

## PERSPECTIVES OF APPLICATION OF CURRENCY BOARD ARRANGEMENT WITH SPECIAL EMPHASIS ON BOSNIA AND HERZEGOVINA

**Dr. Mehmed Ganic**

Assistant Professor

Faculty of Economic and Business Administration

International University of Sarajevo

Sarajevo

### Abstract

*The relevance of an exchange-rate policy is at top priority list of the monetary authority especially taking into account that the main function of CB or monetary authority is to maintain the stability of the domestic currency. Namely, with the processes of globalization and internationalization of the financial markets the exchange rate of the national currency is more significantly influenced by trends and movements of their most important (global currencies) world currency exchange rates. The aim of this paper is to provide an overview and analysis of development and application of CBA in B&H primary with the aspect of achievement of its functioning as well as its sustainability. Starting from the problem and research objectives following hypothesis is set: Application of CBA in B&H led to the preservation of monetary stability in B&H. For the purposes of assessment of sustainability CBA in B&H we used four types of indicators: Indicator of currency board stability, Indicator of coverage monetary base by foreign reserves, Indicators of coverage monetary base by money supply, as well as Indicator of coverage monetary liabilities by net foreign reserves. The introduction of the CBA in B&H has proved to be very successful. Regulation of the monetary system and restore lost public confidence were significant results of CBA policy.*

**Key Words:** exchange-rate policy, CBA-currency board arrangement, monetary aggregates, anchor currency  
JEL Classification: E42

### 1. Introduction

Economic development is multidimensional phenomenon and depends largely on maintaining macroeconomic stability and the economy's openness of a country. Countries that are just beginning to open their economies competition in the global marketplace seek to achieve monetary and price stability. The aim is to attract new foreign direct investment and transfer of knowledge in order to speed up economic pattern restructuring of their own industries and develop new competitive industry. The process of transition is more efficient if it is done in terms of macroeconomic stability. Previous experiences have shown that the significant problem of macroeconomic instability of the financial sector was a phenomenon with which all the transition economies faced. It was expected since transition from a planned system towards a market economy require a new type of relationship between the state, society and business. The successor states of the former Yugoslavia suffered economic, political and social devastation that are manifested in the material impoverishment of broad layers of working people. All successor states of the former Yugoslavia were faced with a hyperinflation scenario, which was destructive effect on the real economy and especially on the financial sector. Accordingly, monetary policy implemented in B&H by CBA (CBA-currency board arrangement) was not surprising because in the last two decades of consensus in monetary policy was based on preservation of price stability as the main objective of monetary policy.

### Research Problem

In recent decades, with globalization and internationalization of the financial markets the central bank becomes unable to control money supply growth. The countries faced with disturbed and threatened credibility of monetary stability do not have a lot of option about the management of exchange rate policy. Such economies are usually obliged to use an alternative form of the monetary authority to bind or keep their currency pegged to the dominant currency (reputable currency) at a fixed rate (Volcker, P.A., 1995). In other words, it means that countries that decide to follow an exchange rate regime like that may introduce a CBA, which is characterized by convertibility or dollarization (euroization) as a stabilization tool in which one country unilaterally fixes the exchange rate of the domestic currency to foreign currency (U.S. dollar or euro).

Nowadays, regardless of the ultimate objectives of monetary policy it is also expected to provide adequate support to achieve economic goals including the country's most important goal to ensure price stability. In order to achieve this goal many different views of economists and dilemmas around the concept of monetary policy appeared.

### **Objectives of the Research**

The relevance of an exchange-rate policy is at top priority list of the monetary authority especially taking into account that the main function of CB or monetary authority is to maintain the stability of the domestic currency. Therefore, appropriate exchange rate regime policy reflects free choices individually made by each country. Such freedom of choice of exchange rate regime is related more to the theory. Namely, with the processes of globalization and internationalization of the financial markets the exchange rate of the national currency is more significantly influenced by trends and movements of their most important (global currencies) world currency exchange rates.

The dilemma exists, generally speaking, whether the value of domestic currency should be determined according to a leading global currencies, pegging exchange rates against a basket of currencies, or it will be customized according to the previously established fixed exchange rates and fluctuating exchange rates (IMF's Annual Report on Exchange Rate Arrangements and Exchange Restrictions, 2004). The aim of this paper is to provide an overview and analysis of development and application of CBA in B&H primary with the aspect of achievement of its functioning as well as its sustainability. Starting from the problem and research objectives following hypothesis is set: *Application of CBA in B&H led to the preservation of monetary stability in B&H.*

### **2. Research Methodology**

Monetary and credit developments have to be continuously monitored and based on certain indicators properly assessed. With using of these indicators is possible to provide information to indicate the eventual distortions in monetary flows and violations of certain monetary policy rules. According to the abovementioned, in this paper the issue of sustainability and the importance of CBA of preserving the monetary stability is analyzed by using appropriate indicators. For the purposes of assessment of sustainability CBA in B&H we used four types of indicators: Indicator of currency board stability, Indicator of coverage monetary base by foreign reserves, Indicators of coverage monetary base by money supply, as well as Indicator of coverage monetary liabilities by net foreign reserves. Based on previous assessments of functioning of CBA in B&H, the research points out some positive achievements in its operation and preservation of monetary stability in B&H. The information of the research project was collected from various secondary sources of data. The sources of information are taken from academic publications, in order to give both practical and theoretical views on the subject matter.

