Toward Maghreb monetary unification:what does the theory and history tell us?

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TOWARD MAGHREB MONETARY UNIFICATION: WHAT DOES THE THEORY AND HISTORY TELL US? *

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Abstract

Since the beginning of the decade, numerous economic and monetary unification projects have aroused a lot of interest. The reinforcement of economic and monetary integration, especially in Europe, has set a trend for the creation of a monetary union in many others regions of the world. Since then, the debate has moved towards the study of the parameters that justify the creation of a single currency.

However, another current of thought emphasized the fragility of the traditional theory and considered the criteria as incomplete, since this theory insists solely on a few elements concerning the adjustment process under various exchange regimes (Bogdan 2004).

Also, many monetary unions have existed and lasted without meeting this theory's criteria. Other economists recommend studying the history of these monetary unions so as to define the necessary conditions for the success of a monetary integration (Sharp 2005, Jonung 2002).

Within Maghreb, the completion of the regional integration process, initiated in 1989 by the creation of the Arab Maghreb Union (AMU) and the establishment of the Maghreb monetary union would have a positive impact on economic growth, good governance and political stability.

In this paper, we showed that the Maghreb Countries can not constitute a monetary block that satisfies the criteria of optimality.

Moreover, the study of historical experiences also allowed us to verify that the MCs have to strengthen their political coordination and improve their budgetary and financial situations to establish a lasting monetary union.

Finally, with the aim of a Maghreb monetary unification, we conclude with the idea that these countries have to make more efforts to gather economico-institutional conditions essential to the institution of one of the two preliminary proposed monetary systems, namely a pure float with inflation targeting or a currency board.

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INTRODUCTION

Since the beginning of the decade, numerous economic and monetary unification projects have aroused a lot of interest. The reinforcement of economic and monetary integration, especially in Europe, has set a trend for the creation of a monetary union in many others regions of the world. Since then, the debate has moved towards the study of the parameters that justify the creation of a single currency. Many economists have tried to define the criteria that delineate an optimal currency area (OCA), notably factors mobility (Mundell 1961), openness degree (McKinnon 1963) and product diversification (Kenen 1969).

However, another current of thought has emphasized the fragility of the traditional theory and has considered the criteria as incomplete, since this theory insists solely on a few elements concerning the adjustment process under various exchange regimes (Bogdan 2004). Moreover, Frankel and Rose (1996, 1997, 1998), who are considered as the founders of the theory of endogeneity, have showed that, even if the criteria of optimum currency area are not respected "ex ante", they will surely be verified "ex post", in particular due to the intensification of trade after the creation of the single currency, and consequently to the increase of business cycle correlations.

This debate is far from over because, since then, there has been a lack of unanimity on these issues (Hallet and Piscitelli 2001).

Besides, many monetary unions have existed and lasted without meeting this theory's criteria. Other economists recommend studying the history of these monetary unions so as to define the necessary conditions for the success of a monetary integration (Sharp 2005, Jonung 2002).

In Maghreb – an area that groups together Algeria, Libya, Morocco, Mauritania and Tunisia – the completion of the regional integration process (initiated in 1989 with the creation of the Arab Maghreb Union (AMU) and the establishment of the Maghreb monetary union), would have a positive impact on economic growth, good governance and political stability.

Indeed, the setting up of a monetary zone among Maghreb Countries (MC) would represent an important symbol of unity and a powerful engine to help these countries accelerate their political unifications and negotiations.[2]

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[2] In the case of Europe, Pollin (2000), Eichengreen (2002) and Issing (2004) believe that monetary integration is only a springboard towards political integration.

The establishment of a single currency would also reduce transaction costs between the countries of the region, facilitate intraregional trade, improve transparency and eliminate all kinds of speculation on the relative value of each currency in the zone.

Moreover, for these countries, to be part of a monetary zone would represent a credible commitment towards macroeconomic stability. A monetary unification would in fact induce institutional change, limiting surprising monetary and fiscal impulses. Such stability would cancel the effects of a discretionary monetary policy, stabilise agents' anticipations, and therefore, limit inflationary effects.

The resulting price and interest rate stability would limit financial market segmentation and strengthen capital market integration (De Grauwe and Mongelli 2005).

The rest of the paper is organized as follows: Section I attempts to check if Maghreb[3] meets the criteria for an optimum currency area. In Section II we try to learn some lessons for MCs on the basis of the history of some monetary unions. Finally, Section III deals with the advantages, drawbacks and conditions of monetary arrangements likely to take place in MCs.

1. CONCEPT OF OCA: THE TEACHINGS OF THEORY

The issue of an OCA rests on the capacity of this area to face an asymmetric shock without turning to the instrument of exchange rate as an adjustment variable. The different criteria, allowing the members of this zone to form a monetary space marked either by the existence of a single currency or a structure of set and irrevocable parity, have to be determined. From then on, the question of symmetric/asymmetric shock takes centre place in the debate on OCA.[4]

The literature insists on two opposite approaches: the traditional approach developed during the 60's and 70's and the new approach initiated in the early 1980s.

1.1. The traditional approach

Many of the criteria of OCA were defined during the 60's. Mundell (1961), Mac Kinnon (1963) and Kenen (1969) were the main contributors to define these criteria.

[3] In this section, we focus essentially on Algeria, Morocco and Tunisia.

[4] For a Survey, see Beine (1998).

Factor's mobility

In the definition of the borders of an OCA, two factors were taken into account: the mobility of labour on the one hand (Mundell 1961) and the mobility of capital on the other hand (Ingram 1962-1973).

Labour mobility: Mundell's theory (1961) raises the question of the existence of economic criteria according to which, various regions of the world can decide to adopt a single currency. According to him, two or several regions have an interest in constituting a single monetary space if there is a large mobility of factors (labour in particular) among them.

He stipulates that this mobility cancels the effects of an exogenous asymmetric shock that shifts the demand from a country (or a region) to another.

However, in the absence of sufficient mobility of production factors, the balance between countries won't work automatically unless they opt for exchange rate flexibility.

Indeed, let's consider a monetary union made up of two countries (A and B) and suppose that full employment and the equilibrium of the balance of payments are reached under the hypothesis of sticky prices and wages. If an asymmetric shock causes a move of demand from A to B, the production of A will decline, followed by an increase in unemployment and current deficit. In B instead, the increase of the demand will cause a rise in production and inflation on the one hand, and an improvement in the current balance on the other hand.

