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CREDIT DYNAMICS IN CENTRAL AND EASTERN EUROPE

The descriptive analysis was applied to investigate the credit dynamics as well as the factors for credit supply and demand in the EU member states in Central and Eastern Europe, being outside the Eurozone – Bulgaria, Latvia, Lithuania, Poland, Romania, Hungary and the Czech Republic in the period 2008-2012. The analysis has taken into consideration the differences among these seven member states, but the economic activity seems to be the key aspect for the demand of credits as well as for the dynamics of crediting. It has an impact on the bank balances through the dynamics of unserved credits, and hence on the behaviour of commercial banks, respectively - the supply of credits.

JEL: E32; E51; E58; G01

During the period prior to the recent global financial and economic crisis, Central and Eastern European (CEE) countries, that are not part of the economic and monetary union (EMU) - Bulgaria, Latvia, Lithuania, Poland, Romania, Hungary and the Czech Republic, experienced very high economic growth. In 2004-2008, the GDP of the seven countries increased on average by 5.7% and this distinct upward dynamics was significantly favored by the deepening of credit intermediation. In early 2004, the ratio of domestic credit to GDP in these countries is estimated at 39% until the end of 2008 it reached an average of 66%, with the average annual change is 14% (geometric mean). Leaders among them were Romania and Lithuania by 29% and 20% average annual growth rate of bank loans, while the Czech Republic and Hungary registered an annual average increase by 6.7 and 8.6% respectively. Such a double-digit rate of increase in the ratio of loans to GDP in CEE countries is defined as the normal catch-up process given the low initial base.[1] Of course, rapid economic growth, high inflation, large capital inflows, current account deficits in the balance of payments, growing apace credit dynamics, external and internal indebtedness signaled for economic overheating and for the formation of internal and external economic imbalances.

Namely the crisis revealed the size of the formed imbalances, that hardly hit the economies and financial systems of the countries analyzed. At the same time during the peak of the crisis in 2009 some of them overcame challenges more successfully than others, and in others there was a double-digit decline in real GDP. In parallel, the ratio of non-performing loans to gross loans for the seven countries grew at from less than 3% in 2008 to over 16% in 2012. Central banks

[1] See Erdinç, 2009.

and governments took unconventional measures to normalize the activity of the banking system, such as lowering interest rates to historic minimums, providing longer-term financing to commercial banks, expanding the range of financial instruments accepted as collateral for repo financing, government-led investing in bank capital securities; implementing of programs for asset purchases and guaranteeing the assets and liabilities to some of the bans, etc. After 2008, a strong growth of deposits, capital, liquidity and non-performing loans in the banking system was evident, while loans increased minimally in nominal terms, and as a share of bank assets to GDP even declined. Commercial banks increased their capital and liquidity buffers, but they are not transferred to the real economy through loans with such pace that is sufficient to stimulate private consumption and investment, hence economic growth.

The dynamics of production, employment, prices, interest rates, capital flows, foreign trade of goods and services, public finance indicators, as well as indicators based on items from the bank balance sheets are among the variables explaining the variance in credit aggregates. Policies of fiscal and monetary authorities also affect this variation. Some central banks pursued conservative supervision of the banking system, better immunizing the banking system from the crisis development, and altering the need of emergency financing through public funds of troubled commercial banks. Bulgaria and. Latvia are two distinct and contrasting examples, respectively, for performing a more conservative approach by Bulgarian national bank and for underestimation of risks by the central bank of Latvia.

In a period of such a shock to the financial sector and the economy as whole, it is extremely difficult to isolate the factors of credit dynamics. This is due to the fact that the change in credit aggregates depends both on factors acting on the demand and supply of credit. Credit demand shrank with the decrease in economic activity. However, the quality of bank balance sheets started to deteriorate due to the increase in non-performing loans, which is a function of economic activity. With the deterioration of bank balance sheets banks cut back the supply of credit. However, economic recovery depends on upward credit dynamics that translate into an enlargement of investment and private consumption.

Among the economies of the seven countries, there are significant differences, regardless of their belonging to the same geographical region and their common fate of economies in transition, which complicates the analysis. One of the main differences is that countries like Bulgaria, Latvia and Lithuania have a fixed exchange rate, which severely limits their monetary policy.[2] Countries under research can be grouped in many socio-economic aspects, such as the size of the economy, the population size, the age structure of the population, the importance of credit to the economy, etc.

[2] Bulgaria and Lithuania have introduced a currency board arrangement, while a currency peg to the euro has been maintained in Latvia. Currency regimes in the three countries are very similar.

Descriptive analysis of credit dynamics determinants

For the purposes of the descriptive analysis a public data for the seven countries, published on the website of the European Central Bank (ECB), and data from the statistical database of the World Bank and the International monetary fund (IMF) is used.[3] Economic and financial variables used are interpreted in terms of their importance as factors of demand and supply of credit. The dynamics of the performance levels of economic activity, interest rates, prices, external sector and banking indicators signal for the presence of a structural break (SB), caused by the international financial crisis, which quickly transferred into open economies of the countries surveyed.

Analyzed countries differ considerably according to the size of credit intermediation. The Importance of credit to the economy, measured as the ratio of private credit to GDP amounted to 66 and 71% in Latvia and Bulgaria (at the end of 2012) compared to 39 and 49% in Romania and Lithuania and 54% in Poland and Hungary. Of course, the snapshot for 2012 does not reveal the dynamics in the period between 2008 and 2012, and at times credit intermediation exceeded 100% of GDP in Latvia and 70% in Hungary. Credit intermediation in the seven countries was significantly below that of the Eurozone countries and compared to that of the old Member States in which loans to non-financial private sector often exceeded 130% of GDP.

In addition, differences are observed also in the GDP per capita, in the level of public indebtedness, in the level of GDP redistribution through public expenditures, in the amount of the annual budget deficits/surpluses to GDP, in the importance of the external sector of the economy (net exports GED) and others. Despite these differences in the development, the banking systems and economies of the seven countries share a number of common trends. Generally applicable to all of them is the fact that banking systems at the national level are highly dependent on the variance in the movement of international capital. While financial systems and economies are largely internationalized, institutions that can exert control over the money and the government sector are closely national and are severely limited in their ability to respond to a negative development.[4] Bank privatization in CEE countries, not only let to know-how transferring but also let to the entry of foreign capital, provided solely or guaranteed by the foreign bank headquarters. The wave of acquisitions had a strong positive signal effect to international investors, who differ from parent banks. Financial capital inflows, however in most of the countries turned into unsustainable external indebtedness and current account deficit.

[3] ECB data for the Non-euro area EU countries, excluding the NCBs, IMF World Economic Outlook Database April 2013, the World Bank data warehouse.

[4] The economies of the seven CEE countries have been heavily internationalized in terms of external trade, capital inflows and external indebtedness.

