NÁRODNÁ BANKA SLOVENSKA
EUROSYSTÉM

FINANCIAL STABILITY REPORT 2009

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Address:
Národná banka Slovenska
Imricha Karvaša 1
813 25 Bratislava
Slovakia

Telephone:
+421 2 5787 2141
+421 2 5787 2146

Fax:
+421 2 5787 1128

http:// www.nbs.sk

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EXECUTIVE SUMMARY

A

Executive summary

In 2009, the very unfavourable situation in the global economy and in international financial markets tested the resilience of the Slovak economy and its financial system. The global financial crisis, having originated in the US mortgage lending market in mid-2007, culminated in the autumn of 2008 with the complete collapse of key financial markets and the cessation of activities or government bailout of significant global financial institutions. The high uncertainty in world financial markets persisted until March 2009, when the situation was calmed by the effects of the extensive stimulus measures and non-standard monetary measures taken by national governments and central banks. These measures also helped the crisis-hit world economy rebound from its downturn in the first quarter of 2009. But although the world economy recovered over the course of 2009, it did so at a very slow pace, and output in most regions of the world remained far below pre-crisis levels until the year-end. These external factors led to a contraction of the Slovak economy in 2009, which in turn was reflected in the performance and rise in risk exposures of the financial sector. Nevertheless, domestic financial stability was not jeopardised in 2009, and the Slovak financial system proved highly resilient to shocks, largely because its institutions were in a strong financial position and had ample levels of high-quality own capital. As the key sector in terms of financial stability, the banking sector is expected to be able to absorb further escalations of risk, particularly credit risk, over the years ahead. This view is based on the results of macro stress testing. Among individual banks, however, the tough external conditions in 2009 further exacerbated the disparities in their resilience, i.e. in the viability of their business models. Looking ahead, the weaker institutions in particular may come under severe pressure, since the difficult conditions in the external economic environment will most probably persist over the medium term.

Because of the still difficult conditions in the global economy and the substantial risks to the economic recovery of the EU/euro area, the continuing revival of the Slovak economy is surrounded by great uncertainty.

The world economy returned to moderate growth in the second quarter of 2009. The recovery, however, was not evenly spread between countries and regions, since the global economic crisis had affected different countries to varying degrees. The repercussions were more severe for those countries and regions that, even before the crisis, had been reporting substantial macroeconomic imbalances and structural problems. At the same time, economic growth in these regions may be expected to be relatively slow and uneven. This group of regions includes the European Union/euro area, which is crucial to the Slovak economy. In those countries where demand had previously been driven by debt (especially in southern Europe, the United Kingdom, and Ireland), it became largely subdued. Meanwhile, the EU/euro area banking sector continues to face very sizeable risks and internal problems (weak institutions) and can expect further challenges in the form of stricter regulation. Because of these factors, banks are deleveraging to an increasing extent, which will entail continued curtailment of their lending activities. Added to this are the mounting risks of sovereign defaults and financial contagion in the euro area. In several countries, the need for rapid fiscal consolidation has put a sharp brake on economic recovery, to the point that some observers are warning of a possible double-dip recession in the EU. Even the weak euro will prove to be a relatively minor advantage if the restoration of household balance sheets in the United States is set to continue, and with China beginning to cool its economy in response to rising inflationary risks. In these circumstances, the nascent recovery of the Slovak economy can be seen as very fragile and there is high uncertainty about whether it will accelerate in the coming period.

Medium-term risks in the domestic macroeconomic environment are persisting.

In 2009, the risk of a downturn in the domestic economy materialised as expected, with adverse repercussions for the financial position of both non-financial corporations and the household sector. Despite the worsened macroeconomic conditions, the functioning of the financial sys-

tem in Slovakia remained stable. The prospects for the domestic economy improved towards the end of the year, but there is persisting uncertainty about the outlook for the euro area economy given the lack of clear signs that its recovery is sustainable. Therefore the risks to the domestic economy continue to exist.

Risks are more pronounced in the fiscal sector.

The situation in Greece revealed the financial risks that are posed to the euro area as a whole by long-standing and increasing fiscal deficits and by rising general government debt. Slovakia could therefore see an increase in risks related to the state of its public finances, which has deteriorated due to a combination of expenditure on stimulus measures and the budget's cyclical development. In the fiscal sector, efforts to consolidate public finances need to be stepped up. Slovakia has a very sound credit rating in the context of its region, but if the structural deficit in its public finances remained high, this rating could come under pressure, thereby raising the costs of external borrowing for both the public and private sectors.

Consideration needs to be given to a suitable timeframe for unwinding some of the non-standard measures implemented to support the financial sector. In the case of Slovakia, the measure most in question is the Deposit Protection Funds' unlimited guarantee for household deposits. It would be better to return to a standard form of deposit protection, since the measure as it stands could encourage behaviour conducive to moral hazard among both banks and savers.

The persisting balance-sheet pressures of non-financial corporations represent, in the current circumstances, a source of credit risk to the creditors of these companies.

The economic crisis has had a severe effect on the financial results of non-financial corporations, thereby reducing their debt-servicing ability. There is, in particular, a risk that repayment behaviour will deteriorate en masse, which would pose a threat even to enterprises that are in relatively sound financial shape and would also increase the credit risks for the financial sector. Although household indebtedness continued to rise in 2009, households represented a lesser source of risks to financial sector stability than did the corporate sector. The fact that disposable income has stopped rising will probably be reflected in lower household consumption, which in turn will have an adverse effect on other sectors, particularly non-financial enterprises.

For the Slovak banking sector, 2009 was the worst year since the period of bank restructuring (2000-2001), and the sector's balance sheet and profits reflected this fact. Also in 2009, the differences between banks widened.

The corporate credit portfolio shrank by 3.3%, largely because banks sharply cut down their lending activity. The amount of lending under nearly all types of corporate loans and in almost all sectors of the economy declined. Lending standards were tightened over the course of 2009, though the pace of tightening fell. The economic crisis showed up also in lower borrowing demand among enterprises, particularly in demand for investment loans. Demand for short-term loans picked up in the second half of the year, as the prices of these loans decreased. Corporate deposits declined slightly, mainly due to the worsening financial conditions.

Although the amount of new lending to households fell by 10.2% in 2009, it developed more positively in the second half of the year with a revival in household demand for housing loans. The pace at which banks tightened lending standards continued to ease. The behaviour of banks in this market was affected also by relatively high lending margins. During 2009, households were withdrawing the funds that they had deposited with banks towards the end of 2008 largely in anticipation of the euro changeover.

The introduction of the euro in Slovakia had a profound effect on the domestic interbank market. As non-residents withdrew short-term speculative funds from the domestic banking sector, the sector's real liquidity position was revealed. Even so, the sector continued to report ample holdings of domestic funds, and this was reflected in the loan-to-value (LTV) ratio, which ended the year at 85%.

The profitability of the banking sector as at the end of 2009 was down by more than 50% year-on-year. The factors that had the most signifi-

cant impact on banks' profits in 2009 were the ongoing economic crisis and the euro changeover. From the view of financial stability, it is positive that the sector as a whole managed to remain profitable even during such a difficult period. Among individual banks, however, there were considerable differences in profitability. Only five banks and one branch of a foreign bank reported a year-on-year increase in profits. Compared with the end of 2008, a higher number of banks reported an annual loss (they included five banks and seven branches of foreign banks). The downturn in customer activity, especially when compared with the growth recorded in 2008, adversely affected interest income and fee income. The euro introduction, too, had a relatively significant effect on banks' interest income. At several banks, the total profit was dragged down by provisioning costs. From the view of financial stability, it is important that sufficient provisions are made against expected loan losses. In the banking sector as a whole in 2009, the rise in non-performing loans was sharper than the increase in provisioning, and therefore bad loans (both to the household and corporate sectors) were provisioned to a substantially lesser extent. Taking collateral into account, the coverage of loans to enterprises appears to be sufficient (it did not fall below 100% during the course of the year), but the coverage of retail lending stood at only 81% at the year-end, compared with 95% at the beginning of the year.

Banks strengthened their capital position over the course of 2009. This was supported by an increase in own funds, mainly in Tier I capital. At the same time, however, the amount of risk-weighted assets decreased. In December 2009, the own funds of the banking sector stood at €4.2 billion, representing a year-on-year increase of 9.2%. Despite the strengthening of the sector's capital position, some banks recorded a fall in their capital adequacy ratio and/or have had a relatively low CAR over the long term. These banks are therefore more sensitive to negative developments.

GDP contracted by 4.7% in 2009, and the downturn was quickly reflected in an escalation of risks – principally credit risk – in the domestic banking sector. As for the future development of risks in banks, especially in regard to credit risk, key factors will be the pace and, above all, sustainability of the economic recovery.

The rise in household credit risk reflected mainly an increase in the unemployment rate, particularly in the lower-income segment of the population. Expectations for the development of employment in the near term are more negative than positive. Another factor that adversely affected household credit risk was the level of income in the sector. The worsened financial position of households was reflected in a slight rise in non-performing loans. At the sectoral level, the share non-performing loans in total household lending rose to 5.2% by the end of 2009, though this figure was kept down by the sales of non-performing loans in several banks, especially during the last quarter of the year.

The main reason for the upturn in activity among Slovak enterprises was exports, which are not yet being driven by household consumption related to employment growth, but rather by other factors, such as stimulus packages introduced by governments abroad. Until there is a turnaround in employment (both at home and abroad), the recovery should be seen as relatively fragile. Another crucial fact is the low utilisation of production capacities among Slovak firms. The sectors hardest hit by the crisis include hotels, restaurants, construction, and the mining and extraction industry. The property sector, too, appears to be a high risk. Risks have arisen in the commercial and residential property market as demand for properties has fallen. From the view of banks, the risk in this sector lies in the size of their credit exposure to it. Of the total number of corporate loans worth more than €10 million, real estate loans account for approximately 25%. The largest rises in loss-making loans in 2009 were recorded in the sectors of wholesale trade, food and accommodation services, real estate, retail trade, and construction. Leasing also had a negative effect on banks' consolidate financial results.

The credit risk arising from banks' sovereign risk exposures is mitigated by the mostly short-term nature of the positions and their relatively small share of total assets. In some individual banks, however, the situation in this regard may be less favourable.

The long-term liquidity situation in the banking sector continues to be favourable. Towards the

end of 2009, the sector's LTV ratio stood at 85%, meaning that the sector as a whole is managing to finance its lending activities out of stable domestic funds. However, a total of nine banks – predominantly branches of foreign banks – reported an LTV ratio of more than 100% at the end of 2009.

Developments in other sectors of the financial market were mixed in 2009. The situation in the collective investment sector improved. As for Pillar II of the pension system, it reacted to legislative amendments concerning the conditions under which the system operates.

In 2009, the overall financial position of the insurance sector improved in comparison with the previous year, since the year-on-year drop in the technical account was outweighed by the rise in gains on financial operations. Nevertheless, most insurers reported a year-on-year deterioration in their overall financial result. The technical provisions of insurance companies maintained their trend growth of previous years and continued to be invested on a conservative basis.

Overall, in 2009, the total net asset value in the collective investment sector rose in comparison with the end of 2008, but the figures still fell short of the levels recorded before the wave of investment fund redemptions began in September 2008. As at 31 December 2009, all fund categories reported positive returns in the year-on-year comparison.

Although the number of savers in Pillar II of the pension system fell after the system was opened up by statutory amendment, the value of pension fund assets rose. The new legal regulation of fees gave pension fund management companies (PFMCs) an incentive to overhaul their investment strategy by giving preference to low-risk investments at the expense of the expected long-term rate of return for savers. The average annual return on PFMCs' balanced and growth funds returned to positive territory towards the end of the year. The combined annual losses reported by PFMCs for 2009 increased in comparison with 2008.

In 2009, the net asset value of Pillar III funds continued to rise, with more than 70% of their assets being invested in bonds, mainly government bonds and bank bonds. The performance of Pillar III contributory funds improved substantially, and the annual profits of supplementary pension asset management companies rose sharply.

In most sectors, the level of risk exposures remained largely unchanged during 2009. The most significant change occurred in the fund portfolios of pension fund management companies, which became less risky during the second quarter of the year. At the same time, however, Pillar II of the retirement pension system was exposed mostly to the sovereign risk of countries that have a high general government debt, though only through bonds with a short residual maturity. The highest risk was reported in insurance companies' portfolios of assets invested on behalf of insured persons (unit-linked insurance).

The risk level of PFMC funds fell sharply in 2009. In the case of PFMC bond portfolios, however, their risk exposure rose due to an increase in the debts of countries that have a higher credit risk. Some PFMC funds are also exposed to concentration risk – i.e. the pool of banks in which their deposits are placed is very small.

The principal short-term risk that several sectors were exposed to in 2009 was interest rate risk, according to the measurement of market risks using Value at Risk. Assets invested by insurers under unit-linked policies are clearly exposed to the highest risk. These assets are exposed not only to the substantial risk of changes in the value of the investment fund shares/units that most of them are invested in, but also to a relatively significant interest rate risk. This is because perhaps around a fifth of these assets are invested in debt securities with a high average duration (the average volume-weighted duration of assets invested in different securities represents up to 5.9 years).

According to the results of stress testing, the financial sector ended 2009 in a position to cope with even highly adverse future developments. The stress scenarios included a recurring deterioration in economic development, both at home and in the external environment, and escalating uncertainty in financial markets.

Under the baseline scenario (expected development), not one bank would see its capital adequacy ratio (CAR) fall below 8%. In the case of the

scenario entitled "Crisis Second Wave" (simulating a recurrence of the economic downturn), two banks would struggle to comply with the 8% requirement under both the moderate and extreme versions of the scenario. Other banks would be able to maintain their CAR at above 8% due to having a relatively strong starting position (a high CAR and/or a relatively large profit reported as at the end of 2009). Several banks would maintain their CAR at the required level even if they failed to make a profit over the two-year period under review. The largest risk to which banks are currently exposed continues to be credit risk. Given the structure of banks' activities, losses made by banks in the event of negative developments would arise mainly from their corporate loan portfolios. Market risks would pose a more moderate risk to banks. In some banks, the simulated credit losses would be mitigated by expected profits and especially by interest income. A key factor in the banking sector's stability over the next two years remains, however, the relatively sound footing on which it found itself at the outbreak of the crisis.

Insurance companies in 2010 would be affected mainly by a decline in the real value of their securities investments. Under the scenario "Financial Market Uncertainty" (where uncertainty in financial markets rises in response to increasing sovereign default risks), far heavier losses would be recorded on assets invested under unit-linked insurance policies.

Pension funds were not particularly sensitive to scenarios of adverse developments in financial markets. In the case of investment funds, the negative effect of stressful conditions would be reflected mainly in equity investments.

The Financial Stability Report for 2009 was based on periodical publications of relevant NBS departments (including the Analysis of the Slovak Financial Sector for 2009, the NBS Medium-Term Forecast, and the NBS Annual Report), analyses of the Research Department, materials published by the European Commission, BIS, and IMF, and other specialist publications.

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PART B

FINANCIAL STABILITY REPORT

B

CHAPTER 1

EXTERNAL CONDITIONS FOR FINANCIAL STABILITY

1

1 EXTERNAL CONDITIONS FOR FINANCIAL STABILITY

1.1 THE GLOBAL ECONOMY

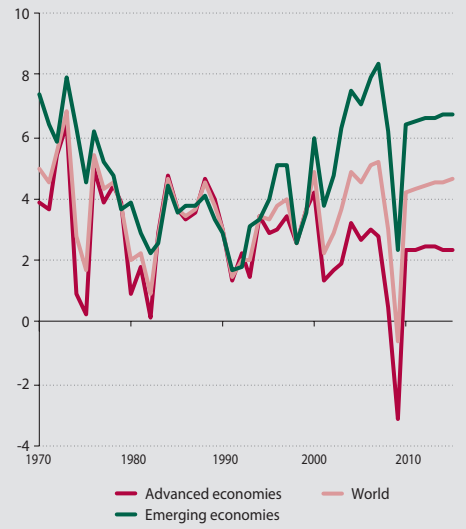
In 2009, the global economy recovered slowly and to varying degrees from one region to another, which reflected the high uncertainty surrounding the recovery's pace and progress.

According to the International Monetary Fund (IMF), the world economy contracted by 0.6% in 2009[1] owing to the strong shock of the global financial crisis. As early as in the first quarter of 2009, the economy began to rebound from the bottom of the downturn, largely due to the positive effect of massive anti-crisis and stimulus measures taken by public policymakers. These measures supported an easing of financial conditions, restocking, and an increase in international capital and business flows; at the same time, however, they brought new risks of unsustainable developments in public finances. The revival of economic activity over the course of the year was therefore accompanied by a general uncertainty about its sustainability. The fragility of the economic recovery was apparent also from the uneven pace at which recovery was taking place in different countries and regions (Charts 1 and 2).[2]

Given the structural problems in the global economy, the continuing consolidation of private balance sheets and the need to cut substantial public budget deficits, potential economic growth is expected to be lower in the future than before the crisis.

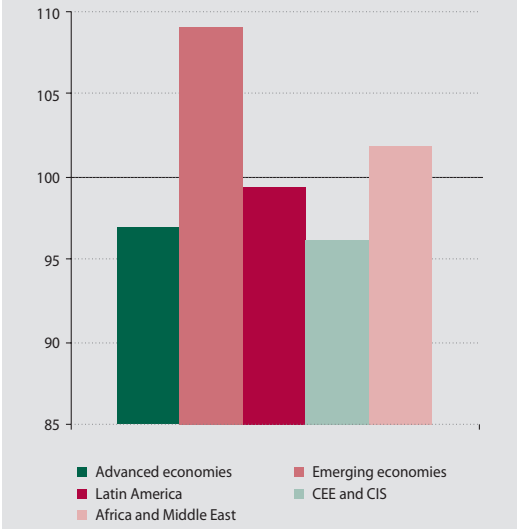
For the global economy to return to sustainable and strong growth, it is essential that China and other countries with a savings glut reduce their dependence on exports and create new sources of demand, with assistance from structural reforms and macroeconomic policies. By contrast, countries such as the United States, the United Kingdom and Spain (mainstays of global demand in the pre-crisis period) will have to increase their net exports. It is difficult to envisage a revival of strong demand in these countries until the state of public and private balance sheets improves. The nature of the changes required implies that the process will be long term. Obstructions to the necessary measures may come mainly from countries that have a savings glut,

Chart 1 Real GDP growth (annual percentage changes)



Source: IMF – World Economic Outlook, April 2010
Note: Data for the years 2010 to 2015 are estimates. Aggregates are computed on the basis of purchasing-power-parity.

Chart 2 Change in GDP, Q4 2009 in percent of Q2 2008



Source: IMF – World Economic Outlook, April 2010.
Note: Aggregates are computed on the basis of purchasing-power-parity. CEE: central and eastern Europe; CIS = Commonwealth of Independent States.

1 *IMF: World Economic Outlook, April 2010.*
2 *Differences in the pace of economic recovery (and the feedback loop with economic growth) arising mainly from the varying impact of the crisis on different economies, as well as from the extent of the macroeconomic imbalances and debt that countries had before the crisis. These factors determine the scope for government support measures.*

Table 1 World output and world trade volume (annual percent change)

	2007	2008	2009	2010(p)	2011(p)
World output	**5.2**	**3.0**	**-0.6**	***4.2***	***4.3***
Advanced economies	2.8	0.5	-3.2	*2.3*	*2.4*
United States	2.1	0.4	-2.4	*3.1*	*2.6*
Euro area	2.8	0.6	-4.1	*1.0*	*1.5*
Japan	2.4	-1.2	-5.2	*1.9*	*2.0*
Emerging and developing economies	8.3	6.1	2.4	*6.3*	*6.5*
Central and eastern Europe	5.5	3.0	-3.7	*2.8*	*3.4*
Asia	10.6	7.9	6.6	*8.7*	*8.7*
China	13.0	9.6	8.7	*10.0*	*9.9*
World trade volume	**7.2**	**2.8**	**-10.7**	***7.0***	***6.1***

Source: IMF – World Economic Outlook, April 2010.
(P) – estimated figures.

Table 2 Real GDP growth (%)

	Change on the previous quarter								Year-on-year change				
	2008				2009								
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2007	2008	2009	2010(p)	2011(p)
EA16 (euro area)	0.7	-0.3	-0.4	-1.8	-2.5	-0.1	0.4	0.0	2.8	0.6	-4.1	*0.9*	*1.5*
EU27	0.5	-0.2	-0.4	-1.9	-2.4	-0.3	0.3	0.1	2.9	0.7	-4.2	*1.0*	*1.7*

Source: Eurostat. The forecasts for 2010 and 2011 are taken from the European Economic Forecast – Spring 2010.
(P) Estimated figures.

since they will be concerned about losing competitiveness and recording a drop in GDP. Evidence for this can now be seen in the policy positions of the countries in question.[3] At least in short-term horizon, economic growth can therefore be expected to be substantially weaker than in the pre-crisis period (Table 1).

1.2 THE EU AND EURO AREA

The European economy began to grow in the second half of 2009, although the recovery is very fragile and surrounded by substantial uncertainty.

Over the five quarters from Q2 2008 to Q2 2009, the EU economy contracted by 5.2% overall (Table 2), which represents the longest and deepest recession in its history. Responding to the effects of domestic and foreign government stimulus packages, the EU and euro area began to rebound in the third quarter of 2009. However, the gradual unwinding of the temporary government measures (e.g. car scrapping schemes) caused the pace of growth in the fourth quarter to decline by a greater than projected margin. Compared with other regions of the world, the European economy is expected to record a very slow recovery in the coming period, largely due to the substantial macroeconomic imbalances and the poor state of public finances in several EU countries. Another brake on economic activity will be the persisting problems in the banking sector.

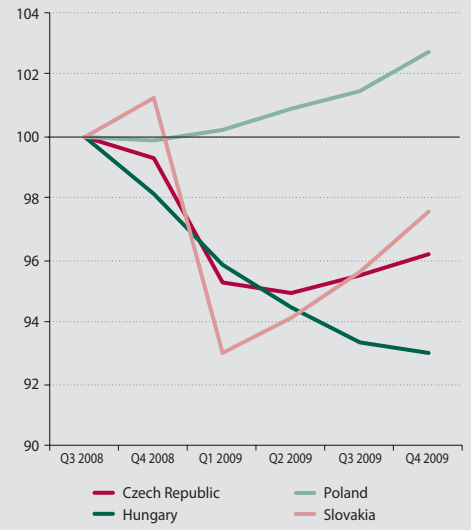
1.3 THE V4 COUNTRIES

The V4 region was hit hard by the crisis, though to a lesser extent than the wider region of central and eastern Europe.

For the wider region of emerging economies in central and eastern Europe, the repercussions of the global financial crisis in terms of economic performance and financial stability were worse than for similar economies in Latin America and Asia.

3 *Historical experiences with the re-establishment of balances indicate that such positions are not well-founded and that the concerns referred to are exaggerated. See: IMF: World Economic Outlook, April 2010, Chapter 4.*

Chart 3 GDP on a quarterly basis (index; Q3 2008 = 100)



Source: Eurostat.

Nevertheless, Visegrad-4 countries within the CEE region withstood the global crisis relatively well, mainly thanks to their comparatively sound macroeconomic fundamentals, characterized by financial imbalances that were not too large and stable financing. An exception to this description of the V4 region was Hungary, which due to the exigency of fiscal consolidation did not have enough capacity for anti-crisis stimulus measures (Chart 3). At the same time, the country was so dependent on short-term foreign exchange funds that, at the peak of risk aversion, it was unable even to stimulate the economy through monetary policy and, as a result, it was forced to apply for financial assistance from the IMF and EU.

Although the economic and financial situation in the region stabilised towards the end of 2009, there is great uncertainty about developments in the near term.

The flow of capital to the region was to some extent restored as the general risk aversion abated in response to government measures and initiatives of supranational institutions. This was reflected in the recovery of equity markets and exchange rates. At the same time, the economic revival in key euro-area export partners supported the return to economic growth recorded in the second half of 2009 (except in Hungary). The region, however, will continue to come under pressure from the still less than favourable outlook for external demand and the continuing vulnerability of foreign banks' balance sheets. The uncertainty is compounded by the results of parliamentary elections in several countries, which will be crucial to the further setting of (fiscal) policies and therefore to how foreign investors perceive the region in terms of risk.

1.4 INTERNATIONAL FINANCIAL MARKETS

Financial markets, too, benefited from government support measures in 2009. These measures bolstered the perception among investors that the world economy was not sliding into a deep and long economic depression. The very low returns on traditionally low-risk assets provided an incentive for investing elsewhere.

While the first quarter of 2009 was still marked by substantial investor uncertainty, the rest of the year in global financial markets was characterised by predominantly positive sentiments. The resolute and large-scale anti-crisis measures implemented by national governments helped to revive markets in higher-risk assets. From March to December 2009, stock markets in advanced countries gained around 50% in value, while share prices in emerging economies soared by around 80% (Charts 4 and 5). The turnaround in investor sentiments was reflected also in various risk indicators – the interest rate spread fell sharply, and the implied volatility of share prices (VIX) declined towards the end of 2009 to below a value of 20 (Charts 6 and 7). Prices of commodities – particularly oil and industrial metals – climbed steeply between March and the end of 2009 owing to very strong demand from China (Chart 8). Conditions in money (interbank) markets continued to improve during the course of 2009, to the extent that central banks were able to begin gradually unwinding some of their non-standard support measures (Chart 9). Whereas the issuance of debt securities by banks slumped in 2009 due to the effect of the ongoing deleveraging process, the international issuance of corporate bonds reached record levels for the same reason. Instead of borrowing from banks, large corporations were raising finance from the market, where funds were more readily available and the conditions were more advantageous. In this way, large corporations improved their balance sheets.[4]

4 *By contrast, small and medium-sized enterprises have to cope with banks' high credit spreads since their access to capital markets is more restricted and they have a higher dependence on bank financing.*

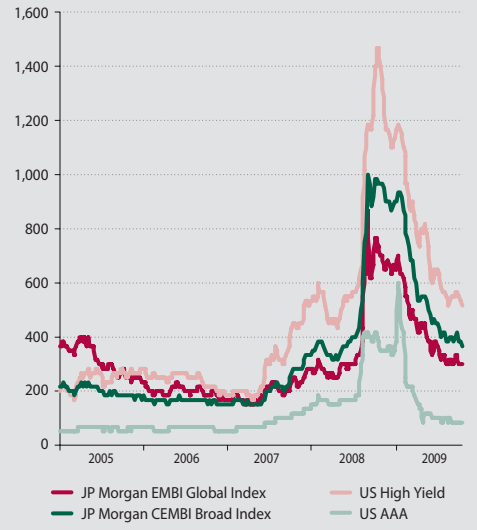
Chart 4 Advanced equity markets (index, weekly data; 1 January 1990 = 100)

ource: IMF – Global Financial Stability Report, April 2010.

Chart 5 Emerging equity markets (index; weekly data; 2001=100)

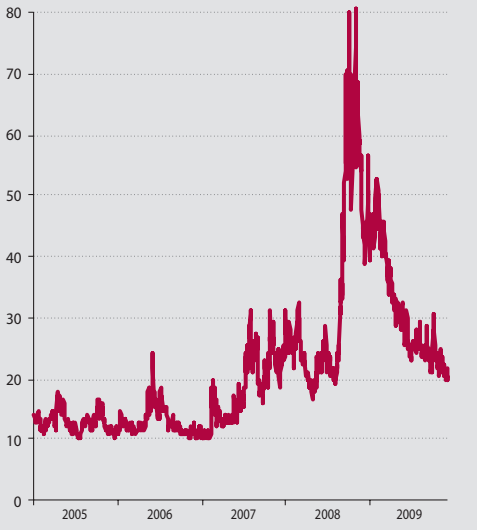
Source: IMF – World Economic Outlook, April 2010.

Chart 6 Interest rate spreads on government and private bonds (basis points)



Source: IMF – World Economic Outlook, April 2010.
Note: The JP Morgan EMBI Global Index captures the spread between the yields on USD-denominated debt instruments issued by governments of emerging countries and the yield on US government bonds with a comparable maturity. The JP Morgan CEMBI Broad Index shows the spread between the yields on USD-denominated corporate bonds issued by emerging countries and the yield on US-government bonds with a comparable maturity.

Chart 7 Implied volatility in equity markets measured by the VIX index (daily data; %)



Source: CBOE.
Note: The VIX is an index of volatility that measures the implied volatility of equity markets from option prices on the S&P 500 index. The VIX expresses the size of investors' risk aversion – a value of more than 20 indicates a high aversion to risk and a value of more than 50 indicates that investors have very serious concerns.

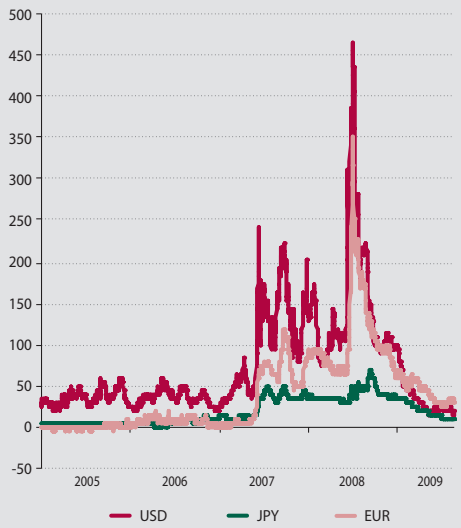
Concerns about large fiscal deficits and government debts began to appear towards the end of 2009.

Sovereign credit risk began attracting substantial attention towards the end of November 2009, when the state-owned corporation Dubai World found itself in financial difficulties. The next focus of investors' attention was the fiscal deficits of euro area countries. The extent of these deficits indicates that the government debt to GDP ratio,

Chart 8 Commodity price indices (USD; 2005 = 100)

Source: International Financial Statistics.

Chart 9 TED Spreads (basis points)



Source: IMF – World Economic Outlook, April 2009.
Note: The TED Spread represents the difference (spread) between the 3-month LIBOR rate and the 3-month government bond rate. The wider the spread, the greater is the perception of counterparty risk in the interbank market.

which is already high, will climb substantially in the medium-term horizon. The difficult fiscal position of Greece in particular, and the similar concerns surrounding Spain and Portugal, led to a sharp rise in the bond yield spreads and CDS premia for these countries from as early as October 2009 (when the new Greek government disclosed that the public finance deficit for 2009 was substantially higher than had originally been expected). The concurrent higher risk of sovereign defaults began to be adversely reflected in the share prices of European banks.[5] The mounting uncertainty also showed up in sharp weakening of the euro against other major currencies towards the end of the year (the difficult situation in the euro area during the first half of 2010 is described in more detail in Box 1).

Box 1

GREECE'S RISING DEFAULT RISK NECESSITATED STRONG INTERVENTION FROM EU GOVERNMENTS

Investor concerns about the ability of Greece to service its debts mounted during the first half of 2010. These concerns were reflected in the rising volatility of equity markets and the deterioration in various indicators of financial risk. The European single currency fell sharply against the US dollar. By the beginning of May, the uncertainty had escalated to the point that financial markets faced the risk of extensive contagion, meaning that the financial stability of the euro area was under direct threat. In response to these risks, representatives of EU governments and the IMF agreed to provide a bailout package worth €750 billion. This crisis in financial markets represented the second time since the 2008 collapse of the US bank Lehman Brothers where large-scale government interventions had been required to stabilise the situation. In May 2010, the politicians did not let events get as far out of control as in September 2008 (when the outbreak of panic and extensive financial contagion was not successfully contained), but their measures were taken at the price of increasing moral hazard.

5 *Investor concerns, compounded by uncertainty about key world economies, led to mounting risk aversion from mid-January 2010, which in turn had an adverse effect on markets in risky assets and a positive impact on prices of safe-haven assets (government bonds of several large countries).*

Table A Government debt in 2009

	Greece	Portugal	Spain	Italy
Gross consolidated government debt (% of GDP)	115,1	76,8	53,2	115,8
Share of gross government debt held by non-residents (%)	81,6	78,3	50,2	46,7

Source: Eurostat, JEDH database, own calculations.
Note: The respective data for Slovakia are 35.7% of GDP and 32.6%.

