THE APPLICATION OF OPTIMUM CURRENCY AREA CRITERIA TO CROATIA

Research Assistant Tanja Broz
The Institute of Economics Zagreb
Zagreb, Croatia

Abstract: This paper investigates if Croatia would benefit from the introduction of euro. Croatia has been gravitating towards Europe for decades, especially towards Germany. The same period, until the introduction of stabilization program in late 1993, was characterized by hyperinflation which caused loosing the trust in domestic currency. Also, Croatia is a small country in territory and in economic power, so one could argue that loosing monetary independence would not hurt it. But what if Croatia does not have synchronized business cycle with the euro area? Then a single monetary policy would not be of benefit to it and Croatia is too small country to have powerful voice in ECB. The theory of optimum currency areas can help to find the answer to those concerns.

Key words: optimum currency area criteria, Croatia

Introduction

This paper investigates if Croatia would benefit from introduction of euro. Croatia has been gravitating towards Europe for decades, especially towards Germany. The same period was characterized by hyperinflation which caused loosing the trust in domestic currency. Also, Croatia is a small country in territory and in economic power, so one could argue that loosing monetary independence would not hurt it. But what if Croatia does not have synchronized business cycle with the euro area? Then single monetary policy would not be of benefit and Croatia is too small country to have powerful voice in ECB. The theory of optimum currency areas (OCA) can help to find the answer, but first it is necessary to see macroeconomic situation in Croatia since its independence.

The rest of paper is organized as follows. Chapter 2 explains some elements of macroeconomic situation in Croatia, chapter 3 gives more details about foreign trade, while chapter 4 applies OCA criteria to Croatia. Last chapter concludes.

Macroeconomic situation since Croatian independence

Before it declared independence in 1991, Croatia was a part of Yugoslavia together with other 5 republics. After 1991 Croatia exists as an independent state with its own government and central bank. First few years were very difficult for Croatia due to war for its independence, but also due to break up of Yugoslavian and east European market. War ended in 1995, but during the war Croatia experienced severe economic instability, which however started in the whole Yugoslavia in 1980's. During the war, third of Croatian territory was occupied and most industries in those areas were

destroyed. This period was also characterized by hyperinflation[1], severe fall in industrial production[2] and GDP and supply side shocks. In order to stabilize the economy, government employed Stabilization program in October 1993. The program had 3 phases[3], but only the first one – reduction of inflation – had noticeable results. Program was well communicated with the public and public had faith in government's determination to reduce inflation. The most important anchor was the exchange rate, because of very long relationship between Dutch mark and domestic currency. The choice of the anchor was natural, since hyperinflation lasted for long period of time and people started to use Dutch mark as a reference currency. Thanks to the strong belief in the program, inflation decreased immediately and in several months in 1994 we also recorded deflation. In the same time instead of planned slow depreciation of domestic currency against Dutch mark, exchange rate started to appreciate.[4] Reason for that can be found in increased credibility of domestic currency, so people wanted to hold now Croatian dinars, instead of Dutch mark.

Disinflation was successful and the economy was stabilized – GDP and industrial production started slowly to rise. However, since the government and central bank were very afraid of inflation[5], other phases of stabilization program were neglected, so there was no strong support to developmental goals. The result of that, but also of crisis of banking sector and structural problems, was a deterioration of economic situation which started in 1997 and Croatia entered into recession which started in the last quarter of 1998 and lasted until the third quarter of 1999. Improvement in economic situation was followed by recovery in household consumption, exports and tourism. Through the whole period after the stabilization program, inflation remained stable, below 5% annually, except in 1998, when it was 5.7% (Table 1). After the stabilization program, focus of public was on exchange rate, which was perceived as the main anchor. For that reason, exchange rate against Dutch mark and latter on against euro was carefully managed, which can be seen from Figure 1.[6]

Latest data show continuing improvement in economic activity. Seasonally adjusted GDP is constantly rising from the end of 2001 (Figure 2) and similar but more volatile trend is recorded for seasonally adjusted industrial production (Figure 3). Also, before the introduction of euro in 12 EU countries, Croatian citizens mostly saved their money in deutschemarks, but they often did not put the money in the banks, but rather they saved it in the "mattresses". After the introduction of euro, some of the money that

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[1] Before the introduction of Stabilisation program in 1993, monthly inflation rate amounted to 30% (Crkvenac, 1997).

[2] Industrial production in 1993 was in real terms 42.5% lower than in 1990 (Crkvenac, 1997).

[3] First phase included fast disinflation, second structural changes in the economy and third economic development.