Table 1

Compound annual growth rate of selected variables for 2008-2012 (%)

CAGR, 2008-2012	Bulgaria	Latvia	Lithuania	Poland	Romania	Hungary	Czech rep.
Bank credits (total)	4.0	-6.5	-3.8	9.4	-2.1	-4.5	5.6
Bank credits of the non-financial private sector	2.8	-8.3	-5.4	8.1	0.8	-6.0	4.8
Non-common stock securities	11.3	-17.4	10.7	10.3	53.8	8.0	12.9
Cash and other assets	13.6	5.0	8.4	-6.6	-6.9	-	-4.6
External assets	7.0	6.7	0.1	-3.6	10.6	-8.7	-0.7
Total assets	5.4	-3.1	-2.1	7.8	1.9	-3.4	5.1
Total deposits	7.9	-0.8	5.9	8.5	4.3	0.0	6.8
Deposits of the non-financial private sector	8.7	3.1	5.7	9.8	4.1	-0.5	5.9
Capital and reserves	7.8	3.0	10.0	15.3	16.2	1.6	10.9
External liabilities	-7.4	-6.4	-13.6	3.4	-4.8	-11.6	-4.4
GDP at 2005 prices	-0.7	-2.5	-1.3	3.0	-1.1	-1.4	-0.4
Non-financial private sector credit to assets	-2.4	-5.4	-3.4	0.3	-1.1	-2.8	-0.3

* CAGR is a geometric mean.

Source: ECB, own calculations.

Credit demand factors

What pops up as a unarguable fact is, that the countries who have experienced an economic downturn during the period between 2008 and 2012 also have registered a decline or a minimalistic nominal growth of bank loans to the non-financial private sector. In countries with a strong GDP growth or with a modest economic downturn, there is a higher credit growth, i.e. between the two variables a positive correlation exists. Bank loans in Poland increased by 8.1% and by 4.8% in the Czech Republic, while real GDP in Poland rose by 3% for the period, and in the Czech Republic GDP declined by modest 0.3%. Meanwhile, countries with the highest decline in GDP recorded the highest decline in private non-financial credit, in Latvia, Lithuania and Hungary credit to the private sector declined by 8.3, 5.4 and 6.0% for the period, while GDP fell by 2.5, 1.3 and 1.4%. However, the opposite interpretation is also true - that with the reduction of credit to firms and households, personal consumption and corporate investment decline. The exact relationship can be justified by using an econometric study, in terms of determining the extent to which economic growth affects lending and the extent to which loans are a factor in general economic activity, i.e. what is the causation. The study of Stattev (2009) shows that after 1997 in Bulgaria there was a bilateral causality between credit and general economic activity.

For a more complete analysis of the credit demand factor dynamics, the period 2004-2012 is considered, aiming to present the state of the seven economies

before the crisis, and their subsequent development. In the period before the structural break, caused by the crisis, the economies of the countries surveyed generated economic growth, outpacing the average global growth numbers.[5] In the period 2004-2008, the economies of Bulgaria, Lithuania, Poland, Romania and the Czech Republic grew in the range of 5-7% annually, while the growth rate of GDP in Hungary was lower (2.2% per annum), mostly due because of the unreformed public sector.[6] Crisis had its roots earlier in Latvia - since the first half of 2008, and in 2004-2007, the economy grew by impressive 10.3% annually. Latvian economy entered into recession earlier, because of the accumulated large unsustainable economic imbalances and because of the excessive risk-taking by the economic agents and due the lack of more effective counter-cyclical monetary policy. Due to the high economic growth before the crisis, and due the positive momentum Bulgaria, Lithuania, Poland, Romania, Hungary and the Czech Republic reported the first annual economic downturn in 2009 with peak of the crisis also marked in 2009, when economic activity in the countries significantly deteriorated. Their annual GDP decreased in 2009 in the range of 4 to 17%, while only Poland's economy managed to grow (by 1.6%). The largest annual decline of GDP was registered in the aggregate output of Latvia and Lithuania, respectively by 17.7 and 14.8%. The collapse in domestic and foreign demand, the outflow of capital from the economy, the decline in the prices of financial and real assets were among the main drivers in the adverse economic activity in 2009.[7]

In 2009 the physical volume of exports of seven countries decreased on average by 10%. Similar is the dynamics in the investments (gross capital formation), whose share in GDP declined on average by 27% in the seven countries, with 58% annual decline in Lithuania and 34% in Latvia. Since the second half of 2009 there were signs of timid economic recovery, but new numbers show a far from succeeding a compensation of the collapse in economic performance in the first quarter. Over the next three years there has been an upward prevailing economic dynamic, although the economic growth rate was significantly lower than the pre-crisis values. Investment remained the weak link in the economic recovery over the period, while external demand can be named as a main driver of the growth post-2009, although in 2012 there has been a single-digit decline in the rate of change of exports. Strong depreciation of the Romanian Leu, the Polish zloty, the Hungarian forint and the Czech koruna in 2009, turned in to a factor for the export growth. The lower exchange rate of the currency of Hungary, Romania, Poland and the Czech

[5] A geometric mean is used for calculating the annual growth rate of GDP.

[6] In the 2004-2008 period government deficit in Hungary went in to the red territory by an average 6.5% of GDP, while the public debt to GDP ratio rose to 73% in the end of 2008. The Hungarian economy lost competitiveness, with external sector indicators' dynamics being the evidence. Current account deficit to GDP ratio climbed to an annual average of 9.3% , while the gross external debt rose to 123% of GDP.

[7] These results suggest that economic activity is among the main factors for credit dynamics (see Hofmann, 2001; Hristov and Mihaylov, 2002; Galza et al., 2003; Gambacorta and Rossi, 2007; Frömmel and Karagyozova, 2008; Sørensen et al., 2009; Beck et al.,. 2012; Arestis and González, 2013).

Republic continued to have a stimulating effect on exports. At the end of 2012, only Poland reached a higher real GDP compared to the pre-crisis value, which in no small part was due to the closer economy, compared to the other six countries, and due the devaluation of the national currency, stimulating export. Moreover, the Polish economy is distinct in that, that it has not registered not a single annual decline of the GDP for the whole period.

After the start of the crisis, unemployment grew, public finances went in to unstable condition and measures of fiscal consolidation were undertaken in most of the countries analyzed, however the price level was above the objectives of the central banks, targeting inflation. An evidence for the seriousness of the economic situation was the fact, that at the end of 2008, the IMF granted multi-billion rescue funding packages to Latvia and Hungary, to Romania in the first half of 2009, while Poland during the same period negotiated a flexible credit line with the IMF.[8]

The trend of the consumer price index before the crisis was strongly upward. As a result of accelerated economic activity, inflation in seven countries on average for the period was 4.6%, in Latvia, Lithuania and Bulgaria, even there were unarguable signs of economic overheating . Prices in the three countries grew on average by 9.9% in 2007 and 2008, while in Latvia, rates of increase were double digit. As a result of the crisis and due to weaker demand inflation declined in all countries, in 2009 Latvia entered in to deflation (a decline in the CPI of 1.4%). In 2009 and over the next three years, inflation in Poland, Romania and Hungary was above the average for the seven countries, which was mainly due to an increase in tax rates (mainly VAT and excise duties).[9] In 2009, there was also an upward pressure on prices in Poland, Romania and Hungary, due to the depreciation of national currencies and the consequent rise in import prices. Besides inflation, that was driven by measures of fiscal consolidation and by more volatile petrol and food prices, administered prices also contributed to the increase in the price level in most countries.[10]

As a result of the crisis, imbalances between government revenues and expenditures dramatically expanded. If in 2008 the average deficit was 3.2% of GDP, in 2009 it rose to 6.1%. After 2009 the negative budget balances gradually reduced, with the lowest value in 2011, when seven countries reported on average 2.7% of annual GDP negative budget balance. During the period 2008-2012, the average annual deficit in Latvia was 5.1%, being the highest value for the countries under investigation. Only Hungary in 2011 and Latvia in 2012 achieved budget surpluses, 4.3 and 0.1% of GDP respectively, while the annual deficit in Bulgaria shrank to modest 0.45% of GDP. One time effect of the nationalization of private

[8] See Andersen, 2009; Romania IMF transactions report; IMF, 2009.