If labour force is mobile between A and B, the imbalance on the labour market and the problem of the balance of payment is automatically resolved. The unemployed of A are forced to seek a job in B. The rise of demand in the latter will translate into a reduction of exports and an increase of imports from A.

Furthermore, Mundell maintains that such a demand shock would be resolved by the flexibility of wages. According to him, the decrease in pay claims in region A increases the supply and strengthens the competitiveness of that region, while the rise of these same claims causes the inverse effect in region B. The shock will then be cushioned without the need to modify the exchange rate.[5]

In MC, although there are no linguistic, cultural and geographical obstacles to mobility, the emigration towards the North of the Mediterranean is

[5] Mundell opts for an adjustment through factor's mobility, because he considers that prices and wages are rigid (at least in a fall).

more important than towards the South. In fact, the mobility of intraregional labour remains low, for political and socioeconomic reasons.

Since 1995, the ground borders between Morocco and Algeria have been closed and the unemployment rate and poverty of MC remains high.

Moreover, these markets are constrained by rigid rules and legislations contributing to a low flexibility in labour markets, to unemployment and the rise of the informal market (Dyer 2005).

Financial integration: Many economists (essentially Ingram 1962-1973) consider that financial integration is the pertinent criterion of an OCA.[6]

In any zone, an accelerated financial integration of markets is synonym of growing depth and liquidity that strengthen the capacity of that zone to absorb asymmetric shocks, without turning to the exchange rate instrument.

In fact, every payment imbalance between the regions of the zone is compensated by a flow of capital going from the countries with excess capital to countries with a capital deficit, which supposes the absence of any limitation in capital mobility and the liberalisation of financial services' supply.

Besides, perfect capital mobility eliminates the interest rates' differential and by the same way the exchange rates. This, in turn, makes the diversification of financial portfolios easier and can act as a shock absorber.

In MC, although a financial liberalisation process has started, integration in international financial markets remains low. The indicator of financial openness (K open) is always negative for all MC and shows to what extent they keep controlling their capital account towards the rest of the world and in particular, towards other Maghreb partners (Table 1).

Table 1. K open for MC (1999-2004)

	1999	2000	2001	2002	2003	2004
Tunisia	-1.094825	-1.094825	-1.094825	-1.094825	-1.094825	-1.094825
Morocco	-1.094825	-1.094825	-1.094825	-1.094825	-1.094825	-1.094825
Algeria	-1.094825	-1.094825	-1.094825	-1.094825	-1.094825	-1.094825

Source: Chinn and Ito (2006)

Moreover, this weakness may be due to the fragility of the banking sector (high proportion of non performing loans, great country and credit risk) as well as different standards in banking rule and supervision.

[6] The works by Ingram are not centered on the problem of OCA per se, but on the instability and the equilibrium of the balance of payments.

Openness of economy

For Mac Kinnon (1963), the choice between fixed versus flexible exchange rates (or between monetary union versus autonomy) should be made according to the intensity of trade relations.

He considers that in an open economy, where the ratio of tradable/non tradable goods is high, the exchange variation strongly affects this ratio and causes instability. His argumentation holds on the fact that any exchange depreciation (or appreciation) would have a major effect on the local/external demand ratio in a fairly open economy. This is translated by a bad allocation of resources. In fact, economic agents in an open country integrate foreign products in the indexation of prices and wages, so that any variation in foreign prices resulting from a modification of exchange rate has repercussions on the level of domestic prices.

Moreover, in an open economy, any depreciation (or appreciation) of exchange reveals an increase (or a decrease) in import prices, which will have a negative repercussion on the stability of prices and will cancel the positive effects expected from this devaluation (or revaluation).

In 2006, the degree of openness[7] remained low in Morocco and to a lesser extent in Algeria, being respectively 65.4% and 83.1%, whereas in Tunisia it reached 98% (Table 2).

Table 2. Degree of openness in Algeria, Morocco and Tunisia 1999-2006 (In %)

	1999	2000	2001	2002	2003	2004	2005	2006
Algeria*	51	63.2	58.5	61.2	63.4	67.7	74.8	83.1
Morocco**	53.3	56.3	55.7	57.7	56.5	60.1	66.2	65.4
Tunisia**	87.3	92.7	100	95.1	91.5	96.5	98.6	98

* Source: IMF, authors' calculation

** Source: DataStream.

On the other hand, this degree is proved to be higher in some countries of CFA franc zone, namely Ivory Coast from the West African Monetary Union (WAMU) as well as Chad and Congo from the Central African Monetary Union (CAMU) (Table 3).

Nevertheless, all MC have started liberalising and opening their economies. Tunisia, Morocco and Algeria signed an association agreement with the European Union (EU) in 1995, 1996 and 2002. Morocco also signed an agreement with the United States in March 2004.

[7] Degree of openness = (Exports + Imports) / GDP.

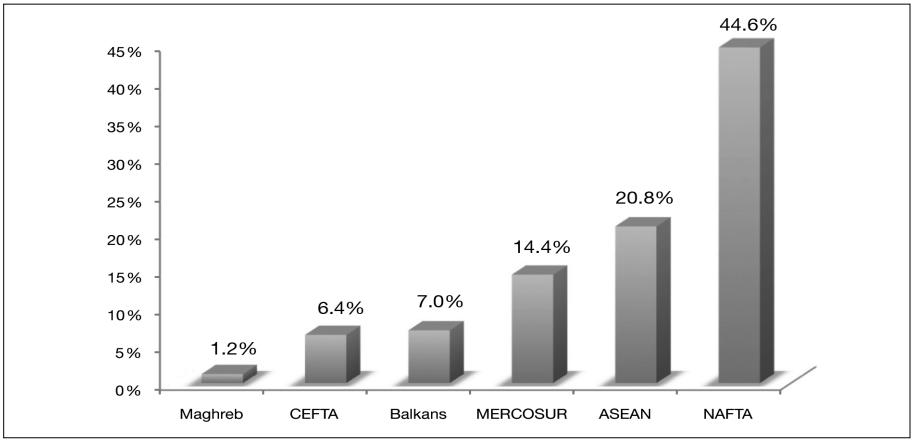
Table 3. Degree of openness in a sample of CFA countries zone (in %)

	1999	2000	2001	2002	2003	2004	2005
Benin	42.77	33.41	32.59	36.87	43.72	45.62	33.38
Ivory Coast	63	62.47	59.28	66.12	63.26	68.91	70.71
Burkina Faso	15.11	18.15	14.05	14.61	17.03	22.58	22.49
Cameroon	17.31	18.85	19.55	19.14	21.37	23.28	22.65
Chad	26.01	23.28	36.62	71.31	46.91	76.07	95.9
Congo	79.85	98.97	93.49	94.73	112.1	139.49	172.82

Source: DataStream, authors' calculations

However, although the Agadir statement signed on 8 May 2001, aimed at the intensification of bilateral trade between Morocco, Tunisia, Egypt and Jordan by creating a free trade zone between Arab Mediterranean Countries, Maghreb intraregional trade remained low in comparison with the other big economic blocks (Graph 1).

