

## **Extreme Monetary Regime Change. Evidence from Currency Board Introduction in Bulgaria**

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**Abstract:** *The radical change of the monetary regime (MR) in Bulgaria in mid-1997: (i) provides opportunity for theoretical and empirical analysis of this specific case of institutional change (ii) may serve as a starting point in the search for common ground between institutional and monetary economics, which is often absent in the literature, particularly that on transition (iii) helps build a new approach to the institutional change of the MR from the perspective of economic, political and ideological interests of the main players in the monetary realm.*

*Part II presents definitions of concepts like monetary institution, monetary organization, monetary regime, monetary regime change, monetary system etc. Also presented in this part is a theoretical hypothesis on which our study is built: the MR change is the result of the interaction between different groups of debtors and creditors, driven by their perceived economic, political and ideological interests. Among major motives for the MR change is the desire of economic players to have greater access to resources and to participate in the process of redistribution and embezzlement of public wealth. The MR change aims to formally fix relationships between creditors and debtors by establishing mechanisms for the enforcement of new monetary rules. The basic hypothesis is detailed in a set of theoretical statements: 1) on the asymmetry of the debtor – creditor relation under a change in the MR, seen in turn as a transition from one asymmetric institutional equilibrium to another, 2) on the endogeneity of the MR change where impulses come from result-oriented efforts of individuals and organizations, 3) on the institutional change as an interaction process between organizations diffusing institutional rules (DIR) and those consuming institutional rules ; in the money realm the latter type of agents may be associated both with creditors and debtors. Mixed configurations are possible where part of the creditors enters into a coalition with part of the debtors to establish the MR yielding benefits for the participants in the coalition, 4) on the typologization of the MR change: external (DIR are outside the country, as in the case of the currency board, in Bulgaria or the introduction of the Deutsche mark in Montenegro), internal (DIR are internal for the country as for the currency board in Estonia, the Abramovich reform in Yugoslavia), and mixed (the currency board in Lithuania, the dollarization in Ecuador), 5) in most cases the MR change is accompanied by a crisis in the old MR when money loses partially or completely its*

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*major function of a means of coordination between economic agents (old DIR organizations stop controlling the enforcement of rules and even breach them ; hyperinflation is one of the crisis manifestations and a harbinger of the MR change ; it can be assumed that in order to facilitate the imposition of the new MR, DIR organizations – for example the IMF – are able to provoke such a crisis to some extent or to accelerate it), 6) the interaction between debtors and creditors is polarized in the dynamics of the nominal interest rate (a function of the real interest rate and expected inflation, formed on the basis of different models of behavior) which is the visible side of the conflict, 7) the MR change can be viewed as a transition from one type of systemic budget constraints to another type, from soft to hard and vice versa. Hard budget constraints serve the interests of creditors and soft budget constraints those of debtors. Of course, it should be taken into account that “hard” and “soft” budget constraints are unequally distributed among economic agents.*

*In Part III, the theoretical hypotheses are considered in light of the Bulgarian case. The main players are presented in detail from the point of view of their interests in relation to the MR change – that is the introduction of the Currency Board (CB). The players are detailed: 1) external creditors of Bulgaria (private and official), 2) the IMF which is given special attention due to its role played in imposing the Currency Board, 3) households (net internal creditors), 4) the government (external and internal debtor - special emphasis is placed on the bipolar role of the government expressed in the external/internal debt ratio, 5) the central bank (internal creditor, very often “first” not last resort), 6) state companies (debtors), 7) private companies (net internal creditors), 8) commercial banks and related client companies (net debtors), 9) politicians and bureaucrats (debtors), etc. Employing the basic theoretical hypotheses, the chronology and the facts of the 1996/1997 financial crises and hyperinflation and the introduction of the CB in July 1997 are specified. The interpretation of events differs to a great extent from the traditional mainstream interpretation of the CB introduction as a sole instrument of financial stabilization.*

*In Part IV we attempt to present possible empirical approaches to describe institutional change and mainly to construct some indicators of its dynamics. In our view, indicators should reflect changes in the asymmetric positions of the main players (different types of debtors, creditors and coalitions between them). In the case of the introduction of CB in Bulgaria, are studied: 1) the structure and maturity of external and internal debts before and after the introduction of the CB – quantitative indicators 2) the dynamics of interest rates, inflation and debt securities yield – price indicators 3) the specific design of the CB, the dynamics of foreign currency reserves and the principles of their investment – organizational-structural indicators.*

*The conclusion summarizes the results of the study and provides possible directions for other studies of the monetary regime change in an institutional perspective. An attempt to construct a game model of CB introduction is made in the Annex.*

**JEL classification:** E42, E52, O10, P30

**Keywords:** institutional change, monetary regime, currency board, transition economy, Bulgaria

## **I. Introduction**

The introduction of the currency board in Bulgaria in July 1997 may be viewed as an extreme institutional change of the monetary regime and as its discrete interruption. Bulgaria switched from a regime of discretionary and subjective money supply management and floating exchange rate to an extremely passive and static form of monetary rule<sup>1</sup>. The analysis of currency board introduction may serve as a starting point for a number of theoretical and empirical conclusions on institutional change (IC) in general and transition economies in particular.

What are the contributions of the paper and what objectives does it pursue?

*First*, irrespective of some references, monetary regime (MR) change has been rarely analyzed using the instruments of institutional economics and political economy (generally it is treated conventionally within the framework of mainstream macroeconomic theory).<sup>2</sup> Monetary theory and institutional analysis are still developing independently of each other. Considering MR change as IC provides opportunity for seeking common ground between the two branches of economics. In addition, the need to seek common ground is determined by the fact that money and monetary regime are basic system elements in the economic and social system configuration.

*Second*, although the need to incorporate institutions in the transition economics has been increasingly discussed, this has not been done so far, especially in the realm of money where the paradigm of neoclassical economics is transferred mechanically. Specifically, in the realm of industrial economics, property rights and some late analysis of transition economies, institutions are paid certain attention while the monetary theory of transition remains neo-classical and equiaxial within the cost-benefit analysis. The fact that in the few empirical studies of the role of institutions in transition economies (Havrylyshyn and Rooden, 2000; Raiser, Di Tommaso and Weeks, 2000) there is no variable for monetary regime incorporated in the models is telling. Furthermore, the study of MR change could provide a number of new approaches to the solution of the essential problem in the transition – the one related to overcoming soft budgetary constraints.<sup>3</sup>

*Third*, notwithstanding achievements in constructing a theoretical basis of IC analysis, the empirical methodology has not been developed yet (Alston, 1996). The study of a specific case (a snapshot) of a radical monetary change would give a starting point for new theoretical and empirical approaches and the opportunity to construct quantitative indicators and approximators for IC. The introduction of the CB in Bulgaria<sup>4</sup> could serve as a “laboratory” for the analysis of a specific institutional change which has a completely different logic behind the visible conventional

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<sup>1</sup> We should note that the currency board (CB) links the reserve money dynamics (and indirectly the money supply) with the balance of payments under a legally fixed exchange rate.

<sup>2</sup> On the one hand, the research done by institutionalists (old and new) treat some aspects of analysis related to our theme: for instance, treating money as an institution (e.g. Eggertsson, 1990 and Moacir dos Anjos, Jr., 1999), the possibility to treat Menger’s theory on the origin of money as a path dependent process (see for instance the discussion in Lewin Seminar: Menger’s path dependent theory of money, 2001, Aydionat, 1999). On the other hand, economists studying macroeconomics, monetary and financial theory rarely refer to the institutional aspects of the monetary system (see some exceptions such as Bordo and Jonung, 1990; Hossain and Chowdhury, 1998; White, 1999; Calomiris, 2000). These authors use the term “institution” without defining it or without making explicit analysis.

<sup>3</sup> An overview of the theories of soft budget constraints in transition economies is done in Maskin and Xu (2001).

<sup>4</sup> Three other countries operate CB – Estonia, (1992), Lithuania (1994), and Bosnia and Herzegovina (1997). In January 2000 Montenegro has introduced the mark as legal tender, which is an even more extreme form of hard monetary regime. On the political, legal, institutional and organizational aspects of CB introduction in Estonia, Lithuania and Bulgaria see Nenovsky, Hristov and Mihaylov (2002).

dynamics of economic variables. In this paper we attempt to answer a number of questions in the context of the specific situation in Bulgaria: (i) what provokes the MR change (=IC), (ii) which are the driving forces and their interests, (iii) how is the IC effected, i.e. what is its dynamics. Without pressing the matter, we would test our main hypothesis, namely whether and to what extent IC is the result of economics actors' interests and strategies. Indeed, the CB introduction represents a change in the distribution of power between debtors and creditors in favor of creditors, halting monetization of losses and introducing hard budget constraints in the entire system.

The methodology of the paper draws on a number of studies. Rizopoulos and Kichou (2001) suggest that IC can be analyzed as a political interaction process between organizations diffusing institutional rules and organizations consuming institutional rules. An overview of familiar approaches to IC issues is presented in Nelson, 1995; Nelson and Sampat, 2001; Hodgson, 1998, and a summary of possible empirical approaches to IC in Altson, Eggertsson and North, eds., (1996). Other analytical concepts and approaches have also been taken into consideration in our analysis such as (i) political and economic analysis of monetary regimes and international financial institutions (Keohane, 1982; Krasner, 1982; Vaubel, 1991; Posen, 1993; Stone, 2000; Willet, 2001; Migué, 2000; Cooper, 2000; Cohen, 2000; Stiglitz, 2000 and 2001; Gilpin, 2001), (ii) the importance of power configurations in the IC analysis (Marx, 1859; Galbraith, 1976 and 1984; Friedman, 1992), (iii) treating the IC as a conflict between debtors and creditors, originating from Marx and elaborated by modern authors like Aglietta and Orléan (1984). Furthermore, our analysis drew on the role of groups of interest for a change (North, 1990, 1994 and 1997) and the problems of transition related to various types of "bandits" (Olson, 1966, 1971, 1995 and 2000, Koford, 2000), as well as on monetary history and monetary theory concerning the evolution of monetary regimes (Bordo and Jonung, 1990; Friedman, 1992; Redish, 1997; Weatherford, 1997; White, 1999).

Overall, our approach may be defined as *positive* as we attempt to describe and analyze the change of the MR, not to judge whether this change is efficient or not.

The paper is structured as follows. Part II presents working definitions and formulates the basic theoretical statements. Part III deals with the typology of major players, their interests and positions before and after the currency board introduction in Bulgaria. It summarizes and *theoretically retells* the extreme monetary change dynamics during 1996/1997. Part IV attempts an empirical testing of stated hypotheses, focusing on finding quantitative approximators for the MR change. Finally, Part V discusses the results of the study and makes some recommendations for future analyses.

Before we proceed to the analytical part, we would like to specify the following as regards the structure of the paper. We decided not to describe *separately and in detail* the development of the Bulgarian transition before the CB introduction (from 1990 to July 1997) and after the CB introduction (from July 1997 till present time). This reflects our desire to focus on the theoretical aspect of our idea of the MR as an institutional change, examining the Bulgarian case only as an illustration. The dynamics of the Bulgarian economy until the CB introduction is presented comprehensively in Dobrinsky (2000), Vutcheva (2001), and also in OECD (1997), Sgard (1999), Nenovsky (1999), Mihov (1999), Koford and Tschoegl (1999), Koford (2000), Caporale and alii (2001). As regards Bulgaria's development after CB introduction, you may refer to OECD (1999), Miller (1999), Caporale and alii (2001).