[9] Prices have often been used as a factor in the credit demand equation, with positive prices change leading to bigger credit demand (see Hofmann, 2001; Hristov and Mihaylov, 2002; Galza et al., 2003, Gambacorta and Rossi, 2007; Frömmel and Karagyozova, 2008; Sørensen et al., 2009; Beck et al.,. 2012; Arestis and González, 2013).

[10] See Andersen, 2009; Romania IMF transactions report; IMF, 2009.

pension funds in Hungary in 2011 led to an impressive surplus. At the end of 2010 for all countries surveyed procedure has been initiated by the Council of the EU for the existence of an excessive deficit.

Annual budget deficits were traditionally covered by the issue of public debt. Average gross indebtedness of the public sector in the seven countries increased from 30% of GDP in 2008, to 44.1% in 2012. According to this indicator best performing was the Bulgarian economy in 2008-2012, with an average annual debt of 16% of GDP, while Hungary's gross public debt during the period averaged 79% of GDP.

A factor for the strong decrease of the Latvian GDP in 2009 was also the fiscal consolidation undertaken by the Latvian government in response to the demands of international creditors, and due to the need to maintain the peg. In Lithuania, a similar process of fiscal consolidation was undertaken, but on a considerably smaller scale. Besides fiscal consolidation through the reducing of public expenditures CEE countries also conducted a fiscal consolidation, based on tax hikes (indirect taxes rose in Lithuania, Latvia, Poland, Romania and Hungary). To manage fiscal risks Latvian government reduced its budget spending in nominal terms in 2009, 2010 and 2011, respectively by 17.8, 3.8 and 0.1%. Lithuania also undertook fiscal consolidation by reducing public expenditure, in 2009 and 2010 they were reduced by 3.3 and 1%. In 2010 and 2011 the Czech government reduced public spending by 1.1 and 0.1% in nominal terms.

For most of the countries, in the period until the end of 2008, there was a large inflow of capital and significant outflow of funds in the form of imports of goods and services, i.e. current account deficits. A major role of intermediating this process can be given to commercial banks. Following the crisis, this trend turned by 180 degrees, with a process of withdrawal of capital and a sharp contraction in imports took place, which together with stagnating GDP led to current account surpluses in most countries. For the period 2004-2008, the average surplus on the capital and financial account was 21% of GDP in Bulgaria, 17.5% in Latvia, 10.6% in Lithuania, 10.4% in Romania and 9.4% in Hungary. These capital inflows stimulated private consumption and private investment, leading to a record current account deficits of these countries, as in the corresponding period deficit averaged 16.8% in Bulgaria, 16.7% in Latvia, 10.5% in Lithuania and Romania, 7.6% in Hungary. The balance on the capital and financial account in the period beginning of 2009 and ending in 2012 was with a positive average value of 1.7% of GDP in Bulgaria, with a negative value of 2.4% for Latvia, with a positive value of 0.2 % for Lithuania, and with nearly equal to 0% for Hungary with a positive value of 4.4% for Romania. The current account balance for the same period was with an average negative value of 2.9% of annual GDP in Bulgaria, with a positive value of 1.9% in Latvia , with a negative value of 0.1% for Lithuania, with a positive value of 0.9% for Hungary and with a negative value of 4.3% for Romania. During the same period, trade and capital flows were with more moderate changes in the Czech Republic and Poland.

Credit supply factors

The banking systems in the seven countries attracted international capital before the crisis, but in the next period the trend sharply reversed. Withdrawal of liquidity from foreign creditors made commercial banks, central banks and governments face serious challenges. In this regard was the Vienna Initiative, which aimed to prevent unsustainable withdrawal of capital from subsidiaries in CEE from their parent international banking groups. A series of agreements between central banks and governments, and between bank headquarters and international financial institutions aimed to prevent the shock withdrawal of capital from the banking systems of the countries concerned. [11]

After the structural break, caused by the crisis, the rate of growth of credit aggregates decreased and in particular loans to non-financial private sector declined in stock value. However, in Latvia, Lithuania and Hungary an average reduction in the nominal value of outstanding loans was observed. After 2008 economic agents were reluctant to take risks, as households and firms increased their savings in bank deposits, but loans to companies and households, respectively private consumption and investment, did not follow this dynamic. In some cases, such as in Latvia and Lithuania there was even a growth in deposits and a decline in loans. The desire to increase private sector savings, who are not transferred in an increase in loans and investments is a practical manifestation of the effect of savings, defined by Keynes. In a normal economic environment rising deposits are accompanied by rising loans, because of the multiplier effect of credit-deposit activity of banks, which later translates in to an increase in aggregate demand.

Commercial banks in some of the countries under review increased capital and reserves, and assets different than loans to the private sector. In some banking systems cash holdings were increased, in other – debt securities investments rose, while in others there were both characteristics, i.e. banks opted to increased buffers to meet further deterioration in economic conditions (see Tables 1 and 8).

Credit supply is inversely related to inflation.[12] However, as in credit demand, inflation can be interpreted in two ways. When prices rise, banks can readily lend. They operate mostly with borrowed funds, which also depreciate in real terms with the increase in the price level. Moreover, when inflation is caused by aggregate demand advance, it is more likely that one can repay depreciating in real terms due interest and principal, i.e. the likelihood of an increase in non-performing loans reduces.[13] This partly explains why at lower price levels in 2008-2012 compared to the previous period of economic boom banks restrict lending.

Interest rate dynamics in loans and deposits was indicative of the presence of a structural break (SB) for the financial system in each of these seven countries. The rate of response in each of them was different, as they differed in the timing of

[11] See Kolev and Zwwart, 2013.

[12] See Blundell-Wignall and Gizycki, 1992; Pazarbasioglu, 1996; De Mello and Pisu, 2009.

[13] See. Christov and Mihaylov, 2002; Guo and Stepanyan, 2011; Alper et al., 2012.

the minimum interest rates before the SB, of the maximum during the SB, and of the subsequent minimum post the SB (see Table 9 in the Appendix).

Interest rates on loans and deposits are a factor of supply and demand for loans. Credit demand is adversely affected by interest thereon, as well as interest rates on deposits, which can be used as an opportunity cost of capital. However, the hypothesis is valid, that higher interest rates on deposits motivate depositors and turn some of them into borrowers, due to larger wealth, i.e. may have a positive impact on the demand for loans. Empirical studies show, that the supply of credit is in a positive dependence from the interest rates, or from the net interest margin, or from the net interest income.[14] As a result of the crisis, lending rates sharply increased. Their downward dynamics was an expression of the increased risks in the financial system and the economy, and was not caused by an increase in aggregate demand pickup. Withdrawal of liquidity from foreign parent banks motivated commercial banks to seek local individuals and companies deposits for replacing the source of funds. Interest rates on deposits of firms and households rose in the period following the SP, by over 200% in Latvia and Lithuania and by over 100% in the Czech Republic, Hungary, Romania and Poland (see Table. 9 in the Appendix). In addition to the increased funding costs, higher interest rates on the loans were due to the growth in non-performing loans, due to the deterioration of the real economic activity, as well as due to a number of other determinants.