Graph 1. Intraregional trade (in percentage)



Source: World Bank, 2006

Diversification of production

For Kenen (1969), diversified economies can adopt a fixed exchange rate. He considers that the consequences of a product demand shock on production and employment in a country are smaller when it is a matter of diversified production, rather than a monoproduction.

Indeed, in a country where production is diversified, if there is a decline in demand for an exported product, the resulting unemployment will be less important than in the case of a less diversified economy. Thus, this economy will not have to undergo modifications in its exchange terms and in its relative prices, through an action on the exchange rate, as often as a monoproducing economy.

In Algeria for example, economic growth and exports depend heavily on the hydrocarbon sector. Indeed, the energy sector exports represent 98.31% of total exports, which allows us to conclude that the production structure of this country is not diversified (Table 4).

Table 4. Algerian exports and imports (2005)

	Imports (in % of total imports)	Exports (in % of total exports)
Food	17.80%	0.15%
Energy	0.99%	98.31%
Raw materials	3.65%	0.29%
Half-finished products	19.84%	1.13%
Agricultural equipment	0.79%	–
Industrial equipment	41.73%	0.08%
Consumer goods	15.20%	0.04%

Source: Bank of Algeria (2005)

However, the Moroccan economy is characterised by an important weight of agriculture on GDP and employment. Its exports depend notably on foodstuffs, semi-finished products and consumer goods (Table 5).

Table 5. Moroccan exports and imports (2005)

	Imports (in % of total imports)	Exports (in % of total exports)
Foodstuffs, drinks and tobacco	8.59%	19.79%
Energy products and lubricants	21.78%	2.45%
Raw products	6.30%	11.07%
Half-finished products	22.23%	27.84%
Equipment products	20.40%	6.46%
Consumer goods	20.66%	32.39%

Source: BAM (2005)

Finally, for Tunisia, consumer goods in 2003 represented more than half its exports and 33% of its imports. Raw materials and half-finished products represented respectively 27.84% and 22.23% (Table 6).

Table 6. Tunisian exports and imports (2005)

	Imports (in % of total imports)	Exports (in % of total exports)
Farm-produce industry	6.37%	5.47%
Energy	10.37%	9.98%
Raw materials and Half-finished products	29.10%	24.37%
Equipment products	20.41%	8.29%
Consumer goods	33.75%	51.87%

Source: Central Bank of Tunisia (2005)

In conclusion, it can be said that the problem of specialisation of the economy arises essentially in Algeria and to a lesser extent, in Tunisia.

Budgetary integration

Johnson (1970) considers that the existence of an integrated fiscal system (or a centralised budget) in a zone, allows the latter to give up the instrument of exchange rate as an adjustment mechanism in the case of an asymmetric shock.

Indeed, when demand moves from one country to another, the existence of a centralised federal budget helps to reduce the shock through the fall of taxes in the country suffering from this shock, and the rise of fiscal returns in the other country.

The total net result would be the existence of an automatic redistributive effect of the central budget in favour of countries (or regions) in decline. Such a result is synonymous of a co-insurance between the countries in the zone.

The criterion of fiscal integration implies the emergence of tax systems and central transfers, allowing a fall in the absorption cost of shocks; it also implies the existence of a federal government in the definition of an OCA.

However, if budgets aren't centralised, transfer is not automatic and the reduction of the shock may be obtained via borrowing, which supposes a financial integration.

For MC, this budgetary integration does not exist. In fact, constraints of resources and political tensions make fiscal transfers less likely.

Homogeneity of preferences

Haberler (1970), Fleming (1971) and Magnifico (1974) distanced themselves from the previous analysis by proposing macroeconomic criteria that depend on desired policy tradeoffs rather then the state of the economy. These authors demonstrate that, if the difference in inflation rate between two countries is nil, the latter constitutes an OCA. The inflation rate is considered as an indicator that synthesizes a difference in the competitiveness of productive structures, in pay claim behaviours and in monetary policy orientations (Barthe 2003).

Countries belonging to the same monetary zone have to give up the seigneuriage and follow a common monetary policy (Machlup 1977).

It then becomes evident that if countries of the same zone present divergent preferences in inflation, the fixed exchange rate between them will be unsustainable and the countries won't constitute an OCA.

Such hypothesis implies homogeneity in productive and institutional structures but also a convergence of monetary policy.

In Maghreb, the inflation rate in 2006 was relatively low in Morocco and Tunisia. It was respectively 2.5% and 3%, while in Algeria it reached 6% (Table 7).

Table 7. Inflation rates in Algeria, Morocco and Tunisia 1999-2006 (In %)

	1999	2000	2001	2002	2003	2004	2005	2006
Algeria	2.6	0.3	4.2	1.4	2.6	3.6	2.7	6
Morocco	0.7	1.9	0.6	2.8	1.2	1.5	1	2.5
Tunisia	2.7	3.0	1.9	2.8	2.8	3.6	2	3

Source: IMF (2005, 2006)

However, despite these encouraging results, the submission of monetary policies to a fiscal dominance, in view of the big budget deficits in some countries, strengthens the pressures on monetary policy and makes the desired convergence of budgetary policies, less likely.

1.2. The new approaches of OCA

These approaches were led during the 80's with the development of the works of the «new classic school», which considers the monetary policy less efficient in influencing real variables and focuses essentially on credibility gains.

Moreover, in the early' 90s, Frankel and Rose started a debate on the endogeneity of the monetary integration process, in contrast with the Krugman's «specialisation school».

OCA and credibility gains

The new concept of OCA consists in introducing the rationality of agents' expectations.[8] It considers that in the case of rational expectations of economic policies by private agents, the efficiency of monetary policy depends heavily on the credibility of monetary authorities (Tavlas 1993).

The basic idea is that there is not a permanent trade-off between inflation and unemployment and that the delegation of monetary policy (or the submission of public decisions to an external binding commitment, such as an exchange rate fixing), allows authorities to benefit from a better reputation in the eyes of the agents. In fact, this delegation makes for a reduction in inflation without a significant loss of employment.