### **3. Theoretical background**

While in practice it continues to debate on exchange rate regime in terms of two alternatives, or to enforce a fixed exchange rate policy or floating exchange rate a number of economists emphasis importance of alternative monetary regimes. Any arrangement of the exchange rate is more realistic perception of reality and it is based on more or less realistic assumptions.

#### **3.1. Basic assumptions of CBA**

In recent years, denials and dispute of CBA applicability have been frequent. Although it has been implemented in only a small number of the transition countries (Bosnia and Herzegovina, Lithuania, Estonia, Bulgaria) we certainly raise the need for its understanding, especially during crisis.

There is an impression that the issue of exchange rate policy and preserving of monetary stability is a recent phenomenon that appeared with the liberalization of foreign trade in terms of globalization in recent decades. It the essential questions of choice of the exchange rate was the top of their scale of interest for hundreds of years.

The CBA is just one of many exchange rate regimes ranging from pure floating (or flexible) exchange rate to pure fixed (or pegged) rates. In theory and practice, there are two basic ways the government can provide a credible basis for monetary stability, through a CBA and full dollarization. In the case of a CBA, it relates to issuing notes and coins of money fully backed by a foreign reserve currency (Hanke, S. I Schuler K., p. 689). It requires full coverage of the monetary base by foreign reserves. Full dollarization (euroization) implies the elimination of local currency and its replaces with a foreign currency like U.S. dollar or euro.

The term dollarization (euroization) is used due to the fact that U.S. dollar and euro currencies are most widely used instead of local currency.

According to some economists the dollarization (euroization) is more demanding than CBA because it makes it much more difficult for the government to regain control over monetary policy and / or to set a new parity for the (nonexistent) domestic currency. The domestic currency is used as a stabilization tool that is pegged to an anchor currency (U.S. dollar or euro).

Generally speaking, CBA represent a financial institution that issues notes and coins with full coverage by the foreign exchange reserves of the central bank under fixed exchange rates. From this it follows that the idea of introducing a currency board is based on two assumptions: first, to restore credibility by assigning most of the national sovereignty of another country with better reputations second, country issues national coins and banknotes only in exchange for foreign currency, where the ratio of foreign money to local currency in circulation can not be below one to one.

The next important feature of this arrangement is primary focus on keeping inflation under control. Creating a low and stable inflation should ensure the reduction in interest rates and stimulate growth of domestic production, employment and income. There are three points of the utmost importance in this connection which should always keep in mind.

First, the nominal exchange rate is fixed at a given parity against the anchor currency (or possibly an anchor basket) with the domestic money fully convertible into the reserve currency (Holger C. Wolf, Atish R. Ghosh, Helge Berger, and Anne-Marie Gulde, 2008, p. 26).

Second, the monetary liabilities of central banks (and sometimes a part of wider monetary aggregates) are fully covered by hard currency.

Third, CBAs are usually based on law (or according to the constitution – case B&H) causing a very high institutional costs of exiting the board. Specifically, changing the rules on the coverage of monetary base can only be done on the basis of changes in an act if Parliament it chooses to do so.

The mechanism of functioning of the CBA is very simple. The currency board operates under passive monetary policy on predetermined rules and has no discretionary actions of policy makers in the conduct of monetary policy. The amount of money in circulation is determined by the market developments that are in direct proportion to the amount of reserve currency. Under these rules the monetary policy carries out such activities as issuing currency or withdrawal of national currencies in volume of inflow and outflow of reserve currency.

According to this mechanism the monetary base or currency held by enterprises and individuals plus commercial bank reserves (cash in the vault or deposits with the CB) must be fully backed by foreign assets. Consequently, the monetary base may be increased as a result of the exchanges foreign assets (the assets side is only foreign currency) for domestic liabilities (the liabilities side is the currency issue).

Therefore the countries with CBA have stable currency and monetary system. If, for example, an individual wishes to convert the local currency to the hard (anchor) currency his bank can sell domestic currency to other banks in exchange for domestic currency with central bank's balance sheet, which is converted to cash on the anchor currency.