That Greece had serious difficulty in servicing its high government debt (115% of GDP in 2009) would not by itself have represented a substantial risk to the financial stability of the euro area, given the relatively small size of the Greek economy (accounting for 2% of the euro area's GDP). The problem, however, lay in the high interconnectedness of financial institutions, with more than 80% of Greek government debt held by non-residents, in particular financial institutions in the euro area. Such interconnectedness therefore represented a potentially significant channel for the spread of financial contagion throughout the euro area. At the same time, there was a risk of contagion from some other economically vulnerable euro-area countries that were struggling to finance their government debts. Among these countries, Spain and Italy are most at risk of default, although the default risk in their case is far lower than that of Greece due to the lower proportion of government debt that is held by non-residents. The respective figures are shown in the following Table.

In order to ensure the immediate stabilisation of the situation in Greece, it was announced on 2 May 2010 that a financial package worth €110 billion would be provided to the country under stipulated conditions. The Greek government agreed with the plan for strict fiscal tightening, aimed at reversing the negative development of government debt by 2013 and reducing the fiscal deficit to below 3% of GDP by 2014; it also approved a plan for extensive structural reforms and measures to support economic growth and improve the country's competitiveness. This was followed by euro area countries undertaking to provide Greece with bilateral loans worth a total of €80 billion, to be used for covering financial obligations over the next three years. Additional support for this assistance programme came from the IMF, which approved a €30 billion Stand-By Arrangement for Greece (a source of contingency funds to be made available under stipulated conditions). The reaction of the markets, however, was very unenthusiastic – the euro continued to weaken and the borrowing costs of vulnerable euro-area countries rose sharply. At the end of April, the credit rating agency Standard & Poors' downgraded Greece's credit rating to non-investment grade. As a way of helping Greece deal with the downgrade, the ECB announced on 3 May that it would suspend the application of the minimum credit rating threshold in the collateral eligibility requirements for the purposes of the Eurosystem's credit operations in the case of marketable debt instruments issued or guaranteed by the Greek government (making Greece the only country to have such an exemption). Nevertheless, the situation did not stabilise and in fact European banks began to have difficulty in borrowing from the markets (access to dollar liquidity became particularly restricted).

On 9 May 2010, representatives of EU governments met to find a way of finally calming the situation and, after several hours of crisis talks, they approved a new stabilisation mechanism for the euro area. The European Financial Stabilisation Mechanism comprises bilateral loans and mutual guarantees provided by euro area countries for government debts amounting to €440 billion, as well as a €60 billion facility underwritten by all EU Member States (expanding the existing support scheme for the balance of payments of Member States) and IMF funds totalling €250 billion. As a result, funds worth up to €750 billion are available over the next three years in the event that the markets refuse to lend to any of the euro area countries vulnerable to sovereign default. These countries have at the same time undertaken to accelerate fiscal consolidation and thereby reduce their need to borrow from internation-

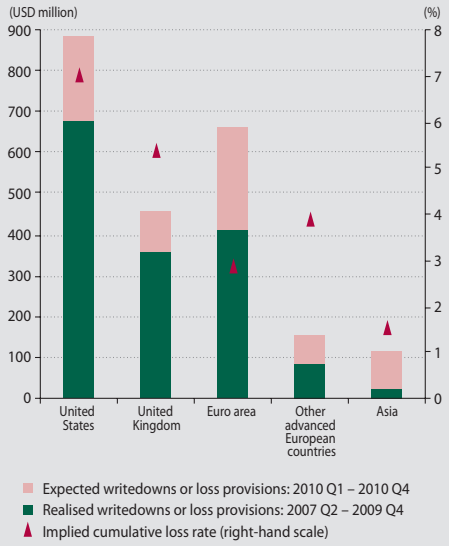
al markets. But what had the most immediate effect in calming the markets were the ECB's measures to buy government bonds in which there is no functioning market and to support the liquidity (including dollar liquidity) of the euro area's banking sector in other ways, too. On Monday 10 May, these measures were welcomed by the markets, with yields on government debt of vulnerable euro area countries (including Greece) falling sharply and share equity indexes jumping upwards. The euro's exchange rate, however, showed little reaction, indicating that the risk aversion trend among investors persists. This was further confirmed by the rising spreads in interbank markets towards the end of May 2010.

1.5 EU/EURO AREA BANKING SECTOR – DEVELOPMENTS AND RISKS

Although the euro area banking system improved its risk-absorption capacity, it still faces heightened risks and new challenges arising from the pressure on banks to deleverage.

The IMF revised down its estimate of the total amount of euro area banks' writedowns for bad loans and for investments in securities, by $149 billion to $665 billion (Chart 10).[6] It did so in response to the economic recovery in 2009 and the improvement in forecasts for unemployment. The estimated amount of provisions fell even for United Kingdom banks. The aggregate capital adequacy ratio of the banking sector improved on the basis of banks successfully increasing their capital from private sources and, in some cases, managing to record a rise in profits in 2009 (Table 3). However, this positive turnaround in the development of aggregate indicators masks the presence of substantial risks. In several euro area countries, the real estate sector remains a source of risks that may not necessarily be sufficiently covered by capital. The

Chart 10 Realised and expected bank writedowns and loss provisions for loans and securities



Source: IMF – Global Financial Stability Report, April 2010.
Note: The implied cumulative loss rate, given as a percentage, represents total estimated loan losses as a share of total assets in the banking sector. 'Other advanced European countries' includes Denmark, Iceland, Norway, Sweden and Switzerland.
'Asia' includes Australia, Hong Kong, Japan, New Zealand, and Singapore.

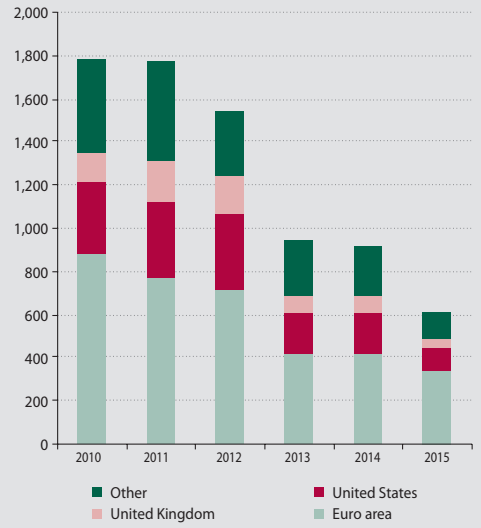
Table 3 Bank writedowns and capital in total (USD billions)

	United States (ex-GSEs)[1)]	Euro area	United Kingdom	Other advanced European countries[2)]
Total reported writedowns (to end – 2009 Q4)	680	415	355	82
Total capital raised (to end - 2009 Q4)	329	256	222	55
Tier 1/RWA[3)] capital ratios (at end – 2009), in percent	11,3 (+1,5)	9,1 (+1,1)	11,5 (+2,3)	8,5 (+0,3)

Source: IMF – Global Financial Stability Report, April 2010.
Note: Capital-raising includes government injections net of repayments. Capital ratios reflect those repayments. Figures in parentheses reflect percentage point changes since end-2008. All figures are under local accounting conventions and regulatory regimes, making direct comparison between countries/regions impossible.
1) GSE = government-sponsored enterprise;
2) 'Other advanced European countries' includes Denmark, Iceland, Norway, Sweden and Switzerland.
3) Tier 1 = Tier 1 capital; RWA = risk-weighted assets.

6 *IMF: Global Financial Stability Report – April 2010. Estimates for loss provisions were revised down from the estimates given in October 2009.*

Chart 11 Bank debt rollover by maturity date (USD billions)



Source: IMF – Global Financial Stability Report, April 2010.

same applies to the escalating sovereign credit risks. The pressure on the balance sheets of large euro-area banks is not being generated only by credit risks, but also by the large debts that these banks will have to refinance over coming years (Chart 11). Refinancing costs will be pushed up sharply by historically high spreads in the interbank market, the still very restricted securitisation of assets, and the planned unwinding of the ECB's non-standard liquidity-providing measures. This will give banks an incentive to shrink assets.[7] Banks are probably already beginning the process of deleveraging, partly because they expect regulatory rules for own capital and liquidity to be tightened. These processes not only generate a higher risk of a slow recovery in bank lending to economies, but also mean that policies will need to ensure that the process of restructuring banking systems unfolds smoothly and enhances their safety, efficiency and competitiveness. The deleveraging forces within banking systems highlight the extent of overcapacity in the financial system, push up competition for stable funding sources, and intensify pressure on weak business models.[8] In the euro area, there are signs that a number of banks increased their reliance on ECB funding during 2009, suggesting their demand is to meet genuine funding needs rather than simply to finance attractive carry trades. This was particularly apparent among medium-sized banks and banks that had received a substantial amount of state aid. Postponement of the restructuring of weak banks is holding back the restoration of a soundly functioning banking system.

1.6 RISKS TO DOMESTIC FINANCIAL STABILITY FROM EXTERNAL CONDITIONS[9]

The principal risks include:
- a slow and uneven economic recovery in the EU,
- high volatility in financial markets,
- sovereign defaults,
- deteriorating conditions for the market financing of banks following the unwinding of central banks' non-standard measures.

Risks to the sustainability of economic recovery in the EU are high and are still growing due to severe internal imbalances.

Since almost 90% of Slovak exports are to EU countries (particularly Germany, the Czech Republic, France and Poland), the sustainable recovery of these economies has a direct effect on domestic economic activity and consequently also on the stability of the banking sector. The key factor behind the recovery of the EU economy during 2009 was the government measures implemented in the EU and in the countries of the EU's main trading partners. However, the positive effects of these measures are gradually beginning to fade away. The uncertainty surrounding developments in the global business cycle and the extent of their repercussions on the EU economy continue to be very high. The outlook for the EU economy is deteriorating mainly because of the large internal imbalances. The essential, expedited fiscal consolidation that markets are demanding for certain countries (including Greece, Ireland, Portugal and Spain) – some of which also have large external imbalances – should be accompanied by rising domestic consumption in countries with structurally weak demand and large current account surpluses (notably Germany). Looking ahead, the real economy can still not expect support from a banking sector that has persisting balance-sheet difficulties

7 *Another sign of the rising refinancing costs is that spreads on primary deposits in the euro area entered negative territory in the second half of 2009.*

8 *This subject is covered in more detail in the first chapter (Section F) of the IMF's Global Financial Stability Report of April 2010.*

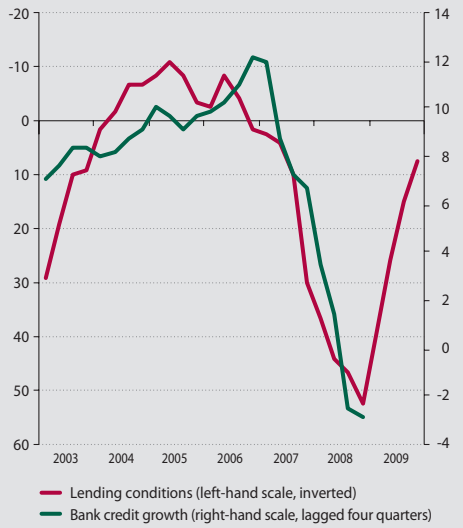
9 *The risks identified are marked by strong interconnection and a feedback loop between them. This stems from the complex links between the real economy and the balance sheets of financial institutions, the government, firms, and households. Instead of identifying potential scenarios and quantifying their impact, which would be extremely difficult, we therefore, in this section, prefer to assess risks on a qualitative basis. A quantitative analysis of the impact of different scenarios on the Slovak financial sector (based on macro stress testing) is given in Section 4.7.*

(Section 1.5) and financial markets may in fact have more of a downside effect. Unless an effective solution is found to the structural problems of individual economies and fiscal cooperation between Member States is enhanced, the risks to the euro area's financial stability will remain high.

Financial markets in risky assets will be highly sensitive to changes in investor risk appetite owing to the restricted inflow of liquidity. The likelihood is that the high volatility of risky asset prices will have an adverse effect on the real economy through the balance sheets of economic entities.

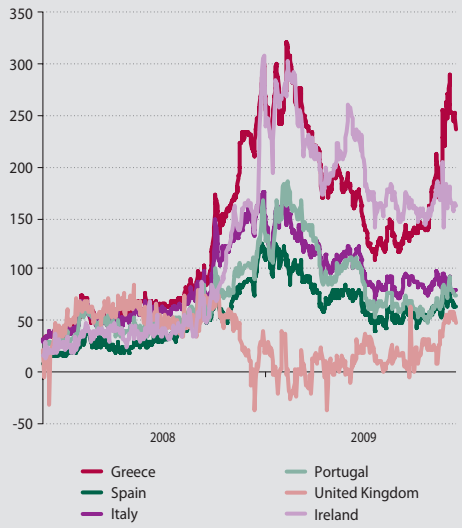
Although the financial assets market began to rebound in March 2009, its recovery was not based on a huge rise in liquidity, given that the money supply in the United States, Europe and Japan did not increase in 2009. Once confidence had returned to the global economy and financial system – thanks to the unprecedented fiscal and monetary measures taken by governments throughout the world – investors set about restructuring their portfolios by investing in riskier assets. The revival of financial markets, however, cannot continue without growth in the money supply (an inflow of new cash), which itself is heavily dependent on banks growing their balance sheets. The behaviour of banks is, however, considerably constrained by the need to build up capital (under regulatory pressure) and to refinance the large amount of debt maturing in the near term (Chart 11). Just about the only significant source of global liquidity in 2009 was China, where the money supply soared as a result of a state directed credit expansion. This to a certain extent also supported an upturn in risky asset markets, particularly equity and commodity markets. However, the overheating of the Chinese economy and marked rise in inflationary risks towards the end of 2009 may compel the Chinese government to tighten monetary conditions.[10] Such a development would represent a negative signal for prices of risky assets and would make investments in safe-haven assets more attractive. Given these circumstances, it may be expected that financial markets will be strongly affected by shifts in investor sentiment, and that the increasing volatility in financial markets could adversely affect the balance sheets of financial and non-financial institutions (and households, too, in advanced countries). This will

Chart 12 Average lending conditions (net percentage) and growth in the euro area, United Kingdom, and United States (annual percentage change)



Source: IMF: Global Financial Stability Report, April 2010.
Note: A negative net percentage indicates a loosening of lending condition, while a positive figure indicates as tightening of conditions.

Chart 13 Spreads between yields on government bonds issued by selected countries and German government bonds (basis points)



Source: Eurostat, own calculations.

10 *The Chinese central bank indicated a turnaround in monetary policy by raising the yuan reserve requirement ratio for large banks by a total of 100 basis point in the first two months of 2010.*

ultimately have negative repercussions on the real economy.

A possible spate of sovereign defaults would take the current crisis into a new phase.

The poor condition of public finances and rising risk of sovereign defaults will adversely affect investor risk appetite, as will the persisting uncertainty about the economic recovery. In many countries, the public finances have been impaired by the implementation of extensive anti-crisis and bailout measures, but mainly by the drop in budgetary income resulting from the slump in economic activity. At the same time, however, most of the economies concerned are also facing complicated structural problems. The credit ratings of some euro area countries were downgraded in the last months of 2009, prompting a rapid rise in the yield spread on government bonds issued by these countries (Chart 13).[11] The combination of substantially worse debt refinancing conditions and large debt burdens will make it more difficult for economies to recover rapidly. Were there to be a spate of sovereign defaults – which on the basis of historical experience cannot be excluded[12] – it would cause a slump in asset prices and thus would impact very hard on a financial sector that has already been weakened. It would mean that the current credit crisis had entered a new phase.

The proposed tightening of the regulatory regime will squeeze bank balance sheets and may therefore impede the recovery of economic activity.

New regulations for banks (known as "Basel III") are supposed to be implemented at the end of 2012 (more probably they will be introduced on a gradual basis), but the uncertainty surrounding their impact on banks is already putting pressure on bank balance sheets. With investors expected to re-evaluate banks according to their ability to comply with the new regulatory requirements, banks have an incentive to build up their capital cushion in advance. For example, the expected stiffening of requirements for the amount and quality of banks' capital could even now be contributing to the credit crunch (and thus also to the stagnation in the stock of money in economies) and to the rise in more liquid assets as a share of bank balance sheets. The interest income of banks will be squeezed not only by the decelerating growth in new loans, but also by stricter liquidity requirements (with assets to be financed from more expensive long-term funds). In order to maintain their returns on assets, banks may pass on to bank loan prices the increased costs and uncertainty related to the effects of the new regulatory regime on their business. With borrowing costs raised across the board and with access to loans restricted, the recovery of economic activity will be held back.

Banking sectors in the V4 regions will come under pressure not only from the weakness of external demand, but also from the continuing fragility of the balance sheets of western European parent companies and from the planned unwinding of longer-term refinancing operations by the ECB. This will undermine the potential for an economic recovery in the region in 2010.

The V4 region, too, was a beneficiary of the general decline in risk aversion that began in March 2009. The currencies of V4 countries appreciated and equity indices climbed. The flow of capital back into the region and its stability was also boosted by the supranational coordination platform known as the "Vienna Initiative".[13] The strong dependence of the region (except Poland) on external demand – the recovery of which is very fragile – will continue to create heightened risks to financial stability. Another source of higher risks in the near term will be the strong links between the V4 banking sectors and western European banks. The financial position of parent banks remains very complicated, mainly because of credit risks and the costs of refinancing very large debts. It may become further complicated by the discontinuance of longer-term refinancing operations, US dollar collateralised operations and Swiss franc liquidity-providing operations during 2010.[14] The drying-up of financing from foreign banks remains a risk for those V4 countries that are not part of the euro area and have a large share of foreign-currency loans (Hungary and Poland). All the V4 countries will probably be exposed to a rise in lending margins, which will be a drag on the recovery of domestic demand in the region. Thus, on the whole, there will continue to

11 *At the beginning of November 2009, the Fitch agency downgraded Ireland's credit rating. In December 2009, each of the three major credit rating agencies downgraded Greece's credit rating. At the beginning of December, Standard & Poors' lowered its outlook for Spain and Portugal.*

12 *For further reading, see: Reinhart, C., Rogoff, K.: This time is different. Princeton University Press, 2009.*

13 *Under the Vienna Initiative, western European banks operating through subsidiaries in the wider eastern European region signed an agreement on 27 March 2009 in which they reaffirmed their interest in these markets and their intention to continue funding lending activities in the region. At the same time, the IMF, ECB, EBRD and European Commission confirmed their readiness to provide financial assistance to countries with balance of payments difficulties.*

14 *The ECB conducted its last 12-month refinancing operation in mid-December 2009, and it ceased offering 6-months funds in the first quarter of 2010. Temporary swap lines with the Federal Reserve were discontinued on 1 February 2010. On 10 May 2010, responding to the threat of a potential spate of sovereign defaults and the triggering of another phase in the financial crisis, the ECB decided to take four non-standard measures: 1) to conduct interventions in public and private debt securities markets (the Securities Markets Programme) in order to support those market segments which are dysfunctional; 2) to adopt a fixed-rate tender procedure with full allotment in the regular 3-month longer-term refinancing operations to be allotted in May and June; 3) to conduct an exceptional 6-month LTRO in May; and 4) to resume US dollar liquidity-providing operations at terms of 7 and 84 days.*

Chart 14 Nominal exchange rate of V4 currencies vis-à-vis the euro (daily data; index 30.12.2005 = 100)

Source: Eurostat.
Note: A rise/fall in the index represents depreciation/appreciation of the currency against the euro.
As from 1 January 2009, the Slovak koruna was replaced by the euro at an irrevocable conversion rate of 30.1260.

be a relatively strong probability of a sudden change in investor sentiments towards the V4 region, or at least to its less resilient parts. This probability may be further heightened by political risk (a number of V4 countries have general elections in 2010). Slovakia, as a member of the euro area, is protected from such shifts in investor sentiment to a greater extent compared with the other V4 countries (Chart 14).

CHAPTER 2

SLOVAK ECONOMY DEVELOPMENTS AS THEY AFFECT FINANCIAL STABILITY

2

2 SLOVAK ECONOMY DEVELOPMENTS AS THEY AFFECT FINANCIAL STABILITY

2.1 OVERALL DEVELOPMENT OF THE SLOVAK ECONOMY

The deterioration in the domestic macroeconomic environment seen in the final months of 2008 continued in the first months of 2009, and so tested the absorption capacity of the domestic financial system. The slower and considerably uncertain return to a growth trajectory indicates that the demanding conditions will persist also in the outlook for 2010.

As the year went on, the intensity of the downturn in the real economy eased and the prospects for the economy's near-term development slowly improved. Business tendency indicators implied a gradual upturn in short-term outlooks. For both the external and domestic environments, however, a high degree of uncertainty is typical. In 2010, NBS expects economic activity to rise slightly, but at a lower level than in previously years. Since exports are a key component of GDP, the continuation of the recovery is to a large extent dependent on developments in other EU countries.

A negative development in 2009 was the rise of general government debt. At the same time, however, the external macroeconomic imbalance improved as the balance of payments current account deficit fell. Developments in the near term will indicate the extent to which this improvement is based on cyclical factors or whether structural changes have taken place. In addition, the level of the private sector's external indebtedness also declined. There is a certain problem in the movement of long-term capital, and particularly in the decline in foreign direct investment – considering the role that FDI enterprises have played in the generation of Slovakia's economic growth over recent years. The fall in income may prompt investors to re-evaluate their activities in the country.

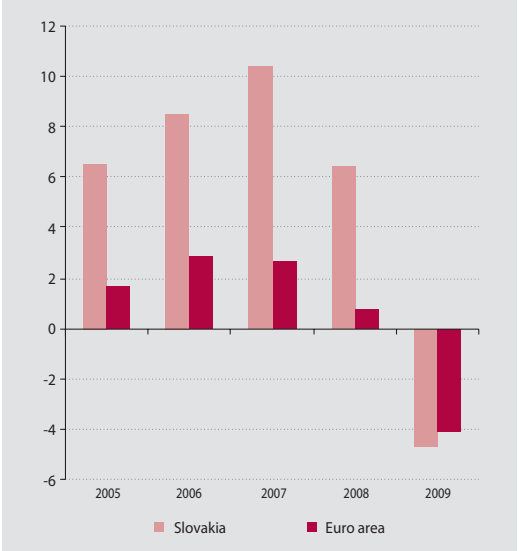
Exchange rate risk was largely eliminated by Slovakia joining the euro area, since most of the external or foreign-currency liabilities of domestic entities were denominated in euro.

The economy slid into recession in 2009.

The Slovak economy contracted sharply in 2009 (by 4.7% at constant prices). The decline in economic activity was most pronounced in the first quarter, and proceeded to ease gradually over the rest of the year (with growth reported on a quarter-on-quarter basis). The slump in GDP was related to a considerable weakening of the external demand on which Slovakia to a large extent depends, but also to a decrease in domestic demand. As business confidence and consumer confidence dropped, and corporate profits plunged, both consumption and investment demand fell. Only general government final consumption reported an increase in real terms.

The downturn in GDP reflected declines in labour productivity and employment, as the current position of economy was far below its potential. With the recovery of European economies projected to be relatively weak in the near term, Slovakia's economy is not expected to return to its potential level for several years.

Chart 15 GDP (year-on-year percentage change)

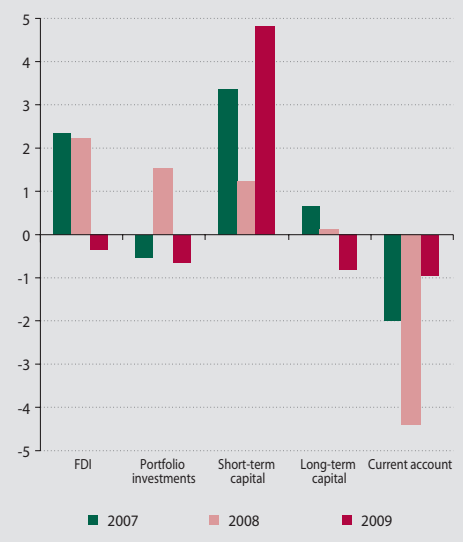


Source: SO SR, Eurostat

Chart 16 Labour productivity and wages (year-on-year percentage change)

Source: SO SR.

Chart 17 Current account deficit coverage (EUR billions)



Source: NBS.

The economy's cyclical position preconditioned low inflationary pressures.

Downward pressure on consumer prices came from the decline in economic activity in the domestic environment as well as from the weakening of demand-side pressures due to developments in household income. This was reflected in the annual HICP inflation rate, which fell to an all-time low (0.0% in December 2009). Price levels followed with a lag the trend of slower inflation seen in other euro area countries. Manufacturing prices, too, continued their downward trend.

Price competitiveness in 2009 remained almost unchanged.

The price competitiveness of domestic exporters, as measured by the index of the nominal effective exchange rate (NEER) fell only very slightly (by 1.1%). The real effective exchange rate (REER), taking price developments into account, depreciated due to inflation declining more sharply in Slovakia than in the countries of its trading partners. As at the end of 2009, the REER based on the index of manufacturing product prices was down by 2.8% year-on-year. Given the dominant position that trading partners from euro area countries have in Slovakia's foreign trade relations, the exchange rate movements of currencies of non-euro countries did not have a significant effect on Slovakia's competitiveness.

The current account reported an improvement.

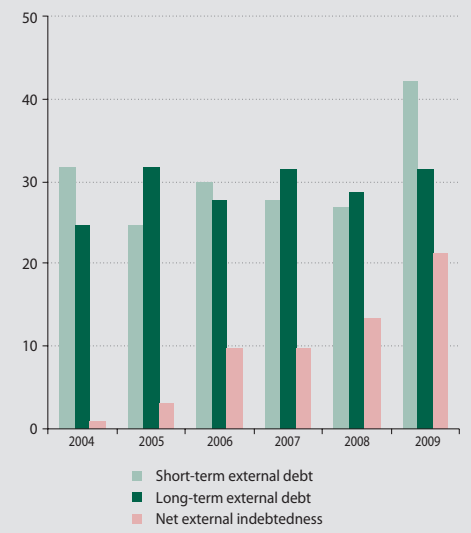
A positive development in 2009 was the reduction in the current account deficit, to 3.2% of GDP. This result was accounted for largely by a marked decline in the income balance deficit (due to lower dividend and interest payments to foreign investors) and by a trade balance surplus that arose from imports falling more sharply than exports. Meanwhile, the balance of services deteriorated.

Substantial movements of capital were triggered by Slovakia's entry into the euro area as well as by the financial crisis.

The capital and financial account recorded a surplus of €3,422.3 million for 2009. The financing structure of the current account changed at the expense of long-term funds, but this development did not pose a risk given the substantial reduction in the current account deficit.

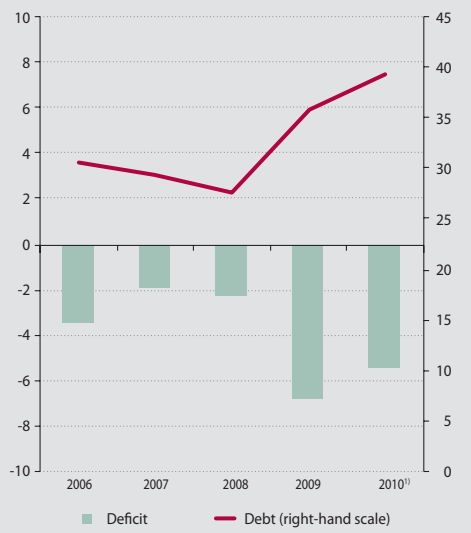
Amid the ongoing financial crisis, the FDI balance recorded an outflow on the liabilities side (under the other capital category, as claims on parent undertakings rose and liabilities towards them fell), while the assets side showed an up-

Chart 18 External indebtedness (% of GDP)



Source: NBS.

Chart 19 General government deficit and debt (% of GDP)



Source: Eurostat.
1) Plan of the Ministry of Finance of the SR.

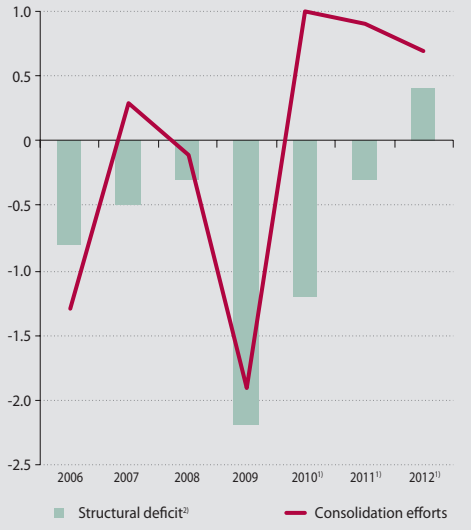
turn in residents' demand for FDI investments abroad.

The portfolio investment category recorded a net outflow of funds in 2009, largely due to rising demand for foreign debt securities among Slovak residents and a declining demand among non-residents for Slovak government debt. The inflow of funds under the other short-term investments category stemmed from Národná banka Slovenska's policy, following Slovakia's entry into the euro area, to meet liabilities to the banking sector using funds borrowed from the Eurosystem. The introduction of the euro triggered an outflow of non-residents' short-term deposits held in Slovak bank accounts.

The rising trend in external debt is persisting.

Gross external debt for 2009 rose to €45.3 billion (71.6% of GDP), and short-term debt as a share of total gross external debt climbed to 57.3%. As a result of Slovakia joining the euro area, the structure of external debt underwent a change: the private sector's exposure declined in connection with the outflow of short-term external funds from the domestic financial sector, while at the same time the government sector's exposure increased (with the rise in NBS's short-term external debt). As for the public sector, it accounted for 57.5% of the short-term debt and for 40.9% of long-term debt as at the end of 2009. Also Slovakia's net external debt position deteriorated in 2009.

Chart 20 Consolidation efforts (% of GDP)



Source: Ministry of Finance of the SR.
Note: Consolidation efforts are indicated by the year-on-year change in the structural deficit, where (+) represents a reduction of the deficit
1) Plan of the Ministry of Finance of the SR.
2) Adjusted by one-time and temporary measures, effects of the Pillar II pension system, and interest paid.

Another change related to Slovakia's entry into the euro area was in the economic significance of Národná banka Slovenska's foreign reserves. This change was also reflected in formal reporting, with NBS foreign reserves now defined as claims on non-euro area residents denominated in foreign currency (other than the euro). Since the proportion of assets denominated in euros had been high under the previous methodology, the amount of foreign reserves fell sharply in 2009 and ended the year at USD 1803.9 million.

Fiscal policy in 2009 was markedly expansive.

Like other national governments, the Slovak Government sought to mitigate the effects of the crisis on the domestic economy by adopting several measures under a stabilising fiscal policy. Because of falling GDP, however, general government income was lower than expected and, with expenditures rising, the general government deficit for 2009 increased to 6.8% of GDP, substantially exceeding the original budgetary target of 2.1% of GDP. In response to this development, the European Council opened an excessive deficit procedure for Slovakia.

The marked rise in the structural deficit in 2009 and the slackening pace of its reduction in previous years means that consolidation measures need to be stepped up in coming years if Slovakia is to meet its medium-term commitment – to reduce the general government deficit to 3% of GDP by 2012.

The government raised financing without problems.

The balance of borrowings from the State Treasury fell sharply in 2009, which increased the need to raise financing through the issuance of government bonds and Treasury bills. In May 2009, Slovakia made its first Eurobond issue since joining the euro area – a 5-year bond worth €2 billion, under favourable conditions (a coupon interest rate of 4.375%).

Box 2

THE DEBTOR POSITION OF THE SLOVAK ECONOMY'S SECTORS ACCORDING TO QUARTERLY FINANCIAL ACCOUNTS

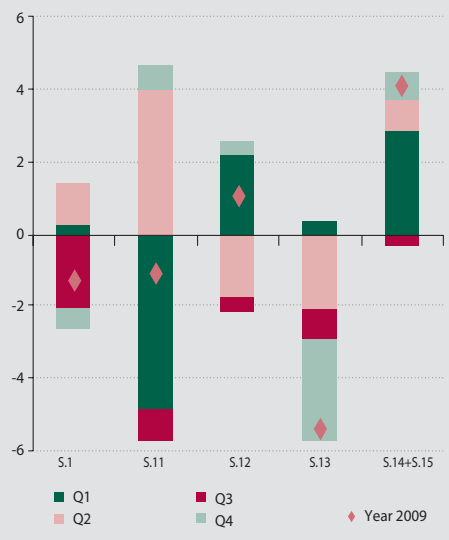
The overall indebtedness of the Slovak economy at the end of 2009 represented €33.5 billion. The non-financial corporate sector – long the most indebted sector – reported a net debt of €46.4 billion. The debt of the general government sector rose to €10.8 billion and the debt of the financial institutions sector fell to €0.1 billion (the overall debt ratio of the financial sector reflected only the central bank's position). The only sector with a creditor position – in the amount of €23.8 billion – was households and non-profit institutions serving households (NISH).

