BULGARIAN NATIONAL BANK

DISCUSSION PAPERS

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The First Year of the Currency Board in Bulgaria

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Publications

Dear readers,

This is the first book of a new series of publications of the Bulgarian National Bank entitled "Discussion Papers".

The series continues an old tradition of the Bulgarian National Bank to provide a forum for the discussion of different views and opinions on theoretical and practical aspects of the Bulgarian economy. It is an attempt to develop in a new form the foundations laid with BNB earlier publications, that is "BNB Journal", "BNB Financial Research", "Money and Credit" and "Bank Review", which have played a key role in the intellectual public debate on major challenges facing the Bulgarian economy.

The Discussion Papers series is aimed at presenting in-depth analysis of professional interest in the area of finance. Typical topics include BNB and other central bank experience, supplemented by materials on commercial bank challenges, macroeconomic issues and cross-country comparative analysis of banking practice and finance.

No attempt is made here to guide public opinion in one direction or another, but rather to seek alternative solutions to the critical issues to Bulgaria's economic development.

Main criteria for selection of materials will be the importance and originality of discussed issues, even thought provocativeness of expressed opinions.

The series is open to authors from the BNB as well as to researchers from among all other professionals and the academic community.

We would appreciate your comments and recommendations.

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SUMMARY: THE MATERIAL IN THE TEXT EXAMINES THE STATE OF THE BULGARIAN ECONOMY ONE YEAR AFTER THE INTRODUCTION OF THE CURRENCY BOARD. IT COMPARES BULGARIA WITH OTHER COUNTRIES HAVING INTRODUCED THE CURRENCY BOARD RULE. ANALYSIS OF SPECIFIC ECONOMIC SECTORS' AND ECONOMIC AGENTS' REACTIONS TO THE NEW CONDITIONS IS MADE. THE PAPER THEN FOCUSES ON CHANGES EVOLVING IN THE BANKING SYSTEM. INDICATORS FOR CURRENCY BOARD STABILITY AND SYSTEMIC RISK CRITERIA ARE CONSTRUCTED. FINALLY, IT DISCUSSES IMMEDIATE AND POTENTIAL RISKS FOR THE CURRENCY BOARD AND ARRIVES AT CONCLUSIONS IN THIS RESPECT.

On 1 July 1997 Bulgaria introduced a new monetary system based on currency board principles. The BNB underwent one of the most profound institutional changes since establishment in 1879. The reasons for the adoption of a currency board have their roots in the unprecedented financial crisis in Bulgaria's new history. The country was pushed to hyperinflation and a dramatic devaluation of the national currency occurred. Bulgaria's foreign exchange reserves fell below the critical minimum which impeded normal service of the country's foreign debt. Domestic debt multiplied and its service absorbed the major part of budgetary expenditures. The public was seized by panic and almost a quarter of the banking system was liquidated. Under these conditions the BNB lost control over money supply and was unable to fulfill its primary function, i.e. maintaining the stability of the national currency. Monetary policy tools ceased to be effective. This led to the abandonment of discretionary monetary policy.

One year after currency board operation, financial stability is an undisputable fact. The substantial increase in foreign exchange reserves contributed to money supply stability. Demand for money resumed, coupled with remonetization of the economy. The rate of inflation fell

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dramatically. Currency substitution tended to decline, though high still. Tax collectibility improved and budget revenues rose which prompted a fast increase in fiscal reserves. With dramatically reduced interest rates the share of interest payments in total budget expenditures con tracted. Ultimately, as a result of the currency board operation, Bul garia succeeded in stabilizing its financial system over a relatively short period of time.

Table 1

CHANGES ONE YEAR SINCE CURRENCY BOARD INTRODUCTION

(%)

	Estonia	Argentina	Lithuania	Bulgaria
Inflation	117.1	27.5	43.1	18.9
Reserve money growth	312.4	76.1	42.0	86.8
M1 growth	238.0	124.8	33.6	152.1
Quasi money growth	83.6	74.1	71.9	18.8
M2 growth	16.7	89.7	48.7	49.8
M2 multiplier	71.7	7.7	4.7	19.4
Currency outside banks growth	531.5	107.0		156.0
Net foreign assets growth	112.7	34.2	3.5	132.8
Domestic credit growth	6.7	24.9	66.9	15.9
Growth in claims on government	50.0	4.3	32.5	65.1
Growth in claims on nongovernment sector	7.7	52.7	85.2	22.1
Decrease in interbank market interest rates (in points)	169		62.3	25.6

Source: BNB, IMF International Financial Statistics.

I. Real Sector

A crucial ingredient of stabilization programs based on a fixed ex change rate (including those based on a fixed exchange rate but not operating under the currency board rule) involves halting the nominal devaluation of the national currency to curb inflationary expectations. Adopted stabilization programs based on a fixed exchange rate are characterized by similar initial effects in terms of inflation levels. The latter converge slowly to the rate of nominal devaluation, and in the case of countries with currency boards to the inflation rate in the coun try whose currency is chosen as reserve.

Inflation values after currency board introduction in Bulgaria con

firm the assumption for a slow and gradual convergence of Bulgaria's inflation rate to the level of inflation in the country whose currency has been designated as reserve. Over the first three months following the adoption of the currency board inflation stood high. Initially high infla tion levels cannot be explained by the factors determining inflation in the period prior to the introduction of the currency board. Study on in flation between April 1991 and June 1997 on a monthly basis using the VAR model indicates that the main variables having bearing on infla tion dynamics in the period prior to the introduction of the currency board are the exchange rate (average monthly USD/BGL exchange rate), the inflation rate in the preceding period and the reserve money dynamics. The study indicates, decomposing inflation variance for the period preceding the introduction of the currency board, that 55.1% of inflation variance is accounted for by exchange rate variance, 26.6% by inflation itself, and 18.3% by reserve money variance. Concurrently, wages (average monthly wage in the public sector) do not affect infla tion dynamics during the period under review.

Exchange rate, reserve money and wage dynamics did not impact inflation dynamics in the period following the introduction of the cur rency board. In contrast to the period prior to the introduction of the currency board, in the period of currency board operation past infla tion figures had no bearing on current inflation levels.

In summary, relatively high inflation levels during the first months following the introduction of the currency board can be explained by **price rigidity**, particularly strong for goods and services produced and offered by monopolistic structures, whose prices are administratively set. It is a generally known fact that prices become more flexible, tend ing downwards, as credibility in the currency board grows (the case of Argentina is a telling example), expressed in economic agents' convic tion that the level of the fix will not be changed. Enhanced confidence in the currency board therefore contributes to greater price flexibility, with price changes already reflecting real sector changes (changes in the real variables of the economy), instead of monetary disturbances caused by central bank policy. Inflation dynamics in the last quarter of 1997 and the first half of 1998 confirm this relationship. Except for the first two months of 1998, when inflation stood relatively high due mainly to seasonal factors and increased government spending at end 1997, inflation moved within a range consistent with the country's cur rency board regime, reaching 2.3% by the end of the first half of 1998. Inflation expectations for the second half of 1998 are for sustained

price stability and one digit inflation at year end, which is well below the end 1997 forecast at 16%.

Measured by the number of registered unemployed at labor offices, a downward trend in unemployment evolved in the period following the introduction of the currency board, reaching 11.4% by end June 1998, against 14.2% immediately before currency board introduction. The downward trend in unemployment is atypical of countries with currency boards, as initial output growth is usually related to higher productivity rather than increased employment. The decline in unem ployment can be explained to a great extent by the methods used for its calculation. Measuring unemployment by the number of registered un employed at labor offices does not reflect unemployment dynamics be cause a great number of redundant people do not re enter labor offices when the period of compensation expires.

On the other hand, slow privatization and real sector restructuring helped prevent a rise in unemployment and conserved employment in the public sector. Privatization in the period following the introduction of the currency board is progressing at a much slower pace than antici pated. According to NSI data, the Agency for Privatization and sectoral ministries have concluded 82 transactions totaling BGL 23.8 billion[1]. In the first quarter of 1998 only 14 transactions of BGL 1.8 bil lion were concluded.

According to NSI surveys on the financial state of public sector en terprises since currency board introduction, the share of profit making enterprises shrank from 72% at end September 1997 to 60.3% by end June 1998. Depreciations reflected significantly on their financial re sults for the first quarter of 1998. Between January and June deprecia tions charged per BGL 100 in sales revenue after the fixed assets re valuation of end 1997 accounted for 7.58%, against 0.65% over the same period of 1997. This factor alone contributed to a BGL 240 bil lion increase in enterprises' costs.

[1] Figures reflect sales revenue in the extrabudgetary account under Article 6 of the Law on Restructuring and Privatization of State owned and Municipal Enterprises.

Table 2

FINANCIAL RESULTS OF PUBLIC SECTOR NONFINANCIAL ENTERPRISES

(billion BGL)

	1997		1998	
	30 Sep.	31 Dec.	31 March	30 June
Profit from main activity	1680	2256	302	572
Profit/losses from interest payments, valuation adjustments and other financial operations		784	85	33
Profit from other operations		265	2	49
Accounting profit		1207	219	487
Tax expenses	587	721	119	231
Profit	821	486	100	256

Source: NSI.