[4] Creators of stabilisation program thought that exchange rate would continue to depreciate, but with slower rate. They even announced tablita for the first 3 months in which they announced future expected exchange rates. However, the opposite situation happened and they abandoned the use of tablita.

[5] Monetary policy was tight and taxes were also increased.

[6] Lowest value of exchange rate was 6.584 kunas for 1 euro in April 1995, which was 9,5% lower that average exchange rate in selected period and highest value was 7.7408 in February 2000, which was 6.4% higher than average exchange rate.

was put in the banks was withdrawn, but the money that stayed helped in credit growth that occurred afterwards. Expansion of credit stimulated consumption and eventually growth. Also, since banks perceive households as less risky, because of good collaterals, they were more prone to give credits to them then to business sector, which caused the change in structure of credits (Figure 4). In May 2003 credits to households got ahead of credits to business sector and they remained higher so far. Although the introduction of euro helped in credit expansion, it cannot explain the whole increase. Since most banks are owned by foreign banks (mainly Austrian and Italian), banks were able to get credits from abroad with lower interest rates and place them in Croatia with much higher interest rates. This banks' activity together with the government which used more favorable conditions in European market to issue Eurobonds, caused rapid increase in external debt (Figure 5). After government realized that external debt is going out of control, they started to issue bonds on domestic market, which, among other factors, caused the appreciation pressures on the exchange rate. Other factors that made pressure on appreciation of exchange rate in the whole period after Stabilization program are inflows of foreign currency, mostly through tourism and FDI, households' transfers and credits. However, stability of the exchange rate was not perceived good for all agents. Exporters complained that exchange rate is overvalued and that they cannot be competitive in the world markets. Arguments for those exporters see in the starting phase of stabilization program. As was previously mentioned, creators of the Stabilization program thought that exchange rate will continue to depreciate, but they hoped that exchange rate will depreciate with much slower rate after the introduction of the program. So, they induced initial devaluation of domestic currency by 19.8%. After that costs were adapted to this new level of exchange rate, but since the program was credible, people wanted to hold domestic currency and demand for it increased causing appreciation of exchange rate instead of expected depreciation. All of this caused real appreciation of domestic currency and exporters started to ask for depreciation (they are doing so even today) so that they could be more competitive. So, instead of adapting to this situation and trying to be more productive, they want to become competitive in artificial way. But, since even today exchange rate is perceived as nominal anchor and since most of households and government liabilities are tied to euro, large depreciation would very likely cause inflation.[7] Also, as Barro and Gordon (1983) and Kyland and Prescott (1977) argue, a discretionary decision of monetary authorities will result in higher inflation in the future, at the same rate of unemployment.

Other matters of concern in Croatia are the following: unemployment remains high, structural changes are still necessary, legal system calls for transformation and corruption still exists. All of this means that macroeconomic stability is not the only important factor and that Croatia has still to work very hard to prove itself to Europe.

Trade between the EU and Croatia

Croatia is a small economy, which implies that it has to import a lot, since it cannot competitively produce all it needs. So, in order to import required goods, Croatia needs also to export, so that it can earn foreign currency with which it can pay for its

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[7] However, it is true that Croatian central bank shouldn't have allowed tiding liabilities to euro and that they should have considered exit from this kind of exchange rate regime, but now it is not acceptable to most agents to have high depreciation of domestic currency, because this would have negative impact on their wealth.

imports. If a country does not export enough goods, it can have surplus in service sector and in transfers or it need to have surplus in capital account.

Since independence, Croatia had surplus in balance of foreign trade only once - in 1992. After that Croatia has continuous deficit in balance of foreign trade (Figure 6). Deficit in balance of foreign trade is not something bad if import is used in export sectors or if it is used for developmental goals. But if a country imports mainly consumer goods, then import will not increase export production, but will increase debt that has to be returned.[8] This is what is happening in Croatia. Maybe the reason for that can be found in the fact that Croatia was part of communist country for decades, so that people could not have all consumer goods they wanted, but also government can be blamed because of no development and export strategy. Croatia's exports stayed almost unchanged in dollar terms for more than a decade, while imports rose causing widening of deficit of foreign trade balance. Only in the last couple of years exports (but also imports) increased dramatically. However, dollar depreciation against the euro contributed to the large part of this increase, since Croatia mainly exports in euros and reports export and import data in dollar terms.

Main Croatian trading partners are EU and Bosnia and Herzegovina. In the EU, the most important partners are Italy, Germany and Slovenia. Since Italy and Germany have euro, with Slovenia introducing it in 2007 and Bosnia and Herzegovina has currency board with euro, it is noticeable that euro is the most important currency in the foreign trade for Croatia. This can also be seen from exports and imports by type of currency. About two thirds of exports and about three quarters of imports are invoiced in a euro, which as well implies that the euro is by far the most important currency in the foreign trade.

