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(Groups of interest and monetary variables during the Currency Board introduction in Bulgaria)

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(Groups of interest and monetary variables
during the Currency Board introduction in Bulgaria)[*]

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Abstract. *The paper explores the possibilities to measure the institutional change in the monetary field. A political economy theoretical framework is built up, where the change of the monetary regime is analyzed as the outcome of the debtors - creditors interactions. In this perspective, the value of some traditional monetary variables during the period before and after the introduction of the Currency Board in Bulgaria, in 1997, reveals the main actors' evolving relative positions.*

Codes JEL : E42, E52, O10, P30

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Introduction

In this paper we propose an interpretative grid for the empirical study of institutional change (IC), following previous research work where we define IC as the outcome of a political process of interactions among more or less organized actors (Rizopoulos et Kichou 2001, Nenovsky et Rizopoulos 2003). We consider the introduction of the Currency Board in Bulgaria in 1997 and the switch from a regime of discretionary and subjective money supply management and floating exchange rate to a theoretically passive and static form of monetary rule as an *extreme institutional change* of the monetary regime (MR), representing a radical modification of the rules regulating the relations between debtors and creditors and a change in the distribution of power in favour of external creditors.[1] In this perspective, we measure the IC through some traditional monetary variables called *focal variables* because they both "map" the IC, expressing the evolution of major actors' relative positions, and influence actors' action.[2] They are defined, in the monetary field, on the basis of the creditor/debtor relation (Nenovsky et Rizopoulos 2003).

In the following section we rapidly draw the major elements of the political economy of institutional change. Then, grounded upon this theoretical framework, a methodology for the empirical study of IC applied to the introduction of the Currency Board in Bulgaria (1996/1997) is proposed.

I. The political economy of institutional change

We define institutions in general as sets of rules, tacitly accepted as well as explicitly codified, norms and shared knowledge, including the influence, reproduction and enforcement devices, which materialize them, enabling the collective action in every field of social life. The *Monetary Regime* (MR) in particular covers formal rules as well as their enforcement mechanisms most closely related to money creation dynamics, mainly central bank money. It involves to a lesser extent money demand (for instance, restrictions on local currency convertibility, restrictions on cash payments, etc.). The MR is also a set of formal relations

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[1] Treating the MR change as a conflict between debtors and creditors originates from Marx and is elaborated by contemporary authors like M. Aglietta and A. Orléan (1984).
[2] Some quantitative variables constitute the base of the formation of actors' anticipations (rate of inflation, rate of interest, etc.) and they do not have a strictly objective value. Faiths and collective representations influence their perception and importance which are often contingent and evolving.

between debtors and creditors. In this sense, it 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.

Contrary to the approaches considering institutions as optimal solutions of a repeated non-cooperative game between substantively rational agents (Schotter et Schwödiauer 1980, Schotter 1981)[3], we believe that each institutional configuration crystallizes asymmetries concerning the access to and distribution of resources. Actors are not in equal positions and some of them take advantage of the existing institutional rules which give to them power and better positions in the process of appropriation and redistribution of common wealth (see also Binger and Hoffman 1989). An institution is a structure in which powerful people are committed to some value or interest. Values are preserved and interests are protected only if those holding them retain power. Because of these asymmetries, different groups of actors - more or less favorable to the prevailing rules - will be formed. In any case, because of the complexity of social relations, the multiplicity and generality of institutional rules, and the existence of contradictory interests, actors (organizations) maintain an important autonomy and have the possibility to choose options or deviate from institutional messages. Rules are selected and interpreted. Thus organizations are not passive *rule-adopters* and institutional environments are not absolutely constraining.[4] In this sense, there is no spontaneous conformity of all actors to the institutional messages. Deviant and *rule-changing* strategies can be observed in every economic system. Especially when the asymmetry of positions in the existing institutional framework passes a certain critical threshold the perceived interests of the losing side materialize into a desire for change, anticipating an amelioration of its own position.

We consider the institutional change (IC) as the modification of an initial system of rules and of their associated organizational forms. This modification is linked to the evolution of the relative positions of different groups of actors with the emergence « winners » and

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[3] M. Aoki (2000) adopts the same approach even if his rationality hypothesis is less strong.

[4] For this raison, institutions need appropriate resources and competencies enabling the enforcement of rules. The absence of such resources makes enforcement impossible. But disposing appropriate resources, means the existence of enforcing organizations which, because of their organizational properties, can also pursue specific interest-oriented strategies. "Enforcement is undertaken by agents whose own utility functions influence outcomes" (North, 1990, p. 54).

« losers ». In this sense, IC is a cumulative and endogenous process[5] pushed by the relations of power and by interactions among more or less organized actors having a perception of their own interests.[6]

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, 1998), 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). The outcome of IC depends on a multiplicity of interdependent organizational decisions and actions. The probability for materialization of the IC is enhanced either by the possibility for complete economical, political and ideological victory of one group, or by the promise and later the possibility to compensate (partially) the losers from the IC.

In order to IC be accomplished, at least one initiating organization is needed, which has sufficient power and various levers at its disposal. Without the voluntary intervention of such actors, the self-reinforcing character of institutions (that means the tendency of the majority of actors to conform their decisions and actions to the institutional rules, because of the costs of a deviant behavior) and the strategic action of the dominant actors would stop any evolution and change. The degree of organizational maturity, ability for mobilization and use of political levers determine the impact of a given group of actors on the IC. It should be noted here that the results of this social game 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 bounded rationality and knowledge it is extremely difficult to predict and

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[5] Exogenous events (technological change, wars, natural disasters, etc) could favor the emergence of innovative collective practices and of new rules. Meanwhile, the consolidation of a new institutional framework presupposes the "instrumentalisation" of such events by sufficiently interested and powerful actors.

[6] The importance of power configurations in the IC analysis is pointed out in K. Marx (1894), F. Perroux (1973), J. Galbraith (1976, 1984) and fits well with J. Commons' definition of institutions as "collective action in control, liberation, and expansion of individual action" (Commons 1931) and his interest for "strategic transactions" aiming to control and influence the process of IC. M. Olson (1966, 1995, 2000) and D. North (1990, 1994, 1997) underline also the role of organized groups of interest for a change, while Y. Rizopoulos and L. Kichou (2001) suggest that IC can be analyzed as a political interaction process between organizations diffusing institutional rules (DIR) and organizations consuming institutional rules (CIR). Furthermore, recent research on the political economy of transition in general (Kornai 2000; Roland 2001 and 2002) and the financial/monetary system in particular (Berglof and Bolton 2002; Shleifer and Treisman 2001) has been taken into consideration. An overview of approaches to IC issues is presented in Nelson, 1995; Nelson and Sampat,

calculate profits of different players as a result of the IC. In this sense, intentions and purposeful behavior matter but even pre-designed IC carries certainly unpredictable elements.

