adopting fixed exchange regime among themselves (or a single currency), and a flexible exchange system abroad. The benefits which are drawn from it are higher than the cost of abandoning the exchange rate monetary policy. The costs linked to the floating exchange regime are reduced to zero. The transactions costs linked to the conversion into foreign exchange would be the most easily measurable benefit of this monetary area with a single currency. Moreover, the fixed exchange rate regime makes it possible to eliminate the exchange risk internal to the area and to reduce the volatility linked to speculation. Then, currency area generates and increases domestic trade, and through the size effect involved, it stimulates the accumulation of capital conducive to economic growth.

In spite of the high costs involved in joining a currency area, and other constraints such as the loss of effective instruments to deal with demand shocks, the loss of monetary autonomy and exposure to strong cyclical fluctuations, the creation of a currency area is an urgent prospect for Africa. That is why, in order for it to be optimal and viable (since the benefits of adhesion are higher than the costs), this African currency space) must meet certain criteria[4].

And yet, no currency is truly protected from exchange crises with harmful effects on the real economy (recession, unemployment, etc.). With regard to the recession which struck the Japanese currency in the 90s, confidence is never definitely acquired by a given currency. In the same way, many recent studies (notably, those of Schweisguth (2008), Aglietta (2008)) underscore the exchange risk that hangs over the dollar. Heavily indebted and having recently loss its credibility through the subprimes, the American economy in its turn is displaying a disturbing fragility. In this regard, we now know how the exchange market can amplify concerns and lead to panic. Where does the latter come from and can it be prevented or anticipated?

The economic literature presents on one side the «real causes » amounting to the weakness of fundamentals (unsustainable indebtness due to high interest payments or insolvency of borrowers, very significant short-term indebtness, overinvestment relative to potential opportunities or outlets, etc.), and an «autonomous » cause linked to the self-fulfilling nature of anticipations on the foreign exchange market, these two types of causality being able to grow stronger. In effect, it is the mimetic defiance towards a foreign currency that characterizes these crises and no the direct imbalances attributable to fixed or flexible exchange rates.

In this regard, it seems that the issue of exchange crises in an environment with highly liberalized capital markets can be raised in two ways: firstly, the question is to find the means to control the solidity of fundamentals and to eliminate the vicious circle of unsustainable indebtness (a rather unorthodox situation for Africa which is constantly and permanently characterized by unsustainable indebtness); Africa will have to go through a control of the way foreign capital is used, which therefore supposes that it would come back partially to the free mobility of capital by increasing the prerogatives of the monetary and political

authorities; then, to mobilize the self-fulfilling effects of anticipations and of speculative attack behaviour (for example, the Asian crisis of 1997 was a speculative attack against the Thaï currency, the bath, which was linked to the mimetic belief in the fragility of the country's growth. This belief was justifiable, but the effects of contagion in foreign currency and capital markets further reinforced the recessionary consequences of the initial fragility. These consequences moreover spread to other neighbouring countries, notably in Malaysia), the question here is to enhance the credibility of the IMF as an international lending organization of last resort, and to restrict most short-term external loans, since the bigger these loans , the greater the risks of rapid and massive capital flight, and hence of « Credit Crunch [5]», are high.

Conclusion

The objective of this study was to find out whether an exchange regime has a significant impact on the real economy of a region, and whether the evolution of the international monetary system during the 20th century, as well as the theoretical debate on the advantages and drawbacks of different exchange regimes provide appropriate elements of response and a prospect for an African exchange regime model. From the 70s, the end of the Bretton-Woods system gave different currency areas the choice between fixed and flexible exchange rate regimes by pegging their currencies to a currency of reference. Apart from great economic powers which have really kept the autonomy of their monetary policies, most countries chose quasi-fixed exchange rates vis-à-vis economies on which their trade depend the most. But at the onset of the 80s, and concurrently to the liberalisation and opening up of capital markets, there occurred an increase in the frequency of exchange rate crises leading more and more to real economic recessions. Consequently, if the theoretical debate opposing the advantages and drawbacks of diverse exchange rate regimes remains pertinent to throw some light on the choice of monetary policy in developing countries and particularly in Africa, it should not evade the urgent question of prevention and/or reduction of these crises. Africa must take into account these conceptual, historical, and theoretical considerations to determine the exchange rate regime that is suitable for the continent.

Notes

1. A theory presented in its modern form by the Swedish economist G. Cassel (1918, 1922) who bases the exchange rate between two currencies on their respective purchasing powers on goods and services.

2. The incompatibility triangle or Mundell triangle is an economic principle developed by Mundell and Fleming (1960), according to which, in an international context, an economy cannot simultaneously achieve the following three objectives: to have a fixed exchange rate regime, to have an autonomous monetary policy, to have perfect capital mobility (financial integration). By contrast, if one of these objectives is eliminated, the other two are achievable.

3. The theory of optimal of optimal currency areas aims to determine economic criteria with a view to demarcate the optimal geographic areas of the monetary space formed around a single currency or a fixed parity system between different currencies. Thus Mundell, prix Nobel Prize laureate for 1999, proposes the labour mobility criterion, Mac Kinnon (1963) that of economic openness, Kenen (1969) that of diversification of industrial structures, Haberler (1970), and Fleming (1971), that of inflation.

4. The optimal area criteria are: labour mobility, economic openness, diversification of industrial structures and inflation.

5. Credit crunch or credit squeeze: according to a study by Michaud (2008) on the subprimes, a credit crunch is a strong decrease or the cessation of the granting of new credits by the banks owing to the fact that their financial status or that of their clients does not enable them to run the risk of granting new credits.

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