Falls in positive financial results of NSI surveyed enterprises are primarily attributable to a decrease in export sales. While in the first six months of 1997 the share of forex earnings in lev equivalent terms in six month sales was 36.1% due to higher exchange rates, in the first quarter of 1998 their share fell by 8 percentage points, i.e. after the in troduction of the currency board enterprises could rely less and less on generating profits from valuation adjustments and financial operations, so they should seek to increase their incomes from main activity. Of note is the fact that most of the privatized public sector enterprises were profit making, which explains the reduced share of enterprises with positive financial results.

An adverse trend emerged with the bulk of public sector profits generated from those sectors in which certain companies have a mo nopoly on the production of particular goods and services.

II. External Sector

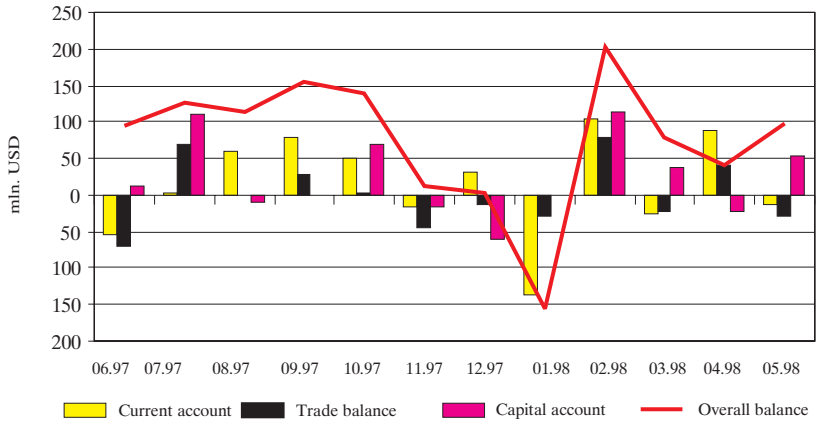
The adoption of the currency board raised the question of the nega tive effects the fixed level of the Bulgarian exchange rate might have on producers and exporters, and hence on the trade balance and cur rent account. Classical theory argues that real overvaluation of the na tional currency leads to reduced competitiveness and exports, while imported goods become relatively cheaper and more competitive than domestic goods. The trade balance deteriorates, most likely with a slight lag. Such a scenario for the development of foreign trade is

based on the assumption of already established competitive markets and internationally set market prices.

Beyond the scope of theory remains one special feature of the pro duction structures of small and open economies, i.e. the high propor tion of import components in export oriented output. This is typical of the Bulgarian economy, too. It suggests that real overvaluation of the lev would make imported raw materials and inputs relatively cheaper and thus enable producers to lower prices as their costs diminish. It also makes the arguments in favor of a nominal lev devaluation unsus tainable since lev devaluation would raise the cost of imported raw ma terials and inputs, in particular those with low elasticity of demand.

Chart 1

MAJOR BALANCE OF PAYMENTS COMPONENTS



Source: BNB.

Econometric tests prove this thesis for Bulgaria, while based on three month data it is still more valid. The typical relationship between exports and the real exchange rate can be established on the basis of monthly data. In the medium term, however, lev devaluation may lead to strongly reduced imports or higher prices of inelastic imports which, in turn, will result in lower output and higher production costs. In the medium term, exports are strongly dependent on unit labor costs and a fall in unit labor costs will bolster competitiveness.

The trade balance will benefit from lev devaluation not because ex ports will be boosted rather than because imports will be fast to adjust.

Therefore the *J curve*, showing the effects of the devaluation of the na tional currency on the balance of payments, is inverted. Theory postu lates that a devaluation of the national currency will result in initially worsened trade balance due to contracts concluded in the past. In ac tual fact, however, the *J curve* is produced as a result of the apprecia tion of the national currency. Moreover, the initial response will be a deterioration of the trade balance because demand for imported goods increases over a short period of time as the relative cost of imports de creases. At a later stage the shock from currency appreciation will re flect on improved trade balance because of lower production costs.

In a small and open economy exports depend on external demand and international prices. If the commodity structure of exports is not clearly differentiated, this dependence is even stronger. Moreover, even if the real effective exchange rate is not overvalued, a significant decline in exports may occur consistent with lower prices of particular goods in the international markets. As global economic conditions in recent **months were not beneficial for Bulgarian exports**, the real ef fective exchange rate had no impact on export developments. Real ef fective exchange rate fluctuation shrank to around 3% of its average value, while exports were far more dynamic. This suggests that exports have been influenced by changes in the relative prices of particular commodity groups.

The trade balance assumes major importance in view of the need to meet large interest payments on the country's foreign debt. Interest payments are determined not only by payments to official creditors, which are predictable, but also by capital account dynamics in general. So the relationship between net capital flows and net interest income needs to be explored. Payments on Brady bonds are subtracted from net interest income and privatization proceeds are deducted from net capital flows. The purpose of this study is to find whether the dynamics of net capital flows and net interest income are divergent, i.e. if they move into a 'vicious circle'. This effect is observed when the inflow of borrowed funds prompts an increase in interest payments in the follow ing years and external credits grow because of inability to repay them. As this process may get out of hand, the only way out of the vicious circle for Bulgaria will be to increase direct investment or boost exports (i.e. again by increasing direct investment).

The result of the study shows that changes in net interest income and net capital flows have a short lived effect, i.e. the vicious circle is ruled out. This result is obtained once the currency board is assumed

not only as a variable, but also as a factor modifying variables. This re lates to fact that under currency board arrangements the risk of invest ment in Bulgaria is lowered which, directly or indirectly, reflected on both interest payments and capital inflow.

As for the balance of payments and the need to finance it, this is a positive development as it becomes clear that capital flows and net in terest payments are relatively stable, moreover, each one balances in the long run.

A serious problem might emerge with long term stability guaran teed by narrowing the interest differential, consistent with movements in market interest rates inside and outside the country. Investors' moti vation may get distorted for a long period of time. This possibility may result not only from interest rate levels, but also from lack of confi dence that interest rates give a true picture of risk in the economy. Even though the average value of net capital flows is higher after cur rency board introduction, i.e. capital inflows have increased, net capital flows remain volatile still. This reflects the opposite effect of currency board introduction and the sharp fall in domestic interest rates. At mid 1997, once the political crisis was resolved and currency risk elimi nated, foreign investors' confidence was boosted, but only a month later the interest differential narrowed and short term capital outflow began.

No changes occurred in foreign trade in terms of commodity and geographic orientation after currency board introduction. To ensure ef ficient operation of the currency board, however, the current account and trade relations needed to be liberalized. As a result, trade became increasingly dependent on external factors: prices of imported raw ma terials, external demand, etc.

As in most transition economies, labor intensive industries devel oped faster, benefiting from low labor costs. Concurrently, energy in tensive industries lost their competitiveness once the state stopped sub sidizing them. For example, in 1996 the share of exported textiles, clothing and footwear accounted for less than 15% in the commodity structure of exports, ranking fifth. In 1997 the share of this commodity group rose to 16.2% with an almost 11% growth in value. Over the first five months of 1998 the textiles, leather materials, clothing and foot wear commodity group made up approximately 19% of total exports and its value grew steadily at 11.8%.

Reduced competitiveness of chemical products is related to the fact that they are very energy intensive. Additional factors are: uncom

pleted privatization process and insufficient flexibility in responding to adverse international prices, in particular those of natural gas. In 1997 exports of chemical products fell by 6.6% and by 24.7% since early 1998. While in 1996 their share in the commodity structure accounted for 20%, between January and May 1998 it was 17.6%.

The geographic orientation of exports is determined to a great ex tent by their commodity structure. Low unit labor costs enabled Bul garian producers to find a niche in the western European markets even selling some traditionally European Union goods. Exports to the Euro pean Union accounted for 39% of Bulgaria's total exports in 1996, while in 1997 they reached 43.3% and 50% over the first five months of 1998.

The introduction of the currency board had a direct impact on the country's import structure. Virtually stopped lending and subsidies to the real sector resulted in reduced imports of investment goods and fu els. Although imports of investment goods have recovered since early 1998, for some commodity groups (i.e. machines and equipment) this process is still under way. Import of fuels in 1997 fell by 11.6% on the previous year, and 21.6% in the first five months of 1998. The falls in value are due in part to lower prices of crude oil in the international markets.

Consumption growth is a process observed in all countries with fixed exchange rates. Major factor for this growth in Bulgaria, besides the real appreciation of the lev, is increased lending to households. Consumer credits, which rose BGL 35 40 billion on an average monthly basis, prompted a 4.6% growth in imported consumer goods in 1997, and 62.4% in the first five months of 1998.

Imports of raw materials are very closely tied to the supply of inputs for exporting industries. Thus textiles, chemicals and ores accounted for the largest share in imported raw materials, 23.4%, 14.8% and 10.4% respectively.

As the majority of growing industries operated under contracts for customer supplied materials in the past year, geographic structures of imports and exports display close similarity. The European Union ac counted for 44% in total Bulgaria's imports. This combined with prefer ential imports of investment goods (agricultural machines, medical equipment, etc.) from the European countries and other OECD coun tries (i.e. the USA). Given the energy intensive manufacturing industry, however, Russia and Ukraine remained major suppliers of energy re sources and their share in Bulgaria's imports accounted for about 26%.