The emergence of a new institutional framework largely depends on the mobilization of resources (Loasby 2000) and of relational, financial and physical investments. They are necessary in order to create a context favorable to the IC through the emergence of a critical mass of actors accepting the new rules.[7]

In most cases a crisis of the existing institutional framework contributes to the creation of such a favourable context. An institutional crisis means that existing rules cannot regulate satisfactorily the collective action and/or that the old "diffusing institutional rules" organisations stop controlling the enforcement of rules and even break them losing any credibility. Economic and social crisis are frequently combined with institutional crisis which is a kind of catalyser accelerating the movement by modifying the gains, loses, perceptions, beliefs[8] and strategies pursued by different groups of actors, especially by those who have not clearly defined interests at the beginning of the process. The attitude of such "followers", who form usually the majority of actors, is of tremendous importance enabling or not a more proper to the IC configuration of power relations. In this sense, it may be assumed that in order to facilitate the imposition of new rules, initiating organisations are willing, to a certain extent, of provoking a crisis or accelerating a raging one. Indeed, such cases are not rare (although concerned actors are unwilling to admit this fact). It is interesting to notice that groups of actors with weak capacity of collective action and low organizational maturity may be the principal losers of the process, paying during the crisis the cost of the IC, even when objectively they have long-term interest to change the rules.

To understand this process, it is necessary to discover which groups promoted and benefited from the development of new institutions and to analyze the relation between the emergence of new institutional forms and organizational action. In this perspective, we have to take into consideration the features, interests (real or perceived), strategies and

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2001; Hodgson, 1998. Concerning some empirical studies of IC, see Alston, Eggertsson and North (1996), and several papers in the Journal of Economic Issues.

[7] 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).

[8] Concerning the role of beliefs in the economic processes see *Revue d'Economie politique*, n° 5, September-October 2002 (special issue) and specifically in the process of IC see Elster *et al.* (1998).

organizational capabilities of both "rule-takers" and "rule-makers", analyze the evolution of attitudes, identify rupture points, decipher the interactions (coercion, incitation, bargaining, compensation) and register the evolution of focal variables reflecting the different phases of the process and the consolidation or not of the new institutional configuration.

II. Methodology of empirical study of IC

Let us assume that three main groups of actors exist, i, j and k, each one comprising specific number of individuals and sub-groups of individuals.

For technical simplification we assume that it is possible to aggregate individual interests and preferences, *without, of course, being absolutely certain*. The emergence of collective strategies with regard to the change in the institutional rules represents a possibility, which depends to a great extent on the maturity and existence or not of common perception by different actors.[9]

We could visualize the relationships by pairs of actors $(i, j), (i, k), (j, k)$, whose importance in terms of the evolution of the general process is changing respectively, depending on the organisational power of the participating actors (their resources and capacity for impact, their forecasting ability, capacity for training and interpretation of facts, their negotiating capacity, etc.). It is possible, for example, for the actors to form a hierarchical configuration, $i > j > k$. In this case, the dominant actor (here i) could gain the status of a "diffuser of institutional rules" (DRI), while the relations at a pair level (i, j) would determine largely the relationships (and their outcome) at the level of the other pairs of actors $[(i, j) > (i, k) > (j, k)]$, which could be regarded as derivative (dependent on the relationships between i and j).

The groups that have the ability to perceive their interests and define a strategy in respect of IC (which is not always the case) are forced to observe and interpret the information received from certain visible indicators (focal variables), which are manifestations of actors' options for access to common resources (in other words, for their income, profits and losses), or from

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[9] Moreover, individuals and sub-groups of individuals can move in other groups as a result of the changes in their interests and strategies.

indicators showing the risk and uncertainty of such access.   Furthermore, they take account of their standing and that of the other actors, within the identified pairs. The dynamics of these focal variables – before, during and after IC – represent approximation of the evolution of power relations among the main groups of actors.

We could note:

$$s_i^{(i,j)} = \left[IC / \Omega_{(i,j)}, \Omega_{(i,k)}, \Omega_{(j,k)} \right]$$

where $s_i^{(i,j)}$ is the perception by group i of its position in the pair (i, j), a function of the set Ω comprised of focal variables ($\Omega = 1...x$). This perception affects the strategy of i with regard to IC. As we already noted, Ω contains two types of variables: indicators of wealth/income and indicators of risk/uncertainty. Due to the limited cognitive abilities of the actors it could be assumed that focal variables will not be many and will depend on the possibility to be observed and analyzed.

In case the pair de i and k does not exist (there is no relationship or the significance of the relation is weak), we would have for i:

$$s_i^{(i,j)} = \left[IC / \Omega_{(i,j)}, \Omega_{(j,k)} \right]$$

Graphically, the relations within the pair of actors (i, j) with one focal variable belonging to Ω could be presented graphically as follows:
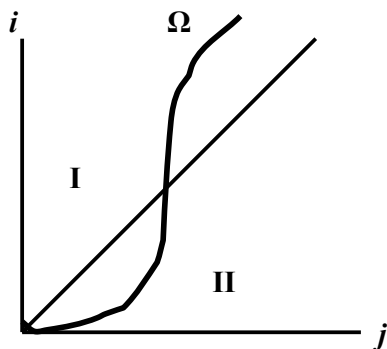
The bisector represents the path of Ω *(wealth, income, risk, uncertainty)*, corresponding to a hypothetical equilibrium between the two groups of actors. Quadrant I shows dominance of *i*, while in quadrant II *j* dominates.

This analytical framework will be applied to the radical change of MR, such as, in our opinion, is the introduction of the CB in Bulgaria in July 1997[10].

III. The process of monetary regime change in Bulgaria (1996-1997)

Money demand and supply in the modern fractional monetary system are manifestations of social relation such as credit relation[11]. Therefore it could be assumed that (i) major actors in the monetary field could be defined in terms of credit and that (ii) monetary relation reflects power configurations between different groups of creditors and debtors. In this sense, the change of monetary regime (MR) means transition to a new formal institutional framework, changing the distribution of wealth between creditors and debtors[12].

The existing monetary regime in Bulgaria until 1996 was dominated by different coalitions of debtors (government and administration; large over-indebted and subsidized enterprises; commercial banks heavily dependent on bad credits and systemic refinancing by the CB).