If two periods are separated by three extremes - minimum during the pre-structural break period, maximum during the SB, caused by the crisis and the subsequent minimum in post-SB period, then interest rates on loans to businesses and households (mortgage and consumer loans) in Latvia, Lithuania, Romania, Czech Republic and Hungary increased the most during the post-SB period.[15] During this period, 5- year rates on long-term business loans in Latvia rose by 114%, while rates on mortgage and consumer loans with a maturity of over 5 years rose by 241 and 186%. During the post-SP period a large scale decline in interest rates went underway, especially strong depreciation of the loans was experienced in the countries with biggest increase during the SB. In Bulgaria and Poland increase and decrease of interest rates were with modest rate of change.

Consumer loans interest rates, especially those with short-term profile rose the most, as in Bulgaria, Romania, Czech Republic, Latvia, Lithuania and Hungary annual interest rates in the range 15-30% were observed .The lack of collateral (in most instances) and a high rate of non-performing consumer loans motivated banks to transfer higher risks by increasing interest rates. Unlike corporate and mortgage loans, consumer loans to households did not drop in price, i.e. to values lower than the pre-crisis period.

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[14] See Blundell-Wignall and Gizycki, 1992; Pazarbasioglu, 1996; De Mello and Pisu, 2009.

[15] Pre- and post- structural break period didn't match in the seven countries, they were with different timing. For the purpose of the descriptive analysis the maximum length of the pre-SB period is set to 5 years.

Table 2

Real interest rates

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012
Bulgaria	4.46	1.23	1.86	0.7	2.26	6.71	8.12	5.45	7.35
Latvia	0.41	-3.69	-2.35	-7.8	-2.21	18	12.16	0.14	2.49
Lithuania	3.13	-1.26	-1.34	-1.51	-1.24	12.56	3.88	n.a.	n.a.
Romania	9.19	6.51	2.89	0.28	-0.48	12.53	7.59	3.76	13.69
Hungary	7.21	5.91	4.43	3.46	4.66	7.21	4.36	5.56	5.77
Czech rep.	1.92	6.15	5.03	2.39	4.25	3.62	7.61	6.8	3.82

* There was no data for Poland in World bank time series set.

Source: ECB, own calculations.

In most countries, interest rates in the second period (post-SB) fell to lower levels in nominal terms from the period before the crisis. This change followed the global trend towards lower interest rates, helped by the monetary policy of the central banks, and in some cases by government policies (by measures of capitalization of commercial banks). Despite the fall in credit interest rates in most countries in the period following the SB, lower inflation in the post-crisis period did not allow real interest rates on loans and deposits to drop to the pre-SB level.

It is well known that the supply of credit is in a positive correlation with interest rates on loans, but commercial banks are giving larger respect to the net interest income, which takes into account the cost of borrowed funds (deposits of households and companies). Obviously, the lower interest rates on loans in the post-SB period did not stimulate demand for loans. Despite the fact, that interest rates on loans are lower than the pre-crisis level it is hardly the pre-crisis growth level was unimaginable. In some of the countries there was even a nominal decrease in outstanding loans. It is possible that commercial banks were unwilling to lend at interest rates higher than their optimum level, at which they feel comfortable, after which the customers with high chances of falling into a state of insolvency are more likely to become borrowers, which would ultimately lead to an increase in non-performing loans.[16]

Commercial banks in the seven countries surveyed adhere more to traditional deposit and lending activities, as banks in developed countries have a greater exposure to the financial markets. Below 50% of bank assets in the Czech Republic and Hungary are allocated in loans to the private non-financial sector, and thus they resemble a developed banking systems. Banking systems of these countries, however, are at greater risk of change in the prices of financial instruments. Growing public debt and not so effective methods of dealing with debt crises in individual EU countries can put their banking systems in to a new challenge

In 2008-2012, commercial banks strived to match not only the maturity structure of their assets and liabilities, but also to match the currency structure, due to the large currency composition of liabilities. Foreign currency lending was strongly advocated in

[16] See Stiglitz and Weiss, 1988.

Bulgaria, Latvia, Lithuania, Romania and Hungary. In the third quarter of 2011 the share of loans in Swiss francs in total bank loans was about 35% in Hungary, 20% in Poland and 7% for Romania.[17] Households predominantly borrowed in francs, and the sharp appreciation of the franc against the euro and other currencies made a number of loans denominated in Swiss francs and payable in local currencies (HUF, PLN, RON), difficult to service. Foreign currency loans in Hungary and Romania caused further deterioration in bank balance sheets as a result of the devaluation of the national currency. Currency board arrangements in Bulgaria and Lithuania and the pegged exchange rate in Latvia, however, proved resistant to financial and economic shocks. In Latvia, however authorities have undertaken serious measures for fiscal consolidation. so as to meet the demands of creditors and to obtain foreign loans and to ensure the lats peg, by reducing fiscal imbalances.

Reduction of external liabilities is a general tendency for the surveyed countries, with Poland being the exception. The outflow of liquidity to foreign creditors is a process that forced banks to seek alternative sources of funding, and had depressive impact on credit supply. The growth in deposits of non-financial private sector, however, compensated the outflow.[18]

Another group of variables has the largest contribution to the equation of credit supply. These are specific to banks' balance factors, such as liquidity and its derivatives, also capital adequacy and its close substitutes. [19]

The increase in leverage ratios and liquidity ration and the decrease of the ratio of loans to deposits signaled that there was a change in the perception of risk of commercial banks. The increase in non-performing loans and the expiration of the external liabilities of banks led to a cautious behavior of banks.

Table 3

Leverage ratios (%)

Country	2008	2009	2010	2011	2012
Bulgaria	11.1	12.7	12.8	12.6	12.1
Latvia	7.5	7.6	7.6	7.9	9.6
Lithuania	8.5	11.4	13.1	13.5	13.6
Poland	10.7	13.3	13.5	13.1	14.1
Romania	10.6	12.0	14.1	16.0	18.0
Hungary	7.4	8.0	7.9	7.7	9.0
Czech rep.	9.3	10.5	11.0	10.9	11.6

Source: ECB, own calculations.

[17] See Yeşin, 2013.

[18] Bank deposits rose in all analyzed countries, except in Hungary. The average rate of growth of deposits of non-financial firms and households in Bulgaria, the Czech rep., Latvia and Poland was in the range between 5.7 and 13% per annum, signaling that economic agents have been more risk averse, unwilling to take on risks.

[19] See. Blundell-Wignall and Gizycki, 1992; Hülsewig et al., 2001; Christov and Mihaylov, 2002; Takeda et al., 2003; Hurlin and Kierzenkowski, 2007; Altunbas et al., 2009; De Mello and Pisu, 2009; Cornett et al., 2010; Gambacorta and Marqués-Ibáñez, 2011; Alper et al.,. 2012; Montoro and Rojas-Suarez, 2012.

