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BAKALÁŘSKÁ PRÁCE

**Currency Board Arrangement
in Bosnia and Herzegovina**

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Prohlášení

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V Praze, dne 2.6. 2006.

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Název: Currency Board Arrangement in Federation of Bosnia and Herzegovina

Stručná charakteristika tématu: This thesis tries to analyze after-war period in Federation of Bosnia and Herzegovina with deeper focus on currency board arrangement and its impact on economic development of the country.

In the first part of this thesis I would try to analyze economic environment in two different periods, 1992-1998 and 1998-2004, in which currency board already operated.

The second part of the thesis is dedicated to theoretical aspects of currency board arrangements and operation of currency board in Federation Bosnia and Herzegovina in recent years with its impact on country's economic performance. Main goal of this thesis is to determine whether the currency board arrangement was the optimal solution in case of Federation of Bosnia and Herzegovina.

Struktura:

1. Introduction
2. Pre-war economic situation of FBiH
3. FBiH in period 1992-1998
4. FBiH in period 1998-2004
5. Currency board
 - o Theoretical background

- Operation of CB – Practical aspects
- Euro based CB's – Euroisation as an exit strategy from CBA

6. Currency board arrangement in FBiH

- Recent history of monetary policy in FBiH
- Assessments of risk in case of FBiH
- Advantages and disadvantages of CBA in FBiH
- Impact of CBA on FBiH's economic performance

7. Conclusion

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Podpis vedoucího práce:

Abstract

This thesis deals with currency board arrangement both theoretically and practically. The first part of the thesis is devoted to theoretical description of a typical currency board with its operational framework and a key advantages and disadvantages of this monetary arrangement. The second part deals with particular application of currency board arrangement in Bosnia and Herzegovina. It offers short introduction to economic and political situation in the country and analyses performance of currency board in the last decade. Conclusions from the theoretical part are applied in the particular case of Bosnia and Herzegovina in order to determine whether a currency board arrangement was an optimal choice for a country.

Abstrakt

Tato práce se zabývá teoretickými i praktickými aspekty problematiky měnového výboru. První část práce je věnována obecným charakteristikám typického měnového výboru, jeho fungování a hlavním výhodám a nevýhodám tohoto měnového systému. Druhá část práce se soustředí na konkrétní případ měnového výboru v Bosně a Hercegovině. Kromě nástinu současné ekonomické a politické situace v zemi je v druhé části práce důkladně popsáno fungování měnového výboru během necelého desetiletí jeho existence. Teoretické závěry z první části práce jsou pak aplikovány na tento konkrétní případ ve snaze určit, zda měnový výbor byl optimální volbou v případě Bosny a Hercegoviny.

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Contents

1	Currency Board Arrangement.....	3
1.1.	Introduction	3
1.2.	History of Orthodox Currency Boards	5
1.3.	Assumptions for Establishing a Currency Board Arrangement	7
1.3.1.	Choice of Reserve Currency	7
1.3.2.	Exchange Rate	9
1.3.3.	Extent of Backing	10
1.4.	Currency Board and Monetary Policy Instruments	12
1.4.1.	Minimum Reserve Requirements	12
1.4.2.	Lender-of-Last-Resort (LOLR)	14
1.4.3.	Inflation Convergence in Modern-Day Currency Boards	16
1.4.4.	Banking Sector under Currency Board Arrangement	21
1.5.	Advantages and Disadvantages of a Currency Board Arrangement	24
1.5.1.	Advantages of Currency Board Arrangement	24
1.5.1.1.	<i>Operational Simplicity</i>	24
1.5.1.2.	<i>Credibility of Sound Monetary and Fiscal Policy</i>	24
1.5.1.3.	<i>Currency Stability</i>	25
1.5.1.4.	<i>Interest Rate Convergence and Low Inflation</i>	26
1.5.2.	Disadvantages of Currency Board Arrangement	26
1.5.2.1.	<i>Nominal Exchange Rate Rigidity</i>	26
1.5.2.2.	<i>Lack of Lender of the Last Resort Function</i>	28
1.5.2.3.	<i>Constraints on Fiscal Policy</i>	29
1.5.2.4.	<i>Loss of Central Bank Function</i>	30
1.5.2.5.	<i>Danger of Currency Mismatches</i>	30
1.5.2.6.	<i>Deflation</i>	31
1.5.2.7.	<i>The Cost of Reserves</i>	31
1.6.	Duration of Currency Board Arrangement.....	32
1.6.1.	Possible Exit Strategies	32
1.6.1.1.	<i>Switch to float</i>	33
1.6.1.2.	<i>Switch to peg</i>	33
1.6.1.3.	<i>Currency substitution</i>	34
2	Currency Board in Bosnia and Herzegovina.....	36
2.1.	Economy of Bosnia and Herzegovina at Glance (1945-1995).....	36
2.1.1.	Pre-War Situation in a Nutshell.....	36
2.1.2.	Consequences of a War.....	39
2.1.3.	Transition Process	42
2.2.1.	Reasons for Establishing a Currency Board in Bosnia and Herzegovina	44
2.2.3.	Exchange Rate and Extent of Backing	47
2.2.4.	Independence of CBBH	48
2.2.5.	CBBH Performance 1998-2004	49
2.2.6.	Inflation Convergence.....	51
2.2.7.	Monetary Instruments of CBBH.....	53
2.2.7.1.	<i>Minimum Reserve Requirements</i>	53
2.2.7.2.	<i>Lender of the Last Resort Function</i>	55
2.3.	Fiscal Policy	58

2.4.	Banking Sector in Bosnia and Herzegovina.....	62
2.4.1.	Development of the Banking Sector in the Period 1995-2004	62
2.4.2.	Financial Deepening in B-H	64
2.5.	Selected Issues from B-H Economic Performance under CBA in 1996-2004... 70	
2.5.1.	Production.....	70
2.5.2.	Trade	72
2.5.3.	Labour Market.....	77
2.5.3.1.	<i>Formal Sector</i>	78
2.5.3.2.	<i>Informal Sector</i>	80
2.6.	Lessons for B-H from Argentinean Experience	83
3	Summary and Conclusion.....	88
4	References	92

1 Currency Board Arrangement

First part of this thesis is devoted to theoretical aspects of monetary arrangement known as a currency board. I will describe in detail functioning of currency board arrangements with all its specifics, from early history to its impact at modern banking sector. I will try to illustrate main advantages but also disadvantages of this arrangement in order to be able to examine particular case of the currency board in Bosnia and Herzegovina in the second part of this thesis.

1.1.Introduction

For most of us is this word monetary authority routinely connected with a central bank; independent and separate from the ministry of finance but wholly government-owned body that issues notes and coins. However, things were rather different before the twentieth century when only a few countries, mainly in Europe, had central banks. Central banking did not become widespread in the Americas until the period between the First and Second World Wars, and in Africa and Asia even until after the Second World War. Until then, countries that now have central banks had a variety of other monetary systems. One of those monetary arrangements was a currency board.

The International Monetary Fund (IMF) defines a “currency board arrangement” as “a monetary regime based on an explicit legislative commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate, combined with restrictions on the issuing authority to ensure the fulfillment of its legal obligation”.¹

In practice currency board is defined as monetary arrangement whereby at least all currency (banknotes and coins) is fully backed by anchor (reserve) currency at the fixed rate. The main function of monetary authorities is to repurchase currency at this given rate.

¹ <http://www.imf.org/external/np/mfd/er/2004/eng/0604.htm>

As reserves, a currency board holds low - risk, interest-bearing bonds and other assets denominated in the anchor currency²; low risk and liquidity are the primary criteria. A currency board's reserves are equal to 100 percent or more of its notes and coins in circulation, as set by law. A currency board generates profits (seignorage) from the difference between the interest earned on its reserve assets and the expense of maintaining its liabilities; notes and coins in circulation; see Hanke and Schuler (1994).

Using this definition, we can speak about twenty currency boards (or currency board-like) systems in operation today, but in this thesis I will concentrate primarily on recently established currency boards (see Table 2) with special focus on case of Bosnia and Herzegovina. To understand better difference between discretionary central banking and currency board arrangement (CBA), see very simplified explanation in Table 1. This table do not represent typical currency board or central bank, I just used simplified version of table from Hanke and Schuler (1994; pp. 4) in order to show main differences between central banks and currency boards. In a nutshell, we may say that currency board is in fact a central bank that gave up nearly all of its discretionary powers and became passive agent of monetary policy, as we can see from the table bellow.

TABLE 1: Currency Board versus Central Bank

Currency board	Central bank
Usually supplies notes and coins only	Supplies notes, coins, and deposits
Fixed exchange rate with reserve currency	Pegged or floating exchange rate
Foreign reserves of 100 per cent of MB	Variable foreign reserves
Not a lender of last resort	Lender of last resort
Does not regulate commercial banks	Often regulates commercial banks
Cannot create monetary inflation	Can create monetary inflation
Cannot finance spending by domestic government	Can finance spending by domestic government
Rapid monetary reform	Slow monetary reform
Small staff	Large staff

Source: Hanke and Schuler (1994; pp. 4)

² Theoretically, gold could also be a reserve. However, it is not recommended because it does not eliminate exchange risk with any country.

1.2. History of Orthodox Currency Boards

Currency boards have existed in about seventy countries. The idea of currency boards appeared in Britain in the early 1800s among a group of economists known as the Currency School. Thanks to their great political influence Bank Act of 1844 was intended to convert the Bank of England into a currency board³.

The first successful attempt to establish a real currency board occurred however in the British Indian Ocean colony of Mauritius in 1849. After some experimentation, the currency board system achieved its mature orthodox form with the West African Currency Board, established in 1912 for the British colonies of Nigeria, the Gold Coast (Ghana), Sierra Leone, and the Gambia. The West African Currency Board was a model for many later currency boards. By the 1930s, currency boards were widespread in British colonies in Africa, Asia, the Caribbean, and the Pacific islands. Currency boards have also existed in a number of independent countries as diverse as Argentina in the early 1900s, the free city of Danzig (today Gdansk, Poland) in the 1920s, and Yemen; see Schuler (1992).

Currency board systems performed well, with low inflation, full convertibility into their anchor currencies, and good economic growth. However, currency boards became less popular after Second World War, despite their good results in securing the credibility of currency. The main cause of exiting currency board arrangements could be aspiration of new established countries for biggest independence possible. Countries, most of all former colonies, were keen to have central bank and independent currency to symbolize their nationality in the same way as a flag or a seat at UN.

The move away from CB also reflected the changes in economic theory, where Keynesian approach of more activist “fine tuning” policy in all circumstances became more recognized. Even League of Nations International Financial Conference in 1920

³ Unlike modern supporter of currency boards, the Currency School did not realize that whole monetary base must be backed 100 percent with foreign assets in order to have proper currency board system. The Bank Act had no reserve requirement for deposits, and as a result, the act in fact converted it into a central bank; see Schuler (1992).

recommended that in countries where there is no central bank, one should be established.⁴ Currency boards had for a long time fallen out of fashion, being only used in small countries like Brunei, Hong-Kong (the most prominent currency board today) or Caribbean Islands.

TABLE 2: Modern currency boards: background information

	Hong Kong	Argentina	Estonia	Lithuania	Bulgaria	Bosnia and Herzegovina
Year of inception	1983	1991	1992	1994	1997	1997
Political status at inception	British colony	Independent	Newly independent	(Newly) independent	Independent	Independent
Current status	SAR ⁵ , China	Independent	Independent	Independent	Independent	Independent
Previous regime	Floating	Floating	Rouble area	Floating	Floating	Mixed
Reason for inception ⁶	Restore confidence	Macro stabilisation	Macro stabilisation	Macro stabilisation	Macro stabilisation	Postwar reconstruction
Authority in charge	Exchange Fund ⁷	BCRA ⁸	Bank of Estonia	The Bank of Lithuania	Bulgarian National Bank	CBBH ⁹
(Established/Independent)	(1935)	(1935)	(1919/1990)	(1922/1990)	(1879/1991)	(1997)

Source: Ho (2002; pp. 6)

We could talk about revival of currency boards in 1990's, when having a stable monetary anchor became more important for some countries than using monetary instruments for countercyclical policy. Currency board arrangement was viewed as a good way of obtaining stability mostly in transition economies with little experience of central banking and little confidence in institutions. Therefore, in 1990's few modern-day currency boards started to operate. In 1991 Argentina introduced a CB, followed by Estonia in 1992 and

⁴ Interestingly main topic of the conference was fighting inflation and also possible return to the gold standard; see Hawkins (2003).

⁵ Special Administrative Region

⁶ Except for Hong Kong and Bosnia and Herzegovina the stabilisation efforts of the other economies included fighting high to hyperinflation

⁷ The Exchange Fund became a part of the Hong Kong Monetary Authority (HKMA) in 1993

⁸ Banco Central de la República Argentina

⁹ Central Bank of Bosnia and Herzegovina

Lithuania in 1994 while Bosnia and Herzegovina and Bulgaria introduced currency board in 1997.

1.3. Assumptions for Establishing a Currency Board Arrangement

Every country that decides to introduce currency board arrangement (CBA) has to deal with various issues; however four of them seem crucial to me: choice of an anchor currency, determination of an exchange rate, extent of backing and monetary policy instruments. In this chapter I will like to describe properly all of them and set up theoretical framework under which I can later examine particular case of a currency board in Bosnia and Herzegovina.

1.3.1. Choice of Reserve Currency

After a proper constitutional preparation of CBA, government has to decide about the reserve currency, foreign asset that will cover monetary liabilities – new domestic currency. Fact is that in practice choice of the anchor currency has been quite limited; US Dollars and Euros are by far the most popular choice. Even though is sometimes suggested that it would be better to be linked to a basket of currencies, none of the modern-day currency boards did that.¹⁰ Other fact is that most of the currency boards were established in order to stabilize economy quickly, and there was not enough time to examine all the theoretical aspects of optimal anchor currency choice.

From historical experience is clear that countries adopting CBA choose mostly the currency of biggest trading partner. From theoretical point of view Enoch and Gulde (1997) list perhaps the most explicit set of conditions for designation of the anchor currency.

- I. *Stable currency and deep financial markets*: Country that wants to introduce CBA should choose an anchor currency among stable currencies with reasonably deep

¹⁰ The reason is obvious; linking to a basket of currencies would raise questions about how and when the weights might be changed.

financial markets, in order to benefit from a wide range of financial instruments those markets can offer.

- II. *Major trading partner:* Choice of anchor currency should be based on the direction of trade flows, the denomination of imports and exports, the denomination of international debt, and the correlation among cyclical movements between target and anchor countries. The authors suggest that the most advisable choice is the currency of the major trading partner.
- III. *Public acceptance:* Lastly, they give consideration to the level of public's acceptance of a foreign currency arguing that widespread dollarisation for example, could be an argument in favor of the US dollar, even in a country whose trade is not predominately with the United States or US dollar-denominated. Experiences of Argentina and Lithuania show however, how important is to find a right balance between third and second criterion.

Other important question is how sustainable choice of anchor currency is in the medium to long-run. Trying to find the answer at this question we should examine anchor currency choice from the optimum currency area (OCA) point of view, as long term sustainability is greatly enhanced if anchor and target countries form an optimum currency area; see Mundell (1961).

OCA is defined as a region that is neither so small and open that it would be better off pegging its currency to a neighbor, nor so large that it would be better off splitting into sub- regions with different currencies. By adopting currency board arrangement, country in fact enters an exchange rate union with the anchor currency¹¹ or we should say a "pseudo-exchange rate union", as political forces in the country adopting the CBA are main determinants of the permanence of the fixed exchange rate¹². However the implications for monetary policy are the same in both cases since, in the absence of capital controls, only one monetary policy is in effect. Therefore, country adopting CBA should chose anchor currency with which it would form an OCA. Fulfillment of OCA criteria, mainly high

¹¹ An area in which exchange rates bear a permanently fixed relationship.

¹² Politicians are still those responsible for final decision-making and even strictest law determining CBA can always be changed.

factor mobility, openness of economy, similarity of shocks and business cycles etc. are key determinants of anchor choice sustainability.

Even though those criteria are not 100 percent fulfilled (even may not be), and CBA and anchor economy do not form perfect OCA, many economists today support so called OCA endogeneity hypothesis developed by Frankel and Rose (1996). They conclude that with adoption and formation of “pseudo-exchange rate union” currency transaction costs and exchange rate uncertainties are eliminated and further trade between those countries is positively stimulated. If intra-industry trade accounts for most of the trade, then business cycles may become more similar across countries when countries trade more. Their conclusion basically implies that optimum currency area criteria may be (by some extent) satisfied ex post even if they failed ex ante.

Anchor currency choosing is a crucial process and should not be underestimated with an argument that the anchor currency can always be changed. It is practically impossible to actually predict economic conditions in the future that could complicate the changeover. Good example for us may be a Lithuania that underestimate importance of major trading partner criterion and had to change the anchor currency after strong dollar appreciation vis-à-vis other Lithuania trading partners. Prospect of adopting Euro as a national currency after EMU accession played also important role in this decision. Such a change was made quite smoothly in Lithuania’s case but it is clear that such a changeover seriously undermines credibility of CBA and may dangerously threatened CBA’s functioning in the future.

1.3.2. Exchange Rate

When government decides to establish a currency board and chooses an anchor currency, it is also necessary to determine exchange rate between former currency and new currency board’s notes and coins. The exchange rate between the reserve currency and the domestic currency must be appropriate. An overvalued real exchange will price exports out of world markets, while an undervalued real exchange rate will make imports expensive, preventing people from buying foreign machinery and other goods needed for modernizing national economies.

Simpliest way is to immediately adopt market exchange rate, though it may undervalue the new currency board currency; because of risk premium in case the domestic currency is not legally convertible. Hanke and Schuler (1994; 59-60) therefore recommend short period of floating exchange rate as a first step in determining a fixed exchange rate between domestic and reserve currency. Government should abolish all existing foreign-exchange regulations, in order to promote clean float and let supply and demand determine unrestricted market rate. If monetary authority does so, problem may be insufficient amount of foreign assets. Monetary authority simply might not have enough of foreign reserves to cover its liabilities (either currency or money base). In this case, easiest solution is borrowing from IMF or other kind of long-term debt that is serviced from currency board seignorage. Insufficient amount of foreign reserves should not be a reason for undervaluing new domestic currency. However most of the modern-day currency boards gave priority to fast change and they set new exchange rate without using an option of floating period.

1.3.3. Extent of Backing

As I have already mentioned classical (orthodox) currency board has 100 percent backing for domestic currency. In a modern day currency boards the backing rule is often extended to cover whole monetary base, to ensure that sufficient foreign assets are available to redeem currency even after other claims are met. As we can see from the tables bellow, many countries with central banks achieved comparable or even higher coverage from those countries that have currency board.

Biggest advocates of currency board system often use unfair comparison with “average” central banks. Then of course extent of backing looks much more favorable for CBAs. Fact is however, that I selected countries that have strong, credible and independent central banks. Still there are many examples of countries with central banking, where reserves do not exceed 50 percent of the monetary base. In other words currency board is fast and

efficient way how to secure high extent of backing, though not the only one available.¹³ There are many other factors, such as potential independence or stability of institutional framework, which have to be taken into account, when establishing monetary authority in the particular country. Something as ideal system suitable for any country unfortunately does not exist.

TABLE 3: Extent of Backing – Currency Board and Central Banks (Jan 1998-Dec 2004¹⁴)

	Foreign assets as percent to currency (min. over period)	Foreign assets as percent to currency (avg. over period)	Foreign assets as percent to money base (min. over period)	Foreign assets as percent to money base (avg. over period)
Currency Boards				
B-H	131%	171%	59%	68%
Argentina	154%	206%	55%	90%
ECCU	261%	337%	72%	78%
Hong kong	599%	752%	194%	247%
Djibouti	122%	134%	59%	63%
Bulgaria	248%	303%	104%	125%
Estonia	193%	225%	75%	81%
Lithuania	171%	212%	73%	89%
	Foreign assets as percent to currency (min. over period)	Foreign assets as percent to currency (avg. over period)	Foreign assets as percent to money base (min. over period)	Foreign assets as percent to money base (avg. over period)
Central Banks				
EURO Area	57%	102%	...	...
Australia	111%	147%	46%	65%
New Zealand	349%	470%	153%	204%
Chile	577%	850%	219%	306%
Czech republic	277%	318%	69%	105%
Slovak republic	212%	352%	71%	134%
Latvia	132%	146%	55%	62%
Croatia	287%	419%	87%	110%

Source: IMF International Financial Statistics 2006. Foreign assets are line 11, currency line 14, and money base line 14.

¹³ However, currency board can never guarantee that broad money supply is backed by foreign assets. If the banking system is required to do so, it simply could not make any loans.

¹⁴ Except: Argentina Jan 1998- Dec 2001, B-H April 1998 – Dec 2004, ECCU Jan 2000 – Dec 2004.

1.4.Currency Board and Monetary Policy Instruments

In the introduction of this thesis I mentioned that currency board is a central bank that gave up almost all of its monetary policy. This statement is true only partially, as most of modern-day currency boards use some form of discretionary monetary policy. In this chapter, I will talk about widely use one: minimum reserve requirements. I will also discuss problematic of lender-of-the-last-resort under CBA and explain transmission mechanism by which inflation from anchor country is imported.

1.4.1. Minimum Reserve Requirements

From a historical point of view minimum reserve requirements are well known monetary instrument used in the past by all central banks. Their main purpose is to sterilize capital inflows and outflows and to reduce the banking liquidity crises. However at the present time typical central bank prefers open market operations as sterilizing tool and by many central bankers minimum reserve requirements are not viewed as monetary policy instrument at all. Minimum reserve requirements are a tax implied at commercial banks and as every tax they disturb optimal allocation of bank's resources. Therefore modern central banks use more efficient market-based monetary instruments.

As I have already mentioned, currency board acts as a passive economic agent and its monetary policy should function independently from the business cycle. "Currency board regime precludes the active use of any monetary policy instrument to stabilize the economy. As reserve requirement behave as a countercyclical instrument, they are not compatible with the orthodox currency board;" see Salater (2004; pp. 73).

