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**Dynamics of the Financial Wealth of the  
Institutional Sectors in Bulgaria: Empirical  
Studies of the Post-Communist Period**

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Dynamics of the financial wealth of the institutional sectors in Bulgaria:  
Empirical studies of the post-communist period

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**Summary:** The question of who benefits and who loses from the transition, the channels and mechanisms of redistribution of wealth in the post-communist period, and the relation between redistribution and monetary regime are, in our opinion, fundamental in understanding theoretically the deep systemic changes in Eastern Europe. This article has two basic tasks – one empirical and one theoretical. Our empirical task is to analyse the dynamics of the financial wealth of the institutional sectors in Bulgaria in the period 1998-2005 and to identify the major net creditors and net debtors. The empirical data used for the purpose are based on adapted methodology for the financial account of the Bulgarian economy according to the requirements of the System of National Accounts (SNA). Econometric simulations have been carried out of the major factors conditioning the change in the sectoral financial wealth. The empirical investigations are given in Part 3. Our theoretical task is to prove the hypothesis (which is to a large extent supported by the empirical results) about the functional relationship between the dynamics of redistribution and the change in monetary regime. This is presented in Part 2 and is discussed in Part 4.

**JEL classification:** D31, E42, P30

**Keywords:** redistribution, financial wealth, financial account, Bulgaria

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## I. Introduction

One major question of the post-communist period, which has not been clearly answered, is about who benefits and who loses from the transition<sup>1</sup>.

The radical and on the whole unexpected systematic change (from a planned socialist to a market capitalist economy) caused a considerable redistribution of the wealth, ownership and capital. It was associated with the appearance of new actors either by transforming or disappearing of the old ones. Initial accumulation of capital and ownership took place by converting power resources into money and property. Liabilities and losses moved over to large groups of the population while a small part concentrated into its hands the profitable activities, mostly through the intermediation of the state and the banking system (also state-owned by character). While some new self-made businessmen also appeared, the nation's wealth was in general concentrated into the hands of those in power (also political) in the old planned system. Of course, it is difficult to say to what extent this type of transition was controllable, planned and whether it was at all possible to carry it out in a different and more equitable manner. It is also hard to find an answer to the question as to whether any other type of institutional change could have been possible and whether an fair and effective transition model could *a priori* be chosen anyway<sup>2</sup>.

The post-socialist dynamics of the Bulgarian economy provides a number of *specific* possibilities for analysis, due to the specific time lines defined by the crisis and the subsequent change of monetary regime in mid 1997. Through the currency board (CB) the latest economic history of the country is divided into two symmetrically opposed periods, which characterize not only different monetary regimes and different types of economic policy, but also periods in which different types of actors dominate (in the first case this is a period of debtors, and of creditors in the second). The relation between the monetary regime and the redistribution of wealth is obvious although rarely analysed. This relation prompts the logical question of how long a monetary regime would possibly preserve a certain status quo in a distribution of wealth<sup>3</sup>.

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<sup>1</sup> In fact this is one of the basic questions of every historical transition; see Buharin (1989, [1920]).

<sup>2</sup> Indisputably, the transition model, despite some specifics (which are often exaggerated), was observed in all former communist countries (Hodgson, 2006, Colombatto, 2006, Winiecki, 2004, Beck and Laeven, 2005, Pejovic, 2003, Starodobrovskaya and Mau, 2004, Bunich, 2005, etc.).

<sup>3</sup>In other words, how much and how long an institution retains its utility (marginal utility).

Not only from historical perspective is it interesting to analyse the redistribution in the transition period. Bulgaria's membership in the EU and its future accession to the euro area pose a number of formal and informal criteria of convergence and similarity of the Bulgarian economy, without the fulfilment of which the monetary policy would be ineffective<sup>4</sup>. The question is about how similar to those of the euro area countries the transmission monetary mechanisms are, and how similar to the European behaviour the behaviour of the individual sectors (actors) in the Bulgarian economy is. Although rarely mentioned, the issues of financial wealth redistribution could logically be related to the theory of currency areas (regardless of whether these are optimal, endogenous or political). Because it is not one and the same where (which sector) the wealth belongs to, where the liquid part of this wealth is, etc. The role of redistribution is closely related with the state of the credit channel and the role of the financial system for the monetary transmission mechanism.

Much has been written about the “bad crony” dynamics of transition. Recently, this has become somewhat a fashion, which is largely dictated by the increasing importance attached to the institutional, political and cultural factors and to the critique of the neo-classical approach to the reforms in Eastern Europe (often referred to as the Washington consensus).

Unfortunately, empirical analyses are rarely offered, mainly as a result of the lack of adequate methodology of quantitative analyses (Nenovsky, Rizopoulos, 2004). The difficulties and limitations confronted by the empirical analysis of redistribution are obvious and could be reduced to three basic ones: (i) there are statistical data and series about the *standardised* sectors of economy (households, general government, non-financial enterprises, banking system, etc.), which are used for a different type of analyses and because they are aggregated they do not tell much about what we are interested in; (ii) there are difficulties in identifying the actors who do not wish to be uncovered, and (iii) there are difficulties in identifying the wealth, assets and liabilities of those actors.

The above limitations pose a number of insurmountable barriers to knowledge. Nevertheless, we believe that waiting is not the best solution. It is possible to make the first steps, which, to the extent the available data and the internationally recognised methodology permit, could give us the opportunity to come to some conclusions in respect to the dynamics of redistribution of wealth and the relation of this redistribution with the

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<sup>4</sup> Is that really so?

monetary regime. [It is interesting that even such type of analyses is rarely performed. In Bulgaria, only in recent years attempts have been made to construct the financial account (part of SNA), which makes it possible to trace the dynamics of the redistribution of financial wealth (Mihaylova, 2004, 2006)].