Generally, Bulgaria takes part in the intersectoral trade of the Euro pean Union by exporting goods of low value added and importing goods of higher valued added, while its eastern trade orientation dis plays just the opposite characteristics.

III. Monetary Sector

1. Monetary Aggregates

Under currency board arrangements the BNB has no possibility of controlling the money supply. Budget deficit financing and commercial bank refinancing cease to be used as sources of increasing reserve money, and hence (through money multiplier) of broad money. There fore monetary aggregates growth is associated with higher real money demand and increased foreign exchange reserves.

The period since the introduction of the currency board is character ized by fast growth in currency outside banks as 'flight from the lev' was halted. Owing to a fall in money multiplier, reserve money growth, though lagging behind foreign exchange reserves[2], exceeded broad money growth. The velocity of currency in circulation decelerated. Money demand is gradually recovering from the financial crisis of early 1997. Developments in the real sector, which predetermine to a great ex tent the transaction motive for money demand, give no ground to as sume that a substantial increase in money demand may occur. Shocks may have changed economic agents' attitude to money. As a result, the relationship between GDP and monetary aggregates is being formed on new levels. Therefore comparison with previous years cannot be used as a starting point for analysis, much less as levels to replicate.

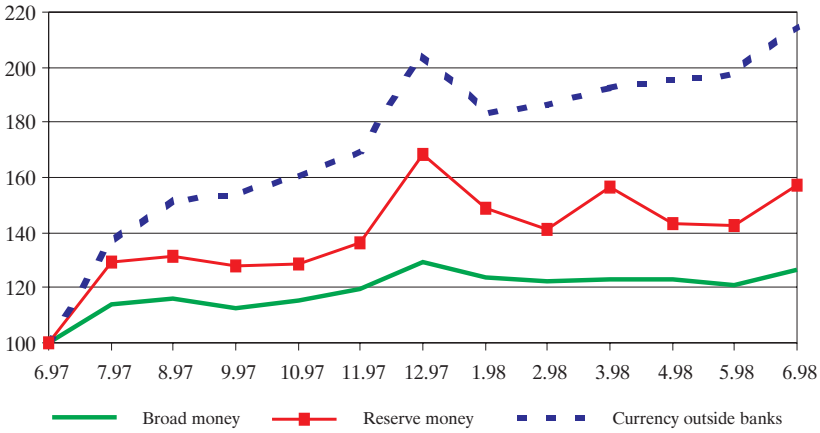
Broad money multiplier fell from 3.61 prior to the introduction of the currency board to 2.91 at end June 1998. This is primarily attribut able to economic agents' changed attitude to cash. The currency out side banks to deposits ratio rose from 16% to 30.6%. This suggests in directly that households' confidence in the banking system is still low. Regular sociological surveys also point to this.

Interest rates on deposits also affect the money multiplier. Other

[2] The currency board in Bulgaria is not of the genuine type, i.e. foreign exchange reserves do not affect directly the monetary base as they provide cover for government deposits. Thus growth in government deposits helps sterilize the effect of foreign exchange reserves growth. Over the first year since currency board introduction foreign exchange reserves have risen by 85.9%, reserve money by 86.8%, and government deposits by 94.2%.

Chart 2

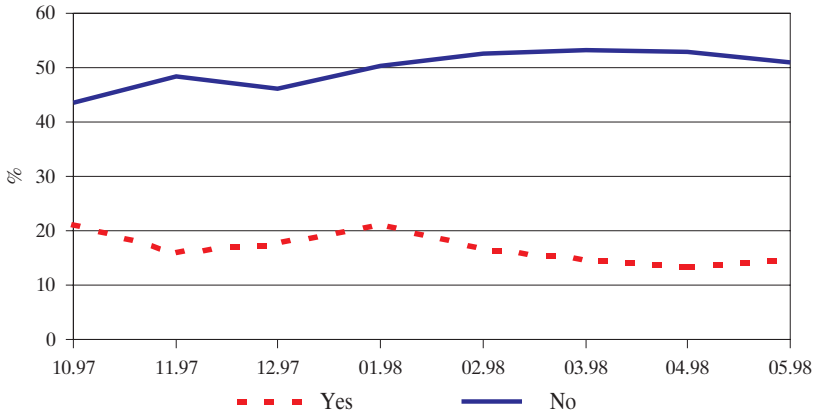
MONETARY AGGREGATES DYNAMICS IN REAL TERMS



Source: BNB.

Chart 3

CONFIDENCE IN THE BANKING SYSTEM



Source: BBSS Gallup.

conditions being equal, lower interest rate levels result in lower money multiplier and do not encourage saving. Econometric tests indicate that real deposit rates affect the currency outside banks to deposits ratio with a three month lag. An increase in real interest rates of unity will

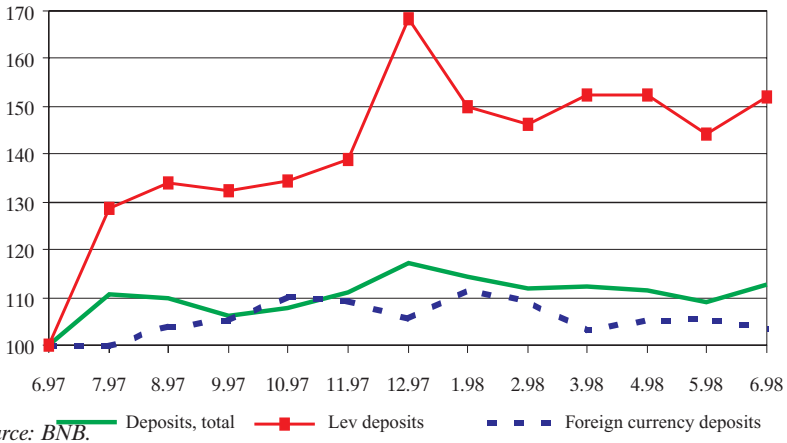
prompt a 0.022 decrease in the currency outside banks to deposits ra tio. Given a stable ratio of bank reserves to deposits, each percentage point growth in real deposits rates will increase the money multiplier by 0.103 in three months.

2. Deposits

High inflation and the severe financial crisis had an extremely ad verse effect on deposits. Lev deposits have virtually melted away. Com pared with end 1995, immediately before the introduction of the cur rency board they fell 88% in real terms! Relative to GDP, they fell from 41% to 13%. Foreign currency deposits fell by 40% over the same period and depositor withdrawals from the banking system amounted to USD 830 million. After the currency board introduction, particularly in the first two months of its operation, the deposit base was gradually restored. In real terms, lev deposits rose 52% in one year following currency board launch. Relative to GDP, however, they fell as consumption was recovering faster than deposits. Foreign currency deposits withdrawn before and at the time of the crisis have not yet re turned into the banking system. They rose by a mere 3.5% (USD 44.6 million), comprising less than 5% of depositor withdrawals.

Chart 4

DEPOSIT DEVELOPMENTS IN REAL TERMS



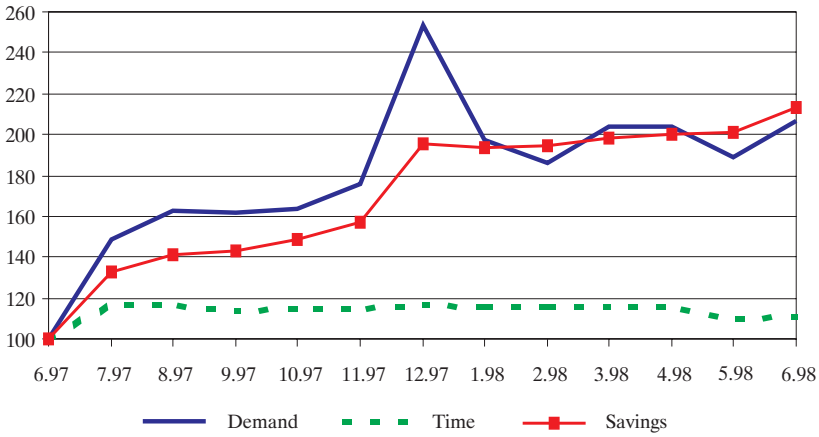
Source: BNB.

Deposits also displayed preference for higher liquidity: demand and

savings deposits rose faster due to slight difference in interest rates.

Chart 5

LEV DEPOSIT DEVELOPMENTS IN REAL TERMS BY MATURITY

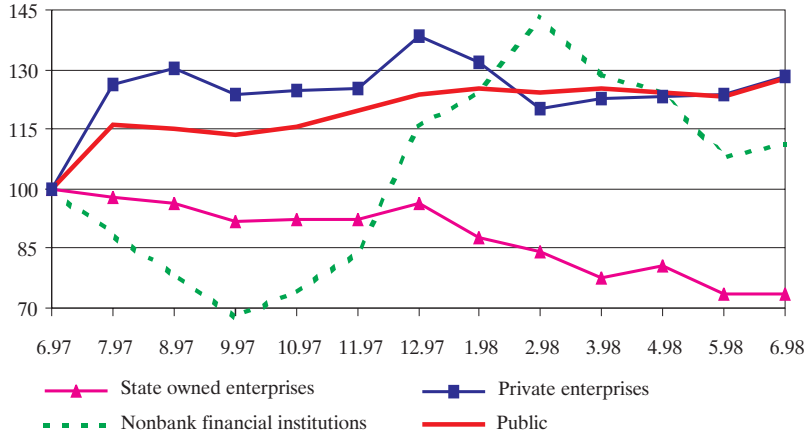


Source: BNB.