However, minimum reserve requirements are instrument used by all modern-day currency boards, with notable exception of Hong-Kong. Reason is simple, minimum reserve mechanism allows monetary authority to manipulate with money supply while leaving the monetary base unchanged. However, this mechanism has its own limitations. In case monetary authority wants to secure in times of liquidity shortages by imposing high minimum reserves, it may generate significant costs for commercial banks. Opportunity

costs for banks occur only if minimum reserves are unremunerated or remunerated with an interest rate lower than the market interest rate, which is most often case in reality.

On the other hand, in cases of overdone liquidity relaxation, the associated risk is much higher under a currency board than under a traditional central bank. According to Croitoru and Daianu (1999) the downward adjustment of required reserves level for supporting banks with liquidity problems can be perceived by speculators as a relaxation of the commitment to the currency board arrangement and the exchange rate peg can be attacked by speculators.

This is, in my opinion, marginal problem for majority of modern currency board; even though the periodicity of changes in minimum reserve requirements is superior in currency board economies the reserve ratios are much higher than in countries with classical central banks. For example Central-Eastern Europe direct inflation targeters (Czech Republic, Hungary, and Poland) have the reserve ratios between 2-5%, while all European currency boards have superior levels – between 6% and 10%.

TABLE 4: Reserve requirements in different European countries

Country	Monetary policy regime	Reserve requirement ratio in domestic currency (percent)
Bosnia and Herzegovina	Currency board	15
Bulgaria	Currency board	8
Estonia	Currency board	13
Lithuania	Currency board	6
Czech Republic	Direct inflation targeter	2
Latvia	Hard peg	5
Poland	Direct inflation targeter	3.5
Romania	Direct inflation targeter	18
Slovakia	Direct inflation targeter	2
Hungary	Direct inflation targeter	5
Euro Area	Hybrid	2

Source: www.imf.org

The total impact of minimum reserve requirements on monetary supply adjustment should not be overestimated. If currency board is operating in a developing country with risky

financial sector, then banks, especially foreign ones, may voluntarily maintain higher reserves. Although monetary authority lowers minimum requirements in order to generate an increase in monetary supply, in those cases countercyclical function of reserve requirements will be practically eliminated.

1.4.2. Lender-of-Last-Resort (LOLR)

A truly orthodox currency board is not allowed to use its foreign reserves for lending to the last resort, because this is in fact violation of currency board's basic principles of limited discretion; pure currency board is forbidden to hold any domestic assets.

By prohibiting lending to both government and commercial banks, the currency board regime can induce an extremely rigorous macroeconomic discipline. As Balino et al (1997; pp. 9) note: "That should enhance the soundness of the banking system by promoting market discipline, limiting moral hazard, and inducing banks to reduce their exposure."

As everything has its pros and cones, lack of LOLR function increases the vulnerability of the banking system in case of liquidity crises. Banks may not be able to take sufficient measures to avoid slump in liquidity, for instance in case of adverse external shocks. Moreover, even with lack of LOLR, moral hazard of banks last to some extent, as a systemic crisis may be expected to induce the authorities to come to their rescue in order to limit the damage to the payments system and to prevent a collapse of the CBA; see Balino et al (1997; pp. 21).

Nevertheless, the absence of LOLR in combination with incomplete deposit insurance may lead to bank runs, if the depositors expects bank in crises to go bankrupt.¹⁵ From the theoretical point of view, LOLR function may exist in CBA without violating the backing rule: if its use only within limits of the foreign reserves that exceeds amount necessary to

¹⁵ That was a case of Argentina during the Tequila crisis. Bank Extrader, a small bank that was heavily exposed in Mexican bonds and securities, got into hard liquidity crisis." Argentina's central bank law prohibited the central bank from extending explicit last-resort support. Unable to honor its deposits, Extrader was closed on January 18, 1995. The fear that other banks were similarly exposed translated into a generalized banking panic.

comply with backing rule. However, even in this case, the presence of LOLR function can generate the balance-of-payments crisis.¹⁶

According to Balino et al (1997; pp. 23): “The need for LOLR support can be reduced by adopting proper prudential regulations and supervisory arrangements. Strong bank supervision, proper accounting standards, loan valuation rules, stringent disclosure requirements, and risk management arrangements in the payments system should all be viewed as essential features of CBAs.”

Hanke and Schuler (1997; pp. 86-88) highlight two sources of stability for banks under CBA: *interbank lending markets* - so that illiquid banks can borrow from more liquid ones and *international branch networks* - so that local banks can easily access foreign financial markets and thus diversify their risks. Balino et al (1997) emphasis in particular: stringent capital adequacy rules then minimum under Basle standard – strengthen banking system, reserve and liquidity requirements – higher liquidity of financial system, and collateralizing of possible LOLR support with safe assets, for example government securities – to limit moral hazard. Complete lack of LOLR function is probably one of the biggest handicaps of pure CBA. If we consider unsoundness and vulnerability of banking systems in most of emerging markets, the full abandonment of the LOLR function will be too risky. It is therefore understandable why majority of modern-day currency board use LOLR function – the consequences of possible bank crisis may be too costly. In my opinion, right way to go is establishing a competitive, healthy and soundness banking system – that will prevent banking crisis from occurring and lack of LOLR will not be a notable setback.

Likewise, truly orthodox currency board is prohibited from accepting deposits. Therefore, fiscal reserves of the government should be placed with commercial bank or with another not-state-owned financial institution. However, not every modern-day currency board follows this rule (Lithuania and Bulgaria). Explanation of this phenomenon could be weakness of the banking system or risk associated with maintaining the government

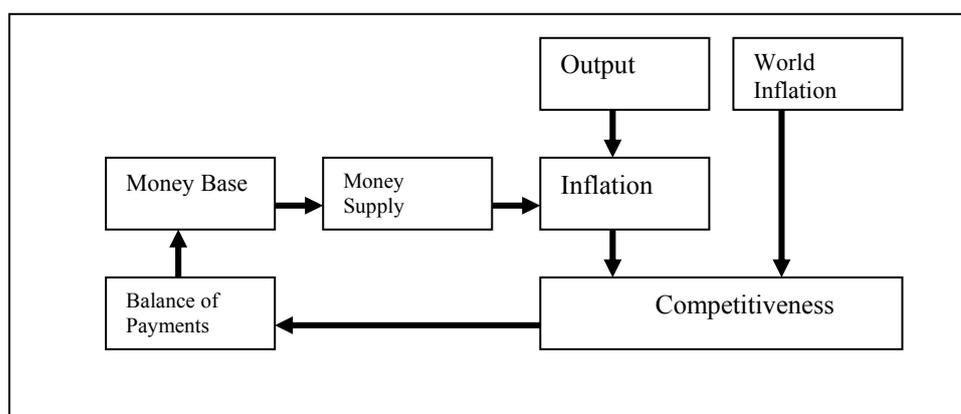
¹⁶ When a bank panic occurs, depositors withdraw local currency from domestic banks and buy the anchor one, because they are afraid of other depositors doing the same before them and consuming the foreign exchange reserves. Monetary authority must sell foreign exchange reserves and also has to issue local currency in order to offer LOLR support to the banks. The foreign exchange reserves diminish significantly, leading to a balance-of-payment crisis and in worst case to currency board collapse.

deposit with a commercial bank instead of the central bank - bank illiquidity or insolvency. Other associated risk factor is that commercial bank is then responsible for decision where to invest government funds, in the domestic or in the international market. When we realize the large size of governmental deposits and transactions, it is clear that they generate significant money supply adjustment; see Salater (2004). Therefore, decision about how will manage government funds should be taken carefully, because it is obvious that there is again a trade-off between credibility of CBA and its ability to influence a money supply.

1.4.3. Inflation Convergence in Modern-Day Currency Boards

In a title above I highlighted word Modern-Day, because transmission mechanism there differs significantly from orthodox currency boards. Most of orthodox currency boards were colonial economies with little developed banking sector and small capital flows. Therefore, there was a very close relationship between the trade balance and monetary expansion. The whole transmission process in orthodox currency board is illustrated on Diagram 1. If, for example, prices in domestic economy started to raise faster, this would lead to loss of competitiveness, exports would slow down reducing the foreign reserves and money supply, dampening activity and reversing the initial price level.

Diagram 1: Colonial Currency Board Transmission Mechanism

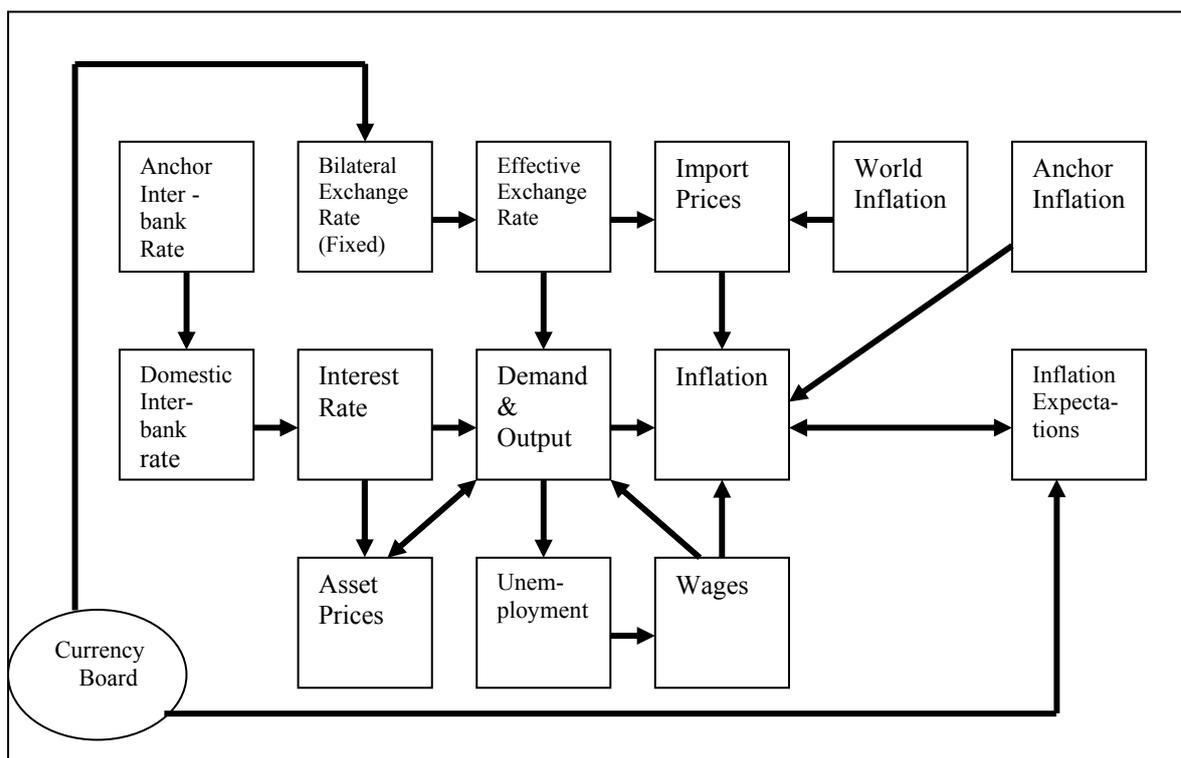


Source: Hawkins (2003; pp. 59)

In other words transmission mechanism goes mainly through current account. However, in modern-day currency boards, we may not find such tight relationship between trade balance and money supply. Hawkins (2003; pp. 43) indicates following reasons:

- I. Modern-day currency boards have developed banking system.
- II. High capital flows - can often be the dominant cause of variation of balance-of-payments.
- III. Modern-day currency boards may affect base money through market operations.
- IV. Modern-day currency boards may act as LOLR.
- V. If some of the reserves are held in different currency than anchor one, exchange rate fluctuations between those currencies and anchor currency will change the value of international reserves without any corresponding change in currency.

Diagram 2: Modern-Day Currency Board Transmission Mechanism



Source: Hawkins (2003; pp. 59)

Therefore an alternative approach to transmission mechanism is needed, in order to understand inflation convergence process in modern-day currency board. Hawkins (2003) favors a new approach of placing more emphasis on the role of interest rates.¹⁷

In the absence of significant capital controls – which is case in majority of modern-day currency boards¹⁸ - interest rates in the currency board should closely track those in the anchor economy; closely, but not totally, because there is still possibility, no matter how small, that the CBA could be abandoned, and this will build a risk premium into domestic markets. That of course has further consequences. As we can see from DIAGRAM 2, inflation in currency board system is determined in a similar way as under flexible rate system, but with additional linkage between prices in domestic and anchor economy. It is also well known that most popular choices for anchor currency are US dollar and Euro, in other words currencies of low-inflation economies. An ultra-simplistic approach would expect inflation in currency board to be the same as that in the anchor country. That of course is far from reality, mainly because of transaction costs and arbitrage inability of non-tradable goods.¹⁹

From theoretical point of view is rational to expect a bit higher inflation in CBA country than in anchor one. The explanation of this phenomenon is based on Dynamic Balassa-Samuelson Effect²⁰, which shows that countries featuring faster economic growth rates will have higher inflation rates. This is caused mainly by the fact that the production capacity in the traded goods sector of the developing countries grows relatively faster than the one in the non-tradable sector, while salaries – assuming a flexible labour market - in both sectors tend to get equal; see Halpern and Wyplosz (2000; pp. 231).

Reason for wage equalization across sectors is following. With growing productivity in sector of traded goods is reasonable to expect also wage increase. However, non-traded goods sector is less productive and wages are therefore lower. In the labour market supply

¹⁷ Diagram 2 is simple graphical explanation, for more details see. Ha J., Leung C., Shu C. (2002): *A Small Macroeconomic Model of Hong Kong*, Hong Kong Monetary Authority Research Memorandum

¹⁸With exception of Eastern Caribbean Central Bank countries (ECCB). Estonia maintained capital controls up the end of 1993.

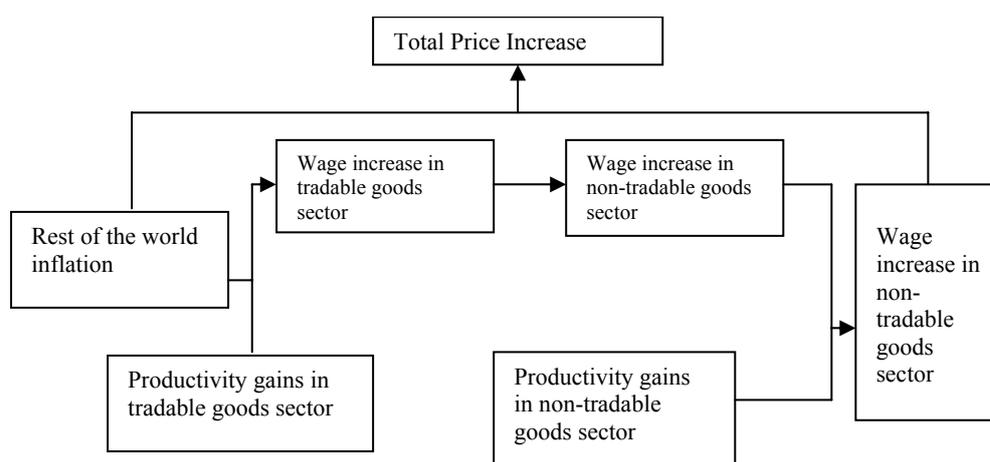
¹⁹ Moreover, even when transport costs are minimal, the inflation rate for traded goods will never be exactly the same in the two economies, because of different mix of goods used to compare economies.

²⁰ Do not mistake for Static Balassa-Samuelson Effect that shows why undeveloped countries have lower price level.

of workers will shift towards the better paid jobs in non-tradable sector. This, in combination with trade unions demands, will generate pressures towards wage equalization. The non-traded goods sector, facing smaller productivity increases than in the traded-goods sector, has to raise prices faster than in order to accommodate a wage increase and stay profitable. Supply-side's reaction to the larger productivity in the traded goods sector is therefore higher inflation rate in the non-traded sector.

Moreover, rising productivity implies rising incomes and consumption. As the growing demand is usually biased towards services (luxury goods), which represent majority of non-traded goods, the demand side effect reinforces supply-side's reaction. Therefore prices of traded goods follow price development in the anchor country (and world markets) while prices in non-tradable sector are growing at faster pace resulting in higher total inflation in currency board country than in anchor country. Or to put it more generally, the growth rates of the general price level in the developing countries are higher than in the developed ones.²¹

DIAGRAM 3: Model of inflation – Dynamic BS Effect



Source: Nenovsky and Dimitrova (2002; pp. 11)

²¹ However, there are currency board countries, for example Bosnia and Herzegovina, that have permanently lower inflation than anchor countries. I would try to explain this phenomenon in the further chapters of this thesis.

Still, considering low levels of inflation in anchor countries, CBAs proved as a good weapon in fighting the high inflation. Currency board countries have always had at worst moderate inflation, and their average inflation rates have been well below those in average economy with an independent currency. However exchange rate rigidity and high productivity in Euro-based currency board countries may cause difficulties for those countries during accession process to European Monetary Union (EMU), in particular inability of those countries to fulfill Maastricht criteria during the catch-up process. Real exchange rate appreciation in currency board countries is reflected in higher inflation levels. It is therefore expectable that inflation in CBA country exceeds inflation of three EU best performers by more than 1.5 percent; violating so the convergence criteria. Reason is that best EU performers need not necessarily be major trading partners CBA but inflation in CBA country converges to inflation levels of its major trading partner. As CBA is not viewed as a permanent solution for those countries, accession to EMU is to be viewed as optimal exit strategy. Therefore inflation convergence may generate difficulties for catching up currency board countries in fulfilling accession criteria²².

²² For countries with floating exchange rate it may not cause such a problem as real appreciation may be partially reflect in nominal exchange rate appreciation.

1.4.4. Banking Sector under Currency Board Arrangement

Functioning and soundness of banking sector are crucial for CBA's operations. This is true especially for modern-day currency boards; colonial currency boards were operating in the times of relative capital immobility and they were mostly branches of big foreign banks, therefore they could cope easily with liquidity shortages. However, situation changed for modern-day currency boards where high mobility of capital and lack of LOLR function have a significant impact on operating of banking sector.

As already written CBA helps stabilizing inflation rate and secures interest rate convergence over the long term. Because interest rates are main adjustment mechanism; in combination with high capital flows (capital mobility) they may cause high day-to-day interest rates volatility. Therefore banks in CBA countries have to be more flexible and to accept difficulties linked with such adjustments. If CBA country experiences, for instance, systemic capital outflows, adjustment mechanism increase interest rates sharply to defend the fixed exchange rate. However, if interest rates remain high for a long period, small and undercapitalized banks may have difficulties staying liquid and become insolvent. If such a situation arises, absence of LOLR function means that central bank is unable to help problematic bank and mitigate the effects of a liquidity shortage. Therefore absence of LOLR function may allow problems of an individual bank to spread system wide.²³

So what should modern-day currency board country do in order to prevent such a system wide liquidity crises? Simplest suggestion is to start providing LOLR function; however, this may undermine CBA credibility and increase moral hazard in the banking sector as monetary authority would bail-out problematic banks. Therefore some alternative solution is needed for CBA that simply can not introduce LOLR function.

²³The 1995 crisis in Argentina highlighted these two implications. Partly because of restricted scope for sterilizing capital flows and LOLR support, a small bank failed and the system wide crisis emerged; see Santiprabhob (1997; pp. 3).

This problem can be solved partially by imposing high reserves or liquidity requirements that could be relaxed to provide additional liquidity during the time of stress. Other possibility is introducing deposit insurance scheme that can help strengthen depositor's confidence in the banking system and avoid bank runs. However, it is not flexible to often adjust the levels of reserves and liquidity requirements. Open market operations of monetary authority could be therefore to the benefit of liquidity management²⁴. Also development of interbank market is essential in this context as banks could also depend among themselves for liquidity management.²⁵

In order to minimize risk of systemic payment crisis it is reasonable to require banks to settle their payments on the books of monetary authority. In cases where private banks handled payment settlements for whole banking sector several difficulties may occur. Firstly, if settlement bank run into financial difficulty the payment system could be disrupted and liquidity problems may spread system wide. Second reason is that settling payment transactions in the books of private bank may complicate monetary operations and create unfair market environment as settlement banks have access to other banks' proprietary information; see Santiprabhob (1997; pp. 30)

Participation of foreign banks in the domestic banking system may generate additional benefits for CBA country. These banks could rely on their headquarters when obtaining liquidity in the local markets becomes difficult. Moreover, participation of foreign banks is likely to enhance competition and efficiency in the domestic financial system. This benefit is even more important than potential liquidity supply that could be alternatively secured by domestic contingency credit lines with foreign banks.

CBA has to operate in environment in which the credibility of its fixed exchange rate rule is unlikely to be undermined. Weak banking conditions could be seriously harmful to CBA's credibility. Weak and unsound banks are generally willing to take higher risk and usually they do not respond to monetary signals, especially interest

²⁴ However, they are violation of basic CBA's orthodoxy, because it is difficult to distinguish between liquidity management and discretionary monetary policy

²⁵ This solution is off course meaningful only in CBA countries that has liquid government securities (or other safe asset) market.

rates, in a predictable manner. Therefore existence of unsound banks may imply a larger magnitude of interest rate adjustment in response to shocks than would occur otherwise. That may generate liquidity problems for small banks, as already mentioned, and lower the credibility of CBA. Unsound banks could also slow down the process of interest rate convergence and financial intermediation. Since they tend to take higher risks (and depositors demand higher risk premium), they cause large interest rates spread between CBA and anchor country and therefore slower and undermine whole stabilization process. Slow process of financial intermediation could slow economic growth and generate pressures for abandoning the CBA and devaluing the currency. Best way how to avoid such a situation is imposing stricter regulations and supervisions than the international standards and participation of foreign banks that brings necessary know-how on the domestic markets and helps improve efficiency in the domestic banking sector; see Santiprabhob (1997; pp. 7-9).