Specifically, in the context of IC, depending on the structure of assets and liabilities, three groups can be identified according to interests: external creditors, internal creditors and debtors. The group of external creditors (C^{EX}) comprises private foreign banks (London Club), and official creditors (Paris Club, IMF, World Bank, etc.). The group of internal creditors (C^{IN}) includes households as well as private enterprises and banks, which largely observe the rules of the game. The group of debtors (*D*) combines the government and the

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[10] For detailed discussion on the crisis preceding the IC, see Nenovsky (1999), Berlemann et Nenovsky (2003). On the operation of CB, see Nenovsky et Hristov (2002), Nenovsky, Hristov et Mihaylov (2002).
[11] For details on monetary relation seen as credit relation representing social relation between debtors and creditors, see Keynes (1930), Minsky (1986), et Wray (1990).
[12] Consideration of MR change as a conflict between creditors and debtors could be traced back to Karl Marx, followed by M. Aglietta et A. Orléan (1984). In the liberal tradition framework this could be found in Mises (1959) and Bernholz (2001).

central bank[13], plus subsidized enterprises and banks referred to as *crony* (mainly public, but also private) as well as politicians and bureaucrats. *D* are debtors in respect of C^{EX} and C^{IN}.

The CB was introduced as a result of the financial crisis that broke out at the end of 1996 and the beginning of 1997, when national money lost its key functions, one-third of commercial banks went bankrupt, forex reserves were almost depleted (their level plummeting to 2 months of imports), the exchange rate depreciated by about 600% (in 1996), the total external debt skyrocketed to 303 % of GDP (end-1996) and inflation rose to 243% in February 1997. The financial crisis was combined with political and social crises, which forced major political forces in the country to sign agreement on CB introduction. Formally this happened on 1 July 1997, but *de facto* the BNB started functioning as CB as early as March 1997.

Adoption of CB means transition from discretionary MR, characterised by subjective management of money supply and exchange rate, to an extremely passive form of monetary rule: the monetary base is covered 100% (even more) by forex reserves, the exchange rate is fixed in law and there is no possibility (in theory) of pursuing monetary policy. The monetary base dynamics (and indirectly money supply) follow the dynamics of the balance of payments (at least in the long run). CB introduces hard budget constraints at banking system level and indirectly on all economic relations in the country. Logically such a regime serves the interests of creditors.

However, relationships between different groups of creditors and debtors are much more complex. In the Bulgarian context it seems necessary to differentiate clearly the relations (i) at national level – between debtors and creditors – and (ii) those at international level – between external creditors on the one hand, and debtors and national creditors, on the other hand. Actually, depending on the structure of their assets, a significant portion of which is in national currency, internal creditors do not have the same interests as external creditors. This

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[13] In the orthodox theoretical monetary policy schemes there is clear differentiation between CB and government, modeling their relations. In the Bulgarian case the position of the CB (BNB) was peculiar. Actually it was in a position of a net internal creditor (LLR, often transformed into lender of last resort). It was too sensitive to external creditors' expectations. At the same time, the BNB got its seignorage (distributed between the Central Bank and the government). *De facto* it was subordinated to the government. As a result of these peculiarities the two institutions had almost identical behavior in the period of the crisis and at CB introduction. That is why the interests of the Central Bank, or at least of some of its representatives, converged to the coalition of debtors. The IC meant namely to change the role of the BNB, becoming a "DRI" applying rules benefiting the creditors.

determines the positions and the models of behaviour in respect of IC of MR through the specific stages of IC.

Moreover, the three groups of actors are characterised by different degree of organisational maturity. They maintain asymmetrical relations, having neither equal negotiating capacity, nor equal ability for action. External creditors have more means at their disposal to impose their interests on debtors (this is typical of small open economies, heavily dependent on external factors). Conversely, internal creditors, unorganized (households) or without political power ("safe and sound" commercial banks and enterprises), have much lower negotiating capacity in respect of debtors[14]. Thus a complex configuration is formed, where C^{EX} dominate over D, which in turn dominate over C^{IN} (although influences in the opposite direction also exist). As a result we have $C^{EX} > D > C^{IN}$. This hierarchy determines to a large extent the profits and losses of different actors during the process of IC and their follow-up strategies. In this sense the crisis period is of special research interest.

In the first period, which involves movement of debtor-dominated MR to the deepest point of the crisis (from point A to point B on Chart 1), not all groups have converging interests. Debtors are not necessarily those who incur the heaviest losses. Actually external creditors (including IMF) have already captured more disturbing signals about the country's ability to service its debt and initiate IC[15] without sustaining any real loss. They even try to worsen the crisis in order to introduce the new rules (Nenovsky et Rizopoulos 2003).[16] At the same time, debtors clean up their debts. Those who pay the costs of IC are internal creditors and mainly households. For this reason the introduction of CB appears as the only option for partial compensation of their losses. It is in the second stage of the crisis (movement from point B to point C) that the interests of the three groups (including debtors) converge to adopting the new MR. Actually, even if the debtors knew that they would not be able to generate the profits they had in the previous regime they think they are at a risk of sustaining even more sizeable losses. Yet the new MR paves the ground for partial compensation of their debts (point C is preferable to debtors than point B).

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[14] The only opportunity they have for pressure is indirect and comes from possible massive loss of credibility (which ultimately could destabilize debtors).
[15] In bigger countries IC and the change of MR are more difficult due in part to the fact that the game between DRIs and internal CRIs is much more complex and external DRI have relatively less power (on Russia see Shleifer and Treisman 2001).
[16] Such cases are not rare, though as a whole the affected organizations do not confess this fact (which is logical!).