Thus, by depriving the authorities of the intervention instrument (the revision of monetary policy after the agents' expectations) we can reach the optimal solution. This is implemented essentially by a delegation of monetary policy to an independent authority (internal solution) or by a monetary unification, which « ties the hands » of the authorities (external solution). The final result is that the country with high inflation level immediately monopolizes the benefits of a low inflation reputation, without any loss in employment and production (verticality of Phillips' curve).[9]

As for MC, they did not develop monetary and fiscal institutions allowing them to follow credible rules (central bank independence, for example). The monetary policy in these countries is considered therefore, as a tool of macroeconomic stabilisation, an instrument to support fiscal policies through the financing of budgetary deficits but also, in certain cases, an instrument to drive industrial policies (Boughzala et al 2007).

Furthermore, the absence of a strong currency in the North African space limits the credibility of the integration process in these countries.

[8] This concept was essentially developed by Giavazzi and Pagano (1988), Giavazzi and Giovannini (1989) as part of their works on the European Monetary System (EMS).

[9] However, according to Robson (1987), the transition to monetary integration implies short-term adjustment costs (in terms of an increase in unemployment). The extent of these costs may be determined by a number of factors including the speed with which the expectations adjust current inflation, the shape of the short term Phillips curve, the initial divergence between the inflation rate adopted by the union and the target rate that every member wants to choose.

The endogeneity of OCA

This approach considers the process of monetary integration as endogenous and doesn't require prerequisites. The underlying idea is that genuine integration between countries strengthens the degree of shock symmetry and thus, the interest to adopt a single currency.

The monetary integration process will create ex-post the conditions of its success.

This position, defended by Frankel and Rose, opposes Krugman's specialisation approach, which estimates that integration will liberate specialisation forces and will indirectly lead to asymmetric shocks.

Frankel and Rose (1998) indirectly raise the question of the endogeneity of OCA criteria. They consider a regression as follows:

$$Corr_{i,j} = \alpha + \beta Trade_{i,j} + \varepsilon_{i,j} \quad (1)$$

Where $Corr_{i,j}$ is the degree of correlation of economic activity between countries i and j over period t; $Trade_{i,j}$ is the measure of bilateral trade intensity over period t and $\varepsilon_{i,j}$ are factors other than trade which influence the correlation degree.

Frankel and Rose's sample is made up of 21 industrial countries over the 1959-1993 period.

For these two authors, the size of coefficient β shows to which extent trade is a source of synchronisation or desynchronisation of business cycles.

Indeed, a negative value of β reveals an interbranch trade and shows that sectoral shocks have asymmetric effects on the economic activity of the country. In the other hand (β>0), trade is intrabranch and sectoral chocks have symmetric effects.

The estimation of equation (1) by OLS may be out of place, since the commercial intensity may be the result of monetary union. To handle the problem of endogeneity, these authors use the instrumental variable technique by drawing from the gravitational models of trade. Their results suggest that the European Monetary Union (EMU) is viable ex-post.

For MC, the correlation of real bilateral GDP is measured over the period 1980-2003. In this work, we privileged a slippery correlation by step of six years, contrary to Frankel and Rose's works, which use a static correlation (see appendix I).

Also, the measures of commercial intensity are constructed by reporting bilateral trade to the total trade of two countries.[10] Slippery averages are also

[10] $Trade_{i,j} = (Xij + Mij)/(Xi + Xj + Mi + Mj)$.

calculated by step of six years over the same period (see appendix II). The data are extracted from the «*Direction of Trade Statistics of IMF*».

The results of our estimation in Panel dimension are as follows (Table 8):

Table 8. Estimation of Frankel and Rose's relation for MC (1980-2003)

constant	-0.20 (-2.51)
β	0.41 (1.69)*
R^2	0.026

The endogeneity show so that the OCA criteria aren't determining prerequisites for countries choosing monetary unification. These criteria are endogenous and depend on adopted monetary regimes, in the sense that monetary unification creates the conditions for its success ex-post.[11]

Moreover, some economists admit that, instead of turning to the theory (which they consider as static and a-historic) to specify if the monetary area is optimal or not, it is necessary to examine the different monetary integration experiences to identify the factors of success and the causes of failure of these unions (Goodhart 1995, Bordo and Jonung 1999, Sharp 2005).

In this case, the study of history turns out to be useful not only for countries that do not satisfy the criteria of OCA theory but also for countries that want to follow the course towards monetary integration.[12]

What are the lessons that sould be learnt from history?

2. LESSONS FROM THE HISTORY OF MONETARY UNIONS: AN OPPORTUNITY FOR MAGHREB?

The history of monetary unions is easier to understand if we distinguishing the national monetary unions created within the same state, from multinational ones created between independent states (Bordo and Jonung 1999, Rose 2000).

[11] However, in their future research, authors should take into account also a different point of view that weaken Frankel and Rose approach. For example, Silvestre and Mendonca (2007) analyse the bilateral relationships between the Portuguese economy and the other European Union countries and find that the endogeneity is confirmed in just four cases: Spain, Ireland, Netherlands, and UK.

[12] Several works carried out on a sample of countries that, in general, belong to regional blocks but don't constitute an OCA.

In a national monetary union, monetary sovereignty coincides with political sovereignty. The borders of «Nation State» are also the frontiers of the monetary zone. This zone has a unique monetary authority, in general the central bank.

The examples of the United States, Italy and Germany are often quoted in this context.

On the contrary, in a multinational monetary union, monetary sovereignty does not coincide with political sovereignty. The countries of this zone can use a common currency or, in an extreme case, the same money.

In this type of union, the existence of a common monetary authority is not always insured.

The case of Latin and Scandinavian monetary union as well as the EMU and the CFA franc zone are illustrative examples.[13]

The study of these two kinds of unions enables us to draw some lessons that sometimes appear as necessary conditions – other than those supported by the OCA theory – for countries wanting the stability and durability of the monetary unification process.

MC can gain some precepts from historical experience in order to be able to adopt a permanent monetary organisation allowing them long-standing credibility and stability.

Many lessons can in fact be drawn from history.

The centralisation of monetary power

A lasting monetary union suggests the existence of a sole monetary authority, which controls the monetary policy for the whole union and possesses enough power to correctly enforce the commitment to member countries. That does not mean inevitably a complete disappearance of national central banks (in the case of a multinational monetary union) but a redefinition of their sovereignty borders.