The monetary base would be reduced because the foreign exchange reserves of central bank would be decreased. Higher interest rates would lead to a reduction of interest so that individuals convert domestic deposits into the foreign anchor currency. It would encourage banks and non-bank entities to borrow in foreign anchor currency abroad in order to convert further in more attractive (for money holders) domestic currency. The inflow of foreign currency anchor from abroad can stop the further reduction of the monetary base and lead to increased demand by non-bank entities to converting local currency into the foreign currency anchor.

The advantage of functioning of CBA is particularly pronounced in small and open countries with high inflation or where there is a pronounced fiscal deficit monetization by the central bank. According to CBA rules there is no possibility of keeping the soft budget constraints and establishing fiscal discipline by eliminating the government's power to create inflation.

The introduction of the CBA parity is established in relation to the anchor currency which serves as a reserve currency and as a means of capital transactions in the retail sector. Usually, with the introduction of CBA demand for domestic currency begins to grow in due to the belief that its implementation provides a guarantee to the public to keep long-term anti-inflationary policies. Thanks to the mechanism of interest rates works in the banking sector the automatic stabilization of functioning of CBA it will be set up. In fact, the foreign capital outflow lead to the contraction of money supply causing an increase in interest rates. The higher interest rates attract investors to re-invest in the country with the CBA.

### **3.2. What are the main arguments against introduction of CBA?**

General belief is based on the theoretical position that discretionary monetary policy and the classic role of central banks contribute to a greater degree of systemic crisis in relation to CBA. This occurs because the central bank through its uncontrolled and subjective instruments deforms monetary as well as financial sector, and therefore increases the information of asymmetry and market disproportion. However, there is a possibility of occurrence of financial crisis in the CBA (Nenovsky, N. and Hristov K. 2007, p. 66)

One of the main arguments against the currency board is the lack of features LLOR because it is not allowed to collect domestic assets which make banks inherently vulnerable to depositor runs or panic withdrawal of deposits and it may provoke the deepening of financial crisis (Humpage, O. F. and McIntire J.M. 1995, pp. 2-11) The currency board is not able to influence the money supply but it can increase only as the result of increasing foreign exchange reserves. In order to solve this problem countries are usually recommended the establishment of a deposit insurance system.

Another argument against the currency board is that it creates huge costs of adjustment in conditions of different inflation rates in a currency board country in comparison with inflation in the anchor currency country (Jochem A. 1998, p. 291). For example, an increase of consumer prices will cause an *appreciation* of the *real exchange rate* that cannot be corrected by a nominal devaluation. As a result the country suffers from a continuous loss of international competitiveness that can only be stopped after differences in inflation rates disappear.

Furthermore, the country must have sufficient reserves available in the reference currency in order to guarantee the technical sustainability of the target exchange rate (Axel Jochem, 1998, p. 298). Otherwise, this exchange rate is extremely sensitive to speculative attacks. In addition, prices should be flexible enough to allow adjustment because the nominal exchange rate cannot respond to exogenous shocks.

With the introduction of the CBA the country loses a part of their national sovereignty since the national authorities are losing the ability to influence on economic activity through monetary policy. In other words, this means that the country has limited ability to influence the movement of interest rates through the amount of money in circulation. Local currency cannot be issued / withdrawn without an increase / decrease of reserve currency.

### **3.3. Experience with CBA in B&H**

Although some transition economies are showing real GDP growth, the levels of GDP in B&H are still lower than pre-transition levels. During the period of economic transition, maintaining macroeconomic stability is one of the main objectives of economic policyholders. Otherwise, the transition process in Central Eastern Europe and their convergence towards the European Union, accompanied macroeconomic stabilization, as well as, structural reforms. Macroeconomic stabilization, by itself, implies the establishment of internal and external macroeconomic balance, while internal macroeconomic balance reflects among other things, a low and stable inflation rate.

The political climate created in B&H at the beginning of 1990s was harmful to the country. The economy recovery that started in 1996 was assumed to continue implementation of a well-coordinated reconstruction program and rapid progress in institution – building and market reform. B&H economic growth rates during the post war period was generated by the investment in infrastructure with the help of donor funds. The country received large amounts of grants and loans and relatively quickly regulated their relations with foreign creditors. The position of B&H has changed significantly in last 15 years after the beginning of the transition. From the beginning of the transition process, monetary policy was focused on curbing inflation. The program of stabilization and liberalization of prices was based on the recommendations of the IMF.

Meanwhile, it became clear to all political actors that the requirements in terms of exchange rate stability and convertibility cannot be simultaneously achieved if there are higher rates of inflation. The framework of monetary policy in B&H has been defined as CBA under the Dayton Peace Agreement in 21.11.1995. The reform was motivated by desire to strengthen the ability of key financial institutions to accelerate the transition of B&H.