In 2012, the banking systems in seven countries had a greater capacity for taking new losses, and the securing the future growth in lending. The most conservative and best capital secured by this indicator were the banking systems in Bulgaria, Lithuania, Poland and Romania, which allowed the absorption of further adverse shocks in the economic environment.

Table 4

Liquid assets to total assets ratio (%)

Country	2008	2009	2010	2011	2012
Bulgaria	19.0	18.9	20.9	22.0	22.4
Latvia	7.1	22.6	22.3	30.9	34.7
Lithuania	21.1	23.4	23.1	25.5	23.9
Poland	17.0	20.3	20.8	19.5	20.9
Romania	47.1	57.5	60.0	58.7	57.6
Hungary	18.1	23.5	22.3	24.7	30.8
Czech rep.	25.8	27.1	29.4	29.9	32.6

Source. IMF. Financial Soundness Indicators (FSIs).

Banks significantly improved their liquidity position. If at as the end of 2012 this process is seen as accumulation of buffers for eventual further deterioration in asset quality, then with a clear positive signals for the economy part of this liquidity will transfer into new bank loans. The share of liquid assets in total assets in 2008-2012, increased in all countries, even while in Latvia there is a fourfold increase because of the low initial base of the Latvian banking system in 2008.

Non-performing loans increased several times since the beginning of the crisis. If in 2004-2008 the average ratio between the value of non-performing loans and gross loans was just over 3.2% (see Table 5) in 2012 the ratio rose to 11.7%.

Table 5

Non-performing loans, in % of gross loans

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012
Bulgaria	2	2.2	2.2	2.1	2.5	6.4	11.9	14.9	16.9
Latvia	1.1	0.7	0.5	0.8	2.1	14.3	15.9	13.9	11
Lithuania	2.2	0.6	1	1	4.6	19.3	19.7	16.3	18
Poland	14.9	11	7.4	5.2	4.4	7.9	8.8	8.2	8.4
Romania	8.1	2.6	1.8	2.6	2.8	7.9	11.9	14.3	16.8
Hungary	2.7	2.3	2.6	2.3	3	6.7	9.8	13.4	15.8
Czech rep.	4	3.9	3.6	2.4	2.8	4.6	5.4	5.2	5.1

Source. WB.

Growth depends less on credit policy and on systems for managing risk in individual banks. Non-performing loans as largely a function of economic activity

(real GDP, for example) and to a lesser extent on interest rates, as compared to the first variable there is an inverse relationship, while against the interest level a positive dependence is a fact.[20] Itself the growth of non-performing loans is worrying, but it is important to monitor whether the indicator is backed by loan loss provisions and equity. In 2012 non-provisioned part of the non-performing loans corresponded to 63% of the bank equity in Lithuania and 53% in Hungary. The ratio decreased with the sale of bad loans, conversion of loans in loans with a lower risk profile, and with an increase in the equity (Table 6).

Table 6

Non-provisioned part of non-performing loans to equity (%)

Country	2008	2009	2010	2011	2012
Bulgaria	3.5	15.1	28.0	36.9	38.9
Latvia	12.3	104.6	98.8	75.6	19.4
Lithuania	44.0	128.7	99.4	80.9	62.5
Poland	8.3	13.8	11.5	11.6	12.9
Romania	10.7	11.3	15.7	16.5	14.4
Hungary	15.6	33.0	49.3	59.0	52.9
Czech rep.	12.9	21.9	25.6	24.5	23.6

Source. IMF. Financial Soundness Indicators (FSIs).

However, one can conclude, that the central banks in some of the countries analyzed underestimated the risks before the crisis and were not able to cope with the rapid credit growth and the overheating economy, stimulating commercial banks to generate buffers. As a result of the crisis risks have materialized and the banking systems in Latvia, Lithuania and Hungary find themselves in a worse position for the accumulation of losses (the coefficient of leverage in these countries was with a lower value, compared to the other emerging economies of the CEE region included in this analysis). In 2008, the liquidity ratio also signaled an underestimated risks in some countries (for Latvia the liquidity ratio was 7.1%, with values between 19 and 47% for Bulgaria, Lithuania, the Czech Republic and Romania). Gradually by the end of 2012, all banking systems improved their liquidity position.

Profitability in banking systems in the countries studied have reduced because of the poor quality of assets, caused by the negative economic situation. In 2009 and 2010, banks in Lithuania and Latvia reported big losses, but in 2012, what occurred was a significant improvement of profitability. Romanian and Hungarian banking system deteriorated profitability in 2011 and 2012, by contrast, commercial banks in the Czech Republic and Poland performed best during the period, according to the values and dynamics of the return on assets. It should be

[20] See Beck et al., 2013.

borne in mind that a number of banking systems are subject to counter-cyclical and extraordinary rescue measures by central banks and governments. In contrast, due to the buffers generated as a result of the monitoring of the BNB Bulgarian banking system was able to make profits despite a weak economic recovery. Thus it improves its capital base and capacity to absorb new losses and to increase lending when conditions become favorable for this.

Table 7

Return on assets (%)

Country	2008	2009	2010	2011	2012
Bulgaria	2.1	1.1	0.8	0.6	0.7
Latvia	0.2	-3.9	-1.8	0.5	2.0
Lithuania	1.1	-4.5	-0.4	1.7	1.1
Poland	1.5	0.8	1.0	1.3	1.2
Romania	1.6	0.2	-0.2	-0.2	-0.6
Hungary	1.1	0.6	0.0	-0.7	-0.1
Czech rep.	1.1	1.4	1.3	1.2	1.4

Source. IMF. Financial Soundness Indicators (FSIs).

Central banks in the countries concerned, understandably had an active part in the process of maintaining the stability and liquidity on the banking market. Disinflation and the ability to support the economy within the mandate of the central banks allowed them to conduct stimulating monetary policy. Declining inflation, and diminishing expectations of low inflation as a result of the weak economic demand and the need for commercial banks to better manage liquidity motivated the central banks in Latvia, Poland, Romania, Hungary and the Czech Republic to cut key interest rates, that they control.

In early 2009, interbank interest rates rose sharply and traded volumes almost ceased, since commercial banks increased distrust each other. The situation in 2009 required unpopular measures for preserving the stability of the financial system, increasing its liquidity and easing of monetary and hence financial markets. In addition to traditional measures of lowering interest rates, reducing minimum reserve requirements (MRR) (except for countries without available MRR and the Czech Republic, where the rate of reserve requirements was unchanged at low 2%). Central banks also provided liquidity in the system by providing more long-term funding instruments for commercial banks .

In October 2008, the Polish Central Bank (PCB) introduced additional monetary tools to relax the money market and to enable commercial banks to manage better their liquidity. PCB began providing longer-term funding to commercial banks, introducing even quarterly repurchase loans compared to a maturity of 7-days before the crisis. PCB increased the number of instruments taken as a collateral, and provided funding in foreign currency through swap agreements. Effective June 30, 2009 PCB reduced MRR by 0.5 to 3.0% of

deposits, and on October 30, 2010 raised it by 0.5 to 3.5%. It paid to commercial banks interest rate on reserve requirements held within its vault, worth 90% of discount interest.