Last but not least, choice of anchor currency and proper exchange rate are also necessary for proper functioning of banking sector. Choice of appropriate reserve currency is important because monetary policy is imported from the anchor country. In case of inappropriate choice consequences may be critical not only for banking sector, but for whole economy²⁶. Regarding right choice of the nominal exchange rate; if it is fixed at an appropriate level, its stability could enhance cross-border transactions and accelerate economic growth. This would in turn have positive consequences for banking sector as economic growth would improve the quality of bank loans and profitability of whole banking sector. This benefit may be seen as a compensation of banking sector for foreign exchange trading limits between domestic and anchor currency, imposed by fixed exchange rate.

²⁶ Already mentioned Lithuanian case or see Santiprabhob (1997; pp. 15)

1.5. Advantages and Disadvantages of a Currency Board Arrangement

In this chapter I am going to summarize and comment greater part of currency board strengths and weaknesses. Neither in common life nor in economic theory are things black and white, therefore is not surprising that some of currency board's disadvantages are just flip side of its advantages. Ceteris paribus hardly exist in a real world and without particular knowledge about time and situation it may be impossible to decide whether some of the following topics are actually CBA's strength or a weakness.

1.5.1. Advantages of Currency Board Arrangement

1.5.1.1. Operational Simplicity

First of all I should mentioned operational simplicity, which in opinion of many economists seems to be biggest strength of a currency board. Reason is that its operational rules are easily understood and therefore should be readily monitored by the general public. Hard peg simplifies operation of currency board - unlike classical central bank currency board management has small staff responsible mainly for exchanging currency board notes and coins and investing the assets of the currency board in low-risk securities²⁷. Due to staff reduction currency board is able to save significant amounts of public funds. If other central bank functions, such as payments system and fiscal agent²⁸ functions are transferred to other institutions, then need for staff and bookkeeping is reduced even more.

1.5.1.2. Credibility of Sound Monetary and Fiscal Policy

We should consider that most of modern-day currency boards were established in order to strength country's credibility. CBA provides credibility recovery by making monetary authority unable to monetize fiscal deficits, which can be essential interest of emerging

²⁷ Denominated, of course, in the anchor currency.

²⁸ Bringing coins into circulation for Government, issuing and redeeming debt instruments for public debtors etc.

economies. Emerging economies have usually undeveloped tax systems and weak or none capital markets, therefore the easiest way to finance deficits is by collecting the seigniorage revenue from increasing money supply. Under CBA this form²⁹ of seigniorage revenue is abolished, because only way to increase money supply is by maintaining current account surplus. Such fiscal discipline is unique to currency boards.

Alberola and Molina (2000) further deny widespread opinion that all fixed exchange regimes provide more fiscal discipline than flexible regimes. They base their argumentation on distinction between monetary seigniorage – revenue earned by the central bank printing money, and fiscal seigniorage – revenue accruing to the government from other changes in the central bank’s balance sheet components. They shows that CBAs, unlike other fixed exchange rate regimes, restrain both types of seigniorage and are thus most effective in containing excessive fiscal spending; see also Kamhi and Dehejia (2005).

Macroeconomic discipline given by strict and transparent rules of operation should therefore stimulate trade and investment in currency board country. Balino et al (1997; pp. 12) add that: “experience with CBAs generally substantiates these expected benefits. Indeed, their resilience contrasts sharply with that of conventional fixed pegs, possibly because the introduction of a CBA provides greater impetus for a strengthening of policies overall.”

1.5.1.3.Currency Stability

Other great advantage of currency board is confidence in domestic currency. By the law or constitution endorsed full convertibility ensures that any demands for currency conversion are honoured while the high commitment to the peg is made explicit by legislation; see Kamhi and Dehejia (2005; pp. 10). These two features eliminate most of exchange rate uncertainty and that affects positively trade, investment and economic growth.³⁰

²⁹ It does not mean that under CBA there is no seigniorage revenue. As I’ve mentioned earlier, the source of seigniorage for currency boards is interest earned on foreign reserve assets.

³⁰ Kamhi and Dehejia consider that CBA eliminates any form of risk uncertainty. I can hardly agree because even the strictest law can always be changed, therefore 100% of exchange rate risk can never be eliminated.

1.5.1.4. Interest Rate Convergence and Low Inflation

Due to higher credibility and low capital controls under CBA, interest rates should converge to levels in the reserve currency country and remain close to international levels. In addition to lowering the risk premium in interest rates, currency and macroeconomic credibility should help promote, in the longer run, international trade and facilitate access to international capital markets – as clearly shows example of countries that adhered to strict gold standard rules during the period of 1870-1914; see Balino et al (1997; pp. 9).

Low inflation is another advantage observed in CB countries. Even though inflationary level in CBA countries remained higher than in anchor countries, Ghosh, Gulde and Wolf (1998) argue that level of inflation in CBA countries is, on average, about 4 percentage points lower than under other pegged exchange rate regimes. They see the main cause in “confidence” effect – in this context it means that for a given money growth rate, higher money demand results in lower inflation. Furthermore, according to IMF working paper, CBAs are even perceived to be less vulnerable to destabilizing capital outflows and self-fulfilling currency crisis; see Balino et al (1997).³¹

1.5.2. Disadvantages of Currency Board Arrangement

Even though it might seem now that CBA is an optimal choice for a country that wants to strengthen macroeconomic credibility and fight high inflation, strong objectives to CBA also exist and I should summarize them to be able to make conclusions about CBAs.

1.5.2.1. Nominal Exchange Rate Rigidity

First of all CBA is one of the many fixed exchange rates and as other fixed pegs it causes important costs when economy is subject to external shocks. We might say that changes in monetary policy of the anchor country will be inopportune for CBA country if OCA

³¹ However, we should not forget Argentinean case that undermines Balino’s statement from 1997. Argentinean currency board did not prove less vulnerable to capital outflows and was not able to avoid currency crisis. However, Argentinean case had its own specifics, see Anex 1.

conditions are violated – mainly if business cycles of anchor and CBA country do not coincide.³² It is clear that impossibility of CBA to appreciate or depreciate in order to buffer the economy from external shocks generates great costs; however this is more question of float vs. fixed exchange rate.³³

Other weakness of CBA may occur when the value of the reserve currency changes in relation to the currencies other trading partners. “For example weakening of the reserve currency can impart a significant inflationary bias if it leads to depreciation of the CBA country’s currency vis-à-vis the currencies of its other trading partner;” Balino et al (1997; pp. 15). The explanation of this fact is simple, as under CBA there is no possibility to change nominal exchange rate only way to change real effective exchange rate is by change in price level. Weakening of the reserve currency means de facto imported inflation pressures that may seriously undermine currency board’s credibility.³⁴

Inability to change nominal exchange rate generate also further costs in currency board countries. Generally most exchange-rate-based stabilization programs have experienced post-stabilization booms that led to real exchange rate appreciation. Correction of real exchange rate misalignment are however much more difficult under CBA than under other hard peg regimes. By devaluing CBA risks loss of credibility because it violates the rules given by law. “Furthermore changing the exchange rate under CBA could require prolonged period of tight liquidity and high unemployment that could cast doubts on the CBA’s sustainability;” Balino et al (1997; pp. 16).

According to Roubini (1999): “fixed exchange rate regimes, and currency boards in particular, are associated with real exchange rate appreciation, loss of competitiveness, worsening of the trade balance and current account. That is why CBs end up being subject to attack and they often collapse.”

³²If for example CBA suffers from high unemployment rate, it would need to lower interest rates to accelerate economic growth. However, if anchor country has different business cycles it may suffer from high inflation therefore interest rates in anchor country will rise, deepening the unemployment problem in CBA.

³³ Float exchange rate has its weaknesses too (exchange rate uncertainty etc.) but I am not going to start never-ending discussion about fixed vs. float exchange rates here.

³⁴ Depreciation of the pound sterling against the U.S. dollar helps explain Singapore’s 1972 decision to abandon the pound sterling as a reserve currency.

This last statement is, in my opinion, too generalizing. It is obvious that nominal rigidity of the exchange rate has both its advantages and disadvantages for a country. Therefore it is always necessary to consider a particular case in order to decide whether the strengths of CBA outweigh its weaknesses.

1.5.2.2. Lack of Lender of the Last Resort Function

As I have written in the former chapter, CBA's requirement of full backing of monetary base helps discourage systemic runs on banks. However in case the run occurs, CBA countries are more vulnerable to banking crisis if they currency board do not act as a LOLR. The strict monetary discipline provides many advantages, however in this case inability of CBA to provide the necessary liquidity for financial institutions in crisis generates great costs too. "As CBA is not able to guard against systemic risks, the lack of LOLR underscores the danger of bank insolvency because depositors will want to secure their assets by investing abroad;" Kamhi and Dehejia (2005; pp. 12).

But even if this were not the case problems may occur. In the event of a loss of confidence – for example some political pressure to change CBA – depositors will convert their demand deposits into the reserve currency and commercial banks must have sufficient funds. They must either hold enough foreign reserves or establish credit lines with foreign banks to meet all demands. Theoretically the CBA environment of low exchange rate risk and credible macroeconomic discipline should motivate foreign banks to operate in currency board country – that may be very useful because foreign branches can draw resources of their parent banks and thus lower some of the liquidity pressure in currency board country. "CBAs that operate in a financial system dominated by subsidiaries of foreign banks, as were the case of colonial CBAs, are less prone to banking crisis caused by liquidity shortages;" Balino et al (1997; pp. 16).

That of course discriminate domestic banks, but even this problem can be reduced by developed interbank lending markets – illiquid banks can simply borrow from more liquid ones. Furthermore monetary authority may give some additional liquidity injection by relaxing the commercial banks reserve requirements. Lack of LOLR function can be a threat for CBA mainly in those currency board countries where banking system is weak and where banks have limited access to foreign funds.

1.5.2.3. Constraints on Fiscal Policy

As we already know, CBA promote but do not guarantee fiscal discipline. As monetization of fiscal deficits is not possible under a currency board, the incentive to have large budget deficits should be reduced. If the fiscal authorities know that a fiscal deficit will not be monetized by the central bank, their political willingness to spend a lot and have large deficits will be reduced.

Roubini (1999) comes with following argument against CBA. “Under fixed exchange rates – unlike under float ones - the politicians do not pay right away the costs of bad fiscal policies. As the currency is pegged, an expansionary fiscal policy does not immediately lead to currency depreciation. Instead, the deviant fiscal behavior can for a while be hidden behind a bond-financing of the deficits with no devaluation or with a loss of foreign reserves if the deficit is financed through a monetary increase in domestic credit. Either way, the market disciplined against fiscal deficits is loosened.” That’s why Roubini prefer float exchange rate regimes; he thinks that politicians favor fixed exchange rates, because consequences of deviant fiscal behavior are not paid by depreciation in the short run.

Another common objection is that tighter credit policy under CBA is detrimental to economic growth. However, Ghosh, Gulde and Wolf (1998) find that the average annual per capita growth is almost twice as high under currency boards then other floating or fixed exchange rate regimes. They argue that monetary and fiscal discipline is likely to engender confidence in the domestic currency thereby increasing economic growth through the confidence channel.

In my opinion, it is questionable whether to ascribe high economic growth of CBA countries only to confidence channel or we should also consider low levels of GDP per capita in those countries that faster the GDP growth through so called “base effect” – CBA countries may growth faster because they are less developed in absolute terms.

1.5.2.4. Loss of Central Bank Function

The limited operational framework of CBAs causes some disadvantages, because currency board is not able to undertake some functions routinely performed by central banks – mainly those related to monetary operations and the payments system. Theoretically, capital flows and interest rate arbitrage should perfectly substitute for central bank liquidity management. However, practical experience shows that CBA that do not perform monetary operations and rely absolutely on capital flows to regulate liquidity may subject the economy to unnecessary fluctuations. Interest rate arbitrage is in practice limited (due to transaction costs, credit risk etc.) and CBA's automatic adjustment mechanism may fail to act with sufficient speed to prevent temporary monetary imbalances from affecting the economy. Experiences of Argentina and Hong Kong show that capital flows were unable to fully arbitrage interest rates on a daily basis and both countries were forced to engage actively in open market operations and other day-to-day operations in order to absorb short-term liquidity imbalances; see Balino et al (1997) .

Other issue is payment system. In colonial currency boards the need for local clearing houses was limited, because most of the commercial banks were branches of foreign banks and large interbank transactions were settled through their home offices. However, situation of modern-day currency boards is quite different and in cases where CBA do not provide banks the opportunity to settle in the books of the central bank, some problems can emerge – this raises the risk of settlement failures, especially if the CBA does not provide LOLR. If central bank does not exist under CBA, settlement service should be provided by large commercial bank or by other specialized institution.

1.5.2.5. Danger of Currency Mismatches

Currency mismatch is a situation that occurs in cases when assets and liabilities are denominated in different currencies. Therefore net worth is considerably sensitive to changes in exchange rate. If for example foreign currency-denominated deposits are financing domestic-currency activities, a large depreciation of the domestic currency can destroy much of the net worth of firms and households and start a wave of insolvencies, a

financial crisis, and a steep fall in economic growth. In a currency board country³⁵, economic agents may yield to wrong persuasion that there is no currency risk between domestic and anchor currency, due to strong legislative commitment of monetary authority to defend a parity. Therefore banks and firms do not hedge their anchor-currency liabilities and resulting exposure increases substantially fragility of financial system. Recent research of Goldstein and Turner (2004; pp.) has shown that “currency mismatches not only have been a major element in almost every major financial crisis in emerging economies during the past decade but also have made such crises very costly to resolve.”

1.5.2.6. Deflation

The danger of deflation under CBA is induced by inability of monetary authority to change supply of money in a growing economy. Obviously, as a currency board economy grows it must run current account surplus in order to increase supply of money as quick enough to satisfy growing demand. However, continual surpluses are unlikely which implies that in periods of balance or deficits the supply of currency board’s notes and coins will increase more slowly than the demand – resulting in deflation that has negative impact on country’s economic performance.³⁶

1.5.2.7. The Cost of Reserves

Last objection to a CBA arises in context with extent of foreign reserves backing. Supporters of central banking argue against 100 percent of backing, because it deprives the economy of real resources that are available in central banking system. Investigations from 1950’s shows that 30-50 percent of the reserves of currency board are surplus, since there was a hard core of notes and coins that people would never return to the boards for conversion into the reserve currency; see Hanke and Schuler (1994).

³⁵This statement is true for every form of fixed exchange rate, but illusion about non-existence of currency risk is biggest under CBA – a strictest form of hard peg. Even though majority of economist suggest that floating exchange rates would encourage banks and firms to match dollar liabilities with a corresponding quantity of dollar assets, as they seek to limit their exposure to exchange risk.

³⁶ Though, according to Hanke and Schuler (1994; pp. 92): “Historical experience strongly suggests that the danger of deflation in a typical currency board system is small compared to the danger of inflation in a typical central banking system.”

Surplus reserves are costly mainly because they could be used to buy imports – increasing the real goods available in the economy. However 100 percent backing is crucial for operating of CBA and contributes to currency confidence and macroeconomic stability of the country, therefore it is impossible to lower opportunity costs by lowering the amount of backing.

1.6.Duration of Currency Board Arrangement

CBA can surely be viewed as permanent in countries that gain obvious trade and other benefits from belonging to so called “pseudo-exchange rate union” as in case of ECCB countries. However CBA can be also viewed as a transitional arrangement that served currency board country well until credibility and institutions were regained. Country should then abandon CBA and begin new period of discretionary monetary policy.³⁷ Other impulse to abandon CBA may be a large exogenous shock, when country decides to switch to more flexible monetary arrangement in order to buffer the shock.

1.6.1. Possible Exit Strategies

It is reasonable to put a following question: If CBA served country well in the past, why should country abandon it anyway? Answer to that question is clear if we consider long time horizon. Credibility effect generated by currency board is likely to prove most beneficial at the beginning of the regime change; when country is fighting hyperinflation and irresponsible monetary and fiscal policies. However over time the weaknesses derived from CBA’s inflexibility may become more relevant. Rigid rules that helped during transition phase might show as unduly constraining. As confidence in government has grown, gradual relaxation of CBA rules or even immediate abandonment may be viewed as natural conclusion of transitional process; see Balino et al (1996; pp. 24-28).³⁸ Assuming

³⁷ This is case of Ireland with its gradual change in period 1943-1979; see Balino et al (1996; pp. 27)

³⁸ This situation can be defined as abandonment of CBA from position of strength. We can speak about abandonment of CBA from position of weakness when there is a need to exit a CBA due to, for example, large external shocks.

that country has already decided to abandon CBA, it has to choose one of the three possible exit strategies: switch to float, switch to peg and currency substitution.

1.6.1.1.Switch to float

Currency board country may decide to move to float exchange rate. Balino (1996) argues that switch to float is appropriate exit strategy if domestic currency is under pressure to appreciate; this situation occurs most of all when anchor currency is depreciating and therefore domestic currency depreciates vis-à-vis other trading partners (increase in imported inflation). Great example is Singapore in 1973 that exit CBA from position of strength amid revaluation expectations.³⁹ Switch to the free float does not need to be immediate, the currency could be allowed to float within the band that could be widened gradually or made into crawling band. “However, due to the risk of losing the nominal anchor, management of an exit strategy with narrow band will be always easier in the case of incipient appreciation than depreciation”, notes Balino et al (1996; pp. 27).

1.6.1.2.Switch to peg

Other option for CBA exiting would be to change reserve currency. “The objective would be to attain a real effective appreciation (depreciation) through a gradual nominal appreciation (depreciation) of the new reserve currency;” Balino et al (1996; pp. 28). Practical usefulness of such a switch is strongly limited by difficulties of predicting exchange rate movements. Moreover change of the reserve currency may create traditional problems in the banking sector, as the structure of interest rates in the new reserve currency may differ from that of the old reserve currency. In my opinion, need to switch in the peg

³⁹ Example of Singapore is even more interesting, because it tried two exit strategies before full abandonment of CBA. It changed anchor currency in 1972, when pound sterling moved from fixed parity with gold to float, and pegged its currency to U.S. dollar with a band of 4.43 percent. However U.S. dollar started to depreciate sharply at the beginning of 1973 – Singapore dollar depreciated against currency of other trading partners and that resulted in an increase in inflation. Singapore authorities decide to adopt floating exchange rate regime, which resulted in an initial appreciation; see Balino et al (1996; pp. 26-27)

is clear confirmation that former anchor currency was chosen badly. Question is, whether the monetary authority could even make a better choice or not.⁴⁰

1.6.1.3. Currency substitution

The last option how to exit CBA is currency substitution. It is very interesting topic, so let me explain it little more detailed. Currency substitution has two possible meanings. First is used in situation, when population of particular country “decides informally to hold foreign currency and converts all surpluses of domestic currency into foreign currency;” Šević (2002; pp.152). The second is in the use when country formally decides to introduce foreign currency as its own. This action requires some kind of legal act, which will “declare a foreign currency a legal tender in the country, and make provisions for the transitional period in which national currency will be withdrawn and replaced by an appropriate quantity of foreign currency;“ Šević (2002; pp.152).

We may say that informal introduction of secondary currency appears when domestic currency fails to deliver its store-of-value function. Informal currency substitution is common phenomenon in all countries, which suffered from hyperinflation. Even if the government often tries to enforce currency laws to ensure that all transactions will take place in domestic currency, it is hopeless push in situation, when whole population decide to use foreign currency as the main one. Sometimes country can even continue using its own currency (usually coins for small transactions), but in those cases role of the domestic currency is secondary.

Most common type of currency substitution is dollarisation – mainly unofficial one is practiced worldwide. In a pure dollarised country there is no place for domestic currency, therefore there is no currency risk. However, country risk still exists and usually is not imported when the dollarisation is introduced. A dollarised country imports only an inflationary target from the exporting country⁴¹ plus an additional premium for the country

⁴⁰ In case of Lithuania, Euro should have been a right choice for anchor currency instead of U.S. dollar. In case of Singapore or Malaysia I would say that their former choice was right and switch to other peg was unavoidable.

⁴¹ I am using term dollarisation instead of currency substitution only because it is simpler. Therefore I am writing exporting country instead of USA.

risk. Other “CBA-likeness” is lack of LOLR function, which means that dollarised countries does not have any instrument to soften external shocks.

Unlike the CBA, dollarised country does not gain any seignorage from foreign reserves interest. Other cost grew from the withdrawing money from circulation and replacing of domestic currency, price adjustments etc.

Benefits of dollarisation are nearly identical to those of CBA, elimination of currency risk which consequently reduces sovereign risk, reduction of financial system needs for reserves, fighting the high inflation etc. All these elements should contribute to the better macroeconomic performance of the country.

Similarity of currency substitution and CBA in majority of aspects is, in my opinion, its biggest advantage as an exit strategy of currency board country. There is almost no additional risk because dollarisation is just further step into currency zone.⁴² There are some benefits – such as complete currency risk elimination that should enhance further trade and investment. There are some costs connected with loss of seignorage from foreign reserves interest. However, in case that country chose former anchor currency according to OCA criteria, currency substitution is, in my opinion, the best way of exiting CBA – because joining the optimum currency area generates (for currency board country) more profits than losses. This is especially true for Euro-based currency board as they aspire for membership in EMU in the (near) future.

⁴² You may argue that additional risk is generated from absolute inability of the country to change its monetary regime in case of external shocks. CBA should always be abandoned.

2 Currency Board in Bosnia and Herzegovina

2.1. Economy of Bosnia and Herzegovina at Glance (1945-1995)

In this chapter I would like to give you short description of Bosnia and Herzegovina. I will start with short introduction of pre-war economic and political situation of Bosnia and Herzegovina in the context of former Yugoslavian federation. Then I will describe general picture of the country after the war in more detail. I will focus on functioning of monetary authority and impact of CBA on economic performance of B-H.

2.1.1. Pre-War Situation in a Nutshell

Since the end of WWII Bosnia and Herzegovina was part of former Socialist Federative Republic of Yugoslavia (SFRY) with capital city Sarajevo. With population of about 4 millions it represented 18% population of whole federation. Those 4 million lived on ca. 50 000 km² (20% of whole area) and produced about 18.4 percent of total GNP. However, their GNP per capita was the second lowest behind Macedonia; see Table 5.