## II. The Monetary Regime Change as a conflict between Creditors and Debtors

In this part we present (i) working definitions of basic concepts used in the paper, and (ii) basic theoretical statements which present more or less different aspects of the main hypothesis.

### II. 1. *Some Working Definitions*

Although attempts have been made in the literature to define the concepts used in the paper (see Bordo and Jonung, 1990, White, 1999), there are no such definitions in institutional economics research and in the theory of money research. Adapting some institutional approaches to monetary subject matter, we provide the following definitions:

*Monetary institutions (MI)*. We define them as sets of rules, formal and informal, norms and shared knowledge related to monetary behavior, including the influence, reproduction and enforcement devices, which materialize them. Monetary institutions determine money demand and supply. It is logical to presume that formal rules dominate money supply while informal rules and behaviour play a more important role in money demand. However, as we will see further in the text, it is possible for informal rules to penetrate deeply in the money creation mechanism. The whole set of monetary institutions form a specific structure and constitute the *monetary system*.

*Monetary organizations (MO)*. Generally these include collective economic agents pursuing specific goals within a given institutional monetary framework (system) and protecting the interests of the (dominant) individuals in the group (see also Ménard, 1990). Theoretically, included are almost all economic organizations in so far as they use money in their activity, or influence the money creation and destruction processes. The monetary organizations closely related to money creation and destruction processes are defined as "diffusing institutional rules" (DIR) organisations. The central bank is a typical monetary DIR. Because of their organizational nature, monetary DIR organizations pursue strategies which are not limited to their institutional properties. Their action is also guided by specific organizational goals in order to promote the interests and maintain the power of their dominant members.

Players using money without the possibility to impose rules (for example, firms) are considered as "consuming institutional rules" (CIR) monetary organizations. It is worth to mention that many monetary organisations (finance ministry, financial intermediaries, commercial banks, etc.) have a hybrid status: In some cases they are endowed with DIR features, and in others they are simple players consuming rules (CIR). For example, commercial banks influence the rules of the game concerning enterprise credit and at the same time they refer to the rules fixed by the central bank.

*Monetary regime (MR)*. The monetary regime covers formal rules as well as their enforcement mechanisms. The monetary regime is most closely related to money creation dynamics, particularly central money creation (central bank money). It involves to a lesser extent money demand (for instance, restrictions on local currency

convertibility, restrictions on cash payments, etc.).<sup>5</sup> Another aspect, which is discussed further in the text, enables us to define the monetary regime as a set of formal relations between debtors and creditors. In this sense, the MR provides a specific (always formal) power configuration of different groups of debtors and creditors. At the same time, MR directly impacts the informal side of debtor-creditor relationship, inhibiting or stimulating different informal models of monetary behavior. In the specific case of Bulgaria mentioned below, the CB (for the monetary base cover by foreign exchange reserves at a legally fixed exchange rate) is a monetary regime, and the BNB Issue Department is the organizational embodiment of this rule (DIR). When we speak of *MR change*, we mean the transition to a new formal institutional framework, including a new type of mechanisms for imposing new formal rules for the relationship between creditors and debtors.<sup>6</sup>

## II.2. Theoretical Statements

*Basic hypothesis.* The monetary regime change (as defined above) is the result of the conflict between different groups of national and international debtors and creditors (monetary organizations and individuals). It is driven by their economic, political and ideological interests. One of the major driving motives for MR change is economic agents' desire to have a broader access to resources for participation in the process of appropriation and redistribution of common wealth. The MR change consists to fix formally new relationships between creditors and debtors and establish mechanisms for their execution.

Defined most generally, this basic working hypothesis can be detailed in the following theoretical statements without being limited to them:

*Statement 1.* MR change is of asymmetric nature – it leads to debtors dominating over creditors or vice versa – creditors dominating over debtors. When the asymmetry of power positions in the MR passes a certain critical threshold the interests of the losing side materialize into a desire for change and shift to a new institutional equilibrium<sup>7</sup>. In order to be accomplished, an initiating organization is needed, which has various political levers at its disposal<sup>8</sup>. The probability for

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<sup>5</sup> Monetary regimes are: (i) the regime of discretionary monetary policy (all types), (ii) the currency board rule (iii) the gold and the gold-dollar standard, (iv) the official substitution of local currency with foreign currency, (v) the regime of private money (the rule for adverse clearing - see White, 1995), etc. Within the regime of discretionary monetary policy there are different forms: (i) monetary aggregate targeting, (ii) inflation targeting, (iii) exchange rate targeting, etc. Monetary regimes are often identified with the exchange rate regime (floating, fixed, etc.).

<sup>6</sup> Given the system-determined role of money in the economic and social system, the MR change goes far beyond the narrow framework of the MR and pierces the evolution of the entire economic and social system. This change is integrally linked with the evolution of another systemic social category that influences coordination processes between social entities: the property rights. It is not by chance that in theory (and historical evidence confirms it) MR changes are accompanied by changes in ownership structure and control (although they are not always synchronized over time).

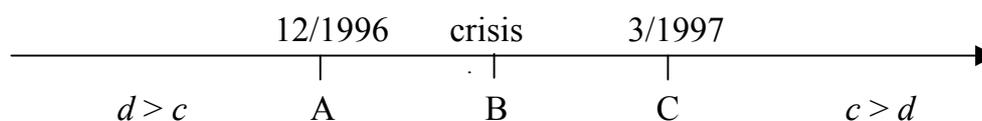
<sup>7</sup> It is more appropriate to speak of trend to equilibrium (Hayek). The asymmetry of the MR is often combined with political asymmetry (majority and minority), created as a result of elections.

<sup>8</sup> The new institution could assert itself in two ways which are not mutually exclusive but substantiate each other: (i) by an organization or a network of organizations having power over the institutional change and (ii) as a process of diffusion and adoption of new norms of behavior by most economic agents (Stahl, 1998a), with the precision that diffusion is by no means a linear process of passive imitation. Actions, reactions, bargaining and conflicts will model the emergence process and the nature of the new rules (Rizopoulos and Kichou, 2001).

materialization of the IC is enhanced either (i) by the possibility for complete economical, political and ideological victory over the hostile group, or (ii) by the promise and later the possibility to compensate (partially) the losers from the IC.

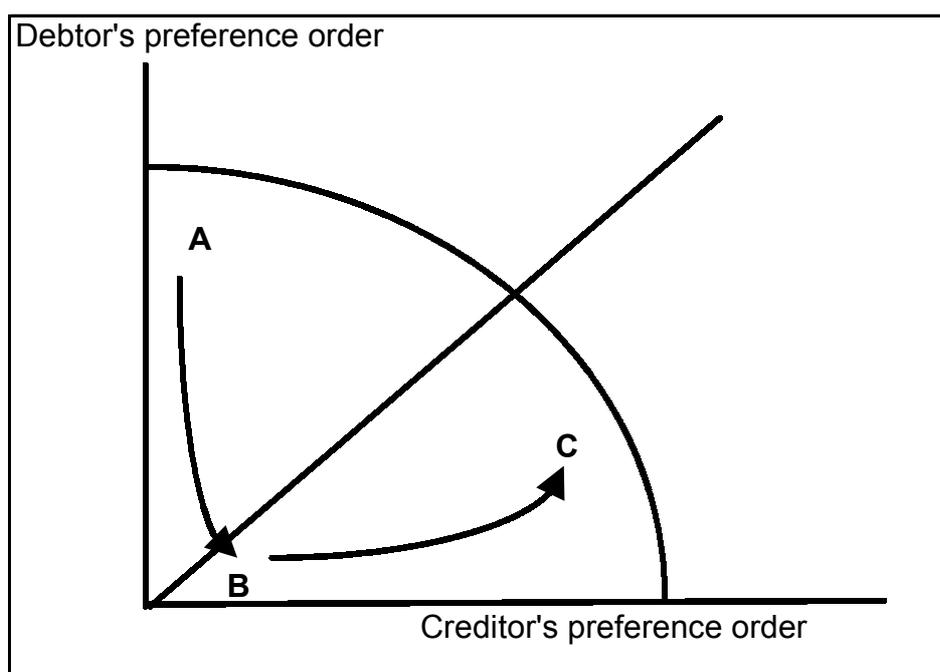
As a shift from one MR to another MR occurs, we could therefore speak of a transition from one debtor-creditor equilibrium to another debtor-creditor equilibrium in the Bulgarian context. This is shown in Chart 1 – in the period before point A there is one asymmetric power equilibrium, i.e. the old MR, section AC is the period of the MR crisis, where B is the deepest point of the crisis and the section after point C is the new monetary power equilibrium and the new MR, where  $d$  is proxy for debtor's power and  $c$  – for creditor's power.

*Chart 1. Monetary Regime Change over Time (Bulgarian case)*



The dynamics of MR IC could be split into two parts (we show this on the Chart 2): (i) the move from the initial debtor's dominated MR to the deepest point of the crisis (graphically from A to B) and (ii) the move from the deepest point to the new creditor's dominated MR (graphically from B to C). Furthermore the point C gives more opportunities for the debtors than the point B, raising their preference order. This two-phase movement is closely linked to the situation of a crisis – which may be intentionally provoked (we will see this later) – involving initial damages for the future losers (debtors) so huge, that they not only accept, but care for moving to the new equilibrium (after being compensated partially for the losses suffered during the crisis)<sup>9</sup>.

*Chart 2. The Monetary Regime Change Dynamics*



<sup>9</sup> Here we can speak of "artificially created demand for IC by provoking crisis".

In our approach the MR change is endogeneously determined, impulses come from a conflict of interests and the concerted efforts of individuals and organizations. However, some exogenous factors (such as technologies, wars, natural disasters, etc.) and the processes of diffusion of new monetary behavior models are also in play<sup>10</sup>. In most cases the MR change is accompanied by a crisis of the old MR when money loses partially or completely is major function of a means of communication and coordination between economic agents<sup>11</sup>. Old DIR organisations stop controlling the enforcement of rules and even break them. Hyprinflation is one of the crisis manifestations and a harbinger of the MR change.

*Statement 2.* Following the methodology of Rizopoulos and Kichou (2001), which states that IC is based on the interaction between organizations diffusing institutional rules (DIR) and those consuming institutional rules (CIR), in the realm of money these two types of agents could be associated with both creditors and debtors. Mixed configurations are also possible when some creditors enter into coalition with some debtors to establish MR from which the coalition would benefit.

The transition process in Bulgaria (1990 – 1995) is a telling example of a debtor-creditor coalition. During the review period, commercial banks (formal creditors) entered into different types of coalition with some of the borrowers, formal debtors (sometimes connected with the banks or with companies dependent on the banks), with part of the government apparatus (formal debtor) and with the central bank (formal creditor). This led to MR and rules (rather discretion) that were completely detrimental to households, new private companies established with private funds and external creditors. A situation emerged where formal and informal sides of the creditor-debtor relation interwove in a way that it was no longer possible to distinguish between debtors and creditors.

To fulfill their functions, DIRs should have financial and political power and ideological influence on other economic agents<sup>12</sup>. An illustration of this requirement is the IMF. At the end of 1996 and the beginning of 1997 the IMF did its utmost to introduce a CB in Bulgaria, imposing the dictate of creditors (mainly external) and placing domestic debtors and part of domestic creditors into disadvantageous positions. IMF financial power rested on its decision to loan or not to loan in support of the balance of payments. The political power of the Fund materialized in the subjugation of a substantial part of the national political forces<sup>13</sup> and IMF ideological

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<sup>10</sup> On the decisive role of technologies and wars for MR and monetary system changes see Phillips, 2000 and Fergusson, 2001.