Chart 1 Monetary regime change (Bulgaria, 1996-1997)
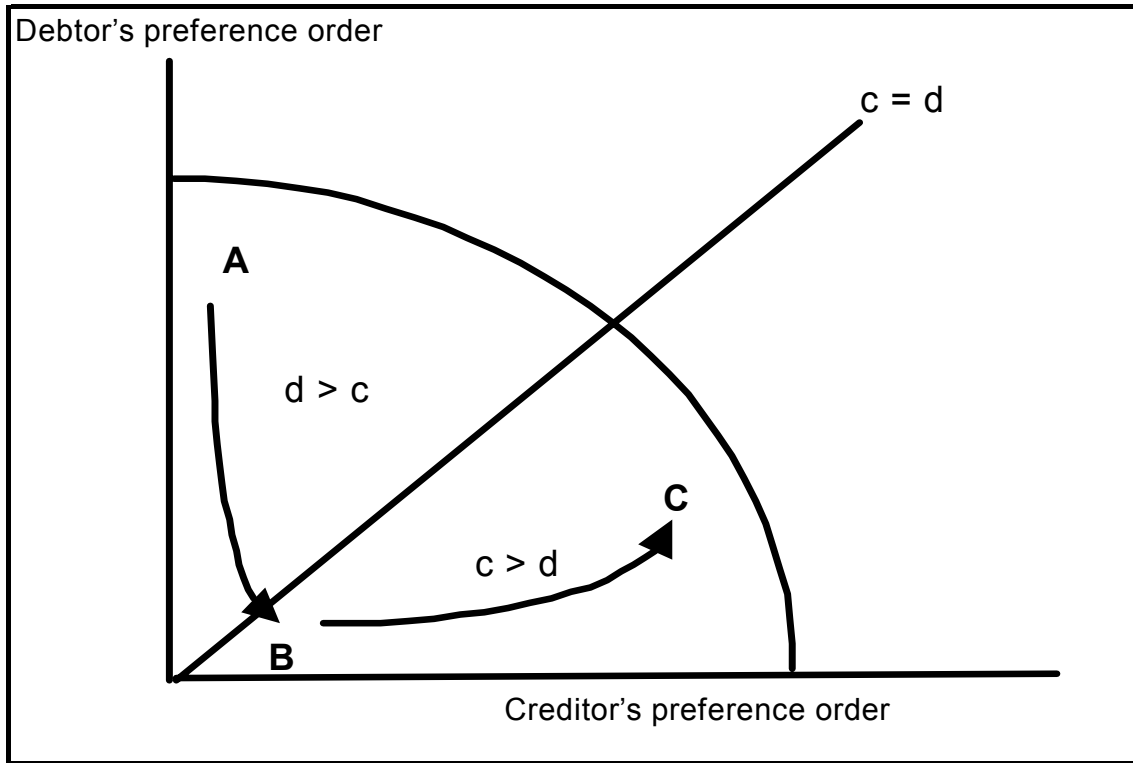
Source : Nenovsky et Rizopoulos (2003)

Thus, according to our analytical designation, we can identify three pair of actors (C^{EX}, D), (D, C^{IN}) и (C^{EX}, C^{IN}), whose relationship determines the result of IC. However, in the Bulgarian context, C^{EX} have no direct contact (and therefore no impact) on C^{IN} – this happens rather through the mediation of *D*. Thus we come to two major pairs, (C^{EX}, *D*) and (*D*, C^{IN}), and debtors represent the connection between them. Given the asymmetry of the actors specified above the dynamics of the connections in the pair (C^{EX}, *D*) influences the dynamics of the connections in pair (*D*, C^{IN}). It could also be assumed that C^{EX} dictate in a certain way the rules of the game at level (*D*, C^{IN}), defining the matrix of profits and losses in that pair. Depending on the focal variables and the state of the two "games", *D* could enter into coalition with C^{EX} and/or C^{IN}, thus changing the path of the process and affecting the nature of MR.

Table 2. Support for Currency Board

Actors	T1*	T2*	T3*
External creditors	+++	+++	+++
Internal creditors	+	+++	+++
Debtors	– – –	++	+

T1 : before the crisis 1996/97, T2 : during the crisis 1996/97, T3 : after the crisis 1996/97.
(+++) very strong support, (++) strong support, (+) support, (– – –) very strong opposition, (– –) strong opposition, (–) opposition.

Once we defined the pairs of actors, we should explain the dynamics of focal variables (Ω).

IV.   Introduction of *Currency Board* and dynamics of focal variables

So far we have identified two types of focal variables:

- such that show the actual distribution of wealth among actors (income, assets, liabilities). The evolution of these variables reflects the evolution of the relative positions of the three identified groups of actors.

- such that represent signals measuring the actors' propensity to taking risk. Their evolution serves as a basis for forming preferences and is the driver of the actions of the individual groups.

Focal variables for each group of actors

External creditors (C^{EX}) are interested in a whole set of macro-economic variables, financial and political[17]. Nevertheless, in order to simplify presentation we could assume that two variables are of particular importance to them: (i) the income flows coming in terms of external debt (interest flows)[18] and (ii) risk indicator measuring the country's capacity to service its debt. The dynamics of forex reserves and/or forex reserves stated in months of

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[17] External creditors have expertise that allows them to construct and interpret different indicators and models, which are not always accessible (and understandable) by the other actors (e.g. the real effective exchange rate, the budget deficit dynamics or the balance of payments deficit dynamics, etc.).
[18] Income is a flow whereas wealth is a stock. The dynamics of income flows could preserve, increase or reduce the wealth of C^{EX}.

imports is such an indicator.[19] The dynamics of these variables impacts the decisions of C^{EX} regarding the change or preservation of MR.

Following the same logic, we could conclude that internal creditors (C^{IN}) are interested mainly in variables such as inflation (almost automatically related to the devaluation of the exchange rate), real interest rates on deposits, real yield on treasury bills, etc. In our case, the choice of variables is related to the fact that households and "healthy" enterprises invest mainly in bank deposits and treasury bills, without having access to credit (bank credit is directed mainly to *crony* enterprises).

As for debtors (*D),* we could reason in a different way, adhering to the same methodology in the selection of variables. Public debt (external and internal) as well as bad debts (accumulated at banks as a result of the losses accumulated by *crony* enterprises and banks) could be considered as variables showing the benefits of *D* in an inflationary MR. Both deficits (budgetary and of the balance of payments), real fiscal income, interest (paid on external and internal debt) as part of the costs, could be interpreted as risk indicators[20].

The next logical step is to define the focal variables for each pair of actors.

Focal variables for pair (C^{EX}, D)

To express the relations of power in this pair it is appropriate to choose the dynamics of the ratio external debt / internal debt ($\frac{\Delta de}{\Delta di}$) on the one hand, and on the other hand, the evolution of forex reserves (Δf), the ratio forex reserves / imports ($\frac{\Delta f}{\Delta imp}$) or the prices of *Brady bonds* (*pe*). An increase in $\frac{\Delta de}{\Delta di}$ shows a favorable situation for C^{EX}, while a decrease means improved position of *D*. A decrease in Δf, in $\frac{\Delta f}{\Delta imp}$ or in *pe* shows higher risk of default on

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[19] The dynamics of the prices of the external debt securities (*Brady bonds*) on international financial markets could also be regarded as a key focal variable which provides information on the country's capacity to service its debt and the condition of the country as a whole.