The net creditor position of the rest of the world increased again in 2009, mainly because of the rise in the general government sector's debt. The deepening of this debt was most pronounced in the second quarter of the year (when government bonds were issued) and in the fourth quarter (when the sector's assets fell sharply). The increase in the indebtedness of non-financial corporations was smaller and reflected the liquidity they obtained from the external environment, mainly in the first quarter, through loans received and equity securities issued. As for financial corporations, their debtor position decreased over the course of 2009. The creditor position of households and non-profit institutions serving households increased as the sector's assets rose and liabilities fell.

Chart A Stocks of financial assets and liabilities by sector in 2009 (EUR millions)

Source: NBS.
S.1 Total domestic economy
s.11 Non-financial corporations
S.12 Financial corporations
S.13 General government
S.14+S.15 Households and non-profit institutions serving households

Chart B Net loans provided / received by sector in 2009 (EUR millions)



Source: NBS.
S.1 Total domestic economy
s.11 Non-financial corporations
S.12 Financial corporations
S.13 General government
S.14+S.15 Households and non-profit institutions serving households

2.2 DOMESTIC FINANCIAL MARKET DEVELOPMENTS IN TERMS OF RISKS TO FINANCIAL STABILITY

Slovak financial entities entered the euro area single market at a time when market and liquidity risks had begun to recede. Conditions in international financial markets improved markedly during 2009 in comparison with the situation in 2008, and risk aversion declined. The improvement in sentiment was accelerated by the generally favourable macroeconomic results of Asian emerging economies and the reduction of losses, or turnaround in profitability, of large international banks. Although the liquidity situation was better than in 2008, it remained relatively tense.

The ECB eased monetary conditions through interest rate policy.

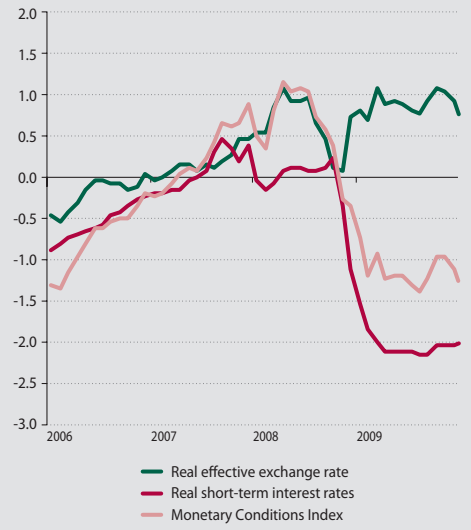
In the first half of 2009, the ECB continued to reduce interest rates, making four cuts that brought down the main refinancing rate to 1%, the marginal lending rate to 1.75%, and the deposit rate to 0.25%. In order to stabilise the financial system, the ECB introduced non-standard monetary policy measures focused on supplying liquidity.

The quantitative and qualitative easing of monetary policy fed through to a sharp decline in market interest rates and an increase in liquidity. Money market rates fell from the beginning of the year in line with cuts in the ECB refinancing rate. From the second half of the year, the markets indicated a stabilising of the situation, although lending to the real economy remained subdued.

The domestic bond market continued to be dominated by government securities.

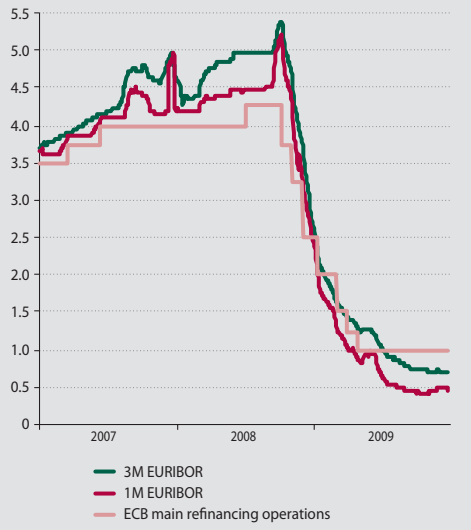
Trading on the Bratislava Stock Exchange (BSSE) remained low. The total amount of transactions fell by a half year-on-year, to €11.7 billion. By far the largest share of trading continued to be in debt securities, predominantly those issued by the government sector. The private bonds traded on the BSSE consisted largely of mortgage bonds issued by banks, and the volume of trading in these securities was lower than in the previous year. The market capitalisation of bonds

Chart 21 The ECB Monetary Conditions Index (January 1999 = 0)



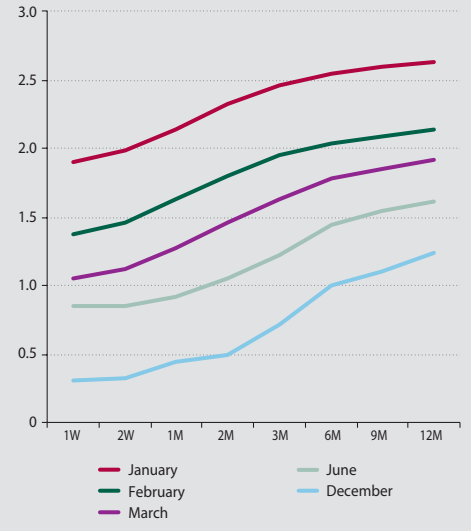
Source: Eurostat.

Chart 22 Short-term money market rates and ECB interest rates (%)



Source: ECB, Reuters.

Chart 23 Money market yield curves in 2009 (%)



Source: Reuters.

Chart 24 10-year government bond yields (%)

Source: Eurostat.

as at the end of 2009 was slightly higher year-on-year, at €20.2 billion.

Share trading on the BSSE remained low.

The market capitalisation of equity securities fell to €3.5 billion. The SAX index of equities listed on the BSSE ended December at 266.97 points, down by 92.2 points from the beginning of the year.

2.3 MEDIUM-TERM RISKS FROM THE MACROECONOMIC ENVIRONMENT AND FROM FINANCIAL MARKETS IN SLOVAKIA

The principal sources of potential risks to financial stability in the domestic environment relate mainly to:

- the persisting uncertainty surrounding the sustainability of the economic recovery
- developments in public finances
- the effects of non-standard stabilisation measures adopted in order to mitigate the impact of the financial crisis on the economy

The domestic macroeconomic environment continued to pose significant risks.

In 2009, the risk of a downturn in the domestic economy materialised as expected, with adverse repercussions for the financial position of both non-financial corporations and the household sector. Despite the worsened macroeconomic conditions, the functioning of the financial system in Slovakia remained stable.

The prospects for the domestic economy improved towards the end of 2009, but there remain grounds for caution when assessing financial stability risks. Given the lack of clear signs that the recovery of the euro area economy is sustainable, the outlook for the economy remains surrounded by uncertainty. The risks to domestic financial stability show a persisting tendency.

The final months of 2009 saw a return of tension to financial markets (as the situation in Greece unfolded), which revealed the financial risks that are posed to the euro area as a whole by long-standing and increasing fiscal deficits and by rising general government debt. Slovakia could therefore face an increase in risks related to the worsening state of its public finances. The costs of stimulus measures and the budget's cyclical development are heightening the risks of a high deficit.

In the fiscal sector, efforts to consolidate public finances need to be stepped up. Slovakia has a very sound credit rating in the context of its region, but if the structural deficit in its public finances remained high, this rating could come under pressure, thereby raising the costs of external borrowing for both the public and private sectors.

Like governments of other EU countries, the Slovak Government has adopted a number of stabilisation measures aimed at mitigating the impact of the global financial crisis on the domestic economy. Consideration needs to be given to a suitable timeframe for unwinding some of the non-standard measures implemented to support the financial sector. In the case of Slovakia, the measure mostw in question is the Deposit Protection Funds' unlimited guarantee for household deposits. It would be better to return to a standard form of deposit protection, since the measure as it stands could encourage behaviour conducive to moral hazard among both banks and savers.

CHAPTER 3

NON-FINANCIAL CORPORATE AND HOUSEHOLD SECTORS

3

3 NON-FINANCIAL CORPORATE AND HOUSEHOLD SECTORS

In 2009, lending to non-financial corporations and households by the domestic banking sector rose only marginally in comparison with previous years, while lending to financial corporations declined. This development stemmed from a tightening of bank lending conditions as well as from the fact that demand for borrowing was lower owing to the less favourable environment for implementing investment objectives.

Total outstanding loans to enterprises and households increased only slightly in 2009.[15] The amount of new loans to enterprises fell sharply in the first months of the year, with the most pronounced drop recorded by long-term loans. Lending activity picked up moderately in the final months of the year. Lending conditions worsened mainly in respect of loans to small and medium-sized enterprises.

Loans to household recorded a modest rise in 2009. The most notable rises in new lending to households were in housing loans and consumer loans.

3.1 NON-FINANCIAL CORPORATE SECTOR

The financial positions of enterprises deteriorated.

Since the economic crisis was preceded by a long period of growth, the corporate sector had a relatively sound balance sheet when the crisis began. In 2009, however, the financial position of the corporate sector deteriorated sharply, with total profits plunging by 30.9% year-on-year, to €6585.6 million. The only sector to record a rise in profit was information and communication activities. In adverse conditions for income generation, enterprises took a cautious approach to investment and further borrowing, and they also faced substantial tightening of financial conditions.

Chart 25 Investments of non-financial corporations and households (index)

Source: Eurostat, SO SR.

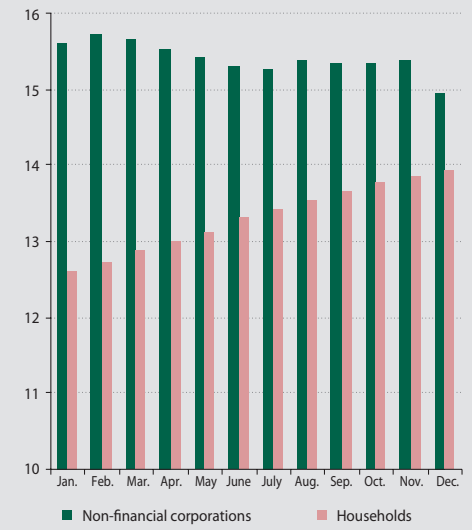
Table 4 MFI loans to non-financial corporations and households

	2006	2007	2008	2009
Non-financial corporations, EUR million	10,900	13,470	15,478	14,942
Households+non-profit institutions, EUR million	7,901	10,101	12,630	13,948
Loans to non-financial corporations, % of GDP	19.7	21.6	22.9	23.6
Loans to households, % of GDP	14.4	16.4	18.7	22.0
Loans to non-financial corporations, growth in %	20.3	25.6	15.5	-3.3
Loans to households, growth in %	31.4	28.6	25.3	11.0
Loans to non-financial corporations, change in EUR millions	-	2,549.0	2,006.7	-536
Loans to households, change in EUR millions	-	2,199.9	2,529.6	1,335

Zdroj: NBS, ŠÚ SR.

15 *The development trends in lending are analysed in more detail in Section 4.1.1.*

Chart 26 Outstanding loans to non-financial corporations and households in 2009 (EUR billions)



Source: NBS.

Business confidence indicators recovered gradually in the second half of 2009.

The sharp decline in confidence indicators continued from the previous year, and although their levels picked up towards the end of 2009, they did not return to their long-term average before the end of the period under review. The first signs of a positive shift in sentiment appeared in industry, as the sector – reflecting the export orientation of the domestic economy – responded to developments in the external environment. In sectors focused more on the domestic environment – services and retail trade – the upturn in sentiment was somewhat lagging. As for the construction sector, the improvement was very modest. Most other short-term indicators (external demand, inventories) developed in a similar way, indicating a moderate recovery of economic activity in comparison with the first months of 2009.

Indebtedness of non-financial corporations rose.

The indebtedness of non-financial corporations rose in 2009 as their financial liabilities increased more sharply than their financial assets. The financing of non-financial enterprises underwent a change in structure, as companies opted to raise finance from the market – mainly through issuing shares – rather than to borrow from banks. There was an increased focus on creditors from the external environment. At the same time, the amount of commercial lending between enterprises climbed, and the amount of commercial loans received from the external environment fell.

3.2 HOUSEHOLD SECTOR

The lack of confidence with which households perceived the economic developments unfold-

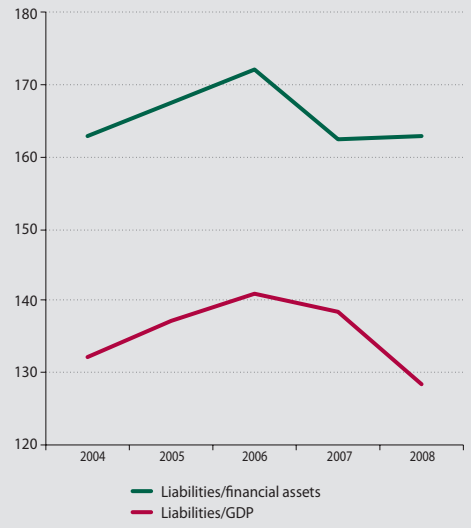
Chart 27 Output, sales and investment (index; same period of the previous year = 100)

Source: SO SR.

Chart 28 Business tendency indicators

Source: Eurostat.

Chart 29 Debt ratios of non-financial corporations (%)



Source: Eurostat, SO SR.

Chart 30 Structure of financial assets and liabilities (flows) in 2009 (EUR billions)

Source: NBS.

ing in Slovakia began to abate in the second quarter of the year and consumer confidence began to recover somewhat.

The economic situation of households in 2009 was marked by adverse developments in the labour market and by decelerating growth in disposable income.

The worsening situation in the real economy was reflected with a lag in the labour market, as unemployment followed an upward trajectory throughout 2009. Unemployment in the domestic economy was pushed up also by a drop in the numbers of Slovak citizens working abroad. Tensions in the labour market were further exacerbated by a decline in job vacancies.

In an environment of low inflation, the slowdown in nominal wage growth was reflected in low growth in real wages (0.9%). Gross disposable income rose only marginally (by 0.8%), while income from employment and business recorded the most pronounced drop. The household savings rate went up modestly (to 7.7% of gross disposable income), which implies high uncertainty and lower confidence among households in regard to the future economic development, as well as a decline in the co-financing of loans with own funds.

The strong consumption preference of Slovakia households – their tendency to outspend any rise in their disposable income (the marginal propensity to consume) – declined in comparison with previous years. At the same time, households saved a substantially larger part of their disposable income, and the proportion of their savings not used for Pillar II and III pension schemes increased relatively sharply.

According NBS's information,[16] the decline in property prices is expected to put downward pressure on growth in household demand. The drop in borrowing amid a lower willingness to take on debt was reflected also in the deceleration of growth in consumer lending.

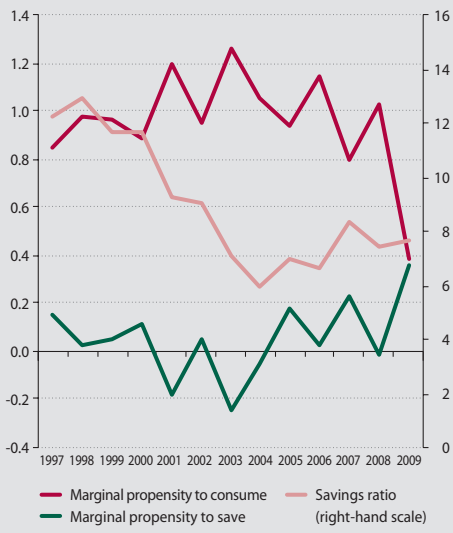
The willingness of households to borrow was in recent years driven by rising income, a positive outlook for economic development, the need for housing, and climbing property prices, as well as by the unavailability of alternatives to own-home purchases (rented housing). At present, the slowdown of growth in the economy, the decline in real income, and the rise in unemployment are adversely affecting the ability of households to service their debts. At the aggregate level, the household debt service burden was at an acceptable level, but while this debt-to-disposable income ratio was at 15% among higher-income groups, it represented 40% among lower-income groups.[17]

16 *Financial Stability Report for 2008, Annex – Housing Affordability in the Region.*
17 *NBS: Analysis of the Slovak Financial Sector for the First Half of 2009.*

Chart 31 Labour market – unemployment and job vacancy rates (%)

Source: Eurostat, seasonally-adjusted data.
Note: A shift in the curve down and to the right indicates a worsening of developments in the labour market.

Chart 32 Marginal propensity to save and to consume; household savings ratio (%)

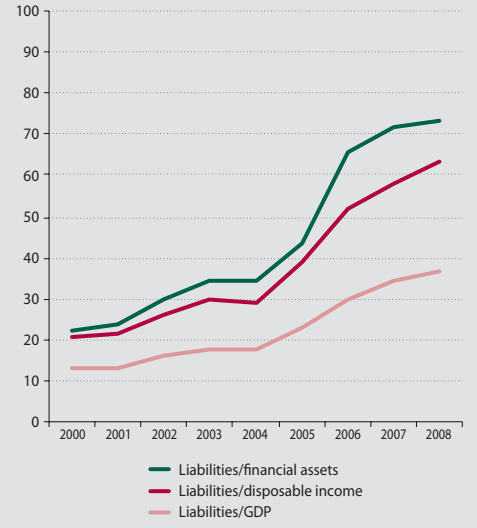


Source: SO SR, Eurostat.

The downward trend in the debt-to-wealth ratio – an indicator of the ability of households to repay their debts at once – came to a halt in 2009.

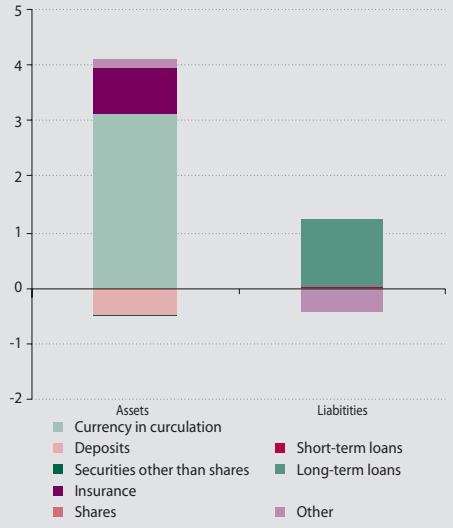
In 2009, household liabilities ceased increasing at a faster pace than household assets, and thus a trend of recent years came to a halt. On the assets side, the effect of the euro introduction faded away – households reduced their deposits and showed increasing demand for ready cash. Pension savings and other assets also rose. On the liabilities side, households reduced debts in the form of other liabilities.

Chart 33 Household debt ratios (%)



Source: SO SR.

Chart 34 Structure of household financial assets and liabilities (flows) in 2009 (EUR billions)



Source: Eurostat.
Note: Data are for households and non-profit institutions serving households.

With interest rates at low levels, households may be encouraged to borrow. Given the high share of floating rate loans, households may be taking on excessive debt by deciding to take out such loans without considering the possibility of interest rates rising at a future date. The preference for loans with a 5-year interest rate fixation indicates that households are looking to ensure lower interest rates for the as long a period as possible.

3.3 MEDIUM-TERM RISKS IN THE NON-FINANCIAL CORPORATE AND HOUSEHOLD SECTORS

Since the banking sector is oriented on lending to non-financial corporations and households, banks are highly exposed to credit risk on such loans. The risks arising in the financial sector are spreading to the balance sheets of enterprises and households.

The medium-term risks relate mainly to:
- the worsening financial position of non-financial enterprises
- the deteriorating repayment behaviour of enterprises
- rising tensions in the budgets of indebted households
- weak consumer demand owing to the stagnation/decline in household income

Medium-term risks in the non-financial corporate and household sectors have a persisting tendency.

The non-financial corporate sector represents a source of mounting risks to financial stability, as the debt-servicing ability of enterprises deteriorates. The decline (drying up) of firms' income and the depletion of their accumulated financial reserves is feeding through to the financial sector in the form of rising credit risk on loans.

Since non-financial corporations have less scope to make profits and reserves, their debt-servicing ability is suffering. If repayment behaviour were to deteriorate en masse, it would pose a threat even to non-financial enterprises that are now in relatively sound financial shape and would also increase the credit risks for the financial sector.

Although household indebtedness continued to rise in 2009, the risks to financial stability from the household sector balance sheet were not as significant as those from enterprises. Given the situation in the labour market and the unfavourable development of household income, the sector's balance sheet may weaken. According to Národná banka Slovenska's projections,[18] the revival of economic activity in 2010 will not stimulate the labour market to a sufficient extent. There is a particular risk from households that have suffered, or may eventually suffer, unemployment and thus lose the funds required to service their debts.

With households needing to repair their balance sheets and service necessary expenditure, there is likely to be downward pressure on growth in household demand. In contrast to the situation in other euro area countries, households in Slovakia increased their savings only very marginally in 2009. This indicates that households – facing virtual stagnation in their disposable income growth – may have difficulty in covering necessary expenditures and do not have any capacity for saving. Looking ahead, if income did not accelerate – a rather unlikely prospect given the current macroeconomic situation – the dampening of consumer demand could adversely affect the generation of profits in those sectors that depend on it.

18 *Medium-Term Forecast MTF-2010Q1*

CHAPTER 4

FINANCIAL SECTOR DEVELOPMENTS AND RISKS

4

4 FINANCIAL SECTOR DEVELOPMENTS AND RISKS

The financial crisis that culminated at the end of 2008 morphed into a global economic crisis in 2009. The subdued worldwide demand represented a severe shock for the strongly export-oriented Slovak economy. The adverse economic development was automatically reflected in the domestic financial sector, too. The risk to Slovakia's financial stability increased, mainly as a result of a deterioration in the quality of assets in the banking sector. This risk, however, was mitigated by the sector's sound risk absorbing capacity. The results of macro stress testing also indicate that banks, as well as other entities of the financial system, would be resilient to much worse than expected developments in the domestic economy. An important factor behind the financial sector's resilience is that its institutions were in a relatively strong financial position in the period before the shocks.

4.1 THE BANKING SECTOR

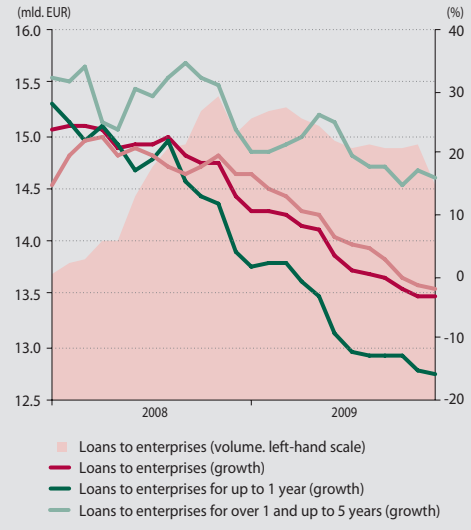
For the Slovak banking sector, 2009 was the worst year since the period of bank restructuring (2000-2001), and the sector's balance sheet and profits reflected this fact. Also in 2009, the differences between banks widened.

4.1.1 KEY TRENDS IN THE SECTOR'S BALANCE SHEET

The corporate credit portfolio shrank in 2009, largely because banks sharply cut down their lending activity. The amount of lending under nearly all types of corporate loans and in almost all sectors of the economy declined.

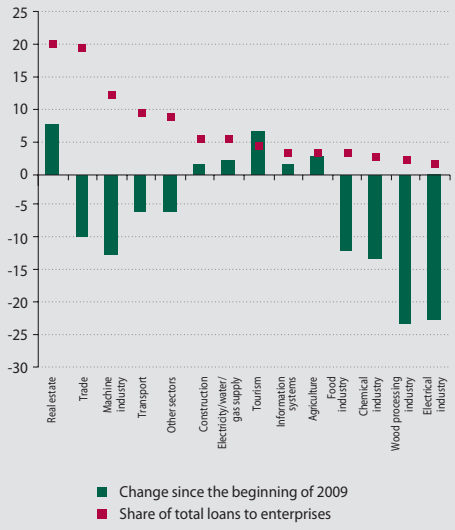
The total volume (outstanding amount) of loans provided to enterprises fell by 3.3% in 2009 (Chart 35). The sharpest fall in lending took place in operating loans. Longer-term loans continued to grow year-on-year at a moderate pace. Financing was markedly reduced mainly for export-oriented sectors and sectors recording sharp revenue falls, i.e. trade, machine industry and transport (Chart 36). The growth in bank lending to the real estate sector was not a sign of confidence in this sector, but rather result from the financing of old projects nearing completion (as in the construction sector).

Chart 35 Lending to enterprises (EUR billions, year-on-year percentage change)



Source: NBS.

Chart 36 Changes in loans to enterprises since the beginning of 2009 by sector (%)



Source: NBS.

Lending standards were tightened throughout 2009, though the pace of tightening moderated. The economic crisis also squeezed demand in the corporate sector, mainly for investment loans. Demand for short-term loans picked up in the second half of the year, as the prices of these loans decreased.

In response to the worsening economic situation and outlook, banks were tightening their lending standards throughout 2009. The tightened lending conditions were seen in increased interest margins, stricter collateral requirements, and other credit standards. As the year went on, however, fewer and fewer banks pursued this policy. According to the majority of banks, lending standards will not be tightened further over the next six months and they will likely be kept stable. At the same time, however, they are not expected to be eased during that period.

The decline in lending was also supported by a relatively significant fall in corporate demand for new loans (according to a survey of banks' subjective views). However, the pace of decline in demand moderated during 2009, which probably indicated an improving situation in the corporate sector. Demand fell mainly as a result of shrinking investment opportunities in the sector.

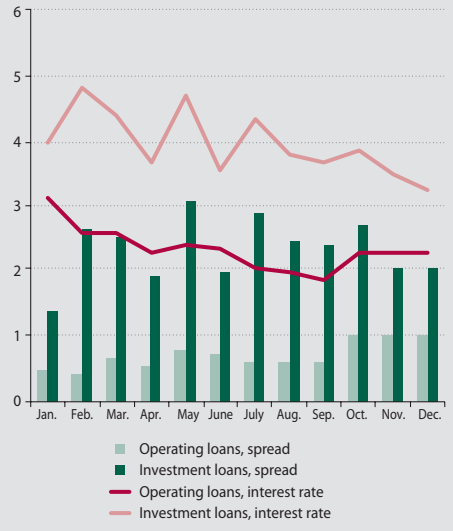
In the second half of the year, demand for longer-term loans remained negative, while demand for operating loans gradually increased, which represented a significant change compared with the first half of 2009. The rise in borrowing demand was probably caused by firms seeking to take advantage of the low rates and restructure their old loans under more favourable conditions.

Interest rates on new loans to enterprises were falling from the beginning of the year (Chart 37). This trend came to a halt in October and November 2009, indicating that the transmission of changes in the key ECB rates to customer interest rates came to an end.[19] However, spreads increased somewhat from the beginning of the year, as a result of higher credit risk for customers.

Corporate deposits declined slightly, mainly as a result of the worsening financial conditions.

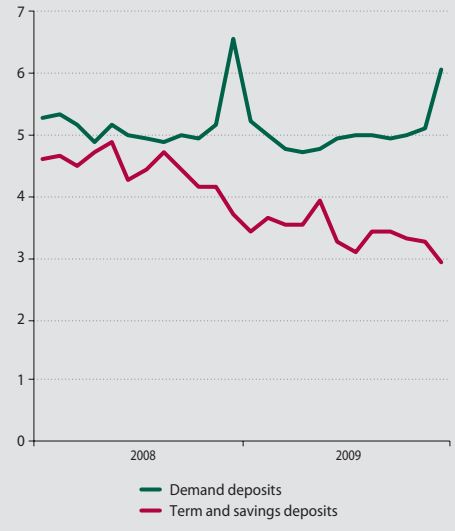
The downturn in activity in the corporate sector, the restricted bank lending, and the worsening repayment behaviour in the corporate sector led to discontinued growth in current accounts and decline in term deposits (Chart 38). As usual, enterprises were little sensitive to interest rates when making decisions about their funds held in bank accounts.

Chart 37 Interest rates (%) and spreads (percentage points) on new loans to enterprises in 2009



Source: NBS.
Note: Spreads were calculated as the difference between the rate of interest on the given type of loan and the annual EURIBOR.

Chart 38 Developments in corporate deposits (EUR billions)



Source: NBS.

19 *In the case of new corporate loans, unlike retail loans, banks usually pass on changes in interbank rates directly to the customer rates.*

Although the amount of new lending to households fell in 2009, it developed more positively in the second half of the year.

The volume of new loans provided to households in 2009 was 10.2% (€1.1 billion) smaller than in the previous year (Chart 39).[20] Owing to the smaller volume of loans provided in 2009, the household loan portfolio showed weaker growth (Chart 40). A slowdown was recorded in all categories under review, except in current account overdrafts.[21] Overall, this means that the household loan portfolio increased during 2009 by only €1.3 billion, compared with €2.2 billion in 2008. Not even an increase in new loans in the second half of 2009 managed to curb this trend, because the volume of repaid loans (including loans repaid prematurely through a loan from another bank) also increased in that period. There were marked differences in the lending policy pursued by individual banks.

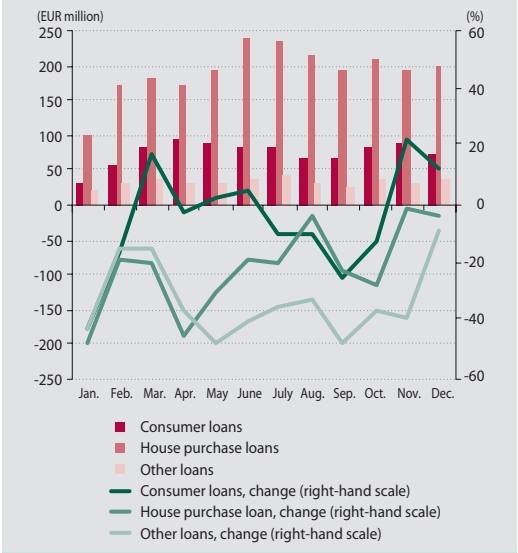
The second half of the year saw a revival in household demand for housing loans. The pace at which banks tightened their lending standards continued to ease. The behaviour of banks in this market was influenced also by the relatively high interest margins.

The main factors behind the change in the behaviour of households were developments in customer interest rates on loans and in real property prices. Both variables recorded a fall in 2009, which, together with the calming economic situation in the second half of 2009, caused an increase in demand for house purchase loans.

In response to the increasing risks, banks reassessed certain products and tightened the standards used in assessing incomes, employment (length and form), and property pledged as collateral. This trend was most apparent in the case of other loans, which are usually non-specific house purchase loans (so-called American mortgage loans) that are highly sensitive to the labour market situation. In general, the loan-to-value (LTV) ratio remained below 100% for all types of house purchase loans, while banks returned to the more conservative limit of around 70% of the value of real estate collateral. As the situation stabilised in the market, some banks eased their lending conditions in the second half of the year.

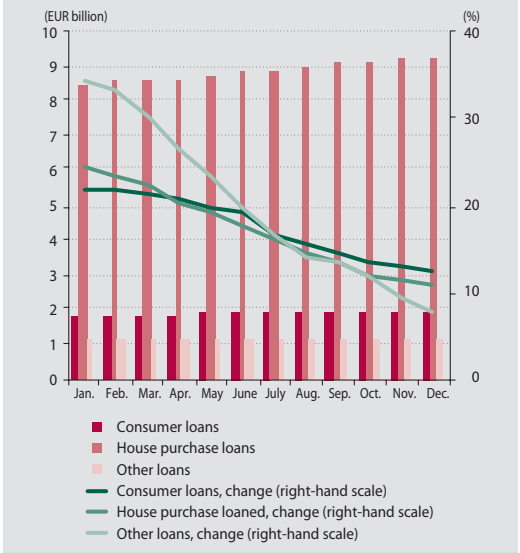
In 2009, the ECB's stabilisation measures in the form of very low key interest rates were not substantially reflected in the prices of loans for households. The average rate for house purchase loans recorded a very slight fall (0.8 of a percentage point) at the beginning of the year, while interest rates on consumer loans were rather

Chart 39 New loans to households (EUR millions, year-on-year percentage change)



Source: NBS.

Chart 40 Outstanding amount of household loans (EUR billions, year-on-year percentage change)



Source: NBS.

20 *New loans to households, mainly consumer loans and house purchase loans, grew steadily throughout the first quarter of 2010. March saw the largest volume of loans provided since October 2008. Since the beginning of 2009, the volume of repaid loans has been growing, too*

21 *The rate of growth in the outstanding amounts of housing and consumer loans stabilised in the first quarter of 2010, while the year-on-year lending growth under current account overdrafts and credit cards weakened.*

volatile during the year. The final rise in interest spreads is partly attributable to liquidity and risk margins (as a reaction to the financial crisis) and the increased credit risk posed by households (Chart 41).[22] Banks also attempted to mitigate the negative effect of reduced lending on the amount of interest income.