<sup>11</sup> It can be argued that the greater the asymmetry of the old MR, the deeper the financial crisis and the greater the asymmetry (in the opposite direction) of the new MR.

<sup>12</sup> The analysis of power is beyond the scope of this study. We will mention only the classical research on power done by Max Weber (see Swedberg, 1998) and by Kenneth Galbraith (1984); and a nice review of the theories of power by Dimitar Ivanov (1994). Charles Calomiris refers to politically determined financial institutions and emphasizes the importance of *ideologies* in their formation and spread (Calomiris, 2000).

<sup>13</sup> See, for example, the press articles of S. Estrum, "It Will Take a General Balkan Conference to Clean Up the Mess", International Herald Tribune, June 28, 2001 and of G. Palast, "IMF's Four steps to Damnation" (interview with J. Stiglitz), Observer, April 29, 2001. It is not by chance that before elections the leaders of political forces rush visits to the IMF and the USA to obtain support or instructions on their adequate behavior. It is interesting that the opposition, has been opposed for quite a long time to the introduction of the currency board in Bulgaria (see I. Kostov, "The Currency Board is a blow on my confidence as Prime Minister", Trud daily, May 1997 – in Bulgarian) using it as one of the major arguments against the socialist government (which had agreed on the CB introduction). In early 1997, the opposition leader visited the USA, met some IMF officials and upon his return became

power<sup>14</sup> was imposed by propagating and advertising the IMF financial stabilization model which is an extremely simplified and standard form of monetary approach to the balance of payments (Fischer, 1997).

*Statement 3.* For the purpose of analysis MR changes may be classified into: (i) external (DIRs are outside the country) – such is the case of the Bulgarian CB and the DM introduction in Monte Negro in 2000; (ii) internal (DIRs are inside the country) as is the case of the CB introduction in Estonia in 1992 or the Avramovich reform in Yugoslavia in 1994; and (iii) mixed (DIRs are both outside and inside the country) – the introduction of the Lithuanian CB in 1994, the dollarization in Ecuador in 2000. The cases of Estonia and Yugoslavia are rather exceptions to the rule that the smaller the country, the greater the likelihood for the MR change to be initiated from outside the country. This explains some of the difficulties in MR changes in big countries, as coalitions among players are more complex, DIRs and CIRs need to find an appropriate organizational structure to impose the new MR and external DIRs have relatively less power. Obstacles for CB introduction in Russia and even in countries like Turkey, Indonesia and Romania confirm this assumption.

Let's consider another example, that of *euroization*, i.e. introducing the euro as legal tender before EU and EMU membership (essentially this is a shift to a new type of MR)<sup>15</sup>. The EU and ECB opposed the idea and discussions in the countries considering it were halted immediately. Usually the MR change results from a crisis (banking, financial, hyperinflation, etc.). Therefore it may be assumed that in order to facilitate the imposition of the new MR, DIR organizations – which are also players – are capable, to a certain extent, of *provoking a crisis or accelerating* a raging one. Practice shows that such cases are not rare, although such DIRs are unwilling to admit this fact (which is quite logical).

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one of the most ardent proponents of CB. Currently it is often reckoned that the then opposition had brought about the CB.

<sup>14</sup> IMF ideological power is close to the charismatic source of power defined by Max Weber.

<sup>15</sup> See for more details Nenovsky, Hristov and Petrov, 2001.

*Statement 4.* The conflict between debtors and creditors crystallized in the MR is polarized in the dynamics of the nominal interest rate (a function of the real interest rate and expected money devaluation based on different models of behavior), which is the visible side of the conflict. In the neo-classical paradigm the interest rate has no bearing on power configurations because the entire paradigm is power-neutral. The interest rate is treated as a "mechanic" variable, included in the models to explain other "mechanic" variables<sup>16</sup>. It is rarely considered that the interest rate, along with other debt indicators, debt price, etc., reflects changes in the positions of economic agents grouped as debtors, creditors, or various coalitions between the two. As we will show in the last part of the paper, the domestic/foreign debt ratio, debt structure (by creditor, currency and by maturity), debt securities prices, etc., are important empirical indicators of power positions and of possible, expected MR changes. We should not forget, however, that the creditor and debtor groups are not homogeneous and internal conflicts are possible. For example, the dynamics of domestic and foreign debts of the Bulgarian government before and after CB introduction show clearly the power distribution between external creditors (holders of the Bulgarian foreign debt) and domestic creditors (households and some of the banks).

*Statement 5.* The MR change may be viewed in light of the issue of budget constraints, a basic theme in the theory of transition (Kornai, 2000; Maskin and Xu, 2001). MR is a transition from one type of budget constraints to another one, i.e. from "soft" to "hard" and vice versa. Hard budget constraints serve the interests of creditors, and soft budget constraints serve the interests of debtors. Certainly, it should be taken into account that hard and soft budget constraints are unevenly distributed among economic agents. It should be emphasized that the MR change is a *system* change in the nature of budget constraints. The CB introduction should be viewed as an attempt to impose hard budget constraints to serve the interests of creditors within the entire system. The idea is that hard budget constraints to the central bank serve as an initial impulse for hard budget constraints first on the fiscal system and then along the entire chain of debtor-creditor relations.

The above theoretical statements do not exhaust the basic hypothesis but they provide directions for analysis in presenting the CB introduction in Bulgaria.

### **III. Main Players and the Dynamics of the Extreme Monetary Regime Change in Bulgaria**

In this part we present the Bulgarian monetary history (1990 - 2000) to examine whether it comes close to the theoretical hypotheses stated. To this end (i) we describe the typology of the IC players according to their interests, and (ii) we trace, from the viewpoint of the theoretical hypotheses stated, the chronology of CB introduction.

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<sup>16</sup> For the Marxian approach of the evolution of the interest rate see Marx, K. The Capital, volume III, Part Five, chapters 21, 22, 23, 30 and 31.

### ***III.1. The Players and Their Interests***

Every institutional change is a game featuring the fight for dominance and distribution of profits among several major groups of players that form a complex relational and contractual structure (see also Wiesner, 2001). Before we examine the game itself (the MR change), it is logical to introduce the main players and describe their interests and driving motives. The players represent individuals and groups of individuals. Different degrees of organizational maturity, ability for mobilization and use of political levers characterize different groups forming the monetary organizations. The degree of organizational maturity determines the impact of a given organization on the MR change. It should be noted here that the results of the game (IC) couldn't be predicted completely as they do not always correspond to the initial intentions of the players. In a world of complexity, uncertainty and asymmetric information it is extremely difficult to predict and calculate profits of individual players as a result of the IC. In this sense, though pre-designed MRs carry certain elements of spontaneity and uncertainty<sup>17</sup>.

As we noted, the main players that determine the IC can be divided into two big non-homogenous groups: debtors and creditors. For the purpose of the analysis of the MR change in Bulgaria this classification is too general and needs further specification<sup>18</sup>. Deriving from actual events in Bulgaria, we define the following nine main players: (i) foreign creditors (private and official), (ii) the IMF as a separate player (creditor to Bulgaria and debtor to the US Treasury Department, for instance), (iii) households (final domestic creditors), (iv) the government (domestic and external debtor), (v) the BNB (domestic creditor of last resort), (vi) commercial banks (a complex creditor-debtor mixture), (vii) state-owned companies and part of private companies (debtors), (viii) part of private companies (creditors), and (ix) politicians and bureaucrats (net debtors). Let's try to present the interests of these players from the viewpoint of the IC change, i.e. the introduction of the CB. We should note that our classification is made in the context of appropriation and redistribution of wealth in a particular country (Bulgaria).

*Player 1: Foreign (external) creditors.* Included in this group are holders of Bulgarian debt securities and some major official creditors (within the framework of the Paris Club). The IMF also belongs to this group but due to its specific role in the IC process it is identified as a separate player. Official Bulgaria's creditors at the end of 1996 were 243% of the GDP (see table 1). It is interesting to note that Bulgarian economic agents or related persons are also included in this group and in most cases they are not made public and known to official authorities.

The primary interest of *Player 1* is related to its desire that Bulgaria services regularly its foreign debt and to ensure regularity and safety of payments. Therefore it needs such a MR that best guarantees its interests. The CB, given the specific Bulgarian design (presence of government fiscal reserves in CB liabilities and their cover by high-liquid and low-risk foreign assets) perfectly suits the task. It is not by

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<sup>17</sup> This reasoning incorporates some elements of Hayek's understanding of the spontaneous emergence of institutions and that (if we rephrase Hayek's words) that even the greatest plotters are victims to spontaneous order to a greater or lesser degree. They do not always achieve the desired result and sometimes the results are completely different. This fundamental relation is associated with information complexity and uncertainty of human activity. Meanwhile, intentions matter!

<sup>18</sup> In addition, the IC is affected not only by the relations between interest groups but also by the relations inside the groups.

chance that one of IMF requirements to Bulgaria is for its fiscal reserves to be sufficient for next-year foreign debt payments (in the literature this requirement is known as the *Guidotti rule*). Moreover, foreign exchange reserves are invested in German and U.S. securities abroad; thus borrowed money is used *de facto* to finance the German and to a less degree the U.S. economy. The transparency of the CB – its balance sheet is published weekly – provides sufficient information to foreign creditors. In the context of mainstream economics, the CB and the fixed exchange rate ensure better financial stability in the country, opportunities for foreign investment and economic growth. In this regard (based on the current traditional understanding of stabilization and growth), the CB is a perfect form in terms of the general conditions for the functioning of the Bulgarian economy (and therefore for foreign debt service). Overall, *Player 1* had a strong interest in the CB introduction in Bulgaria and still has interest that this regime be maintained for indefinitely long time<sup>19</sup>

*Player 2: IMF.* The IMF is a specific and key player, which deserves special attention. It is an important creditor of Bulgaria, on the one hand focusing the interests of most foreign creditors (*Player 1*). On the other hand, the IMF is a debtor in respect of its major stockholders (mainly the US Treasury Department), which are represented or bound to *Player 1* to one extent or another<sup>20</sup>. The IMF is a major DIR as it is an international organization focusing the demands of external creditors and adding its own demands. More and more economists view the IMF as a major intermediary in asymmetric debtor-creditor relations, the interpretations being extremely polarized (see for example Aglietta, 2000, and Niskanen, 1999).

As we noted, the IMF has financial, political and ideological power to impose its new formal institutional rules. The CB satisfies completely IMF own interests, namely that Bulgaria could service its debt. A new development, in our view, is that under a CB arrangement the IMF is interested in making more loans in support of the balance of payments and the fixed exchange rate. Generally, this statement fits in the empirically observed propensity of the Fund to loan more than required to prove the need of its existence (some authors refer to *loan pushing*, see Willet, 2001). According to others, the IMF is responsible for the governments of many countries to feel dependable on it, becoming *loan addicts* (Niskanen, 1999).

The relationship between IMF financing and IMF political influence is beyond doubt (Keohane, 1984, and the statements made by J. Stiglitz – *note 20*).<sup>21</sup> The IMF is a part of international and national policies of small countries. Moreover, less developed countries and those borrowing from the Fund have formed an understanding that various IMF programs are theoretically correct, modern and rest on profound research. In actual fact, however, the IMF model has evolved slowly over time (from the first model of J. Polak and E. Robichek at the end of the 1950s) and has remained in the realm of the monetary approach to the balance of payments. Quite often, in former socialist countries, any attempt to depart from Fund programs is seen as a reversal to communism and the centrally planned economy. This understanding is reinforced by the fact that the reasons for IMF failed programs

<sup>19</sup> See the positions of M. Depler, in "The Depler's ultimatum", *Banker*, n. 45, 1996, pp. 9-10 (in Bulgarian).