The CB of B&H (Central Bank of Bosnia and Herzegovina – CB of B&H) was established under the Dayton Peace Agreement and commenced its operations in August 11, 1997 and the introduction of a KM that was pegged to the deutsch mark (DM) and thereafter de facto to the euro (1 KM = EUR 0.51129). According to the Law on the Central Bank of Bosnia and Herzegovina the most important aim of the CB of B&H is to formulate, adopt and control the monetary policy through strict adherence to the CBA (Law on the Central Bank of Bosnia and Herzegovina).

By choosing to apply the principle of CBA B&H decided that the aim of its monetary policy will be to achieve price stability - the stability of domestic currency against the reserve currency, accordingly, the stability of inflation. The aim of monetary policy set like this was essential for the very uncertain post-war economic situation in B&H. Obvious inefficiencies of four currencies in performing basic functions imposed the need to be replaced with more efficient currency.<sup>1</sup>

CBA in BiH is considered one of the most orthodox monetary arrangements since its dominant function is a replacement of domestic currency for reserve currency at a fixed rate on demand. The CB of B&H is able to use only required reserve as the main discretionary monetary policy tool. By increasing or decreasing the required reserve of CB of B&H affects financial potential for bank credit thus on the money supply. Moreover, according the orthodox currency board issuing of the domestic currency requires balance of payments surplus based on positive current account and/or net capital inflows. The currency board then absorbs the accompanying supply of foreign exchange and replace by issuing local currency.

Further, the additional issuing of KM can only be performed on the basis of the surplus in the balance of payments, international transfers, or foreign loans. The amount of the money supply is increased depending on the lending activities of commercial banks. There are a lot of data and information about of the experiences and results of CBA in B&H. Total economic trends in the B&H show significant progress in the period after the introduction of CBA, especially in the following domains

- achieved price stability in the medium term. Politics of the currency board has achieved significant results in the previous period, primarily in terms of prices stability and local currency. In the period beginning with the introduction of the CBA, the inflation rate in B&H has been recording a considerable downward trend with average annual inflation of 2.1 per cent by the end of 2010.
- the purchasing power also increased rapidly in the previous years, the most of the citizens felt the benefits of hard currency.
- It was provided a credible nominal anchor for monetary policy that was especially important for an uncertain post-war economic and political situation in B&H
- significant growth was recorded on the level of savings and loans granted to residents (as direct consequence of introducing CBA)
- Achieved significant credibility of monetary policy and inflow of foreign investment and foreign capital. Preserved the stability of the domestic currency is largely based on increasing foreign exchange reserved. Foreign exchange reserves continuously grew in the whole period from 1997 to the end of 2010. It amounted 6,456 billion of KM (at the beginning of the CBBH operations in 1997, there was 132 million KM) while net free reserves were over 486 million KM.

---

<sup>1</sup> At the beginning of the CBBH operations, in 1997, four currencies were used in BiH: KM, DM, Croatian Kuna and YU dinar. Deutsche Mark Croatian Kuna and YU Dinar stayed in the payment system until 1999. These currencies were excluded from the payment system in the fourth quarter of 1999. In the end of 1999, 14,5 million of DEM, 1,4 million of Croatian Kunas and 2,4 million of YU Dinars were in the payment system, the amounts are calculated in KM. The share of these four currencies in the total payment transactions in the end of 1999 amounted to 25,5%. Dragan Kovačević, Monetary Policy Efficiency and Currency Substitution under a Currency Board Arrangement in BiH, Saranda, Albania, September 11-12, 2003.

- By the end of 2010, the deposits in KM accounted for 32.0 per cent of the total household deposits in terms of currency composition,
- Full presence of KM in domestic payment transactions. The share of KM has increased over time so it has become the dominant currency used in all transactions in B&H;

Politics of the currency board has achieved significant results in the previous period, primarily in terms of stability of local currency. There are also several main disadvantages or limitations with implementation and functioning of CB of B&H. They are:

- Instruments of monetary policy of central banks are excluded as a means of stimulation of economic growth and economic expansion;
- The currency board approach to monetary policy, mandated by Dayton Agreement render money financing impossible and impose a very tight constraint on the government's ability to borrow domestically;
- Problems of liquidity - there is no an appropriate level of intervention of CB of B&H in financial market in order to stabilize liquidity. CB of B&H is unable to perform the role of a lender of last resort (LLOR) in case of problems with liquidity in the banking sector,
- CB of B&H may not be able to supply extra liquidity to the banking system or individual banks. This means that the exchange rate cannot be used as a means to absorb the most economic shocks,
- With the introduction of CBA a state renounces monetary sovereignty and active monetary policy management, while the process of adjustment mainly occur through the level of wages and the cost of employment.

#### **4. Evaluation of sustainability CBA in B&H**

However, implementing monetary policy frameworks by CBA and the successful development of the banking system are good starting point. Any monetary analysis, even in terms of CBA, begin with basic orientation in terms of its sustainability. In order to understand the role of gross foreign exchange reserves and monetary aggregates in terms of sustainability of CBA in B&H, in Table 1 we present these indicators recorded in the period between 2000 and 2010.