[20] *D* have additional constraint consistent with the fact that this group could be sanctioned through elections, i.e. through political means. It should be noted that the level of risk perception is weaker for *D* in respect to C^{EX} (the latter have greater resources and capacity for forecasting).

payments, which burdens C^{EX}.[21] The dynamics of focal variables Ω
$$(C^{EX}, D) = \left[\frac{\Delta de}{\Delta di}, \Delta f\right]$$ is
presented on Chart 2 (the nominal dynamics of all focal variables are presented in the appendix). It should be noted that the risk and profit/loss curves tend to be symmetric in respect to the bisector (hypothetical equilibrium between creditors and debtors). Logically, a decrease in the expected risk will improve the expectations of profit and *vice versa*.

As can be seen, C^{EX} are in a dominated position at the beginning of the process because the curve of their profits is below the bisector (quadrant II), while the curve of risk is above it (quadrant I). After CB introduction the dynamics of these variables reversed: *D,* which are in a dominated position, lose income and are exposed to higher risk. It is worth noting that the inflexion point of the risk curve precedes the curve of relative profits. Actually risk perception by C^{EX} is the main factor in the motivation to introduce a new regime, in order to avoid redistribution of profits and loses in their detriment.

Chart 2 The conflict (C^{EX}, *D*)
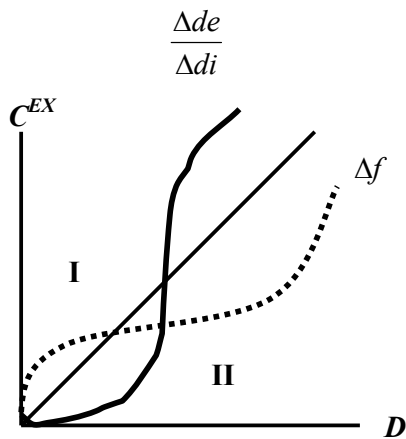
Focal variables of pair (D, C^{IN})

The dynamics of the real interest rate on deposits (and real yield on treasury bills) are sufficient elements to illustrate the relations of power between internal creditors and debtors

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[21] The importance of forex reserves dynamics is complex. For instance, their fall could be integrated strategically by the actors in two ways (contradictory to a certain extent): (i) the risk of the debtors' default on payments

and as a consequence of this, their positions in respect of MR. Inflation is a major variable – it is taken into account either through interest rates or directly – meaning loss of purchasing power by households[22]. Logically debtors tend to reduce the value of their debt (i.e. the value of money) and to relieve their constraint on servicing of payments. Conversely, creditors would be interested to preserve or increase the value of their receivables (i.e. the value of money) and to harden constrains on payment (e.g. extending more loans).

It is a matter of fact that inflation serves debtor's interests. Commercial banks have also interest in devaluing household and enterprises deposits. The hyperinflation could be a good solution for the banks. In the case of Bulgaria the households (creditors) are not indebted. As a consequence the household's strategy depends of a concrete structure of their assets and liabilities.

Thus it could be assumed that there are variables reflecting the power relation in this pair: rd (real interest on deposits), rb (real yield on treasury bills), π (inflation), e (exchange rate), $\dfrac{W}{P}$ (nominal wages deflated by the price index), Lb (bad debts of banks), $\dfrac{Gi}{G}$ (the part of interest payments Gi in total budget expenditures G). For clear graphical presentation we take only the dynamics of the variables Ω

$$(D, C^{IN}) = \left[rd, \frac{Gi}{G} \right]$$

, which is shown on Chart 6 (the evolution of some focal variables is presented in the annex).

Chart 3 The conflict (D, C^{IN})

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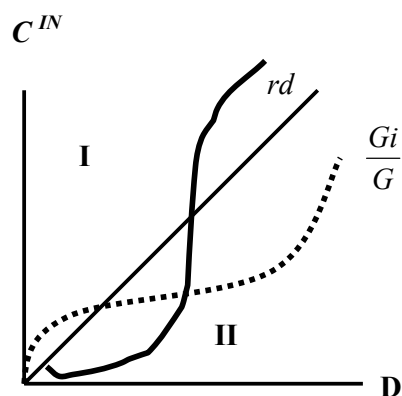
increases but (ii) the latter's dependence on C^{EX} increases (C^{EX} are a final source of funding). Therefore forex reserves could also be treated as an indicator of power of C^{EX} (i.e. dependence is reversed).

[22] In the context of high inflation economic agents pay more attention on real variables, while in low inflation the nominal values of stronger importance.

The fact that *rd* takes positive values after CB introduction shows a manifestation of a new distribution of profits between C^{IN} and *D,* in favour of the former. By the way, the relation $\frac{Gi}{G}$ could be regarded as focal variable of risk as it signals the capacity of internal debt service as well as the risk of default on internal debt payments. The above relation has the same semantic meaning like forex reserves in the analysis of external debt. At the beginning of the process interest payments in total public expenditures (a relation located below the bisector – quadrant I) shows a threat for internal creditors (households) from default by the government,[23] and motivates their support for CB.

Concluding notes

Thus, in the light of political economy, we offer a general methodology for empirical study of IC, which we applied to a sharp change in MR (introduction of CB in Bulgaria in 1997).

First, we identified the main groups of affected actors, clarified their interests and analysed the evolution of their behaviour with regard to the radical change in monetary rules. Next we captured and examined the variables that focalize their conflict interactions. Some of these variables give indications of the power relations between individual groups of actors and their capacity to appropriate common resources (at the expense of competitive actors). Others serve as a basis for formation of their expectations, determining their actions. These variables are expressed in terms of the hypothetical equilibrium among the three identified collective actors and their dynamics signals different stages of the process of IC.

Certainly, a number of questions could be raised such as about the relevance and number of selected variables. Further elaborations are necessary, the result for example of comparative study with other radical changes of MR (e.g. introduction of CB in Argentina, Estonia, Lithuania, etc.). Nevertheless we have the feeling that the results are sufficiently "summarizing", showing the points of interruption from where the relations between actors lead to a new institutional configuration.

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[23] This situation has only theoretical significance, the Bulgarian case is an illustration. In the climax of the crisis interest expenditures made up to 70% of public expenditures (20% of GDP, end-1996) and the Ministry of Finance envisaged to stop payments on the internal debt. The case of Russia was similar, in August 1998. This refers to another example where internal creditors paid the costs of IC (see Schleifer and Treismann, 2001).