Romanian central bank increased liquidity in the system, when it was most needed, especially in 2009, through 30-day repo loans in addition to the traditional seven -day loans.

Hungarian Central Bank (HCB) presented two new instruments of monetary policy. As of October 21, 2008 HCB provided bi-weekly and half-yearly collateralized loans. As collateral it accepted mortgage and corporate bonds rated BBB or higher, also government and corporate Eurobonds municipal bonds. From April 2012 HCB provided two-year collateralized loans, making it easier for commercial banks to manage their longer term liquidity and to better match the matching the maturity of assets and liabilities. In late 2008 and early 2009, HCB negotiated swap financing with ECB and the central bank of Switzerland, as managed to increase the liquidity on the foreign exchange and money markets and to satisfy the precautionary and speculative demand for euros and francs.

The banking sector in many countries was supported by public resources, in terms of preventing a systemic banking crisis, which would affect more seriously and already deteriorating economic activity.

In November 2008, the Latvian government acquired 51% of the second largest commercial banks in the country Parex Bank by paying 2 lats per share for the fallen into a liquidity crisis banking institution. In addition, 34% of Parex Bank were transferred to the state owned Mortgage and Land Bank as a collateral for the transaction. In early April 2009 the EBRD acquired 25% +1 share of the Parex Bank against an investment of EUR 106 million in equity and subordinated debt. By this actions the Latvian government and Latvian central bank prevented a further adverse developments in the banking and financial sector of the country.

On November 16, 2011, the Lithuanian government nationalized 100% of the capital of Snoras Bank. On November 24, the bank declared bankruptcy after Lithuanian central bank took its license for carrying out banking activities. Snoras Bank had a market share of 6.2% in loans and 13% of deposits, but the suspension of its activities was not followed by a systemic risk developments. Confidence in the system quickly returned, after the deposit insurance fund began to pay amounts guaranteed by the law of deposits.

At the end of 2008 in response to the crisis and in order for banks to better manage their liquidity BNB reduced the rate of reserve requirements on all deposits from 12 to 10%. From January 1, 2009 the rate of MRR was reduced from 10 to 5% for borrowings by banks from non-residents (mainly parent banks), while attracted state and municipal funds were not subject to MRR. From October, 1 2008 BNB recognized as reserve assets 50% of cash holding in commercial banks and provided an relaxed access to their reserves with BNB. This allowed commercial banks to repay BGN 1.3 billion in debt due to foreign parent banks and was a proof that the peak of the crisis in 2009 commercial banks in Bulgaria did not

face serious liquidity problems. In addition to these measures BNB recommended to CB not to distribute dividends from the profit for 2008, with that measure led to an increase in the capital base of BGN 1.4 billion, contributing to better liquidity in the system. Thanks to the measures taken by BNB liquidity in the financial system rose by BGN 3 billion.[21] In 2011, BNB extended the period for realization of collateral, allowing commercial banks to achieve a higher price of the collateral, i.e. to reintegrate larger provisions.

Countercyclical and conservative supervision policy of BNB did not allow commercial banks during the credit boom to reach even higher credit growth when they were forced to maintain reserve requirements and capital adequacy above the EU average. Increasing reserve requirements, the introduction a marginal reserve requirement for banks with credit growth above, higher than the adopted benchmark, conservative policy on collateral, restrictive licensing policy were only part of measures undertaken by BNB in its attempt to cool the rapid credit growth and to generate buffers for future risks. Thanks to the policy of BNB Bulgarian banking system did not have to be rescued with public funds, unlike the banking systems of many countries, including some of the seven countries surveyed . In 2008-2012, the Bank continued its anti-cyclical policies, however during this period the measures were in favor of increasing the liquidity and better risk management by commercial banks.

*

The performed descriptive analysis shows that during the period between 2008 and 2012, economic activity was the main factor for the credit dynamics. Loan demand was affected mostly by the general economic activity, while the perception of risk among banks was high because of the upward dynamics of classified loans and downward dynamics in profitability.

The crisis brought a structural break for the economy and the credit market of Bulgaria, Latvia, Lithuania, Romania, Hungary and to lesser degree in the Czech Republic and Poland. In 2008-2012, the behavior of non-financial companies and households as well as commercial banks can be characterized as highly risk averse, in contrast to the period of economic boom, ending in 2008. Of course, the response to the crisis in each country was different and depends on the economic imbalances generated in the pre-crisis period. At the end of 2012, banks were better capitalized than the pre-crisis period, also they were more liquid, with larger loans provisions than 2008, the year before the peak of the crisis in 2009. In 2009 lending decreased in some of the countries under research. The considerable economic downturn and subsequent insufficient economic recovery in Latvia, Lithuania, Romania and Hungary was the key contributor to the negative dynamics on the credit market. Quite the opposite was the development

[21] See Bulgarian National Bank's Governor Presentation (Iskrov, 2009).

in the Czech Republic and Poland, where economic growth provoked the growth in demand for credit, while lower level of classified loans and generated capital and liquidity buffers stimulated the supply of credit. Net exports and the international movement of capital, as measured by the gross external debt of individual countries and by the obligations of commercial banks to non-residents, were among the variables that fit well in explaining the variance in credit to the private non-financial sector.

After the outbreak of the crisis it became obvious which central banks have properly assessed the risks and which central banks have underestimated them. Insufficient capital (low leverage ratio and low capital adequacy ratio) and liquidity buffers before the crisis made a lot of banking systems facing serious challenges. In many of the countries examined non-traditional measures were used for preventing the bank system risk to materialize, with public funds being used with some of them, aiming to prevent the materialization of systemic banking risks, and to maintain the stability, confidence and liquidity in the system. The Bulgarian banking supervision authority, i.e. BNB was accused for being too conservative during the economic boom compared to the standards of developed countries and some less risk averse CEE central banks, facts proved that the conservative counter-cyclical policy was crucial to prevent systemic risks during boom were highly underestimated.

For a heftier credit market, stimulating aggregate expenditures, improvements in the economic environment are needed, induced by reforms and structural economic changes, that help improving internal economic conjuncture. It is evident that the conservative monetary policy during the boom should not be underestimated and in critical moments it "repays" not only that it prevents systematic risk developments, but it also saves public resources. In this respect, the central bank must be steadfast in fulfilling its anti-cyclical policy, especially during the boom part of the business cycle.

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Table 8

Selected economic and financial sector variables (EUR bln.)