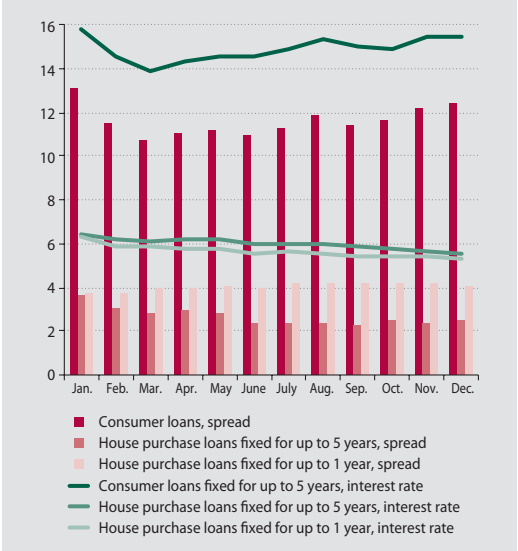
During 2009, households were withdrawing the funds that they had deposited with banks towards the end of 2008 largely in anticipation of the euro changeover.

In the last quarter of 2008, households placed a significant amount of deposits with banks. Compared with the trends observed since 2005, the largest difference in the amount of deposits was recorded in December 2008 (almost €3.2 billion). During 2009, this amount was withdrawn from the banking sector almost in full (Chart 42). In this case, the withdrawals were not determined by interest rate changes. At the end of 2009, banks were unable to avert the continuing withdrawal of deposits even by offering much higher interest rates, which in the second half of 2009, unlike in 2008, attained a positive spread compared with the market rates. As a result, banks had no surplus liquidity at their disposal in the long term and the rise in deposit rates at the end of 2009 was negatively reflected in the interest costs of banks. Roughly one third of the total decline in deposits can be explained by their transfer to investment funds, which recorded increased redemptions towards the end of 2008.

Banks invested much more heavily in government bonds in 2009. The issuance of securities stagnated during the year.

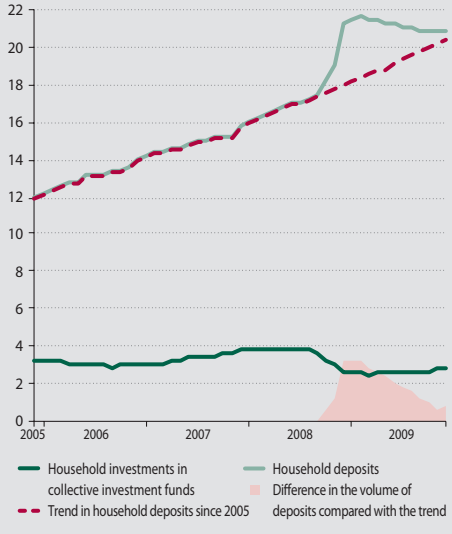
The total volume of securities held by banks continued to increase in 2009. The year under review saw a marked increase in investment in government bonds (Chart 43). At the sectoral level, bond investments grew year-on-year by more than €3 billion, representing an increase of almost 50%. In 2009, there was a substantial rise in investment in foreign government bonds, mainly in Hungarian, Polish and Czech government bonds. One of the reasons behind the strong growth in investment in government bonds recorded by certain banks was the existence of a relatively attractive interest rate differential between government bonds and Eurosystem funds. Thus, funds from the ECB (mostly with a maturity of one year) were used

Chart 41Interest rates (%) and spreads on new loans to households (percentage points)



Source: NBS.
Note: Spreads on loans with interest rate fixation for up to 1 year (up to 5 years) represent the differences between customer rates and the annual EURIBOR (5-year euro swaps).

Chart 42 Developments in household deposits (EUR billions)



Source: NBS.

22 *Interest rate spreads on household loans increased in all euro area countries, with the steepest increase recorded in Slovakia (on house purchase loans).*

for the purchase of government bonds. A similar strategy (carry trades) was also observed among banks abroad.

After growing in the previous years, the total amount of issued securities was more or less stagnant in 2009. Banks issued mortgage bonds in the nominal amount of €550 million, which was well below the level of the previous years. The lower amount issued can be attributed to the worsened financial market conditions at the turn of 2008/2009 and to the lower volume of mortgage loans provided. The required ratio of mortgage loan coverage was reduced by some of the banks, from 90% to 70%. In year-on-year terms, the overall mortgage loan coverage ratio decreased from 91.2% to 87.6% at end-December 2009.

The introduction of the euro in Slovakia had a profound effect on the domestic interbank market, and the real liquidity of the domestic banking sector was revealed.

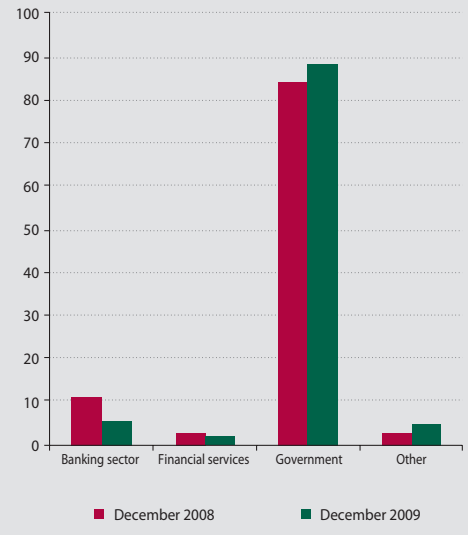
Compared with 2008, banks' activities in the interbank market changed substantially in connection with the euro changeover (Chart 44). In 2008, banks mostly received deposits from foreign banks and then conducted liquidity-absorbing operations with NBS. In 2009, however, after the euro changeover, these operations lost their previous significance. From the beginning of the year, more and more banks began to conduct refinancing operations with the ECB/NBS. Banks mainly used funds with a one-year maturity within the scope of long-term refinancing operations with the ECB.[23] The funds borrowed were invested in government bonds at a relatively high margin, and, in some cases, in the interbank market, mainly in transactions with parent banks. The share of transactions with foreign parent banks also remained high on the assets side. Interbank operations in 2009 continued to be dominated by overnight transactions, which banks probably used to fine-tune their daily liquidity needs.

4.1.2 Profitability

The banking sector's year-end profit reached €250 million in 2009, representing a more than 50% fall in its profitability. The factors that had the most significant impact on banks' profits were the ongoing economic crisis and the euro changeover.

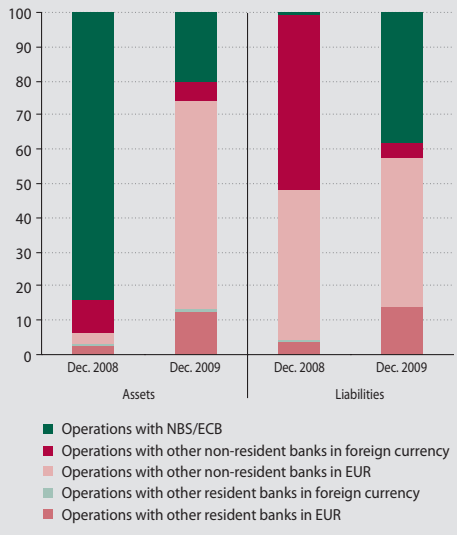
In terms of profit generation, the banking sector performed far worse in 2009 than in previous years (Chart 45). Only five banks and one branch of a foreign bank achieved a higher profit than a year earlier. The sector's profitability plunged by over 50%, and more banks ended the year

Chart 43 Structure of the debt securities portfolio by sector (%)



Source: NBS.

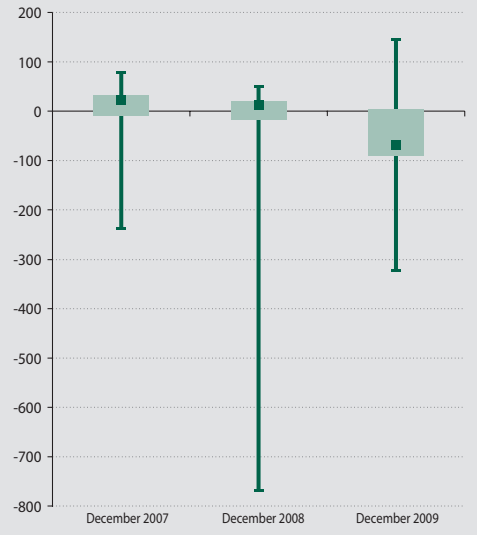
Chart 44 Structure of the interbank market (%)



Source: NBS.

23 *One of the factors behind the growth in the volume of refinancing operations with the ECB/NBS was the relatively low interest charged for this form of financing: 1% per annum for both MROs and LTROs (with effect from 13 May 2009).*

Chart 45 Distribution of year-on-year changes in profitability (%)



Source: NBS.
Note: The vertical scale shows the year-on-year changes in profitability in December 2007, 2008 and 2009 (minimum, lower quartile, median, upper quartile, maximum). The branches of foreign banks are not included in the chart.

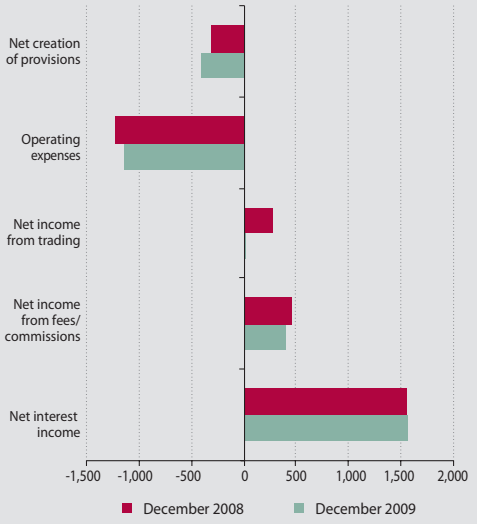
with a financial loss. Losses were recorded by 5 banks and 7 branches of foreign banks (in the total amount of €92 million). Although the amount of the loss decreased in 2009, the loss in 2008 was produced almost exclusively by one bank. The reduced ability of banks to generate a profit in 2009 is indicated by the fact that almost a half of the sector's profit was produced by one bank.

The downturn in customer activity, especially when compared with the growth recorded in 2008, adversely affected banks' interest income and income from fees and commissions. The euro adoption, too, had a relatively significantly effect on the level of interest income. Non-interest income was also negatively affected by the euro and the economic crisis.

The sector's interest income, representing the most significant profit component, increased by only 1% in 2009 (Chart 46). The negative developments were most pronounced in the corporate sector. In the household sector, however, the continuing relatively strong growth in loans, combined with higher interest margins, ensured an increase in interest income for banks from this sector (Chart 47). In the area of interest income from households, however, there were considerable differences between the banks. Positive trends were mainly recorded by large banks. This was the result of increased market concentration.

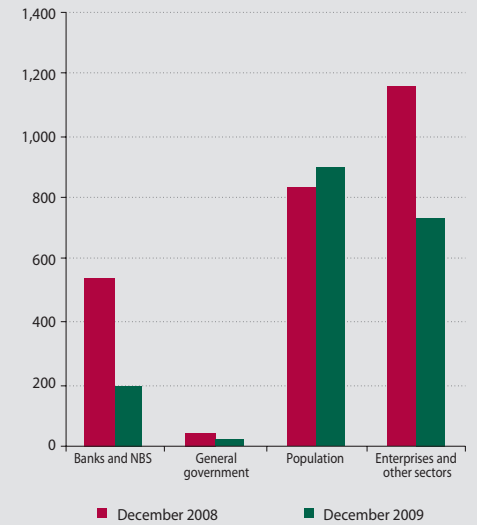
What distinguished the Slovak banking sector from foreign banking sectors in terms of profit generation was the adoption of the euro. This caused a sharp fall in income from foreign ex-

Chart 46 Main components of profitability (EUR millions)



Source: NBS.

Chart 47 Interest income of banks by sector (EUR millions)



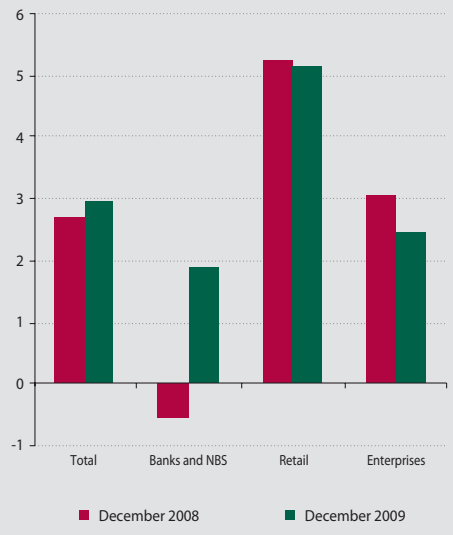
Source: NBS.

change transactions. The euro changeover was also responsible for an outflow of funds from foreign banks and for the cessation of asset-side operations with NBS, which resulted in a fall in interest income from transactions with banks.

Regarding these changes on the asset and liability sides (affecting both households and enterprises) and the general fall in interest levels, banks were more effective in coping with them in the case of households. The fall in yields was more or less offset by a cost reduction, which caused only a minimal decrease in the sector's interest rate spread (Chart 48).

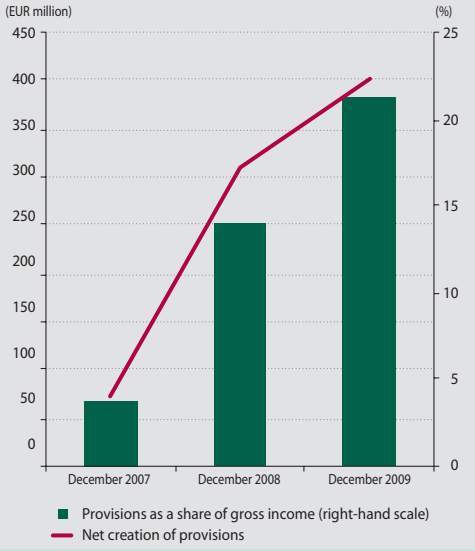
Banks also recorded a sharp fall in non-interest income. As a result of weaker economic activity among customers and lower prices for certain retail financial services within the scope of SEPA, income from fees and commissions fell by 11% compared with 2008. The year-on-year decline in non-interest income was caused mainly by a decrease in income from trading. The sharpest fall was recorded in income from foreign exchange transactions, which had been the largest trading income component before the country's entry into the euro area. This affected mostly banks whose total profits were dominated by such income. At the same time, however, banks managed to increase their gains on securities trading. This was mainly due to changes in the yield curves: all rates for maturities of up to one year were falling from the beginning of the year, which was automatically reflected in the positive revaluation of securities.

Chart 48 Net interest rate spread (%)



Source: NBS.
Note: Net interest rate spread represents the difference between returns on loans (the ratio of interest income from loans to total loans) and the cost of deposits (the ratio of interest expenses on deposits to total deposits).

Chart 49 Creation of provisions in the banking sector (volume in EUR millions, share in %)



Source: NBS.

The creation of provisions, which reflects the credit risk involved in the portfolios of banks, had a profound effect on profit generation in banks. The fact that the creation of provisions affected profitability so significantly in 2009 can be attributed to the growing amount of provisions and falling revenues in the banking sector (Chart 49).

Despite a reduction in operating expenses, the sector's cost-to-income ratio decreased.

A natural reaction of banks to a downturn in trading activity is to cut operating expenses. In 2009, almost all banks reduced their operating expenses, and the sector as a whole cut them by an average of 7% year-on-year. Banks lowered their expenses in all the main components, especially expenditure on purchased goods and services and staffing costs.[24] Despite the cost reduction, the sector's cost-to-income ratio worsened on a year-on-year basis, as a consequence of the sharp fall in income. In 2008, operating expenses

24 *Staff numbers were reduced in the sector by approximately 9% year-on-year.*

corresponded to 55% of the income, and by the end of 2009, their share had increased to 60%.

The falling coverage of non-performing loans by provisions requires intensive supervision.

The creation of provisions is one of the indicators of credit risk in banks, for banks usually create provisions when their receivables are depreciating. The increase in provisions over the course of 2009 indicates that more and more bank clients have problems with debt repayment. It is important for the stability of banks that an adequate amount of provisions be created for the coverage of expected credit losses. The outstanding amount of non-performing loans grew more rapidly in 2009 than the creation of provisions in banks. Hence, the coverage of non-performing loans by provisions fell considerably for both enterprises and households. Taking collateral into account, the coverage of loans to enterprises appears to be sufficient (it did not fall below 100% over the course of the year), but the coverage of retail lending stood at only 81% at the year-end, compared with 95% at the beginning of the year (Chart 50).[25]

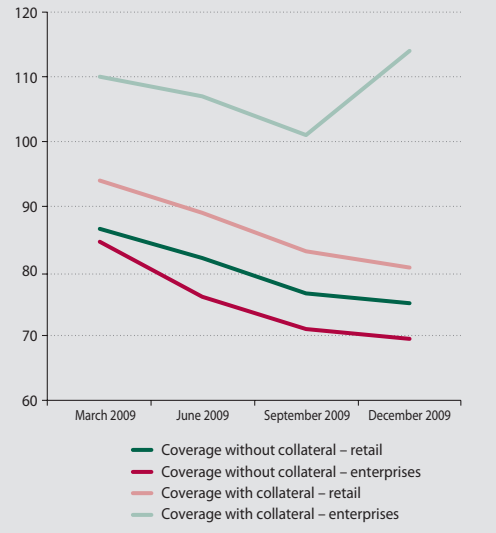
4.1.3 Capital adequacy

Banks strengthened their capital position over the course of 2009. This was supported by an increase in own funds, mainly in Tier 1 capital. At the same time, the amount of risk-weighted assets decreased.

In December 2009, the own funds of the banking sector stood at €4.2 billion, representing a year-on-year increase of €351.1 million (9.2%). The capital raised by banks was primarily the highest quality component of capital (i.e. Tier 1), mainly from retained earnings from previous years. In December 2009, Tier 1 accounted for more than 90% of banks' own funds (Chart 51), and recorded a relatively significant year-on-year increase (10.9%). Despite the strengthening capital position of the sector, some of the banks recorded a fall in capital adequacy in 2009, and/or had a relatively low capital adequacy ratio in the long term. These banks were therefore more sensitive to negative developments.

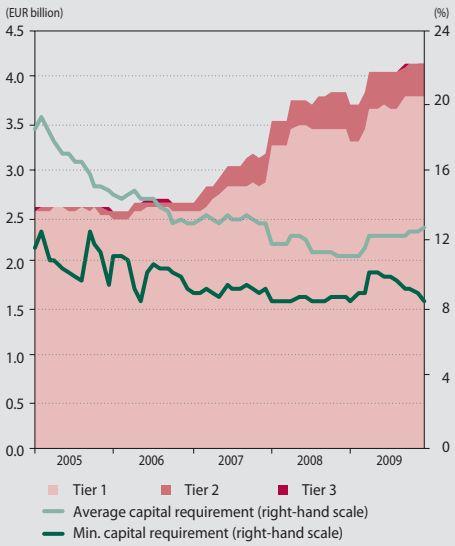
The systemic decrease in risk-weighted assets in regard to foreign exchange risk (due to the euro adoption) was also reflected in the total amount of risk-weighted assets, which fell year-on-year by almost 4%. This happened despite an increase in risk-weighted assets in the banking book. Despite being the most significant item, risk-weighted assets grew at a substantially slower pace than in the previous periods, largely to do the slowdown in bank lending or its suspension in selected sectors.

Chart 50 Coverage of non-performing loans by provisions (%)



Source: NBS.
Note: The indicator is defined as the ratio of provisions to non-performing loans in the given sector.

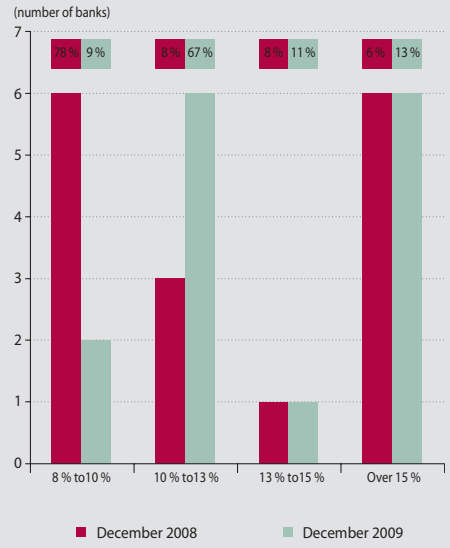
Chart 51 Capital position in the banking sector



Source: NBS.

25 *In certain cases, the coverage dropped to 60% and the extent of fall in certain banks since the beginning of 2009 was also noteworthy.*

Chart 52 Distribution of capital adequacy in the banking sector



Source: NBS.
Note: The vertical axis shows the number of banks. The percentage above each bar represents the assets of the banks in that bar as a share of the sector's total assets.

The increase in own funds, combined with a decrease in the amount of risk-weighted assets, led to a rise in the capital adequacy ratio. At the end of December 2009, the ratio reached 12.6% at the sectoral level, representing a rise of 1.4% during the year (Chart 51). All banks met the minimum ratio of 8% and some exceeded substantially. Thus, in that crisis period, numerous banks attempted to create an adequate capital cushion for the case of unexpected losses (Chart 52).

The parent companies of domestic banks also strengthened their capital position.

Rising capital adequacy ratios were a general trend in 2009, observed in almost all banking sectors of the EU. The parent banks of most domestic banks strengthened their capital position, too. In the second half of 2009, banks tended to replenish their capital from market sources (after using predominantly government sources in the first half of the year).

4.1.4 Risks in the banking sector

Regarding the structure of the banking sector and the nature of its activities, the risks of banks are closely connected with the real economy. Hence, the economic downturn in 2009 was relatively quickly reflected in the domestic banking sector in the form of increased risks, the dominant one being credit risk. Regarding the further course of these risks, the most important factors are the pace and, above all, sustainability of the economic recovery.

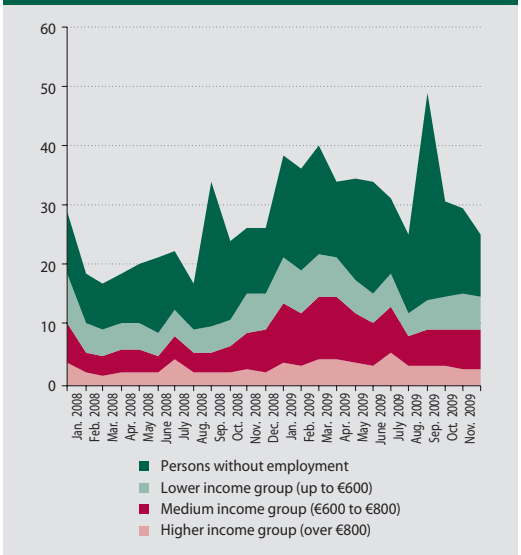
4.1.4.1 Credit risk in the household sector

The increase in household credit risk was mainly the result of a rise in unemployment, particularly in the lower-income segment of the population. Expectations for the unemployment situation in the near term are more negative than positive.

The unemployment rate rose mainly in the first half of 2009, from 9% in January to 11.4% in May. It reached 12.7% at the end of 2009.[26] The increase in unemployment in the first and second quarters of 2009 took place mostly among lower-income groups (Chart 53). This development was also confirmed more or less by the trend in non-performing loans, where the largest increase was recorded in loans to lower-income households.

Although the second half of the year saw certain positive changes in the corporate sector, which were reflected in production and caused a slight rise in employment in certain sectors, the corporate sector still had significant unused produc-

Chart 53 New unemployed by income group (in thousands)



Source: Statistical Office of the SR, Trexima.

26 *The registered unemployment rate fell in the first quarter of 2010, while the number of registered vacancies increased. This was not a general trend; it took place in some of the export-oriented sectors exploiting the revival in external demand.*

Table 5 Share of non-performing loans in the household sector

	January 2009	December 2009
Overdrafts	7.3 %	9.1 %
Consumer loans	10.8 %	11.8 %
Mortgage loans	1.8 %	2.5 %
Intermediate loans	5.1 %	5.8 %
Other housing loans	2.6 %	3.4 %
Other loans	1.6 %	3.9 %

Source: NBS.

tion capacities. The willingness to provide employment will also be affected by the uncertainty regarding the future economic situation. Despite certain positive trends, there are still relatively many questions concerning the sustainability of economic growth.

Household credit risk was also affected adversely by the level of income in the sector.

According to data from Eurostat, real disposable income in Slovakia declined by 6% in 2009, after growing by 6.5% in 2008. The average gross wage increased by only a minimal amount during the year. Regarding the structure of households by income group, a deceleration in wage growth was recorded in all groups. The slowest year-on-year wage growth was recorded in the lowest-income segment of the population.

The worsened financial position of households led to a slight increase in non-performing loans. The sectoral figure, however, reflected the sales of non-performing loans in several banks, especially during the last quarter of 2009.

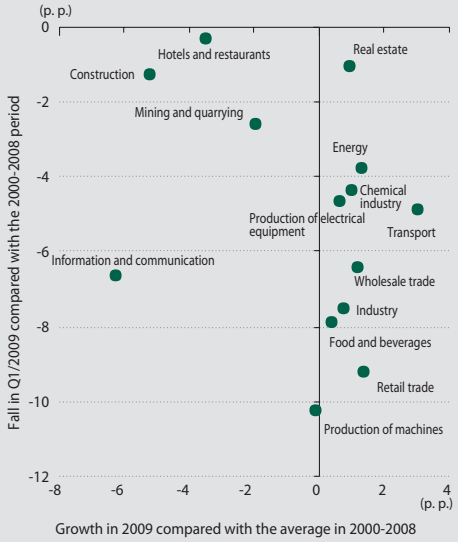
The share of non-performing loans in the total volume of loans provided to households reached 5.2% at the end of 2009, which represented an increase of approximately one percentage point from the beginning of the year. The quality of loan portfolios, measured by the loan default rate, worsened in all categories of loans, particularly in other loans, current account overdrafts, and consumer loans (Table 5). Although the pace of increase in the loan default rate stabilised in the last quarter of 2009, this did not result from an improvement in the situation of households, but from the sale of non-performing loans by certain banks.[27]

4.1.4.2 Credit risk in non-financial corporations

The gradual revival in corporate activity is very fragile. The sectors most affected by the crisis are hotels and restaurants, construction, and mining and quarrying.

The main reason for the upturn in activity among Slovak enterprises was exports, which are not yet being driven by household consumption related to employment growth, but rather by other factors, such as stimulus packages introduced by

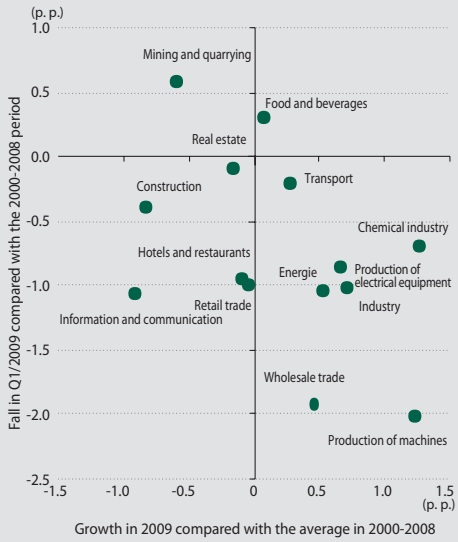
Chart 54 Revenues by sector



Source: Statistical Office of the SR.
Note: The values in percentage points on the vertical axis express the differences between the change in the ratio (revenues/assets) from Q3/2008 to Q1/2009 and the average change in the same quarters of the years 2000-2008. The values in percentage points on the horizontal axis express the differences between the change in the ratio (revenues/assets) from Q1/2009 to Q3/2009 (due to the absence of data for Q4/2009) and the average change in the same quarters of the years 2000-2008.

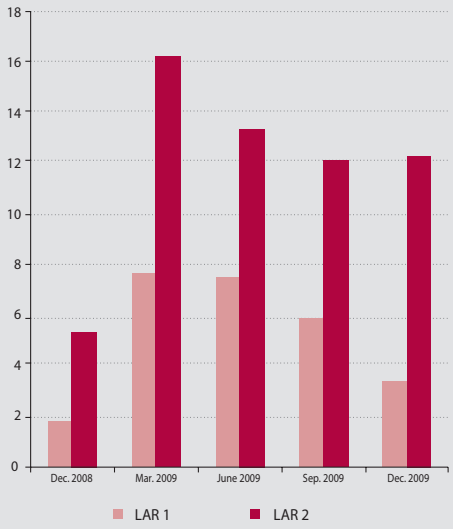
27 *The rate of growth in non-performing loans continued to accelerate in the first quarter of 2010. The share of non-performing loans increased in all categories of household loans. Overall, the loan default rate in the household sector increased by 0.5 of a percentage point over the first quarter, to 5.6%.*

Chart 55 Profitability by sector



Source: Statistical Office of the SR.
The values in percentage points on the vertical axis express the difference between the change in the ratio (profit/assets) from Q3/2008 to Q1/2009 and the average change in the same quarters of the years 2000-2008. The values in percentage points on the horizontal axis express the differences between the change in the ratio (profit/assets) from Q1/2009 to Q3/2009 (due to the absence of data for Q4/2009) and the average change in the same quarters of the years 2000-2008.

Chart 56 Loans at risk: LAR 1 and LAR 2 (%)



Source: NBS, Statistical Office of the SR.
Note: Loans at risk (LAR) – loans to enterprises that recorded a loss in the given quarter, as well as a year-on-year fall in revenues in the given quarter in excess of 50% (LAR 1) or in excess of 30% (LAR 2). Loans at risk are expressed as the share of loans at risk in total loans to enterprises that have data on revenues and profits.

governments abroad. Until there is a turnaround in employment (at home or abroad), the recovery should be viewed as relatively fragile. Another crucial fact is the weak performance of enterprises and the low utilisation of production capacities. The sectors hardest hit by the crisis (with the recovery in revenues in 2009 taken into account) include information and telecommunication, hotels and restaurants, construction, and the mining and quarrying industry (Chart 54). A similar situation occurred in profit generation (Chart 55).

The real estate sector appears to be at a high risk.

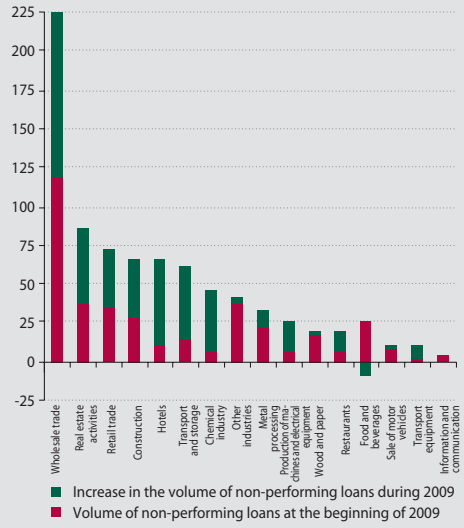
Although the property sector appeared to be relatively stable (see Charts 54 and 55) in 2009, it, too, faced risks generated by the worsening situation in the market for commercial and residential properties as a result of falling demand. From the view of banks, the risk in this sector lies in the size of their credit exposure to it. Of the total number of corporate loans worth more than €10 million, real estate loans accounted for approximately 25%. In the case of other sectors, such large loans are dominated by loans guaranteed by the state or by large supranational corporations.

The share of loans at risk decreased in 2009, but it still pointed to relatively high credit risk at the year-end

The worsening situation in the corporate sector at the beginning of 2009 caused an increase in loans at risk (Chart 56). As the year went on and the situation improved, the LAR ratios recorded a decline, although the LAR 2 ratio nudged up again in the last quarter. This means that revenue falls in excess of 50% were not as common as in the first half of the year, but exposure to loss-making enterprises recording a revenue fall of 30% to 50% still represented a significant risk for the banking sector.[28] The total share of loans to enterprises with a worsening financial position may in fact be higher than indicated by the indicators (LAR 1 and 2), mainly in the case of banks with significant lending activity abroad (the ratios only cover a sample of loans to domestic enterprises).

28 *The continuing improvement in the situation in the corporate sector during the first quarter of 2010 is documented by a marked fall in the LAR 2 ratio to around 5% and a further slight fall in the LAR 1 ratio.*

Chart 57 Volume of non-performing loans (EUR millions)



Source: NBS.
Note: The indicator is defined as the ratio of provisions to non-performing loans in the given sector.