Source: www.balkania.net

The interior of the country is heavily mountainous and divided by various rivers. Hilly terrain with only small part of arable land (about 14%) and rich natural resources (water, wood, bauxite etc.) are typical geographical signs of the country.

Bosnia and Herzegovina was medium developed country and its economy had been built since 1960 according to needs of centralized federative industry. Due to its geo-strategic

location, Yugoslav government decided to establish its main military industry in Bosnia and Herzegovina. According to Trost (2002;): “The heavy industry of Bosnia and Herzegovina was concentrated on the production of semi-finished products, which were sold to Slovenian companies for further production and later exported as part of a final product⁴³. Huge forests served as the basis for a flourishing furniture and paper industry; ore, iron, and bauxite mines fed the steel and aluminum industry around Zenica and Mostar; salt mines in the area of Tuzla formed the basis for the salt and chemical industry; the Posavina-region was the centre for agriculture and poultry farming; and the food industry was located in the area of Brcko. Bosnia and Herzegovina was also the main producer of hydro-electric power within the SFRY.” Most important companies that developed in Bosnia and Herzegovina were Energoinvest d.d. Sarajevo (hydro, electric and thermal power plants), Vitex d.d. Visoko (wool textile) and RMK Zenica (steel production).

TABLE 5: GNP per capita (relatively to SFRY in 1975)

	SFRY	B-H	Montenegro	Croatia	Macedonia	Sloveni a	Serbia
1975	1.00	0.66	0.68	1.25	0.69	2.04	0.90
1980	1.26	0.83	1.00	1.60	0.85	2.50	1.13
1981	1.27	0.85	0.99	1.61	0.85	2.46	1.14
1982	1.27	0.86	0.96	1.59	0.85	2.45	1.15
1983	1.24	0.85	0.95	1.56	0.82	2.46	1.12
1984	1.26	0.86	0.98	1.59	0.83	2.50	1.13
1985	1.26	0.87	0.97	1.59	0.82	2.52	1.13
1986	1.29	0.89	1.00	1.63	0.87	2.59	1.16
1987	1.27	0.87	0.95	1.62	0.84	2.56	1.13
1988	1.19	0.80	0.88	1.53	0.77	2.41	1.08
1989	1.19	0.80	0.88	1.50	0.79	2.38	1.09
1990	1.09	0.74	0.78	1.38	0.69	2.19	1.00

Source: SZZS (1996; pp. 237)

⁴³ Final products had to be exported by one of the special agencies that handled export and import, such as GENEX, INTERTRADE etc. A typical business deal of such an agency consisted of two contracts: one with the producer of the goods located in any republic of Yugoslavia, and one with the customer situated somewhere abroad. with the customer situated somewhere abroad. These contracts were in most of the cases created through a agency overseas offices; see Trost (2002; pp. 77)

However economy of SFRY was much different from economies of the Soviet Union and other Eastern European socialist countries. In 1950s socialist self-management was introduced, which reduced the state control of the economy and increased its efficiency. Worker Self-Management System is basically a form of workplace decision-making process in which the employees themselves agree on different choices (general production methods, scheduling, division of labour etc.) instead of the authoritative supervisor system typical for Soviet Union. It could be simply described as a socialist form of shareholding company. Employed are shareholders with same share in the company. They also elect management of the company. All the results of the work, profit after tax, are at the shareholders disposal. Shares are not object of sell or buying. When an employee decides to change working place, he gives up his share in the former company but gets it in the new one. The state has no rights in the company but to collect taxes; see Božidar (1997; pp. 3). Even though this system caused many flaming discussions between economists in last fifty years it was, in my opinion, definitely a competitive advantage of former Yugoslavia in comparison with other socialist countries having typical centrally planned economies.

With the exception of a recession in mid-1960s, the country's economy prospered formidably. Unemployment was low and the education level of the working force steadily increased. Table 6 shows average GNP growth rates in period 1948-1990:

TABLE 6: GNP average growth rate/year 1948-1990 (in percent)

	B&H	Montenegro	Croatia	Macedonia	Slovenia	Serbia
1948 - 1960	6	5.9	6.7	5.9	6.6	6.5
1961 - 1970	5.4	8.4	6.3	7.9	6.9	6.1
1971 - 1980	5.5	6.1	5.4	5.8	6.1	5.9
1981 - 1990	0.2	-1.1	-0.8	-0.3	-0.1	-0.3

Source: SZSS (1996; pp. 14)

During and after oil crisis in 1970s foreign debt of SFRY reached 20 billion US dollars in early 1980 and shock treatment consisting of wide range of austerity measures was implemented (fuel limitations, limitation of car usage to 3 days a week etc.). The economic stagnation of the 1980s and draining of the banking system, caused by the rapidly rising

inflation (in which millions of people were effectively forgiven debts) and insufficient government tries to moderate the situation increased the public perception of a deep crisis.

In 1989 Marković's government introduced program of economic reforms that should have transformed federation into democratic market economy. New business legislation that set in private ownership of business was introduced. While public companies were allowed to be partially privatised, mostly by investment, the concept of social ownership and worker councils were retained. At the heart of the program's monetary reform was a new "heavy" Dinar⁴⁴ pegged to the German Mark that brought inflation relief to the banking sector (inflation rate plugged from an annual 2600 percent to zero in about six months). Reforms brought some economic optimism and prosperity in the late 1990, hard-currency reserves doubled from their 1989 level and the standard of living rose. The country's foreign debt decreased and repayments took place on schedule. However after success of national parties in Croatia and Slovenia it became increasingly clear that the federal government was effectively losing the power to implement its agenda. During 1990, end of federative co-operation was near.

Growing ethnic and economic tensions led finally to end of SFRY when republics of Slovenia and Croatia declared independence in 1991; Macedonia followed in 1992 together with Bosnia and Herzegovina. Devastating war in Bosnia and Herzegovina started short after declaration of independence in 1992 and lasted till late 1995.

2.1.2. Consequences of a War

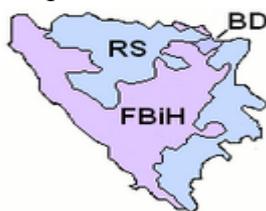
Destructive war officially ended on 1.11.1995 by signing of Dayton Peace Agreement. However its consequences are still clearly visible in Bosnia and Herzegovina. Due to lack of reliable data it is however difficult to estimate at least the measurable ones. According to FBiH Public Health Institute 258000 inhabitants (ca. 6%) of prewar population was eliminated. Estimates of missing persons differ but they vary between 19000 and 28000 persons; see Helsinki Committee for Human Rights (1998).

⁴⁴ New Dinar, which was equal to 10 000 former Dinars

There were 1.2 million refugees from Bosnia and Herzegovina at the end of the war and approximately 50% of 1991 population of the country has changed their place of residence; see UNHCR (1995).

As for economic consequences of the war, both direct and indirect losses are estimated at 100 billion USD. GDP per capita dropped from 2450 USD⁴⁵ in 1990 at 600 USD⁴⁶ in 1995. At least 60 percent of population in 1995 was at poverty level, defined as income that covers less than two-thirds of consumer basket of basic needs; see Stojanov (2001; pp. 64). Indirect effects, such as destruction of the governance system, the interruption of economic development, brain drain or general collapse of social values are of course immeasurable and can be, if ever, mitigated in extremely long time horizon; see Papić (2001; pp. 18).

The Dayton Peace Agreement brought end of the armed conflict in Bosnia and Herzegovina and that was its main purpose. However peace agreement is always a large compromise and it is difficult to build a well-functioning state based on constitution signed



Source: www.wikipedia.org

together with peace agreement⁴⁷. Basically the new Bosnia and Herzegovina was built above all on the basis of ethnicity (nationality). The state was divided into two independent Entities; the Federation of Bosnia-Herzegovina (FB-H) and Republika Srpska (RS). In FB-H lives majority of Bosniacs and Croats, in RS majority of Serbs.

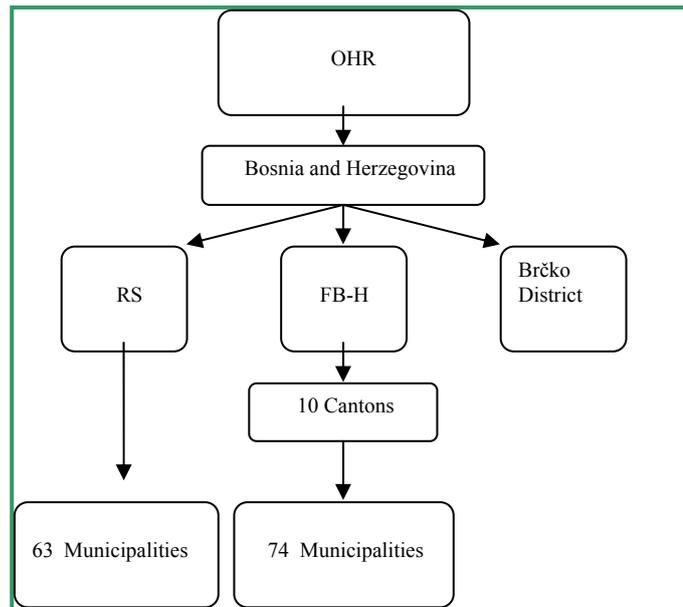
Problematic area of Brčko, where proportion of nationalities was balanced, got autonomy status in 2000 and single administrative unit of local self-government was created. All three units gained a high level of autonomy in exercising state functions. The Dayton Peace Agreement constructed unique and extremely complicated political system in Bosnia and Herzegovina. Four levels of independent political institutions function in the country at the present time.

⁴⁵ See UNDP (2002; pp. 20)

⁴⁶ See IMF Country Report (1998; pp. 35)

⁴⁷ The Agreement also established Constitution of Bosnia and Herzegovina

- I. State level
- II. Entity level
- III. Cantonal level⁴⁸
- IV. Municipal level



Basically highest level in the system is State with its government, parliament, constitutional court and very limited scope of functions mainly foreign policy, foreign trade policy, monetary policy, external borrowing and debt service. Bosnia and Herzegovina does not have its own classical judicial system because most of the jurisdiction has been granted to the entities. The State has limited powers and balanced ethnic composition with consensus required for most decisions.

Then there is entity level of FB-H and RS and Brčko District with their own governments, parliaments and courts. They are responsible for economic policy, defense, tax and custom administration etc. Then there are ten independent cantons in FB-H with their government, parliament, ministries etc. responsible for matters not exclusively allocated to Federation as housing, public services, social transfers etc.⁴⁹

And last but not least there is municipality level with huge number of own ministries and responsibilities at municipal level. In such a decentralized political system with huge administration there is little place for austerity and efficiency. “Bosnia and Herzegovina is a State with 13 “constitutions”, in which 13 assemblies pass laws, and in which 13 “governments” and close to 200 “ministries” adopt regulations a pass further codes”; see Papić (2001; pp. 19).

⁴⁸ Only in FB-H

⁴⁹ For more information about responsibilities of different state institutions in B-H see Constitution of Bosnia and Herzegovina

We should not forget the last part of the governance system which is Office of the High Representative (OHR). The High Representative represents most powerful institution in the country, with wide range of authority. The High Representative has right to disengage any of local politicians in case they act against Dayton Agreement or law, he can pass the law that was reject by legislative bodies etc. The High Representative is the final authoritative regarding the interpretation of the Dayton treaty in the area of civilian implementation.

2.1.3. Transition Process

With such an institutional environment Bosnia and Herzegovina began its so called triple transition. First it is transition from war to peace. Second it is transition from self-management non-market economy to the free market economy of western type. And finally it is transition from federative state of SFRY to independent democratic country.

The process of transformation from non-market economy started in 1996 short after Dayton Peace Agreement was signed. Under supervision of IMF, the World Bank and USAID the transition package based on principles of the Washington Consensus⁵⁰ was being implemented. World Bank, European Commission and EBRD prepared basic strategy for recovery of B-H economy. The package contained elements adopted in the East European countries plus physical reconstruction of the country.

The package of economic reforms for transition, both for Eastern Europe Countries and B-H, was based on the principles of neo-liberal mainstream economics. If we summarize fundamentals of the “standard package” it is obvious that it relies strongly on the “invisible hand” and self-regulatory powers of the market; see Stojanov (2001; pp. 69).

⁵⁰ The **Washington Consensus** is a set of policies promulgated by many neo-liberal economists as a formula for promoting economic growth in many parts of Latin America by introducing various market-oriented economic reforms which are designed to make the target economy more like that of First World countries such as the United States. It was first presented in 1989 by John Williamson. It is so-called because it attempts to summarize the commonly-shared themes among policy advice by Washington-based institutions at the time, such as the International Monetary Fund, World Bank, and U.S. Treasury Department, which were believed to be necessary for the recovery of Latin America from the financial crises of the 1980's; see http://en.wikipedia.org/wiki/Washington_Consensus

Let me write down the most important ones:

- speed of package implementation, the faster the better
- convertibility of currency
- restrictive monetary policy and NAIRU hypothesis
- hard budget constraints
- limited role of the state
- privatization of state property
- absence of any coherent industrial, foreign trade or income policy

According to the World Bank document private sector should have been key starting device of the economic growth. Therefore quick privatization was needed. Role of the government should have been reduced on the maintenance of healthy macroeconomic conditions, establishment of functioning legal and institutional framework and providing of basic public goods. Reform of banks and restructuring of firms was considered as a major project; see World Bank, EC, EBRD (1996).

Development of transition process in case of B-H was expected to be different from countries in Eastern Europe. Main reason was that in B-H case stimulus for economic growth will come from reconstruction process and not from exports as in East Europe case. Therefore World Bank experts set two objectives that were in their opinion crucial for development of B-H economy: successful management of capital inflows during reconstruction period and maintenance of macro-economic stability - especially control of inflationary pressures.

Two main pillars of this strategy were:

- I. Monetary policy was to be restrictive and carried out by the currency board regime. Central bank of Bosnia and Herzegovina should have foreign governor for the next six years. It was believed that price inflation pressures will diminished if B-H economy acts as a “price taker” at international markets due to currency board arrangement in the country.
- II. Fiscal discipline provided by hard budget constraints for the government.

2.2.Currency Board of Bosnia and Herzegovina

In this chapter I will examine topics described in the first part of my thesis at particular case of B-H currency board, such as choice of anchor currency or setting of exchange rate between domestic and anchor currency etc. I will try to give an answer to question why currency board was chosen in case of B-H, what are its tasks and responsibilities and I will study its functioning in the last decade. I will take a closer look at inflation convergence under CBA in B-H and describe monetary tools used by CBBH. I will finish this chapter with brief overview of fiscal policy in B-H.

2.2.1. Reasons for Establishing a Currency Board in Bosnia and Herzegovina

The currency board arrangement in B-H was established by CBBH Law in August 1997. Currency board was regarded as an optimal solution for macroeconomic stabilization in the country for various reasons. First of all it was well-known that CBA is able to solve the high inflation problem. Society and economy of B-H had painful experience with inflation, first a decade of enormous price growth during 80's and then years of war when prices rose by thousands percent per annum. Of course, independent central bank with inflation targeting would be able to solve the inflationary problem too, however currency board has one important advantage; it is able to cope with inflation without the need to build credibility gradually.

Other argument for currency board was inexperience of B-H with independent central banking and therefore simplicity of CBA was seen as an optimal solution; as CBA basically care only about securing sufficient amount of foreign reserves. We should not forget that this decision was made in 1996 and promising development of Argentinean economy under CBA was surely big inspiration for implementing similar monetary arrangement in B-H. By the end of 2001 it had been clear Argentina was not actually an example worth following; see chapter 2.6.

2.2.2. Choice of an Anchor Currency

CBA was consistent with “shock-therapy” recovery strategy that was prepared for B-H; creating a healthy and stable macroeconomic environment that is necessary condition for sustainable economic growth. German mark (DM) was chosen as anchor currency which was in my opinion the right choice. B-H was quite lucky with this choice because it was easily able to fulfill all three criteria given by Enoch and Gulde (1997) I mentioned in the first part of my thesis.

Germany was low-inflation high developed country with stable currency and deep financial markets. DM was a strongest currency in the European Union by that time and other member countries were preparing to fix their exchange rate with DM as creation of European Monetary Union (EMU) was at the beginning of the third stage.

If we consider Germany alone the criterion of “major trading partner” is not satisfied as trade with Germany count for ca. 10% of all B-H’s trade. However we may easily account also trade relations with Italy, Austria and other European countries that had their currencies strongly connected to DM. Then we got number exceeding 25% and we may talk about this group of countries as a major trading partner of B-H. Situation after introduction of Euro is even better as we can see from the following table. EU-15 remains major trading partner of B-H, followed by countries of the region. Moreover B-H’s neighboring countries have strong aspirations to join EU and EMU, therefore they put importance on stability of they nominal exchange rate with respect to the Euro. As long as they keep stable exchange rate with Euro they create a positive impact on sustainability of the B-H anchor currency choice.⁵¹

TABLE 7: Trading Partners of B-H

	Total exports (in %) 2003	Total imports (in %) 2004
EU 15	38.4	33.0
Italy	17.5	11.8
Germany	9.5	9.1
Austria	4.8	4.3
CEFTA	11.1	17.6
Slovenia	9.1	7.7
Countries of the region	38.6	28.3
Croatia	21.6	17.6
Serbia and Montenegro	15.8	10.2
Other countries	12.0	21.0

Source: CBBH Annual Report (2004; pp. 19)

⁵¹ As we will see from chapter 2.5.2. stability of exchange rates of countries in the region is far from reality at the moment.

Third criterion was public acceptance of a currency. The choice of DM was easy as B-H public was used to use this currency as a store of value during the time of high inflation and DM became unofficial mean of payment during the war period; we may even talk about an unofficial currency substitution. B-H citizens had a historical ties to the DM as many of them worked in Germany as “Gastarbeiters”. DM had strong position among B-H public as most of the pre-war savings were DM denominated. It was only currency that was accepted by all three ethnic groups and therefore it was a rational decision to choose it as an anchor currency.

Considering OCA criteria that determine sustainability of anchor currency choice we are able to examine them only partially. Due to lack of appropriate data I refer to Čosić (2002) that expanded Paul R. Mason model by examining if B-H satisfies OCA criteria. He looks into only four factors a) concerns with asymmetric shocks b) vulnerability to speculation c) possibility of trend real appreciation and d) the structure of B-H current account trade with EMU countries as well as with major non-EMU trading partners and their respective exchange rate regimes. Čosić (2002) brings following conclusions:

- Difference in structure of EU and B-H GDP, with exception of agriculture, does not imply high likelihood of asymmetric shocks. It can be expected that the structure of production will continue to evolve in the direction of EU countries as closer integration take place.
- Full convertibility and high credibility of CBBH accompanied with good fiscal discipline minimize threat of speculative attack against KM.
- Current levels of capital inflows were not large enough to cause major productivity shifts and inflationary pressures.
- 75 percent of B-H’s current account trade is with EMU countries and countries that have exhibited a close link to Euro.

According to former findings, sustainability of KM peg is greatly enhanced by those, at least partially, fulfilled OCA criteria. Čosić (2002; pp. 234) adds furthermore that “B-H would experience greater advantage in maintaining existing link to Euro then conducting its own monetary policy.”

2.2.3. Exchange Rate and Extent of Backing

Simplicity and speed were the main determinants when CBBH decided about exchange rate at which new currency should be fixed. There was no space for already mentioned short period of floating exchange rate and exchange rate was set at 1KM=1DM, or in other words 100 Bosnian dinars=1 KM. Basically new KM exchange rate was set at the rate that was well known to the citizens, because that was the market exchange rate during the war. It is questionable if it was lead to over-appreciation of a new currency, taking into consideration evolution of the trade deficit in following years. This however is difficult to prove due to lack of reliable data from after-war period. Fact is that one to one exchange rate allowed the two currencies to be easily use side-by-side for the first three years of CBA in B-H and help new currency to gather public confidence, which is crucial for functioning of this “social contract” between government and citizens. Regarding extent of backing, it was decided that CBBH has to maintain at least 100 percent backing in foreign exchange reserves for all its KM liabilities (mainly currency and required reserves of commercial banks). Most of the foreign reserves are placed in low-risk foreign banks (AAA - AA-) rating in order to minimize credit risk exposure.

TABLE 8: Balance Sheet of CBBH (KM)

ASSETS		Total Amount
1	Foreign Exchange Assets	4 316 259 963
1.1	Cash	16 519 740
1.2	Short term deposits in foreign banks	4 299 302 432
1.3	Special Drawing Rights in the IMF	437 791
2	Other Assets	84 966 329
	TOTAL ASSETS (1 + 2)	4 401 226 292
LIABILITIES		Total Amount
3	Monetary Liabilities	4 121 293 216
3.1	Currency in Circulation	1 836 118 559
3.2	Credit Balances of Resident Banks	2 155 137 381
3.3	Credit Balances of Other Residents	130 037 276
4	Liabilities to Non Residents	1 058 800
5	Other Liabilities	26 219 408
6	Capital And Reserves	252 654 868
	TOTAL LIABILITIES (3+4+5+6)	4 401 226 292
	Net Foreign Assets minus Monetary Liabilities (1 - 3 - 4)	193 907 947

Source: CBBH Annual Report (2004; pp. 58)

2.2.4. Independence of CBBH

In order to strengthen credibility of CBA in B-H it was necessary to secure as much independence as possible. Therefore CBBH Law which created operational framework of B-H currency board was implemented in the B-H constitution; in other words legal procedure to change CBA requires strong majority in the both parliamentary chambers; see Article 10 of B-H Constitution.

The goals of B-H monetary policy set by CBBH Law are very clear – to achieve financial stability in terms of the exchange rate and the inflation rate. The first basic task of the CBBH “shall be to formulate, adopt and control monetary policy of B-H by issuing the domestic currency (Convertible Marka - KM) at a one to one exchange rate with the Deutsche mark with full backing in freely convertible foreign exchange; see Article 2.3.a of CBBH Law. Independence is also a key topic of the Article 3: “Within the limits of its authority established by this Law, the Central Bank shall be entirely independent from the Federation of Bosnia and Herzegovina, the Republika Srpska, any public agency and any other authority in the pursuit of its objective and the performance of its tasks.“ CBBH cannot issue its own securities or purchase securities issued by government. Article 52 says clearly: “no transaction carried out by the Central Bank may serve to extend financial assistance including credit to or for the benefit of Bosnia and Herzegovina“.