<sup>20</sup> For an interesting point of view of an insider, see the article of J. Stiglitz "The insider: What I learned at the World economic crises" (*The New Republic*, April 17, 2000) and the interview accorded to G. Palast ("IMF's Four steps to Damnation", *Observer*, April 29, 2001).

<sup>21</sup> See the interesting panel empirical study by R. Stone (2000) which analyzes the relation between Fund financing and a number of political factors in post-communist countries.

cannot be specified into such (i) related to their implementation, and (ii) reasons relating to the very design of the program. Usually the IMF never admits its mistakes and transfers responsibility to the executives. For example, in Bulgaria none of the five standby agreements was finalized since the start of transition (Yotzov, 2000). However, this did not prevent a senior IMF official from stating to the Economic Commission to the Bulgarian Parliament before the CB introduction "You lost seven years"<sup>22</sup>. Today the IMF charisma is so strong that even left-wing parties implicitly accept IMF programs. We will not analyze this phenomenon but on the whole IMF ideological power is strong in countries like Bulgaria. Some authors think that the IMF itself is some sort of a substitute for national institutions (Stone, 2000). In our view, the IMF represents an organizational form of pressure, personifying the interests of foreign (external) creditors.

Owing to the fact that the IMF is related to foreign investors in one way or another and appears to be some sort of "their focal point," it is interested in introducing MR that inspires confidence in foreign investors. Undoubtedly, the CB reduces currency risk and inflation. Therefore it is an appropriate regime<sup>23</sup>. Overall, we may summarize that the IMF is the main direct initiator of the MR change in Bulgaria and a player that has all the necessary levers of power to influence the institutional change<sup>24</sup>. The IMF is interested that the CB operates as long and as successfully as possible because this would enable Bulgaria to service its foreign debt.

*Player 3: Households.* Within the MR framework of 1990-1997 (until the introduction of the CB), households and the public as a whole were a major net domestic creditor (mainly to the government and the banking system). Unlike foreign creditors, this player does not have any organizational structure to protect its interests. To fine-tune the methodology, it would be more correct to speak of households and individual domestic creditors as separate non-coordinated players whose negotiating power tends to nil. Nevertheless, trust emerges as an "auxiliary player" to *Player 3*. Trust is of crucial importance here because domestic creditors may abandon their role of domestic creditors and invest their money (i) in foreign assets, (ii) in real assets, (iii) deposit their money within foreign banks, or (iv) at least invest in national assets denominated in foreign currency.

During the review period there were different channels and mechanisms of wealth transmission from households to other economic agents. The huge domestic debt of the government (the bulk of which was in lev-denominated treasury bills and government securities) and the amount of households' deposits with the banking system were the major values focusing the conflict of interests in MR change. Households are interested in government servicing its domestic debt and in positive real interest rates on government securities and bank deposits. However, households do not have the bargaining power of foreign creditors and the IMF and may rely indirectly on the government's fear of losing credibility in a possible banking crisis

<sup>22</sup> "The Depler's ultimatum", *Banker*, n. 45, 1996, pp. 9-10 (in Bulgarian).

<sup>23</sup> Another approach is also possible regarding the IMF stance on the CB introduction. The shift to a CB is a risky operation for the IMF because it takes the risk in lieu of foreign creditors. In this case it acts as a kind of an "institutional entrepreneur" which gains reputation in case of success or losses reputation in case of failure (to a lesser degree). Once it has committed to the CB, the IMF would not let it fail and would support it financially as long as possible.

<sup>24</sup> One of the explanations of the variety of monetary and exchange rate regimes supported by the IMF may be the desire for insurance and mutual offsetting of the results of these regimes. Essentially, the IMF uses some sort of a portfolio theory where assets are different types of monetary regimes. The IMF has the greatest *technical* ability to control IC and the design of new monetary organizations.

and inflation. This is due to the fact that households are mainly consumers of institutional monetary rules (CIR), and formal rules in particular.

In general, an intricate configuration of relations exists between domestic and foreign creditors, and the latter are more aware of this and exploit it to a greater extent than domestic creditors. The interests of foreign creditors and the IMF, on the one hand, and households, on the other hand, have features both of antagonism and coincidence. A bank crisis and hyperinflation (section AB on Chart 1, a period of transition from MR of debtors to MR of creditors) ultimately undermine economic power of households as the latter lose their savings in government securities and deposits with failed banks. In this sense, the winners in the crisis turn to be a coalition of foreign creditors and domestic debtors at the expense of households (the latter pay directly and completely the price of the institutional change of the MR). Once the crisis is in full swing (a point in section AB), the interests of households converge to those of *Players 1* and *2*, i.e. they are interested that a "hard budget constraint" MR is introduced to stop the devaluation of their assets and ensure future stability. In this line of reasoning the CB meets the interests of a large number of households: low inflation, real interest rates, a stable banking system, etc. The latter provide a kind of compensation for the losses suffered during the crisis.

In general, the interests of households in CB introduction increase over time; the deeper the banking crisis and the more severe the hyperinflation, the stronger the interests of households.

*Player 4: The Government.* The government is a major net debtor in respect of domestic and foreign creditors. Quantitative measures of this duality are foreign and domestic debts, their volumes and structure, etc. The main creditors of the government are foreign (*Players 1* and *2*) and domestic (*Player 3* and the central bank – *Player 7*). The government is a complex organization, which has economic, political and ideological levers to impose its interests. However, its ability is asymmetric, much stronger in respect of domestic creditors than in respect of foreign creditors. In a sense it may be argued that the government is dependent on foreign creditors' will and its power position is close to nil. The importance of the government for *Players 1* and *2* is due solely to the fact that the government could influence domestic debtors and has the levers to impose its interests (the government is an *indirect DIR* at the monetary level). In respect of households (and other domestic players) the government is *DIR*, and in respect of foreign creditors it plays the role of *CIR*.

At the same time, despite its formal independence, the central bank *de facto* is an addition to the government and provides an easy source of financing (direct or through government securities discounting). Given its position of a dominant domestic player and the possibility for time inconsistency, the government is always ready to sacrifice domestic creditors (mainly households), devalue domestic debt through hyperinflation or even halt domestic debt service (the first happened in Bulgaria and the second was attempted)<sup>25</sup>. Overall, player 4 would benefit most significantly from soft budget constraints and a central bank implementing discretionary monetary policy (subordinated to fiscal policy).

Therefore the government views the CB introduction as inflicting a heavy loss on its domestic power and as restricting its opportunities for access to resources and

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<sup>25</sup> A similar development occurred in the Russian crisis, when moratorium on domestic debt was announced (Vavilov, 2001).

redistribution of wealth<sup>26</sup>. The CB is an institutional monetary rule imposed from outside. It is possible to view CB introduction as a game between the government and domestic creditors on the one hand, and foreign creditors, on the other hand, the latter being in a position of a Stackelberg dominant player. Once foreign creditors have decided to change the MR, particularly after the financial crisis, the government has interest (likewise households) to support the introduction of the new "hard" MR. Its aim is to preserve its political positions and reputation. If the change of the MR is accompanied by political elections, the government that wants to win them should demonstrate its full support for the MR chosen by the foreign creditors. As a compensation the winner may leave the government in power or support it in the future, though observed facts show that the new MR usually starts with a new government.

In summary, the government is generally against the introduction of CB but after it is imposed, particularly after a crisis, the government is interested in supporting it.

*Player 5: State-owned companies.* The characteristics of this player are very similar to those of the government except for some specific differences. State-owned companies (which are mainly debtors) would lose from CB introduction and hard budget constraints. Of course, some of them have long-term interests in a new MR because this could facilitate their possible recovery. In general, awareness of their interests is rather the exception than the rule.

*Player 6: Politicians and bureaucrats.* By and large, what has been said about *Players 4 and 5* refers to politicians and bureaucrats as well. Although in the literature, particularly in public economics, the interests of politicians and bureaucrats are considered in the context of the principal - agent dilemma, we combine them into one group to simplify analysis. Within this group (likewise within *Players 4 and 5*) there are insiders<sup>27</sup>, having inside information on the state of companies, banks and some macroeconomic values. Politicians and bureaucrats are net debtors and have no interest in CB introduction because they lose major levers of wealth redistribution. Likewise the government, however, when the monetary crisis is in full swing (AB), this player has a tactical interest in CB introduction in order to survive.

*Player 7: Central bank.* As is well known, the central bank is a domestic creditor of last resort<sup>28</sup>. Central bank interests are closely linked with government interests. Along with the government the central bank is DIR inside the country and CIR in respect of foreign creditors.

At the outset of transition most countries forged new laws that provided for central bank independence. However, the central bank is *de facto* subordinated to the government. To a certain extent, this is true *de jure* because in the hierarchy of laws the law on the state budget supercedes the law on the central bank. The central bank is the only creditor most directly subordinated to the government, which is CIR in respect of the government<sup>29</sup>. It is interesting to note that usually the IMF negotiates

<sup>26</sup> Kostov, I. "The Currency Board is a blow on my confidence as Prime Minister", *Trud daily*, May 1997 – in Bulgarian).

<sup>27</sup> In his political analysis of the privatization in Azerbaijan L. Wiesner puts insiders in a separate group (Wiesner, 2001).

<sup>28</sup> The central bank could be viewed as a debtor in respect of currency issued by it. Currency issue is its obligation to other economic agents. Therefore, the central bank combines two functions, a debtor and a creditor of last (or not) resort.

<sup>29</sup> The central bank may be viewed as a scapegoat in a possible monetary crisis (Aglietta and Orléan, 1984; Elster, 1994).

MR with the government, not with the central bank (or if there are talks, they are of minor importance). This confirms the real distribution of power between the central bank and the government in diffusing monetary rules inside the country. History records show that real central bank independence is achieved after crises and inflation and is the result of a long process of learning and training (Semler, 1994).

The central bank is an organization that has monopoly over money creation (central money) and monetary policy conduct. The primary material expression of the monopoly is seignorage, which is distributed between the central bank and the government following specific rules. The CB restricts the monopoly of the central bank and hence seignorage (particularly the inflation part); therefore it is logical for the central bank to oppose the CB. In a discretionary regime, within the bank or outside it, coalitions of "roving" and "stationary" bandits (with commercial banks, the government and companies) are formed (Olson, 2000), which profit from refinancing of commercial banks, state-owned companies, etc. Moreover, central bank internal rules (in this case the BNB) are instrumental to subjectivism and corruption and inside lending. The BNB had turned into a lender of first, not of last resort.<sup>30</sup> It was public secret that sometimes the central bank (or some of its senior managers) participated in coalition with the government, state-owned companies and some commercial banks in speculative operations related to exchange rate movement, refinancing, etc. (Vutcheva, 2001).

In general, monetary policy abolition, fixed exchange rate, and higher real interest rates inflicted a heavy blow on these coalitions of "bandits". That is why the BNB opposed the CB introduction. Similarly to the government, however, central bank bureaucrats (mainly its senior managers) had interest in supporting the new CB in so far as it had been *already* chosen by foreign creditors and the IMF and a banking crisis had *already* raged.