This article has two major goals – one empirical and one theoretical. Our empirical goal is to analyse the dynamics of the financial wealth of the institutional sectors in Bulgaria in the period 1998-2005, to identify the major net creditors and net debtors and to carry out econometric examination of the key factors in the dynamics of the sectoral financial wealth. The empirical results are given in Part 3. Our theoretical task is to prove the hypothesis (which is largely confirmed by the empirical results) about the functional relation between the dynamics of redistribution and the change of the monetary regime. This is given in Part 2 and is discussed in Part 4.

## **II. Evolution of the financial wealth in Bulgaria and the monetary regime (1989-2005): The hypothesis**

As we mentioned above the financial crisis and the introduction of the CB (which replaced the discretionary central bank) divide the post-communist history of Bulgaria into two sub-periods of opposite economic policy models. The first period extends from 1989 to mid 1997, the second – from mid 1997 to date.

We will not go into chronological details. The reader can study the overviews on the Bulgarian transition by Dobrinsky (2000), Berlemann and Nenovsky (2004), Mihov (1999), Miller and Petranov (2001), Vucheva (2001), Minasyan (2002), and Ignatiev (2005). We will instead outline the major features and the driving factors behind the two economic models in the light of redistribution<sup>5</sup>.

In brief, Period 1 could be defined from the perspective of redistribution as a period of total domination of the debtor group over the creditor group. The group of debtors was heterogeneous and comprised mainly representatives of the state and the political class, the subsidised public enterprises and refinanced banks, some *crony* private banks and enterprises, and a number of "bandit" economic formations. The central bank was also part of this coalition and undoubtedly serviced (whether

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<sup>5</sup> An original empirical attempt to capture the redistribution effects of the financial crisis (in a cross-section by social and ethnical status, gender, age and region) is made by Adams-Kane and Lim (2005).

purposefully or not) the various debtors' interests. *De jure* it was an independent institution, yet in practice it turned into a transmission mechanism of wealth to the benefit of the debtors. Being on top of the financial pyramid, the central bank systematically (once again, wilfully or not) was compelled to monetise the losses incurred by the enterprises, the government and the banking sector. Money was needed by all – the enterprises and the banks had accumulated a great amount of bad debts, and the government, too, with the domestic debt and deficit assuming threatening proportions (Table 1).

The mechanisms of this monetisation in Bulgarian case are nothing original and are studied by Berlemann and Nenovsky (2004)<sup>6</sup>. The great number of monetary policy instruments (especially the uncollateralized refinancing), the exchange rate policy, etc. were entirely in favour of certain groups of actors related as a whole with the coalition of debtors. The LOLR function, which is as a rule used only in extreme situations, was employed all the time<sup>7</sup> without even making any attempts to differentiate liquidity from solvency problems faced by the banks. The households were the main creditors and those that suffered most from the redistribution mechanism of scale. Since consumer lending was almost undeveloped, the households were net savers and their savings (in the form of deposits and government securities) systematically depreciated. At the same time, the foreign creditors of the country were concerned about the servicing of the external debt because of the diminishing foreign reserves (see Table 1). Thus, the financial crisis came as a logical outcome manifested mainly in hyperinflation, bank failures and the public finance crisis. The hyperinflation depreciated the debts and liabilities of the coalition of debtors (mainly the government), as well as the assets of the major domestic creditors – the households. The trajectory of the crisis led to the replacement of the discredited inflationary and discretionary central bank by a restrictive CB (the currency board was introduced on July 1, 1997)<sup>8</sup>.

The new regime gives more security to foreign creditors and in principle stops the mechanisms of monetisation of losses across the sectors of the economy. Having lost their savings in the hyperinflation the households relied mainly on positive real interest rates to protect the purchasing power of their assets. The mechanics of the CB

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<sup>6</sup> About the financial crisis see also Balyozov (1999).

<sup>7</sup> Berlemann and Nenovsky (2004) speak of a Lender of *first* resort.

<sup>8</sup> For more details on the peculiarities of CB operation see Nenovsky and Hristov (2002), and Miller (1999).

leads to accumulation of foreign reserves, which back up the external debt payments. Today, the CB in Bulgaria is a restrictive regime and the LOLR functions are only possible under specific and strictly defined circumstances. Clearly, the Central Bank under a CB arrangement firmly upholds the creditors' coalition. It is not by chance, justified or not, that throughout the life of the CB the representatives of the debtors' group blame it for holding back the real economy, appreciating the lev, i.e. reducing the competitiveness of exports, etc.

The theoretical idea about the change of the monetary regime as a result of the power change between the different groups of creditors (in the case of Bulgaria internal and external) and debtors is stated by Nenovsky and Rizopoulos (2003), where an attempt is made to illustrate it, and in Nenovsky and Rizopoulos (2004) a possible empirical methodology is presented, which allows qualitative estimations. The hypothesis, which we are going to present is partially based on the above two studies; however, here it is formulated in a somewhat different way. It is as follows:

**The hypothesis:** The CB introduction is an institutional change of the monetary regime, which leads to increasing the role of the creditors (mostly external creditors) at the expense of debtors. Debtors dominated in the preceding period of a discretionary central bank. Over time, however, the CB effect, i.e. its marginal effectiveness as a protector of external creditors decreases and consumer lending expands (the households turn more and more into debtors, although their net financial position is preserved). The decreasing role of the CB is increasingly compensated by the fiscal policy of the government, which becomes a net saver (roughly speaking from a net debtor it turns into net saver). More than that, there is an internal inherent mechanism which leads to a certain cyclicness in the positions of creditors and debtors. To a large extent the monetary regime itself is part of this *endogenous change*. [For instance, through the "credibility effect" CB creates incentives for consumer and housing lending to grow. Indeed, in Bulgaria the turn of lending to growth could be noticed only in the fifth year from the CB introduction, which is extremely slow compared to the experience of other countries under a CB arrangement and a fixed exchange rate (see Rebelo and Vegh, 1996)].