**Table 1 . Sustainability of CBA in B&H**

	2000.	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.	2010.
Gross foreign reserves (in mil. KM)	1,027.5	2,708.4	2,484.1	2,792.9	3,479	4,224.5	5,451.7	6,698.5	6,295.7	6,212	6,458
<b>Coverage of the main monetary aggregates (M0 and M2) by foreign exchange reserves (in %)</b>											
Reserve money M0	107.27	106.51	107.14	107.04	107.35	106.35	107.81	107.54	110.37	109.9	109.6
Money supply M2	41.64	58	48.98	50.82	50.93	52.32	54.12	54.68	49.28	48.11	46.57

Source: the authors' elaborations on CB B&H data, 2000-2010.

Despite of its shortcomings in terms of exchange rate rigidity, the lack of function of lender's last resort, there is more concern about the possibility of deflation and the like. CBA in B&H political environment, it has been proven highly successful since its introductions . Based on the data recorded in table 2 it can be concluded that the main monetary aggregates (M0 and M2) are covered by foreign exchange reserves.<sup>2</sup>

<sup>2</sup> Reserve money M0 (primary money or monetary base) consists of cash outside monetary authorities, deposits of commercial banks and deposits of other domestic sectors (except for deposits of the central government) with monetary authorities. Monetary aggregate M1 comprises cash outside banks and demand deposits in domestic currency of all domestic institutional sectors (except for deposits of the central government). Monetary aggregate QM (quasi money) consists of time and savings deposits in domestic currency, demand deposits in a foreign currency and time and savings deposits in a foreign currency of all domestic institutional sectors (except for deposits of the general and entity governments). Money supply M2 comprises monetary aggregates, M1 and QM (quasi money).

Thus, the monetary base was covered with 100% foreign exchange reserves throughout the whole of the reference period (from 2000 to 2010) and the money supply since 2003 onwards with more than 50% of foreign exchange reserves, with the exception from 2008 to 2010 when it decreased slightly below 50%.

In order to further analysis of the stability of CBA in B&H we shall use the first indicator of the stability of the currency board. Indicator may be stated as below

$$I_a = (M2-M1)/M0$$

wherein:

$I_a$  – indicator of currency board stability

M1 – Monetary aggregate;

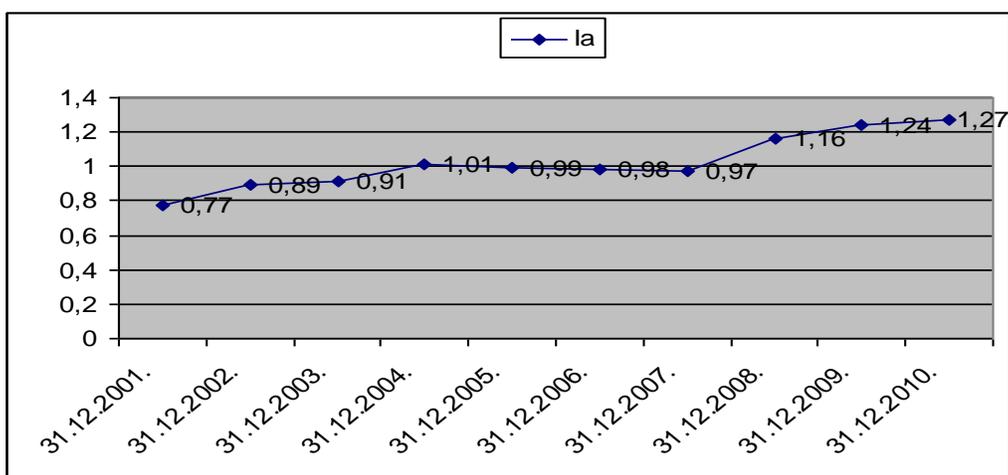
M2 – Money supply; and

M0 – Reserve money M0 (primary money or monetary base).

The analysis of indicator of currency board stability is based on annual data for three monetary aggregates (M0, M1, M2) in the period of 2001-2010.

The figure 1 shows the results obtained from calculation of indicator of currency board stability that provide evidence of its relatively good compliance.

**Figure 1. Indicator of currency board stability**



Source: the authors' elaborations on CB B&H data B&H, 2001-2010.

This indicator should converge value 1. If the index significantly exceeds the value 1, the problem transformation of quasi money in the money (cash) is likely to increase. Otherwise, if the indicator is significantly below 1 that is a sign of low confidence in the banking sector and domestic currency. In the case of B&H this indicator in the reference period converged value of around 1. It has been recorded a slight positive trend in all reference period, except less deviation in the second half of 2008. In addition, based on trends in this indicator can be concluded that there is a significant degree of liquidity in terms of transformation of quasi money in the money (cash) as well as the increase confidence of the depository of the domestic banking sector and domestic currency.