Of note is the dynamics of deposits by type of holder. The down ward trend in state owned enterprises' deposits was sustained due both to their volatile financial state and ongoing privatization processes. The public (which hold the majority of savings with over 55% of the deposit base) gradually increased their savings, but in early 1998 growth rates decelerated and even halted. Obviously, interest rates in combination with restrictive incomes policy have contributed to this. Nonbank fi nancial institutions' deposits varied the most, displaying no clear trend.

Chart 6

DEPOSIT DEVELOPMENTS IN REAL TERMS



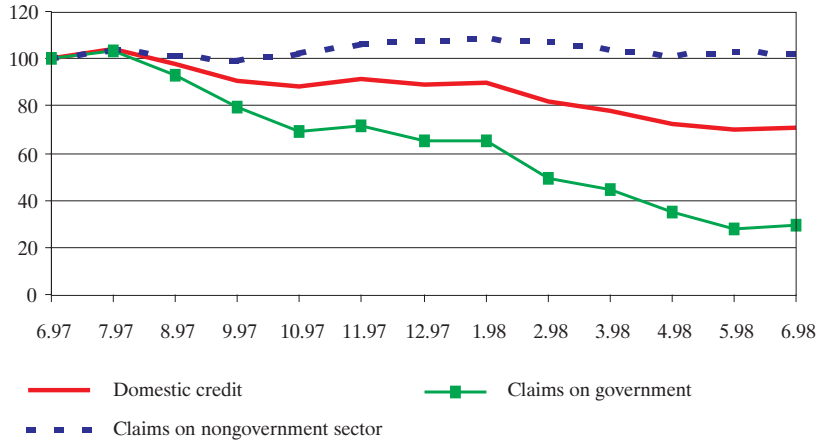
Source: BNB.

3. Credit Aggregates

Initially it was expected that credits would grow relatively fast after currency board introduction, consistent with a rapid fall in interest rates. Actually, this was not the case. Credits to nongovernment sector stagnated. Positive changes were limited to elimination of the 'crowd ing out effect'. The government's share of credits in domestic credit fell from 43.7% to 18.2%. In real terms, however, credits increased by a mere 2.7%. By comparison, over the same period under currency board operation Lithuania's credits rose 29% and 20% in Argentina.

Chart 7

DOMESTIC CREDIT DEVELOPMENTS IN REAL TERMS



Source: BNB.

Overall, credits to nongovernment sector rose by BGL 618.5 billion: credits to private enterprises and households rose nominally by BGL 278.9 billion and BGL 356.6 billion respectively, while credits to state owned companies and nonbank financial institutions fell by BGL 11 billion and BGL 6 billion respectively. Importantly, for the first time since the launch of economic reforms, households became a critical factor in domestic credit, i.e. from creditors they turned into borrowers. Credits to households both as a relative share and in nomi nal terms rose significantly, indicative of restored domestic consump tion. Concurrently, the share of credits to private sector, which is ex pected to be the propeller of economic growth, shrank from 61.6% to 58.6%. The share of credits to the real sector in GDP also fell: from 25% to 16%. Only 10% of credits were long term, i.e. investment cred its, the remainder provided in the form of working capital (87%) and house building credits (3%). Evolving trends might have adverse impli cations. The fixed exchange rate prevents the possibility of export driven growth. A fast growth in domestic demand is unlikely. The only source of economic growth in the medium term, therefore, will be in vestment demand which (for the time being) is dampened.

IV. Indicators of Currency Board Stability and Criteria for Systemic Risk

The currency board limits the possibilities of fast response to a sys temic crisis in the financial system. This entails the construction of a strict system of indicators to assess the state of the currency board and developments in monetary indicators.

An analysis of the financial system state should be based on the fun damental assumption that major problems stem from volatility and dramatic changes of variables and indicators rather than from their lev els. The analysis of their absolute levels gives a limited meaning to eco nomic processes[3].

Balance sheet indicators are based on selected coverage coefficients for individual items within the Issue and Banking Departments and on indicators from BNB weekly monetary statistics. Some of these have been used by countries operating under currency board arrangements or fixed exchange rates.

A careful analysis of the almost annual dynamics of weekly indica tors reveals some adverse trends.

Table 3

INDICATORS OF CURRENCY BOARD STABILITY

Week	MQ/R	M3/R	M1/R	M2/R	BD/R	BD/MQ	BD/M3	M0/(R Au)	M3lev/R	MQlev/R	BD/MQlev	BD/M3lev
1	1.015	1.422	0.327	1.343	0.178	0.176	0.125	0.550	0.580	0.230	0.780	0.310
2	1.023	1.458	0.364	1.387	0.171	0.168	0.118	0.604	0.650	0.230	0.740	0.270
3	1.003	1.443	0.368	1.371	0.162	0.161	0.112	0.572	0.650	0.260	0.620	0.250
4	1.051	1.531	0.409	1.460	0.173	0.164	0.113	0.710	0.690	0.270	0.640	0.250
5	0.943	1.394	0.385	1.329	0.229	0.243	0.164	0.542	0.650	0.250	0.930	0.350
6	0.957	1.432	0.410	1.367	0.226	0.236	0.158	0.552	0.680	0.250	0.920	0.330
7	0.943	1.415	0.410	1.352	0.228	0.242	0.161	0.542	0.680	0.250	0.910	0.340
8	0.975	1.479	0.437	1.412	0.227	0.233	0.154	0.562	0.710	0.260	0.880	0.320
9	0.920	1.398	0.415	1.335	0.220	0.239	0.157	0.533	0.680	0.250	0.880	0.320
10	0.899	1.375	0.412	1.311	0.249	0.276	0.181	0.523	0.670	0.240	1.020	0.370
11	0.905	1.390	0.423	1.327	0.250	0.276	0.180	0.529	0.690	0.240	1.020	0.360
12	0.892	1.366	0.416	1.307	0.247	0.277	0.181	0.502	0.670	0.250	1.000	0.370
13	0.856	1.316	0.403	1.259	0.235	0.275	0.179	0.494	0.650	0.240	0.990	0.360
14	0.854	1.326	0.415	1.269	0.237	0.277	0.179	0.506	0.660	0.240	1.000	0.360
15	0.852	1.338	0.429	1.281	0.233	0.273	0.174	0.514	0.680	0.240	0.980	0.340

[3] Upon the introduction of the currency board *three* groups of indicators on currency board stability were constructed: *balance sheet indicators, volatility of major macroeco nomic and monetary variables, and commercial bank consolidated balance sheet indicators* (Nenovsky, N., K. Hristov, BNB, 1997).

Week	MQ/R	M3/R	M1/R	M2/R	BD/R	BD/MQ	BD/M3	M0/(R Au)	M3lev/R	MQlev/R	BD/MQlev	BD/M3lev
16	0.864	1.347	0.424	1.288	0.237	0.274	0.176	0.489	0.680	0.240	0.980	0.350
17	0.859	1.343	0.426	1.285	0.233	0.271	0.174	0.496	0.680	0.240	0.980	0.340
18	0.827	1.280	0.397	1.225	0.225	0.272	0.176	0.471	0.640	0.230	0.970	0.350
19	0.833	1.316	0.426	1.259	0.170	0.204	0.129	0.488	0.670	0.230	0.730	0.250
20	0.835	1.310	0.417	1.252	0.169	0.202	0.129	0.493	0.660	0.230	0.720	0.250
21	0.822	1.296	0.416	1.239	0.167	0.203	0.129	0.481	0.660	0.230	0.730	0.250
22	0.820	1.298	0.413	1.233	0.164	0.200	0.127	0.486	0.660	0.230	0.720	0.250
23	0.818	1.321	0.437	1.255	0.163	0.199	0.123	0.510	0.680	0.230	0.720	0.240
24	0.824	1.342	0.455	1.279	0.129	0.157	0.096	0.537	0.700	0.230	0.560	0.180
25	0.825	1.405	0.516	1.342	0.133	0.161	0.094	0.583	0.770	0.240	0.560	0.170
26	0.804	1.398	0.532	1.336	0.130	0.162	0.093	0.594	0.790	0.240	0.550	0.160
27	0.874	1.410	0.474	1.348	0.131	0.150	0.093	0.555	0.740	0.250	0.530	0.180
28	0.873	1.416	0.482	1.355	0.134	0.153	0.094	0.567	0.750	0.250	0.530	0.180
29	0.827	1.341	0.456	1.283	0.127	0.153	0.095	0.531	0.710	0.240	0.530	0.180
30	0.835	1.350	0.457	1.291	0.127	0.152	0.094	0.505	0.710	0.240	0.530	0.180
31	0.800	1.296	0.436	1.236	0.126	0.158	0.098	0.484	0.690	0.230	0.540	0.180
32	0.764	1.254	0.428	1.193	0.122	0.159	0.097	0.477	0.670	0.220	0.540	0.180
33	0.753	1.253	0.436	1.189	0.122	0.162	0.098	0.488	0.680	0.220	0.540	0.180
34	0.806	1.344	0.466	1.272	0.128	0.159	0.095	0.512	0.720	0.240	0.540	0.180
35	0.798	1.339	0.465	1.262	0.128	0.160	0.095	0.503	0.720	0.240	0.540	0.180
36	0.757	1.283	0.454	1.211	0.125	0.166	0.098	0.502	0.710	0.230	0.550	0.180
37	0.743	1.278	0.463	1.206	0.124	0.167	0.097	0.511	0.710	0.230	0.540	0.170
38	0.745	1.267	0.453	1.198	0.126	0.169	0.099	0.488	0.700	0.230	0.550	0.180
39	0.750	1.264	0.445	1.194	0.127	0.169	0.100	0.487	0.690	0.230	0.560	0.180
40	0.743	1.260	0.448	1.191	0.126	0.169	0.100	0.470	0.690	0.230	0.550	0.180
41	0.742	1.260	0.449	1.191	0.126	0.170	0.100	0.492	0.700	0.230	0.550	0.180
42	0.756	1.280	0.453	1.210	0.126	0.166	0.098	0.504	0.700	0.230	0.540	0.180
43	0.702	1.192	0.425	1.127	0.177	0.252	0.148	0.432	0.660	0.210	0.840	0.270

Source: BNB, authors' estimates.