### **III. Empirical studies of the financial wealth (1998-2005)**

As we already stated the CB changed the redistribution process and the relations between creditors and debtors in favour of creditors. How does this dependency evolve over time and what does this evolution depend on are important questions, which could be partially answered by tracking the change in the financial wealth of economic agents, i.e. their net financial position and the structure of their financial assets and liabilities, which are determining in the classification of economic agents as debtors or creditors. The schematic presentation of the change in financial wealth of the institutional sectors and the interaction among them in the redistribution process is presented in annex (for 1998 and 2005). The empirical inquiry of the change in the financial wealth of the institutional sectors and the change in the trends is made on the basis of the empirical results obtained from the constructed financial accounts according to the methodology proposed in the study of Mihaylova (2004; 2006)<sup>9</sup>.

#### **Net wealth of the main sectors (agents)**

So, once again: the major economic agents in the Bulgarian economy are the households, the non-financial enterprises, the government and the financial enterprises (financial sector). Foreign creditors also play a leading part in the Bulgarian economy, especially before the introduction of the CB. The interests of the international institutions and organizations are crucial for the processes of redistribution in a small and open economy like Bulgaria as they provide financial resources for countervailing imbalances and disequilibria. Although the role of external creditors has been gradually diminishing over the recent years, they still continue to have an important role in the relationship between creditors and debtors.

*The households* are the major internal creditors and they remain to be creditors after the introduction of the CB. Immediately after the crisis their net financial position continuously grows, i.e. the net households' financial wealth increases. The high economic growth in the last years, the macroeconomic stability, and the restored confidence in the

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<sup>9</sup> Annual financial accounts in Bulgaria start to be published in 2005 and to date there are financial accounts covering only a short period (2001-2004); therefore the data can not be used as yet for analysis of longer periods. Besides, quarterly data have not been prepared so far, which requires that the methodology of these studies be used largely in line with the requirements and recommendations of ESA and SNA.



financial system are the factors determining this increase. The financial wealth of the households increases at a higher rate until 2001, followed by a slowdown and more moderate rates of growth (Chart 1). This slowdown could be interpreted with the exhausting role of the monetary regime change for the financial wealth increase of the households due to the possibilities for realising additional benefits from the macroeconomic environment stabilisation and the ensured relatively predictable conditions. One more incentive for the further increase in the population welfare comes less from the positive expectations for stability than from the policy to increase the incomes for the households and possibilities for increasing savings in the form of financial instruments. The dynamics of acquired financial assets and financial wealth, respectively, follows the dynamics of salaries<sup>10</sup>, which is used as a measurement of the increase of incomes for the households. The sector' income increase leads to more investments in financial assets<sup>11</sup>, but a unit income growth triggers a smaller increase in financial wealth, which is associated with a smaller propensity to save<sup>12</sup> and a growing portion of income used for consumption.

### **Chart 1: Dynamics of the households' financial assets and**

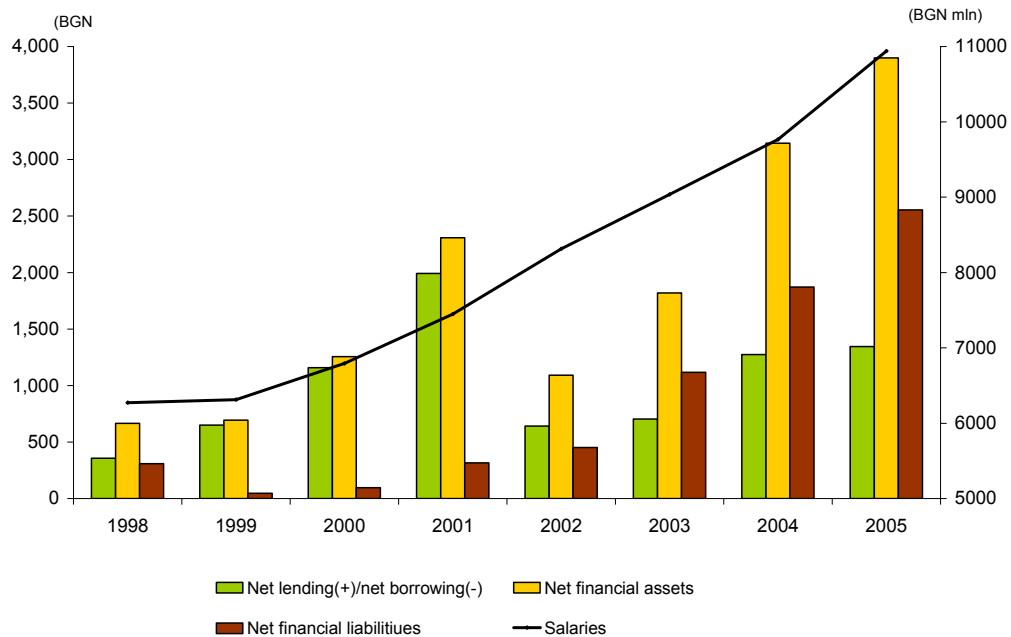
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<sup>10</sup> The data source for wages and salaries is the account “*Income formation*” by economic sectors. The salaries do not include social contributions.

<sup>11</sup> The increase of investments in financial assets is higher than the increase of incomes in the form of salaries.

<sup>12</sup> Investments in real assets should also be taken into account; however, as the accounts by sector published by the NSI do not show any significant change, this conclusion could be drawn based on the **real** assets acquired by the households. Gross fixed capital formation of households amounts to BGN 217, 215 and 280 million for 2002, 2003 and 2004, respectively.