The largest increases in loss-making loans in 2009 took place in wholesale trade, accommodation and food service activities, real estate activities, retail trade and construction. Leasing also had a negative impact on the consolidated financial results of banks.

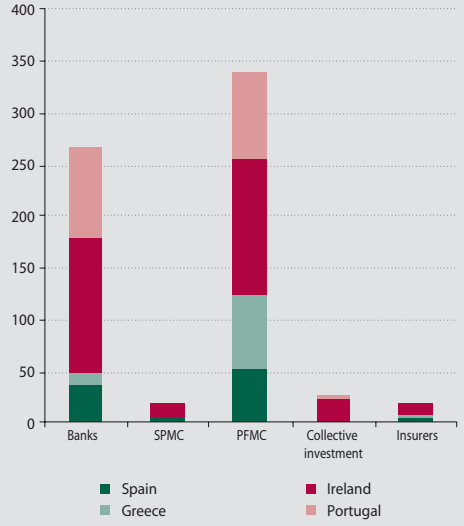
From the view of credit risk, the total volume of non-performing loans is important to the banking sector since it represents the amount of loss. In this comparison, the largest negative impact on the banking sector was exerted by sectors in which the volume of non-performing loans increased mainly in 2009: principally wholesale trade, and to a lesser extent real estate activities, retail trade, and construction (Chart 57).[29]

Although leasing companies recorded marked losses in 2009, loans provided to these companies are not past due. Since the majority of leasing companies belong to bank groups, the aforementioned losses were consolidated within group profit and loss accounts.

The credit risk arising from banks' sovereign risk exposures is mitigated by the mostly short-term nature of the positions and their relatively small share of total assets.[30]

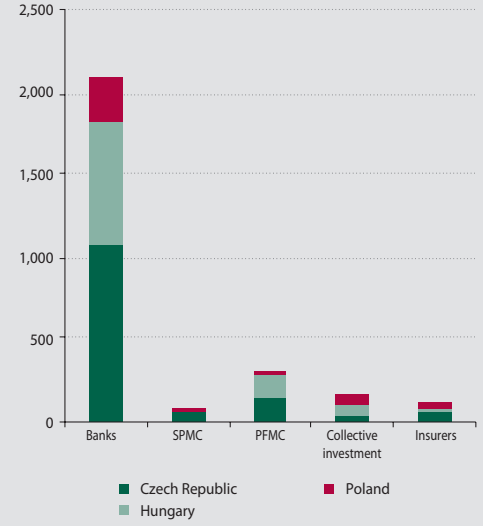
As at the end of 2009, the largest amounts of claims on four countries representing a high default risk (Greece, Spain, Portugal and Ireland) were reported by pension fund management companies (almost €340 million) and banks (€266 million) (Chart 58).[31] Whereas total claims on these countries constitute a negligible share of most banks' total assets, bonds issued by

Chart 58 Overall direct exposures of financial institutions to selected countries (EUR millions)



Source: NBS.

Chart 59 Overall direct exposures of financial institutions to selected countries (EUR millions)



Source: NBS.

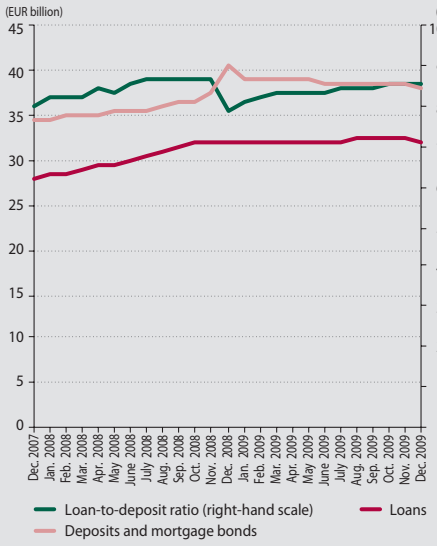
29 *The negative trends in quality of the portfolio of loans to enterprises continued at the beginning of 2010. In the first quarter of 2010, the loan default rate increased in most sectors, with the volume of non-performing corporate loans exceeding one billion euros.*

30 *More details are available in Národná banka Slovenska's Analysis of the Slovak financial sector for 2009, Box 1.*

31 *In the first quarter of 2010, exposure to foreign government bonds significantly increased in some of the banks. The largest increase was recorded in exposure to Greek bonds. At the end of March 2010, banks' exposure stood at approximately 1.1% of the sector's assets. The risk of default in these bonds is still high.*

these countries account for as much as 26% of the total net asset value in certain PFMC funds. The exposures of PFMC funds were exclusively in bonds, predominantly in government bonds. Only banks had non-bond claims and these consisted mostly of interbank loans, which, because of their short-term nature, are less risky exposures compared with bonds. The largest share of claims on Poland, Hungary and the Czech Republic (perceived by investors as a single region of emerging economies)[32] is held by the banking sector (Chart 59). Of the banking sector's total exposure (€2.1 billion), interbank assets with Czech and Hungarian banks accounted for 50%. The credit portfolio amounted to €770 million. By December 2009, financial institutions had purchased bonds in the total amount of €1.2 billion, of which banks accounted for more than €770 million. Corporations purchased largely bonds issued by the central government, general government or by a domestic corporation.

Chart 60 Loan-to-deposit ratio: trend



Source: NBS.
Note: MB = mortgage bonds.

4.1.4.3 Liquidity risk

The banking sector's long-term liquidity was still satisfactory. The sector as a whole managed to finance its lending activities from stable domestic sources.

The loan-to-deposit ratio recorded a year-on-year rise from 79% to 85%, which is to be viewed in the context of an extraordinary increase in deposits at the end of 2008 made in anticipation of the euro changeover (a short-term effect causing the ratio to improve, Chart 60). At the end of 2009, however, this ratio was higher than 100% in nine banks, mostly in branches of foreign banks.

The ability of banks to cope with the unfavourable liquidity situation weakened somewhat in 2009.

At the end of 2009, the liquid asset ratio[33] was fulfilled by all banks, except for one. The coverage of volatile liabilities by liquid assets in the banking sector fell during the year, from 1.44 to 1.32. This fall was mainly caused by a decrease in the amount of liquid assets, which resulted from several changes. The first was a decrease in interbank assets maturing within a month, including accounts with NBS. The second was a fall in loans repayable within a month, which was connected with a fall in the volume of operating loans to enterprises. A certain effect was also exerted by an increase in the amount of pledged securities, which reduce the volume of liquid assets.

4.1.4.4 Market risks

Banks were sensitive to interest rate changes mainly over the long-term horizon, given that such changes may affect their interest income.

Parallel interest rate increases would have a negative impact on the majority of banks.[34] A parallel rise of 1 percentage point would cause a decline in the net worth of the banks' portfolios of 0.87% of the assets. For banks, except for branches of foreign banks, this value represents 0.92% of the assets, or 10.8% of the own funds. For hedging their interest rate risks, banks used derivative transactions only to a small extent. Despite the relatively sharp estimated fall in the economic value accompanied by a rise in interest rates, we cannot say that the expected average rise in interest rates in the future will have a substantial adverse effect on the banking sector. There are two reasons for this, the first being that the interest rate decline in 2009 took place only in short-term rates, while rates with a maturity of over 5 years did not show a falling tendency. Hence, the rise in interest levels is expected to

32 *An analysis of the risks in this region is available in Chapters 1.3 and 1.6.*
33 *The liquid asset ratio is defined as the ratio of liquid assets to volatile liabilities within a month. Its value should not fall below the level of 1.*
34 *The rationale for assessing a parallel shift in the yield curve is the provision of Act No. 483/2001 Coll. on banks and on amendments to certain laws as amended, according to which a bank's economic value must not fall below a certain prescribed level as a result of a sudden and unexpected change in the market interest rates, while under NBS Decree No. 15/2006 a sudden and unexpected change in the market rates is defined as a parallel upward shift in the yield curve of 200 basis points.*

take place mainly in the shortest-term rates.[35] Secondly, the increase in shorter-term rates will probably not be the same for individual types of financial assets and liabilities. On the basis of historical trends, this increase is expected to be fully reflected in the portfolio of securities (with a longer duration), while retail deposit rates will not necessarily rise to the full extent (their duration is shorter, but it may increase as a result of the banks' slower reaction).[36]

The exchange rate risk was determined by the rates against the USD, CZK and PLN.

The banking sector is not significantly exposed to the exchange rate risk (the weighted average of the ratio of foreign exchange positions to the sector's assets was only 0.4%). Most banks have long open positions in the individual currencies, i.e. they would be adversely affected by the strengthening of the euro vis-à-vis the individual currencies. Thus, a current exchange rate risk could be a loss of confidence in the currencies of the Central European region and consequent depreciation of the Czech koruna, Polish zloty and Hungarian forint.

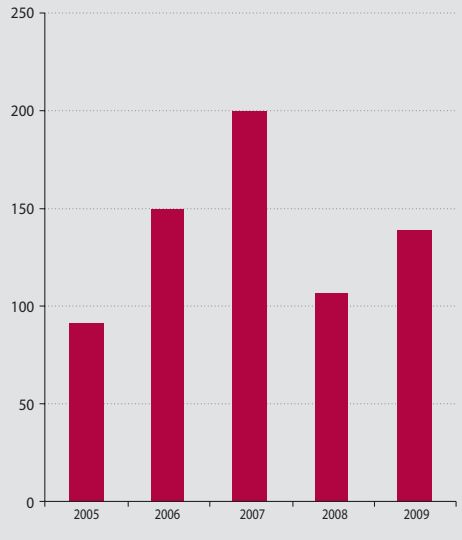
4.2 THE INSURANCE SECTOR

4.2.1 Financial position of the insurance sector

The overall financial position of the insurance sector in 2009 improved in comparison with the previous year, since the year-on-year drop in the technical account was outweighed by the rise in gains on financial operations. Nevertheless, most insurers reported a deterioration in their overall financial result in comparison with 2008.

The total profits of insurers increased by 28.4%, to stand at €138.2 million. There was also an improvement in indicators of profitability: the ROE ratio climbed from 8.9% in 2008 to 10.4%, and the ROA ratio rose from 1.9% to 2.3%. Like total profits, however, these values remained below the levels seen in 2006 and 2007 (Chart 61). The financial result of insurers increased year-on-year by €201.3 million, 78% of which was accounted for by gains on unit-linked products. This fact was reflected in the rise in technical provisions for unit-linked products, and thus in the decline in the technical result for life insurance as whole.

Chart 61 Total profits of insurance companies (EUR millions)



Source: NBS.

The overall technical result for insurance companies fell by €173.9 million in comparison with 2008, which in addition to the abovementioned provisions for unit-linked products, reflected the fact that the cost of claims and other technical expenses rose more sharply than technical income. Most insurers reported a year-on-year deterioration in their overall financial result. The rise in profits reported by the sector as a whole was in fact largely attributable to the rise in profits of the three largest insurance companies.

4.2.2 Premiums and the cost of claims[37]

After reporting one of their strongest ever years of growth in 2008, premiums declined in 2009 for the first time since their monitoring began. The decline was more pronounced in the life insurance sector.

Total premiums for 2009 amounted to €1.985 billion, representing a fall of 5.5% in comparison with the previous year (Chart 62). In life insurance, premiums fell by 6.4%, to €1.029 billion (representing the largest ever year-on-year drop), and in non-life insurance they decreased by 4.5%, to €0.956 billion.[38]

The drop in life insurance premiums was largely accounted for by the sharp reduction in premiums for so-called "unit-linked" insurance prod-

35 *If we assume that the interest curve for the shortest maturities rises by 2 percentage points, remains unchanged for maturities over 5 years, and its course for other maturities is estimated using linear interpolation, then the impact on banks' economic value will be approximately six times lower than in the case of a parallel rise of 1 percentage point.*

36 *The different reactions of interest rates to a change in the key ECB interest rate, or in the credit spreads, are modelled in detail in the part Macro Stress Testing.*

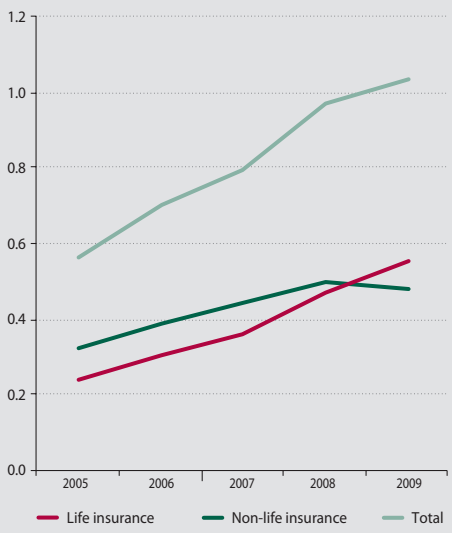
37 *Premiums can be defined as the price agreed in individual insurance contracts regardless of the method of their financial reporting. NBS analysed the technical cost of claims as it did premiums. Hereinafter, the term "claims cost" means "technical claims cost".*

38 *The figure for non-life insurance premiums does not, however, include data for two insurance companies which became branches of foreign insurance companies during the course of 2009 and therefore do not have a reporting obligation. Had these insurers been excluded from the 2008 data, the decline in non-life insurance premiums would have been only 2.6%.*

Chart 62 Insurance premiums (EUR billions)

Source: NBS.

Chart 63 Claims cost (EUR billions)



Source: NBS.

ucts, where the investment risk is borne by the insured. These products feature a high degree of flexibility, especially in regard to partial withdrawals and the scope for adjustment of the premium level. The second key reason for the downturn in life insurance was the reduction in the number of insurance policies for traditional life insurance (including assurance on death, assurance on survival to a stipulated age, mixed assurance, etc.). The decline in premiums in this line of insurance was caused mainly by contract surrenders and an increase in the number of maturing policies.

In general, the non-life insurance sector is less affected by the state of the real economy than is the life insurance sector. This is apparent also from the development of premiums during 2009. The decline in non-life insurance was largely due to a fall in premiums in the motor insurance line.[39]

The claims cost rose in life insurance and fell in non-life insurance.

The total cost of claims in 2009 amounted to €1.035 billion, representing a rise of 7.4% compared with the previous year (Chart 63). This increase, however, was substantially lower than the one reported for 2008, largely because the claims cost in non-life insurance declined (by 3.6%). In life insurance, the claims cost rose by 19.3%.

4.2.3 Technical provisions and their investment

The technical provisions of insurance companies maintained their trend growth of previous years and continued to be invested on a conservative basis.

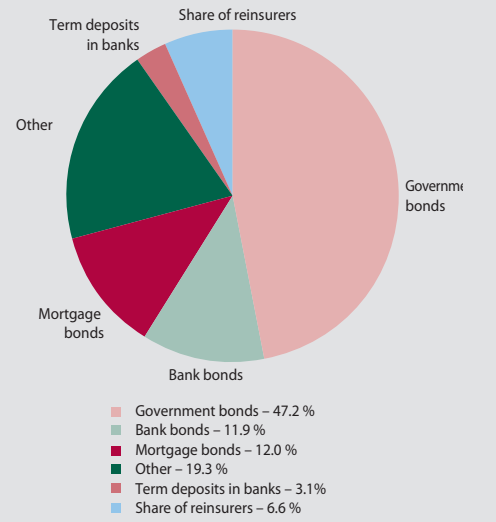
As at 31 December 2009, insurers reported technical provisions totalling €4.477 billion, representing an increase of 11.3% year-on-year. Provisions for unit-linked insurance liabilities again recorded the sharpest rise, while overall technical provisions, less provisions for unit-linked insurance, ended the year at €3.785 billion. The asset coverage of technical provisions rose slightly, to 112%. Insurers increased mainly their holdings of government securities and reduced their exposure to bank bonds and term deposits. Thus these investments declined both in their amount and their share of total investments of technical provisions (Charts 64 and 65).

4.3 INVESTMENT FIRMS

After falling in 2008, the volume of trading rose in 2009. By contrast, the amount of customer assets under management fell in 2009 after increasing in the previous year. The capital adequacy ratios of investment firms comfortably met the statutory minimum requirement.

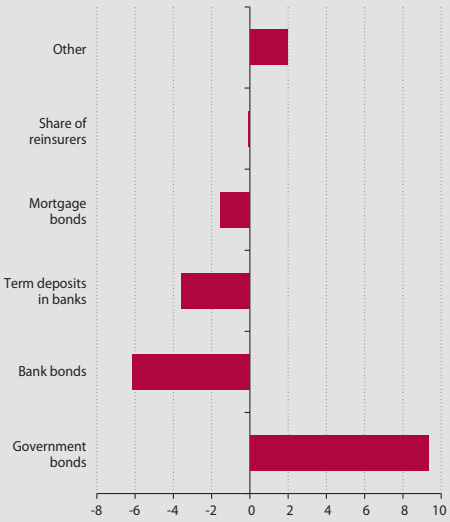
39 *The lower premiums in this insurance line may also relate partly to the arrival in the Slovak market of the branch of an insurer from another EU Member State. This branch, however, does not have a reporting obligation and therefore its impact on the motor insurance sector cannot be assessed.*

Chart 64 Investment of technical provisions



Source: NBS.
Note: Government bonds refer to bonds issued by Slovakia and other EU Member States, NBS and other central banks, bonds guaranteed by the Slovak Government, and bonds issued by the EIB, EBRD and IBRD.

Chart 65 Changes in the investment of technical provisions between 31 December 2008 and 31 December 2009 (%)



Source: NBS.
Note: The Chart shows the year-on-year percentage change in investments in the given instruments.

The total amount of transactions in bonds, shares, investment fund shares/units, and other equity securities in 2009 increased by 40% year-on-year, to €20 billion (compared with €14.4 billion as at 31 December 2008). As for trading in derivatives, it plunged on a year-on-year basis as a consequence of the financial crisis.

The amount of customer assets managed by companies licensed to manage a customer portfolio (investment firms, banks, and certain asset management companies) declined by 7% year-on-year (from €2.09 billion to €1.95 billion).

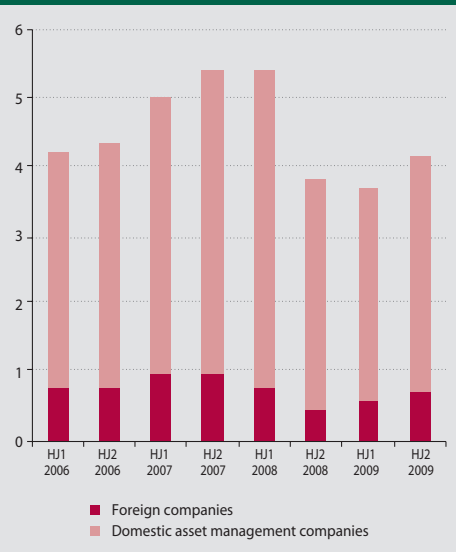
During 2009, the amount of own funds of every non-bank investment firm fluctuated well above the statutory minimum required, and their level as at December 2009 was more than three times higher.

4.4 COLLECTIVE INVESTMENT

Overall in 2009, the net asset value in the collective investment sector rose in comparison with the end of 2008, but the figures still fell short of the levels recorded before the wave of investment fund redemptions began in September 2008.

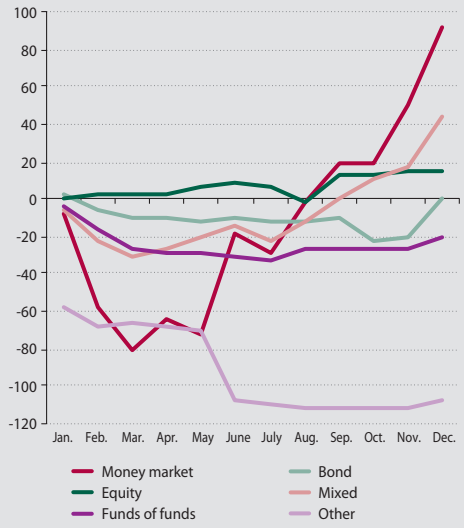
The culmination of the global financial crisis in autumn 2008 was reflected in sharply falling prices

Chart 66 Net asset value of investment funds sold in Slovakia (EUR billions)



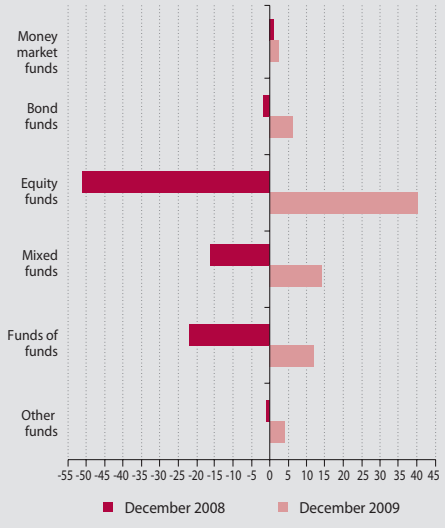
Source: NBS.

Chart 67 Monthly cumulative net sales of open-end investment funds in Slovakia for 2009 (EUR millions)



Source: NBS.

Chart 68 Performance of domestic open-end investment funds (% p.a.)



Source: NBS.
Note: Funds are weighted by net asset value.

of certain assets managed by domestic and foreign collective investment undertakings, which then fuelled investor fears and led to a wave of redemptions of these funds. As a result, the net asset value in the collective investment sector at the end of 2009 was 30% lower year-on-year (Chart 66). Mirroring the development of global financial markets, the sector did not start to stabilise until the end of the first quarter of 2009. In the period that followed, stock markets began to rebound (offering the first signs of improvement in expected economic developments) and prices of other assets stabilised, and it was in this context that investor demand for collective investment products gradually picked up. The total net asset value of assets managed in Slovakia by domestic and foreign collective investment undertakings increased by almost 9% year-on-year. Nevertheless, compared with the amount of assets that were under management before the wave of redemptions began in September 2008, the size of the sector in terms of net asset value was smaller by around one quarter. Equity and mixed funds recorded the largest relative rise in assets, since they had largest positive sales in relative terms (Chart 67) as well as growth in assets.[40]

All fund categories reported positive year-on-year returns as at 31 December 2009.

The performance of collective investment funds in 2009 was affected mostly by the rise in value of financial market assets – especially during the period from April to November – and in particular the upturn in share prices (Chart 68). From a longer-term perspective, it is clear that not even the favourable developments in 2009 were sufficient to erase fully the losses caused by the financial market turbulences during the ongoing crisis. In fact, the annualised returns of equity funds, mixed funds, and funds of funds for the years 2007 to 2009 are in the red.

4.5 PENSION SAVING

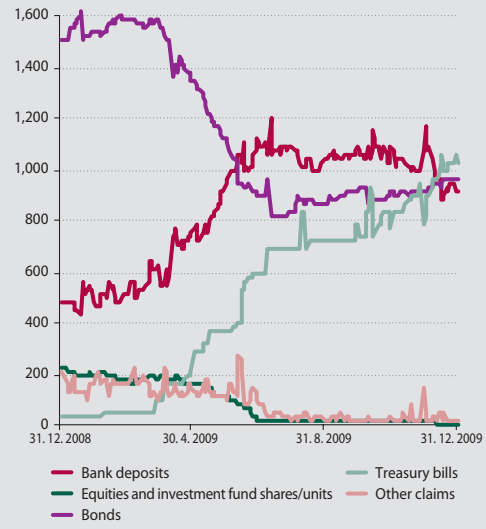
PILLAR II

Although the number of savers fell as a result of the system being opened up, the asset value of Pillar II funds increased.

In the period from 15 November 2008 to 30 June 2009, savers were allowed to join or leave the Pillar II pension system on a voluntary basis. After the end of this period, the option to enter into a retirement pension saving contract was basically limited to people entering the workforce for the first time. As a result, the number of savers in

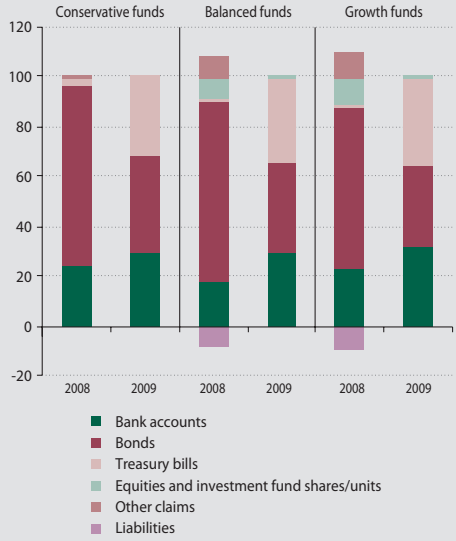
40 *December's growth in mixed fund assets reflected the conversion of closed-end funds into mixed funds.*

Chart 69 Amount of major components of PFMC fund assets (EUR millions)



Source: NBS.

Chart 70 Comparison of the asset structure in individual categories of PFMC funds, as at December 2008 and December 2009



Source: NBS.

the Pillar II system as at 31 December 2009 was 3.3% lower year-on-year.

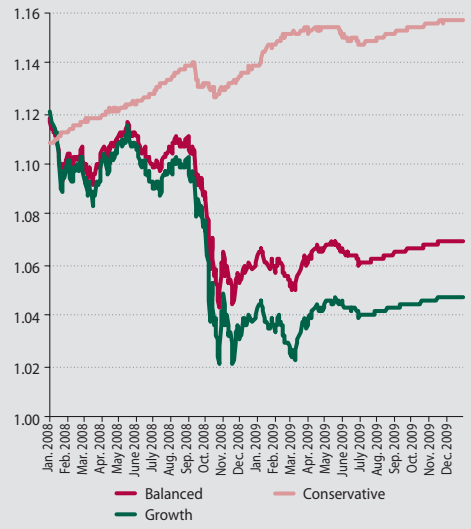
The total net asset value of Pillar II funds rose in 2009 by 30%, to €2.9 billion. Because of the transfer of assets from pension funds to the Social Insurance Agency in respect of those savers who opted out of Pillar II, the absolute increase of assets in 2009 was lower than in 2007; it was, though, higher than the figure for 2008, which, analogously, was affected by opt-outs.

Under the new statutory regulation of fees, pension fund management companies (PFMCs) were incentivised to overhaul their investment strategy by giving preference to low-risk investments at the expense of the expected long-term rate of return for savers.

Under the new statutory regime,[41] management companies are obligated to top up the assets of a fund from their own capital if the fund in question reports a negative return for the designated period. The key issue here is the time horizon over which the performance of funds is assessed, and which is defined as six months. For assessing long-term investments, this period is extremely short. In order to minimise the risk of having to top up assets, PFMCs reduced the volatility of their portfolios by adjusting their structure. The principal volatility-reducing intervention made in the aggregate portfolio was the almost complete sale of equity shares and investment fund shares/units (Chart 69). The share of the equity component fell from 9.8% of the net asset value at the beginning of the year, to 0.1% at the end of the year. Another way in which the portfolio was restructured was through the rapid reduction in the volume and proportion of the bond component. At the turn of the first and second quarters, pension fund management companies began to invest surplus funds in Treasury bills, which ended the year as the largest asset component of the Pillar II portfolio. This tendency towards a more conservative investment strategy, as well as the relatively heavy selling of securities, was reflected in an accumulation of funds in bank current accounts and term deposits. The aim to limit the volatility of the overall portfolio is also evident from the shortening of the bond portfolio's duration and its substantial restructuring in favour of government bonds. In the long-term, such uniform, risk-mitigating changes to the investment strategy of all funds (Chart 70) will have an adverse effect on savers by substantially reducing the expected returns on their pension savings. The parallel development of pension units' current values for all three types of funds provides further evidence of their substantial similarity (Chart 71).

41 *Act No. 137/2009 Coll. of 11 March 2009 on the amendment of Act No. 43/2004 Coll. on retirement pension saving.*

Chart 71 Current value of pension units by type of fund



Source: NBS.

The average annual yield[42] of balanced and growth funds returned to positive territory at the end of the year.

As at 31 December 2009, the average annual nominal returns on balanced and growth funds reached, respectively, 0.8% and 0.7%, representing the first time since September 2008 that these funds had reported an increase in value year-on-year. At the same time, however, the improved performance was largely attributable to a base effect related to the slump in the current value of pension units that followed the collapse of Lehman Brothers. In 2009, the highest returns were again enjoyed by savers with conservative funds, although December's figure of 1.6% was lower than the average for the whole of 2008. With Slovakia recording consumer inflation of 0.9% for 2009, only conservative funds, on average, managed to ensure a positive real return.

The annualised weighted rise in the pension unit's current value, from when the system began operation up to the end of 2009, represented 1.0% for growth funds, 1.4% for balanced funds and 3.1% for conservative funds.

The aggregate loss of the Pillar II pension sector for 2009 increased in comparison with 2008.

Companies of the Pillar II pension system made a total loss of €5,961,000 in 2009, which was €410,000 heavier than their loss for 2008. As in the previous two years, two of the pension fund management companies made a profit and the other four were loss-making. Profit generation slowed and losses deepened in the second half of the year, after the upper limit on the pension fund management fee was lowered by statutory regulation.

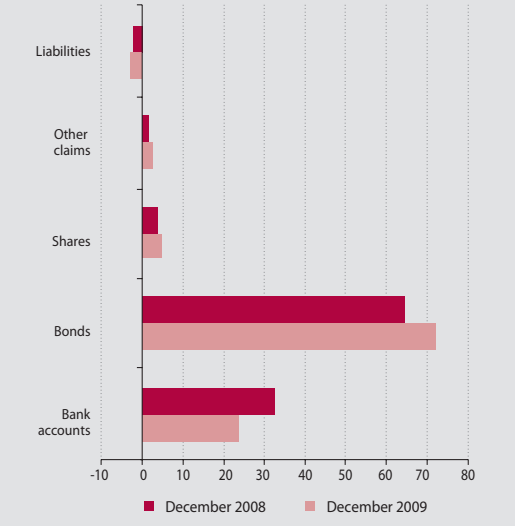
PILLAR III – supplementary pension saving

The net asset value of Pillar III pension funds continued to rise, with more than 70% of the assets invested in bonds (mainly government and bank bonds).

The net asset value of Pillar III pension funds maintained its rising trend, reaching €1.047 billion as at December 2009 for an annual increase of 12%.

As at the end of 2009, the vast majority of the assets of supplementary pension funds (71.9%) were invested in bonds (Chart 72). More than half (51.9%) of the bond investments of SPMC funds were invested in government bonds, and almost one third (32.2%) in bank bonds. The bulk of the assets under management (94.6%) were

Chart 72 Types of investment by share of total assets under management (%)



Source: NBS.

42 *The average annual yield of the given type of pension fund is calculated as a weighted average of the year-on-year percentage changes in the daily values of pension fund units of the respective pension funds. The year-on-year percentage changes in the daily values of pension units are calculated as at 31 December 2009 (PMZDHDJ31.12.2009) according to the following formula:*

$$PMZDHDJ_{31.12.2009} = \left(\frac{DJ_{31.12.2009}}{DJ_{31.12.2008}} - 1\right) * 100\%$$

where DJ is the value of a pension unit on the given day. The weight applied is the ratio of the respective fund's net asset value (NAV) to the sum of NAVs of funds of the same type. The yield is given in nominal terms, which means that inflation is not deducted. When yields are calculated for various forms of investment, the nominal yield is used as a rule, calculated according to the standard statutory methodology. This yield, however, is not identical to the yield in the saver's personal pension account, which is determined on an individual basis. The input data were the values of pension units from the individual pension funds reported to Národná banka Slovenska by pension fund management companies for the days 31 December 2008 and 31 December 2009, which are available on the website of Národná banka Slovenska.

placed in euro-denominated investments. As in the previous period, the majority of assets under the management of SPMCs as at December 2009 (96.1%) were to be found in contributory funds.

The performance of contributory funds of the Pillar III pension system improved substantially in 2009.

In the case of contributory funds, gains/losses ranged from -1.04% to 15.84% (the weighted average for all contributory funds as at 31 December 2009 was substantially higher, at 3.6%[43] in comparison with the end-June 2009 and end-2008 figures of, respectively, -0,19 % and -2%). In general, it was contributory funds with a growth profile that offered the higher returns in 2009, but only a minority of all participants in the supplementary pension saving system are enrolled in these funds. As for payout funds of the Pillar III system, they delivered positive returns ranging up to 2.33%, with the exception of one fund that was in negative territory. The weighted average for these funds represented 1.6% (compared with 0.74% as at June 2009 and 1.4% as at December 2008).

Profits of supplementary pension asset management companies rose sharply in 2009.