More on trade will be in the later chapters.

How well Croatia apply to different criteria of optimum currency areas?

Discussion about common currency areas usually rests on the theory of optimum currency areas, which was created by Mundell (1961) and supplemented by many other authors.[9] For that reason in this chapter we will explore several optimum currency area criteria and their application to Croatia.

Openness

Openness can be measured as a share of foreign trade in GDP.[10] Smaller countries are usually more open to trade than larger countries. Some reasons for that were already described (smaller countries can hardly be self-sufficient). So, if country needs to import a lot, it has to export in order to have foreign currency to pay for imports. When exports and imports in small economy are summed, we get usually relatively high share of GDP. Table 2 shows data for Croatia. After decrease of share in the middle of the 90's, Croatia increased openness in the new millennium and now openness ratio amounts to more than 110%. This number means nothing if it not compared with other economies. Economies like EU or USA have openness ratio of less then 25, so compared with them Croatia is a very open economy. On the other

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[8] This is true if service balance is not positive enough to pay for goods deficit.

[9] Survey of optimum currency areas literature can be found in Broz (2005).

[10] Even though Mckinnon (1963) defines openness as a ratio of tradables to non-tradables, it is hard to get those data. So, we used here share of foreign trade (exports plus imports) in GDP as a measure of openness.

hand, Belgium has even higher degree of openness. It can be concluded that smaller economies are in the same time more open. Also, when the economy is more open, then larger part of it is influenced by changes in exchange rate. So, if country has a dominant trading partner, it would be of benefit to it to peg its currency to trading partner currency. Croatia indeed has a dominant trading partner – EU – and this fact is now even more pronounced since EU 12 (13 now with Slovenia) introduced a single currency. Hence, if we look only to this criterion, it is possible to conclude that Croatia should peg its currency to euro and when the time comes it should introduce the euro.

Size of the economy

Croatia is a very small economy comparing to USA, Germany or Japan, but also comparing to Spain, Switzerland and Belgium. In 2004 GDP (in current prices) in the USA was 9433 billion euros, in Germany 2216 billion, Japan 3690 billion, Spain 837 billion, Switzerland 289 billion and in Belgium 288 billion, while Croatian GDP was 27.6 billion euros (Eurostat and Croatian national bank). Croatian GDP is only 0.3% of USA GDP and 9.6 % of Belgium. Small economy, which is often relatively open, has higher import dependence then large economy. Hence, changes of the exchange rate have larger impact on the economy. If in relatively large economy, with import dependence of 10%, there is 30% depreciation, this will increase costs of production by 3% due to increased prices of inputs. On the other hand, the same depreciation in a small economy with import dependence of 50% will mean increase of production costs by 15%. Since Croatia is a small economy with high import dependence, it would benefit from stability of exchange rate, according to this criterion.

Diversification of export

The less diversified is the economy, the more attractive is flexible exchange rate. Table 3 shows diversification of Croatian export and import structure. It is noticeable that category machinery and transport equipment are the most important. Almost third of total export falls in this category, which is substantial amount. Also, it is important to notice that main part of this category is ship building. In the same category of import structure, import of cars is the most important. It is also of interest to mention that cars are mainly bought on credit or leasing. Other important categories are miscellaneous manufactured articles, manufactures goods classified chiefly by material and mineral fuels and lubricants. However, even though Croatian export structure has one category that is more represented, this category does not comprise of major part of total exports. Countries with share of 80% of one product in total exports are considered to be not diversified, and that is considerably higher than Croatian machinery and transport equipment category. For that reason it is possible to conclude that Croatia is a diversified economy and that it would benefit from the single currency, so that it should join the EMU, once it joins the EU.

Labour mobility

As Mundell (1961) points out, labour mobility is a mechanism which could meliorate the impact of adverse shocks and restore equilibrium. Croatia, as most of Europe, does not have very mobile work force. The only mobility that is recorded is toward capital city Zagreb. Zagreb has about 1 million inhabitants (almost a quarter of the total population) and it is the richest part of Croatia. Government and all ministries are placed in Zagreb, even Ministry of tourism and Ministry of agriculture are in Zagreb, despite the fact that most of tourism revenues are generated at the coast and agriculture is the most important activity in Slavonija (eastern part of Croatia). Also, even though government introduced some tax measures in order to attract firms and

labour force to depopulated areas, some regions (i.e Lika) are still almost completely depopulated. In this situation it is naturally to expect that adverse shock could hit different regions and that labour mobility will not help to meliorate the shock.