## financial liabilities (1998 - 2005)



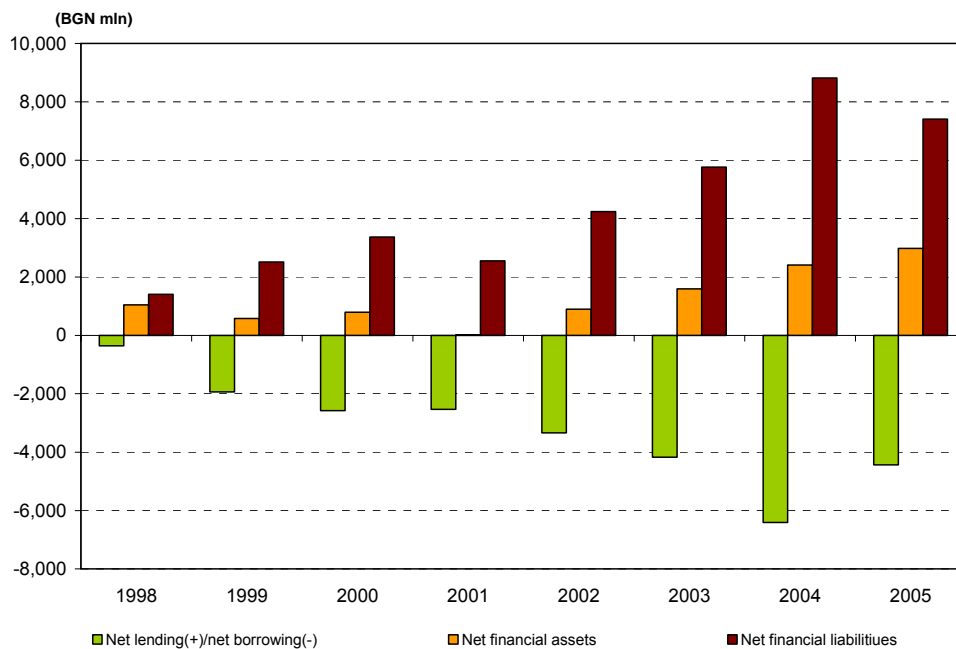
*Source: our estimations*

The slowdown in the financial wealth growth of the main internal creditors is due to the increasing importance of the households' borrowing funds. In the last three years the households have been increasingly orientated to financing their purchases of houses and consumption expenditures by additional lending.

*The non-financial enterprises* in the Bulgarian economy stand out as the main net borrowers (debtors). Over the period analysed their net financial position declines with the exception of 2005 when a slowdown of the credit growth to the non-financial enterprises is observed as a result of the restrictive measures applied by the Central bank. What strikes an impression during the first years of the CB introduction is the almost permanent change in the net financial wealth of the real sector enterprises (Chart 2). This suggests that the change of monetary regime does not lead immediately to any significant change in the behaviour of debtors and no considerable redistribution of wealth is induced because of the CB introduction. This may serve as evidence of our proposition that the change of monetary regime is in the interest of creditors, and not of debtors. The non-financial enterprises start to deteriorate their net financial position more significantly after 2002 when the grounds of the market mechanisms have already been laid and macroeconomic

stability and confidence in the institutions and the economy as a whole has been achieved. The predictable and stable macroeconomic environment ensures conditions for the enterprises to expand and finance their activities with borrowed funds not only from internal but also from external sources.

**Chart 2: Change in financial assets and liabilities of the non-financial enterprises (1998-2005)**

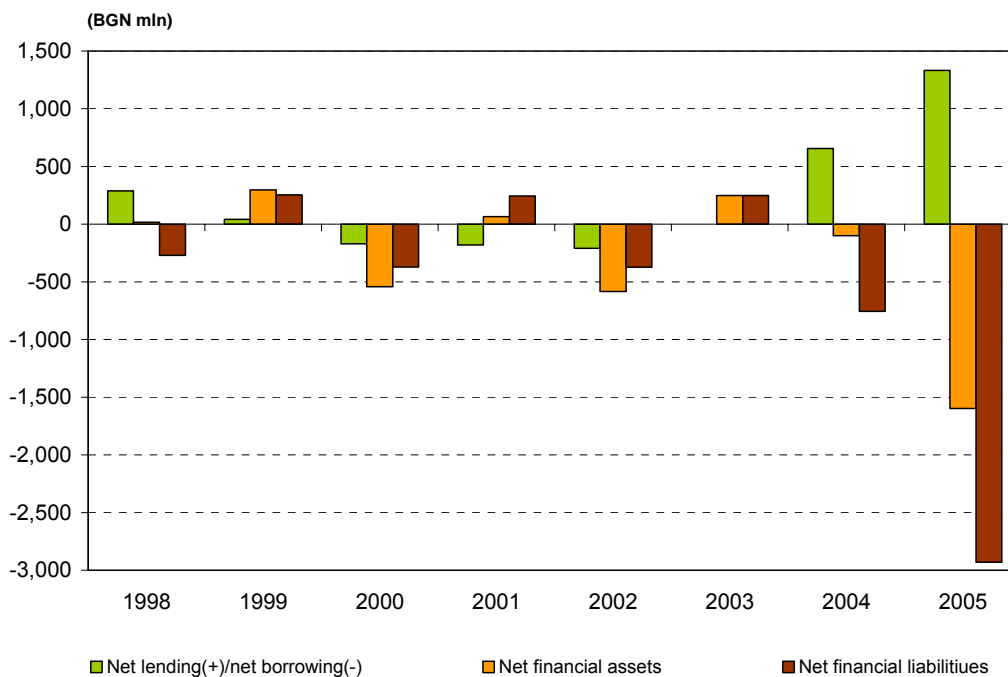


*Source: our estimations*

While the households and non-financial enterprises in the analysed period can indisputably be classified as creditors, or debtors respectively, it is hard to assign *the Government sector* to any of these categories. Before 2002 it behaves as a net debtor, and afterwards as net creditor for the Bulgarian economy (i.e. this sector “changed its financial positions”). The CB introduction is combined with the elimination of the “soft budget constraints” and the introduction of the so-called “hard budget constraints”, which is expressed in tightening the fiscal policy, discontinuing the uncontrollable financing of the government by the central bank and transferring the losses of the real sector to the banking system. These new rules lead to imposition of the rigorous fiscal policy which contributes to the improvement of the sector’ net financial position and realisation of budget surpluses. Because of the enhanced role of the fiscal policy and the gradual decrease in the role of the monetary policy in resolving external economic imbalances (current account deficits) it

could be supposed that the marginal utility (discipline and credibility) of the CB gradually decreases.