The total profit of supplementary pension asset management companies for 2009 amounted to €7.99 million. In the year-on-year comparison, this represents a more than twofold increase (up by 139%). The bulk of the profit increase was generated by the largest SPMC, and the rest by four other SPMCs to varying extents. One SPMC made a loss, though it was far lower than its loss of the previous year. The sector's higher profit was attributable, on one hand, to a rise in net profit from fees and commissions, and, on the other hand, lower operational expenses, particularly wage costs.

4.6 RISKS IN THE INSURANCE, INVESTMENT FIRM AND PENSION SECTORS

In most sectors, the high exposure to risks remained largely unchanged during 2009. The most significant change occurred in the fund portfolios of pension fund management companies, which became less risky during the second quarter of 2009 following adjustments to the portfolio structures. Nevertheless, Pillar II of the retirement pension saving system was exposed mostly to the sovereign risk of countries that have a high general government debt, though only through bonds with a short residual maturity. The highest risk was reported in insurance companies' portfolios of assets invested on behalf of insured persons ("unit-linked insurance").

The risk exposures of PFMC funds fell sharply. The risks in PFMC bond portfolios increased owing to a rise in exposure to sovereign debts that posed a mounting credit risk. Some PFMC funds are also exposed to concentration risk.

As mentioned in the previous section, statutory amendments to the operating conditions of PFMCs came into force in the first half of 2009, incentivising these companies to sell fund assets in the form of equities and investment fund shares/units and to shorten the duration of both the bond portfolio and net foreign exchange position, all of which they did even before the end of the first half of the year. The exposure to equity, foreign exchange, and interest risk remained low also in the second half of 2009.

The only increase was in the risk of a decline in the value of government bonds due to a widening of credit spreads for certain countries (i.e. sovereign risk). This was because the second half of 2009 saw a rise in the proportion of government bonds issued by certain euro area members whose credit risk has recently risen due to an escalation of government debt (in particular, Greece, Spain, Portugal and Ireland). By the end of 2009, government bonds issued by these countries constituted 12% of the aggregate net asset value in PFMC funds, and in some funds as much as 25% (see also Section 4.1.4.2). At the same time, however, the average residual maturity of these government bonds in PFMC funds is relatively short, at only 0.6 of a year. Thus the risk of these funds shedding value in the event of a rating downgrade is not expected to be too significant.[44]

Another risk that PFMC funds are exposed to is concentration risk stemming from the low diversification of bank deposits. Were any of the banks in which their deposits are held to fail, the effect on the funds could be severely adverse.

43 *The calculation did not include the performance figures for the conservative contributory fund of DDS Tatra banky, since the respective data were not available. The NAV of this fund represents 0.2% of the NAV of contributory funds in total.*

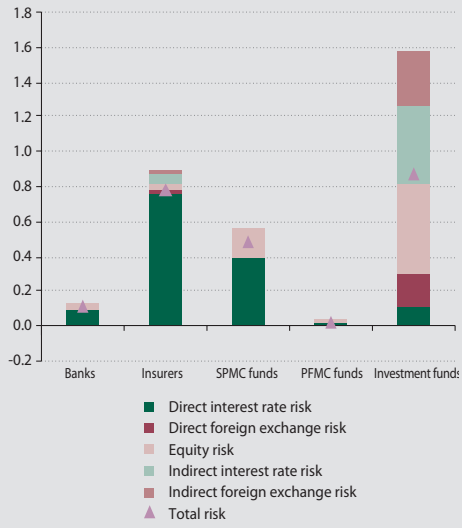
44 *For example, in the case of a downgrade in rating from A to BBB, the average spread on a 5-year bond would rise by 0.8 p.p., but on a 1-year bond by only 0.3 p.p.*

Although the bulk of these deposits are held with Slovak banks or branches of foreign banks in Slovakia, funds are investing also with foreign banks. In the case of some funds, however, the pool of banks in which their deposits are placed is very small.

The exposure of the collective investment and life insurance sectors to equity market risk increased.

Another major change in the Slovak financial sector's exposure to particular risks was the rise in equities and investment fund shares/units as a proportion of the net asset value in investment funds and in insurance companies. Although this may be partly ascribed to the appreciation of equity investments amid the upturn in stock markets, another key factor was the growth in net sales of equity and mixed funds, especially during the fourth quarter of 2009. A substantial proportion of these equities and investment fund share/units – 81% – comprise investments made by insurers under unit-linked insurance policies.

Chart 73 VaR in individual sectors as at 31 December 2009 (%)



Source: NBS.
Note: Data on the left-hand scale represent percentage shares of the value of assets (or NAV). For insurers, assets covering unit-linked insurance policies are not included. The VAR values were calculated as the potential loss that would not be exceeded in 99% of cases over a period of 10 working days. Indirect interest rate risk and foreign exchange risk constitute the risk to which individual institutions or funds are exposed through investments in investment fund shares/units.

4.6.1 Measuring market risks using Value at Risk

In the short term, several sectors are exposed mainly to interest rate risk. Most sectors did not record substantial changes in their risk exposure during the second half of 2009 (Table 6).

In the short-term horizon, the sectors of banks, insurance companies, and supplementary pension fund asset management companies are sensitive above all to interest rate risk (see Chart 73).[45] In 2009, the highest sensitivity was reported by insurers. Since insurers held debt securities with a relatively long residual maturity, they were more sensitive to revaluation in the event of a deterioration in the issuer's credit rating. The aim of insurers is to match the time structure of assets with the expected maturity of liabilities under insurance contracts.[46] Provided that short-term movements in asset prices do not affect the match of assets and liabilities, there is no need to see this development in the insurance sector in negative terms, although it may have a short-term effect on the insurers' profitability or level of equity.

SPMC funds are partially exposed also to foreign exchange risk, particularly to the US dollar and Swiss franc. This risk increased slightly during the second half of 2009, largely due to an increase in the net open position, but also partly because of the heightened volatility of exchange rates.

Investment fund shares/unit are exposed above all to the risk of price changes in the equities and fund shares/units that they have invested in. Investments in shares/units of other investment funds are associated not only with the indirect foreign exchange risk, but also with the interest rate risk, which these fund shares/units are exposed to. The different types of risk reflect relatively significant diversification effects, although these may be impaired at times of turbulences in financial markets.

Assets invested by insurers under unit-linked policies are clearly exposed to the highest risk. These assets are exposed not only to the substantial risk of changes in the value of the investment fund shares/units that most of them are invested in, but also to a relatively significant interest rate risk. This is because perhaps around a fifth of these assets are invested in debt securities with a high average duration (the average

45 *The estimate of risk over the short term is based on Value at Risk (VaR), which represents the potential loss that an institution would not exceed in 99% of cases over a period of 10 working days, assuming that the portfolio structure remains unchanged. The VaR calculation is made using a multidimensional GARCH (1.1) model. For the assessment of interest rate risk, the only risk taken into account was the revaluation risk for debt securities valued at fair value.*

46 *Owing to a lack of data, insurers' liabilities under insurance contracts cannot yet be assessed.*

Table 6 Average VaR (AVaR) in individual sectors

	VaR (VI.09)	VaR (XII.09)	AVaR (XII.09)
Insurers	0.9	0.8	0.9
Unit-linked		10.4	12.2
PFMC funds	0.2	0.0	0.0
balanced	0.2	0.0	0.0
growth	0.2	0.0	0.0
conservative	0.1	0.0	0.0
SPMC funds	0.7	0.5	0.5
payout		0.1	0.2
contributory		0.6	0.7
Investment funds	1.1	0.9	1.0
money market	0.1	0.1	0.2
bond	0.5	1.3	1.4
mixed	2.2	1.8	2.1
funds of funds	5.4	2.1	2.4
equity	6.2	5.4	6.3

Source: NBS.
Note: Values represent percentage shares of assets (or NAV) and express the asset-weighted average for the given group of institutions. VaR was calculated for a period of 10 days at a 95% confidence level. VaR represents the maximum loss that can occur with the given level of probability. For cases where such loss would be exceeded, AVaR expresses the average expected loss.

volume-weighted duration of assets invested in different securities represents up to 5.9 years).

4.7 MACRO STRESS TESTING

According to the results of stress testing, the financial sector ended 2009 in a position to cope with even highly adverse future developments. The stress scenarios included a recurring deterioration in economic development, both at home and in the external environment, and escalating uncertainty in financial markets.

Macro stress testing gives an indicative idea of the resilience of the financial sector (as well as its individual institutions) to unfavourable developments and helps to identify the most important risks in the financial system. For assessing the financial sector's resilience, we use one scenario of expected developments – the "baseline scenario" – and two stress scenarios. The baseline scenario corresponds to the official NBS projections, set out in the Medium-Term Forecast of December 2009 (MTF-2009Q4). The first stress scenario – „Crisis Second Wave" – describes the recurrence of an economic downturn in a second wave of the crisis, and it is applied in two versions: Crisis Second Wave 1 (more moderate) and Crisis Second Wave 2 (more severe). The basic triggering event for this scenario is a premature unwinding of the non-standard anti-crisis measures taken by governments and central banks. Since this scenario is directed at credit risk, it is the key scenario for the banking sector. The second scenario – "Financial Market Uncertainty" – assumes that uncertainty in financial markets escalates in response to increasing sovereign risks, and it is therefore focused more on other financial institutions. The stress scenarios are simulated for the period 2010–2011 using data with a cut-off date of December 2009 (Table 7). The scenarios were applied to all financial market institutions that are regulated by Národná banka Slovenska, except for branches of foreign banks.[47]

Even in the event of a substantial downturn in the domestic economy and a higher rise in non-performing loans, most banks would meet the required levels of capital. Indeed, all of the large systemically important banks would comply with the capital adequacy ratio.

47 *A description of these scenarios and a more detailed account of the macro stress testing procedure is given in Section 4.1. of the NBS publication Analysis of the Slovak Financial Sector for 2009.*

Table 7 Stress testing parameters

			Baseline scenario		Crisis Second Wave 1		Crisis Second Wave 2		Financial Market Uncertainty	
			Q4 2010	Q4 2011	Q4 2010	Q4 2011	Q4 2010	Q4 2011	Q4 2010	Q4 2011
Base assumptions	External demand (year-on-year change)		2.8%	3.8%	-10.0%	13.1%	-16.7%	14.1%		
	USD/EUR exchange rate (year-on-year change)		0.1%	0.0%	-7.0%	6.1%	-11.2%	6.4%	-20%	-40%
	Exchange rates of CHF, JPY, GBP, DKK, CAD, HRK, LVL against EUR (year-on-year change)		0%	0%					0%	0%
	Exchange rate of other currencies against EUR (year-on-year change)		0%	0%	7.0%	-5.0%	11.1%	-4.8%	15%	15%
	Share prices (year-on-year change)		10%	10%					-35%	-35%
	ECB base rate (year-on-year change)		75 b.p.	75 b.p.					0 b.b	0 b.p.
	3-month EURIBOR (year-on-year change)		100 b.p.	100 b.p.	100 b.p.	-30 b.p.	160 b.p.	-30 b.p.	120 b.p.	0 b.p.
	iTraxx index (year-on-year change)		-16 b.p.	0 b.p.					200 b.p.	0 b.p.
Macroeconomic variables estimated using a model	GDP growth (year-on-year)		3.1%	4.3%	-1.1%	4.1%	-3.1%	2.6%		
	Inflation (HICP)		1.9%	2.1%	0.1%	0.4%	-0.8%	-0.9%		
	Unemployment		12.6%	12.5%	13.4%	13.7%	13.7%	14.5%		
Variables for credit risk estimated using macroeconomic variables	Annual probability of default	Non-sensitive sectors	4.2%	2.2%	4.2%	4.7%	4.2%	7.9%		
		Less sensitive sectors	6.1%	6.2%	6.2%	11.0%	6.2%	15.5%		
		Sensitive sectors	9.5%	8.2%	9.7%	16.9%	9.6%	24.8%		
	Ratio of non-performing household loans		5.1%	5.2%	5.3%	6.7%	5.2%	7.6%		

Source: NBS.

Under the baseline scenario, not one bank would see its capital adequacy ratio (CAR) fall below 8%, while under the Crisis Second Wave scenario, two banks would struggle to comply with the 8% requirement under both the moderate and severe versions of the scenario. Other banks would be able to maintain their CAR at above 8% due to having a relatively strong starting position (high CAR and/or relatively large profit reported as at the end of 2009). Several banks could maintain their CAR at the required level even if they failed to make a profit over the two-year period under review.

The largest risk to which banks are currently exposed continues to be credit risk. Given the structure of banks' activities, losses made by banks in the event of negative developments would arise mainly from their corporate loan portfolios. Market risks would pose a more moderate risk to banks.

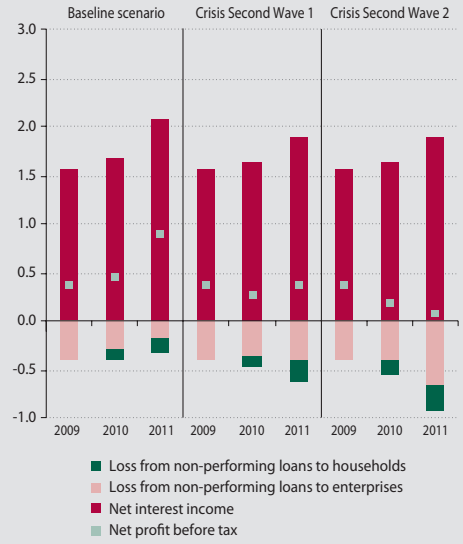
Under the baseline scenario, the total loss from customer loans in 2011 would be lower than in 2010, but under the other two scenarios this loss would peak in 2011 (Chart 74). Since the unemployment rate would continue to rise, according to the estimates used in the stress scenarios, it may be assumed that the amount of non-performing loans to households would go up even after 2011. The banking sector would be affected to a greater degree by losses from non-performing loans to non-financial corporations. Certain banks, however, would be sensitive also to household lending.

Losses from the revaluation of securities would be partially mitigated by interest rate derivatives, and only two banks would be at risk from heavier losses on foreign exchange transactions.

In some banks, the simulated credit losses would be mitigated by expected profits, especially from interest income. A key factor in the banking sector's stability over the next two years remains, however, the relatively sound footing on which it found itself at the outbreak of the crisis.

In the case of most banks, losses arising from credit risk and market risks would be mitigated by overall profitability. Even under the stress scenarios, the main source of income for the banking sector would be interest income. The principal components of gross income that would enable banks to reduce their loss from non-performing loans would be net interest income from the customer loans and deposits portfolio and coupon yields from the securities portfolio (Chart 74).

Chart 74 Main estimated components of net profit before tax (EUR billions)



Source: NBS.
Note: For 2009, total provisioning expenses are stated.

Net interest income under either of the stress scenarios would not, however, reach the level under the baseline scenario. This means that banks would be covering increasingly heavier losses out of a diminishing pool of funds. Under the baseline scenario, four banks would end the two-year period under review with a loss. Under the scenario Crisis Second Wave 1, the number of loss-making banks would rise to seven, and under Crisis Second Wave 2 it would be eight. The greater robustness of banks' capital positions (under both versions of the Crisis Second Wave Scenario, the capital adequacy ratio would fall below 8% in only two banks) is largely a result of the strong capital positions and profits reported at the end of 2009, i.e. before the period of the stress scenario.

Insurance companies in 2010 would be affected mainly by a decline in the real value of their securities investments. Under the Financial Market Uncertainty scenario, far heavier losses would be recorded on assets invested under unit-linked insurance policies.

Under the Financial Market Uncertainty scenario, the insurance companies sector would record mainly a sharp decline in the fair value of securities in the available-for-sale and held-for-trading portfolios. This loss would, however, gradually diminish and subsequently be covered by rising interest income from coupons and bank deposits. From the view of interest rate risk, the effect of the scenario on the insurance companies sector should not be too adverse over the horizon of two years. A far more negative effect may be expected in regard to insurers' unit-linked products, with their value falling largely because of the downturn in equity prices.

Pension funds were not particularly sensitive to the scenario of adverse developments in financial markets.

Pension funds, especially those in Pillar II of the pension saving system, reported strong resilience to stressful conditions at the end of 2009, due to the fact that the debt securities and bank deposits in their portfolios had a short duration. The impact of a rise in interest rates on the revaluation of debt securities would therefore be relatively insignificant (except for its effect on certain SPMC funds during the first half of 2010). Over the two-year time horizon, gains would increase under both the baseline scenario and stress scenario because of the rise in interest rates. The only moderate risk in certain funds would be the credit rating downgrade of some of the countries to which they have government bond exposure.

In the case of investment funds, the negative effect of stressful conditions would be reflected mainly in equity investments.

In the collective investment sector, the baseline scenario is expected to produce a profit based on rising interest rates (with the debt securities portfolio having a relatively short duration) and moderate growth in stock markets. Under the stress scenario, too, the positive profit is expected to be maintained, though it may to a large extent decrease in all funds other than money market funds. The stress scenario's negative impact arising from the decline in stock markets would, however, be partially offset by the strengthened US dollar, since several investment funds have exposure to this currency.

CHAPTER 5

THE TARGET2-SK AND EURO SIPS PAYMENT SYSTEMS – SECURITY AND RELIABILITY IN 2009

5

5 THE TARGET2-SK AND EURO SIPS

PAYMENT SYSTEMS – SECURITY AND RELIABILITY IN 2009

On 1 January 2009, alongside the introduction of the euro, the TARGET2-SK payment system and its ancillary system EURO SIPS were put into operation in Slovakia. Both systems could be judged a success in terms of their low risk to financial stability in 2009.

On the date that it joined the euro area, Slovakia also became connected to the TARGET2 trans-European payment system. This system is based on a single shared platform and, from the legal aspect, represents a set of RTGS systems/components, one of which is the TARGET2-SK system.
Národná banka Slovenska developed the EURO SIPS payment system from the original Slovak Interbank Payment System (SIPS), which had been in operation since 2003. The EURO SIPS system went live on 1 January 2009, alongside the euro introduction, and thereby became Slovakia's sole retail system for the processing of customer payments. The processing of payment transactions in EURO SIPS takes place in two clearing cycles, and the results of the clearing cycles are financially settled in TARGET2-SK. The targets set in respect of the switch from SIPS to EURO SIPS (as an ancillary system of TARGET2-SK) were met in full. The EURO SIPS system:

- satisfies the requirements for TARGET2-SK ancillary systems;
- executes payment transactions in the euro currency;
- processes retail payment transactions and carries out their clearing;
- settles, in the TARGET2-SK system, the clearing results of domestic payment transactions;
- has maintained service prices at a level comparable to that of the original SIPS payment system.

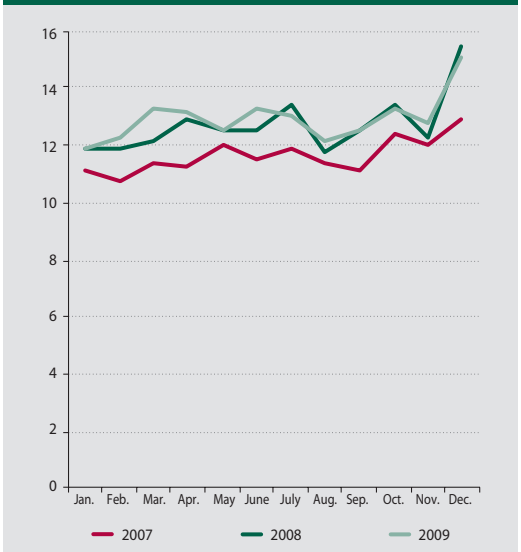
Národná banka Slovenska aims to make the EURO SIPS system compatible with SEPA standards and rules.[48] The new payment system operated reliably and without problems in 2009. The TARGET2-SK system, too, went through its first year without recording any incidents that would jeopardise the smooth processing of payments or interrupt its operation.

The number of transactions executed in the EURO SIPS system in 2009 was 2% higher that the number processed by the SIPS system in 2008. The processing of large interbank transactions migrated to the TARGET2-SK system.

A total of 155,237,573 transactions were executed in the EURO SIPS system in 2009. Despite the migration of large-volume interbank transactions to the TARGET2-SK system, that figure represented an increase of almost 2% year-on-year (Chart 75). Naturally, the value of transactions in the EURO SIPS system fell sharply in comparison with value of transactions executed in the SIPS system the year before (Chart 76).

A total of more than 155 000 transactions with an overall value of almost €881.6 billion were

Chart 75 Number of transactions executed in SIPS (2007, 2008) and in EURO SIPS (2009) (millions)



Source: NBS.

48 *The objective of the Single Euro Payments Area (SEPA) project is to remove any differentiation between national and cross-border payments and to harmonise standards, rules and procedures for the payment systems of all euro area countries. Following the launch of the SEPA Credit Transfer (SCT) Scheme in January 2009, the SEPA Direct Debit (SDD) Scheme was launched at the European level on 2 November 2009. The new scheme is expected over the coming period to replace the national direct debit schemes of Member States.*

Chart 76 Value of transactions executed in SIPS (2007, 2008) and in EURO SIPS (2009) (EUR billions)

Source: NBS.

executed in the TARGET2-SK payment system in 2009.

Looking at all the customer and interbank payments processed in 2009, customer payments were slightly more numerous (Chart 77), but in terms of value they were substantially outweighed by interbank payments (Chart 78).

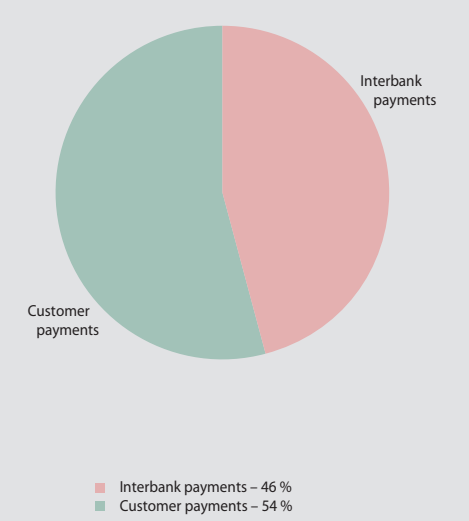
Credit risk in payment systems is small.

Slovakia's interbank payment system is highly reliable and represents a low credit risk both for Národná banka Slovenska, as the payment system operator, as well as for the system participants. The fact that a payment will be executed only where the participant has the corresponding funds in its account with NBS, or has a sufficiently large intraday credit facility (secured with collateral), eliminates the credit risk in this regard.

The CDCP securities settlement system was assessed and found to be compliant with ESCB standards; in 2009, it also satisfied all of the ECB's supplementary recommendations.

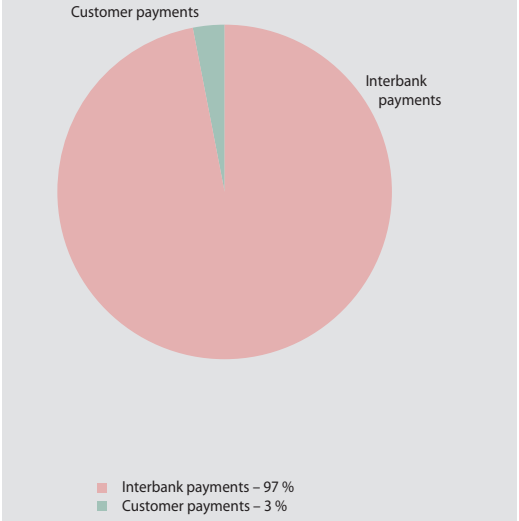
In connection with the adoption of the single currency in Slovakia, the securities settlement system (SSS) operated by the central securities depository – Centrálny depozitár cenných papierov (CDCP) – was assessed against Standards for the use of EU securities settlement systems in ESCB credit operations. The ECB produced the final evaluation report in December 2008, and, wrapping up the evaluation process, it sent CDCP recommendations that CDCP was expected to meet during the course of 2009. CDCP was included in the list of eligible securities settlement systems for Eurosystem credit operations. Towards the

Chart 77 Ratio of customer and interbank payments by number in 2009



Source: NBS.

Chart 78 Ratio of customer and interbank payments by value in 2009



Source: NBS.

end of 2009, NBS carried out final monitoring of CDCP's compliance with the ECB recommendations, and thereby confirmed that CDCP satisfied all the recommendations. The results of the monitoring were communicated to the ECB, as well as to Banca d´Italia in its capacity as second assessor. Banca d´Italia confirmed that CDCP was fully compliant with the ECB's recommendations, and the assessment results were subsequently confirmed by the ECB, too.

Work on the TARGET2-Securities (T2S) project continued in 2009.

The purpose of T2S is to make the settlement of securities transactions as secure and efficient as possible. T2S will be a technical platform allowing securities transactions to be settled in central bank money within the euro area/EU/EEA. Although these settlements will be carried out mainly in the euro currency, settlement in a non-euro currency will also be technically possible. In July 2009, the Eurosystem and representatives of central securities depositories (CSDs) signed a Memorandum of Understanding (MoU) in order both to formalise the tasks that the Eurosystem and CDSs are understood to have in relation to the T2S project and to formalise the scope and subject matter of meetings on the future contract between the Eurosystem and individual CDSs in relation to T2S services. Drafting of the Framework Agreement for the development period and operational phase began in 2009.

PART C

ANNEXES

C

NÁRODNÁ BANKA SLOVENSKA
EUROSYSTÉM

ANNEX 1

FROM MICRO- TO MACRO-PRUDENTIAL FINANCIAL REGULATION

1

1 FROM MICRO- TO MACRO-PRUDENTIAL FINANCIAL REGULATION

1.1 INTRODUCTION

When examining the history of relations between the state and banks, we see an interesting development. In the Middle Ages, the greatest risk to banks was from the sovereign ruler, but today it is the banks that represent a potential threat to the state's finances. Thus there has been a reversal of causality over the centuries. Banks in the Middle Ages funded sovereign wars, and a frequent cause of banking collapse in those days was sovereign default. Today, by contrast, the state is the last-resort financier of banks. Reinhart and Rogoff (2009), citing data stretching back to the 19th century (the principles behind last resort lending were first articulated by Henry Thornton at the beginning of the 19th century) point out that the banking crises in the modern era have always been accompanied by a slump in economic activity and a deterioration in the state of public finances. These symptoms of banking crises are typical both for advanced countries and for emerging countries and it usually takes several years for the pre-crisis levels to be restored. If state support is one side of the "social contract" between banks and the state, state regulation of banks is the other. Alessandri and Haldane (2009) note that the terms of this social contract have been worsening for the state – while the state safety net has grown larger over the past century, so too has the risk (and performance) profile of banks risen. The authors identify two areas where to begin tackling this issue: changes to the regulation of banks and changes to the terms of state safety nets. Intensive discussions supported by experience from the recent crisis have resulted in a plethora of proposed measures for mitigating systemic risk and making the financial system as a whole more resilient to shocks (Table 1).[49] At the conceptual level, this article is restricted for reasons of space to addressing only a few of the proposals that accentuate the macro-prudential dimension of financial regulation.

1.2 MACRO-PRUDENTIAL REGULATION AND SYSTEMIC RISK

One of the basic tools of bank regulation is the capital adequacy requirement – i.e. the minimum amount of capital that a bank is required to hold against risks related to its business. What the credit crisis of 2007-2009 demonstrated is that the current approach to the capital adequacy of banks is too narrow. The crisis exposed the fallacy of composition that strong financial institutions collectively ensure the safety and soundness of the system as a whole. Banks have a tendency to behave in the same way – they invest in similar assets, they are exposed to identical risks, and their risk appetite shifts at the same time. Persaud (2009) shows that this homogeneity in banks' behaviour may even be supported by the rules of micro-prudential regulation (regulation focused on individual firms). If a bank sells an asset on which the risk of a loss is high, it acts prudently and in accordance with capital adequacy rules. If, however, several banks act in a similar way at the same time, the asset prices will fall, thereby triggering losses and further sales. If this leads to a general fall in asset prices in different markets, the situation may snowball into a loss spiral with liquidity being drained from the markets. The spread of contagion in financial markets is further amplified by the ever greater interconnectedness between banks, other financial institutions, and their customers. Thus the collapse of one firm can easily jeopardise the stability of others, and a local event of relatively minor significance can take on systemic or global importance. The Warwick Commission Report (2009) warns that if financial regulation is excessively focused on the resilience of individual institutions (banks, insurance companies, etc.) to exogenous risks, it may in practice lead to an escalation of systemic risk. The regulatory framework for prudential business therefore needs to be redirected towards systemic risk. This is an endogenous risk of the financial system that arises from the collective behaviour of institutions as well as from the systemic importance of individ-

49 *Most of the measures mentioned in the Table are still just being discussed at the international level. Some of them are included in draft legislation or are already on the statute book. For a more detailed treatment of the implementation of particular measures in the EU, see: Ambra, T., Málišová, A., Nebeský, Š., Paluš, P., Pénzeš, P., Šesták, Ľ. (2010).*

Table 8 Measures required for a stable financial system

Capital adequacy	Raise the minimum regulatory requirements for the quality and quantity of capital in the banking system. Significantly increase the capital required against trading book activities. Conduct a fundamental review of the market risk capital regime (e.g. reliance on VaR measures for regulatory purposes). Introduce a maximum gross leverage ratio. Introduce a counter-cyclical capital adequacy regime. Set the capital charge according to the institution's systemic importance.
Liquidity	Introduce new global standards for liquidity (stressed liquidity coverage ratio, long-term structural liquidity ratio).
Accounting	Establish buffers that anticipate potential future losses on a through the cycle basis. Simplify accounting for financial instruments. Raise transparency requirements for financial statements.
Institutional and geographic coverage or regulation	Financial regulation should focus not on an institution's legal form and type but on its economic substance and systemic importance. Offshore financial centres should be covered by global agreements on regulatory standards.
Deposit insurance	Ensure that retail depositors are protected to the maximum possible extent.
A resolution regime for failed financial institutions	Introduce a special resolution that facilities the wind down of failed banks. Require large and complex financial institutions to create contingency resolution plans or "living wills".
Credit rating agencies (CRAs)	Require CRAs to be registered so as to ensure high-quality ratings (registration is to be conditional on meeting various requirements concerning information disclosure, conflicts of interest, etc.). Conduct a fundamental review of the use of structured finance external ratings in the Basel II framework.
Remuneration	Design remuneration policies so as to avoid incentives for undue risk taking. Integrate core risk management considerations in remuneration decisions.
Credit default swap (CDS) market infrastructure	Develop clearing systems with central counterparties (approved by a regulator) for standardised contracts.
Macro-prudential analysis	Improve macro-prudential analysis with the aim of ensuring the timely identification of systemic risks. Establish an information base required for the assessment of systemic risks at the global level.
Risk management and corporate governance	Improve methods for measuring and managing risks. Increase the independence of risk management functions in financial institutions.
Regulation of cross-border banks	Enhance international coordination of bank supervision by establishing and operating colleges of supervisors for large complex and cross-border financial institutions. Develop international systems for the management of financial crises. Establish an effective cross-border resolution regime for failed international financial institutions.

Source: Turner Review (2009), modified.

ual institutions. The task of reducing endogenous risk should be part of macro-prudential policy.

1.3 THE BANK OF ENGLAND'S PROPOSAL FOR A MACRO-PRUDENTIAL REGIME

In a 2009 Discussion Paper, the Bank of England proposes a regime for the macro-prudential regulation of banks. Its main objective is to mitigate the procyclical behaviour of banks, so as to maintain a continuing flow of lending to the economy. This should be supported by the application of capital surcharges that depend on the risk profile of the individual bank. The so-called *systemic capital surcharge* will be linked to the credit cycle, since the cycle has a significant influence on the collective behaviour of banks. The Bank proposes that systemic capital requirements for risk over the credit cycle be applied to headline capital requirements

or at a more disaggregated level (through so-called 'risk weights' on particular types of bank exposure). In addition, capital surcharges should separately be set across banks to reflect their individual contribution to systemic risk; these so-called *'institution-specific capital surcharges'* should be levied based on factors such as banks' size, connectivity to the rest of the system, and the complexity of their activities. This capital surcharge would lower the probability of failure of systemically important institution and would also provide an incentive for such firms to adjust their balance sheets in order to reduce their systemic importance.