Table 4

VOLATILITY OF BALANCE-SHEET COVERAGE INDICATORS AND OF MAJOR MONETARY VARIABLES SINCE CURRENCY BOARD OPERATION

	MQ/R	M3/R	M1/R	M2/R	BD/R	BD/MQ	BD/M3	M0/(R-Au)	M3lev/R	Mqlev/R
Mean square deviation in % from period's average	10.05	5.29	8.48	5.5	27.47	23.52	26.2	9.03	5.23	4.84
	M0	M3	BIR	rate spread	m	BD	DG	R	BD/M3lev	BD/MQlev
Mean square deviation in % from period's average	11.87	9.04	17.06	15.53	4.36	23.34	48.64	11.53	29.97	25.96

Source: BNB, authors' estimates.

Indicators:
MQ quasi money;
M1 narrow monetary aggregate;
M0 reserve money;
M3 broad money;
MQlev quasi money lev component;
M3lev broad money lev component;
R foreign currency reserves of the Issue Department;
BD Banking Department deposit with the Issue Department;
AU monetary gold in Issue Department assets;
m money multiplier;
BIR base interest rate;
rate spread interest margin between deposit and lending rates;
DG government deposit with the Issue Department.

The ***MQ/R*** index (or G. Calvo index) indicates the extent of foreign exchange cover provided for that part of money supply which is easily convertible into cash (hence into the reserve currency). This indicator must be close to unity. When it is far above unity, there is greater risk associated with conversion service; when it is below unity, this is a sig nal of low confidence in the banking system and the national currency. The substantial fall in this indicator since early 1998 is indicative of **de monetization of the economy** due in part to low confidence in the banking system and low income on deposits. ***M3/R*** and ***M2/R*** display similar dynamics. The fact that ***M2*** and even broad money is backed by the reserves of the Issue Department is indicative of demonetization and setbacks in the banking system rather than stability.

The possibilities for refinancing are reduced to the amount of the Banking Department deposit ***BD*** with the Issue Department. Even though all indicators that can be used for manipulation, i.e. ***BD/M0***, ***BD/M1, BD/MQ, BD/M3, BD/R,*** and especially ***BD/MQ lev***, ***BD/M3 lev*** decrease, their volatility is more disturbing rather than their levels. As the table shows, these indicators too often move within the range be tween 24% and 30% which is assumed to be dangerous. Even though the Banking Department deposit pulses in line with the dynamics of the tranches disbursed by the IMF, this is of no importance the problem lies with the volatility of these indicators.

The government deposit with the Issue Department is extremely volatile (48.64%). Although such a dynamics is understandable, it causes concern[4]. In essence the availability of such deposit is not typi

cal of currency boards as it gives advantages of the public sector to the private sector because it is covered by the reserves of the Issue Depart ment which constitute public wealth. Movements in this deposit can be interpreted as an indicator of the government's monetary policy and provide a buffer between diminishing reserve money and growing for eign exchange reserves. Growth in this deposit constrains reserve money while its sharp fluctuation leads to more dramatic changes in re serve money.

V. The State of the Banking System

1. Changes in the Banking System

With the introduction of the currency board BNB functions of lender of last resort for banks and regulator of money supply were lim ited. Major monetary policy tools, i.e. open market operations and set ting of the base interest rate, were discontinued. Regulation of mini mum required reserves was the only tool left with the BNB.

Concurrently, the legislative framework was modified. A new Law on Banks was adopted, together with new regulations on liquidity, capi tal adequacy, classification and allocation of provisions, and on mini mum required reserves. The accounting law was amended.

As the level of the lev was fixed, the xchange rate became a less sig nificant factor in investment decisions. Setting of the base interest rate was tied to the yield on short term treasury bills to achieve better mar ketability reflecting the greater importance that interest assumes under exogenous money supply.

Commercial banks entered the new monetary system with a sizable positive financial result reported in early 1997, mostly from revaluation adjustments, which ensured adequate provisioning. Measures taken be fore the introduction of the currency board for isolation and liquida tion of insolvent banks had a discipline effect on the whole banking system. It is worth noting that banks rarely used permitted overdraft on their accounts with the BNB as they maintained substantial excess re serves through most of the year.

[4] A separate study based on econometric analysis (which is due out soon) reveals un equivocally that monetary dynamics as well as the dynamics of major behavioral indica tors result from this deposit's dynamics. An identical phenomenon of covert monetary policy through the budget has been in existence in the initial period of currency board operation in Hong Kong (Walters, A., 1989).

2. Interbank Money Market and Interbank Foreign Exchange Market

With the introduction of the currency board the BNB stopped participating in the money market. As a result, the volume of this market shrank considerably. Banks held freed funds in their current accounts with the BNB as excess reserves. Excess reserves tended to decline, but remained high still. The introduction of the new regulation on minimum required reserves in April 1998 contributed to greater flexibility and excess reserves fell dramatically on a monthly basis. Between February and May 1998 the average daily volume of the money market, including operations in government securities, accounted for 0.8% of the monetary base. This proportion is expected to grow consistent with the process of optimizing liquidity management by banks. By way of comparison, in Estonia in 1996 the average daily turnover as measured by the same ratio moves within the range of 1.5% to 2%[5] under a similar system of minimum reserve requirement regulation.

With the introduction of the currency board the forex market assumed a new role. It became an important source of lev liquidity regulation through the commercial banks' net forex sales, while its function of a means to realize gains from valuation adjustments lessened. The BGL/USD exchange rate followed consistently movements in the USD/DEM exchange rate in the international markets, calculated vis a vis the BGL/DEM interbank exchange rate.

3. The State of the Banking System according to Balance-sheet Indicators

For the purposes of analysis the banking system is divided into three groups following the logics of other publications[6]. *Group I* includes seven banks: Bulbank, United Bulgarian Bank, Expressbank, Hebrosbank, Bulgarian Post Bank, Biochim and the State Savings Bank. This Group's assets command the biggest market share in terms of assets and are critical to banking system stability. Concentration of funds accelerated in Group I banks after they began servicing deposits of bankrupt banks.

Group II is comprised of 18 banks, mostly private, which make up 18.1% of total banking system assets by end June 1998.

[5] Central Bank Reforms in the Baltics, Russia and Other Countries of the Former Soviet Union. Washington DC, December 1997, Occasional paper No. 157, p. 29.
[6] For description of banks by group, see the 1997 BNB Annual Report, p. 89.

Group III includes nine branches of foreign banks or their subsid iaries. This Group's market share is 6.8%.

Table 5

DYNAMICS OF ASSET MARKET SHARE INDICATOR[7]

(%)

June	Group I	Group II	Group III
1998	75.1	18.1	6.8
1997	85.2	10.2	4.6

Source: BNB, data for 1998 is preliminary.

4. Changes in the Structure of Financial Assets

Immediately prior to and after the introduction of the currency board commercial banks displayed preference to investments of higher liquidity. Reduced supply of government securities coupled with forex market stabilization limited commercial banks' opportunities to place deposits with other banks, particularly abroad.

The relative weight of *cash balances* in commercial banks' balance sheets increased. Measured by the 'share to financial assets' carrying value[8] indicator, they rose from 8.7% at end 1996 to 13% by June 1997 and further to 15.7% by end June 1998. Major factor behind this in crease was the substantial amount of excess reserves held by commer cial banks on their current accounts with the BNB. The trend of main taining high liquidity is likely to sustain but on a lower level because of the newly adopted flexible system of access to minimum required re serves. With regard to the currency composition of reserves, cash bal ances denominated in foreign currency dominate. The latter is consis tent with the fact that banks are permitted to maintain required re serves in foreign currencies against attracted funds in such currencies.

As the major part of placements under this item are noninterest bearing, maintenance of high primary liquidity is associated with greater opportunity costs and raised cost of investment in less liquid funds.

Table 6

STRUCTURE OF FINANCIAL ASSETS BY BANK GROUP

[7] Calculated as a ratio of a bank group's asset carrying value to the total banking system asset carrying value.

[8] Balance sheet value plus allocated provisions.