**Chart 3: Net financial position of the government sector (1998-2005)**



*Source: our estimations*

When examining the behaviour of the *banking system* it can not be concluded that a certain group of commercial banks are net creditors or net debtors based on whether these are private or state banks, respectively whether they service private or state enterprises, something that could be seen in the period before the introduction of the CB (Nenovsky, Rizopoulos 2003; 2004). The market mechanisms, the competition, the strict rules imposed by CB do not allow any formal dependence of the commercial banks on the other economic agents; therefore their role is mainly that of a financial intermediary.

### **Modelling the behaviour of the main sectors (agents)**

Measuring the financial wealth of the institutional sectors is useful, but it does not give us sufficient information about the drivers of the financial flows. Modelling the behaviour of economic agents (in this case sectors) makes it possible to identify the factors

behind one or another of behaviour of these agents and accordingly to explain the reasons for their increasing or decreasing net financial position<sup>13</sup>.

The modelling of the *households' behaviour* in relation to the acquisition of financial assets or liabilities, respectively, indicates that the salary is among the key factors of the dynamics of the acquired financial assets in the household sector since the increase of disposable financial resources improves the possibility to save. This is confirmed by the econometric assessment (Table 2). In the structure of the change of financial assets held by the households after 1998 the deposits are more than 60% of the total change in financial assets (in 1998 they are 37.9%, and in 2005 – 69.9%)<sup>14</sup>. Therefore, it would be logical to expect that the total change in financial assets will depend on the interest rate on deposits. The econometric simulations indicate a positive dependence of the net change in financial assets on the interest rates on term deposits denominated in BGN. Contrary, the interest rate on government securities does not show any statistically significant dependence on the change in net financial assets, which is due to the relatively small share of securities in the households' assets. The exchange rate USD/BGN shows statistically significant negative relationship due to the fact that a higher exchange rate depreciates the local currency and the households acquire less lev denominated financial assets. It appears that inflation is not a determining factor for the behaviour of households in acquiring financial assets, which could be explained with the low levels of inflation after the CB introduction.

Regarding the incurrence of financial liabilities, the determining factors for the households are the interest rates on loans. Their reduction leads to an increase in the propensity to take new credits. Obligations grow also with the increase in incomes measured through salaries. It is established that households make their decisions to get a loan based on the incomes realised in a past period. The evaluated model included dummy variables to reflect the impact of credit restrictions on commercial banks imposed by the central bank.

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<sup>13</sup> The estimated period covers 1998 to 2005 by using quarterly data from the compiled financial accounts according the methodology mentioned above. We leave aside the problematics of the high level of aggregation in the institutional sectors. As we already pointed out we do not have statistical data about the *other* type of actors.

<sup>14</sup> In 1998 deposits account for a relatively small share in the total shift of acquired financial assets of the household sector due to the still low level of confidence in the financial system.

**Table 2: Models for the household sector behaviour in respect to acquired financial assets and incurred financial liabilities (1998-2005)**

Variables	$\Delta$ Net change in financial assets	$\Delta$ Net change in financial liabilities
$\Delta$ Wages	24.61 (3.31)	
DUMMY0401	1130.90 (4.46)	
Exchange rate, end of period	-434.76 (-2.67)	
Interest rates on time deposits in BGN	228.14 (2.34)	
$\Delta$ Net change in financial assets (-1)	-0.43 (-3.68)	
$\Delta$ Net change in financial assets (-2)	-0.60 (-5.51)	
$\Delta$ Wages (-2)		0.12 (1.78)
$\Delta$ Interest rates on long-term credits of the households		-54.20 (-2.81)
DUMMY 0205		-259.52 (-4.96)
DUMMY 0105		104.50 (2.14)
@SEAS(2)		66.22 (3.18)
R-squared	0.78	0.68
Adjusted R-squared	0.73	0.62
Durbin-Watson stat	2.11	2.00

*Comment: In the brackets the t-statistics of the explaining variables are given.*

The acquisition of financial assets by *non-financial enterprises* is influenced by similar factors (Table 3), such as those evaluated for the households. The dynamics of the acquired financial assets depends on the incomes earned by firms, which we measure with the dynamics of the gross operating surplus and the gross mixed income<sup>15</sup>. The interest rates on term deposits in BGN also indicate statistically significant “positive impact” on the dependent variable. Higher interest rates logically provide incentive to the enterprises to accumulate funds in the banking system (decisions are made by taking into account the

<sup>15</sup> More specific is the use of gross operating surplus; however, no separate quarterly data are published about the two indicators.

changes in the interest rates from the preceding period, as it takes time to adapt to the new interest conditions and to plan activities). Another major factor appears to be the USD/BGN exchange rate, which has a “negative impact”. The enterprises make their decisions based on their past behaviour; therefore the dependent variable is included with a lag of one in the evaluated equation and indicates statistically significant dependence.

It should be noted that in the first quarter of 2005 the commercial banks led a mass campaign to attract deposits with the purpose to increase the credit base and thus evade the regulations on restricting the credit growth in the country issued by the central bank. The credit restrictions led to a significant change in the dynamics of loans for the enterprises in 2005-year first and second quarter. Therefore the regressions include two dummy variables to assess the effect of these measures.

The enterprises take into account the related costs when they try to find financing resources. The model uses intermediate consumption as approximation for the costs. The higher costs entail higher funding, which explain the evaluated positive dependence. The ability of the enterprises to assume their obligations, measured through their performance is also favourably affected, but the firms make their decisions on the basis of their realised profits two quarters earlier. In practice, the enterprises need some time to decide whether or not to borrow from the banking system. This is explained with the need to take a decision on basis of the result from a past period, not on the basis of the current result, which in fact does not give a clear idea of whether the enterprise will be able to realise a similar result in the next period. This allows comparability with the results obtained in the subsequent periods.

Interest levels on euro denominated long-term loans are also statistically significant. In general, only interest rates on euro denominated loans are important since the long-term loans in euro are a major share of the total loans of the enterprises<sup>16</sup>. The reduced interest rates lead to higher credit demand. The inflation has no significant effect as was shown to the households.