	Bulgaria					Latvia					Lithuania					Poland				
Period	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
Bank credits (total)	28.4	29.4	31.0	31.7	33.3	22.9	21.2	20.3	18.6	17.4	21.7	19.7	19.1	18.9	18.6	174.4	191.9	217.7	217.0	249.5
Bank credits of the non-financial private sector	25.1	26.1	26.4	27.2	28.1	20.6	19.1	17.5	16.3	14.6	20.2	18.4	17.2	16.0	16.1	150.1	162.9	182.3	184.4	204.8
Non-common stock securities	1.9	1.7	2.0	2.3	2.9	1.5	0.7	0.7	0.6	0.7	0.7	1.0	1.1	1.1	1.1	42.7	49.5	59.2	56.3	63.1
Cash and other assets	1.3	1.2	1.5	1.7	2.1	0.8	1.0	1.1	1.2	1.0	0.6	0.9	1.0	0.9	0.9	20.3	11.6	11.5	12.9	15.5
External assets	3.9	4.1	4.1	4.6	5.1	6.8	6.7	7.7	8.4	8.8	3.2	4.3	4.0	3.3	3.2	14.5	9.1	10.3	11.6	12.6
Total deposits	21.2	21.9	24.2	26.8	28.7	9.8	9.0	9.6	8.9	9.5	10.7	11.5	12.8	12.4	13.5	160.1	174.3	193.9	190.2	221.8
Deposits of the non-financial private sector	19.6	20.6	22.5	25.3	27.4	7.4	7.5	8.2	8.1	8.4	10.3	10.9	11.8	12.0	12.8	138.5	154.8	175.0	174.9	201.4
Capital and reserves	4.1	4.8	5.1	5.3	5.5	2.4	2.3	2.3	2.3	2.7	2.3	3.0	3.4	3.3	3.3	28.2	36.3	42.0	40.7	50.0
External liabilities	9.4	8.7	7.5	6.4	6.9	18.0	15.0	15.0	13.7	13.8	12.2	10.4	8.6	7.8	6.8	41.8	42.1	49.5	49.4	47.7
Total assets	36.8	38.0	40.1	42.2	45.4	32.3	30.0	30.4	29.5	28.6	26.5	26.2	25.7	24.7	24.4	262.6	274.0	311.5	309.7	354.7
Non-financial private sector credit to assets (%)	68.2	68.7	65.8	64.6	61.8	63.6	63.4	57.6	55.2	51.0	76.0	70.3	66.9	64.9	66.2	57.2	59.4	58.5	59.5	57.8
GDP at 2005 prices	28.0	26.4	26.5	27.0	27.2	15.2	12.5	12.4	13.0	13.7	25.5	21.8	22.1	23.4	24.2	291.1	295.8	307.2	321.1	327.5
Gross external debt to GDP (%)	105.1	108.3	102.7	94.1	94.8	130.1	156.5	164.8	145.0	136.2	71.0	83.9	83.2	77.8	75.4	56.8	59.4%	66.4	71.7	70.8
HIPC	131.2	133.4	139.3	142.2	146.1	137.8	135.9	139.2	144.6	146.9	124.5	125.9	130.5	135.0	139.0	109.4	113.6	116.9	122.2	124.9
Inflation (%)	3.3	0.5	2.3	2.8	2.4	10.4	-1.4	2.4	3.9	1.6	8.5	1.2	3.6	3.5	2.9	3.3	3.8	2.9	4.5	2.2
	Romania					Hungary					Czech rep.									
Bank credits (total)	71.0	66.1	67.0	68.4	65.3	83.2	81.2	81.1	74.1	69.3	88.7	96.0	104.6	106.8	110.5					
Bank credits of the non-financial private sector	49.3	47.1	49.1	51.6	50.9	67.5	64.1	64.4	56.5	52.6	70.0	71.6	78.2	80.1	84.3					
Non-common stock securities	2.8	8.4	11.8	13.9	15.5	22.0	29.4	27.8	25.4	30.0	23.6	27.7	30.9	33.0	38.4					
Cash and other assets	6.2	6.2	6.5	4.1	4.7	5.0	2.4	0.3	-0.1	-0.8	12.0	9.2	8.5	10.5	10.0					
External assets	1.7	3.0	3.0	2.3	2.6	14.0	13.9	13.2	12.0	9.7	25.9	22.3	24.0	22.6	25.2					
Total deposits	42.1	46.1	46.4	47.9	49.9	59.7	63.3	60.4	56.8	59.6	101.8	109.4	118.6	122.3	132.2					
Deposits of the non-financial private sector	38.0	39.8	41.9	43.5	44.7	48.6	48.4	47.1	44.1	47.6	90.9	95.9	104.5	106.2	114.3					
Capital and reserves	9.0	10.3	12.9	14.7	16.4	9.4	10.4	9.9	8.9	10.0	14.7	17.0	19.4	19.7	22.2					
External liabilities	25.7	22.5	24.1	24.1	21.1	33.8	31.7	30.5	26.3	20.6	16.4	13.5	15.4	15.3	13.7					
Total assets	84.5	86.4	91.2	91.8	91.2	128.0	130.4	125.9	114.5	111.6	157.1	161.8	175.3	180.4	191.7					
Non-financial private sector credit to assets (%)	58.3	54.6	53.9	56.2	55.8	52.7	49.1	51.1	49.3	47.1	44.6	44.3	44.6	44.4	44.0					
GDP at 2005 prices	97.8	92.0	90.9	92.7	93.4	93.1	86.9	88.1	89.5	87.9	122.0	116.6	119.3	121.5	120.1					
Gross external debt to GDP (%)	56.0	68.6	75.7	77.2	74.6	123.2	144.9	144.8	147.7	127.9	48.5	51.4	56.3	59.7	60.5					
HIPC	123.7	129.5	139.8	144.2	150.8	119.0	125.4	131.2	136.6	143.5	111.1	111.7	114.3	117.5	120.3					
Inflation (%)	6.4	4.7	7.9	3.2	4.6	3.4	5.4	4.6	4.1	5.1	3.3	0.5	2.3	2.8	2.4					

Source: ECB, own calculations.

Table 9

Interest rates on bank loans and deposits dynamic pre-crisis, during the crisis and post-crisis