(%)

	Group I		Group II		Group III		Total	
	VI'98	VI'97	VI'98	VI'97	VI'98	VI'97	VI'98	VI'97
Cash balances	14.2	13.5	20.7	29.5	20.3	19.9	15.7	14.5
BGL	42.4	45.6	70.7	20.6	11.2	18.6	36.7	31.6
foreign currencies	57.6	54.4	29.3	79.4	88.9	81.4	63.3	68.4
Government securities	28.3	24.7	24.6	12.5	10.0	10.5	26.4	23.6
BGL	38.2	30.6	44.9	42.4	37.1	74.7	39.2	34.9
foreign currencies	61.8	69.4	55.1	57.6	62.9	25.4	60.8	65.1
Claims on banks and other financial institutions	30.0	27.3	20.7	16.6	29.4	38.6	28.4	26.2
BGL	2.8	4.0	10.1	9.7	1.3	1.3	3.6	5.6
foreign currencies	97.3	96.0	89.9	90.3	98.7	98.7	96.5	94.4
Claims on nonfinancial institutions and other clients	25.9	34.5	30.1	39.0	40.2	31.0	27.6	35.4
BGL	63.7	48.1	51.3	31.4	22.2	4.4	57.3	43.1
foreign currencies	36.3	51.9	48.7	68.6	77.8	95.6	42.7	56.9
Bonds and other securities with fixed yield in trading portfolio	0.5	0.0	0.5	0.8	0.1	0.0	0.4	0.1
Shares and other securities with variable yield in trading portfolio	0.0	0.0	2.8	0.5	0.0	0.0	0.5	0.0
Financial long term assets	1.3	0.1	0.6	1.3	0.0	0.0	1.1	0.1

Source: BNB, *data for 1998 is preliminary*.

Government securities retained their share of about 29.6% in Group I banks' balance sheets. Of note is the growing share of government se curities in Group II banks' assets: from 5.2% at end 1996 to 24.6% at end June 1998, and 10% for Group III banks. This is related to the fact that some of these banks were permitted to operate as primary dealers.

In terms of currency composition of government securities portfo lios split 4:8 in favor of foreign currency denominated government secutities.

Claims on banks and other financial institutions experienced the most serious change. The share of this item in financial assets rose from 20.6% at end 1996 to 28.4% by end April 1998. Group I banks' share of claims on banks and other financial institutions in financial as sets is the highest, 30%. Furthermore, a dramatic change occurred in

their structure. The share of lev denominated claims fell from 5.6% to 3.6% of total claims within this item. This is an indirect indication of banks' preference to managing lev liquidity using their assets primarily those in foreign currency, rather than the lev money market. The latter becomes more important only in managing immediate liquidity with one to two days horizon since the BNB exchanges Deutschemarks for levs only at spot value.

However, large exposure to foreign currency deposits increases banks' market risks associated with exchange rate and interest rate volatility and the risks arising from their partners. To manage competently these risks, banks should invest in management training, employ adequate instruments and watch closely developments in global markets, which is still absent in Bulgaria.

Given the banks' preference to liquidity management through asset operations, the trend of investing in high liquid assets predominantly abroad will continue as long as the positive interest differential on short term investments in levs is preserved.

Banks' *credit portfolio*, assumed to generate the highest return, saw the most dramatic reduction. Its share in total financial assets dropped from 35.4% in June 1997 to 27.6% by end June 1998.

Moreover, a drop occurred in real terms, limiting the nonfinancial sector's access to credit. Restrictive credit policy forced economic agents to seek alternative sources of financing. The lack of a developed channel for direct financing through debt and capital issues also contributed to this. In addition, prerequisites for entry of quasi financial institutions in the area of retail lending, such as pawn brokers, are already in place.

The structure of credit portfolio by currency denomination indicates a change in favor of lev credits, comprising 57.3% of total credit portfolio by end June 1998, against 43.1% at end June 1997. Group III banks had a relatively large share (40.2%) in credits with foreign currency denominated credits accounting for the major part.

Lending interest rates followed movements in the base interest rate until November, when a sustainable trend toward widening of the spread evolved. Obviously, banks sought to compensate for the decline in advanced credit by raising their lending rates.

Low costs of attracted resources and interest rate stability created favorable conditions for long term lending, including mortgage and investment credits. Regretfully, only the State Savings Bank took advantage of the rebound in retail credit demand and responded with greater

supply.

Commercial banks' lending behavior is understandable for several reasons. *First*, because the impact of the shock from the banking crisis and the difficulties experienced with involuntary debt collection are still felt. *Second*, because of the limitations imposed by the new legislation on security and amount of credit. *Third*, because of the wretched state of a number of public enterprises and the short track record of private companies.

The quality of banking system credit portfolio did not improve: on the contrary, the percentage of credits classified as loss increased compared with July, while the share of standard exposures in total classified credits declined[9]. The worsening is due in part to a fall in newly advanced credits relative to those repaid.

Data on classified credit portfolio items for the first and second quarters of 1998 indicate slower growth in standard exposures and higher growth in those classified as loss and doubtful credits.

In the short run commercial banks are expected to continue their restrictive credit policies until: *first*, restructuring of ownership in the real sector is completed; *second*, regulatory changes to relief the procedure for forced sale of claims are introduced; *third*, publicly accessible data base on the credit record and current financial state of debtors is established (a step in this direction will be the establishment of the credit register).

5. Structure of Attracted Funds

At end June 1998 the share of *attracted funds from banks and other financial institutions* in total liabilities was 15.8%, against 33.4% at end June. The latter reflects restructuring of attracted funds to achieve greater autonomy and lower interest costs, given the high price of borrowing from other commercial banks. The lowered level of banks' dependence on other financial institutions is an indication that they rely more on their assets as a funds providing source, whereby the lev interbank market interest rate becomes less sensitive to liquidity movements. In structural terms, the share of foreign currency denominated funds attracted from banks and other financial institutions at end June remained unchanged at 83.8%, despite the increase in the lev component relative to June 1997 when the latter was just 3.1%.

[9] For data to be comparable, we assume that from 30 June doubtful credits, Group A (up to 30 days past due), are assigned to standard exposures under the new Regulation No. 9, and all uncollectible credits are classified as loss.

Attracted funds from nonbank institutions and other clients continued to be the major funds providing source for financial intermediaries. After currency board introduction this item's share in total liabilities grew substantially: from 61.6% to 84.1%. Changes occurred in the forex component as well: the proportion between attracted funds in levs and foreign currency changed from 30:70 to 43:57, which suggests growing confidence in the national currency as a medium of exchange and a store of value.

Stability of the deposit base, measured by the mean square deviation, indicates positive results among Group I banks which are critical to the stability of the banking system[10]. Group II and Group III banks display high volatility, notably strong with attracted lev and foreign currency funds from nonbank financial institutions and other clients.

Table 7

VOLATILITY OF ATTRACTED FUNDS

(%)

Attracted funds period	Group I VI'97 XI'98	Group I XII'97 VI'98	Group II VII'97 VI'98	Group III VII'97 VI'98
Attracted funds from banks and other financial institutions in levs	18.3	6.0	21.1	24.8
Attracted funds from banks and other financial institutions in foreign currency	2.1	6.1	3.4	11.0
Attracted funds from banks , total	1.8	6.0	8.3	15.0
Attracted funds from nonfinancial institutions and other clients in levs	9.1	1.0	36.2	14.4
Attracted funds from nonfinancial institutions and other clients in foreign currency	1.2	2.0	22.0	0.9
Attracted funds from nonfinancial institutions and other clients, total	4.0	1.5	25.7	1.6
Attracted funds, total	1.9	2.1	20.9	2.2

Source: BNB, authors' estimates.

[10] Data on banks is split into two periods due to a debt write off from Bulbank's balance sheet in December.

6. Capital Adequacy

Commercial banks were well capitalized at the introduction of the new monetary system. June 1998 indicators have improved on a year earlier basis. Growth in Group I banks' capital adequacy is derived from internal sources. These include: revaluation reserves, retained profit from past years, profit from the current year and general pur pose reserves. The capital bases of Group II and in part Group III banks increased because of shareholders' additional capital contribu tions.

In structural terms, Group I banks' supplementary capital reserves grew significantly, contributing to higher growth in the total capital ad equacy ratio relative to primary capital adequacy. As the June data shows, this was only for a short period of time until the annual share holder meetings were held. Within Group II and Group III banks, pri mary capital growth exceeded supplementary capital growth.

The dynamics of the asset risk component indicates smooth growth, though still lagging behind the balance sheet figure and the capital base.

Table 8

CAPITAL ADEQUACY RATIOS

(%)

	Group I		Group II		Group III		Total	
	VI'97	VI'98	VI'97	VI'98	VI'97	VI'98	VI'97	VI'98
Total capital adequacy	11.9	35.3	33.5	32.2	18.4	27.4	16.0	34.1
Primary capital adequacy	10.0	25.0	26.1	26.7	13.7	22.0	13.0	25.1
Asset risk degree	16.9	32.5	37.1	43.2	39.4	43.2	19.3	35.0
Asset cover degree	2.0	11.5	12.4	13.9	7.2	11.9	3.1	11.9

Source: BNB, data for 1998 is preliminary.