Capital mobility

Croatia has convertible current account of balance of payments, but it does not have yet complete convertibility of capital account. However, with Croatia's path towards the EU, it will have to eliminate all the barriers and investment will be easier. This will enable Croatian citizens as well as foreigners to diversify their incomes and assets. But, until Croatia does not enter the EMU, there will be exchange rate risk present in the economy, which will increase uncertainty of potential profit on investment and put pressure on exchange rate. Hence, unless Croatia does not adopt some sort of rigidly fixed exchange rate regime until the introduction of euro, it would be better to have floating exchange rate regime so that potential exchange rate crisis can be avoided. After the introduction of euro, a single currency will enhance capital mobility between Croatia and the rest of EMU since there will not be exchange rate risk any more.

Credibility

Croatia has a long history of inflation. Now, since the Stabilization program we have low inflation for more than a decade. Also, monetary authorities behave very responsible since the introduction of the program and they did not show any signs of weakness. Government now cannot take any credits from the central bank and central bank is carefully monitoring inflation developments. However, one might conclude that Croatians still do not have trust in domestic currency, since most of savings is in foreign currencies or tied to them (Figure 7). The reason for that could be this long history of inflation. So, in order not to repeat the history, one might say that Croatians would prefer fixed exchange rate regime and that introduction of euro would be of benefit to them.

Level of eurisation

Data show that Croatia has high level of unofficial eurisation, since most of residents' savings is in foreign currency (mainly euros) and Croatians use foreign currency, mostly euro, for larger purchases like houses and cars. Figure 7 shows deposits in domestic and foreign currency. Deposits in foreign currency are significantly higher than in domestic currency as it was explained in previous section. On the other hand, salaries are expressed in kunas, so change in exchange rate affects value of income, but at the same time citizens are hedged with their savings. As well, credits for larger purchases like houses and cars are tied to foreign currencies, mostly to euro and to smaller amount to Swiss frank, which enhances level of eurisation. Since the level of eurisation is rather high, it would not be difficult to completely abandon domestic currency and introduce euro.

Shocks

It is important to see what kinds of shocks are hitting Croatia. There are different types of shocks. If a country is facing foreign nominal shocks, having a fixed exchange rate will be attractive. On the other hand, if what a country is facing a real shocks (domestic or foreign), a flexible exchange rate would be more feasible. In Croatia, nominal shocks are more pronounced than real shocks. One of the most important nominal shocks is capital inflows and Europeans are the most important investors. Oil shock can be presumed as a real shock, but this shock is hitting all countries in the EU, not only Croatia. Further, for more than a decade export was

stagnant no matter what happened. Only in the last two years it increased dramatically, but major part of that can be explained with depreciation of dollar. So, it can be said that no major real shock in form of aggregate demand shock hit Croatia since independence. Hence, it can be concluded that single monetary policy that ECB conducts for whole EMU could be of benefit for Croatia, if mainly nominal shocks from EMU hit Croatia.

Business cycle synchronization

Among many criteria for joining/forming a common currency area, one has quite an influential status in the recent years and that is the synchronization of business cycles. This means that if the business cycles of members of a common currency area are synchronized, the cost of not having its own monetary policy that would fight against disturbances is minimized. There are many methods which can be used to determine if countries have synchronized business cycles, but VAR approach is most commonly used. Examples include Boone (1997), Frenkel and Nickel (2002) and Fidrmuc and Korhonen (2003). Also, method that is widely used to determine existence of business cycle synchronization is cointegration (eg. Korhonen, 2003 and Broz, 2006). Croatia is rarely found in samples, so here we will present results from Broz (2006). The result of the cointegration test has shown that there is no cointegration between Croatian and the euro area in terms of industrial production so that variables in question can move independently of each other and can drift apart. This result implies that Croatian and the euro area's business cycles are not synchronized. So, one of the OCA criteria is not satisfied and in this context this means that Croatia and euro area do not form an optimum currency area and that in the long run ECB monetary policy may not suite Croatia. Hence, Croatia would not benefit from the introduction of euro at this time.

Endogeniety

Endogeniety of optimum currency areas is a relatively new idea presented by Frankel and Rose (1997). As they point out, theory shows that increased trade in common currency area can cause either increased industrial specialization between regions, in goods in which they have comparative advantage, which results with asynchronous business cycles resulting from industry specific shocks, or increased trade can result with increased correlation between business cycles if common demand shocks prevail or if intra-industry trade accounts for most of the trade. Their standpoint is the latter one and they argue that international trade patterns and international business cycle correlations are endogenous, so it represents a simple application of the famous Lucas critique. This standpoint can help Croatia to think about the euro, even though present research show limited synchronization of business cycles between Croatia and the euro area. Introduction of euro would increase trade integration between them, which could increase intra-industry trade and thus Croatia could find itself in the acceptance area. This indicates that Croatia could satisfy the OCA criteria ex post, even though it did not ex ante.