	Bulgaria			Latvia			Lithuania			Poland		
Interest rates % (as of date)	T 1*	T 2**	T 3***	T 1	T 2	T 3	T 1	T 2	T 3	T 1	T 2	T 3
Business loans, to 1 year	8.46 (2007-01)	10.55 (2009-01)	7.16 (2012-12)	5.66 (2005-11)	21.1 (2009-06)	2.65 (2012-12)	4.61 (2005-12)	8.52 (2009-06)	2.81 (2012-12)	5.79 (2007-03)	7.74 (2008-11)	5.76 (2009-04)
Business loans, from 1 year to 5 years	9.69 (2007-03)	11.43 (2008-12)	8.54 (41274)	5.98 (2005-11)	17.96 (2009-06)	4.06 (2012-11)	4.89 (2005-12)	9.04 (2009-05)	4.04 (2012-11)	5.79 (2007-03)	7.96 (2008-11)	5.97 (2009-04)
Business loans, over 5 years	9.43 (2007-03)	11.8 (2008-11)	8.88 (2012-12)	5.6 (2005-11)	12 (2009-06)	3.75 (2012-11)	4.58 (2005-10)	9.32 (2009-07)	4.06 (2012-12)	5.86 (2007-04)	7.41 (2008-12)	5.41 (2009-10)
Mortgage loans to households, to 1 year	10.25 (2008-02)	13.63 (2010-04)	7.75 (2012-07)	6.25 (2005-12)	52.23 (2010-04)	2.18 (2012-04)	3.91 (2005-11)	11.99 (2009-04)	0.93 (2011-06)	6.12 (2006-06)	9.47 (2008-12)	6.52 (2011-03)
Mortgage loans to households, from 1 to 5 years	9.75 (2007-01)	11.35 (2008-12)	7.93 (2012-12)	5.76 (2005-12)	13.45 (2009-08)	4.38 (2011-10)	4.21 (2005-12)	8.54 (2009-01)	3.75 (2012-12)	5.59 (2007-05)	8.06 (2008-12)	6.75 (2011-01)
Mortgage loans to households, over 5 years	8.59 (2007-02)	9.81 (2008-12)	8.73 (2012-12)	3.46 (2012-12)	11.82 (2009-07)	3.46 (2012-12)	4.1 (2005-12)	8.23 (2009-08)	3 (2012-12)	5.61 (2007-05)	7.91 (2008-12)	5.83 (2010-07)
Consumption loans, to 1 year	12.99 (2007-09)	15.49 (2010-05)	14.65 (2012-12)	11 (2004-04)	24.63 (2011-03)	23.02 (2012-10)	6.27 (2005-05)	11.38 (2009-09)	6.47 (2012-12)	11.78 (2006-12)	14.29 (2008-10)	12.9 (2009-11)
Consumption loans, from 1 year to 5 years	12.3 (2007-11)	13.53 (2008-12)	12.51 (2012-12)	10.62 (2004-08)	21.12 (2011-02)	17.26 (2012-11)	7.95 (2007-04)	12.01 (2010-09)	11.08 (2012-12)	11.12 (2006-12)	13.71 (2010-02)	13.34 (2011-04)
Consumption loans, over 5 years	10.13 (2007-08)	12.09 (2008-12)	11.41 (2012-12)	5.83 (2007-01)	16.68 (2009-08)	7.8 (2012-12)	4.86 (2006-01)	10.28 (2009-08)	4.07 (2012-12)	8.03 (2006-12)	11.41 (2008-11)	10.44 (2011-04)
Business deposits, to 2 years	0.96 (2007-07)	5 (2009-09)	3.29 (2010-10)	4.62 (2006-04)	7.25 (2009-08)	2.17 (2012-12)	1.53 (2005-04)	6.02 (2009-07)	3.46 (2012-12)	2.64 (2007-05)	4.3 (2009-01)	2.48 (2009-10)
Business deposits, over 2 years	3.67 (2007-06)	6.23 (2009-08)	4.19 (2012-08)	2.95 (2005-11)	17.67 (2009-06)	0.83 (2012-12)	2.29 (2005-10)	8.16 (2009-01)	1.23 (2012-12)	3.63 (2006-12)	5.97 (2008-12)	3.58 (2010-08)
Households deposits, to 2 years	6.68 (2007-07)	7.27 (2009-12)	6.84 (2012-03)	4.95 (2006-08)	11.16 (2010-06)	4.36 (2012-12)	3.66 (2005-11)	8.19 (2010-02)	3.87 (2012-12)	3.01 (2007-04)	3.29 (2008-04)	2.1 (2012-08)
Households deposits, over 2 years	4.29 (2007-04)	7.31 (2009-11)	4.97 (2012-12)	3.59 (2006-04)	11.4 (2009-12)	1.49 (2012-12)	2.59 (2005-11)	8.36 (2009-10)	1.32 (2012-12)	2.73 (2006-05)	6.48 (2009-02)	3.99 (2011-01)

	Romania			Hungary			Czech rep.		
Interest rates % (as of date)	T 1	T 2	T 3	T 1	T 2	T 3	T 1	T 2	T 3
Business loans, to 1 year	11.42 (2007-08)	19.69 (2009-02)	8.92 (2012-04)	7.97 (2006-04)	13.44 (2008-11)	8.46 (2010-10)	3.39 (2004-02)	5.63 (2008-07)	2.83 (2012-12)
Business loans, from 1 year to 5 years	11.91 (2007-09)	19.17 (2009-03)	9.38 (2012-05)	8.46 (2006-03)	13.45 (2009-06)	8.71 (2010-08)	3.83 (2005-10)	5.85 (2008-11)	3.37 (2012-12)
Business loans, over 5 years	10.98 (2007-10)	17.89 (2009-03)	10.2 (2012-07)	7.85 (2006-05)	12.01 (2009-01)	8.07 (2010-08)	4.58 (2006-04)	5.78 (2008-11)	3.56 (2012-12)
Mortgage loans to households, to 1 year	7.92 (2007-05)	16.7 (2010-05)	8.22 (2012-05)	6.82 (2007-06)	11.11 (2009-08)	8.49 (2011-02)	4.03 (2005-06)	8.68 (2010-08)	4.88 (2012-12)
Mortgage loans to households, from 1 to 5 years	12.73 (2008-09)	15.02 (2010-06)	8.44 (2012-10)	12.66 (2008-05)	13.07 (2009-09)	9.9 (2012-12)	6.09 (2007-03)	6.36 (2008-09)	5.62 (2012-07)
Mortgage loans to households, over 5 years	9.62 (2008-01)	11.4 (2010-01)	8.3 (2012-08)	10.3 (2007-10)	12.34 (2009-06)	10.88 (2011-12)	4.8 (2007-06)	5.22 (2009-09)	4.56 (2012-12)
Consumption loans, to 1 year	19.95 (2008-07)	22.72 (2009-03)	13.76 (2012-05)	18.85 (2005-11)	30.02 (2010-08)	29.01 (2011-09)	10.33 (2004-02)	17.01 (2009-09)	16.49 (2012-07)
Consumption loans, from 1 year to 5 years	15.38 (2008-01)	19.18 (2009-05)	14.12 (2012-08)	19.1 (2008-05)	24.75 (2009-09)	21.73 (2011-09)	12.59 (2007-06)	13.82 (2009-07)	13.06 (2012-12)
Consumption loans, over 5 years	12.77 (2008-01)	16.53 (2009-07)	12.71 (2012-05)	13.01 (2007-06)	18.06 (2010-01)	15.42 (2012-12)	9.18 (2004-08)	9.89 (2009-12)	9.22 (2012-12)
Business deposits, to 2 years	3.06 (2007-07)	5.44 (2009-03)	2.74 (2011-10)	4.7 (2006-05)	6.55 (2008-11)	3.4 (2012-12)	1.54 (2008-06)	2.84 (2008-08)	1.65 (2011-11)
Business deposits, over 2 years	6.38 (2007-08)	16.05 (2009-02)	4.94 (2012-04)	5.15 (2005-12)	10.58 (2008-11)	4.91 (2010-07)	1.38 (2005-07)	3.3 (2008-07)	0.76 (2010-12)
Households deposits, to 2 years	6.73 (2007-09)	13.92 (2009-01)	4.49 (2012-12)	3.36 (2005-12)	4.77 (2008-11)	2.87 (2010-03)	1.99 (2008-08)	2.3 (2009-03)	1.95 (2012-12)
Households deposits, over 2 years	6.57 (2007-10)	14.13 (2009-04)	5.38 (2012-12)	4.69 (2006-03)	10.14 (2009-01)	4.55 (2010-10)	0.88 (2004-04)	2.52 (2008-07)	1.44 (2011-03)

The global financial crisis enters easily the CEE economies and marks a structural break for the economy and the financial sector.

*T 1 – minimum during the pre-crisis period. Different periods and dates are given for different CEE countries. The maximum length of the pre-crisis period is 5 years.

**T 2 – maximum during the crisis period (during the structural break of the crisis).

***T 3 – minimum during the post-crisis period.

Source: ECB, own calculus.