In order to strengthen independence further unusual system of central bank governing was chosen. Governance structure of the CBBH is based on Entity principles (as whole political system in B-H). Governing Board of the Central Bank consisted (for the first six year of operation) from Governor appointed by the IMF and three members (one Bosniac, one Croat and one Serb) appointed by B-H Presidency. Important is however that the Governor *should not be* a citizen of B-H or any neighboring state, may cast tie breaking votes on the Governing Board; see Article VII of the Constitution of B-H.

Other tasks are to maintain adequate payment and accounting systems; to coordinate activities of Entity Banking Agencies, responsible for issuing of banking licenses and banking supervision; to receive deposits from institutions at the state level of Bosnia and Herzegovina, and deposits from the Entities and deposits from commercial banks etc.; see Article 2 of CBBH Law.

2.2.5. CBBH Performance 1998-2004

First three years of CBA in B-H were crucial test of CBBH functioning. Several problems occurred, due to the fact that B-H was, as a result of Dayton Peace Agreement, separated in two (three if we consider part of the country with majority of Croats) “independent” areas. According to Law of Central Bank of Bosnia and Herzegovina, CBBH was the sole monetary authority in B-H and KM was a common currency. But this statement was far from reality in 1997. National Bank of Bosnia and Herzegovina (NBBH) was operating without reserve account with CBBH causing monetary liabilities of CBBH to raise above

the level of its foreign currency assets. Deutsche marks, Yugoslavian dinars and Croatian kunas were in widespread use. Three payment bureaus (formed during the war by splitting from the countrywide bureau) had monopolies in their areas on making “domestic” payments for bank customers etc.

TABLE 9: CBBH Assets and Liabilities 1997-2004

	Foreign Assets (KM million)	Monetary liabilities (KM million)
1997	144.1	160.3
1998	283.3	253.9
1999	865.7	836.7
2000	1021.4	973.2
2001	2696.5	2591.6
2002	2464.4	2345.2
2003	2780.6	2626.3
2004	3457.5	3283.5

Source: CBBH Quarterly Bulletins

Fortunately for B-H economy, CBBH was able to solve those problems and to continue operating successfully. The NBBH put its reserve account into full operation on April 1998 and bank was fully liquidated in 2001. A real-time gross settlement system and net settlement automated clearinghouse system replaced completely old payment systems and returned the role of providing payment services to banks in 2001. The KM was definitely established as the only legal means of payment for non-cash transactions in September 1999. Growing confidence in KM can be documented by increases in CBBH foreign reserves; see Table 9. Also development of the money supply in the period 1999-2004 suggests that monetary reform under CBA in B-H was done successfully. Monetary

aggregates grew steadily and amount of broad money tripled in last five years without increasing inflation, as we can see from the next part of my thesis.

TABLE 10: Money Supply 1999-2004 (KM millions)

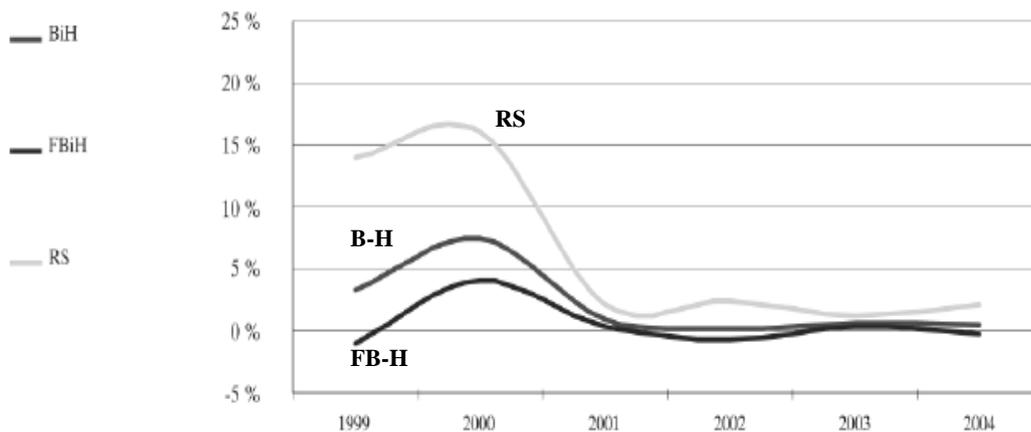
	1999	2000	2001	2003	2004
Demand deposits in domestic currency	584.6	750.0	1,018.4	1,512.1	1,864.9
Currency in circulation	515.3	651.7	1,673.9	1,601.3	1,670.6
MONEY – M1	1,099.0	1,401.7	2,692.3	3,113.4	3,535.4
Time and saving deposits in domestic currency	22.4	77.9	140.9	461.9	703.4
Demand deposits in foreign currency	465.5	559.5	928.5	818.3	988.1
Time and savings deposits in foreign currencies	577.3	428.2	907.7	1,102.5	1,604.6
QUASI-MONEY - QM	1,065.1	1,065.6	1,977.0	2,382.7	3,296.1
BROAD MONEY M2	2,165.0	2,467.3	4,669.3	5,496.1	6,831.6

Source: CBBH Annual Report 2004

2.2.6. Inflation Convergence

CBA in B-H showed great results regarding fighting inflation in the last decade and definitely confirmed that CBA was good choice in fighting inflation in the country. Since 1997 consumer price inflation slowed to single digits and bellow one percent during 2002-2004. More importantly inflation differential between two Entities has also been reduced. That signals recent improvements in economic integration between two Entities.

GRAPH 1: Inflation in B-H. 1999-2004



Source: CBBH Annual Report (2005);

Stability in a country's inflation is essential economic benefit. It allows economic agents to form their expectations with more confidence. In other words, low inflation helps country attract foreign investments. This is true especially for banking sector, where inflation decreases value of bank's assets (claims). Therefore stable inflation and exchange rate in B-H were crucial preconditions for successful transformation and development of banking sector in B-H, which attracted majority of foreign investors; see chapter 2.5. However, inflation is not the only risk investors have to face. As there is still a considerable degree of political and business risk in investing in B-H, foreign investors are still very doubtful and total amount of investments in business sector remains low; even though situation is improving in recent years.

Regarding theoretical part of this thesis we should expect B-H inflation to be slightly higher than inflation in the anchor country Germany, due to the impact of Balassa-Samuelson (BS) effect in B-H. However, inflation figures for period 1999-2005 shows

very different results, because B-H inflation is well below inflation level in Germany. This suggests that BS effect does not show itself as expected in the case of B-H economy. Measuring of the effect is beyond the scope of my thesis but I would indicate a few possible reasons why BS effect in B-H was insignificant so far.

TABLE 11: Inflation comparison, B-H, Germany, EU-15; 1999-2005

	1999	2000	2001	2002	2003	2004
B-H	3.7	4.8	3.1	0.4	0.6	0.4
Germany	0.6	1.4	1.9	1.4	1	1.8
EU-15	1.2	1.9	2.2	2.1	2	2

Source: Eurostat and CBBH

First factor that makes BS effect weaker is “centrally-planned economy” heritage of low productivity of services sector. Post war recovery of the services sector brought high productivity rates, however BS effect do not expect productivity in service sector to grow faster than in industry sector. Second factor that may mitigate BS effect is rigidity of the “ex-plant” labour market. Industrial workers are highly qualified and it is hardly possible for low qualified labour force from service sector to get higher salaries in tradable sector. Wages in the industrial sector are more rigid than those in non-tradable (often non-market determined) and it is even questionable if we can expect wages in transitional economy to converge across sectors. Significant impact may also have high costs of working capital that hold back development of B-H firms and slow productivity growth in the tradable sector. We may name additional factors, but without empirical findings they will remain more speculations than serious explanations. However lack of reliable statistical data makes it impossible to measure BS effect in B-H and we have to be satisfied with simple conclusion that according to inflation level comparison, BS effect has virtually nil impact in B-H case, keeping domestic inflation level well below EU-15 level.

2.2.7. Monetary Instruments of CBBH

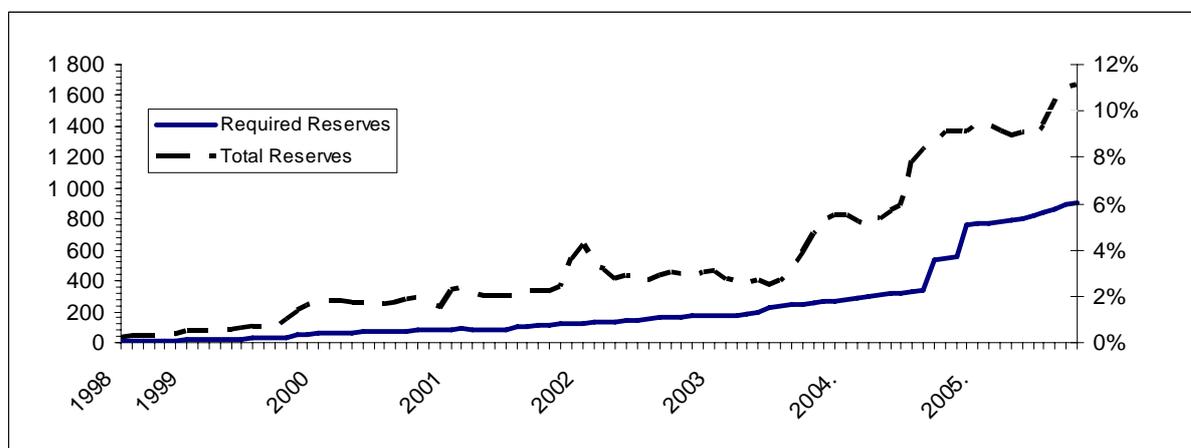
2.2.7.1. Minimum Reserve Requirements

Minimum requirements is the only monetary tool used by CBBH in order to control the liquidity of commercial banks and therefore enhance credibility of B-H currency board, as CBBH does not act as a LOLR. At the beginning of CBBH operating minimum reserve requirement was set at 10 percent level. The deposit base used for the calculation of the required reserves consisted only of deposits and other liabilities in KM.

Since June 2003 the deposit base used for the calculation of the required reserves consists of: deposits and borrowed funds from non residents, demand deposits of residents, time and savings deposits of residents, limited deposits and government funds for lending and other liabilities in KM and foreign currency. Also the rate of the required reserves applied by the Central Bank from June 2003 is 5%.

In order to minimize opportunity costs for commercial bank, but also to reduce disadvantage of the banks with other financial institutions (that are not subject to the reserve requirements), CBBH remunerates both required and excess reserves of commercial banks. At the present time CBBH pays 1% remuneration on reserve requirement funds. For those funds above the reserve requirement, the remuneration is be paid on the basis of average interest rates earned by the CBBH on the market over the same period of time on overnight deposits. As we can see from the graph, commercial banks in B-H are very liquid and they place big amounts in excess of their required reserves at the CBBH accounts. That signalizes that level of remuneration is satisfactory for commercial banks and that minimum reserve requirements do not generate significant opportunity costs for them⁵².

⁵² Such a high excess reserves are result of prudent regulation and absence of risk-free securities at B-H money market.

GRAPH 2: Required and Excess Reserves

Source: CBBH

In December 2004, the reserve ratio was raised back to 10 percent. Reason for those increases was extreme credit growth that threatens stability of banking sector and worsen B-H current account deficit; see chapter 2.5. According to Kemal Kozarić, current Governor of CBBH, minimum reserve requirements increase should narrow down the possibility for the further indebteding, since generally 70% of that credit indebteding goes directly for imported goods, which has a direct influence on the foreign trade deficit; see www.cbbh.ba.

First increase did not bring expected results as level of interest rates is chosen freely by commercial banks that are hyper-liquid in B-H. After increase in minimum reserve requirements interest rates increased only slightly in the first months and at the end of 2005 they were even lower then in December 2004; see TABLE. Continued credit growth led to further increase of reserve ratio that was set at 15 percent at the end of 2005.

TABLE 12: Interest rates of commercial banks 2005

Banking lending rates		in % on annual basis				
		2004	2005	2005	2005	2005
Households loans						
•	short-term loans	9.78	10.98	10.00	9.68	9.32
•	long-term loans	10.78	10.60	10.44	10.41	9.91
Private enterprises						
•	short-term loans	9.92	9.92	9.99	9.31	9.03
•	long-term loans	8.23	8.11	8.18	8.09	7.70

Source: CBBH Annual Report (2004; pp. 118)

Imposing higher reserve requirements at commercial banks does not seem to have an expected effect neither at interest rate development nor at credit growth in the last three years. In comparison with Estonia and Lithuania where banks tried hard to avoid reserve requirements, hyper-liquid banking sector in B-H keep voluntarily excess reserves at accounts with CBBH. That of course enhances the CBA's credibility and minimizes threat of liquidity crises in the banking sector, even though CBBH does not act as LOLR. As we can see from the Banking Sector at theoretical part of my thesis, main reason for high liquidity and stability of banking sector is presence of strong foreign banks and existence of strict and prudential regulatory framework in B-H.

2.2.7.2.Lender of the Last Resort Function

CBBH does not act as lender of last resort, though it is not, in contrast to typical orthodox currency board, forbidden by law to hold any domestic assets⁵³. That mean CBBH can not lend money neither to government nor to commercial banks in the need of liquidity.

Even though banking sector in B-H is fast growing and well developed in comparison with other economic areas in B-H, it is still developing sector in transitional economy with all risks it amounts. As money market in B-H is in it early years and commercial banks in B-H do not have a portfolio of domestic liquid securities. In order to minimize risk of liquidity crises in a banking sector with lack of LOLR function, B-H choose a path of strict regulation in combination with high involvement of big foreign banks; see chapter 2.4.

The banking sector in B-H is primarily regulated by laws on banks that regulate the activities of commercial banks, laws on banking agencies, Law on Deposit Insurance and by the Law on Central Bank of Bosnia and Herzegovina entitling the CBBH with the coordination role in banking supervision; see CBBH Annual Report (2004; pp. 45).

B-H prudent legislative framework sets for instance that:

- Already described minimum reserve requirements ratio of 15 percent.

⁵³ However, CBBH act as fiscal and banking agent of the government and other public institutions – it

- Minimum capital of commercial bank must be 7.699 Euro; this is larger than similar requirement in the EU, which is 5 million Euros.
- All commercial banks have to meet the given prudential criteria prior their membership in deposit insurance program. In particular that means that liquid assets must on average satisfy 20% of demand deposits' and short-term deposits' demand in a ten-day period. Also, this ratio must never be under 10% in the same time period. This requirement is met through reserves with the CBBH and deposits with correspondent banks; which explain at least part of the excess reserves of commercial banks at CBBH account. At the end of 2004 majority of the banks (21 out of 33) had their deposits insured with Deposit Insurance Agency.
- Banks must meet limits on assets and liabilities distributed according to maturity ranges, as for contracted maturity so as for remaining maturity⁵⁴.
- Capital adequacy ratio and other principles are set by Banking Agencies according to newest Basel II standards.

As majority of the banks are in the ownership of big foreign banks (UNI, HVB etc.), B-H commercial banks have possibility to receive financial help in cases of liquidity shortages. This of course lower possible risk of liquidity crisis, however it is not a sufficient condition as we saw in Argentinean case, where banking sector was owned mainly by foreign capital and liquidity crises emerged though. However, in my opinion, prudential regulatory framework, "orthodoxy" of CBBH and high liquidity of the banking sector in the recent years are good preconditions for avoidance of such a liquidity crisis; see Table 13.

⁵⁴ Assets with both agreed and remaining maturity up to 90 days must be 100% of liabilities with agreed maturity up to 90 days. The ratio of assets with maturity of 1 –180 days should be 95% of liability with the same maturity, while the ratio of assets with maturity of 1-365 days should be 90% of liabilities with the same maturity.

TABLE 13: Selected Indicators of the Banking Sector 2000-2004

	2000	2001	2002	2003	2004
Net lending, growth during period	15.9	31.1	55.3	31.0	31.6
C-E non perform. assets, percent of total classif. assets and off-balance	10.9	8.7	6.1	4.6	3.3
B-E non perform. assets, percent of total classif. assets and off-balance	23.4	17.5	14.8	12.4	11.4
Net lending to deposit ratio	71.0	58.7	72.8	75.7	75.5
Off-balance items, percent of total assets	20.6	14.6	16.8	12.6	13.1
Core capital, percent of liabilities	23.5	16.8	15.7	11.7	10.6
Average capital adequacy ratio, percent	28.4	25.1	20.5	20.3	18.2
KM deposits, percent of estimated GDP ⁵⁵	17.8	33.8	32.8	32.0	34.9
Total Reserve Funds, percent of total deposits	12%	10%	9%	11%	21%

Source: CBBH Annual Report (2004; pp. 47), my own computations according to CBBH data

⁵⁵ CBBH Data.

2.3.Fiscal Policy

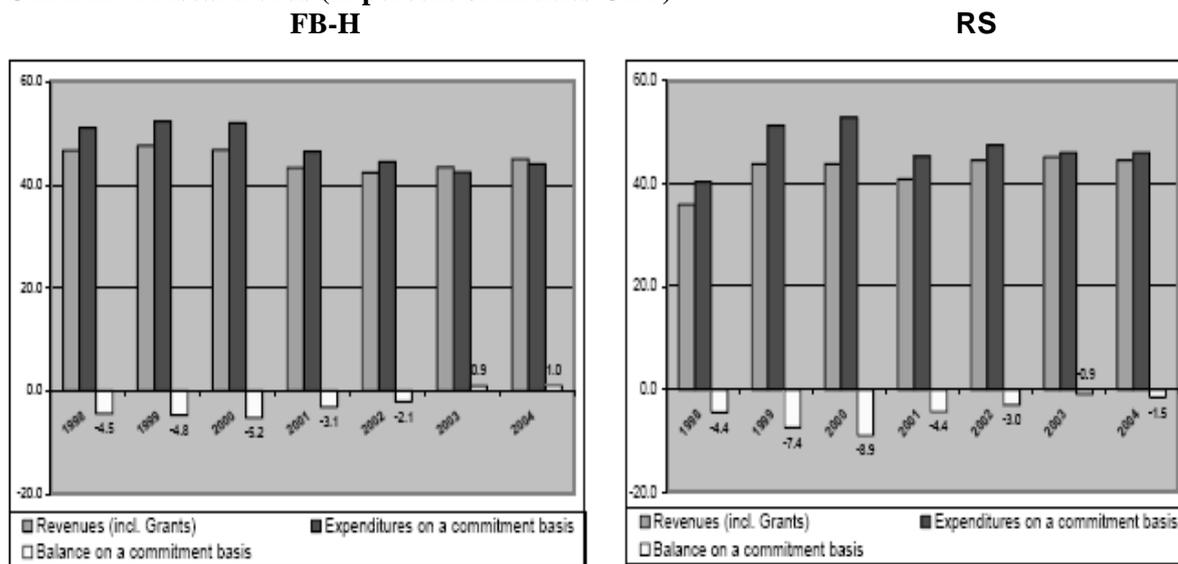
Under CBA fiscal policy remain key economic policy tool, as monetary policy is imported from the anchor country. Efficient fiscal policy is therefore crucial for sustainability of CBA, as was well illustrated by Argentinean example, where undisciplined fiscal policy undermined credibility of currency board and significantly participates on CBA's collapse; see chapter 2.6. In this part of my thesis I want to give short summary of development in B-H fiscal sector since end of the war and to highlight some of its specifics.

Dayton Peace Agreement left country in a very difficult position, from the fiscal point of view. Unlike in monetary sector, two (three after creating of Brcko District) fiscal authorities operated separately in B-H entities, with virtually nil coordination of their policies at the state level. That created preconditions for active fiscal (taxation) competition between entities⁵⁶ and disallow efficient fiscal policy at the state level. In FB-H situation is even more complicated, as 10 cantons are partially responsible for fiscal policy; for example financing of education, social protection etc. This complicated system of „fiscal federalism“ creates huge disproportions in different regions of the country and disable effective and growth oriented fiscal policy.

Generally speaking, as B-H economy was recovering in after war period also fiscal revenues grew steadily, mainly due to donor reconstruction programs that stimulate aggregate demand in the country. Not surprisingly, increase in public revenues was accompanied with growth of government expenditures, especially in public sector wages and social transfers and subsidies. Considering the size and inefficiency of government structure and number of people in need in the after war period it is understandable that fiscal deficit reached 8 percent of GDP in 1999. Total public expenditures that year were at astonishing level of 70 percent of GDP.

⁵⁶ For example sales tax (main source of revenue before VAT introduction) was 18% (8%) in RS but 20% (10%) in FB-H. In RS personal income and corporate income tax are equally at 10%, in FB-H individual pays 5% (of the net wage) and firms 30%. In FB-H foreign direct investors do not have to pay taxes first five years, in RS they have the same responsibilities as domestic firms. Total fiscal burden of employer is 52% in RS and ca. 70% in B-H; see

GRAPH 4: Fiscal trends (in percent of Entities GDP)



Source: WB (2005; pp. 37)

However, situation improved recently and budget discipline was maintained by B-H government. There were significant cut offs in recent years; total public expenditures were reduced to 50 percent of GDP at 2004 and fiscal deficit was around 0.6 percent of GDP.

According to IMF and WB officials, reduction of spending should occur at a wage bill. Fragmented and inefficient state administrations accompanied with highest relative wages in the SEE region make the public sector wage bill unaffordable. In my opinion wage bill does not represent such a problem. As we can see from the TABLE, wage bill (that includes not only administration, but also employees in educational and health sector) represent ca. 10% of

TABLE 14: Public Expenses 2004⁵⁷ (%GDP)

Total Expenses	35.2%
Wages and salaries	10.0%
Use of goods and services	8.3%
Interest	0.6%
Subsidies	14.6%
Grants	0.7%
Social benefits	12.8%
Other expense	1.7%

Source: CBBH

official GDP. Therefore I do not think that wage cuts alone are sufficient. The biggest problem of B-H fiscal system is not its size but ineffective allocation of fiscal resources. If we take a number of municipalities, for example, we see that there is about 25% more municipalities in B-H then before war. If we consider that number of citizens is by 16% lower then in pre-war period, it is obvious that current system is far from efficient one. On

⁵⁷ Municipalities not included

the other hand some key state institutions, such as Indirect Taxation Agency or institutions essential for future accession to EU do not have enough staff. Therefore, reform of the public administration is necessary precondition for fiscal sustainability of B-H.