**Table 3: Models for the non-financial enterprises behaviour in respect to acquired financial assets and incurred financial liabilities (1998-2005)**

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<sup>16</sup> At the end of 2005, 67% of the long-term credits of non-financial enterprises are in euro, while the long-term credits in the total credits of the enterprises are 67.8 %.

Variables	Net change in financial assets	Net change in financial liabilities
DUMMY0205		-4256.86 (-8.84)
DUMMY0105	3019.30 (7.81)	2419.05 (4.68)
Δ Gross operating surplus/gross mixed income	0.14 (2.03)	
Interest rates on time deposits in BGN (-1)	553.10 (3.27)	
Exchange rate, end of period	-751.27 (-2.71)	
Net change in financial assets (-1)	-0.41 (-4.46)	
Δ Intermediate consumption		0.40 (4.53)
Net change in financial liabilities (-1)		0.43 (4.65)
Δ Gross operating surplus/gross mixed income (-2)		0.75 (5.17)
Δ Interest rates on long-term credits in euro		-106.6 (-1.69)
Net change in financial liabilities (-2)		0.50 (6.58)
R-squared	0.81	0.86
Adjusted R-squared	0.77	0.82
Durbin-Watson stat	1.41	2.28

*Comment: In the brackets the t-statistics of the explaining variables are given.*

The dynamics of financial assets and liabilities of sector *General Government* is determined by the specifics of the CB arrangement in the country, due to the fact that the actions of the government have an impact the amount of the foreign reserves and the government's deposit with Issue Department at the BNB<sup>17</sup> respectively. For that reason the foreign reserves are included as an explanatory variable in the model of the change in the financial assets of the General Government, of which deposits are an essential part<sup>18</sup>.

<sup>17</sup> About details concerning the specifics of the CB in Bulgaria see Nenovsky and Hristov (2002), Petranov and Miller (2001)

<sup>18</sup> The increase in foreign reserves leads not only to the increase in reserve funds, but also to the increase in government's deposit. This is due to the specifics of the Bulgarian CB its automatic mechanism is disrupted (Nenovsky, Hristov (2002)). One other important part of the government securities is the foreign government securities, which are kept as collateral on the issued Brady bonds. During the analyzed period a



The government uses the fiscal reserve for the external and internal debt payments, and as a result any increase in interest rates reduces the deposit of the government and leads accordingly to a decline in the change of the government's financial assets (Table 4). Deposits also depend on the government's consumption measured by the collective consumption and the final consumption expenditure. Any increase in the relevant consumption expenditure should reduce the corresponding deposits of the government, as it is supported by the evaluated statistically significant coefficient.

The change in the financial liabilities of the General Government is explained by means of breaking down the financial instruments by type – loans and securities. This is on the assumption that loans depend on the interests of international institutions and creditors more than securities do. The government has the leading and active role for securities (due to the difference in the procedure of borrowing of funds through securities).

The borrowing of funds by means of issuing securities largely depends on the macroeconomic situation; therefore indicators characterizing the country's economic environment are used. For that purpose, the GDP growth, inflation and direct foreign investments are taken into account. All indicators show positive dependence on the change in the securities. In a situation of stability and good indicators of macroeconomic development external creditors have higher incentive to invest their funds in another country and thus increase the acquisition of government securities. The six-month LIBOR also affects the issuance of debt, because an increase of the interest rate abroad increases the costs for the issuer and accordingly the government refrains from issuing the new government securities<sup>19</sup>.

Credits are related to the change in external debt in their loan component. The factors causing credit dynamics should again be associated with the stability and development of the Bulgarian economy. Similarly to the securities, an attempt has been made to evaluate the dependable variable, however with unsatisfactory results. The dynamics of the variable does not depend on certain factors but could rather be explained with a certain policy pursued by those in power. This is also linked with the interests of international institutions in extending targeted loans for the development of specific areas, for structural reforms in the period of transition, etc.

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reduction of this financial asset is observed as a result of the actions undertaken by the government for the restructuring of the debt in 2002 and its redemption in the last years of the analyzed period.

<sup>19</sup> Interest payments on Bulgarian Brady bonds are determined based on the six-month LIBOR.

The factors included in the regressions to explain the dynamics of credits are: inflation, GDP, and direct foreign investments in the country. However, all these indicate bad statistical characteristics and are therefore excluded from the presented results. The only variable with a significant coefficient is the government's balance<sup>20</sup>. When the surplus increases (respectively the deficit decreases) the need of additional loans falls (i.e. the functional relation should be negative). The coefficient of the independent variable with a lag of three in the evaluated equation for credits is negative, which confirms the expected dependence. The lag of the independent variable relates to the government need to take a decision (some time after deficits/surpluses have been realized) for the way of deficit financing, respectively the way of utilizing the realized surplus. In case of additional financing need arises, the government to have a time to settle the interrelations with the respective external creditor by means of loans.

**Table 3: Models for the General government sector behaviour in respect to acquired financial assets and incurred financial liabilities (1998-2005)**

<b>Variables</b>	<b>Net change in financial assets</b>	<b>Change in securities (liabilities)</b>	<b>Change in loans (liabilities)</b>
DUMMY0105	-1510.97 (-4.9)		
Change in securities (liabilities)(-1)		0.51 (3.36)	
Δ Foreign direct investments in Bulgaria(-1)		0.09 (3.32)	
Δ Inflation (-1)		0.44 (2.04)	
Δ LIBOR (six months) (-1)		-64.78 (-1.78)	
Δ GDP(-1)		0.02 (1.60)	
@SEAS(1)		-186.98 (-4.45)	
Δ Budget surplus/deficit(-3)			-0.2 (-2.37)
Change in loans (liabilities)(-3)			0.2 (1.54)
@SEAS(3)			-221.3 (-2.58)
Δ Government consumption	-0.99		

<sup>20</sup> Measured by the difference between the total incomes and total expenditure of the government in the consolidated fiscal program, i.e. this is the deficit or surplus of the government, which is not exactly equal to the net lending/net borrowing.