7. Profitability

Commercial banks' profitability improved during the period of dra matic lev devaluation; subsequent macroeconomic stabilization and adoption of the fixed exchange rate changed dramatically the structure of financial incomes.

Net valuation adjustments lessened in significance while net interest income from lev and forex operations assumed primary importance. With the change in the structure of financial assets net interest income from forex operations is almost twofold higher than net interest income from lev operations. This is due primarily to the positive interest differ ential between dollar denominated deposits and lev denominated de posits. Net income from government securities operations rank third within Group II and Group III banks' incomes. Net income from valu ation adjustments holds the fourth place in financial income. The dy namics of the Other financial incomes, net item is accounted for by movements in provisions. Their share depends on the degree of asset risk but a sustainable trend toward an increase in high liquid assets de veloped at the expense of diminishing credit portfolio and, in turn, to tal risk component, which allowed for better provisioning.

Table 9

BANK PROFITABILITY, JANUARY – JUNE 1998

(%)

	Group I	Group II	Group III	Total
Return on assets[11]	3.0	2.0	2.8	2.8
Return on equity[12]	19.3	10.2	36.4	18.0
Return on fixed capital[13]	77.7	14.0	45.3	48.7

Source: BNB, authors' estimates.

Group I banks' return on fixed capital is high due to the methodol ogy for its calculation. By fixed capital is meant actually paid in share holders' capital. Given the large amount of retained profit from the past year concentrated in this group, return on fixed capital should be restated through equity capital because the major portion of profit is likely to be capitalized. This ensures comparability of profitability. Some banks within Group III are exempt from capital requirements which explains their high profitability indicators.

Profitability ratios tended to decline relative to 1997, due primarily to a decline in net income from valuation adjustments consistent with currency board introduction. Conversely, net interest income and net

[11] Profit after taxation divided by average asset carrying value for the period.

[12] Profit after taxation divided by average equity value less average value of rights to eq uity subscription.

[13] Profit after taxation divided by average fixed capital value less average value of rights to equity subscription.

income from commissions continued to grow steadily after currency board introduction. Under new conditions and the current interest rate structure, banks may improve their profitability if they concentrate their attention on the indicators directly controlled by them. These are:

1. Improving asset structure by raising the share of credit and re ducing the share of funds advanced to banks that pay too low interest rates;

2. Diversifying services and increasing the weight of income from commission operations;

3. Cutting costs by economic element to an extent providing for the efficient allocation against attracted funds this refers particularly to Group II and Group III banks which attract less funds, and hence have lower net financial incomes. The big banks will be able to achieve bet ter cost effectiveness after their privatization.

The structure of the domestic market of bank services will remain unchanged in the short term. Despite the growing market share of Group II and Group III banks, expectations are for the big banks to re tain their significance. Within Group II banks, consolidation is likely to take place. This refers especially to small private banks which do not generate adequate profits to ensure capital growth to meet the new re quirements of Regulation No. 8. The alternative for these banks is to attract new shareholders, including from abroad. Foreign banks will continue to grow in significance in the local bank market. This will be due in part to cheap lev resources attracted through the money market. However, so far their role of intermediaries has been limited to placing attracted funds in head offices abroad.

8. Liquidity

Under currency board arrangements commercial banks display preference to using their assets as a major source of liquidity. Major factors behind this are: *first*, unequal access of small banks to the money market reflecting low credibility; *second*, preference to place ment of foreign currency deposits abroad consistent with lower credit risk and the positive interest differential relative to placements in the interbank money market; *third*, concentration of sizable lev resources at foreign banks or their branches consistent with low credit risk which enables the latter to benefit from the positive interest differential be tween deposits in levs and Deutschemarks (the latter are not subject to regulation under Regulation No. 4 on foreign currency positions).

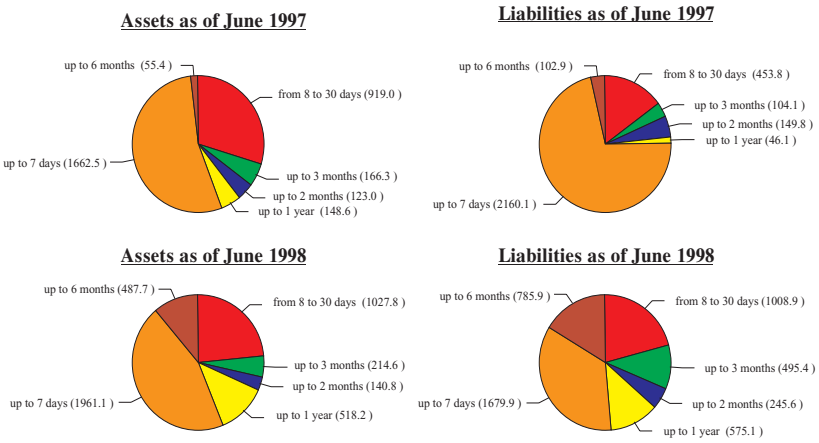
Comparison between asset and liability maturity structures prior to

and after currency board introduction indicates a change in commer cial banks' behavior. It is expressed in generally contracted maturity transformation, alignment and even growth in assets over liabilities of excessively short maturity: up to one month.

Chart 8

ASSET AND LIABILITY MATURITY STRUCTURE OF COMMERCIAL BANKS

(billion BNB)



Source: BNB, data for 1998 is preliminary.

Concurrently, a trend toward extending average maturity of asset and liability components developed, the likely result of customers' gradually returning confidence in banks over a longer term horizon, in particular households.

After BNB stopped open market operations the level of overall banking system liquidity is determined by several factors. In excessively short terms (next day horizon) these are net inflows in and out of the BNB acting as an agent on the budget cash service. Another major source is the foreign exchange market. The lev market of interbank de posits plays the role of a channel to reallocate funds. The revenue cycle of the general government budget determines to a great extent the li quidity cycle in the banking system. Temporary liquidity deficiencies are mainly covered through net forex sales. Short term movements in interest rates in the interbank market are strongly dependent on devel opments in above factors.

VI. Challenges and Risks Associated with Currency Board Operation

Fears are mostly related to the automation of currency board operation and the lack of protective mechanisms against internal and external shocks. Therefore macroeconomic management cannot afford to repeat the mistakes of the initial period of transition to a market economy. Vulnerability of the currency board may be grouped as follows:

Internal

Immediate risks are primarily related to:

- Delay in **structural reform** and privatization. Governmental programs, in particular the Law on the State Budget, rely to a great extent on privatization revenues not only as a source of budget deficit financing but also as a source of funding important social programs.
- **Overvaluation of the national currency** at a faster rate than growth in factor labor productivity leading to low competitiveness of export oriented output.
- **High volatility** of government deposits reflects on money supply volatility which may affect economic agents' business activity.

Potential risks are:

- **Loss of control over inflation** which, under a fixed exchange rate, precipitates fast overvaluation of the national currency, increased consumption of imported goods and deterioration of the current account. The deficit on the current account may be offset by a surplus on the capital account new loans and/or receipts from privatization. However, the receipt of new loans to service old ones is a vicious circle and the way out is difficult, while privatization revenues should not be regarded as permanently available.
- **Excess of budget deficit over estimates** and monetization of losses in the real economy. This will cause a reduction in government fiscal reserves, and hence reserve money will grow faster than forex reserves, defying the logics of the currency board.
- Commercial banks facing **liquidity crises**. The limited extent to which the BNB may refinance commercial banks with liquidity squeezes may be a serious threat to the stability of the currency board. The currency boards in Estonia, Lithuania and Argentina were put to the test.

External

- Further **fall in prices** in the international markets of goods with high share in Bulgaria's exports. This may cause a fast growth in the current account deficit, reduced foreign exchange reserves, and hence money supply.
- Shift of the Far East **capital market** crisis to Europe, in particular eastern Europe. Despite the low degree of integration of the Bul garian economy into the global one, in the autumn of 1997 quota tions of Bulgarian Brady bonds fell dramatically notwithstanding the country's financial stabilization. Luckily, the latter did not provoke massive capital withdrawals but the danger is still present.
- Fluctuation of the **Deutschemark** against the US dollar is a po tential source of inflationary expectations, even more so as the Bulgarian economy has a still strong preference to the US dollar.

VII. Conclusions

1. The achievement of **financial stabilization** is an immense suc cess, although it has failed to produce the desired effect on the real sec tor so far. As practice shows, if not underpinned by serious structural reforms financial stabilization is only temporary.

2. **Real sector** has not yet adapted to the new environment. The principle of hard budget constraints is not observed everywhere. The practice to cover losses with state funds has not yet been eradicated. The heavy tax burden forces small and medium sized private compa nies to conceal incomes. Access to credit is still limited reflecting both poor quality of investment projects and extremely prudent lending poli cies of banks. Under conditions of reduced credit supply companies (predominantly state owned) seek alternative sources for financing, even through higher intercorporate indebtedness, particularly strong to the energy sector.

3. The **fixed exchange rate** gives no reason for concern so far, moreover, ensures stability. The foreign exchange market is function ing smoothly without exerting pressure on the national currency. Calls for devaluation are unsustainable. Given a highly import intensive ex port output and relatively low labor costs, overvaluation of the real ef fective exchange rate (within certain limits) is unlikely to severely im pair the trade balance. Problems rather lie with low competitiveness of export output consistent with poor quality and absent marketing strate gies.