Conclusion

Inspection of most OCA criteria suggest that Croatia should introduce euro as soon as possible or at least peg its currency to euro. However, business cycle synchronization criterion suggests the opposite and it can be said that this criterion

includes several criteria in itself.[11] According to this criterion, monetary policy of the euro area would not suite Croatia. However, this is not so difficult to accept. The reason why Croatia and the euro area are not cointegrated in this respect can be found in convergence theory. As Croatia is at lower level of development than EU average, convergence theory implies that Croatia is expected to grow much faster and needs to have higher growth rates. This means that their industrial production indices will diverge from each other, until Croatia comes to euro area's level of development. So, if Croatia would join the euro area now, different states of the economy would require different monetary policy.

Hence, even though traditional OCA criteria suggest that Croatia should peg its currency to euro and introduce euro as soon as possible, we would advocate, according to business cycle synchronization criterion, that Croatia should deal with the problems that it has by itself and use monetary policy as an instrument of economic policy as long as it can. Later on, when Croatia will be completely ready and when Croatian and euro area's business cycles will be more synchronized, it can start to think about the euro.

Appendix

Table no. 1 Selected economic indicators of Croatian economy

	1997	1998	1999	2000	2001	2002	2003	2004
GDP (MILLION EUR, CURRENT PRICES) A	17.790	19.281	18.679	19.976	22.177	24.220	25.526	27.629
GDP PER CAPITA (IN EUR)	3.891	4.284	4.102	4.560	4.998	5.451	5.747	6.224
GDP - YEAR-ON-YEAR RATE OF GROWTH (IN %, CONSTANT PRICES)	6,8	2,5	-0,9	2,9	4,4	5,2	4,3	3,8
AVERAGE YEAR-ON-YEAR INFLATION RATE B	3,6	5,7	4,0	4,6	3,8	1,7	1,8	2,1
CURRENT ACCOUNT BALANCE (AS OF % GDP)	-12,3	-6,8	-7,0	-2,5	-3,7	-8,7	-7,3	-5,2
EXPORTS OF GOODS AND SERVICES (AS OF % GDP)	40,3	39,8	40,9	47,1	48,7	45,9	51,5	51,5
IMPORTS OF GOODS AND SERVICES (AS OF % GDP)	56,8	49,1	49,3	52,3	54,6	57,0	59,5	58,8
EXTERNAL DEBT (AS OF % GDP)	38,0	47,6	54,1	60,6	60,7	62,2	77,6	82,1
EXCHANGE RATE ON 31 DECEMBER (HRK : 1 EUR)	6,9472	7,3291	7,6790	7,5983	7,3700	7,4423	7,6469	7,6712
CONSOLIDATED CENTRAL GOVERNMENT DEFICIT (AS % OF GDP) C	....	....	-6,5	-7,1	-5,4	-5,0	-4,9	-4,7
UNEMPLOYMENT RATE (ILO, PERSONS ABOVE 15 YEARS OF AGE) D	9,9	11,4	13,6	16,1	15,8	14,8	14,3	13,8

Source: Croatian national bank, www.hnb.hr

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[11] The synchronisation of business cycles is an important element in the research of, for example, the endogeneity of OCA criteria (Frankel and Rose, 1997), intensity of bilateral trade and correlation of business cycle (Frankel and Rose, 1996), monetary integration as disciplinary effect (Buti and Suardy, 2000) and specialisation hypothesis (Krugman, 1993).