	(-4.50)		
Δ Interest rates payments	-1.10		
	(-4.32)		
@SEAS(4)	-325.82		
	(-2.44)		
Δ International reserves	0.39		
	(3.73)		
<hr/>			
R-squared	0.75	0.52	0.27
Adjusted R-squared	0.71	0.41	0.22
Durbin-Watson stat	2.12	1.88	1.91
<hr/>			

*Comment: In the brackets the t-statistics of the explaining variables are given.*

Despite the limitations of the econometric tests, the results provide some information, which can be used to discuss the presented theoretical hypothesis.

#### **IV. Discussion**

The empirical analysis of the financial wealth across the institutional sectors outlines some major trends.

*The households* continue to be the main net creditors in the Bulgarian economy in the period 1998-2005 in spite of the slowdown of the rates in financial wealth growth. This slowdown could be interpreted with the exhausting role of the monetary regime change for the increase of the financial wealth of the households due to the possibilities of realizing additional benefits from stabilizing the macroeconomic environment and ensuring relatively predictable conditions. The decreasing role of the monetary regime starts to be compensated partially through the fiscal policy, which after 2002 is strongly restrictive. In turn it leads to the transformation of the government from net debtor to net creditor in the economy. These conclusions support the hypothesis of the diminishing marginal utility of the currency board (the monetary regime) and the increasing marginal utility of the fiscal policy (see Chart 4).

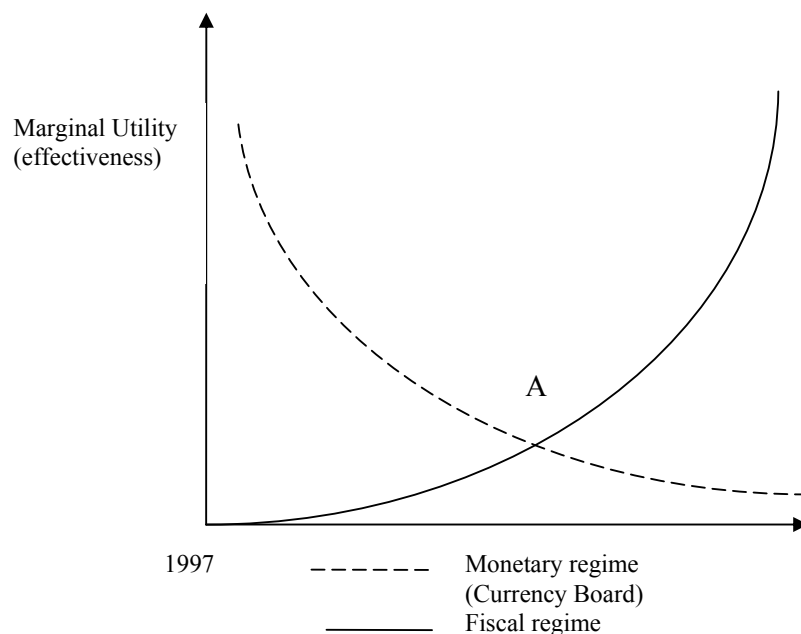
*The government* turns into a creditor in the last years of the analysed period by starting a policy of reducing the external debt (which is in unison with the fulfilment of the Maastricht criteria for euro area membership). This policy leads to reducing the role of the external creditors, i.e. the government sector to some extent frees itself from the external creditors and becomes more dependent on the internal creditors. It should be underlined, however, that the government's relieving itself from the burden of the strong dependency on foreign investors and the policy of curbing credit growth in the Bulgarian economy in

late 2004 and early 2005 led to distortion of market mechanisms and to increasing reliance of the non-financial enterprises on the rest of the world. In other words, the CB in essence enhances the role of the internal and external creditors, contrary to the role of debtors, who were determining with their interests and power in the period before the change of the monetary regime. This also confirms our hypothesis that the CB introduction leads to the enhancing role of creditors at the expense of debtors. There are reasons to maintain that the declining effectiveness of the CB as a regime protecting mainly the interests of creditors is compensated more and more by the fiscal policy which partially takes over its role (after point A, Chart 4, the roles of the CB and the fiscal policy change)<sup>21</sup>.

#### **Chart 4: Marginal utility (effectiveness) of the CB and the fiscal policy**

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<sup>21</sup> One of the first to draw conceptually the attention to the importance of studying the marginal utility (effectiveness) of the CB was Georgy Chobanov (2005).



In the period after the CB introduction a change is observed with regard to the significance of some factors, which were determining for the economic agents' behaviour. Over this period it is established that inflation is not determinative of the behaviour of households, non-financial enterprises and the government sector. The reason for this is achieving low and predictable levels of inflation in the years after the monetary regime change. Before the CB introduction it is considered as the leading factors, which determine the acquisition of financial assets or real assets. The exchange rate, on the other hand, still retains its significance for the change in the financial assets of the households and enterprises, but it could be expected that its role will diminish in the future. The importance of the exchange rate still relates to the need for some time to pass in order for the economic agents to reorient and link to the euro (as a result of Bulgaria's membership in the EU). The factors that determine the behaviour of households and non-financial enterprises are mainly incomes measured respectively with the wages and salaries and the firms' realized result (gross operating surplus and gross mixed income). The increase of incomes of these economic agents increases their financial wealth.

Thus, there are reasons to maintain that the change of the monetary regime is not only caused by significant disproportions in the balance of power between debtors and creditors, but the CB itself also impacts the dynamics of the financial wealth of the main creditor and debtor sectors. It could be presumed that with time there is internal, endogenous (cyclic) dynamics within the relation "monetary regime – distribution of

financial wealth”, which leads to transformation (reversal) of the “financial roles” of the major institutional sectors. This reversal, of course not always complete, leads to reducing the marginal utility of the CB from the perspective of the leading actors, and which in order not to result in collapse could be compensated through alternative institutional behaviours (in this case by means of restrictive fiscal policy that leads to financial surplus in the public sector, point A of Chart 4).