*Player 8: Commercial banks.* Commercial banks are a heterogeneous player and may be divided into two groups: (i) state-owned banks and some of the private banks linked with the government, the central bank and other interested groups,<sup>31</sup> and (ii) independently operating private banks trying to observe the principle of "normal" financial intermediation.<sup>32</sup> The first group are net debtors and the second group are net creditors. Before CB introduction the second group was almost marginal. The first group (we designate it as commercial banks) represented a kind of intricate transmission mechanism for channeling wealth from households to newly established "upright" private companies, the government, and various "bandit" coalitions of debtors and creditors.<sup>33</sup> Evidence of this process are huge bad debts (see Table 2), as well as permanent refinancing and recapitalization of commercial banks by the central bank. During this period, the central bank purchased several failed banks for one lev.

In actual fact, the BNB (or at least some of its senior representatives) participated "with tooth and nail" in the mechanism of wealth redistribution or its

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<sup>30</sup> Certainly, we should mention central bank direct loans to the government, the culmination being at the end of 1996 when the direct loan to the government accounted for 18% of GDP.

<sup>31</sup> K. Koford (2000) writes about such coalitions in Bulgaria between the government and different interest groups.

<sup>32</sup> Sometimes the first group of banks was the main opponent of the second group and hindered their activity in any possible way (for instance, refusing and hiding information on borrowers, etc., see Koford and Tschoegl, 1999).

<sup>33</sup> In their empirical study of commercial bank lending activity until 1997, Koford and Tschoegl (1999) refer to "insider loans," "policy lending," "ultra insider lending system," "mafia connection," etc.

waste. For instance, according to Vutcheva (2001), former finance minister, in 1994 "every weekend there was an attack on the cash market, an agreement was reached among several banks and the exchange rate was changed in the direction of lev devaluation to ensure safe profits for the players. Then the BNB intervened, buying expensive dollars and so on and so forth till the next hit."

Within the first group is *Bulbank*, a legal successor of the Bulgarian Foreign Trade Bank with all its secrets and privileges, a monopolist on the Bulgarian bank market for a long time. We will not discuss in detail the story of Bulbank (especially the foreign debt deal) but there is no doubt that it became a major instrument in the "initial capital accumulation" and in certain periods it had more power than the central bank. We would like to mention only the Bulbank notorious scheme of rehabilitating commercial banks in 1996 proposed by the management of the bank. The only beneficiaries of this deal were Bulbank itself and the UBB (another state-owned bank) while all other banks did not stabilize (for technical details see Vutcheva, 2001, pp. 47 - 48).

In summary, part of commercial banks (especially those on refinancing) had no short-term interest in CB introduction. Other, far-seeing commercial banks realized that monetary rules would strengthen the banking system and would create better banking rules.

*Player 9 Private companies.* A large number of these companies are trying to operate under the principles of west market economy. On the whole, part of the private companies are net creditors in the country and have interest in the introduction of a hard CB.<sup>34</sup>

After we presented the main players participating to one extent or another in the IC, let's *retell theoretically* the chronology<sup>35</sup> of 1996/1997 events in Bulgaria based on the above theoretical statements.

### ***III.2. The Dynamics and Logic of CB Introduction: A Theoretical Chronology of Events***

We begin our *theoretical chronology* with the initial asymmetry between debtors and creditors reflected in the existing MR in mid-1996. The MR was formed as a result of the overall dynamics of disequilibria during the 1990-1996 period (and of those inherited from the centrally planned economy as well). It was characterized by complete hegemony of debtors and various debtor configurations of coalitions between the government, state-owned companies, state-owned banks, some

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<sup>34</sup> Although not always being aware of this, on the whole they realize the importance of stable monetary rules for their business and of a possible credit expansion after stabilization based on a fixed exchange rate (Rebello and Vegh, 1996). In the case of Bulgaria, however, their problems stem from the fact that under a CB arrangement banks do not provide loans.

<sup>35</sup> The approach of theoretical retelling of events resembles *the narrative approach*, where a comparison (correspondence) between the stylized theoretical model and the practical dynamics of events is made.

commercial banks, the BNB in certain periods (or at least some of its managers<sup>36</sup>), etc. These players profited mainly at the expense of domestic creditors and partly at the expense of foreign creditors. Certainly, it may be assumed that there were interested representatives of foreign creditors (official and private) which were in coalition with domestic debtors. Though important, this issue is beyond the scope of our paper. Essentially, we are concerned with the formation of MR during the first half of the nineties that allowed institutional complementing and self-reproduction of the entire monetary system (favoring debtors and "bandits"). This institutional complementing (Aoki, 2000) led to MR lock-in, creating major irreversibility.

The MR had become extremely asymmetric expressed in (i) huge foreign and domestic debts of the government and state-owned companies, (ii) huge bad debts in the banking sector, and (iii) dramatic reduction of foreign exchange reserves in the BNB balance sheet at the expense of its increased domestic claims (see Nenovsky, 1999; Caporale and alii, 2001).<sup>37</sup>

When foreign exchange reserves fell to two months of imports, the exchange rate devalued drastically (almost 500%), and total government debt reached 303 % of GDP at the end of 1996, it became clear that foreign creditors faced the threat of debt service halt and were determined to take action for MR change. The new regime had to create conditions for the foreign creditors to receive regularly debt payments and to enable them, to a certain extent, to make loans in the future (bearing them interest). The IMF was the major tool available to foreign creditors, an organization that had all the necessary instruments for the imposition of the new MR.<sup>38</sup> In this context, foreign creditors<sup>39</sup> and the IMF in particular are DIRs.<sup>40</sup> What was the tactics of the IMF and how was it implemented?

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<sup>36</sup> As we noticed, in a specific aspect the BNB may be viewed as a debtor in terms of the currency it issues.

<sup>37</sup> The visible dynamics of the Bulgarian transition and the 1996/1997 crisis is studied and comprehensively described in BNB, 1997; OECD, 1997 and 1999; Dobrinsky, 2000; Vutcheva, 2001; Nenovsky and Koleva, 2001; Nenovsky and alii, 2002.

<sup>38</sup> The former finance minister H. Vutcheva claims that there are cases where the IMF intentionally delayed the structural reform in order to provide resources for foreign debt service. The case with DFRR (State Fund for Reconstruction and Development) in 1992 when funds from DFRR were redirected for debt payments instead of serving their purpose (Vutcheva, 2001, p. 62).

<sup>39</sup> Foreign creditors may have other levers of influence on the other players and mainly on the government. These involve the intermediary role of individual private players or even economists propagating the new MR. This is the case of Steve Hanke, who is considered one of the "fathers" of the CB. He became an advisor to the Bulgarian President and constantly criticized IMF for the slow and non-radical reforms.

<sup>40</sup> It is obvious that the IMF, besides serving its own interests, serves the interests of creditors (official and private), though this is not formally stated (see IMF, 1995). In the case of Bulgaria this is more than clear, though, according to M. Depler, a senior IMF representative, "It is not in the IMF functions, neither in its intentions to be an arbitrator of creditors and debtors. We are in between and little aside from these relations. The problem how you settle your relation with creditors is all yours. But I would like to warn you of a great danger. The people who currently hold your debt are not the people who were Bulgaria's creditors five years ago". ("The Depler's ultimatum", *Banker*, issue 45, 1996, pp. 9-10 – in Bulgarian). The close relationship between the IMF and creditors is evident from the statement of the former BNB governor T. Valtchev, who, in order to reinforce the importance of Fund officials said: "During my visit to the IMF I saw that Mr. Depler is constantly in touch with the US treasury. Mr. Fischer, on the other hand, maintains constant contacts with the US ministry of finance. And Mr. Camdessus coordinates his steps with the IMF executive directors, who are representatives of the greatest countries in the world. The proposition for the introduction of the CB was considered and coordinated at the highest level. And those representatives of the UDF [the opposition] who will visit now Germany, Great Britain and the USA will feel this." ("I Am Afraid the IMF Started with the Sanctions", *Banker*, issue 46, 1996, pp. 7 – in Bulgarian).

The first thing the IMF did was to establish a close network<sup>41</sup> of selected politicians, members of government, the BNB, other senior officials, representatives of private and non-government organizations, etc., who had to adopt the idea of CB introduction and start propagating it so that public expectations converged to the new MR. The initial group for internal pressure was very small, formed by the BNB and the government.<sup>42</sup> Initiated into this were some of the members of the BNB Managing Board.<sup>43</sup> Being fully aware that the public would accept more easily the new radical MR if the crisis and the suffering ran deeper (Krueger, 2000), the IMF took measures to worsen the crisis and persuade the public that the reasons for it were inside the country, in its poor governance, etc.

The main victims of the institutional change were to be households and the public (domestic creditors with no organizational structure, neither bargaining power).<sup>44</sup> This was achieved through hyperinflation whereby their savings in government securities and bank deposits devalued. The domestic government debt, being considered one of the most serious threats for Bulgaria, *de facto* devalued<sup>45</sup>. The IMF worsened and exacerbated the financial crisis via several channels<sup>46</sup>. First, the government and the BNB were "suggested" measures that exacerbated the crisis (this last impulse was necessary to make the crisis visible so that economic agents gained clear awareness of it).<sup>47</sup> This was possible owing to the fact (which is often underestimated) that Bulgaria lacked managerial knowledge of macroeconomic functioning in market conditions. Especially scarce was the experience in the field of monetary policy, which was atypical of socialism. Without exaggeration, the majority of senior BNB managers had no idea of monetary policy conduct. Furthermore, no attempts were made to estimate money demand, and few experts knew what was going on. Thus, in September 1996 the BNB raised the base interest rate to 300% simple annual interest (or 25% monthly) in order to stop the lev devaluation and

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<sup>41</sup> Several contributions underline the role of networking and of cooperative strategies inside small groups concerning the propagation of new rules, conventions and practices. See M. Olson (1966), R. Axelrod (1984), U. Witt (1989), R. Boyer and A. Orléan (1994), Y. Rizopoulos and L. Kichou (2001).

<sup>42</sup> This statement, though implicit, is confirmed by an IMF letter to the finance minister and the BNB governor, which reads: "it will be useful to create a small working group," to prepare the introduction of the board (McGuirk, A.: Letter to the Minister of Finance and the Governor of the BNB, *Banker*, Special supplement, December 30, 1996, p.30 – in Bulgarian).

<sup>43</sup> In the fall of 1996 some members of the BNB Managing Board, secretly, without informing other senior officials, tabled proposals for the fixing of the exchange rate and *de facto* introduction of the CB. The proposal was not accepted. Involved persons say that the informed BNB Managing Board members were on a visit to the USA and the non-informed members heard of the idea in Sofia. One of them came to know of it from IMF officers while dining in a restaurant in Sofia. The law on the future structure of the BNB (CB) was written by IMF officers in English and then translated into Bulgarian. According to the translator of the text, the two Fund representatives were suspicious that changes could be made and sat beside him in front of the computer and asked, "why you translate so fast".

<sup>44</sup> Domestic creditors were "destroyed" (through hyperinflation) at the initial stages of the institutional change and partially compensated (or at least give them the illusion of compensation) at the final stage (when hyperinflation stopped).

<sup>45</sup> "The Currency Board through the Spectacles of D. Kostov (finance minister)", *Banker*, issue 45, 1996, pp. 11 (in Bulgarian).

<sup>46</sup> We do not argue that the crisis could have completely avoided, but we claim that the IMF accelerated and worsened it. This statement does not contradict our view of generally positive effects linked to the introduction of the CB, compared to the earlier MR (when debtors dominated and absolutely soft budget constraints were spread within the entire system).