The examples of United States and Germany (in the case of national monetary unions) as well as those of Latin[14] and Scandinavian monetary unions (in the case of international monetary unions) shows up to what extent a centralisation of monetary power is essential for the survival of the monetary union.

[13] Other monetary unions, seldom included in the literature can be also invoked, such as the «rand zone» (South Africa, Botswana, Lesotho and Swaziland), the monetary union between Belgium and Luxemboug, the monetary union between Liberia and the United States, the monetary union between Panama and the United States, etc. A Survey can be found in Bordo and Jonung (1999) and Graboyes (1990).

[14] This union groups France, Belgium, Switzerland and Italy together.

In the United States, the centralisation of monetary power was absent until 1914. In fact, the Civil War (1861-1865) divided the political union in two blocks. In the North block, the greenbacks issued by United States' treasury circulated in considerable discount relative to golden coins. In the South block, inconvertible confederate notes expressed in dollars circulated (Bordo 2004). The circulation of the different kinds of money continued until the Federal Reserve was founded in 1914. The latter, maintained hereafter, the position of common leader in the issue of notes, which were exchangeable between districts at a set rate. This position was strengthened in 1935, at the time of the «Banking Act».

Likewise, as part of the German 19th century experience, the causes of durability of Zollverein[15] before the political unification proved to be the size and the power of Prussia, which was able to apply a certain conformity to the customs union' agreement and a promulgation of coherent metallic standards to small states. Indeed, two monies associated to the big States prevailed at the time: the «Prussian thaler» circulating in the northern German States and the «gulden» circulating in Bavaria and in other southern States (Hamada and Porteous 1992). Every member State had to accept the «Vereinsmünze» (the currency of Zollverein), which costed 2 thalers and 3.5 guldens and was issued in proportion to the population.

Afterwards, the thaler became the main currency of exchange between the two big parts of Germany. In 1870, the northern German federation prohibited a new issuance of paper money and fixed the volume of bank note issuance, thus delegating the supervision of the circulation of this paper money to the Prussian bank.

In 1876, the Prussian bank became the «Reichsbank» with a higher legislative power. The other banks kept their right of issuance but were gradually confined until 1935, when their privilege was abolished.

Similarly, in the 20th century German experience, the maintenance of a sound monetary policy, managed by the central bank of West Germany after a political unification with the East (in addition to an important fiscal transfer), was able to insure a certain price stability in the whole union. In fact, the unification treaty of July 1990 stipulates that a common monetary policy managed by the Bundesbank is imposed and a conversion system of two thirds of Ostmarks (OM) in Deutschemark (DM) is supplied.

On the contrary, the decentralised structure of the monetary power in the

[15] The agreement of the customs union was established between 18 German states putting an end to their internal barriers.

Latin monetary union brought about the end of this union as well as the monetary turmoil of the 1870s and the First World War.

Indeed, during this union,[16] the countries preserved their monetary issuance rights and each central bank had the right to pursuit purely national objectives. This structure provoked the abandoning of the bimetallic system on which the union was based.

Also, the First World War created an enormous financing need and pushed the countries to introduce a paper standard and to depreciate their currencies. A big issuance of subsidiary coins was noticed, which led to an increasing depreciation of their values. The result was a progressive refusal of these coins in each country, as well as an overvaluation of silver coins in the whole union. The union stopped working when the First World War was declared, and was formally dissolved with the defection of Belgium in 1925.

Similarly, in the Scandinavian monetary union, which groups together Sweden, Denmark and Norway,[17] the decentralised structure of money supply and the possibility offered to the member countries to leave the union have facilitated the conduct of national objectives as well as the dissolution of that zone at the time of the First World War.

Indeed, the beginning of the war was accompanied by the abolition of golden note convertibility, for fear of massive withdrawals of metal coins which would result in losses of gold reserve. At the same time, gold exports were prohibited in order to prevent its escape. It entailed a disconnection between the money supply and the supply of gold.

However, money supply strongly increased in Sweden, whose exports were booming. This rapidly led to the depreciation of the Norwegian and Danish krone, compared to the Swedish krone (Talia 2004).

Confirming Gresham's law, Danish and Norwegian notes were exported to circulate in place of Swedish notes. This situation led to the 1917 ban on Swedish gold exports and the dissolution of the Scandinavian monetary union.

[16] The functioning mechanism of this union consists in the fact that member countries can issue an unlimited quantity of gold and silver coins that have a legal tender in the whole union. Moreover, each country can issue a limited quantity of a small subsidiary silver coins (whose face value is higher than the metallic value) that have a legal tender solely in the issuing country. Subsidiary coins have a lower content in terms of silver than union coins. Each country also has to accept up to 100 francs of subsidiary coins from other countries, in individual transactions.

[17] In this union, the Krone, a common money based on gold, replaced the old Swedish unit of account «the riksdaler» which had a legal tender in the member countries. The value of this new money was specified in terms of gold and was the same in all three countries.

Furthermore, in 1924, a supplementary agreement forbidding an equal circulation of the subsidiary coins, limiting an excessive inflow of this type of coins in Sweden, put an effective end to this union.

For MC, it is difficult at the moment to give up a part of their monetary sovereignty to the benefit of a supranational monetary authority. In fact, in these countries, the monetary policy is influenced by the need of seigneuriage revenues in order to finance the government public spending. The independence of the central bank and the impossibility to advance money to the public sector, are difficult measures to apply in Maghreb.

The importance of political involvement

The above-mentioned monetary power centralisation does not always guarantee the viability of a monetary zone. It is notably the case of Russia, the former USSR countries and Czechoslovakia, where the end of political unity and centralisation of control led to the disintegration and division of their monetary unions. Each of them was characterised by a new national currency and a unique central bank (Goodhart 1995).

The existence of a durable political involvement toward the monetary integration is the most important instrument supporting the monetary union. This involvement can be seen at national level, through the presence of a domestic sovereign power imposing the same currency on the entire zone[18] or at an international level, through the existence of a cartel where the members have to stop pursuing their individual interests to achieve the common objectives of this cartel. The feeling of national membership – often characterized by a symbolic perception, linking money to sovereignty and the willingness to draw seigneuriage benefits – must give in to community membership feeling. Here reigns a common goodwill to standardize coins and notes in circulation (by adopting a common currency) but also a preference towards the sharing of gains of monetary cooperation.[19]

The examples of the United States and Germany (as part of intra-state monetary unions) as well as the franc zone and the Euro zone (as part of inter-state monetary unions) are symbolic of this thesis.