The above ideas are presented in most general terms; the specific mechanisms of the presented endogenous dynamics need be studied in detail.

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

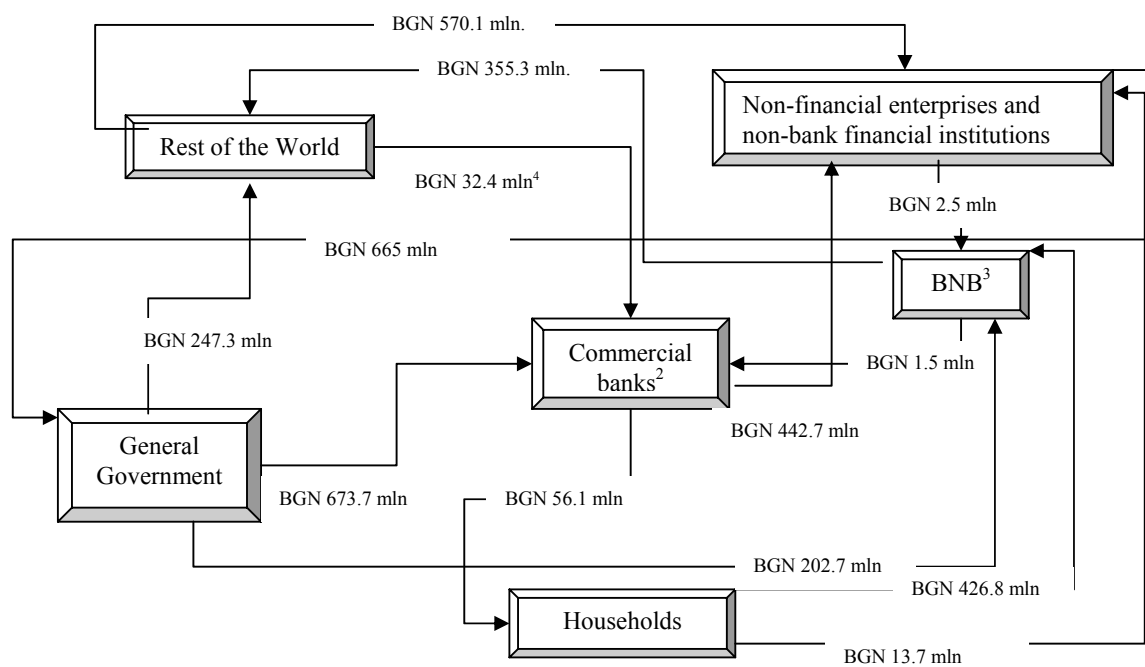
**Table 1 Main focal variable (1994-2001)**

	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 <i>Brady bonds</i>	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	2571
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,  $1 + r = \frac{1 + i}{1 + \pi}$ , where r - real rate, i – nominal rate and  $\pi$  – inflation.

## Annex – Redistribution of the financial wealth of the economic agents in the Bulgarian economy in 1998 and 2005



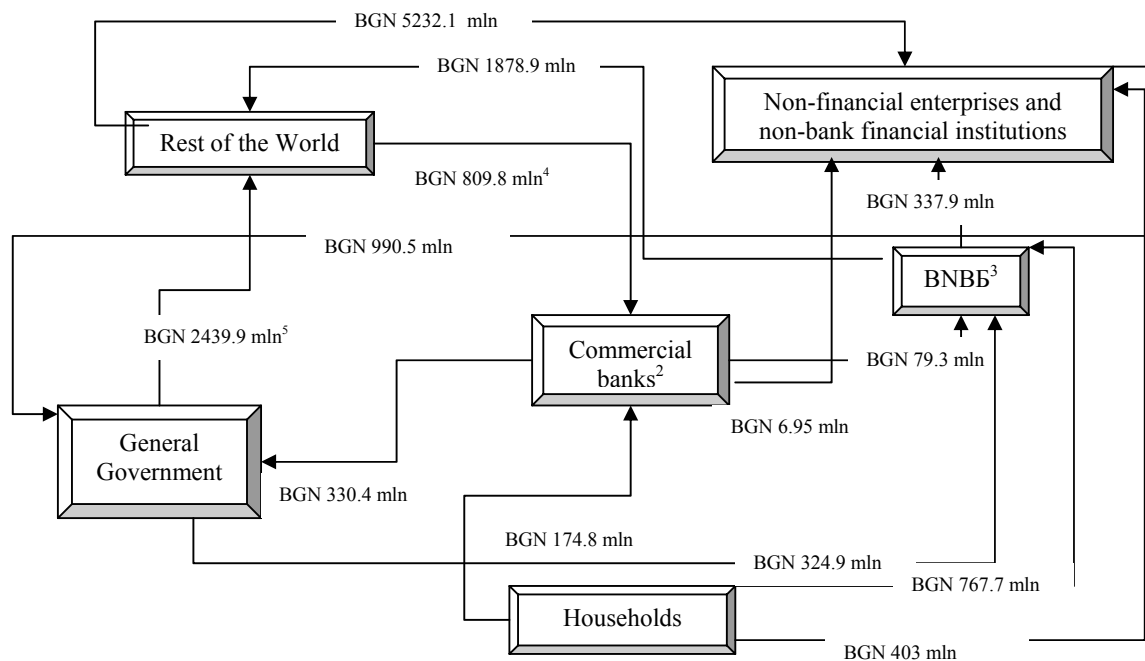
1 The financial flows are accounted according to the statistics of the respective sector.

2 Net lending/net borrowing of the commercial banks could be received after adding of the non-classified assets and liabilities from the monetary statistic.

3 Net lending/net borrowing of the BNB could be received after adding of the non-classified assets and liabilities from the monetary statistic.

4 The financial flow is accounted according to the monetary statistic.

5 The financial flow is accounted according to the consolidated fiscal program.



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