<sup>47</sup> Such observations were made by a number of Turkish economists during the financial crisis in March 2001 (see E. Kumcu, "The IMF's blunder in Turkey", *Financial Times*, March 14, 2001 and M. Egilmez, "IMF "cure" has lost 20% of GNP", *Financial Times*, March 15, 2001).

restore money demand. The only effect of this action was an increased domestic debt. Another such example was the massive sale of foreign currency to back up the exchange rate (without effect), the hasty drafting of a list of isolated and failed companies, etc. In addition, the utmost was done to create panic among the public. Rumors of failed banks spread fast (even by official sources of information). The media released information that the government might announce moratorium on domestic debt (it is interesting that this news was announced by the IMF representative on the radio). This led to bank panic and long lines in front of banks (banks stopped paying deposits), prices jumped, and the lev practically disappeared as a means of exchange. In this situation households had no choice but to support fast CB introduction in order to stop hyperinflation and restore part of their savings.

With the worsening of the crisis the government and the BNB gave clear signs of their readiness to enter into coalition with foreign creditors and CB introduction. Apart from the objective public threat, the government and the BNB were "threatened" by the IMF that support would be stopped unless a CB was introduced (the Fund mission came late, the payment of USD 115 million on the second *tranche* was postponed twice) and seemingly they were offered compensations (staying in power), etc. The political opposition rapidly reoriented (especially after a visit of some of its leaders to the USA) and began actively supporting the CB introduction. As the old socialist government also supported the CB, a political crisis was needed to associate the new MR with the new authority.<sup>48</sup> "The good" concurrence of circumstances was that this force identified itself as "right".<sup>49</sup> The political crisis accompanied by mass protests and attacks against parliament brought the opposition into power. It is interesting to note that after the significant initial jump of the dollar it began to fall rapidly with the approach of 21 May (when the parliament was to vote the new cabinet). On May 16, 1 dollar was exchanged for 1545 levs, on May 19, for 1950 levs, on May 20, for 1600 levs, on May 21, for 1590 levs (see Chart 4). According to some analyses, the downward dollar trend was closely associated with political and monetary speculations, with some banks close to the future government demanding dollars in order to make the dollar appreciate and subsequently fall to enable the new government to demonstrate its strength<sup>50</sup>.

As a result of the crisis the expectations of public agents and the main players converged to the CB introduction, the process starting with a declaration of the major political forces of 4 February 1997 in support of the CB. Of course, there were some voices against the CB, but these were rather the exception.

The asymmetry of positions between the main players reflected clearly in the organizational construction of the new central bank. Organizationally the CB was formed as an Issue Department, providing a foreign currency cover not only for reserve money but also for government fiscal deposits (so-called fiscal reserves). The fiscal reserves (which accounted and still accounts for 40-50 % of the balance sheet of the CB – see table 5) distort the automatic adjustment mechanism of the CB which requires that reserve money (the money supply respectively) should reflect CB dynamics (Nenovsky and alii, 2001). Fiscal reserve cover (from which foreign debt

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<sup>48</sup> The importance of the political support for the CB is evident from a statement of the Fund representative M. Depler: "We want from Bulgarian politicians *total* commitment and determination that the model would function for an indefinitely long time in the future, as long as it is necessary", The Depler's ultimatum, *Banker*, n. 45, pp. 9-10 (in Bulgarian).

<sup>49</sup> On the stronger IMF support to right political forces upon CB introduction, see Stone (2000).

<sup>50</sup> V. Gosteva, and K. Ianeva, "ING bank and Mr. Kulev have risen the dollar. Political and monetary speculations have moved the exchange rate", *Weekly News*, 68, May 25, 1997.

payments are made) with liquid and safe foreign assets guarantees debt service to creditors. Paradoxically, everybody is aware (including creditors) that this mechanism involves losses from interest differences and currency risk for Bulgaria (because CB assets are predominantly mark (euro)-denominated,<sup>51</sup> and Bulgaria's debt is in dollars). Clearly, if this money were invested in any other way (i.e. is not subject to requirements for CB investment) it would generate other yield. The importance of fiscal reserves to IMF is confirmed by the fact that these are considered a major performance criterion in Fund agreements, there are requirements for their volume, volatility, etc. The above facts reinforce our hypothesis that the Bulgarian CB was designed to serve first and foremost foreign creditor interests.

Finally, as an illustration of the appropriate conditions of IC we will add briefly two counter examples: (i) the discussions on CB introduction in Bulgaria in 1991 and (ii) the discussions on euro introduction in 1999/2000. In both cases the MR change was not possible.

In the first case, the IMF would not have engaged itself with CB as there was no organization to impose the new rules. The voices in favor of CB introduction came from individual foreign creditors and experts related to them (the Richard Rahn Program, the Steve Hanke and Kurt Schuler Programs - see Hanke and Schuler, 1991). Bulgaria was to sign a debt reduction deal, the training period was short, the then government was socialist, and a hard CB did not fit its program. However, the point was that it was then that initial redistribution of wealth inherited from socialism began and most economic agents hoped to be debtors and profit from this process. Furthermore, there were no specific groups of debtors and creditors that means no clearly identified actors interested in the IC.<sup>52</sup> The second case is similar. The idea of euroization supported only by some experts (S. Hanke, K. Schuler) and some private players like G. Soros (who may also be considered as Bulgaria's foreign creditor), does not have a strong organizational initiator to impose it. Such an actor could be the EU or ECB, but they did not want to initiate such a change (in contrast to what they did in Montenegro).<sup>53</sup>

#### **IV. How to test the hypotheses empirically?**

In this part we focus on (i) problems encountered in the empirical estimation of IC, and (ii) attempt to present some possible quantitative indicators of the MR change.

##### ***IV.1. Empirical Problems of measuring the Institutional Change***

One of the major problems of the institutional change stems from difficulties in bringing theoretical models to empirical testing. This has been a long-standing issue

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<sup>51</sup> Because of the requirement for CB assets to be denominated in the reserve currency.

<sup>52</sup> On the need for a fixed exchange rate in 1991 and the impossibility to do this due to absent external force see H. Vutcheva (Vutcheva, 2001). If we give it a second thought, we will see that the fixed exchange rate would have been more appropriate in the earlier period of transition from socialism owing to the fact that throughout the centrally planned period the exchange rate was fixed, money was regulated according to a plan and restricted by the government authority. In this context we could say that the floating exchange rate was a kind of distortion of the natural transition process of *path dependence* in the field of money.

<sup>53</sup> Introduction of the mark (euro) in Monte Negro was initiated directly by private players like George Soros, related private institutions, as well as by official external players (the USA, NATO, Bundesbank, EU etc.).

(Alston, Eggertsson and North, 1996). It is a special case of the fundamental methodological issue of the "theory – empiricism" correlation in economic theory<sup>54</sup>.

Let us discuss the major visible problems in measuring the IC. They can be reduced to three: (i) how to find a quantitative estimate of the basic categories of institutional analysis (formal and informal monetary rules, monetary regime, etc.), such as it has been achieved in mainstream economics; (ii) how to describe the process of IC and the relation of quantitative indicators to qualitative institutional changes; and (iii) how to treat the IC – as a discrete point in time, as a time period or as a continuous process. This determines the possibilities for statistical tests. Without a progress in solving these problems it is difficult to determine the impact of IC on economic results.

A possible approach is to employ comparative statics, i.e. to compare directly the efficiency of the economy before and after IC. Another solution is to compare the results of two economies at different stages of institutional development. In both cases, however, there are too many conditions to consider. For instance, the second approach implicitly assumes a common (or at least limited in number) path of development for all economies. In either case the microdynamics of the institutional change is not clear<sup>55</sup>. Different branches of game theories provide methodological bases to address these challenges. However, they also involve a number of conditions. Also, it is possible to describe "theoretically" the chronology of events in a country (case study) following the hypothesis presented (which serves as a benchmark of reality) instead of seeking ways to measure IC. We have already done this in part III.2. This approach requires reliable and comprehensive information about events, a condition that cannot be always fulfilled, given the "invisible" side of IC.

For the sake of simplicity we proceed with the following procedure for the quantitative estimation of our main hypothesis and statements. After we described the main players in the IC of the MR and defined the MR change as the result of a conflict between different groups of creditors and debtors, it is logical to seek quantitative proxies of the power and wealth of different players.<sup>56</sup> Comparing the ratios of these proxies over time, and especially their dynamics before and after the IC change, we could obtain indirect (instrumentally) proofs of the theoretical hypothesis. In our case, obtaining the quantitative indicator is facilitated by the fact that money is a natural measure of the IC of the MR.<sup>57</sup>

The outcome of the conflict between different groups of debtors and creditors should be sought in the volume, price, and structure dynamics of different types of existing debts, as well as in the possibilities of newly-emerging, potential debts. Thus, (especially in the Bulgarian case) it is obvious that (i) receivables of losing creditors will devalue, (ii) and receivables of winning creditors will be served better (resources for debt payment will accumulate and appropriate organizational mechanisms will be created), and if there is a secondary market their price will rise. Another example is the ability of the winners to influence other players' potential debts to certain extent via the new MR.

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<sup>54</sup> Without focusing on the latter, we assume *methodological pluralism* in the IC analysis, the researcher being able to choose his individual empirical approach depending on the problem he aims to solve.

<sup>55</sup> For some insides how to model this dynamics see Arthur, Ermoliev and Kaniovsky, 1985.

<sup>56</sup> L. Alston restricts the requirement to finding proxies of the political power of the players, i.e. their ability to supply and demand laws (Alston, 1996).

<sup>57</sup> We should note that sometimes the flow of funds approach is used, showing movement of financial resources among economic agents.

## IV.2. Quantitative Indicators of the Monetary Regime Change

We formulate three types of quantitative proxies of shifts in power of the different groups of creditors and debtors from the point of view of debts: (i) indicators of debt volumes or quantitative indicators, (ii) price indicators (related to variables which affect the real debt value and variables reflecting secondary market debt price) and (iii) organizational, structural indicators (related to the control mechanisms of present and potential debts). Changes in these indicators reflect shifts in the relative positions of the different groups of debtors and creditors. In the Bulgarian context we can observe a set of stylized situations, for example: (i) decapitalization of internal creditors and devaluation of domestic debtor's debts during the short period of hyperinflation, (ii) creation of the hard budget constraints under the new MR, especially for the debtors to borrow from the internal sources (from internal creditors), (iii) strong debtor's subordination to the external creditors, (iv) strong internal creditor's subordination to the external creditors, etc. We can judge about this and others stylized situations from the following indicators.

*Indicator 1.* The *domestic debt/GDP* ratio declines sharply and *foreign debt/GDP* ratio remains almost the same after the CB introduction. Table 1 shows the dynamics of the domestic and foreign debt as a percentage of GDP. For example, domestic debts decline from 60% as a part of GDP at the end of 1996 to 16% as a part of GDP at the end of 1997, and foreign debt remains about 70-80% as part of GDP. The two ratios are quantitative indicators showing that the CB introduction is a transition from asymmetric state of the MR, which serves domestic debtors (mainly the government and banks and companies associated with it) and part of domestic creditors (the central bank), to asymmetric state serving foreign creditors (private and public). Obviously, domestic creditors fell major victim of the IC. The radical fall of the domestic debt as a part of GDP is due in fact to the two main causes: (i) the government securities were counted and reimbursed on their nominal (facial) value (there weren't an indexed securities) whereas the GDP was counted nominally and (ii) the government debt vis-à-vis the Central bank was restructured and annulated by the time of establishment of a new central bank balance sheet.