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Annex – Bulgaria – empirical illustration (1994(5)-2001)

Table 1 Main focal variable (1994-2001)

	1994	1995	1996	**06/1997**	1997	1998	1999	2000	2001
Inflation (%, eop)	121.9	32.9	310.8	484.2	16.2*	1.0	6.2	11.3	4.8
Real wages (USD)	89	110	75	6	78	101	108	105	114
Real interest rate on deposits (%)	na	33,7	-50.4	-73.6	-12.54*	2	-2.7	-7.5	-1.7
Real yield on treasury bonds (%)	na	11.6	-47.8	-53.3	-7.1*	5	-0.7	-6.5	-0.2
Foreign debt/GDP	128.8	73.3	243.5	103.6	84.1	72.9	70.1	73.7	67
Domestic debt/GDP	52.1	39.3	60.1	23.6	16	13.8	12.5	6.9	6.6
ΔForeign debt/ ΔDomestic debt	0.87	0.87	0.82	3.01	1.20	1.00	1.07	1.90	0.95
Foreign reserves (mln USD)	1311	1546	793	1626	2474.1	3051.1	3221.6	3460.3	3580.3
Foreign reserve growth	35.9	17.9	-48.7	105.1	52.2	23.3	5.6	7.4	3.5
Foreign reserves in months of import	3.1	2.8	1.5	1.0	5.1	6.1	5.9	5.4	5.0
Price of *Brady bonds*	21.72	23.95	33.27	46.4	54	59	62.5	72.8	79.7
Fiscal reserve (mln BGN)	na	na	na	1154	1601	1900	2693	2609	3035
Bad and doubtful loans (in % of total loan)	82.3	74.1	46.3	na	41.8	31	26.7	17.3	7.7
Seniorage /GDP	na	4.4	4.9	na	0.9	0.8	1.1	1.2	1.1
Interest rate expend./ total expend.	31.9	44.9	63.1	na	38	24.9	9.1	9.6	9.1

Source: BNB, NSI, our estimation, note : * - compared to 06/1997.

Real interest rate was calculated using Fischer formula, $1+r = \dfrac{1+i}{1+\pi}$, where r - real rate, i – nominal rate and π – inflation.

The couple (C^{EX}, D) – charts (1992-2001)

Chart 1. Foreign debt growth to domestic debt growth
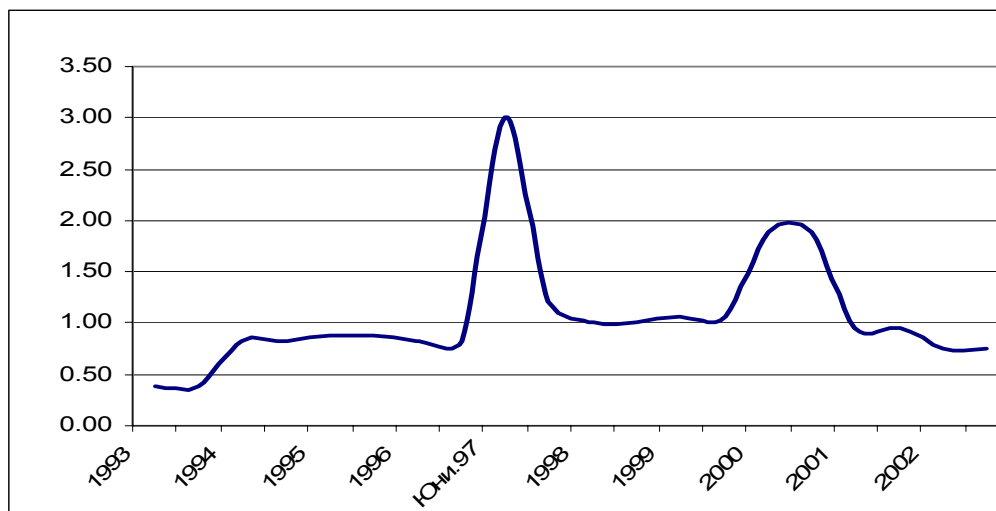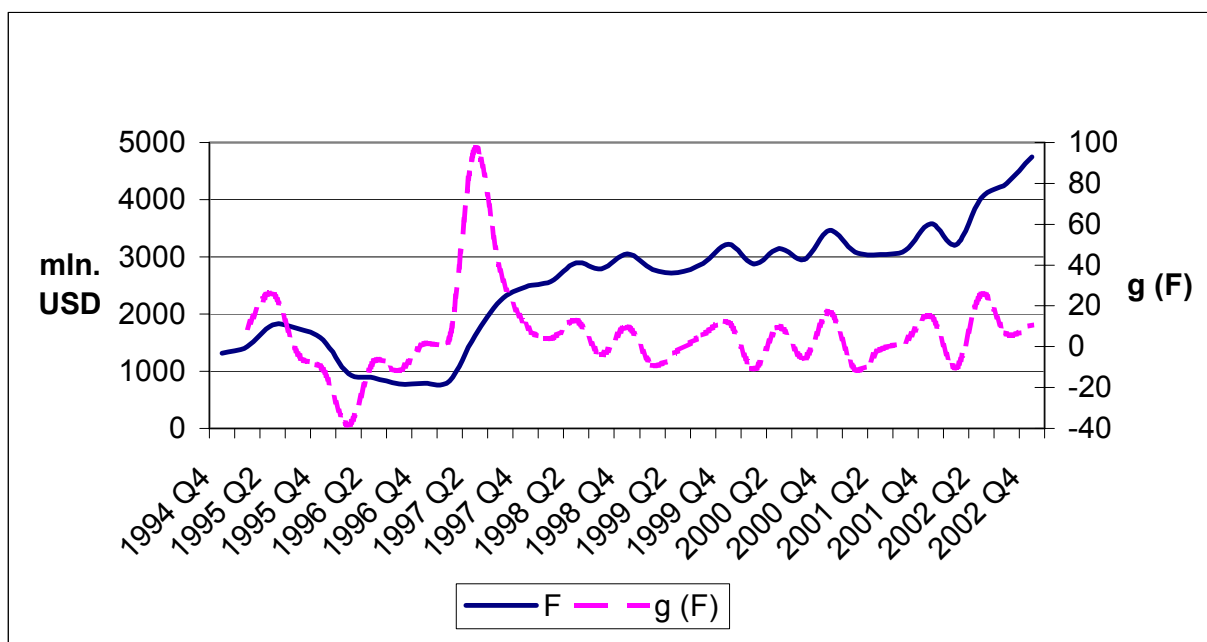

Source : BNB, our estimations

On the chart it could be seen that prior to CB introduction internal debt grows faster than external debt (the relation is below 1), while at the time of CB introduction the internal debt is cleaned up. Conversely, IMF made a loan to start CB (the relation is above 1). Until 1999/2000 this relation fluctuated around 1 because the government tried to mobilize internal savings and constrain external debt. Before the elections in 2001 more loans were extended for electoral reasons. At that time IMF was quite inclined to increase the external debt (because the relation was almost equal to 1 and the risk assessed by external creditors was too low due to CB operation).