4. The process of **remonetization** is sluggish. Monetary and credit aggregates stagnated. The share of domestic assets in broad money is continuously declining, already accounting for less than 10%. Under currency board arrangements money supply depends mostly on real money demand which reflects the financial sector state. In the context of Bulgaria's currency board, the fiscal sector exerts strong influence on the monetary sector. Government deposit with the Issue Depart ment has been increasingly volatile. The existence of this deposit puts the public sector in a better position than the private sector because it is backed by foreign exchange reserves which are national wealth. Movements in this deposit can be interpreted as quasi monetary policy pursued by the government, while it provides a buffer between stagnat ing reserve money and growing foreign exchange reserves. Growth in government deposit constrains reserve money growth while dramatic fluctuation of this deposit cause even more dramatic changes in reserve money. Excessive growth of government deposits has negative implica tions triggered by liquidity withdrawals. The decision on how to use ac cumulated budget resources is imperative.

5. **Confidence in the banking system** is still low. Interest rates do not encourage saving and deposits increase rather slowly. Their per centage share in GDP fell dramatically: from 72% in 1994 to 50% in June 1997 and currently to about 22%. This severely limits the possi bilities of domestic investment growth. At least USD 700 800 million (drawn during the crisis) still remain outside the banking system. It is crucial to incorporate these funds into the **legal** economic turnover.

6. **The state of the banking system** has improved, but there are other problems that need to be addressed. The percentage share of credit portfolio in bank assets has shrunk and its quality has not yet im proved. The percentage share of credits classified as loss in total clas sified credits rose, while that of standard exposures declined. The rea son behind this is the still low capital base of most banks and their re luctance to take risks associated with investment lending. Banking staff is insufficient to ensure efficient asset management. Foreign banks have intensified their activity over recent months, buying cheap lev funds in the interbank market, converting them into foreign exchange and investing it abroad, generating profits from the interest differential.

VIII. Appendices

1. Comparison between Banking Systems of Countries Operating under Currency Board Arrangements – Argentina, Estonia and Lithuania[14]

General Trends and Peculiarities

Like in Bulgaria, the banking systems of the above three countries experienced high liquidity immediately after currency board introduc tion.

Banking system resources rose consistent with reduced claims on the government and inflow of funds in the form of deposits from resi dents and nonresidents. Commercial banks' credit portfolio expanded considerably relative to other asset items. For example, in Argentina credit to the private sector rose by 23.7% in real terms on end 1990. Bank crises entailed gradual reduction in the share of credit to the pri vate sector in the short run and the pursuit of a moderately restrictive credit policy in the long run.

Developments in banking system indicators over the first year after currency board introduction in Bulgaria can be summarized as moder ate. Banks' conservative credit policies, combined with greater au tonomy in liquidity management and high interest rates, minimized vul nerability to internal shocks. At the same, profitability became increas ingly dependent on external interest rates. As long as the present asset structure remains unchanged and interest rates on attracted funds rise, profitability may worsen and cause decapitalization. On the other hand, credit portfolio expansion to improve return must be appropri ately managed and controled. Therefore gradual credit portfoilio growth is likely to occur, directly dependent on private sector develop ment and deposit base expansion both from internal and external sources.

Estonia

Estonia introduced the currency board and the fixed exchange rate to the Deutschemark in June 1992. Estonia's central bank is not al lowed to finance the government. Commercial bank refinancing is lim ited to the extent of the difference between foreign currency reserves and reserve money and only upon occurrence of liquidity crisis of a

[14] Data is extracted from the International Financial Statistics Yearbook, IMF, 1997.

systemic nature. Interest rates are set on a market basis and follow movements in short term interest rates on the reserve currency. They display low volatility reflecting high confidence in the fixed exchange rate.

Immediately after currency board introduction, in late 1992 and early 1993 Estonia's banking system experienced a crisis caused by bad management and growth in unserviced debts. The crisis eroded cred ibility, and subsequent run on deposits and growth in commercial banks' excess reserves occurred. The process of recovery following the banking crisis and restoration of the deposit base is gradual and sus tained. Data shows that demand deposits are recovering faster than time and foreign currency deposits. This constrains banks' credit ex pansion both to private sector and nonfinancial public enterprises. Claims on the government remain almost unchanged. Not until the end of 1995 did the banking system begin accumulating resources consis tent with growth in nonresidents' deposits, which created credit expan sion directed mainly to the private sector.

Argentina

Argentina adopted the currency board arrangement and the fixed exchange rate in March 1991. However, it did not eliminate completely the possibility to engage, under given conditions, in open market op erations and refinance commercial banks.

Initially liquidity was high, but gradually came down and stabilized at 12 15% of attracted funds. The period between 1990 and 1994 wit nessed the highest growth in banks' claims on private sector, consistent with growth in attracted funds, predominantly in the form of time, sav ings and foreign currency deposits. In March 1995 a crisis began trig gered by the fall in the prices of teso bonos[15] (a typical example of an external shock), whereby a commercial bank with a small market share experienced liquidity crisis, which resulted in continued run on depos its.

Lithuania

Lithuania introduced the currency board arrangement in April 1994. Contrary to Estonia, Lithuania's currency board rules are less stringent. The exchange rate is fixed but is set by the central bank. Open market operations are permissible, including in securities issued by the government, together with discounting and lending to commer

15 Securities denominated in US dollars, issued by the Mexican government.

cial banks to the amount of net foreign currency reserves.

Like in Estonia, immediately before the adoption of the currency board liquidity in the banking system increased. In the following year it decreased gradually. Between 1993 and 1995 commercial banks' credit exposures to private sector grew dramatically while those to nonfinan cial public enterprises displayed lower growth. Attracted funds are the major factor behind this growth. Time and foreign currency deposits grew faster than demand deposits. After the banking crisis between the last quarter of 1995 and the first quarter of 1996 liquidity diminished and credit expansion shrank with a certain lag, at the expense of dra matically increased net foreign reserves of commercial banks.

2. Comparative Analysis of the Balance of Payments of Argentina, Estonia, Lithuania and Bulgaria after the First Year of Currency Board Operation

The balance of payments one year after currency board introduc tion differs to a great extent across countries due to specific conditions existing prior to its introduction. For example, absence of a huge for eign debt and interest payments associated with it is gives advantage to Lithuania and Estonia. Over the quarters following the adoption of the currency board interest payments and net income remained relatively low (to 0.8% of GDP), while in Argentina and Bulgaria (2.1 3.8%% of GDP) they continue to be a factor determining the need to maintain a positive trade balance. Obviously, the benefit for the Bulgarian and Argentine economies one year under the currency board arrangement is the positive trade balance. Bulgaria's trade balance accounts for 1.2% of GDP produced over the first nine months since currency board introduction and 3.7% including services. The balance on for eign trade scarcely offsets the negative net income of 3.8% of GDP.

Lithuanian and Estonian trade balances are negative immediately after currency board introduction. This is likely the result of the se lected level of the fix for their national currencies since imports to these countries rose dramatically. A critical factor for Estonia is the loss of Russian markets. The negative trade balance and income in Lithuania and Estonia (respectively 5.8% and 2.7% of GDP) stem from weak performance of foreign trade, while their positive current accounts are due to current transfers. Since the latter cannot be a source of permanent income, such a structure of the current account creates conditions for foreign debt growth.

At the early stage of their operation the Bulgarian and Argentine

currency boards display close similarity because they have emerged on account of banking crises and balance of payments crises. Subsequent adjustment of the economy is associated both to improved foreign trade and foreign investment growth. In Argentina capital flight (net investment of banks and private sector excluding direct investment) reached 4.3% of GDP in the year prior to the pegging of the exchange rate, and 4.6% for Bulgaria. Reviving confidence and retention of the interest differential are beneficial for the capital inflow at the early stage for both countries. Therefore demand for portfolio investment determined to a great extent the structure of capital flows in Bulgaria and Argentina during the first months, while in Estonia and Lithuania a process of accumulating external credits to the private sector began (about 2.8% and 3.3$ of GDP). Portfolio investment accounted for a large share in capital inflow only in the first quarter following the intro duction of the currency board in Bulgaria, while for the nine months capital inflow was formed mainly from direct investment and growth in IMF loans (respectively 2.9% and 2.6% of GDP).

Stabilized national currencies and enhanced preference to assets, denominated in these currencies, caused forex reserves to grow in each of the four countries. As Lithuanian and Estonian imports grew faster already in the first year, foreign currency cover for imports began to gradually diminish. Argentina's stabilization program is accompanied by foreign trade liberalization, particularly imports, which rose from 2.6% of GDP in 1990 to 4.7% of GDP a year later. Nevertheless, as in Bulgaria, reserves (in months of imports) display a sustained upward trend. The reason for this is associated with the fact that after eliminat ing the balance of payments crises imports adjust with a certain lag, while relatively free capital movement and support from international institutions contribute to fast growth in reserves. In Argentina foreign currency reserves reached 8.1 months of imports and 6.6 in Bulgaria. In the two Baltic republics foreign currency dynamics varies between 2 to 4 months of imports. Despite the large amount of foreign currency reserves in terms of months of imports in Bulgaria and Argentina, the impact on Bulgaria might be much stronger, as its reserves in relative to GDP are larger than in the other countries. This entails the need of their efficient management.

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