This paper also deals in detail with the technical aspect of making a macro-prudential regime operational. In the case of a systemic capital surcharge, it will first be necessary to define a set of variables indicating the size of the *aggregate risk*[50] at any point in time. Calibration of the systemic capital surcharge is then based on modelling of the link between the set of indicators and banks' default probabilities and the link between banks' probability of default and capital ratios.[51]

The calibration procedure for institution-specific capital surcharges is analogous. The objective is to set capital surcharges that lower the probability of default (PD) of those banks whose failure would lead to system-wide losses. The first step is to identify indicators of *network risk*, including balance sheet size and connectivity to other institutions. To calibrate the capital surcharge, it would then be necessary to quantify the link between a bank's balance sheet indicators of network risk and its contribution to system-wide loss given default (systemic LGD) and also between an individual bank's probability of default and its capital ratio.[52]

Several other measures for mitigating aggregate risk and network risk are also touched on in the Bank of England Discussion Paper (2009). For example, liquidity surcharges could in both cases be calibrated above existing micro-prudential liquidity requirements, so as to create a *liquidity buffer*.

1.4 A CONCEPT OF MACRO-PRUDENTIAL REGULATION ACCORDING TO BRUNNERMEIER ET AL.

The view that bank capital requirements need to be raised so that they take into account systemic risk and have a countercyclical effect is also reached by Brunnermeier et al. (2009), the Warwick Commission (2009), and Persaud (2009).[53] These papers (partly because of overlaps in their authorship) all stress that the progress and scope of the recent financial crisis could have been more moderate if the financing of long-term assets with extremely short-term funding had not been expanded to such a marked degree. Since regulation has up to now paid little attention to maturity mismatches between assets and liabilities, banks were emboldened to substantially grow their balance sheets (and leverage) through cheaper short-term funding and thereby to boost their profitability. These papers therefore argue (in contrast to the Bank of England Discussion Paper) that if regulation is to be effective in protecting the system as a whole, the capital requirement must reflect also each bank's degree of leverage and the maturity mismatch between its assets and liabilities (illiquidity risk). Brunnermeier et al. (2009) suggest that the final regulatory capital requirement for banks be calculated by multiplying the micro-prudential Tier 1 capital ratio, estimated under Basel II, by factors relating to systemic risk. The weights on systemic factors (credit and asset price expansion, maturity mismatch) and the time period over which credit and asset price expansion will be estimated with respect to quantitative impact studies. When there is increasing systemic risk, the multiplication factor will be greater than 1, while during periods of deleveraging (when lending declines), it will be less than 1. The maturity mismatch multiple should be a function of the months of effective mismatch between the asset maturity and the funding maturity.[54] The multiple could be in the range of 0.5 to 2.0 with a maturity mismatch of somewhere between 6 months carrying a multiple of 1.0.[55] These papers focus less on the operational details of the macro-prudential regime, and more on the principles on which it should be based. Where certain calculation procedures are mentioned (for example, the abovementioned procedure for increasing the capital charge to take into account liquidity risk), they have an ad hoc character. Brunnermeier et al. argue that such an approach is less subjective compared with the calibration process for capital or liquidity surcharges (as in the Bank of England's approach).

50 *The Bank of England Discussion Paper (2009) distinguishes between two forms of systemic risk against which the capital surcharge is imposed: 1) aggregate risk (which relates to collective tendencies in markets at any point in time in the credit cycle), and 2) network risk (which arises from individual institutions not taking sufficient account of the spillover effects of their actions on others in the financial network).*

51 *For further details about the final indicative calibration of the capital surcharge on the basis of the available set of variables, see the Bank of England Discussion Paper (2009), Box 4. The indicative calibration implies, for example, that it will be difficult to find a fixed set of indicators that would deliver a robust rule of macro-prudential policy for each situation.*

52 *A more technical treatment of the calibration procedure for the institution-specific capital surcharge is given in Box 5 of the Bank of England Discussion Paper (2009).*

53 *A. D. Persaud is a co-author of Brunnermeier et al. (2009) and a member of the Warwick Commission.*

54 *Banks would, for example, have to prove to their supervisor that the effective maturity of their deposits is longer than one day, perhaps using past deposit behaviour in a stressed environment as evidence. The effective maturity of an asset takes the asset's market liquidity into account and whether the asset is accepted by the central bank as collateral for a loan.*

55 *Regarding a possible approach to raising the micro-prudential capital requirement using a multiplier for credit expansion and leverage, see Persaud (2009), p. 4.*

1.5 OTHER PRINCIPLES OF MACRO-PRUDENTIAL REGULATION

Explicit rules or discretion in regulatory decisions on measures?

The choice of procedure for setting macro-prudential capital requirements clearly influences the stance on how much discretion the regulator should be allowed when deciding on the need to increase or lower capital. The Bank of England maintains that since it is difficult to find an effective rule for macro-economic policy, regulators will base their decisions on judgment to a large extent.[56] The technical judgment will be based on the quantitative data and information available from market participants. On the plus side, a discretionary approach to decision-making means a more flexible macro-prudential regime and the opportunity to enhance it through examining the links between macro-prudential tools, the financial system and the economy. An obvious downside will be that decision-making is less predictable than under fixed rules. With firms thus facing greater uncertainty about their future regulatory requirements, the effectiveness of the regulatory regime may be impaired. The risks of discretion within a macro-prudential policymaking framework may also include the regulator being more susceptible to regulatory capture and to the influence of lobbying from regulated firms, especially at the most sensitive points of the credit cycle. Responding to these disadvantages, the Bank of England proposes that discretion in a macro-prudential regime be constrained through greater transparency in its objectives, decision-making framework, and the policy decisions themselves. It will also be important to have accountability for macro-prudential policy measures enshrined in statute. By contrast, Brunnermeier et al. (2009), the Warwick Commission (2009) and Persaud (2009) stress the need for subjecting macro-prudential regulation to clear pre-specified rules. This is because of the abovementioned downsides of discretionary decision-making, particularly any external efforts to put pressure on decision-making. Having explicit rules in place is, in their view, one of the key principles of effective macro-prudential regulation, since such rules provide a far stronger guarantee that regulatory policies will actually be enforced.

Who should implement macro-prudential regulation?

The Bank of England and Brunnermeier et al. share certain principles of macro-prudential regulation. They concur on the need to increase capital for systemically important financial institutions since these are the source of systemic risk. There is also agreement in their recommendations that cross-border financial institution operate in host countries through subsidiaries that have their own legal personality (and own capital adequacy ratio), thereby bringing them under the macro-prudential regime of the host country. This would prevent regulatory arbitrage (the avoidance of regulation at the national level). Macro-prudential regulation will be more efficient if implemented at the national level, given that credit cycles, asset-price developments and the size of systemic risk differ from country to country. At the same time, the *host regulator* knows how best to assess the risks to "its" financial system. Europe, however, has basically set off in the opposite direction. The establishment of a single financial market in which also the branches (without their own capital) of foreign financial institutions have the freedom to provide cross-border financial services is allowing avoidance of macro-prudential regulation at the national level. Thus there is also a need to establish a pan-European systemic regulator whose primary task should be the international coordination of macro-prudential regulatory policies. The Bank of England (2009), for example, proposes that under an international accord, the host regulator could have control over the regulatory requirements applied to exposures to domestic customers, irrespective of where the lending bank is established.[57]

Which institutions should be covered by macro-prudential regulation?

As for the institutional scope of a macro-prudential policy regime, the Bank of England does not clearly resolve this vital issue, stating that it will be necessary to assess the costs and benefits of two alternative approaches: either restricting coverage to banks, or including a wider set of institutions. In the first case, where the perimeter of macro-prudential regulation would be the banking sector, a possible drawback is that systemic risk shifts to the unregulated sector. Extending coverage to a wider set of institutions would help prevent this problem, but at the cost of increasing both the operational complexity of the regime and the risk of moral hazard (if non-

56 *While rules based on stock imbalances may perform well in capturing mounting risks in an upswing, they are slow to react in a cyclical downturn. Flow measures such as growth rates of credit and asset prices are affected by the reverse problem, reacting more quickly to the downswing but missing the boom.*

57 *This proposal is partly a response to the failure of Icesave, an online branch of the Icelandic bank Landsbanki. After Landsbanki was placed into receivership by the Icelandic Financial Services Authority, more than 400,000 British and Dutch depositors were unable to access their money. In the UK, Icesave provided savings accounts offering 6% annual interest, while its annual deposit rates in the Netherlands started at 5% and later rose to 5.25%. In the Netherlands, over a period of five months, Icesave attracted 125,000 customers who invested €1.7 billion. The issue of how to settle these inaccessible deposits blew up into a diplomatic row between the UK and Iceland.*

banks were perceived as having gained access to the state safety net). A clearer view is presented by Brunnermeier et al. (2009), who contend that any financial institution that contributes to systemic risk should be covered by macro-prudential regulation. They divide these institutions into the following four groups according to the degree of their contribution to systemic risk:[58]

1. 'individually systemic' – large, complex and massively interconnected institutions which have the status of 'national champions' and whose failure by itself could threaten the stability of the entire system;
2. 'systemic as part of a herd' – relatively small and insignificant on an individual basis, but their correlated behaviour when they move together as a group could represent a systemic risk (for example, highly leveraged hedge funds);
3. 'non-systemic' – large and not highly leverage financial institutions (for example, insurance companies, pension funds);
4. 'tinies'.

According to Brunnermeier et al. (2009) additional macro-prudential regulation is essential for institutions falling within the first two groups. The respective supervisory authority should periodically update the list of systemically important financial institutions within their jurisdiction and share such information with other regulators/supervisors. Full publication of this list could, however, have more disadvantages than advantages, especially in that it could heighten the risk of moral hazard.

1.6 ALTERNATIVE PROPOSALS FOR MAKING SYSTEMICALLY IMPORTANT INSTITUTIONS MORE RESILIENT TO SHOCKS

The critical events that unfolded in global financial markets in autumn 2008 clearly showed up, among other things, the considerable shortcomings in the regulation and supervision of systemically important financial institutions. We have already looked at the issue of additional regulatory capital requirements, which, according to the approach proposed by the Bank of England (2009), should reflect also the measure of a financial institution's importance to the stability of the whole system. The greater the amount of assets that a firm manages and the more complex and extensive are its links to other financial market participants, the higher the risk of its failure to the system's stability. The regulatory capital requirement should be raised so as to cover that higher risk. Alternative proposals for how to approach the regulation of these firms are being driven by efforts to limit the moral hazard associated with their business activities and to minimise the material risk that their failure would pose to society and the taxpayer. These proposals centre on making large and complex firms more resilient to shocks and on resolving any insolvency of such a firm in an effective way.

Hybrid capital – contingency convertible debt

The Squam Lake Working Group on Financial Regulation (April 2009) proposes a regulatory charge for holdings of convertible debt, i.e. long-term debt which is issued by a bank during a tranquil period and which, in the event of a systemic crisis (and conditional on other conditions being met), is automatically converted to share capital. This solution should be effective for a bank that is undercapitalised and under threat of insolvency. Since such a measure potentially saves taxpayer funds from being spent on bailing out systemic institutions, it has attracted the interest of regulators (especially in the US and UK). It has in the meantime been put into practice, firstly in autumn 2009 when the United Kingdom's Lloyds Banking Group issued contingent convertible bonds (CoCos) worth GBP 9 billion. Then in March 2010, the Dutch firm Rabobank made a trial issue of contingent conversion bonds worth €1.2 billion. What is critical in regard to this measure is the conversion-triggering event and investor demand for this type of investment.[59] For example, the linking of the triggering event to regulatory capital may not necessarily guarantee the expected results. Experience shows that even banks with a sound CAR have collapsed, the reason being financial contagion arising from investor fears. This points to the need for an earlier triggering event. Flannery (2002), for example, proposes that the conversion of debt to common equity be contingent on developments in the bank's market capitalisation. However, several observers are sceptical about the potential of convertible bonds to contribute effectively to the reduction of systemic risk in practice.[60] Convertible bonds should rather be

58 *For determining the size of an individual institution's contribution to systemic risk, the authors propose using the risk measure CoVaR (Adrian, Brunnermeier, 2009). CoVaR is the VaR (Value-at-Risk) of the whole financial system after conditioning that firm X is in financial difficulty. The marginal contribution of X to systemic risk is expressed by the difference between the CoVaR and VaR values of the whole financial system.*

59 *In the case of the CoCo bonds issued by Lloyds Banking Group, the conversion of bonds to shares will occur if the capital adequacy ratio of the issuer's core Tier 1 capital falls below 5%. Investor demand was not a concern in this case since the CoCos were issued to existing investors on the basis of a debt exchange. As for Rabobank, if its capital adequacy ratio falls below 7%, three quarters of the nominal value of the bond will be written off and converted to equity capital while the rest will be returned to investors.*

60 *See, for example, Tett (2009), Hart and Zingales (2010), Ponarul and Scott (2010).*

a supplementary tool for measures that are more preventive in nature, such as additional regulatory capital requirements (outlined above).

Determining the capital requirement for a systemically important financial institution according to its credit default swap (CDS) price

In proposing a method of setting the capital requirement for large and complex financial institutions (LCFIs) that are too big to fail, Hart and Zingales (2009) adapt the principle applied in the operation of margin accounts.[61] Under their proposed system, the LCFIs should have sufficient capital (collateral) to guarantee the full repayment of their liabilities (not only deposits), including so-called 'systemic liabilities' (derivative and repo contracts). Since the value of some LCFI assets (investments) is not easily determinable, it is difficult to identify when the capital has reached a level that leaves the LCFI's creditors unprotected. The authors therefore use a different trigger: the price of the credit default swap on the LCFI.[62] When the CDS price rises above a critical threshold, the regulator forces the LCFI to issue equity until the CDS price moves back below the threshold. If this does not happen within a predetermined period of time, the regulator intervenes. The regulator first determines, by carrying out a stress test, whether the LCFI debt is really at risk. If the debt is not at risk (i.e. the CDS prices were inaccurate), then the regulator declares the company adequately capitalised and to prove it injects some government money. If the debt is at risk, the regulator replaces the company's management with a receiver and recapitalises the company, ensuring in the process that the shareholders are wiped out and the creditors receive a haircut (the value of the debt is reduced); these measures thus have a disciplinary effect not only on the management and shareholders, but also on the creditors. The disciplinary effect of the LCFI's quasi-bankruptcy is preserved in this process without imposing secondary social costs. In addition to the capital requirement, the proposal requires also a layer of subordinated long-term debt (with low repayment priority). This debt has a dual function, to provide an additional cushion for the systemic obligations and to provide the underlying asset on which the CDS is traded. Since the proposed approach is applicable to all financial institutions, not just banks, it reduces the scope for regulatory arbitrage. The drawback of this proposal is that, in addressing the prevention of default, it looks only at individual systemically important firms. It lacks a macro-prudential perspective, since it does not deal with the capital surcharge in the context of systemic stability, i.e. it does not take account of the phase of the credit cycle or the tendency of herd behaviour among financial institutions. By way of a solution, however, the authors suggest that the trigger mechanism be indexed to macroeconomic factors. In terms of strengthening systemically important companies against shocks, this proposal appears to be more effective than a charge on hybrid capital in the form of contingent convertible debt, but its weakness could be the actual trigger mechanism. For example, a lack of demand for trading in the CDS on the debt of a particular bank.

Enhanced resolution of a failing systemically-important firm – "living will"

Specific proposals for improving the resolution procedures for a failing systemically-important institutions (e.g. a large investment firm) have appeared, naturally, in the United States and United Kingdom. These proposals were formulated in the United States by the Squam Lake Working Group on Financial Regulation in October 2009, and they are already being discussed at the legislative level in the countries mentioned. One of its recommendations is that every LCFI should be required to produce, regularly update, and file with the regulator a "living will" detailing how the institution should be legally resolved in the event of distress. This plan will help the regulator when deciding on the legal resolution of a troubled LCFI (i.e. whether to sell certain parts of the firm, to wind down other parts, to terminate or review certain contracts, to put part of the firm under the management of other entities, and so on), so as to maintain the stability of the financial system.[63] The main reason for this requirement is the complexity of the LCFI's internal and external ties (which the regulator is not able to see) and the complications arising from its cross-border activities (bankruptcy law may vary from one legal system to another). According to the Squam Lake Working Group, these plans should include the following elements:

- detailed and full descriptions of the firm's ownership structure, assets, liabilities, con-

61 *Margin accounts are typically held by investors with brokers. The investor will buy an asset on the account, but pay only part of the purchase price; the rest being borrowed from the broker. If the investor's open position deteriorates, the broker will make a margin call (i.e. ask the investor to increase the margin). The investor will either increase the margin or instruct the broker to close the position. Thus the lender's funds are fully secured.*

62 *The price of an LCFI's credit default swap represents the price of insuring against the LCFI's default. If the insurance price rises, the probability of default increases, and vice versa.*

63 *Another benefit of 'living wills' is that they give regulators a better understanding of new sophisticated products and their potential risks.*

tractual obligations, and the legal code that governs each of these contracts;
- descriptions of the cross-guarantees tied to different securities,[64] a list of major counterparties and a process for determining where the firm's collateral is pledged;
- a few major distress scenarios, and the likely resolution processes under each scenario;
- a list of potential parties that could take over the firm's contractual obligations at low cost.

If regulators use 'living wills' to resolve insolvent systemically-significant LCFIs in a legally regulated way that is not the standard bankruptcy procedure, there should be a reduction in moral hazard (since the bankruptcy of a systemically important institution represents an enormous cost to the taxpayer, there is an incentive for firms to become too big to fail). This would save spending public funds on bailing out systemic firms. If capital requirements were set according to the complexity of the firm and to how time-consuming it would be to resolve LCFI insolvency on the basis of a 'living will', financial institutions could have an incentive to simplify their organisational structures and contractual relations. But an improved solution to the issue of moral hazard among LCFIs that are too big to fail is not possible without a reliable cross-border failure resolution system for such companies. This is a complex and time-consuming task. 'Living wills' represent a more easily available, but less effective solution.

Maximum gross leverage ratio

The stable functioning of financial systems is largely determined by the accurate measurement of a wide range of risks associated with the business activities of financial institutions. Recent experience indicates that if this is not impossible, then it is at best a matter of extreme complexity. The reason lies in the imperfection of the models used for the measurement of financial risks, and the highly unreliable results that they produce. Today's considerably expanded use of statistical models for the measurement and prediction of risks is even contributing to the escalation of endogenous risks of the financial system. By underestimating procyclical changes in banks' leverage, these models support procyclical tendencies throughout the financial system. Several proposals for financial regulation reform (including some mentioned here) remain, however, directly linked to measured risks,[65] and so their quality is directly proportional to the quality of the risk measurement. Daníelsson (2009) therefore argues that there is no immediate hurry to reform financial regulation and that it is more important to spend the necessary time and effort on solving its efficacy problems. In support of this view is the fact that the part of the financial system hardest hit by the crisis was also the most regulated part – the banks. The Basel Committee on Banking Supervision is now preparing a measure imposing regulatory constraints on bank leverage. The effectiveness of this measure depends on its final form, but in essence it should curb the inherent procyclicality of Basel II. The imposition of a maximum gross leverage ratio is expected to be a counterweight to the risk-sensitive regulatory capital requirements and the imperfect, cyclically-distorted measurement of risk. Leverage constraints at the same time restrict the growth in bank balance sheets that mitigates (il)liquidity risk in the boom phase. This purely micro-prudential regulatory tool therefore has also a macro-prudential function in that it mitigates systemic risk. Bordeleau, Crawford and Graham (2009) studied the regulatory ceiling on an unweighted leverage ratio that has been applied to Canadian banks since the early 1980s, and they found that it had contributed to financial stability in Canada.

1.7 CONCLUSION

In this article we have presented a selection of current proposals for improving financial system regulation. The papers mentioned concur in the view that financial regulation should place far more emphasis on systemic risk – i.e. the system's endogenous risk – which results from the tendency among financial institutions to behave in the same way and from the activities of large and complex financial institutions in the systems. In order to reduce the likelihood of systemic crises occurring (and entailing significant costs to the taxpayer), micro-prudential regulation needs to be expanded to include a macro-prudential dimension. Some of these proposals go into technical details, while others rather focus on outlining the concepts and principles of a functional macro-prudential framework. Sometimes the papers coincide in their opinions; in other cases they reach

64 *A cross-guarantee links multiple contracts. Typically, a cross-guarantee states that if a party defaults on one contract, the terms of a second contract change. For example, the second contract may become immediately payable.*

65 *The problems of Basel II in this regard have been pointed out for a long time (Daníelsson, J., Embrechts, P., Goodhart, C., Keating, C., Muennich, F., Renault, O., Shin, H. S., 2001).*

different conclusions. Many details, however, remain open and require further discussion. The guiding principle for these discussions should be the efficacy of financial regulation.

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NÁRODNÁ BANKA SLOVENSKA
EUROSYSTÉM

ANNEX 2

MACRO-PRUDENTIAL ASPECTS OF FINANCIAL SUPERVISION AND REGULATION, AND SYSTEMIC RISK

2

2 MACRO-PRUDENTIAL ASPECTS OF FINANCIAL SUPERVISION AND REGULATION, AND SYSTEMIC RISK

One of the most feared events in banking is the cry of systemic risk. It matches the fear of a cry of "fire!" in a crowded theatre or other gatherings. But unlike 'fire', the term 'systemic risk' is not clearly defined.
Kaufmann and Scott (2003)

The financial crisis of recent years brought new challenges for central banks. These challenges revealed the inadequacy of our knowledge in the field of macro-financial stability and hence increased the demands on research, particularly in regard to the macro-prudential aspects of financial regulation and supervision.

The regulatory approach that prevailed before the wake of the current crisis proved to be wrong in assuming that the stability of the financial system as such could be ensured through the monitoring of the stability of individual institutions and instruments. In the light of the subsequent events, a consensus emerged, both within the academic community and among central bankers and regulators, on the need to supplement and strengthen the current micro-prudential regulation and supervision by incorporating a macro-prudential aspect. While micro-prudential regulation and supervision is focused on individual institutions and instruments, macro-prudential regulation and supervision takes into account the risks to the financial system as a whole. These risks may stem from, among other things, the collective behaviour of financial institutions over the credit cycle, the mismatch between the risk taking capacity and both the type and the scope of risk that individual institutions undertake, or the high interconnectedness of certain firms.

2.1 MICRO-PRUDENTIAL VERSUS MACRO-PRUDENTIAL SUPERVISION AND REGULATION

Crockett (2000) and Borio (2008) characterise the term 'macro-prudential' in a highly stylised way, namely with the help of the words antonym 'micro-prudential'. The main differences between these two approaches are summarised in Table 9. In what follows we will briefly discuss the characterization of Borio (2008) where the micro- and macro-prudential perspectives are defined and contrasted in terms of objectives, main focus, and characterisation of risk.

Objective

As mentioned above, the primary task of macro-prudential supervision and regulation is to prevent or reduce the probability of financial system distress. This objective is based on observations from previous crises where we have seen that a financial crisis may lead directly to a reduction in the economy's performance and thus have a real adverse effect on the whole society. As for the micro-prudential approach, it is focused on the stability of individual institutions irrespective of their importance to the economy or the

Table 9 The micro- and macro-prudential perspectives

	Macro-prudential	Micro-prudential
Proximate objective	limit financial system-wide distress	limit distress of individual institutions
Ultimate objective	avoid output (GDP) costs	consumer (investor/depositor) protection
Characterisation of risk	(in part) endogenous	exogenous
Correlations and common exposures across institutions	important	irrelevant
Calibration of prudential controls	in terms of system-wide risk; top-down	in terms of risks of individual institutions; bottom-up

Source: Borio (2008).

financial system as a whole. The micro-prudential approach may be said to be concerned with consumer (investor or depositor) protection.

Focus

As implied by the objectives, the micro-prudential approach examines the situation by looking at individual institutions, whereas the macro-prudential approach centres on the financial system. This means that as long as the financial system as a whole is in sound condition, the macro-prudential approach does not address the condition of the individual institutions that make up the system (in other words, some institutions may fail, provided that the stability of the system as a whole is undisrupted).

Characterisation of risk

From a macro-prudential perspective, risks stem from the collective behaviour of individual institutions and the interconnections between them. Hence, these risks are perceived as endogenous. Collectively, institutions can affect the prices of financial assets, the quantities transacted and therefore the strength of the economy itself. This, in turn, may lead to powerful feedback effects. By contrast, given its focus on individual institutions, a micro-prudential perspective ignores such feedbacks (individual institutions, taken in isolation, will generally have little impact on market prices or the economy as a whole).

2.2 THE CONCEPT OF SYSTEMIC RISK

Macro-prudential supervision and regulation is directly related to systemic risk, as the main task of macro-prudential policy is to restrict this risk. Despite the fact that the term 'systemic risk' has come to be widely used as a result of the recent financial and economic crisis, when speaking with several economists, one could not be certain what exactly the term should include. Furthermore, systemic risk is a relatively new concept in economic and financial literature.[66] The situation is well summed up by the International Monetary Fund when it says: "'Systemic risk' is a term that is widely used, but is difficult to define and quantify. Indeed, it is often viewed as a phenomenon that is there 'when we see it'" (IMF, 2009).

In academic and economic policy literature, serious attempts are now being made to define and quantify the term 'systemic risk' so as to provide a workable definition that can be used by policymakers to determine the implications of this risk. Moves to harmonise the terminology are also being seen. These are very important from the view of macro-prudential regulation and supervision, given that a uniform, clear and quantifiable definition needs to be in place if policymakers and regulators are to apply credible measures in this regard. There are many different definitions of systemic risk. Here we mention three of the most cited and accepted ones:

Kaufmann a Scott (2003)

"Systemic risk refers to the risk or probability of breakdowns in an entire system, as opposed to breakdowns in individual parts or components, and is evidenced by comovements (correlation) among most or all the parts."

Hendricks (2009)

"A systemic risk is the risk of a phase transition from one equilibrium to another, much less optimal equilibrium, characterized by multiple self-reinforcing feedback mechanisms making it difficult to reverse."

De Bandt et al. (2001)

"Systemic risk can be described as the risk of experiencing systemic event in a strong sense. A systemic event is an event that adversely affects a number of systemically important intermediaries or markets (including potentially related infrastructures). The trigger of the event could be an exogenous shock (idiosyncratic or systematic). Alternatively, an event may emerge endogenously from the financial system or the economy at large." A systemic event is deemed to be strong if the affected intermediaries fail or the markets concerned crash.

De Bandt et al. (2001) go on to distinguish between horizontal and vertical perspective on systemic risk. Whereas the horizontal perspective focuses on events in the financial sector alone, the vertical perspective takes in also the bilateral interaction between the financial system and the economy. Such a definition of systemic risk

66 *In a survey of the EconLit database, Gerald Dwyer found that the first document to include the term 'systemic risk' was published in 1994 but, according to him, it was a book review, not an academic paper.*

should cover most of the definitions used in the academic literature.

There are three forms that systemic risk may take; these forms are not mutually exclusive as they may appear both individually or any combination of them simultaneously. Contagion refers to an idiosyncratic problem that is spreading across institutions gradually (often sequentially).[67] The second form of systemic risk is an aggregate shock, which has a simultaneous adverse effect on a whole range of intermediaries and/or markets. The third form is accumulation of widespread imbalances in the financial system over time, such as a boom in the property market.

2.3 RISK MONITORING AND EVALUATION FROM A MACRO-PRUDENTIAL PERSPECTIVE

The past decade has seen a certain shift towards monitoring and analysing financial markets from a macro-prudential perspective. International institutions (including the BIS and IMF), central banks and regulators have been monitoring various macro-prudential indicators, creating early warning systems and macro stress testing models. Even so, no evident conclusions have been drawn from the situations observed and no preventive actions have been taken (one of the reasons for this may be the lack of any formal mechanisms).

Early warning systems

Over the last ten years, relatively large amounts of effort and resources have been devoted to establishing early warning systems in the form of econometric models. Their primary task is to capture/predict the situation in which the probability of a crisis – whether banking or currency – is significant. However, while these models can be useful indicators of widespread imbalance, their predictive ability is limited.

Macro stress testing

Even more effort has been expended on developing models for the macro stress testing of the resilience of economies and the financial system. These models are now commonly used by individual financial institutions, central banks, supervisory authorities and international institutions for estimating various risks. They address risks arising from the financial system or the economy as a whole and evaluate the impact of these risks on the financial system should the risks materialize. The models used differ in the structure and the level of complexity. However, a key feature is to set an extreme but plausible scenario (a recession or significant decrease in asset-prices) and then estimate the effects on the system. A problem with this type of models is that they do not take into account the interconnectedness of institutions and as well as possible feedback effects. This in turn leads to underestimation of the real impacts on the financial system.

Macro-prudential monitoring of the situation

Many national and international institutions have decided to periodically conduct macro-prudential monitoring of financial systems and the global economy, as is evidenced by the multitude of financial stability reports. These exercises are based on both qualitative and quantitative analyses.

Notwithstanding the significant shift recorded over the past decade – largely following the outbreak of the recent global financial and economic crisis – a large part of the activities mentioned are in an incomplete state. From a macro-prudential perspective, it appears to be a matter of the highest importance that a consensus is reached on the key definitions. The definitions of systemic risk and financial instability need to be harmonised so that they can be quantified and then used for the purposes of policymakers, regulators, and financial supervision institutions.

2.4 NEXT STEPS IN THE MONITORING AND ASSESSMENT OF SYSTEMIC RISK

According to Borio and Drehmann (2009), it is necessary to create better models of financial instability that would link the micro- and macro-prudential aspects. These models should explicitly include endogenous amplification mechanisms and feedback effects. However, no such models exist at present which appears to be an issue mainly from the view of macro stress testing. In the absence of amplification mechanisms and feedback effects, it is not possible to capture

67 *An example would be the failure of one bank that brings about the failure of another bank that had appeared solvent ex ante.*

the actual risks that have built up in the system, or to gauge the reaction of the financial system to shocks of plausible amplitude. The fact is best seen in the results of stress tests which, even in extreme scenarios, often fail to indicate any serious impact on the financial system. If the results are inadequately interpreted, policymakers and regulators may erroneously assume that the financial system is sound. On the other hand, the informed policymakers are thus losing a tool that could provide a strong argument (or switch) for implementing, where necessary, measures for strengthening the market in relation to the public and financial institutions.

After a relatively exhaustive examination of the current literature and available models, Borio and Drehmann (2009) conclude that work on early warning systems is at present, from the view of policymakers and regulators, more promising than further work on macro stress testing models. Provided that they are not overly ambitious, early warning systems can indicate general risks accumulated in the system and initiate a deeper examination of the current situation and assessment of risks. However, macro stress testing models have the greater long-term potential. To include feedback effects and interconnectedness is not an easy task and is highly demanding on research capacities.

At this stage, macro-prudential tools and policies have not been used comprehensively; they have only been used on an ad hoc basis. Asian countries and their central banks took the lead in implementing macro-prudential tools before and during the 1997 crisis. For example, during the crisis central banks in the region used countercyclical provisioning, loan-to-value (LTV) ratios, and capital surcharges for systemically important institutions. Further examples are given in Table 10.

These examples demonstrate that macro-prudential tools can be effective in addressing vulnerabilities by enhancing the resilience of the financial system. However, it is not yet clear to what extent such tools have been effective in restraining the growth of credit and asset prices. Realistic expectations about what can and cannot be accomplished with the help of such tools are necessary. In addition, it is not enough just to create and use new tools; there must also be a more active approach to supervision and especially to problem-solving (as the examples of Asian countries demonstrate). It is important to note that any new tools or approaches to regulation and supervision cannot prevent all crises and problems. At best, they can relieve some of the pressure on traditional tools, or reduce the frequency of crises and/or their severity. The aim should be to temper the extremes of the macroeconomic cycle, not to smooth it out.

2.5 IMBALANCES ACCUMULATED IN THE SYSTEM: EARLY WARNING SYSTEMS

Early warning systems (EWS) are empirical models that are used to identify imbalances and risks accumulated in the financial system. Their pri-

Table 10 Asian experience with macro-prudential tools

Objective	Tools	Examples
Manage aggregate risk over time (i.e. procyclicality)	Countercyclical capital buffers linked to credit growth	China
	Countercyclical provisioning	China, India
	Loan-to-value (LTV) ratios	China, Hong Kong, Korea, Singapore
	Direct controls on lending to specific sectors	Korea, Malaysia, Philippines, Singapore
Manage aggregate risk at every point in time (i.e. systemic oversight)	Capital surcharges for systemically important banks	China, India, Philippines, Singapore
	Liquidity requirements / funding	India, Korea, Philippines, Singapore
	Limits on currency mismatches	India, Malaysia, Philippines
	Loan-to-deposit requirements	China, Korea

Source: Caruana (2010).

mary task is to capture or identify states in which there is a nonzero probability of a financial crisis arising. The term 'financial crisis' is general and may include banking crises, monetary crises, government debt crises, private sector debt crises and asset market crises. From here on, however, we will concern ourselves only with banking crises.