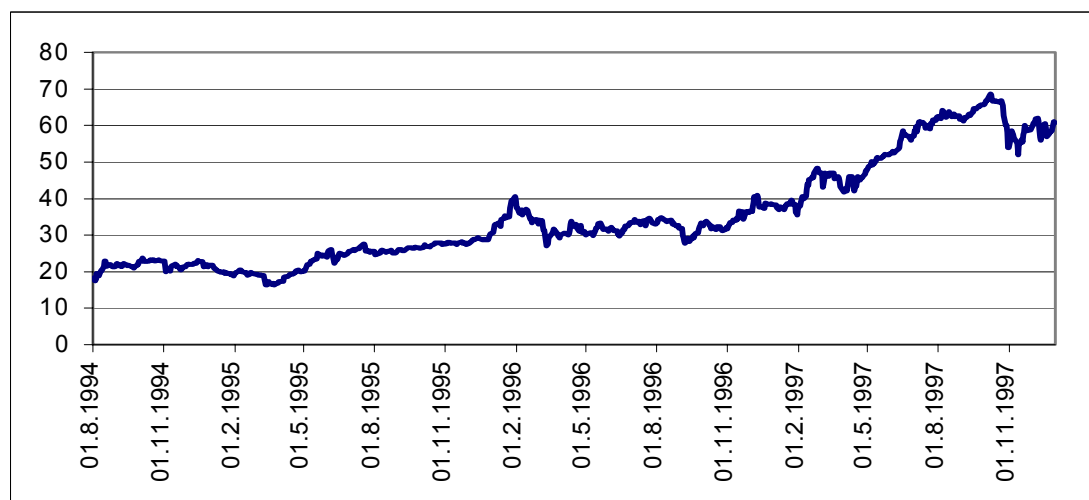### Chart 2 Ratio: foreign debt / domestic debt
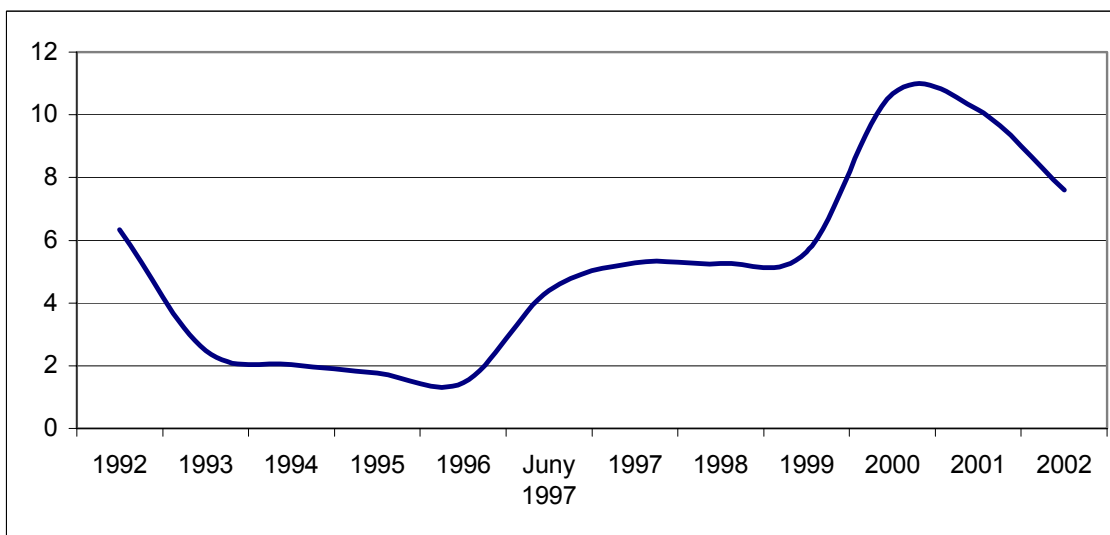
Source : BNB, our estimations

Chart 3 Foreign reserves (F) and foreign reserve growth g (F)