Table 1. Government and government guaranteed debt dynamics (1991-2000)

	1991	1992	1993	1994	1995
Domestic debt/GDP	13%	19%	37%	52%	39%
Foreign debt/GDP	168%	127%	109%	129%*	73%
	1996	1997	1998	1999	2000
Domestic debt/GDP	60%	16%	14%	13%	7%
Foreign debt/GDP	243%**	91%**	72%	78%	74%

Source: BNB, Fiscal Services.

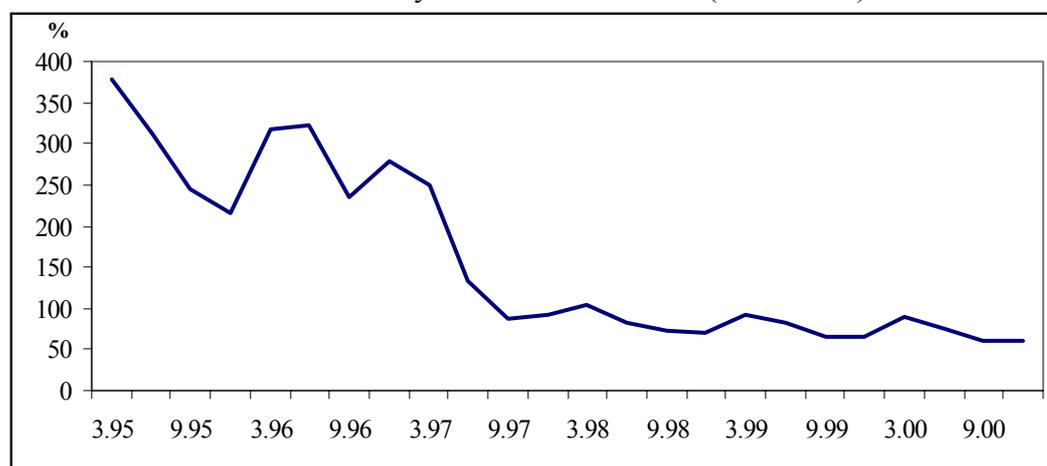
\* *Foreign debt restructuring in 1994 should be taken into account.*

\*\* *Lev devaluation (change in the exchange rate) should be taken into account.*

It is possible to analyze domestic and foreign debt dynamics by larger breakdown to find who has suffered the greatest loss among losers and who has benefited the most among winners.

*Indicator 2.* After CB introduction *domestic credit* as share of GDP (also a quantitative indicator) fell dramatically (Chart 3). This indicator shows the cut off the link between the internal creditors and the debtors. Since the CB introduction both of them started to serve external creditor's interests mobilizing all internal financial recourses.

Chart 3. Domestic credit dynamics as % of GDP (1995-2000)



Source: BNB, authors' calculations

*Indicator 3.* Uncollectible and doubtful credits were drastically reduced after the failure of some commercial banks (which acted as bank debtors) – from 56% at the end of 1996 to 20% at the end of 1998. This dynamics supports the hypothesis that CB draws the borders of the internal debtors borrowing and gives protection to the internal and external creditors.

Table 2. Dynamics of uncollectible credits (in % of total credit) (1993-2000)

	1993	1994	1995	1996*
Standard exposures	7.61	17.69	25.91	43.67
Doubtful exposures (group A)	82.75	66.88	54.55	33.89
Doubtful exposures (group B)	2.19	3.46	4.18	10.67
Uncollectible exposures	7.45	11.97	15.35	11.77
Reported / required statutory provisions	7.18	23.58	23.84	105.42
	1997*	1998*	1999*	2000*
Standard exposures	58.24	69.02	73.26	82.62
Watch exposures	8.59	10.05	9.29	6.47
Substandard exposures	5.86	5.60	2.17	2.99
Doubtful exposures	4.66	1.68	3.25	2.03
Loss	22.65	13.65	12.04	5.89

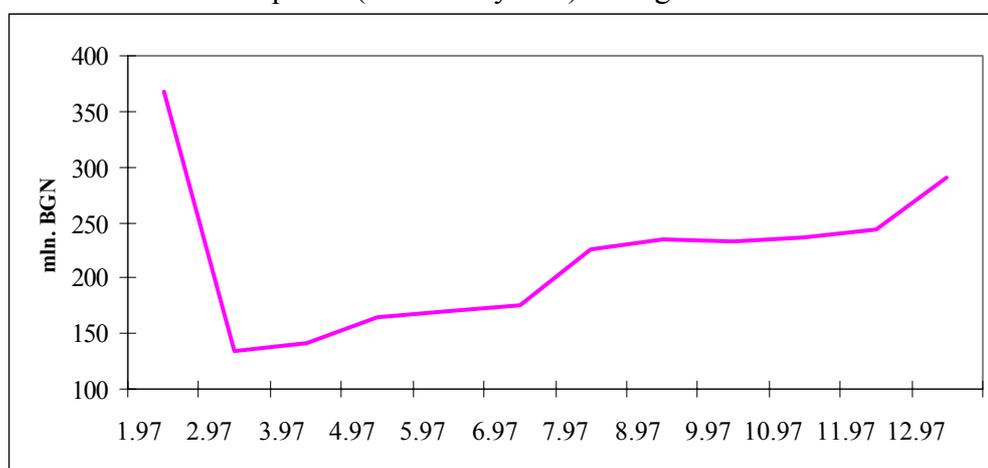
Source: BNB, Banking Supervision Department

\*Banks in liquidations are excluded. Since 1997 (CB introduction) new classification of loans was adopted.

The cost of banking restructuring in Bulgaria was the higher one in Eastern Europe (26% of GDP, see Zoli, 2001) and was supported by the internal creditors (principally the households and the new private sector).

*Indicator 4.* Lev deposits and volumes of government securities for individuals fell dramatically in real terms (Chart 4 for the real deposits). Along with domestic credit as a percentage of GDP, the latter shows decapitalization of domestic creditors.

Chart 4. Lev deposits (deflated by CPI) during 1997



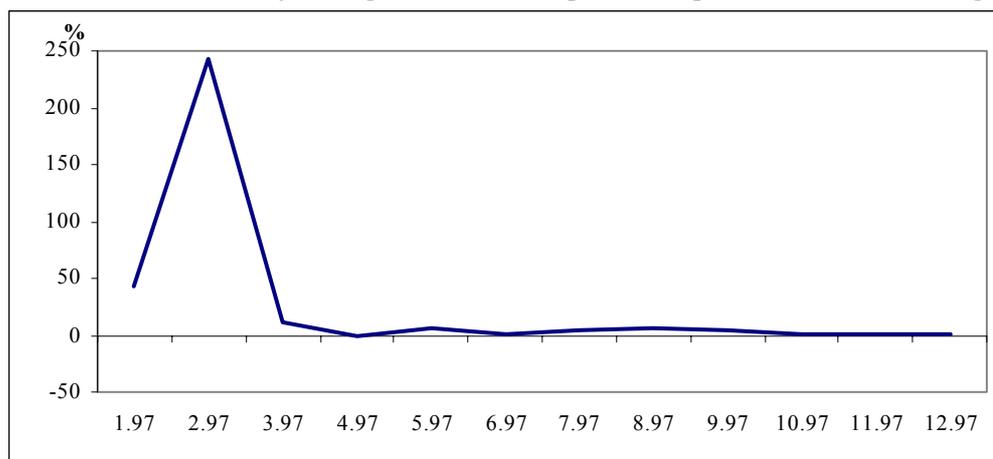
Source: BNB., author's calculations

*Indicator 5.* Inflation prior to CB introduction soared, hitting hyperinflationary levels for a short time, falling immediately thereafter to nearly zero and even negative values (Chart 5). The hyperinflation and exchange rate depreciation led to a dramatic devaluation of domestic debt, the hardest hit being the holders of government securities and foreign currency deposits (blocked at failed banks) as they had no time to become acquainted with the situation and save their savings. The shock rise in prices caught domestic creditors unawares (except those who had inside information). The hyperinflation during the late 1996 and early 1997 was beneficial for the debtors. The low level of inflation (and even deflation) after the CB introduction is beneficial for the creditors and gives limits for debtor's behavior. An exchange rate movement had a similar effect (Chart 6)<sup>58</sup>.

As we have show at the first part the timing of IC in Bulgaria could be split into two periods (see Chart 2): the *first one*, when the internal creditors interests are not necessarily convergent to the external creditors' interests, giving the possibility for a coalition between the latter and the internal debtors (the move from A to B), and the *second period*, when the internal creditor's interest are closer to external creditors interest (the move from B to C).

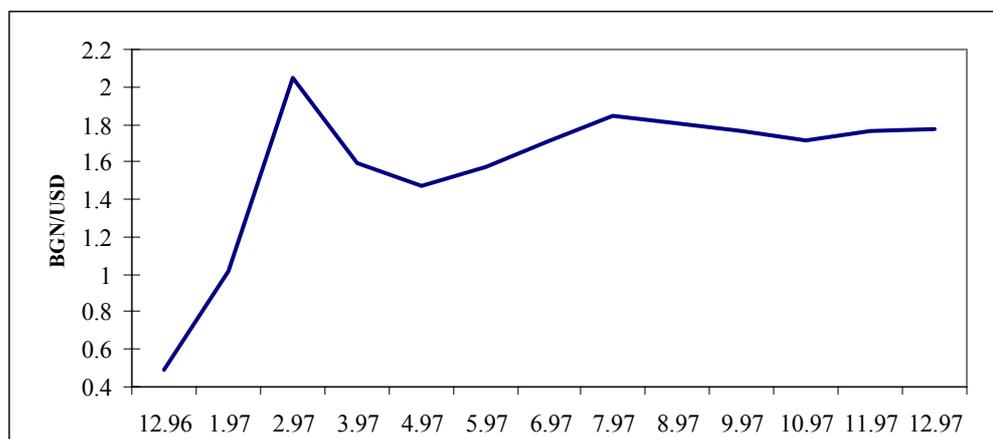
<sup>58</sup> In our classification inflation and exchange rate are price debt indicators.

Chart 5. Monthly change in consumer prices on previous month during 1997



Source: BNB, author's calculations

Chart 6. Monthly exchange rate change during 1997

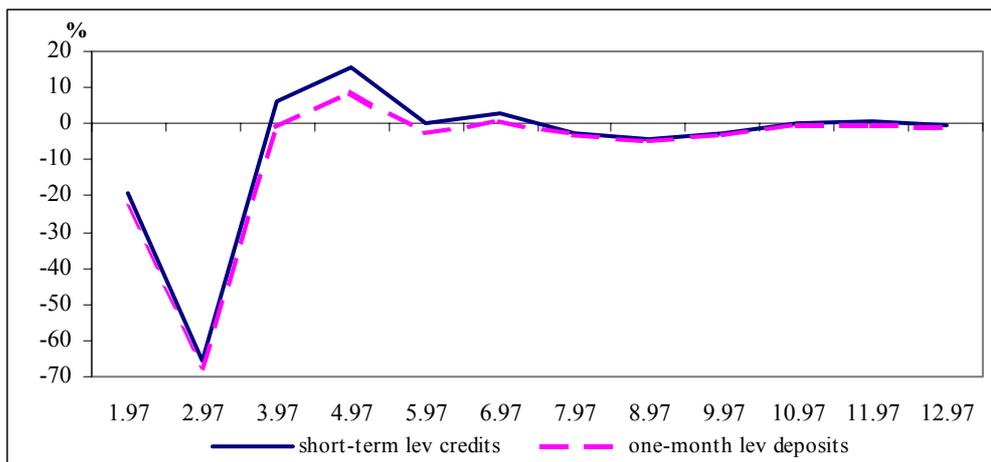


Source: BNB, author's calculations

Inflation affected nominal interest rates as well (see Chart 7), which plummeted (before the crisis interest payments were a major threat to domestic debt service). During the crisis hyperinflation helps debtors to clean their debts to the detriment of internal creditors. As we have mentioned interest rate dynamics is result of a shift in the relative power positions between the debtors and creditors.