In fact, in the case of Germany, the monetary union has directly followed the political union. The German monetary system was unified only after the political unification of 1871, under Bismarck's leadership. The mark became

[18] We often consider political unification since, within the same State, political borders coincide with the frontiers of monetary union.

[19] The definition of budgetary and fiscal rules is also considered as a form of political involvement and is treated in the following paragraph.

the new monetary unit while the minting of golden coins was regulated. The value of the mark was defined according to the used golden coins, which were gradually removed from circulation.

The same case appeared in the United States, where colonies used a mixture of coins and paper money before the signature of the Constitution in 1789. This constitution was meant to avoid excessive inflation and the variability of exchange rates; in particular, it was meant to avoid a seigneuriage problem inherent to the systems of fixed exchange rates,[20] giving the American Congress the unique power of monetary creation and currency value regulation (Smith and Rolnick 1993). Hereafter, colonies were no longer free to issue their own currencies.

Furthermore, in the case of the franc zone[21] (a multinational monetary union), the political willingness of the member countries led to a conservation of this zone. Indeed, after their independence most of the States composing this zone have kept their former anchoring in the French franc and have stayed in a homogeneous group, whose institutional frame was renewed and was structured by a system of common exchange. The agreements signed between 1959 and 1962 by countries belonging to this zone, defined principles governing the monetary organization.[22]

On the other hand, the important influence of France in the conduct of the monetary policy of this zone – notably through the unlimited convertibility of the CFA franc to French franc, the obligation of France to insure all the internal and external payments in currencies, as well as the representation of the latter in the organs' decision of the two African central banks (BCEAO and BEAC) – insured the success of this zone.

Furthermore, with the advent of the Euro, the functioning mechanisms of this franc zone were not affected and member countries continued to benefit from the French financial and budgetary support.[23]

Likewise, the establishment of the EMU reflected a strong political will to

[20] This problem comes from the fact that, even in the case of fixed exchange rate, where currencies are perfectly substitutable, a colony can tax its neighbours by an excessive issue of the currency.

[21] This zone includes the West African Monetary Union (Benin, Burkina Faso, Ivory Coast, Mali, Niger, Senegal, Togo and Guinee-Bissau in 1997) as well as the Central African Monetary Union (Cameroon, Congo, Gabon, Central African Republic, Tchad and Equatorial Guinea in 1985).

[22] These agreements were modified in the early' 70s to favour an extension of the intervention domain of the two African central banks.

[23] However, a continuous debate on the possibilities of CFA franc unhooking from the Euro persists. See Pelletier (1999) and Matin (2007) http://fr.allafrica.com/stories/200704050407.html.

create the single currency in spite of the existence of some economic objections. The use of the Euro was indeed the result of a political involvement accepted by all participating countries (Bordo and Jonung 1999) who, after the publication of the Delors' report in 1989, demonstrated their desire to be part of the union and undertook to monopolize the gains of monetary integration.

Concerning MC, they do not present the necessary political prerequisites to form a single currency.[24] A political commitment in this direction would probably constitute a serious problem for the governments, given the traditional rivalry between some countries of the zone and the importance of the seigneuriage role as a last resort for these countries. Moreover, political problems still exist, which have prevented, until now, the completion of the economic and financial integration within Maghreb as well as the functioning of the MAU (Darrat and al 2002).

The importance of fiscal regulation

A centralized monetary union doesn't necessarily require the centralization of fiscal policies, as long as the governments of this union do not often turn to excessive debts.[25]

Historical experiments showed indeed, that fiscal policies are often individually designed to counter asymmetric shocks (stabilization) or regional differences (redistribution) once monetary policies lose their autonomies, facilitating and maintaining political commitment and consequently the monetary unit.

The cases of EMU and some dollarized countries offer attractive examples.

Indeed, in Europe, the monetary policy is centralized and conducted by the ECB, while fiscal policies continue to be in the hands of member countries, following rules defined in the Maastricht treaty and the Stability and Growth Pact (SGP).

The same case appears in Panama and Liberia, where the domestic currency is anchored in the US Dollar. This currency has a legal tender and represents the major part of money supply. The monetary policies of these countries were relinquished to the benefit of American monetary authorities, while fiscal policies remained in the hands of these two countries without pre-established coordination.

[24] It is the assertion of Rossi (2007) concerning the MENA countries.

[25] Moreover, Goodhart (1995) showed that the passage to the euro might be realized without being accompanied by a federalism of governments and fiscal policies.

However, most experiences characterized by a centralization of monetary policy versus a decentralization of fiscal policies are complemented by regional mechanisms of fiscal transfers allowing them to face idiosyncratic shocks (it's the case of the United States).

Moreover, history shows that when monetary policies are decentralized (absence of a supranational central bank), fiscal policies of the same nature urge governments to resort to the monetary creation to cover their spending.

This is obviously the case of Italy, as part of the Latin monetary union experience. In fact, one of the factors that brought about the failure of this union was the massive resort of Italian authorities to monetary creation. The budgetary deficit and sovereign debt were not under control and the issue of subsidiary silver coins created important costs for the other countries of the union (Bae and Bailey 2003).

However, whether monetary policy is centralized or decentralized, history shows that a previous convergence in fiscal behaviour is necessary for the stability of a monetary union. A strong supervision mechanism of the fiscal discipline between member countries containing the definition of a series of budgetary and fiscal convergence criteria, can indeed avoid the problem of asymmetric shock.

The EMU and the franc zone experiences are significant in this frame.

Indeed, in these two zones, a series of criteria concerning budget deficit and States' debts were defined as preliminary criteria to the membership of a monetary area. It is the stability and growth pact for the EMU and the convergence, stability, growth and solidarity pact for the franc zone.

As regards MC, although some of them underwent significant progress towards budgetary stability during the last decade (it's the case of Tunisia and Morocco),[26] a fiscal asymmetry persists requiring a reinforcement of the central bank independence process. This vulnerability is the result of budget balance sensitivity to terms of trade imbalances, a dependence on external flow assistance as well as a wide exposition of these countries to natural disasters, given the importance of the agricultural sector in these countries.

Besides, as it has been clarified, the submission of monetary policies to a fiscal dominance makes the expecteded budgetary convergence less likely.

[26] The governments of these two countries have indeed moved to more transparent and more market based debt management instruments. They instituted a system allowing them to access to financial ressources through negociable and attractive govenment bonds instead of the previous legal requirements imposed in financial institutions to buy low return government securities (Boughzala and al 2007).