[A] Calculated by applying the average annual exchange rate (HRK/1 EUR) to the GDP in kuna terms.
[B] Inflation rate was measured by the RPI in the 1994-1998 period. From 1999 on, it is measured by the CPI.
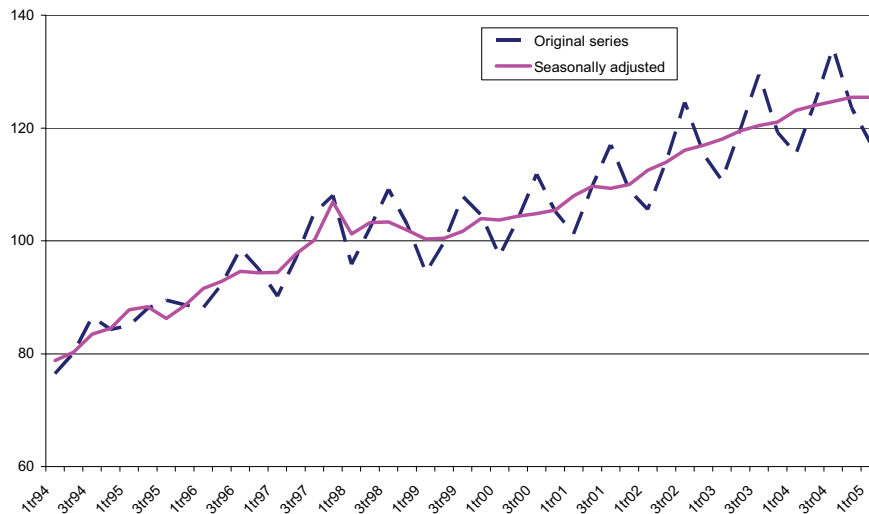[C] On a cash basis.
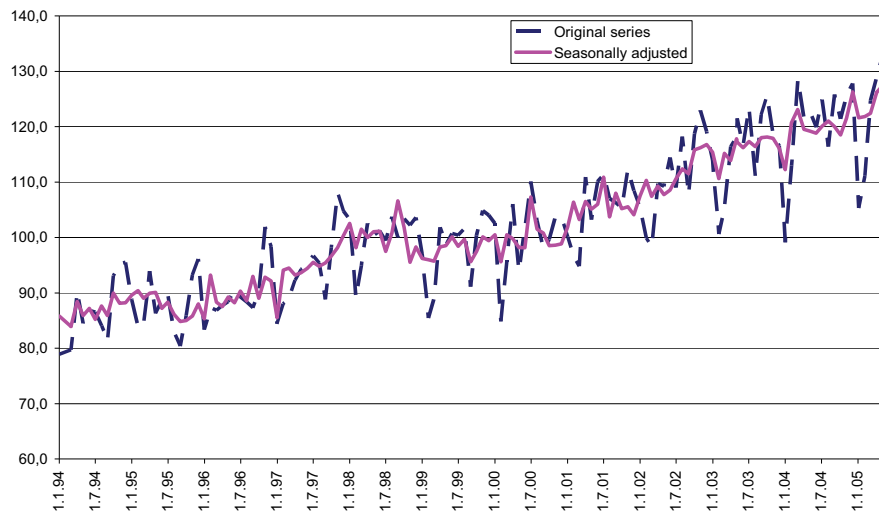[D] Unemployment rates as at November 1996 and as at June 1997.

Source: Croatian national bank, www.hnb.hr

**Figure no. 1 Exchange rate against euro and US dollar**

Source: Croatian Central Bureau of Statistics and author's calculation
Figure no. 2 Croatian GDP index, original series and seasonally adjusted, 1997 =100
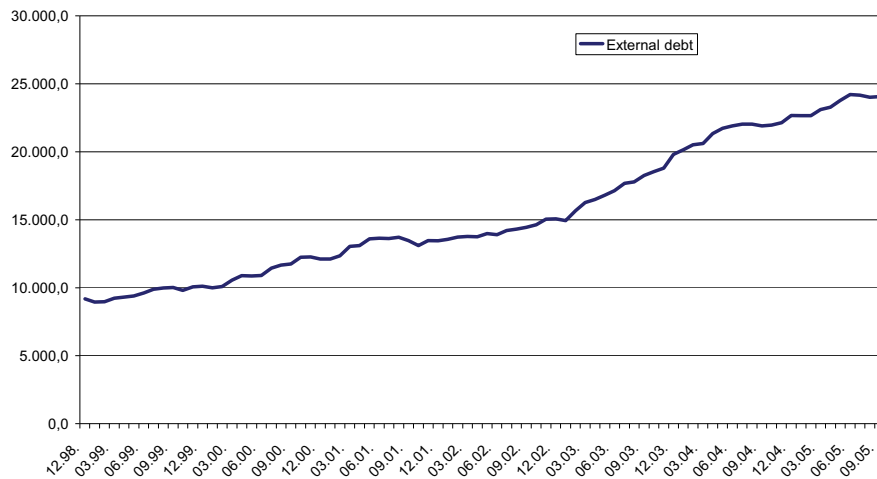
Source: Croatian Central Bureau of Statistics and author's calculation