In general, early warning systems are designed using one of two approaches: the *signalling approach* and the *discrete choice* approach. Another aspect which draws a clear line between the individual EWSs is the desired output. One can distinguish between the early warning systems for predicting systemic banking crises in the financial system and the EWSs for predicting a worsening situation in individual banks. Note however that since we are dealing with the systemic risk, in order to better capture the overall situation, the EWSs for individual banks do not include only the individual bank data, but the data is combined with indicators related to the overall financial sector health and state of development together with relevant structural and macroeconomic indicators.

Signalling approach

The signalling approach, originally developed for the identification of business cycle turning points, was first used for predicting banking crises in a paper by Kaminsky and Reinhart (1999). In this case, the authors focused on predicting the so-called "twin crises", i.e. simultaneously occurring currency and banking crises.

The approach is based on the observation that the behaviour of individual indicators before and after the outbreak of a crisis is different from their behaviour at times of equilibrium. It works on the principle that warnings are issued when a given indicator exceeds a certain threshold. The threshold is identified on the basis of a specified loss function, selected in accordance with policymakers' preferences. The preference could be, for example, to predict as many crises as possible even at the expense of triggering false alarms, or to act on as few false alarms as possible at the expense of missing crises. The signalling approach is more appropriate when constructing an EWS for (individual) country crises or individual bank failures.

A drawback of the traditional signalling approach is that individual indicators are monitored in isolation and therefore the broader spectrum of available (relevant) information is not taken into account. This could be problematical given that financial crises are complex phenomena conditioned by various situations. The other main disadvantages of the approach include, for example, an inability to distinguish whether an indicator value is just below or far below the signalling threshold or how to handle cases when some indicators show a crisis probability and others do not. The unilateral focus of systems created by the signalling approach is a problem that can in part be solved by the creation of a so-called composite indicator that may better capture the overall situation in the economy.

Discrete-choice approach

The discrete choice approach, an alternative to the signalling approach, is based on the assumption that the probability of the occurrence of a crisis is a function of a vector of explanatory variables. This approach solves the above mentioned problem of extracting information from the available data. In a majority of studies, the probability of a crisis occurring is estimated using binomial probit/logit models. There are, however, other approaches which, in order to make forecasts more reliable, admit more than two system states. To be more specific, in addition to the states of 'crisis' and 'equilibrium', they distinguish states such as the 'pre-crisis period', 'period during the crisis' and 'post-crisis period'. Furthermore, results of empirical studies suggest that the discrete choice approach is a more appropriate choice when constructing an EWS for the global economy or a set of countries.

The parameters of models established in this way are estimated mostly using annual data. This means, however, that these models are subject to the shorter time series available for the estimation of the parameters, and therefore the sample needs to include a larger number of countries. This, providing that the choice of countries is appropriate, leads to a sufficient number of crises observations. A drawback of discrete choice approach is the endogeneity. It is necessary to address the issue of how to deal with observations made after the outbreak of the crisis, since the explanatory variables can be

influenced by the crisis itself through feedback loop effects.

Irrespective of the modelling approach adopted, the explanatory/signalling variables used in early warning systems can be divided into four categories. The first group comprises 'banking variables' (both individual and aggregate), while the second group can be identified as 'variables related to banking sector structure'. The third group contains 'macroeconomic variables' and in the last group there are 'variables capturing external factors'. Among the most frequently used variables are GDP growth, bank cash and reserves as a share of total assets, increase in indebtedness, terms of trade, real interest rates, inflation, asset prices, property prices, and the government deficit to GDP ratio.

The procedure for creating an EWS and possible problems

When creating an EWS, it is first of all necessary to decide on what type of system is desired and, on that basis, to select the approach to modelling. With respect to the results of empirical studies, it is recommended to use the signalling approach for the EWS of an individual country and the discrete choice approach for the EWS of a region or group of countries. The next important step in this process is to identify historical occurrences of crisis episodes, and hence to create a dependent variable. It should be noted that the choice of dependent variable is not at all straightforward and frequently it is based on the subjective feelings of the authors. This is a fact often criticised in the academic literature and it is a source of inconsistencies between individual early warning systems. The choice of meaningful explanatory/signalling variables used in the model depends on the structure of the financial system and the individual economies for which the system is created. Finally, it is necessary to verify the model's predictive ability. Evaluation of the model's performance is best carried out in two stages. The model is first estimated and then tested on the whole data sample (this is known as 'in-sample testing'). In this regard, EWSs are in general relatively sound. Next, the model is estimated for a reduced data sample and its performance is evaluated on the rest of the data ('out-of-sample testing'). In order to be as close as possible to the real time situations, the models are often tested using a 'pseudo-forecasting exercise' that simulates the real data flow. The parameters are estimated on the basis of information actually available, and crises forecasts are made in each time period. The EWS performance is assessed in regard to the data actually observed at given moments. In the second respect, the performance of early warning systems has so far fallen significantly short.

As already mentioned, the choice of dependent variable is a key part of the construction of an early warning system, but at the same time it is a problematic and critical part. Since this step is entirely subjective, the actual construction of the system needs to be preceded by a decision defining in which cases we want the model to signal a problem or indicate a heightened probability of a crisis occurring. This decision serves as the basis for creating a dummy variable that identifies historical periods of crises.

As for identifying the existence of a systemic bank crisis, the academic literature tends to use four criteria. If at least one of the following situations obtain, the episode is identified as a crisis: the ratio of non-performing assets to total assets in the banking system exceeds 5-10%; costs related to bailout operations exceed at least 2% of gross domestic product; problems arising in the banking sector lead to the widespread nationalisation of banks; and, finally, there are widespread bank runs and the special emergency measures taken by the government in response to the crisis (e.g. frozen deposits, extended bank holidays, or the general protection of deposits).

Looking at EWS models for individual banks from a macro-prudential perspective, the academic literature offers two principal groups of criteria that are deemed to be indicators of distress. A bank is treated as 'fallen' if its licence has been revoked, if it has been nationalised, if it has been bailed out, if it has received money or liquidity from the government, or if it has been taken over or put under the forced administration of another bank. A different approach is to judge distress using more strict criteria. Banks are deemed troubled if they are insolvent, in liquidation, or have negative net equity.

The last serious issue that needs to be addressed is the multicolinearity of data. As mentioned

above, the problems lie in the fact that different indicators behave in different ways before a crisis, during a crisis and during tranquil periods, and that feedback loops exist between explanatory and dependent variables. Demirguc-Kunt and Detragiache (1998) and Demirguc-Kunt and Detragiache (2005) solve the problem by discarding the observations made after the outbreak of a crisis. By contrast, Bussiere and Fratzscher (2006) retain all observations in the sample, but create a multidimensional dependent variable. The variable acquires different values depending on which point of the cycle the economy finds itself in. Namely, the following regimes: pre-crisis, post-crisis, and tranquil. This approach is based on empirical observations of data, where it is evident that all of the indicators used have significantly different mean values in individual sub-samples.

Despite the shortcomings mentioned above, early warning systems can have substantial value to policymakers. If we take a realistic view of their performance and purpose, they can help to detect underlying weaknesses and vulnerabilities in the financial system at an early stage. Once the emergence of a problem is confirmed by other tools, policymakers can take pre-emptive steps to reduce the risks of experiencing a crisis (Bussiere and Fratzscher, 2006).

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NÁRODNÁ BANKA SLOVENSKA
EUROSYSTÉM

ANNEX 3

HOUSEHOLD INDEBTEDNESS IN SLOVAKIA

3

3 HOUSEHOLD INDEBTEDNESS IN SLOVAKIA

3.1 INTRODUCTION

Increasing household indebtedness is a trend common to practically all EU countries. Recent years have seen household debt rising relatively sharply, both in absolute terms and as a proportion of household income. The debt of Slovak households in 2008 amounted to 40% of GDP,[68] which in comparison with the previous year could not be considered a risky increase (according to Kaminsky and Reinhardt [1999], a credit boom is deemed excessive and a potential threat to financial stability if the loans-to-GDP ratio rises by more than 9% per year). But given the long-term rising trend in this ratio and the negative developments in income (owing to the ongoing economic crisis, and particularly to the rise in unemployment), the state of household indebtedness is an area that deserves attention.

The increase in household debt could have significant macrofinancial repercussions. The high level of debt is making household balance sheets more sensitive to shocks, such as a rise in interest rates and decline in income. A situation in which households are struggling to service their debts has implications for their creditors. In response to the sharp rise in indebtedness, households are reducing consumption and trying to increase their savings. This in turn is affecting economic growth, specifically by slowing down the pace of economic recovery.

3.2 THE HOUSEHOLD SECTOR'S IMPORTANCE TO FINANCIAL STABILITY

A certain level of borrowing is a normal economic phenomenon, since it helps households to optimise consumption against the uneven development of income. Difficulties arise if a household is unable to service its debt without reducing its expenditure to below what is required to maintain a minimum standard of living, or if it is unable to service its debts at all. Such over-indebtedness not only poses risks to creditors, but also has social repercussions for the households themselves. A household's over-indebtedness need not necessarily result from an excessive rise in debts (financial liabilities); a decline in a household's financial assets (overall net wealth) has an analogous effect. Another factor is the transferring of various types of risk to household balance sheets.

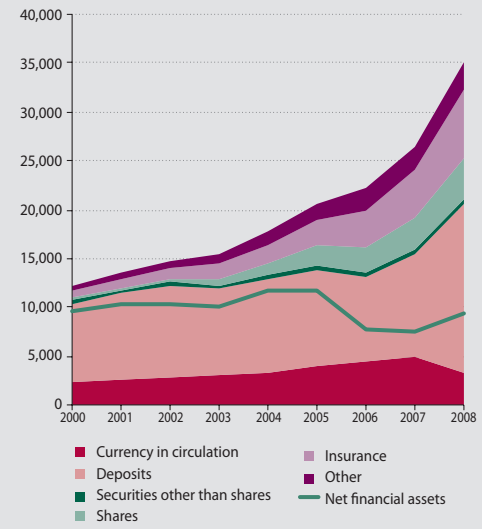
In connection with changes in the behaviour of financial institutions and the introduction of financial innovations – such as the implementation of pension system reforms (through the launch of funded pillars) – there was a transfer of market risks to the household sector, according to the IMF (2005). Financial institutions attempted to reduce the volatility in their balance sheets and to minimise its impact on their profits. Several risks that had been managed by financial institutions were switched to the household sector's balance sheet. At the same time, households are not so well prepared to carry out risk diversification. There are several channels through which these risks are transmitted to household balance sheets. On the assets side, they include mainly riskier instruments, such as equities and unit-linked insurance products (investment life insurance products in which the investment risk is borne by the customer of the insurance company) and the shift from defined-benefit pension schemes to defined-contribution pension schemes.

On the liabilities side, they include, for example, floating rate loans. As for what types of risks are transferred to household balance sheets, it depends on economic policy and on the specific policies and standards applied under the regulatory regimes of individual countries. The principal risks that households face are market risks (arising from, for example, pension funds, interest rate movements, derivatives included in structured products), inflation risk (through the index-linking of household benefits), investment planning risk, and longevity risk (the risk that as a result of individuals living longer than expected, the financial assets they saved for retirement prove insufficient or, in the case of funded pension schemes, their annuity income is reduced or comes to an end).

Another factor (related to public finance reforms) is the transfer of expenditures from the state to

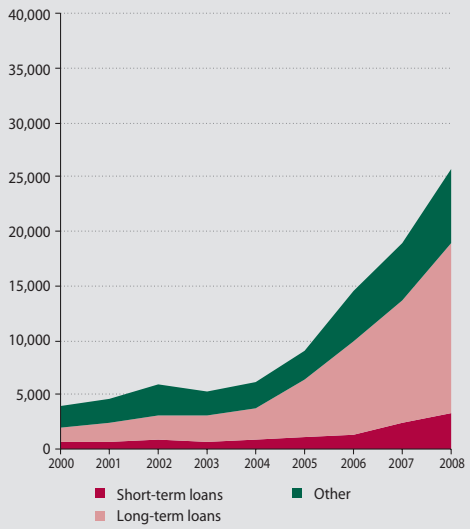
68 *Based on data from the System of National Accounts.*

Chart 79 Household financial assets (EUR millions)



Source: Eurostat.

Chart 80 Household liabilities (EUR millions)



Source: Eurostat.

households (for example, spending on health care and education) which requires households to set funds aside to meet these expenditures. This, too, entails a (potential) transfer of risk to the household sector. Households may not be aware of changes in their risk profile, nor will they necessarily be prepared for managing and absorbing risks (e.g. through the accumulation of sufficient savings in the form of low-risk assets). This raises the issue of whether households have sufficient net wealth to cope with the (potential) pressures on their financial position.

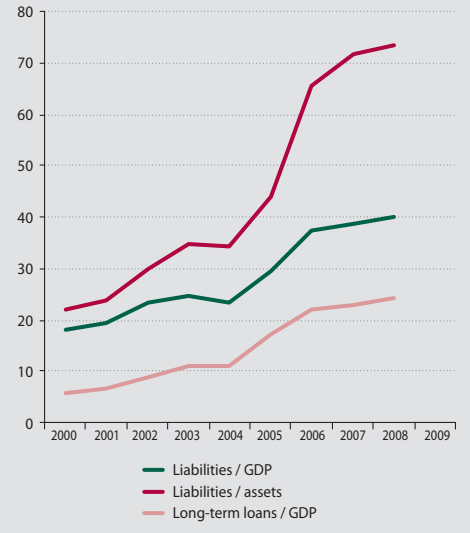
3.3 CHARACTERISTICS OF HOUSEHOLD NET WEALTH IN SLOVAKIA

As regards the aggregate development of financial assets and liabilities in the Slovak household sector since the country's economic transition began in 1989, it has shown the following features:

- a substantial focus on low-risk assets such as cash and deposits, with a rising trend in the share of riskier and less liquid instruments;
- an increase in liabilities (particularly long-term loans), which accelerated after 2005;
- a related decline in net financial assets (financial assets less financial liabilities);
- while the debt-to-GDP ratio is at a reasonable level, the debt-to-financial assets ratio is high.

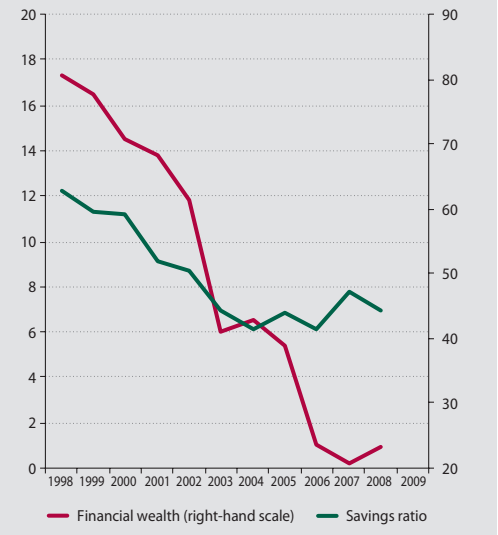
A long-term fall in the savings ratio was another feature of this development, with the ratio stabilising only after Pillar II of the pension system was introduced. Households were to a large extent using loans to finance property purchases. There was a rising tendency in non-financial assets, with property investments accounting for a substantial share of these assets. Thus, to a certain extent, the drop in net financial assets was offset by the rise in non-financial assets.

Chart 81 Household debt (%)



Source: Eurostat.

Chart 82 Savings ratio and net financial wealth (% of gross disposable income)



Source: Eurostat.

companies). Households also have liabilities to non-financial corporations and to the general government sector (Chart 84).

Financial assets are only part of a household's total assets; another substantial part comprises non-financial assets. The task of evaluating the overall asset position of the Slovak household sector is complicated by the fact that statistical data on the stock of non-financial assets are not available. Only the annual increases in non-financial assets can be tracked. Through the cumulative annual rises in non-financial assets, it is possible to obtain information on how the concentration of household assets in non-financial assets has been rising. From 2000 to 2008, household non-financial assets and household disposable income were rising at a similar pace.

3.4 RISK PROFILE OF HOUSEHOLDS

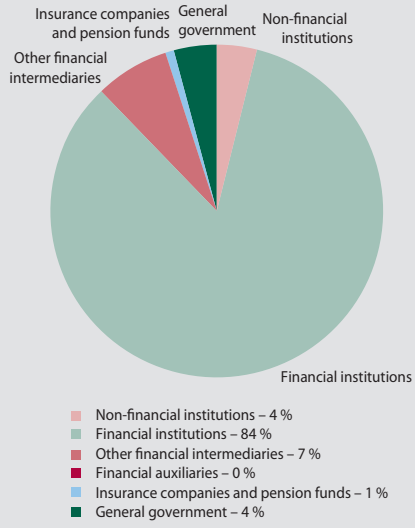
Housing loans accounted for the highest share of total loans. Among the factors behind the expansion of credit were the convergence process, demographic developments as well as competition between banks.[69] The most significant lender to the Slovak household sector is the banking sector, followed by other financial intermediaries (leasing, factoring, and hire-purchase

The financial wealth of households is typical of relatively high degree of instability, as measured using an indicator of volatility. Changes in the structure of household financial assets were reflected in the relatively high volatility of the financial assets portfolio, broken down into liquid assets (cash and deposits) and market-sensitive assets (investments in investment funds and in-

Chart 83 Cumulative increases in net non-financial assets (% of gross disposable income)

Source: Eurostat, NBS calculations.

Chart 84 Household debt – creditors in 2009



Source: NBS, Quarterly Financial Accounts.

69 *Factors affecting household demand for housing loans were discussed, for example, in the annexes of NBS's Financial Stability Reports for 2006, 2007 and 2008.*

Table 11 Volatility of the household sector's balance sheet (%)

1998 – 2008	Net financial assets / disposable income	Liquid assets/ disposable income	Market-sensitive assets / disposable income
Slovakia	**39.4**	**18.5**	**37.4**
Poland	15.2	9.1	38.9
Hungary	4.8	7.2	19.9
Czech Republic	6.4	4.3	8.9
Slovenia	10.4	9.1	15.1
Germany	11.5	5.5	6.9
Netherlands	15.2	9.8	9.6

Source: Eurostat.Notes: Volatility – standard deviation / average. Liquid assets – cash and deposits. Market sensitive assets – investment funds, insurance.

surance products). The less favourable development is particularly marked in the volatility of household net assets amid the sharp rise in commitments on the liabilities side. The volatility of the Slovak household sector's balance sheet is high also in comparison with the corresponding figures in other countries of the region as well as in the old EU Member States.

The aggregate financial position of Slovak households appears to be quite vulnerable, owing to the relatively low level of financial assets (the situation is similar in other new EU Member States) and the sharper increase in liabilities, all of which is weakening the creditor position of the household sector. The relatively high volatility implies that the stability of net financial assets is weak. The non-financial assets of households are probably having a stabilising effect, although the shortage of data makes it impossible to give an adequate assessment of the overall asset position of Slovak households.

3.5 HOUSEHOLD INDEBTEDNESS

In the following part, we focus on characteristics in the development of household indebtedness on the liabilities side and on identifying the group of households that face financial difficulties.

Increasing household indebtedness and mounting credit risks are fuelling fears about financial stability. Household indebtedness is usually considered in relation to the financial sector, which has by far the largest share of lending to households. The risks of this indebtedness need to be evaluated in a broader context, however, since households are not burdened only with bank loans, but also with liabilities to other sectors, in particular leasing companies, factoring companies, hire-purchase companies, non-financial enterprises (e.g. energy utilities) and the fiscal sector.

Over-indebtedness may be described as a situation in which a household (or individual) is not able to meet its debts and goes into default. A standard definition of over-indebtedness does not at present exist (EC, 2008). There are a few ways of evaluating the indebtedness of a household (or individual) – for example, according to whether bankruptcy proceedings against the household/individual have commenced. A more flexible criterion is whether the household considers itself to have difficulties in meeting its contractual commitments. Another possible definition, used in banking sector, is that the debtor is in arrears on three commitment payments.

The reasons for over-indebtedness may include a build-up of debt and/or economic circumstances, for example, low income, economic inactivity and mortgage commitments. The inability to service debts is often, however, largely due to external factors, such as the occurrence of an event that seriously disrupts the household's money management and budgeting (typically unemployment or illness). The personal characteristics of the debtor are also a factor, i.e. how he manages his finances, his propensity to risk-taking, whether his education in managing money is adequate.

3.6 DATA ON HOUSEHOLD INDEBTEDNESS

An important source of data on household indebtedness is the European Union Statistics on Income and Living Conditions (EU-SILC) survey, which is implemented in all the EU countries at annual intervals and in accordance with a methodology that allows the individual characteristics of households to be compared at the international level. The survey provides data on the socio-economic situation of households – household incomes, the level and structure of poverty, social exclusion and material deprivation – which are monitored / proposed so as to improve understanding of worsened living conditions and their consequences.

For identifying the characteristics of household indebtedness, data may be used from the 'material deprivation' section of the EU-SILC survey (in the economic strain/financial stress dimension). This includes objective indicators of the dataset for household payment arrears in various items (e.g. rent payments, mortgage or loan repayments, hire purchase instalments, utility bill payments), as well as subjective indicators, such as how households evaluate their own financial situation, and the perceived burden related to selected commitment payments. These indicators can be considered a supplementary source of information about the long-term financial situation of households.

The data are available with a lag; the most recent survey available is the survey of income from 2007, and it therefore does not capture the effect of the financial and economic crisis, which was not fully reflected in the Slovak household sector until the beginning of 2009.

When evaluating the financial position of households on the basis of survey data, it is necessary to note that such microdata can underestimate the actual situation in regard to disposable income. This is because households tend not to admit undeclared income (tax evasion, income from the grey economy). But since households have no incentive not to report their commitments, the survey gives a generally accurate view on indebtedness.

3.7 FINANCIAL STRESS

The financial indicators of deprivation stated in the following part have a subjective character since they also capture household preferences. The indicators include whether:

- the household has difficulties to meet its current expenses;
- the household has limited ability to meet unexpected expenses;
- the household considers overall housing costs to be a financial burden;
- the household is in arrears in loan repayments;
- the household has difficulties to pay its utility bills.

Since financial problems are not confined to households at risk of poverty, they are not sufficiently reflected in indicators of income type. Even households with an income above the poverty threshold may face difficulties in meeting commitment payments or unexpected expenses.

Because the data are available for all EU countries in the same structure, the degree of household financial stress in Slovakia can be compared

Table 12 Ability to make ends meet (percentage share of households)

		2005	2006	2007	2008
Euro area	with great difficulty	7.1	7.5	7.4	8.6
	with difficulty	14	14	13	14
New EU countries	with great difficulty	19	16	13	13
	with difficulty	24	24	22	22
Slovakia	with great difficulty	12	12	11	12
	with difficulty	18	22	20	23

Source: Eurostat.

with that in the other countries. We compared the data for Slovakia with the data for the following groupings: 'euro area countries'[70] and 'new European Union Member States'.[71] Given that these are population samples, we consider the trend development to be more significant than the actual level of the individual indicators.

The **'Ability to make ends meet'** indicator has the character of a subjective poverty measure (Guio, 2009), since by definition it covers households which consider themselves unable to meet current consumption expenses and household running costs.

When households have difficulties in meeting current expenses, it is an indication that their budgets are under strain. The household evaluates its position by choosing one of six possible responses ('with great difficulty', 'with difficulty', 'with some difficulty', 'fairly easily', 'easily', 'very easily'). The table shows the two extreme variants that indicate the highest level of financial stress.

The results show that more than 10% of the Slovak population is at the extreme end of the weakened situation, and that around a third of households are limited in their ability to meet current expenses.

The situation of households in Slovakia is more strained than the average for households in the euro area, and it is similar to the average for households in the new EU Member States in total. But unlike in Slovakia, the trend in the new EU countries is improving.

Another of the indicators concerns the ability of households to afford an unexpected burden on

Table 13 Inability to face unexpected financial expenses (percentage share of households)

		2005	2006	2007	2008
Euro area		**29**	**32**	**32**	**31**
	Under 60% of the median	57	59	60	61
	Over 60% of the median	24	27	26	26
New EU countries		**58**	**53**	**51**	**49**
	Under 60% of the median	82	81	81	76
	Over 60% of the median	53	47	46	43
Slovakia		**59**	**49**	**43**	**38**
	Pod 60 % mediánu	72	73	76	67
	Nad 60% mediánu	57	46	39	35

Source: Eurostat.

Table 14 Financial burden of the total housing costs

		2005	2006	2007	2008
Euro area	Heavy burden	32	33	32	36
	Burden	48	47	47	46
	Without burden	20	20	20	19
New EU countries	Heavy burden	38	36	34	34
	Burden	50	53	55	55
	Without burden	12	11	11	11
Slovakia	Heavy burden	40	40	35	33
	Burden	53	54	57	58
	Without burden	6	6	8	9

Zdroj: Eurostat.

70 *The group of euro area comprises the current number of euro area countries.*

71 *The group of 10 new EU Member States: CZ, EE, CY, LV, LT, HU, MT, PL, SI, SK*

their budget. The **'Ability to face unexpected expenses'** indicator shows what percentage of households do not have immediate access to liquid funds. The question answered by households is whether they are able to meet from their own funds an unexpected financial expense amounting to the median monthly income for one person, i.e. the comparable proportion of income for different countries.

The Table shows, for example, a substantial difference between low-income households and the rest of the population. There is an appreciable difference between the situation of households in the euro area and those in the new Member States, where the group of households that have difficulties in meeting unexpected expenses is far more numerous. In Slovakia, the proportion of households with mortgages that have liquidity problems is slightly smaller (at 41%) than the corresponding figure for households without mortgages (45.6%).

Overall housing costs are a significant item of household expenditure. There is, however, a group of households that do not have to meet these costs, particularly if they are owner-occupiers or they rent free of charge.

In the case of households that feel under great financial stress due to overall expenses related to housing, it is likely that they will have to adapt their consumption and they may be at higher risk of falling into arrears in commitments related to the financing of housing.

In Slovakia, the group of households for which housing represents a serious financial burden had a falling share. However, the group of households for which housing represents a burden increased slightly, as did the group for which housing does not represent any burden.

Arrears on mortgage/rent payments or on leasing, hire purchase instalments or other loan payments

Table 15 Arrears on mortgage or rent payments or on hire-purchase instalments (percentage share of households)

		2005	2006	2007	2008
Euro area	Mortgages	3.6	3.4	3.6	3.9
	Loans	3	2.6	2.6	2.4
New EU countries	Mortgages	3	3	2	2
	Loans	5	4	4	2
Slovakia	Mortgages	4	5	3	3
	Loans	2	3	2	1

Source: Eurostat.

Table 16 Arrears on utility bills (percentage share of households)

		2005	2006	2007	2008
Euro area		**6**	**7**	**6**	**7**
	Under 60% of the median	15	16	15	15
	Over 60% of the median	5	5	4	5
New EU countries		**18**	**15**	**13**	**9**
	Under 60% of the median	36	33	28	20
	Over 60% of the median	15	12	10	7
Slovakia		**8**	**6**	**6**	**4**
	Under 60% of the median	16	16	18	10
	Over 60% of the median	7	5	4	3

Zdroj: Eurostat.

In the period 2005–2008, only a narrow group of households in both the euro area and the new EU Member States were in arrears in mortgage or rent payments or in repayments under hire-purchase or other loan arrangements.

Of all the indicators of financial stress, the **'Inability to pay utility bills'** comes closest to capturing situations of material deprivation. It also reflects a characteristic of household behaviour – the efforts that households make to avoid going into debt. In this case, the risk was concentrated among low-income households.

3.8 MULTI-DIMENSIONALITY OF FINANCIAL STRESS

Information from individual indicators of financial stress can be linked, since different dimensions of economic strain and deprivation have a tendency to be positively correlated (Guio, 2009). It may be expected that a household in an unfavourable situation will report a higher stress, and thus the households with potentially the greatest difficulties can be identified. In the case of Slovak households, there is a link between the inability to pay current and expected expenses; more than 80% of households that meet current expenses 'with great difficulty' or 'with difficulty' would not be able to meet an unplanned expenditure out of their own funds. There is an overlap of more than 70% between this group of households and the group of households for which overall housing costs represent a major burden. Similarly, arrears in mortgage/rent payments are usually reported by households for which housing costs represent a major burden (Gerbery, 2008).

Despite the aggregate rise in mortgage financing, mortgage holders are clearly not a household group that would represent a principal source of risks to financial stability. Using data from the EU–SILC survey (for the period 2005–2007), Beck, Kibuuka and Tiongson (2010) examined whether mortgage holders were more likely to suffer financial distress compared with non-mortgage holders. Their analysis did not find any systemic evidence that mortgage holders are financially more vulnerable. This group of households was not more likely to face a financial burden or to be in arrears in commitment payments compared with renters or outright owners.

That mortgage holders in Slovakia are also reporting an increase in financial stress may be due to the lower predictability of the level of mortgage payments. This reflects the preference among mortgage holders for variable rate mortgages (Georgarakos, 2010).

In the EU countries under review, the incidence of financial vulnerability declined in the period 2005–2007, probably reflecting the strong growth in household income. The similar characteristics that in old EU countries are tied to ownership status apply also in the new EU countries.

3.9 CONCLUSION

The financial position of Slovak households may come under pressure from development on the liabilities side (an increase in indebtedness) as well as from an insufficient level of savings or a failure to increase the value of their financial assets. As a result of the general government budgetary difficulties, households may in future have to face unexpected and increased expenses.

As the domestic financial market has developed, Slovak households have increasingly moved away from their traditional preference for low-risk (and low-yielding) financial assets, to investments in riskier and higher-yielding instruments. Given the current state of the financial markets, however, the indications are that such assets are exposing households to risks that they find difficult to handle and to diversify. The financial position of Slovak households appears to be vulnerable to the relatively high volatility in financial assets as well as in net financial assets.

There is a group of households that face financial difficulties arising from over-indebtedness. In the period 2005–2008, financial indicators of deprivation had a falling tendency, indicating that Slovak households may have had relatively stable balance sheets at the outset of the economic crisis. But for households that entered into financial commitments on the basis of an overly optimistic outlook for their future income, the current economic crisis entails higher insolvency risks (e.g. loss of employment), a decline in income available for debt servicing, and mounting strains on household budgets. There is now an increasing probability that adverse economic

and social consequences of household over-indebtedness will escalate.

Household balance sheets need to become less vulnerable and to be repaired by stepping up the accumulation of financial assets and/or reducing commitments on the liabilities side. At the same time, however, corrections in household balance sheets affect the pace of recovery in domestic demand and therefore also the future growth of the domestic economy.

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ABBREVIATIONS

Abbreviations

ARDAL	Debt and Liquidity Management Agency
BCPB	Bratislava Stock Exchange
BRIBOR	Bratislava Interbank Offered Rates – interest rates fixing on the interbank deposits market
BS	Banka Slovenije – Bank of Slovenia
CBOE	Chicago Board Options Exchange
CDS	Credit Default Swap – credit derivate contract between two counterparts
CPI	Consumer Price Index
ČNB	Česká národní banka – Czech national bank
D	day
SPMC	Supplementary Pension Asset Management Company
PFMC	Pension Asset Management Company
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECB	European Central Bank
EFT POS	Electronic Funds Transfer at Point of Sale – payment terminal
EIB	European Investment Bank
ERM	Exchange Rate Mechanism
EU	European Union
EURIBOR	Euro Interbank Offered Rate – interest rates fixing on the euro area market
FDI	foreign direct investments
GDP	Gross Domestic Product
IAS/IFRS	International Accounting Standards/International Financial and Reporting Standards
IBRD	International Bank for Reconstruction and Development
IIP	International Investment Position
IMF	International Monetary Fund
LTV	Loan-to-Value ratio – proportion of the credit volume to the collateral value
M	month
MF of the SR	the Ministry of Finance of the Slovak Republic
NARKS	National Association of Real Estate Agencies
NAV	Net Asset Value
NBS	Národná banka Slovenska
p.p.	percentage points
PPS	Purchasing Power Standard
RMBS	Residential Mortgage-Backed Security – security which yield and value are derived from the mortgage loans
ROA	return on assets
ROE	return on equity
RTGS	Real Time Gross Settlement
SAX	Slovak stock exchange index
TARGET	Trans-Europan Automated Real Time Gross Settlement Express Transfer
VaR	Value at Risk
ZFS	initial fixation of interest rate

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