The bipolarity

Intermediate exchange regimes are not compatible with the independence of monetary and fiscal policies when the financial account is opened. Indeed, with the opening of capital markets, a country can not maintain both fixed exchange rates and the autonomy of its monetary policy.[27] The choice of exchange regime in the case of capital movement deregulation must then be made among either hard pegs or pure floats. The regimes, being in the middle of these two extremes, are mostly subject to big speculative attacks: it is the bipolarity concept.

The Panamean monetary system is revealing in this frame. Indeed, it has been able to insure an economic, monetary and financial stability for many years although the monetary policy autonomy was absent. This country adopted a «hard peg» (dollarization) and is characterized by an important financial integration where capital flows – notably bank flows – were liberalized, allowing the absorption of monetary and real shocks (Moreno-Villalaz 1999).

Conversely, speculative attacks against some EMS currencies in 1992-1993 showed that monetary unification gets the better of autonomy of national policies after the abolition of capital mobility control.

The European countries recognized the superiority of a monetary union for the good working of the single market and abandoned the autonomy of their monetary policy for the benefit of a supranational central bank; they defined for that purpose, fixed exchange rates among them but flexible vis-à-vis the other countries.

At this point, a question concerning the choice of exchange regime for MC stands out. Given their course towards a full liberalization of their financial account, have these countries an interest in following the way of monetary unification or should they instead make their exchange rates flexible?

3. THE MONETARY REGIMES FOR MAGHREB

The authorities in Maghreb set as an objective the liberalization of the financial account. However, according to the above-mentioned bipolar vision, the present exchange rate regimes established in these countries are incompatible with the integration in international financial markets. In fact, in Algeria and Tunisia, the adopted exchange regime is managed float with no

[27] It is the incompatibility triangle of Mundell.

pre-determined path while in Morocco, Mauritania and Libya, the authorities have respectively established a basket peg, a dollar peg and a basket of IMF special drawing rights (SDR) peg, which in fact belong to the category of intermediate regimes.

In this sense, MC should opt for one of the «corner solutions», notably for monetary unification.

As an intermediate stage for this objective, two independent steps could be possible: either to harmonize the inflation targets in the five countries of the region, within a framework of pure float,[28] or to simultaneously establish a currency board (Jedlane 2006). These two regimes are compatible with the liberalization of a financial account, an objective set by the authorities of MC, and essential to the process of monetary unification.

Within the framework of inflation targets harmonization, the central bank commits to reach an inflation objective during a certain period and uses appropriate instruments to achieve this aim. Such a policy can succeed in reconciling flexible exchange rates with the establishment of deep regional links[29] (Eichengreen 2002).

For this policy to succeed, some hard conditions should be gathered (Jbili and Kramarenko 2003):

– Sound budgetary situation and tight coordination of budgetary and monetary policies;
– Well-developed financial system, independence of central bank in the conduct of monetary policy and price stabilisation mission, relatively well-known transmission canals between the instruments of monetary policy and inflation;
– Credibility based on robust antecedents in responsibility and transparency.

It is useful to note that in this framework, the lack of central bank independence negatively affects the credibility of monetary authorities. To solve this problem, many authors have proposed the creation of a regional committee that takes care of the respect for the monetary rules and inflation targets. This committee will also take corrective measures when differences appear.

In the case of Maghreb, this solution is not credible because several regional committees were created within the framework of AMU without really playing their role. These committees remain indeed influenced by govern-

[28] It is the proposal of Eichengreen (2002) to some regional blocks, namely MERCOSUR and ASEAN.

[29] Eichengreen and Taylor (2002) show through a regression, linking the volatility of bilateral exchange rate with four OCA' variables as well as inflation target dummy'variable, that an inflation targeting policy produces less instability compared to an exchange rate nominal anchor.

ments, which often show a reluctance to delegate a part of their political power to a supranational body.

Moreover, in a general way, the floating exchange rate regime in emerging countries suffers from the "fear of floating", which negatively affects the credibility of the central bank. Indeed, an excessive volatility of nominal exchange rates can have negative repercussions on investment and growth.

To highlight this phenomenon, Calvo and Reinhart (2000) analyzed the behaviour of exchange rates, exchange reserves, monetary aggregates and interest rates. They conclude that the variability of the exchange rate of countries declaring a free float is slow and this smallness is not due to the absence of real and monetary shocks but it is the fruit of a voluntary policy of exchange rate stabilization. This reflects what they call the «fear of floating» and explain why other studies did not succeed in emphasizing a significant relation between growth and exchange regime choice.[30]

The second step consists on a simultaneous institution of currency board pegged to the Euro.

A currency board is a hard peg regime compatible with the liberalization of financial account. Under this regime, the full convertibility, an objective fixed by the authorities of these countries, is insured via a total coverage of monetary base by exchange reserves. It also imposes a monetary discipline on the government, because every advance to the treasury is prohibited. The third advantage is the transparency of the automatic adjustment mechanism, which avoids the accumulation of imbalances and the repetition of crises.

Thus, due to these three advantages and to the institutionalization of the fixed exchange rate, the adoption of a currency board permits the reinforcement of the credibility of monetary authorities. This would have positive effects on trade, foreign direct investment and growth.

In the case of MC, the institution of a currency board would have positive effects on trade with the European Union, their main commercial partner, as well as North African intra-trade benefiting from a zone of monetary stability. Some studies showed that in the absence of explicit monetary cooperation, the tacit agreement of pegging the Asian currencies to the US Dollar allowed the increase of intra-regional trade (Lee and Saucier 2005). In this direction, the currency board would strengthen the convergence of Maghreb economies. The simultaneous institution of a currency board pegged to the

[30] However, according to Edwards (2002), the optimal policy minimizing the loss function sometimes imposes a Central Bank intervention on the exchange market. According to this author, by reacting to real exchange rate (without defending a given level of exchange rate), authorities do not suffer from fear of floating but practice an optimal float.

Euro in MC allows both a nominal and real convergence among these countries and the EMU. This would allow at the same time, a mutual convergence within Maghreb and eventually, the creation of a monetary area in this space.

As in Europe, it would be necessary to proceed in a parallel and progressive way: at the same time of the intensification of the economic and financial integration, it is necessary to lay the bases of a monetary integration. The institution of a currency board would play in Maghreb the role of EMS previously played in the European monetary integration process.