Figure no. 3 Croatian industrial production index, original series and seasonally adjusted, 2000 = 100
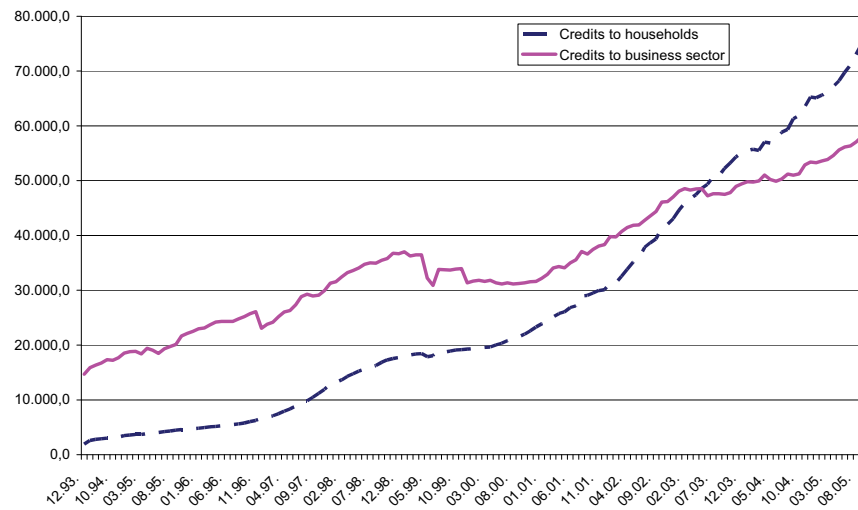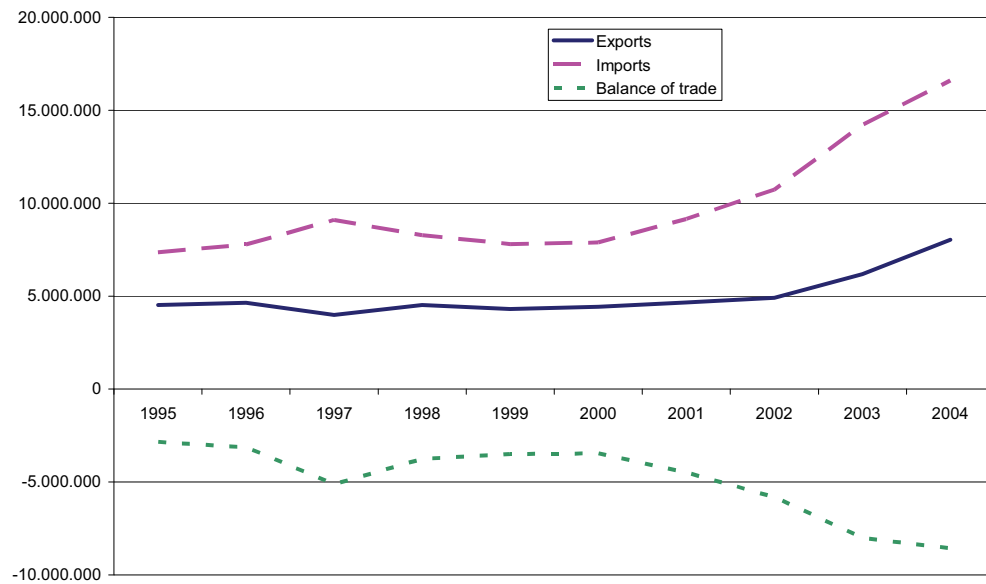

Source: Croatian national bank, www.hnb.hr

Figure no. 4 Credits to households and business sector, in million kunas

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Source: Croatian national bank, www.hnb.hr

Figure no. 5 Croatian external debt

Source: Croatian national bank, www.hnb.hr

Figure no. 6 Croatian imports, exports and balance of trade

**Table no. 2 Foreign trade (goods and services) as a percentage of GDP**

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Exports of goods and services (as of % GDP)	56.8	48.8	37.7	38.7	40.3	39.8	40.9	47.1	48.7	45.9	51.5	51.5
Imports of goods and services (as of % GDP)	53.0	45.4	49.5	48.0	56.8	49.1	49.3	52.3	54.6	57.0	59.5	58.8
Sum of exports and imports	109.8	94.2	87.2	86.7	97.1	88.9	90.2	99.4	103.3	102.9	110.9	110.3

Source: Croatian national bank, www.hnb.hr

Table no. 3 Exports and imports by commodity sectors of Standard International Trade Classification

	Share of group in the total exports		Share of group in the total imports	
	2003	2004	2003	2004
Food and live animals	9,06	6,30	7,04	7,17
Beverages and tobacco	2,63	2,38	0,82	0,74
Crude materials, excluding fuels	5,65	5,59	2,29	2,13
Mineral fuels and lubricants	9,62	11,33	10,94	11,98
Animal and vegetable oils and fats	0,22	0,16	0,29	0,31
Chemicals	9,59	9,37	10,98	11,16
Manufactures goods classified chiefly by material	14,05	14,82	18,73	19,65
Machinery and transport equipment	29,47	32,25	37,05	34,92
Miscellaneous manufactured articles	19,58	17,76	11,59	11,89
Commodities and transactions, n.e.c.	0,13	0,01	0,25	0,05