As a confirmation it should be noted that household saving rate show long term upward trend which reached its highest historic level of 3,913 millions of KM by the end of 2010. The ratio of foreign exchange reserves and the monetary base can be useful as another indicator for estimation of monetary stability in B&H. This indicator can serve as the primary standard indicator, which reflects the currency board rules.

This indicator can be expressed as a ratio of Net Foreign Reserves and Reserve money. Its basis is the very simple equation

$$I_b = (NFR/M0)$$

wherein:

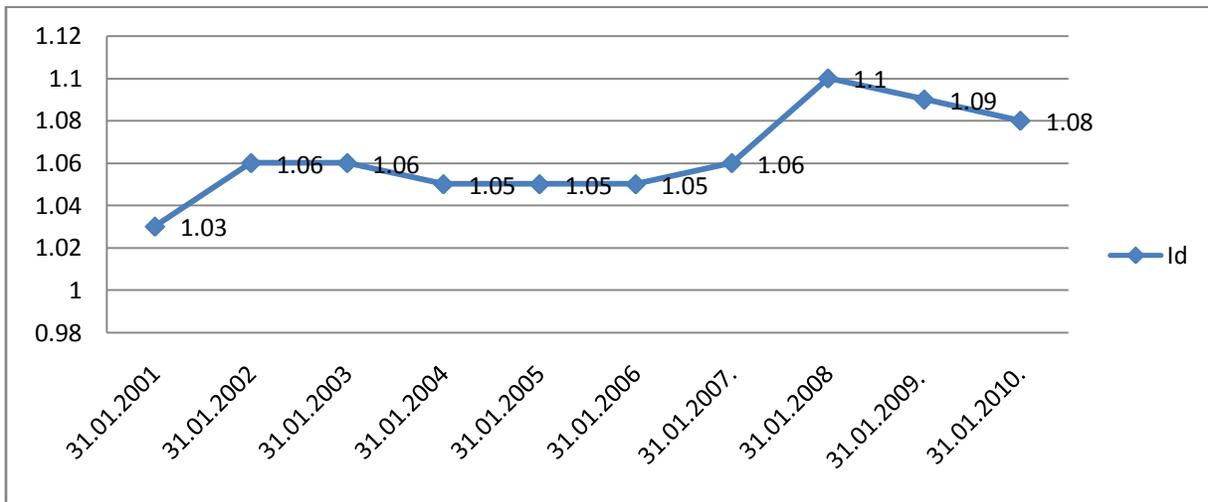
$I_b$  - Indicator of coverage monetary base by net foreign reserves

NFR- Net Foreign Reserves

M0 - Reserve money (primary money or monetary base).

Taking into consideration the demonstrated trends in foreign exchange reserves and monetary base in B&H, the figure 2 provides information on movements of indicator of coverage monetary base by net foreign reserves at different times between 2001 and 2010.

**Figure 2. Indicator of coverage monetary base by net foreign reserves**



Source: the authors' elaborations on CB B&H data B&H, 2001-2010

If the value of this indicator exceeds 1, it indicates that the banking and currency crises are less likely undermining the credibility and questionable actions of CB of B&H. Values less than 1 mean the opposite. In the above chart, it can be seen that level of foreign currency reserves of CB of B&H continued to increase. It had appropriate reflection on the monetary aggregates dynamics resulting in growth of intensity of the broadest money supply. In other words, throughout the whole of the reference period (from 2001 to 2010) the coverage of the monetary base by net foreign reserves was stable over the required 100%, except on 31.12.2004. and 31.12.2006. So we had an exponential growth of this indicator since 2008, which remained within the appropriate limits exceeding values of 1. It may be acceptable, since does not undermine the credibility of the currency board rule. Including some types of other ratios in monetary analysis, it is possible to get some insights into the series of underlying monetary aggregates and their quantitative changes. Among the other types of ratios we could mention comprehensive indicator of the ratio of money supply M2 and M0. It indicator can be stated as:

$$Ic = M2/M0$$

wherein:

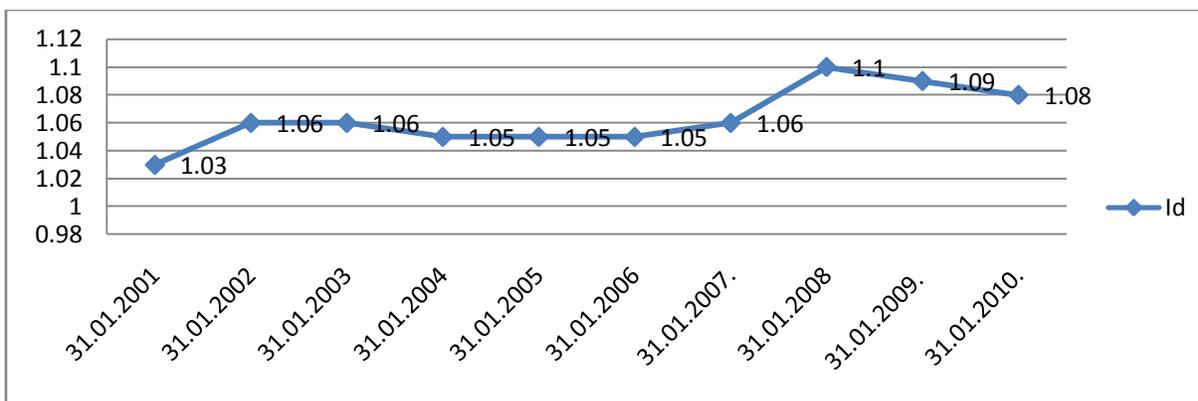
Ic -Indicator of the ratio of money supply M2 and M0;

M2 - Money supply;

M0 - Reserve money (primary money or monetary base).

If the mentioned indicator has a tendency to rise, it shows well functioning of currency board. to workings of a currency board system. In our case, figure 3 shows the movement of money supply and monetary base for different time intervals. It tell us that the ratio of the reference period had a tendency of constant increase, indicating no significant fluctuations

**Figure 3. Indicator of coverage monetary base by money supply (M2)**



Source: the authors’ elaborations on CB B&H data, 2001-2010

The ratio of money supply and monetary base was obtained in the aforementioned manner, therefore, must necessarily be examined and analyzed carefully. In our case, other factors to consider may include banking department deposit and monitor the movement of the new ratio. Namely, it is the ratio of banking department deposit in relation to quasi money (QM) or the M2, and their movements over different time intervals are shown in table 3.

**Table 3. The ratio of the Banking Department deposit towards quasi-money or M2**

	31.12.2001	31.12.2002	31.12.2003	31.12.2004	31.12.2005	31.12.2006	31.12.2007	31.12.2008	31.12.2009	31.12.2010
Banking Department deposit / QM	1.65	1.8	1.83	1.69	1.72	1.77	2.01	1.79	1.72	1.66
Banking Department deposit /M2	0.70	0.73	0.79	0.82	0.85	0.88	0.99	0.94	0.94	0.90

Source: the authors’ elaborations on CB B&H data B&H, 2001-2010.

This indicator should be as large as possible, or, in other words, should tend to increase. As table 3 shows the value ratio of banking department deposit and QM at the end of 2007 it has a high value of almost 2. Since 2008 the aforementioned ratio recorded a slight tendency to fall without compromising the stability of the financial sector in B&H. Good trend was recorded with the participation of deposits in M2, no significant cyclical fluctuations.

Data presented in figure 4 demonstrate also higher degree of safety, greater international credibility of CB B&H as well as progress that has been achieved in recent years. Namely, the last indicator that we analyze in this paper represent ratio of monetary liabilities and net foreign reserves. It indicator can be stated as:

$$Id = \text{NFR} / \text{ML}$$

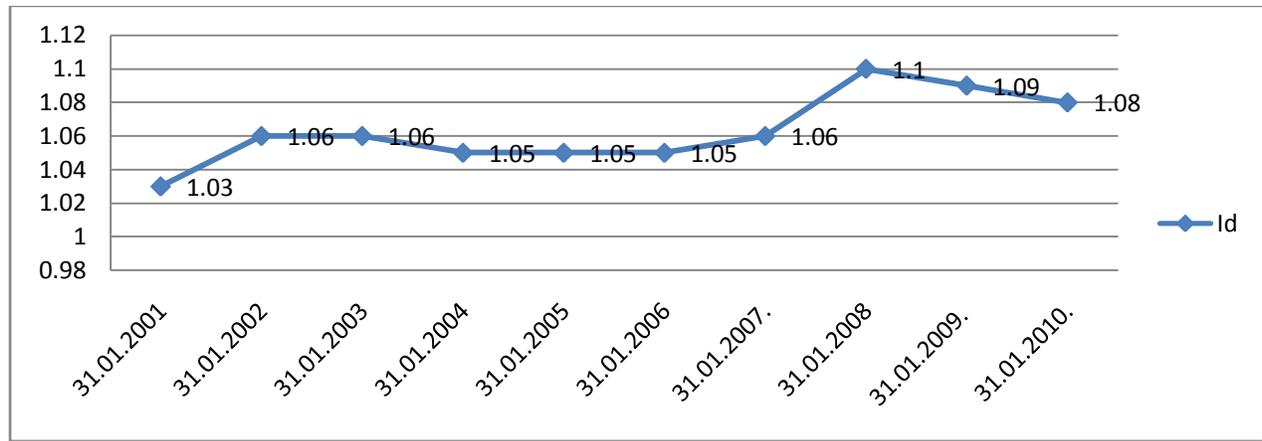
Id - Indicator of coverage monetary liabilities by net foreign reserves;

ML - monetary liabilities;

It shows that the coverage of the monetary liabilities by net foreign reserves was stable over the required 100% throughout the whole of the reference period (from 2001 to 2010). By the end of 2010, the net foreign reserves of CB of B&H were at 108 percent of its liabilities.