Other important issues are social transfers, which remain large relative to GDP and overall spending, but are very unequally spread. According to World Bank (2005; pp. 39): “spending on social and child protection accounts for between 0.8 and 1.3 percent of Entity GDP, direct spending on veterans’ benefits alone amounts to a staggering 3.5-4 percent of Entity GDP in recent years.” As 20 percent of Bosnian households live under the poverty line and another 30 percent of population is in risk of falling below the poverty line; see UNDP (2002), significant shift in social transfers from those frequently not in need (war veterans' benefits) to those most in need (particularly those receiving inadequate social welfare benefits and services).

Regarding indebtedness of the country, B-H’s gross external debt fell from 70 percent of GDP in 1998 to 35 percent by the end of 2004. With total debt of 2776 million USD World Bank (2005; pp. 44) classified B-H as “a moderately indebted middle-income country” with “external debt in the short run.” Also comparison of different debt ratios with other states in the region looks favorable for B-H.

TABLE 15: Key External Debt Ratios for CEE Countries 2003

	Present Value (PV) (% of GNI)	PV of EDT (% of XGS ⁵⁸)	EDT (% of GNI)	Debt service (% of XGS)	Interest (% of XGS)
B-H	21	93	36	8	3
Albania	19	58	28	3	1
Bulgaria	65	118	75	19	7
Croatia	55	111	55	31	6
Czech Republic	40	55	41	12	3
Estonia	58	62	56	8	3
Hungary	60	87	64	42	4
Lithuania	47	98	47	37	4
Macedonia	33	73	40	12	4
Poland	37	123	39	32	5
Romania	30	91	31	22	5
Serbia and Montenegro	122	378	123	4	2

Source: WB (2005; pp. 44)

⁵⁸ Exports of Goods and Services

There are many positive signals in fiscal area in recent years, such as reform of armed forces that reduced number of soldiers, common boarder service that increased custom tax revenues or introduction of value added tax that is supposed to generate additional revenues for government and eliminate tax-competition between entities. Fiscal situation in B-H improved in recent years and important steps toward more efficient fiscal system were taken. However further efforts are needed, especially in reallocation of budget expenditures, reform of public administration, lowering of labour tax wedge and improvements in tax collection.

There is considerable big amount of different projects necessary for future development of B-H that will surely raise public investments. Police and defense reform, establishment of EU required state institutions or invitations in further reconstruction will generate significant permanent costs. Domestic claims on government; such as repayment of pre war frozen foreign currency accounts, post 1945 restitution claims, claims emanating from prospective corporate restructuring or arrears in pensions etc. represent potential governmental spending.

As we will see from Argentinean example in chapter 2.6. fiscal indiscipline and irresponsibility of government in combination with high level of public debt may undermine credibility of CBA and lead to depreciation of a currency and abandonment of a currency board. Therefore is necessary to continue maintaining fiscal discipline and to create healthy and investment favorable economic environment that will implicitly generate higher revenues to the state budget.

2.4. Banking Sector in Bosnia and Herzegovina

In this chapter I would like to describe banking sector in B-H and to study impact of CBA with no LOLR function on B-H's banking sector. I will shortly summarize development of financial sector in after-war period, describe specifics of banking sector in B-H and study process of financial deepening under CBA with its impact on real sector of B-H economy.

2.4.1. Development of the Banking Sector in the Period 1995-2004

Financial system of B-H was inherited from former SFRY, with the exception that there was no single monetary authority operating at whole B-H area. NBBH was responsible for Bosniak-majority area, NBRS for Serb-majority area and Ministry of Finance for Croat-majority area. Also three separate payment systems existed and functioned simultaneously as described earlier. Situation changed in August 1997 when CBBH was established and started operating as a currency board, KM became the common currency and only unit for transfer of payments. Confidence in new currency growth steadily and foreign reserves of CBBH was increasing and total transfer of the payment system to commercial banks was successfully undertaken at the beginning of 2001.

However financial system needed much deeper transformation. State banks with non-performing assets controlled more than 90 percent of total banking assets at nominal book value. Privately owned banks in 1997 were mostly small that were founded during the war to handle international transfers. Moreover, most of banks' foreign currency deposits had been seized by the National Bank of Yugoslavia prior to the civil war, therefore forcing banks to freeze the foreign currency deposits of their clients. The war had also disrupted links to international financial markets; see IMF Country Report (1998) and IMF Country Report (2005).

The main goal of banking system reform was financial liberalization that was consistent with neo-liberal transition package – i.e. excluding direct influence on deposits and lending interest rates, excluding the state control over the extension of credit, ensuring the autonomy of bank decision-making, removing restrictions to international movement of

capital, adoption of Basle standards etc. 75 percent of total banking equity was formerly distributed among number of small banks with modest capital, in accordance with recovery program for B-H. It was assumed that competition among big number of small bank will lead to decrease of interest rates in first few years after war. This assumption proved incorrect as big number of those banks was opened mainly for finance illegal activities and for money laundering. Fortunately, stabilization of political and military situation in a country combined with stable macroeconomic situation under CBA encouraged foreign banks to open their subsidiaries in B-H and faster process of financial deepening in the country. With assistance of IMF and WB privatization of solvent state banks took place, institutional and regulatory frameworks for banking activities and capital markets (working however only at entity levels) were created. New modern banking laws were passed in both entities and process of considerable consolidation has occurred—the number of banks has declined from 72 in 1998 to 33 at end-2004.; see Čaušević (2005).

Transformation of banking sector and financial liberalization brought significant positive results during 1998-2004 when banking sector assets in B-H grew from 3.7 to 9.3 billion KM; see CBBH Annual Report (2005). The openness of B-H banking sector is reflected in the fact that over 75% the total equity of the banks is owned by non residents; see Čaušević (2005; pp. 20). Banking sector is dominance of B-H financial sector, accounting for over 90⁵⁹ percent of total financial assets⁶⁰.

TABLE 16: Main Indicators in B-H Banking Sector

	2000	2001	2002	2003	2004
Number of licensed banks	55	48	40	37	33
Assets, percentage of estimated nominal	31.7	41.4	47.4	57.2	71.8
Net lending, growth during period	15.9	31.1	55.3	31.0	31.6
Net lending to deposit ratio	71.0	58.7	72.8	75.7	75.5
Net foreign assets, percent of total assets	-	-3.6	-5.9	-12.4	-8.0
Off-balance items, percent of total assets	20.6	14.6	16.8	12.6	13.1
Core capital, percent of liabilities	23.5	16.8	15.7	11.7	10.6
Return before tax on average assets, %	-1.5	-0.6	0.4	0.8	0.6
Return before tax on core capital, %	-5.8	-4.2	2.9	6.9	6.0
KM deposits, percent of estimated GDP	17.8	33.8	32.8	32.0	34.9
Broad money, percent of estimated GDP	25.7	44.6	44.2	44.7	52.6

Source: CBBH Annual Report (2004; pp. 47)

⁵⁹ Excluding assets of privatization investment funds.

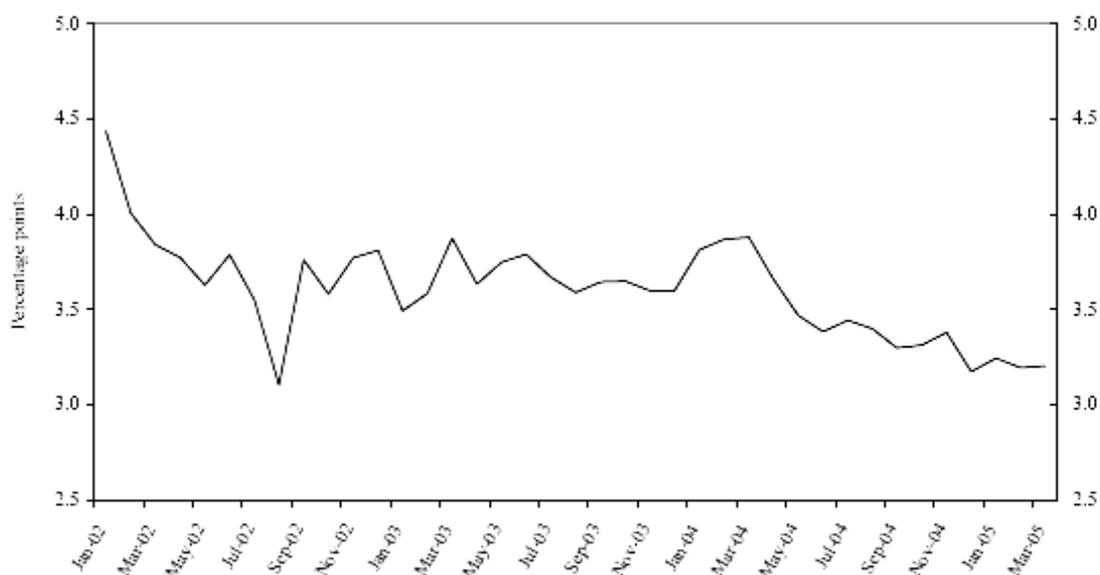
⁶⁰ Other segments of financial sectors are micro-credit organizations, insurance companies, privatization investment funds, two stock markets and number of brokerage agencies.

⁶¹ CBBH estimates of nominal GDP for 2004.

2.4.2. Financial Deepening in B-H

Growing financial deepening is best illustrated by decreasing interest rates spread between CBA and anchor currency. Though spread could reflect a variety of factors influencing the Euro area and Bosnian banking systems, rather than a pure risk premium between the two currencies, the trend decline in the spread observed in the data since January 2003 is suggestive of increased confidence in a domestic currency.

GRAPH 5: Spreads between B-H Central rate and 3-months EURIBOR

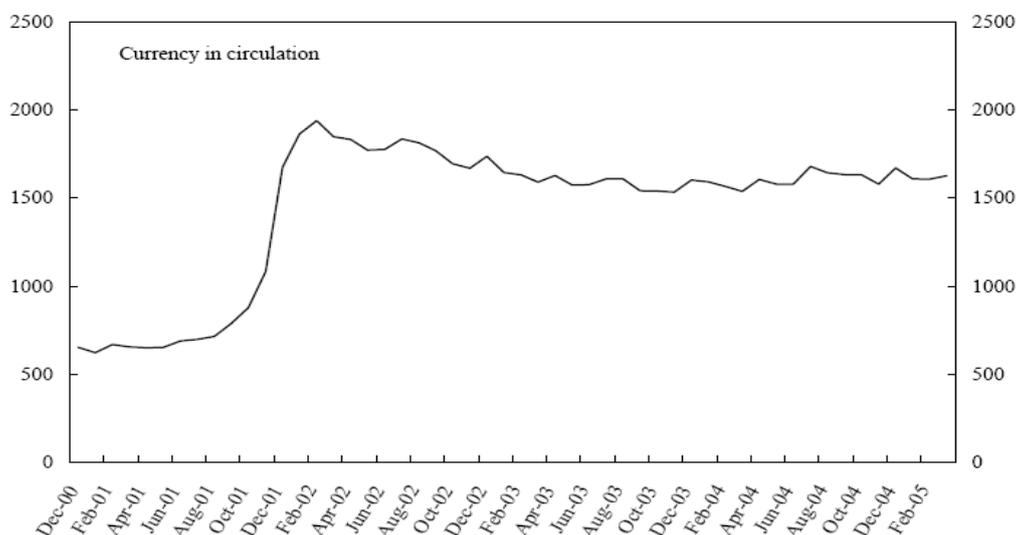


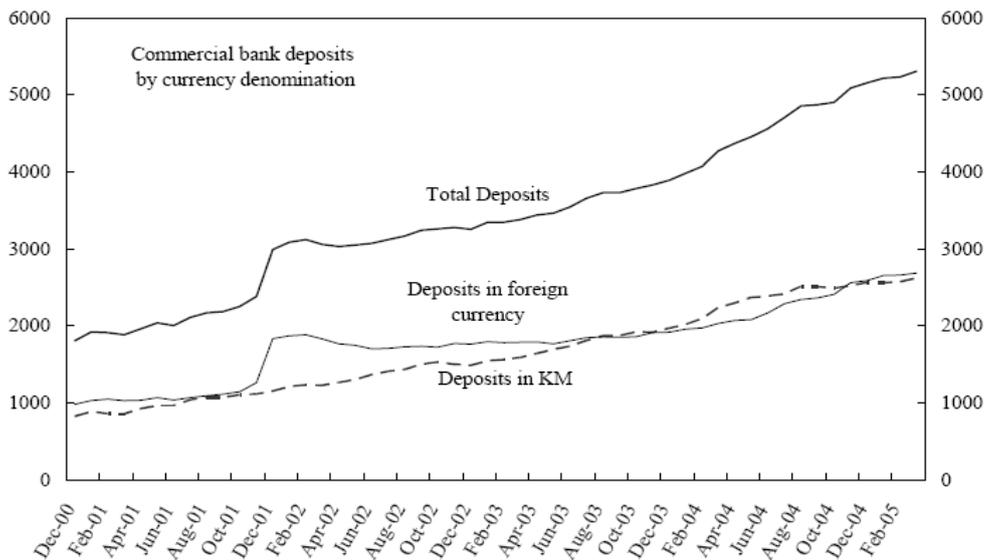
Sources: Data from the Central Bank of Bosnia and Herzegovina and the European Central Bank.

Source: IMF Country Report (2005; pp. 20)

Small decline of currency in circulation can be interpreted as increased use of the banking system, which is underscored by rapid growth in a bank deposits:

GRAPH 6: Currency in Circulation and Banks Deposits (in millions KM)





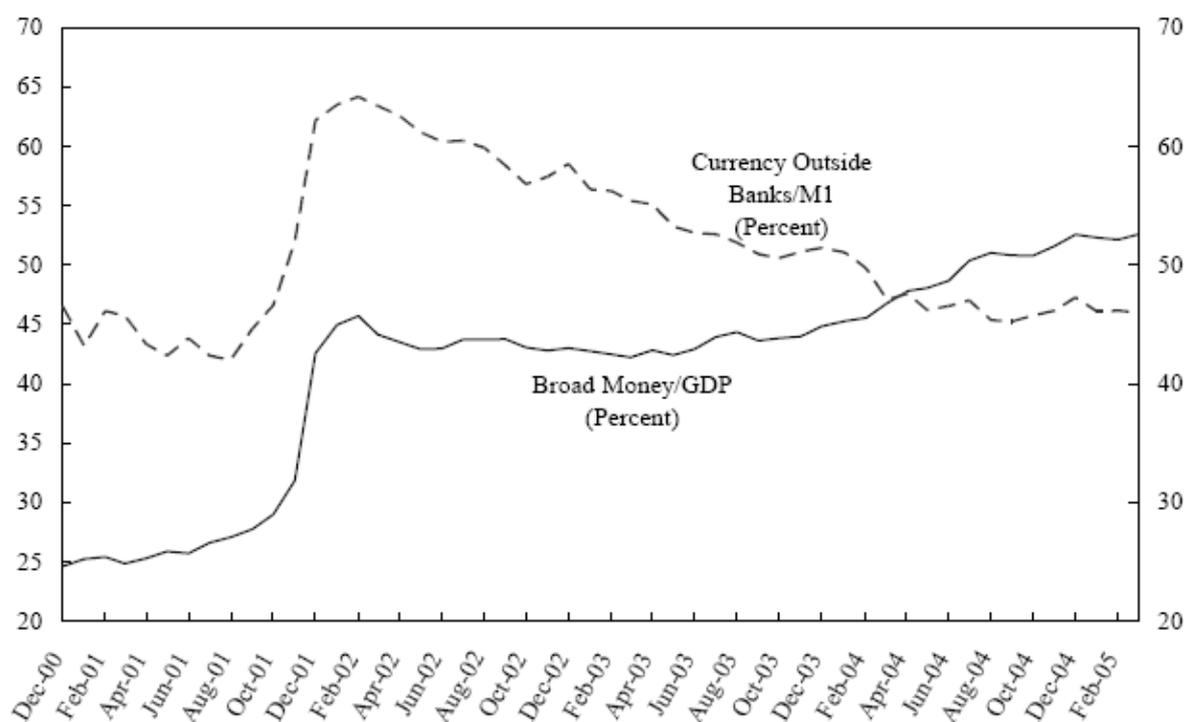
Source: IMF Country Report (2005; pp. 19)

Another positive signal is increase of KM deposits at the faster pace than foreign ones until late 2004. On the credit side, households and companies have also been willing to accept banks demands that the bulk (over 50 percent) of their KM denominated borrowing should be indexed to the Euro, and have not demanded a lower interest rate to compensate them for the currency risk they take on as a result of this indexation⁶²; see IMF Country Report (2005; pp. 11). Situation is a bit different in case of confidence of domestic banks in KM. They very often required KM loans to be indexed to Euro. The share of indexed loans is typically higher the longer the maturity of the loan. This behavior by banks suggests some caution on their part about exchange rate risk, in other words banks shift exchange rate risk to the other parts of economy.

Further signal of rising confidence in banking system since 2000 is greater use of bank deposits for an increasing share of public transactions. This trend is represented by declining share of KM in circulation in M1. Moreover, time and savings deposits are growing faster than demand deposits since 2001, which is with no doubt signal of growing financial deepening in B-H.

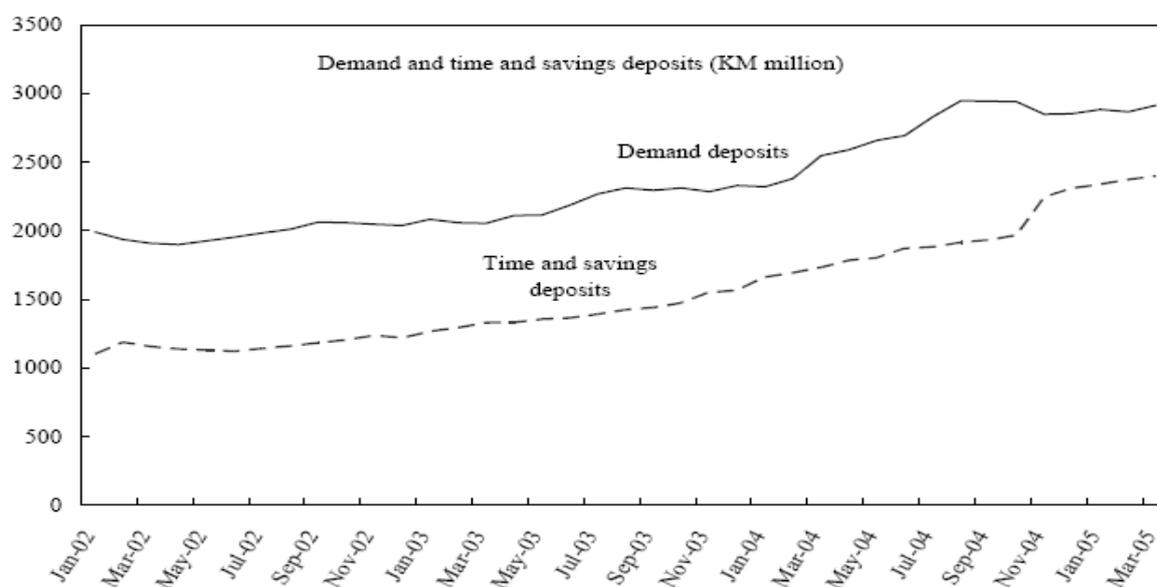
⁶² However question is whether it is a signal of growing confidence in KM or signal of consumer's non-sophistication.

GRAPH 7: Currency outside Banks/M1



Source: IMF Country Report (2005; pp. 25)

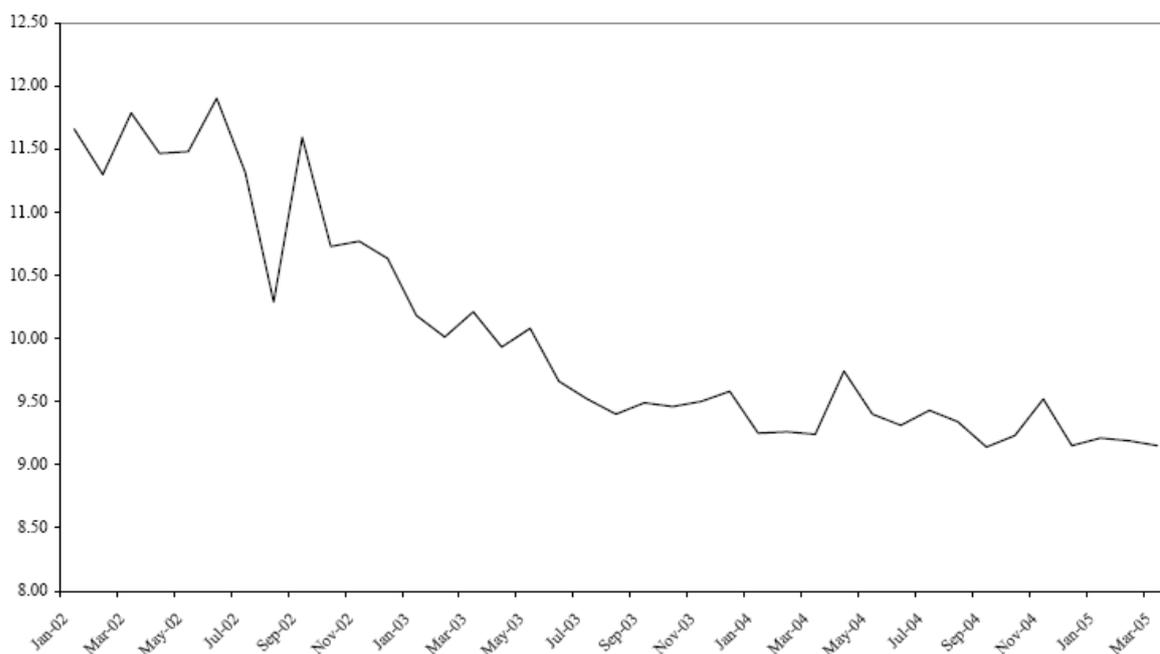
GRAPH 8: Demand and Time Savings Deposits and their Interest Rates



Source: IMF Country Report (2005; pp. 25)

Decline in spread between and lending interest rates generated by competition between banks is another proof of financial deepening, however 9 percent spread is enormous in comparison with other countries in the region or Euro area. This of course generates high cost for B-H enterprises and lowers their ability to finance own activities significantly.