Note:Author's calculation based on Croatian Central Bureau of Statistics
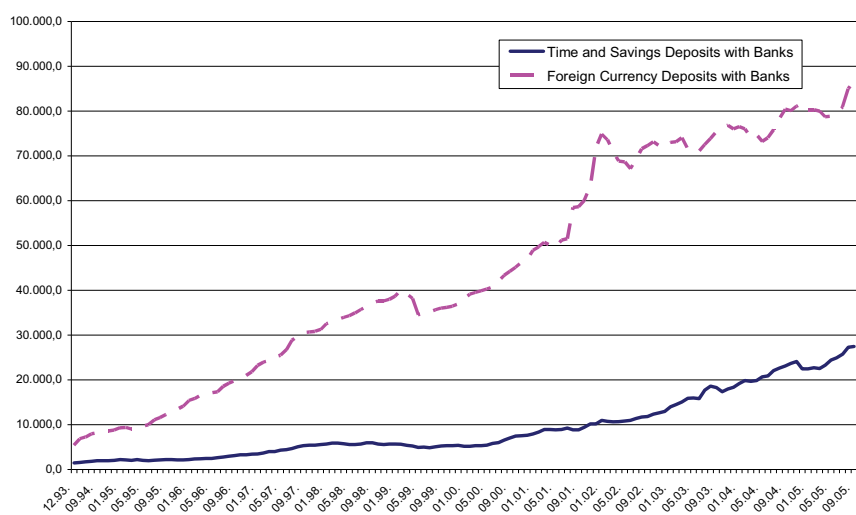
Source: Croatian national bank, www.hnb.hr

Figure no. 7 Deposits in domestic and foreign currency, in millions of kunas

REFERENCES

1.	Barro, R., Gordon, D.	"Rules, Discretion and Reputation in a Model of Monetary Policy", *Journal of Monetary Economics*, 12, pp. 101-121, 1983
2.	Boone, L.	"Symmetry and Asymmetry of Supply and Demand Shocks in the European Union: a Dynamic Analysis", CEPII document de travail, No. 97-03, 1997
3.	Broz, T.	"The Theory of Optimum Currency Areas: A Literature Review", Privredna kretanja i ekonomska politika, , 2005
4.	Broz, T.	"Integration of economic activities between Croatia and euro area", mimeo, 2006
5.	Buti, M., Suardi, M.	"Cyclical Convergence or Differentiation? Insights from the First Year of EMU", *Revue de la Banque/Bank- en Financiewezen*, 2-3/00, pp. 164-172, March 2000
6.	Crkvenac, M.	"Ekonomska politika", Informator, Zagreb, 1997
7.	Fidrmuc, J. Korhonen, I.	"The euro goes East – Implications of the 2000-2002 economic slowdown for synchronization of business cycles between the euro area and CEECs", BOFIT Discussion Papers, No. 6., 2003
8.	Frankel, J., Rose, A.	"A Panel Project on Purchasing Power Parity: Mean Reversion Within and Between Countries", *Journal of International Economics*, 40, pp. 209-224, 1996
9.	Frankel, J., Rose, A.	"Is EMU more justifiable ex post than ex ante?", *European Economic Review*, 41, pp. 753-760, 1997
10.	Frenkel, M., Nickel, C.	"How Symmetric Are the Shocks and the Shock Adjustment Dynamics Between the Euro Area and Central and Eastern European Countries", IMF Working Paper, No. WP/02/222, 2002
11.	Korhonen, I.	"Some Empirical Tests on the Integration of Economic Activity Between the Euro Area and the Accession Countries", Bank of Finland, mimeo, 2003
12.	Krugman, P.	"Lessons of Massachusetts for EMU" in F. Torres and F. Giavazzi (eds.) *Adjustment and Growth in the European Monetary Union*, Cambridge University Press, New York, 1993
13.	Kydland, F., Prescott, E.	"Rules Rather than Discretion: The Inconsistency of Optimal Plans", *Journal of Political Economy*, 85, pp. 473-491, 1977
14.	McKinnon, R.	"Optimum Currency Area", *American Economic Review*, September, pp. 717-725, 1963
15.	Mundell, R.	"A Theory of Optimum Currency Areas", *American Economic Review*, pp. 657-665, 1961
16.	* * *	www.dzs.hr, Croatian Central Bureau of Statistics
17.	* * *	www.hnb.hr , Croatian National Bank
18.	* * *	www.eurostat.int, Eurostat