However, the adoption of a currency board imposes several conditions. Firstly, institutional conditions linked to the functioning of the currency board: these being the constitution of important reserves and the good choice of the anchor currency. Secondly, structural conditions characterizing the economy of the country that wishes to adopt a currency board: these being high competition of companies, flexible labour market, sound public finances, high degree of openness, healthy, prudent and internationalized banking system and finally elaboration of an exit strategy.

Concerning Maghreb, institutional conditions do not impose problems. Indeed, the monetary base in the three countries is covered by more than 100% of exchange reserves. Moreover, the choice of the anchor currency is clear, since the European Union is the main commercial partner of MC. The EU is the unique signatory of free trade agreement with the three countries and the first investor in the region, rendering the Euro the best anchor currency.[31]

However, the respect of structural conditions would require that the MC pursue reforms already begun. In these three countries, it is necessary to improve the economy competitiveness, increase the labour market flexibility and internationalize the banking system. Algeria and Tunisia have to strengthen their banking systems, but most of all, Algeria has to restore its public companies and increase, as well as Morocco, the openness of its economy. Finally, Morocco and Tunisia should reduce their national debts and their budget deficits.

CONCLUSION

Basing our analysis on the theoretical and empirical literature of OCA theory, we showed that MC cannot constitute a monetary block that satisfies the criteria of optimality. Indeed, these countries suffer from a smallness of

[31] However, in Algeria, the dependance of Algerian exports to energy products invoiced in Dollar makes the choice of the Euro as an anchor currency less clear.

intra-regional trade, an importance of specific shocks as well as an important heterogeneity of economic structures making the loss of autonomy of the exchange rate instrument expensive.

However, by testing the endogeneity hypothesis from the basic relation of Frankel and Rose, it has been proved that a convergence cannot be established between MC and that it remains insignificant.

Furthermore, by analyzing the history of monetary unions, we found that the success of a monetary integration process needs to be per se credible, to establish a centralization of monetary power, to guarantee a strong political involvement and maintain a fiscal discipline. These historical experiences also allowed us to verify that corner solutions concerning exchange rate regimes have to accompany the liberalization of a financial account.

The application of these conditions in the case of MC forces them to strengthen their political coordination and improve their budgetary and financial situations.

Finally, with the aim of reaching a Maghreb monetary unification, we expressed the idea that these countries have to make more efforts to attain the economico-institutional conditions necessary to set up one of the two preliminary proposed monetary systems, namely a pure float with inflation targeting or a currency board.

Appendix I.
Slippery correlation by step of six years of the real GDP of MC (1980-2003)

Années	ALG-MAR	ALG-MAU	ALG-TUN	MAR-MAU	MAR-TUN	MAU-TUN
1981	-0,03813251	-0,03813251	0,30900062	-0,28872515	-0,68394413	-0,09564694
1982	0,32601417	-0,59675217	-0,03749724	-0,17422439	-0,74306715	-0,1392353
1983	-0,23589718	-0,35833277	0,49319736	0,08543262	-0,7390751	-0,49349823
1984	-0,0952415	-0,34713545	0,35883725	0,12281909	-0,67560272	-0,58270867
1985	-0,07635251	0,34717866	0,08601205	0,15746322	-0,62686735	-0,72455237
1986	-0,25931814	0,36538761	-0,11308804	0,12038689	-0,67021942	-0,78650599
1987	-0,36824863	0,46349742	-0,01054478	-0,13007452	-0,71074133	-0,56484103
1988	-0,28983296	-0,20276224	0,21108878	-0,38199849	-0,50602585	-0,53839477
1989	-0,27922531	-0,28285914	0,10509294	-0,20578369	-0,27771066	-0,78911094
1990	-0,67066122	-0,29496663	0,2436374	-0,2855544	0,01263591	-0,81579863
1991	-0,15109292	-0,34534398	0,4683114	-0,26951534	0,20198948	-0,65819879
1992	-0,05053174	-0,57442792	0,45579928	-0,10235704	0,19351034	-0,78400742
1993	0,13758311	-0,59536667	0,50404781	-0,35052074	0,56891682	-0,7195024
1994	-0,08067144	0,16613421	0,27684325	-0,36656653	0,39985065	-0,47192516
1995	0,50250624	0,1940783	-0,07918595	-0,42650956	0,71995459	-0,48831518
1996	0,7513135	0,13541146	0,18402763	-0,23714621	0,3484976	-0,26783729
1997	0,7312045	0,13654548	-0,40462523	0,00473766	-0,27674668	0,36703433
1998	0,5042087	0,1105344	0,05957278	-0,44583651	-0,05213193	0,76666956

Appendix II.
Slippery averages by step of six years of the commercial intensity (1980-2003)

Années	ALG-MAR	ALG-MAU	ALG-TUN	MAR-MAU	MAR-TUN	MAU-TUN
1981	4,52274E-05	0,000683688	0,00327643	0,000114877	0,00210214	0
1982	4,52274E-05	0,000747318	0,00444789	9,04792E-05	0,00251892	0
1983	8,38879E-05	0,001214815	0,00516546	8,38125E-05	0,0028938	4,0381E-06
1984	0,000435847	0,001319854	0,00589864	0,000126153	0,00321701	7,3659E-06
1985	0,000814609	0,001392632	0,00692483	0,000124975	0,00354329	6,4601E-05
1986	0,001336431	0,001563073	0,00735621	0,000182699	0,00385114	0,00012112
1987	0,00237112	0,001578995	0,00727434	0,000252069	0,00410427	0,00012824
1988	0,003113782	0,001600687	0,00723888	0,000340193	0,00430867	0,00013845
1989	0,004154669	0,00165498	0,00727409	0,000390227	0,00404558	0,00016562
1990	0,004664025	0,001328034	0,00731908	0,000436725	0,00378789	0,00018437
1991	0,004919167	0,00106007	0,00709639	0,000473042	0,00349676	0,0001929
1992	0,004885038	0,001137428	0,00614612	0,000566363	0,00331807	0,00016543
1993	0,004671441	0,001136019	0,00536126	0,000500823	0,00289566	0,00014831
1994	0,003984739	0,001143139	0,0047389	0,000425098	0,00261259	0,00016884
1995	0,003733348	0,000973019	0,00419914	0,00043307	0,00247174	0,00019123
1996	0,003246514	0,000923537	0,00344479	0,000471841	0,00245097	0,00019191
1997	0,003145142	0,000844735	0,00295848	0,000564313	0,00243278	0,00020614
1998	0,002951127	0,000893876	0,00274619	0,000615833	0,0024986	0,0002429

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