GRAPH 9: Spread between Deposit and Lending Rates (in Percent)



Source: IMF Country Report (2005; pp. 27)

Even though operation of foreign banks in B-H is positive sign of growing confidence in the country total financial liberalization has also its negative impacts. In deregulated financial system monetary authority has no power to influence interest rates and commercial banks decide freely on interest rates on ordinary and time deposits. The first reaction of commercial banks on financial deregulation is increase of interest rates deposits in order to attract more clients. That of course means growth of interest rates for loans and increase in cost of investments followed by drop in employment; see Čaušević (2001; pp. 118).

Moreover, as we can see from the TABLE, commercial banks have restructured their portfolio in favor of lower risk clients (households). Business loans are directed only towards business activities with rapid turnover and high profits. In other words they are directed mainly in the grey market sector. In contrast to other countries in the region there is no positive correlation between growth of banking sector assets and of GDP; see Čaušević (2005; pp. 21).

TABLE 16: Loans and Economic Growth in B-H 1998-2004 (in percents)

YEAR	Business loans as % of GDP	Loans to individuals as % of GDP	Nominal rate of GDP growth	Real rate of GDP growth
1998	34.2	3.5	---	---
1999	27.4	3.1	20.8	17.0
2000	25.7	4.0	11.8	7.5
2001	23.6	6.4	9.1	6.2
2002	23.3	12.9	6.3	5.9
2003	25.2	16.9	4.5	4.0
2004	24.5	20.2	5.5	5

Source: Čaušević (2005) for 1998-2003 and my own calculations based on CBBH data for 2004

Banking sector in B-H shows great results and attracts main share of foreign investments. As CBBH operate as currency board with no LOLR function that could help manage possible financial crisis, prudential regulation serve as prevention of liquidity crisis. It is worth saying that despite the substantial changes and consolidation there have been no bank runs. Bank closures have generally occurred as a result of banks being put under provisional administration by the banking agencies, rather than by runs; see IMF Country Report (2005). Banking sector in B-H is stable and liquid, due to strict regulation.

Though, B-H economy faces different problem: for various reasons stable and functioning financial system that is not development oriented and can hardly produce a development stimulus. For example limits on assets and liabilities distributed according to maturity minimize banking exposure on the one hand, but also represent significant obstacle in providing excess liquidity as a business loans. As majority of deposits in B-H banks have maturity up to 30 days, they may be only as a loans with maturity up to 30 days. That explains amount of excess reserves at CBBH accounts as commercial banks does not have better opportunity how to invest their excess liquidity.

Increase in minimum reserve requirements will have a similar negative impact at the business sector, as we can expect growth of interest rates, which will make access to sources of funding even more difficult. Increase in minimum reserves is grounded by credit

growth that finance imports and worsen trade deficit. Therefore monetary restriction should decrease demand for import goods and improve trade balance. However, we should also consider impact at pro-export oriented business sector that will have to pay more for desperately needed working capital. Increase in minimum reserve requirements will therefore influence trade balance negatively in the medium and long term, as increase in interest rates restricts growth of pro-export oriented industry.

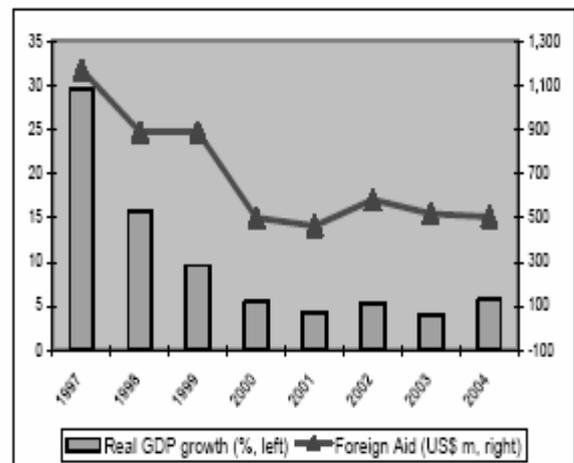
2.5. Selected Issues from B-H Economic Performance under CBA in 1996-2004

In this chapter I would like to offer short description of most important macroeconomic issues, which may seriously influence sustainability of CBA in a country. Firstly I will describe evolution of GDP growth and try to show what is underlying under relatively high production growth. Then I want to discuss main characteristics of B-H trade and to examine reasons for dangerously high current account deficit. Last but not least, I will look at the situation at the labour market, where officially 40 percent of working force does not have a job and I will try to give some more realistic estimates of total employment in the country.

2.5.1. Production

Bosnia and Herzegovina has experienced significant economic growth since end of the war in 1995. In the period 1995-1999 growth was driven by reconstruction and nominal GDP growth rate was 25% in average. More than 3 billion USD was spent on investment in infrastructure and physical reconstruction of housing. Unfortunately, the main cause of rapid growth was low starting point, because post-war GDP was just 18% of pre-war level. Since 2000 GDP growth was driven mostly by investment in business. Due to less investment in infrastructure and larger base for calculation, it is not surprising that rate of growth was significantly more modest than in period 1996-1999 (ca. 6% in average). Total foreign financial help of 5.1 billion USD helped B-H GDP to quadruple since 1995. However, according to official data⁶³, it still remains well below the pre-war level.

GRAPH 10: Real BH GDP and Foreign Aid (Annual percent growth; USD m)



Source: WB (2005, pp. 25)

⁶³ In UNDP: Human Development Report 2002 for Bosnia and Herzegovina is estimated that around 2 billion KM is unaccounted for but potentially contributing to purchasing power in B-H and so available to stimulate GDP. CBBH estimates shows that real GDP is by 30 percent higher than official numbers.

TABLE 17: GDP 1997-2004

	1997	1998	1999	2000	2001	2002	2003	2004
Nominal GDP in B-H (KM millions)	6,752	7,650	8,990	10,050	10,960	11,650	12,303	13,497
GDP per capita (USD)	...	...	1,316	1,254	1,320	1,466	1,852	2,235
Real GDP Growth Rate (in %)	...	...	10.0	5.5	4.5	5.5	3.0	5.0

Source: CBBH Bulletins and Annual Reports

Also composition of GDP changed significantly in post-war period. Shift in contribution to GDP from agriculture and industry to services reflects increasing importance of service sector in the country. However, if we consider size of informal sector in B-H (IMF Country Report (2005) estimates 30-50% of GDP is not observed) we shall interpret those data carefully, while informal sector is mainly concentrated in agriculture and trade.

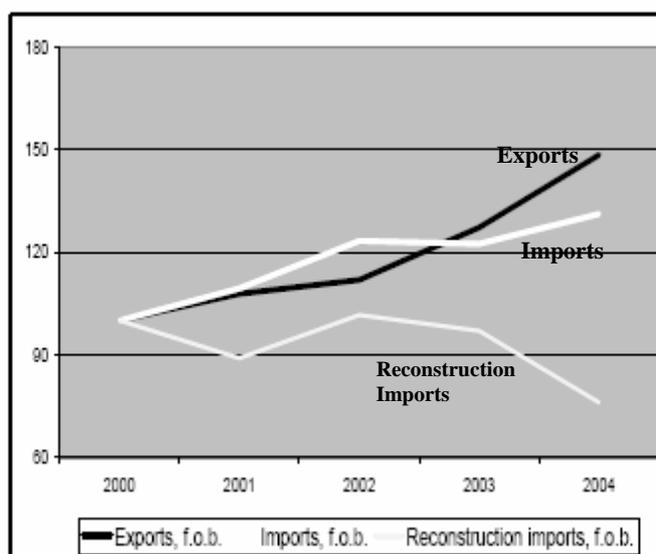
Still notable differences remain in composition of GDP between two entities. The primary sector (agriculture, fisheries and forestry) has remained an important sector in the RS (20 percent of GDP) but dropped to less than 10 percent in the FBH. The secondary sector (industry and mining) maintained its share of about one quarter of Entity GDP in the FBH. Deindustrialization was more marked in the RS. Industry accounts for only 16 percent of GDP, with a third of industrial value-added generated by electricity generation. In the services sector, while financial and business services have grown steadily, the government still retains a dominant position, especially in the FBH. This reflects both the more complex administrative structure and higher civil service salaries than in the RS; see World Bank (2005; pp. 25).

2.5.2. Trade

Post-war liberalization of trade in B-H had a unwanted outcome. B-H adopted a most liberal trade regime in South-eastern Europe (SEE) in terms of real custom protection. Assumption that eliminating of custom duties would lead to significant expansion of B-H exports and reduction of imports proved incorrect. Non-privatized and

non-restructured B-H companies without sufficient financial resources to support export activity were hardly able to compete with foreign products. Reconstruction process fuelled increasing imports and B-H exports were only able to offset them partially. Situation did not get better after slowing reconstruction process after 2000. B-H firms are still far from competitiveness and also composition of merchandise imports that account for one-third of GDP changed. There is significant change towards non-reconstruction goods, mostly consumer goods and oil products. Domestic demand has been accelerated by increases in credits to households as well as by sizeable workers' remittances and other private transfers.

GRAPH 11: Trend in Merchandise Trade 2000-2004
(In Euro 1998=100%)



Source: WB (2005; pp. 28)

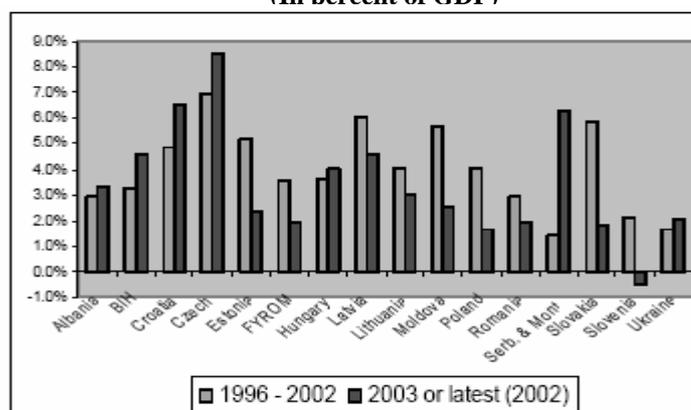
TABLE 18: Balance of Payments – in millions of KM, 1998-2004

	31.12.1998	31.12.2000	31.12.2002	31.12.2003	31.12.2004
GDP	7,650	9,611	11,651	12,303	13,497
Exports of goods	1,168	2,398	2,285	2,584	3,013
Imports of goods	6,651	8,267	9,177	9,361	9,423
Balance of trade	-5,483	-5,869	-6,892	-6,777	-6,410
BT as % GDP	-71.7	-61.1	-55.1	-55.1	-47.5
Current account balance (CAB)	-1,376	-1,870	-3,707	-3,707	-3,610
CAB as % GDP	-18.0	-19.5	-30.1	-30.1	-26.7
Foreign reserves	283	1,021	2,781	2,781	3,455
Foreign debt	----	4,033	3,993	3,993	3,983

Source: BH Statistics Agency, CBBH

As a result, the recorded current account deficit ballooned to around 30 percent of official GDP in 2002. Deficit was financed by aid flows, FDIs, small drawdown in foreign reserves and also by non-debt non-identified capital flows (probably private capital transfers). Due to tighter fiscal policy in 2003-2004 (establishing of Common Boarder Service and

GRAPH 12: Gross FDI Inflows in B-H and selected Countries (In percent of GDP)



Source: WB (2005, pp.28)

Indirect Taxation Authority), but also changes in banking supervisions and investments in export-based industry (Metal Steel Zenica, ISPAT Company etc.) import growth was restrained and current account deficit decreased slightly to 26.7 percent of GDP at the end of 2004. FDI increasingly represents an alternative to aid in financing the current account deficit, signaling increased international investor interest in response to continued macroeconomic stability enhanced by currency board system. FDI inflows have risen since 2002, reaching some 7.5 percent of official GDP⁶⁴ in 2004, allowing BH to begin catching up somewhat with the most attractive countries in the region; see GRAPH. However majority of those investments in period before 2003 has gone into the banking sector⁶⁵. The reason is obvious, stable business environment and free market competition is characteristic of the banking sector which is not a case of business sector in B-H.

TABLE 19: Foreign trade with main partners in 2004 (in thousands of KM)

	Croatia	Germany	Serbia and Montenegro	Italy	Slovenia
Export	607,040	351,136	453,365	492,629	256,250
Import	1,731,515	1,318,180	972,390	876,871	816,119
Total trade (%)	18.81	13.42	11.46	11.01	8.62

Source: B-H Statistic Agency

⁶⁴ Again we should not forget unreliability of B-H official GDP data. Regarding informal part of GDP percentage of FDI should not exceed 5%.

⁶⁵ Out of total foreign investment between 2000 and 2004, 60% were channeled into production, largely through the purchase of privatised assets, while 15% were invested in the banking sector; see European Commission (2005).

Regarding the amount of trade with main trading partners and level of their trade liberalization it is understandable in how difficult situation is B-H at the end of 2004. Čaušević (2005a) suggests, according to World Bank data, that weighted average rate of customs protection in Slovenia and Croatia (B-H's largest trading partner⁶⁶) is 33% higher than in B-H and as growing trade and current account deficits are a general characteristic of SEE countries, by far the worst ratio is to be found in B-H.⁶⁷

TABLE 20: Current Account Balance, Balance of Trade and Single Average Custom Rate in SEE-

	CAB as % of GDP	BT as % of GDP	Single average custom rate (%)
Albania	-7.6	-21.6	11.8
B-H	-29.3	-55.1	7.6
Bulgaria	-8.4	-12.5	13.8
Croatia	-6.1	-23.0	12.0
Macedonia	-6.0	18.3	15.9
Romania	-5.8	-7.9	18.1
Serbia and Montenegro	-10.2	-24.2	n.a.
Slovenia	-0.4	-2.2	11.4

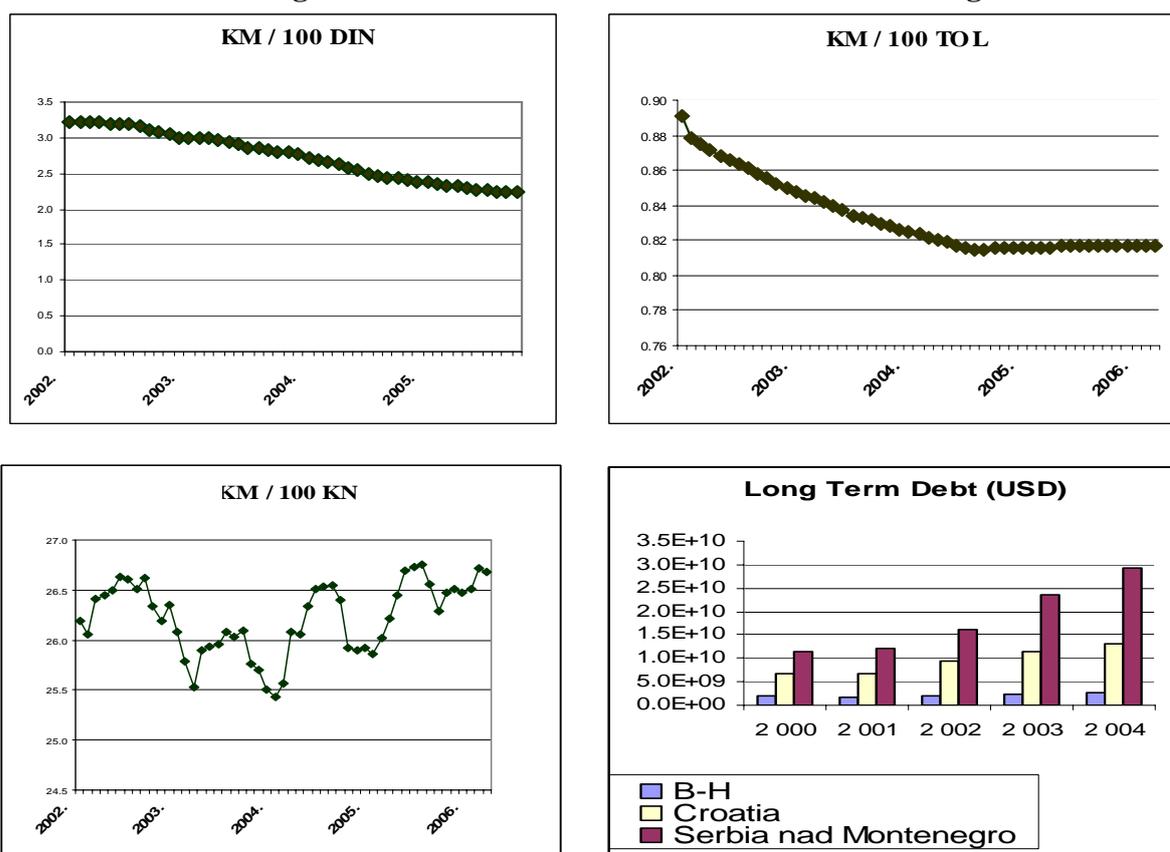
Source: Čaušević (2005a; pp. 9, 19); Bank of Slovenia Annual Report 2003

Rigidity of exchange rate under CBA generates significant costs in terms of trade for B-H economy. First of all, it is trend appreciation of Euro vis-à-vis Slovenian Tolar and Serbian Dinar during last four years that makes import from those countries cheaper. In case of Croatia, we can see clearly seasonal depreciation of currency that negatively influences B-H trade balance. Furthermore, as CBA in B-H requires fiscal discipline and B-H foreign debt is significantly lower in B-H than in other countries in the region.

⁶⁶ Croatia is largest trading partner only if we consider EU-25 as 25 independent trading partners. Regarding B-H trade realtions with EU as a whole it logically becomes B-H's biggest trading partner with 72% share of total B-H exports and 67% of total imports.

⁶⁷ Such a huge deficit is not common neither in countries that neither have active CBA nor was it in inactive currency board countries. From active ones only few exceeded the 15-percent of GDP mark and inactive CBA countries showed even better results; see IMF Country Report (2005; pp. 36).

GRAPH 13: Exchange Rates and Indebtedness of Countries in the Region



Source: CBBH and WDI Data Query

Moreover B-H was only country in the region that did not increase level of its foreign debt. B-H has therefore comparative disadvantage in comparison with other countries of the region (at least in the short and medium) as they can use foreign debt to directly stimulate export industry. Foreign debt also increases money supply and lower interest rates, in other words sources of funding are more easily reachable then in B-H.

External imbalances represented by current account deficit reflect serious threat of potential economic instability for B-H in the future. Current account deficit is enormous at the moment and exceeds significantly even the worst results in history of currency boards⁶⁸. Best ways how to solve this problem is to export more rather than import less and to increase domestic savings. Unfortunately that seems to be a difficult task in case of B-H due to variety of reasons. First of all there is significantly low level of institutional

⁶⁸ Even if we add informal sector, current account deficit of B-H was 17%. From currency operating currency boards only few exceeded 15%. Currency boards that are not functionint at the present time showed even better results; see IMF Country Report 2005; pp. 36).

organization in B-H and inefficient and sometimes contra productive foreign trade policy⁶⁹. Secondly, due to CBA B-H has no possibility how to support exporters by weakening domestic currency. Moreover, financial resources to support expansion of export activity either do not exist or are available at a rate of interest at least double than in neighboring countries; see Čaušević (2005a). Last but not least, B-H fiscal policy of hard budget constraints is incompatible with possible use of foreign debt to develop export-oriented growth strategies.

As B-H major trading partners from the SEE region effectively use those tools to support their exports, sustainability of currency board arrangement in B-H is threaten by huge current account deficit and possible balance of payment crisis. Fortunately, possible future accession of Croatia and Serbia and Montenegro to EU will force those countries fulfilling convergence criteria; in other words they will have to reduce indebtedness, to maintain stable exchange rate and fiscal discipline. That will strengthen CBA position in B-H and sustainability of anchor currency choice. We can just hope it will happen as soon as possible.

⁶⁹ Good example may be customs on equipment imported by domestic firms. It is clear that this kind of custom policy is far from pro-export one.

2.5.3. Labour Market

As already mentioned Bosnia and Herzegovina was a part of former Yugoslavian Federation, therefore is not surprising that post war Bosnia and Herzegovina has to cope with “self-management” system legacy. Yugoslavian system was more flexible and market oriented than centrally planned economies of Central and Eastern Europe countries. However the self-management system did not help Yugoslavia to avoid obstacles that was typical for other socialist economies, i.e. systematic pressures to induce labour force participation, financial bailouts for inefficient enterprises, little geographic mobility of labour force etc. Persistent wage pressures made inflation a serious problem, especially during the 80s. Regarding B-H labour market during federative era it was characterized by large employment in social sector (especially industry) and low mobility.

Post war B-H labour market has to cope with this unpleasant legacy. According to World Bank (2005; pp. 101): “Labor mobility and redeployment have been low in BH by regional standards, especially in the formal sector. This sector, particularly the budgetary, state and socially-owned sectors, still maintains some of the features that characterized the labor market during socialism. Lack of labor mobility, a compressed wage structure, low labor force participation and wage determination mechanisms that allow strong wage growth with little regard to changes in productivity, were all characteristics of the pre-transition labor market in BH. Given the relative weight of the formal labor market, many of its features characterize the labor market a whole.”

It is crucial to distinguish formal and informal B-H labour market, because B-H has one of the largest informal sectors in Europe and there are big differences in functioning and performance of formal and informal sector. More pre-transition behavior of the labour market is to find in formal sector and therefore formal sector is much more rigid. Big enterprises from federative era are over-employed but they can not reduce staff, because of political and social pressures. Enterprises don't have to pay a salary to redundant workers; however they are still obligated to pay contributions to social and health system for those workers. Workers are not officially unemployed, they have special status “workers on hold” and they decrease virtually the unemployment rate. On the other hand informal sector consist mostly from small private-owned enterprises that do not contribute to social

system but pay workers regularly. Also chance to lose and find a job is much bigger in the informal sector. Therefore most of the official data such as unemployment rate (but also GDP) are out of truth and it is necessary to examine those data with caution.