NFR- Net Foreign Reserves.

**Figure 4. Indicator of coverage monetary liabilities by net foreign reserves**



Source: the authors' elaborations on CB B&H data, 2001-2010.

**5. Conclusion**

It is evident that the monetary system in B&H has undergone significant changes since 2001. with signs of improvement of the macroeconomic performances, as well as challenges faced by transition economies. CBA has been selected as the only suitable alternative, despite many challenges, such as some macroeconomic problems (unemployment, fiscal deficit). Gaining credibility was especially difficult for the new exchange rate regime, despite great efforts of CB of B&H to build image of the respective institutions. Taking into account that B&H is still undeveloped democratic society with political, and economic insecurity and that there is no political consensus then it is understandable how a limited range of monetary policy regime we are able to apply. Namely, after the Dayton Agreement was signed four different currencies were used, laws and institutions have just created. In this environment, the CBA itself as the only alternative for the introduction of monetary rules is to avoid policy mess-ups.

The causes of this are numerous and the most important are lack of confidence in the currency amongst the domestic population, informal euroisation, but remember hyperinflation in recent history, with constant expectations of high inflation and limited dependence institutions of politicians. Application of CBA in B&H was accompanied by rapid economic growth for the usual post-war expansion of the economy given the small starting point. The unemployment rate still remains too high and represent one of the most worrying macroeconomic indicators. The introduction of the CBA in B&H has proved to be very successful. Regulation of the monetary system and restore lost public confidence were significant results of CBA policy.

Analyzing the advantage and disadvantages of CBA and the importance of other exchange rate arrangements it may be concluded that there is no suite of monetary policy models. Each country must choose monetary policy regimes in accordance with the specific economic, market, political and other conditions. In addition, CBA has certain advantages over the classical central banks in small economies, with poorly constructed democratic society and non-built system of national administration which is not sufficiently independent of political forces in power.

**References**

1. Central Bank of Bosnia and Herzegovina, Annual Reports, different issues (2000-2010).
2. Jochem, A. (1998, November/December). Currency Board and Crawling Peg Combining the Technical and Political Sustainability of Exchange Rate Based Stabilization, INTERECONOMICS.
3. Ganić, M. (2004), Evropska monetarna unija, TKD Šahinpašić, Sarajevo, B&H.
4. Hanke, H. Steve and Schuler K. Currency Board and Currencies Convertibility, Cato Journal, Vol.12. No3. (Winter 1993). Retrieved from <http://www.hacer.org/pdf/Schuler02.pdf>
5. Holger C. Wolf, Atish R. Ghosh, Helge Berger, and Anne-Marie Gulde (2008). Currency Boards in Retrospect and Prospect, The MIT Press Cambridge, Massachusetts London, England.
6. Humpage, O. F. and McIntire J.M. (1995), An Introduction to Currency Boards, Federal Reserve Bank of Cleveland (ed.): Economic Review vol.31, No.2.
7. IMF (2004). Classification of Exchange Rate Arrangements and Monetary Policy Frameworks, Retrieved from <http://www.imf.org/external/np/mfd/er/2004/eng/0604/htm>
8. Kovačević, D. (2003, September 11-12). Monetary Policy Efficiency and Currency Substitution under a Currency Board Arrangement in BiH, Saranda, Albania.
9. Kovačević, D. (2004). Modern Day European Currency Boards, Practice and Prospects, CB of B&H.
10. Kopcke, R. W. (1999, May/June). Currency Boards: Once and Future Monetary Regimes?, New England Economic Review, Retrieved from <http://www.bos.frb.org/economic/neer/neer1999/neer399b.pdf>
11. Nenovsky, N. and Hristov K. (2007). Criteria for evaluation of the systemic risk under currency board, Part Three, Institut for Market Economy, Sofia.
12. Šević, Ž. (2004). *The Political Economy of Currency, Substitution and Currency Board Arrangement*, published in Modern Day European Currency Boards, Practice and Prospects, CB B&H,
13. Tsang, Shu-ki (2000). Commitment to and Exit Strategies from a CBA, Seminar: Currency Boards: Experience and Prospects, Retrieved from <http://www.hkbu.edu.hk/~sktsang/Tsang20000506.PDF>.
14. Volcker, P. (1995), The Quest for Exchange Rate Stability: Realistic or Quixotic speech held in The Senate House, London University.
15. Williamson, J. (1995). Currency Boards are not the answer, Institute for International Economics, Washington, Retrieved from <http://www.iiie.com/publications/newsreleases/newsrelease.cfm?id=20>