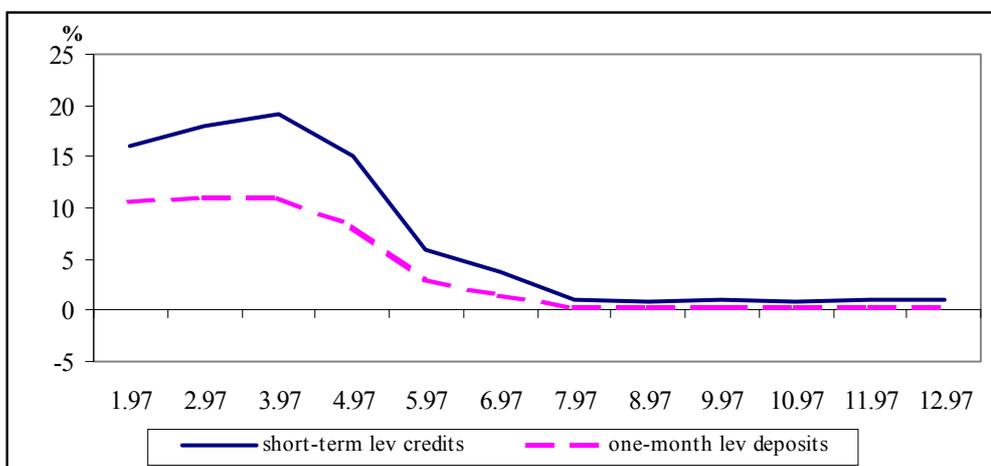
Chart 7. Real and nominal interest rate during 1997

*Real interest rates*



Source: BNB, authors' calculations

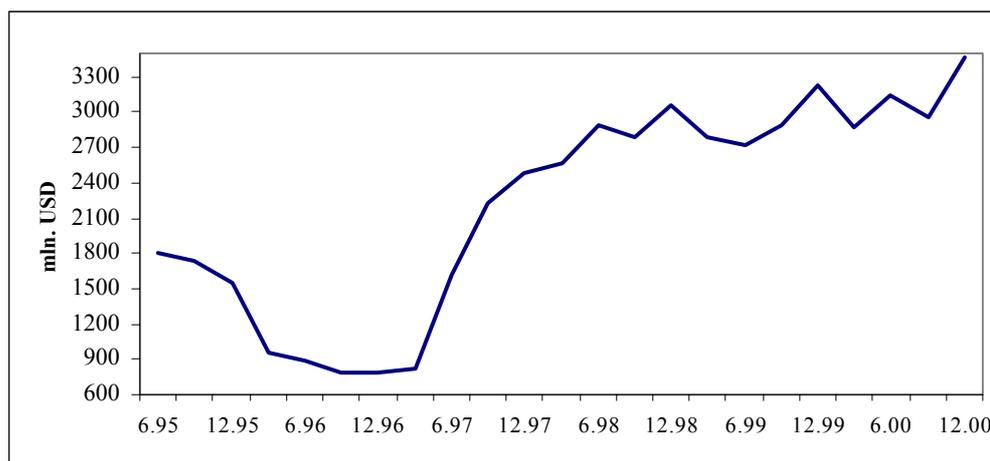
*Nominal interest rates*



Source: BNB, authors' calculations

*Indicator 6.* Bulgaria's foreign exchange reserves soared (Chart 8) and debt service indicators improved (like a months of import, etc.). This dynamics proves in some respect the main purpose of IC – assuring the safety and regularity of external debt payments.

Chart 8. Growth in foreign exchange reserves in 1995 - 2000



Source: BNB.

*Indicator 7.* BNB seignorage fell dramatically after the CB introduction. Seignorage dynamics proves that the Central Bank (the main internal creditor) lost from new MR. During the hyperinflation this loss was due to a falling demand for reserve money. But after 2-3 years of the new MR functioning the demand for reserve money recovered (in real terms) and we can observe some increase of central banking revenue (at the end of 2000 seignorage was 1.6% of GDP after being 0.8% of GDP at the end of 1998).

Table 3. Seignorage in Bulgaria (1995 - 2000).

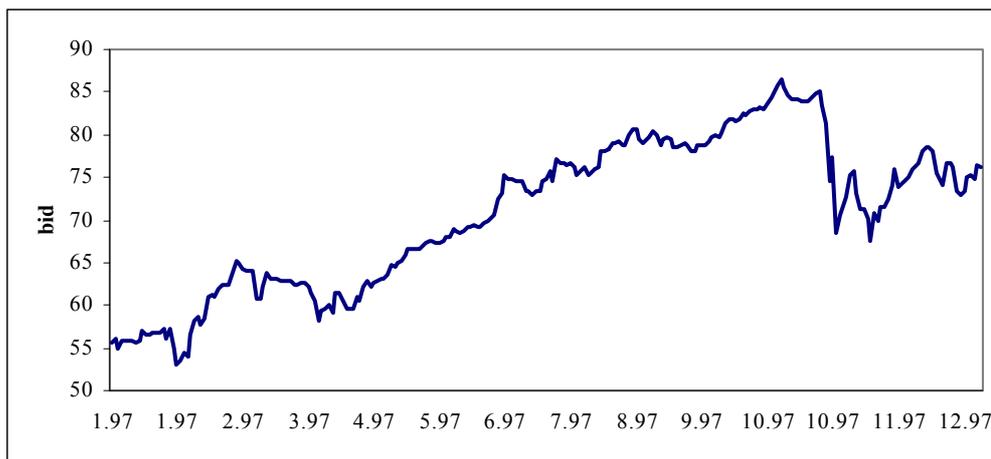
%	1995	1996	1997	1998	1999	2000
C/GDP <sup>59</sup>	7.0	7.2	7.7	8.1	8.6	9.8
S/GDP	4.4	4.9	0.9	0.8	1.4	1.6
S/TR	24.4	14.8	38.3	22.2	2.4	10.8
S/TotalR	19.8	12.1	35.0	20.9	1.9	8.6

Source: authors calculations (see methodology in Nenovsky, Hristov and Petrov (2001)).

*Indicator 8.* Prices of Brady bonds rose. Also, the country's rating improved after CB introduction. The rising price of Brady bonds gives a positive signal about the country's ability to serve the foreign debt.

Chart 9. Prices of Brady bonds (DISC bonds)

<sup>59</sup> Abbreviations in the table are as follows: C – banknotes and coins in circulation, S - seignorage; TR- tax revenue of the government; TotalR – total government revenue; GDP – gross domestic product.



Source: Reuters

*Indicator 9.* The balance sheet of the CB was designed to achieve optimum and transparent foreign debt service (Table 5). This is reflected in the concentration of fiscal resources in the Issue Department liabilities which are covered by low-yield high-liquid securities. These fiscal resources (called fiscal reserves) G are a source of foreign debt payments. As the percentage of the total balance sheet G varied between 30 and 50%.

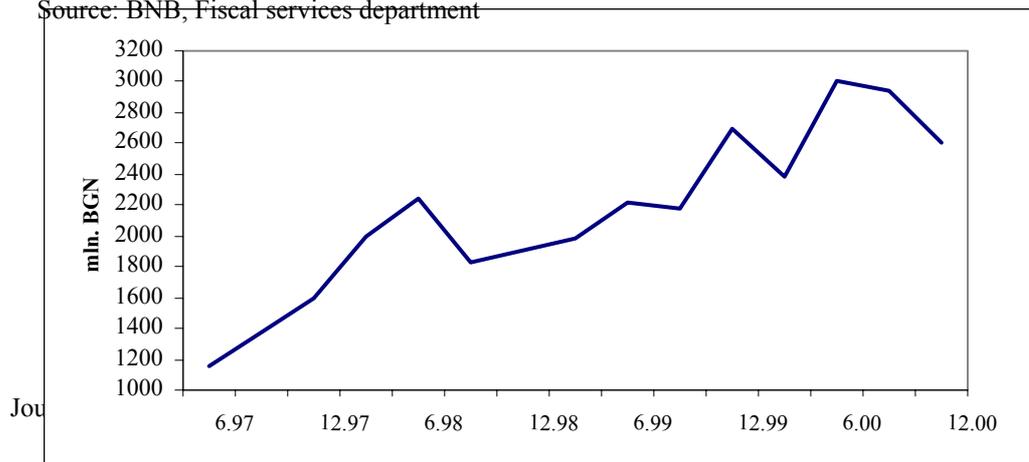
Table 5. *Issue Department Balance Sheet*

ASSETS	LIABILITIES
F	C
	R
	G
	B

- F – foreign exchange reserves
- C – currency in circulation
- R – reserves of commercial banks
- G – fiscal reserves
- B – CB net worth

Chart 10. Fiscal reserve dynamics (1997-2000)

Source: BNB, Fiscal services department



*Indicator 10.* The IMF stabilization program is designed so as to enable foreign creditors (through the IMF) to set future debt constraints to domestic debtors and creditors (balanced budget, high commercial bank liquidity and capital adequacy requirements, fixed fiscal reserve limit, CB net worth limit etc.).

Though indirect and not entirely systematized, the above indicators enable us to see the essential. Namely, that CB introduction serves the foreign creditor interests and ensures them a privileged and dominant position among other economic agents.

## V. Problems to solve and future research

In summary, the introduction of the CB in Bulgaria generally confirms our hypothesis that monetary regime change may be viewed as a conflict between different coalitions of creditors and debtors. The CB is an example of externally initiated IC which serves first and foremost Bulgaria's foreign creditors. Introduced in the aftermath of a severe financial crisis (deliberately provoked to a large extent) as a stabilizing mechanism, the CB may also be viewed as improving the state of the majority of economic agents in Bulgaria.

In this paper we presented the theoretical fundamentals of the IC of MR and possible empirical *indicators* of theoretical statements. What should be studied further and where should efforts be focused ?

- (i) To make the theoretical model and theoretical categories of the IC of the MR more precise. To define in greater detail the interests of different groups of debtors and creditors. IC cannot be summarized in a monomodel; rather pluralism and variety of theoretical views exist for specific situations. Therefore, it is logical to have several competing theoretical approaches.
- (ii) To study further the IC of the MR, employing instruments of political economy and incorporating achievements of other disciplines (i.e. applying the interdisciplinary approach) in the general model.
- (iii) To focus on the IC of the MR over time. To study how quantitative accumulations lead to a qualitative jump in MR, where the boundary of a new regime is, etc.
- (iv) To study the relation between the roots of IC (conflict of interests) and its specific manifestation (traditional macroeconomic correlations).
- (v) To concentrate on the empirism of the IC of the MR and the possibilities for quantitative measurement in particular. Pluralism of empirical evidence should be sought.
- (vi) To model and formalize the IC of the MR by using the different branches of the game theories. In particular, to consider the IC as an evolutionary game in which economic agents evolve, change their positions and interests through collective learning.

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