2.5.3.1. Formal Sector

As already mentioned B-H experienced fast growth in the first years of the post-war period. Reason was huge drop in economic activity during the war. GDP together with employment decreased drastically in comparison with pre-war period; see Table 21.

TABLE 21: Formal Employment by Sector of Activity, 1991 and 1997-2004 (in thousands)									
	1991	1997	1998	1999	2000	2001	2002	2003	2004
A. Bosnia and Herzegovina									
Total ^{1/}	976	575	639	628	641	627	637	634	639
Agriculture ^{1/}	36	n.a.	n.a.	21	21	21	21	20	24
Manufacturing ^{1/}	498	n.a.	n.a.	256	255	247	239	235	237
Services ^{1/}	441	n.a.	n.a.	351	365	359	372	369	378
B. Federation									
Total	638	373	395	408	410	407	394	387	390
Agriculture	21	n.a.	10	10	10	11	11	10	12
Manufacturing	325	n.a.	161	161	161	156	151	146	145
Services	292	n.a.	224	237	241	241	232	231	233
C. Republika Srpska									
Total	338	202	244	221	228	220	238	237	237
Agriculture	15	n.a.	n.a.	11	10	10	10	10	12
Manufacturing	173	n.a.	n.a.	96	94	92	88	89	87
Services	149	n.a.	n.a.	114	123	118	140	138	198
Notes: 1/ Totals for 2001 and 2002 include employment in the Brcko district that are excluded in the sectoral breakdown. The sectoral breakdown, as a result, does not add up to the total.									

Source: World Bank- B-H Economic Memorandum (2005; pp. 102); 2004: Agency for Statistics of B-H and Agency for Employment of B-H.

As we can see from the table the employment also made significant change in the structure because there is significant shift away from manufacturing to services. With agriculture stagnating, employment in services commensurately increased. Official data are however far from reality. According to results of survey among B-H labor force, estimated rate of unemployment at December 2003 was 19.6 percent. For comparison official data shows that more than 40 percent of population was unemployed; see CBBH (2004; pp. 16).

However the economic recovery was followed by general wage inflation as we can see from the following table:

TABLE 22: Average Wages and Employment

Year	FBH			RS			BH		
	Net monthly wages (KM)	Wage growth (%)	Employment Growth (%)	Net monthly wages (KM)	Wage growth (%)	Employment Growth (%)	Net monthly wages (KM)	Wage growth (%)	Employment Growth (%)
1998	329			170			296		
1999	374	13.7	0.8	216	27.1	-9.6	343	15.9	-3.1
2000	414	10.7	0.3	277	28.2	3.2	374	9.0	1.5
2001	444	7.2	-1.4	309	11.6	-3.4	443	18.4	-2.3
2002	484	9.0	-3.8	347	12.3	6.7	446	0.7	1.9
2003	530	9.5	-0.7	385	11.0	0.0	486	9.0	-0.6

Source: World Bank- B-H Economic Memorandum (2005; pp. 103)

Regarding the fact that under CBA consumer price inflation stays at very low levels⁷⁰ it is obvious that there was a significant increase in the real wages over this period, driven mainly by relatively high payouts of foreign firms and institutions and of course government.⁷¹

If we compare the wage growth in B-H with other countries in the region, we see that only Croatia has higher average wages; see Table 23:

TABLE 23: Net and Gross Wages, 2003 (In Euro per Month)

	Bulgaria	Romania	FYR Macedonia	Croatia	Serbia	FBH	RS	BH
Net Wages	115	130	194	521	176	268	194	247
Gross Wages	145	179	327	743	255	394	294	367

Source: National Statistical Offices and Central Banks

Such a high wages (relatively to other countries on the region) are not backed by proportionally higher labour productivity. If we use GNI per capita as a proxy for labor productivity, wage differentials between BH and other SEE countries are larger than productivity differentials; see Table 24:

⁷⁰ Average year inflation was 2.2 over the same period; see Macroeconomic performance – Inflation.

In other words productivity adjusted wages in B-H are high comparing to other countries in the region. In addition with the relatively high tax wedge the unit labour costs are much higher in B-H⁷². Regarding to collective wage bargaining system and big public expenditures of the state, it does not seem that situation is going to improve at an early date. That means chances for B-H products to succeed at foreign markets diminish and negative consequences for balance of payments are obvious.

TABLE 24: Productivity in Manufacturing (2004)

	Monthly Gross Wages (USD)	Production per capita (PPC)	Wage (Year)/ PPC
B-H	341	9023	50.47%
Bulgaria	168	13910	14.51%
Croatia	832	43992	22.71%
Romania	204	12335	19.88%
Serbia	236	10792	26.21%
Slovenia	1153	42438	32.61%
Czech Rep	732	33022	26.61%
Macedonia	365	99188	4.42%
Slovakia	537	26138	24.66%

Sources: Wages and Total Employment in manufacturing: Yearbook of Labor Statistics 2004, ILO; GDP and share of manufacturing on GDP: CIA The World Factbook 2006; Exchange rate: FX converter.

2.5.3.2. Informal Sector

Collective branch contracts, inadequate salary scales and compensations and huge unit labour costs are biggest problems of B-H labour market. But unfortunately, they still remain a problem of the majority state-owned enterprises and public sector. Informal labour market is much more flexible, private companies do not contribute to the social system and therefore can decrease their unit labour costs significantly. As a consequence, they can employ more labour force but they also generate additional pressures on labour costs growth in the formal sector. Sources of labour supply in the grey market are officially employed “workers on hold”, officially employed workers who have not received salary for two or more months, officially registered (but also persons not even registered) unemployed. However including informal sector in our unemployment rate calculations

⁷² Total labour costs were around 64 in FB-H percent in 2004. Therefore it is not surprising that informal sector of B-H economy is growing substantially, exceeding 30 percent of GDP in 2004; see IMF (2005b; pp. 8).

shows how far from reality are official estimates and how big informal sector really is. Following table shows estimate of real employment in B-H for 2003. More actual data are not available at the moment; however remarkable changes at the B-H labour market have not occurred in the last two years. Therefore 2003 figures remain illustrative and relatively reliable.

TABLE 25: Formal, informal and total employment in B-H; 2003 (in thousands)			
	FB-H	RS	B-H
Formal Sector	387	237	634
Agriculture	10	10	20
Manufacturing	146	89	235
Services	231	138	369
Informal Sector	206	204	410
Agriculture	82.0	113.0	195
Manufacturing	17.5	18.0	35.5
Construction	40.5	27.0	67.5
Trade	23.5	15.0	38.5
Hotels and restaurants	11.5	11.0	22.5
Transport and communication	11.5	4.0	15.5
Other	19.5	16.5	36
TOTAL	593	441	1034

Source: WB (2005) and Fikret Čaušević's estimations of informal sector

We see that involving informal sector increased number of employed by 60 percent. Regarding total labour force of ca. 1.5 million people and official unemployment rate of around 42% in 2003; real unemployment rate must be in somewhere in interval 16%-42% and according to recent estimates real unemployment rate in B-H was 19% in 2003; see European Commission (2005; pp. 33). This number is more reasonable than official unemployment rate; however it remains huge problem for the future development of B-H economy and also for functioning of currency board. Critics of CBA accuse rigidity of currency board and non-existence of independent monetary policy for high unemployment in the country. They argue that state should use monetary expansion for job creation and economic growth boosting. However short-sighted those arguments may be, we should not forget, that currency board is social contract and such a high number of unemployed makes its sustainability fragile, even though its performance is by economist widely expected as

big success. However, political pressures for more discretionary (job creating) monetary policy may arise in the future. Therefore I concern lowering unemployment rate as an essential topic of CBA sustainability in B-H.

2.6. Lessons for B-H from Argentinean Experience

Currency board arrangement in Argentina and its rise and fall during the period 1991-2001 are the main topics of this chapter in which I will try to make comparison of Argentinean and B-H monetary arrangement. I would also like to examine whether the similar currency board collapse that affected Argentina could happen in B-H.

The reason to establish currency board in 1991 in Argentina was obvious, hyperinflation that reached even 5000% at the late 80's abused both Argentinean economy and civil society and CBA was seen as a fast and helpful medicine. U.S. dollar was chosen as anchor currency and fixed exchange rate of one-peso-one-dollar established. Assumption proved right and inflation level was stabilized at ca. 2 percent during first year of CBA. Other rapid changes in Argentinean economy, such as debt restructuring, tax reform centered on the VAT, social security reform and series of privatization combined with huge capital inflows accelerated economic growth and reached average of 9.1 percent in 1991-1994 (6.4 during 1991-1998); see Torre A., Yeyati E. L., Schmukler S. L. (2003; pp. 4, 5).

Consolidation and internationalization of the banking sector after Mexican (Tequila) crisis in 1995 brought impressive results and by the end of the decade Argentina had strong and sustainable banking sector that was dominated by reputable foreign banks (they accounted for 70 percent of total banking assets in 2000). However, success did not last for long and Argentinean economy fell into recession at the end of 1998, caused mainly by doubts about Argentina's fiscal viability⁷³ and "sudden stop" of capital flows after Brazilian crisis and devaluation in 1999. Attempts to regain investor's confidence, such as tax increase,⁷⁴ flexibilization of labour markets or IMF 40 billion USD bailout package, proved unsuccessful and hopes of retrieving economic growth faded away. Doubts about sustainability of one-peso-one-dollar commitment have risen.

⁷³ Debt-to-GDP ratio increased from less than 30 percent in 1997 to more than 50 percent in 2000; see Torre A., Yeyati E. L., Schmukler S. L. (2003; pp. 10)

⁷⁴ In my opinion, somehow risky step to take in the middle of recession.

Government tried to stimulate growth directly through unorthodox measures. These included imposing a tax on imports and subsidizing exports, lowering reserve requirements, and announcing the eventual peg of the peso to the dollar and the euro. Government also placed 2 billions USD worth bonds in banks by allowing banks to cover reserve requirements with these securities. Total claims on governments in the banking sector rose from less than 10 percent of total banking assets in 1994 to more than 20 percent at the end of 2001. Also central bank charter was reformed effectively allowing “quasi-money” issuance.

This strategy turned out to be a catastrophe. It did not accelerated economic growth and it undermined one-peso-one-dollar commitment causing gradual run on the bank deposits. As there were inter alia significant currency mismatches between banks assets and liabilities, government made attempts to stop the run by imposing the limits on cash withdrawal (corralito). That was final step in this “stabilization” period. According to Torre A., Yeyati E. L., Schmukler S. L. (2003; pp. 12): “The corralito was immediately followed by angry riots that prompted changes in presidents, a default on the government debt, the abandonment of the currency board into floating (an initial 40 percent devaluation immediately proved insufficient), the forcible conversion of dollar-denominated financial contracts into peso-denominated ones with different conversion rates applied to bank loans and deposits.”

Argentina fell into deep economic crisis and even though economic growth has recovered since 2003, current account is positive and exports are increasing, present situation is far from sustainable. Inflation remains at high levels (9.2 percent in 2004) and economy is burdened with huge debt that reached 109 percent of GDP in 2004.⁷⁵

Question is whether we should expect B-H currency board to end up in same way as the Argentinean one? I would try to give a proper answer to this by comparing essential characteristics of both arrangements.

⁷⁵For more information see World Bank – Argentina Data-at-Glance, http://devdata.worldbank.org/AAG/arg_aag.pdf

First of all it is important to emphasize that Argentinean monetary arrangement differed considerably from orthodox currency boards but in many ways it violated primary operational rules of modern-day currency boards. According to Schuler (2004; pp. 2): “Throughout the life of the convertibility system, Argentina’s central bank engaged in sterilized intervention, held domestic assets, lent to commercial banks, and regulated commercial banks. Near the end of the system, the central bank also enforced multiple exchange rates and in effect lent to the government at below-market rates of interest. All of these policies are antithetical to an orthodox currency board...”

Let me now go through most important characteristics in which Argentinean “currency board” differed from CBA in B-H.

Choice of Anchor Currency

In 1991 Argentina choose US dollar as its anchor currency. This decision was not optimal as it did violate one of already mentioned OCA criteria. Choice of the currency of major trading partner could help soften asymmetric shocks in case of anchor currency appreciation (depreciation) vis-à-vis other Argentinean trading partners. Problem was that Argentinean trade was fairly distributed between USA, Europe and Asia. Therefore, pegging to a basket of currencies would be theoretically better then choosing one currency as an anchor. Argentina preferred public acceptance criterion and choose U.S. dollar. This decision showed its impact during the recession in 1998 when dollar appreciated vis-à-vis other Argentinean trading partners, therefore pushing prices of Argentinean’s exports up and deepening the economic recession in the country.

Convertibility Law

Convertibility law that established legal operational framework for new monetary arrangement in Argentina differed substantially from one in B-H. Regarding exchange rate it set up only selling rate of peso. In practice it meant that nominal appreciation of peso was allowed, because everyone should get *at least* one dollar for one peso.⁷⁶ Argentina never established a separate body to act as a currency board, nor did it establish a separate division within its central bank or even a separate balance sheet). Moreover, the principles

⁷⁶ To boost confidence in the peso during the tequila crisis, effective January 12, 1995 it eliminated the spread, making both the buying and selling rate 1 peso per dollar; see Schuler (2004, pp. 9).

of convertibility system were never written into constitution. Currency board in B-H has therefore much stricter legislative background which enhances substantially its credibility in comparison with Argentinean case.

Backing

Also extent and type of reserve assets differed substantially. According to Convertibility Law, central bank was allowed to hold particular amount of government securities (ca. 20% of total assets) as a reserves if they were payable in gold or foreign currency. This fact undermined credibility of Argentinean currency board, as typical currency board is not allowed to hold any domestic assets. Extent of backing was set at least 100 percent of monetary base, which it defined as central bank notes and coins in circulation plus demand deposits of commercial banks at the central banks, because Argentinean central bank engaged in repo operations with commercial banks.

LOLR function

According to Schuler (2004; pp. 14): “Argentina’s central bank was allowed to alleviate periods of temporary illiquidity by making loans to financial institutions up to the amount of their capital, for no longer than 30 days⁷⁷.” As Argentina’s economy was getting into deeper recession, ability of central bank to make loans was expanded. According to law passed during Tequila crisis in 1995 it was allowed to lend for longer period and decrees in 2001 expanded further central banks flexibility in making loans. B-H central bank act as orthodox currency board – has no LOLR function - and do not hold any claims on commercial banks.

Lend to government

Argentinean central bank had extensive power to lend to government, thanks to possibility to use government securities as a part of reserves and holdings of government securities in repurchase operations. This is one of the most serious factors that undermined credibility of Argentinean hard peg, as whole monetary arrangement was exposed to high risk, due to fiscal indiscipline of the government. Situation in B-H differ substantially as B-H central bank is not allowed to hold any government securities by constitution.

⁷⁷ It was allowed to make additional 30-day loans on the collateral of Argentinean government securities and other assets.

Even though there were other important reasons for financial collapse in Argentina, it is clear that Argentinean monetary arrangement was more a central bank providing a fixed exchange rate than modern-day currency board. B-H on the other hand operates in very rigid institutional framework and is closer to orthodox currency board. Therefore I do not think that failure of Argentinean monetary arrangement predestines evolution in B-H. However important lesson is to be learned from Argentinean case, hard peg may stabilize economy and bring inflation down quickly, but without additional fiscal flexibility it does not secure stability automatically over a long term. B-H should avoid mistakes that Argentina made, particularly by not allowing huge debt burden and fiscal indiscipline.

3 Summary and Conclusion

In this thesis I described currency board arrangements with its advantages and disadvantages in order to examine particular case of that monetary system in Bosnia and Herzegovina. First part was devoted to theoretical description of currency board arrangement, its history and main differences between currency board and typical central bank. I summarized assumptions for establishing currency board and showed that sustainability of exchange rate arrangement (choice of anchor currency) is strongly determined by optimum currency area criteria. I described functioning of banking sector under monetary authority with no lender-of-last-resort function, described transmission mechanisms and inflation convergence process and listed main advantages and disadvantages of typical currency board. I also discussed optimal duration of the currency board arrangement and possible exit strategies.

In the second part I provided description of B-H economy in a wider historical and political perspective for better understanding of current situation in the country. I described position of B-H in pre-war federation period, characterized political, social and economic consequences of war and implementation of transition package prepared by international community, part of which was also currency board arrangement. I analyzed theoretical aspects from the first part of my thesis at the particular case of Bosnia and Herzegovina's currency board; focusing mainly at sustainability of anchor currency choice, inflation convergence process and stability of B-H's banking sector.

I also gave a short description of fiscal situation in the country and offer short analysis of three biggest problems B-H's economy that may seriously threaten sustainability of currency board arrangement: low GDP level, huge unemployment and enormous current account deficit. Last but not least I added short report about Argentinean currency board to show significant differences between Argentinean and Bosnian arrangements. I emphasize mistakes in Argentinean case that led to the collapse of the currency board system and I concluded that possibility of same collapse in the B-H is low.

In this final chapter of my thesis I would like to give an answer to a question, whether or not currency board was a right choice for Bosnia and Herzegovina. In my opinion, importing stable and low inflationary monetary policy via fixed exchange rate arrangement was a correct decision in the particular case of B-H. Firstly, I would say that B-H was not ready for discretionary monetary policy in 1997. We should not forget that B-H was a country where war just ended by consensus that created institutional mish-mash and at the same time it was a country that needed triple transition to become democratic market economy.

As fast macroeconomic stabilization was a priority in B-H case, floating exchange rate was not an option. Moreover, it is questionable whether central bank could stand a political pressure and preserve independence even under less rigid form of fixed exchange rate. As modern monetary theory prefers corner solutions; either hard peg or free floating, currency board is the right choice for those countries, which decided to stabilize their economy by importing monetary policy of an more developed anchor country. B-H gave up its discretionary monetary policy in exchange for credibility generated by currency board arrangement.

Sustainability of such an arrangement is of course determined by level of integration between B-H and Euro area. As already described in the part of my thesis that dealt with choice of anchor currency B-H and EU are far from forming optimal currency area. However, EU remains B-H's major trading partner and other countries in the region are keeping their exchange rates with Euro (more or less) stable. Partial similarity of production patterns which will continue to evolve in the direction of EU countries as closer economic integration take place does not imply high likelihood of asymmetric shocks. Moreover, orthodoxy of CBBH and good budget discipline of B-H government minimize the danger of speculative attacks on B-H currency. Those are arguments that significantly enhance sustainability of CBA in B-H.

CBBH has shown significant progress since 1997. It was able to replace old and divided payment system and to make a KM only legal means of payment. It was an important step towards unifying ethnically fragmented economic space of B-H. CBBH was able to fulfil liabilities of its "social contract" and to persuade B-H citizens about its trustworthiness; according to UNDP surveys B-H citizens perceive CBBH as most credible institution in

the country. CBBH was able to successfully undertake monetary reform in B-H and monetary aggregates grew steadily with amount of broad money tripled since 1999 without causing inflation. Increases in price level were under one percent since 2002.

Macroeconomic stability generated by CBBH was a good sign for foreign investors, especially in the banking sector, and attract significant amounts of foreign capital in the country. Majority of investments flew however to the financial sector and at the present time more than 90 percent of banks are in foreign ownership. Banking sector in B-H is modern and hyper-liquid, therefore lack of LOLR function, which is one of the biggest weaknesses of CBA, does not present significant threat for currency board sustainability in case of Bosnia and Herzegovina.

Regarding possible exit strategies for CBBH in perspective of future membership of B-H in EU and EMU, it is reasonable to expect duration of currency board system until B-H successfully join the EMU and adopt Euro as the only currency. However, this may take quite a long period of time (at least ten years), mainly due to inability (reluctance?) of B-H politicians to lead the country fast enough toward closer political integration with Europe. In such a longtime horizon of CBA duration, there are potential difficulties arising.

First problem is huge current account deficit that may generate pressures for currency depreciation. Even though deficit is decreasing in the recent years further political and economic effort is needed in order to neutralize threat of economic instability represented by huge current account deficit. Support of exporting industries should be a key objective of B-H's government. Current situation in which are legally working firms discriminated in comparison with foreign investors (but also in comparison with firms from informal sector), is at least foresightless.

Second problem is high unemployment rate that obviously creates strong social frictions in the country. As many politicians blame (wittingly?) wrongly rigidity of CBA for high unemployment rate in B-H, threat of political pressures for more discretionary (job creating) monetary policy may arise in the future. Therefore I concern lowering unemployment rate as an essential topic of CBA sustainability in B-H. It is necessary to improve tax collection; especially from huge informal sector in B-H economy. That should increase government revenues and should also imply lowering of total labour costs, as

internalization of informal labour market will distribute those costs more fairly. Considering low level of total public debt I also see some space for issuing a reasonable amount of government debt, which would lead to expansionary fiscal policy that supports economic growth and job creation (although potential negative consequences on current account should be taken into account). It is also desirable that CBBH issues some form of “risk-free” KM-denominated securities, which allows optimalization of KM-denominated assets portfolio and hopefully lower capital costs of B-H firms.

Even in case these problems do not emerge, real convergence process toward EU may cause other troubles for B-H economy. As B-H’s GDP is still well below pre-war levels it is expectable that real exchange rate appreciation caused by growing productivity during catch-up process will generate pressures at inflation rate (or nominal exchange rate appreciation). That of course makes fulfillment of nominal convergence criteria considerably difficult and may endanger further accession to EMU.

Currency board arrangements in Bosnia and Herzegovina achieved a given target and stabilized country’s economy quickly. Low inflation and credibility of CBBH created necessary precondition for economic growth: stable economic environment. Now it is turn of B-H’s politicians but also international community to revalue their strategies and objectives in order to provide growth and help this country become a developed part of Europe, thing that Bosnia and Herzegovina deserves with no doubts.

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