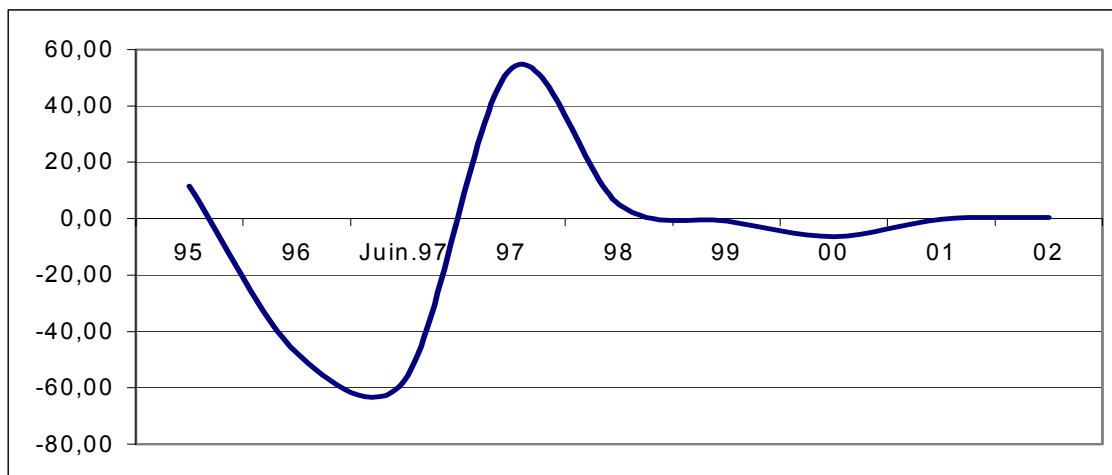source : BNB, our estimations

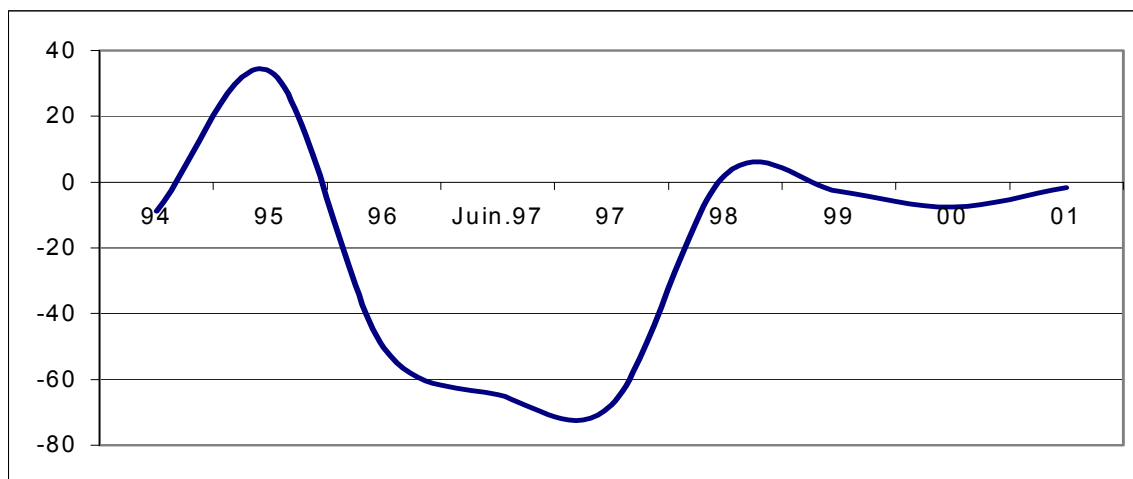**Графика 4 Price of Brady bonds**

Source : BNB, our estimations

The couple (D, C^{IN}) – charts

Chart 5 Real yield on treasury bonds (3 months)
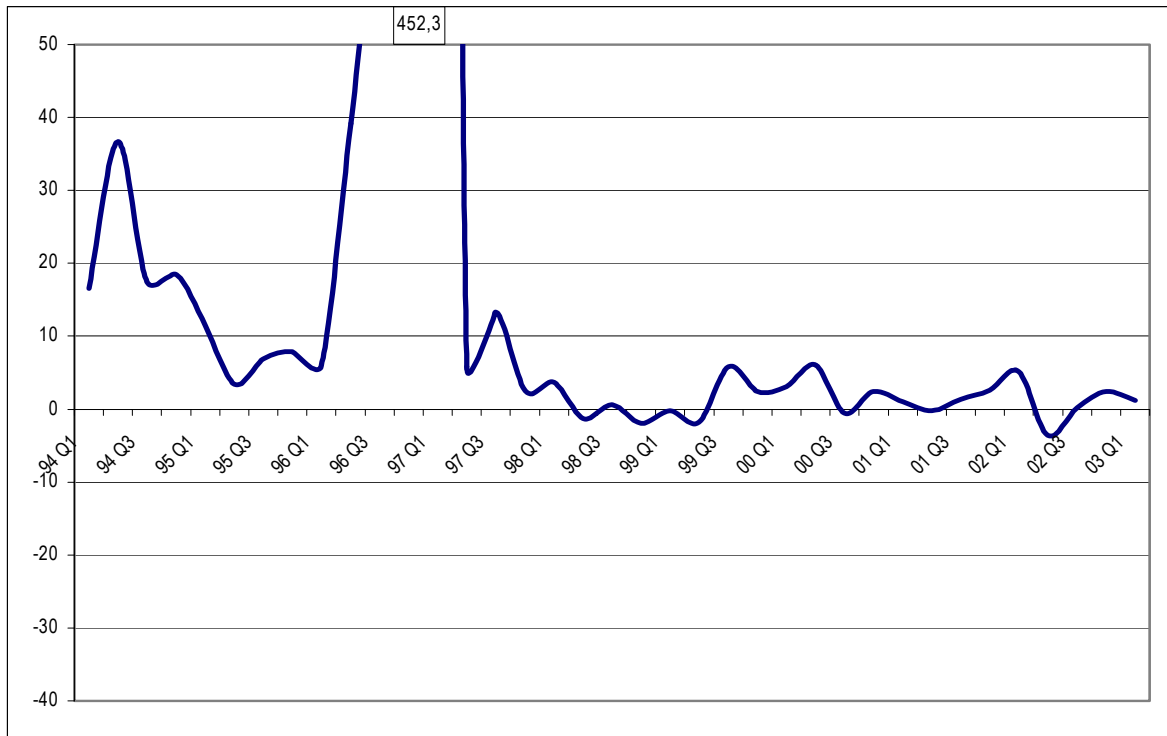

Source : BNB, our estimations

Chart 6 Real interest rate on deposits (3 months)
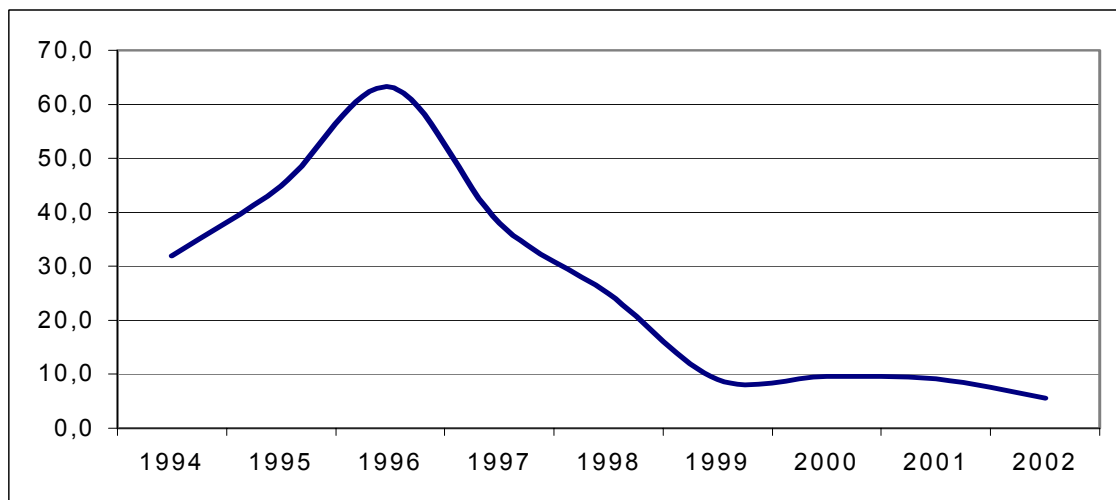

Source : BNB, our estimations

Chart 7 Inflation (using CPI)

Source : BNB, our estimations

Chart 8 Interest rate expenditures as a part of total budget expenditures

Source : BNB, our estimations

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