NÁRODNÁ BANKA SLOVENSKA
EUROSYSTÉM

Financial Stability Report 2010

NÁRODNÁ BANKA SLOVENSKA
EUROSYSTÉM

Financial Stability Report 2010

Published by:
© Národná banka Slovenska

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

ISBN (online) 978-80-8043-172-3

Contents

Executive summary

The conditions for financial stability in Slovakia improved during the course of 2010. This was mainly due to the recovery of the Slovak economy, as reflected in relatively strong GDP growth. The most significant driver of domestic economic growth was the upturn in external demand. In the banking sector, credit risk was mitigated by growing sales in industry and the gradual stabilisation of the labour market. The banking sector's profitability in 2010 was substantially higher than in the crisis year of 2009, boosted mainly by income from retail banking operations. Nevertheless, the profitability of individual banks showed quite considerable divergence. The financing of households picked up amid relatively low market rates and an intensification of competition in the banking sector. This led to a moderate decline in the sector's aggregate capital adequacy ratio in 2010. The banking sector's strong resilience to adverse scenarios was confirmed in stress testing, which indicated that the most significant risk facing the sector as a whole continued to be corporate credit risk. Some banks, however, showed a greater exposure to household credit risk. Stable development in 2010 was also seen in almost all other sectors of the financial market. Only the non-life insurance sector failed to rebound from the slump in 2009; the unfavourable situation in its main lines of business was caused by strong competition and weak sales. As for the payment system in 2010, it functioned smoothly and without any disruptions.

Turning to the external environment, the most probable scenario over the medium-term horizon is that global economic growth will continue to recover slowly and that the marked differences between the pace of GDP growth in different countries and regions will persist. This expected development is, however, subject to several risks on the downside that may, directly or indirectly, affect conditions for domestic financial stability. In terms of size, the most significant of these potential risks appears to be an escalation of the sovereign credit risk of the euro area peripheral countries. This is because of the direct impact that the materialisation of these risks would have on the balance sheets of many banks in the euro area. Due to elevated tension in long-term funding markets, several euro-area banks will also have difficulty in refinancing a large amount of their debts. This, along with the need for banks to continuing increasing their capital for financial risk coverage, will push for further deleveraging. The slow process of repairing bank balance sheets and the persisting uncertainty surrounding banking sector risks will continue to dampen the economic recovery in the euro area. The external environment could also be adversely affected by high prices of commodities (especially oil) and the resulting inflationary pressures, by "hard landings" of emerging economies (including China) and by the further deferral of fiscal consolidation plans in the United States and Japan.

As for the non-financial corporate and household sectors in Slovakia, their situation improved somewhat during 2010, especially in the case of export-oriented industries. The financial situation of households has yet to pick up to an appreciable extent, given the lack of a clear upturn in the labour market situation such that would stabilise the generation of household income. If household income growth fails to accelerate, low consumer demand may continue to limit profits in those industries that depend on domestic household consumption. In the outlook for 2011, consumer demand will also be adversely affected by rising inflation, driven by factors in the global environment. Such a development would escalate credit risk in the bank sector.

The Slovak economy in 2011 and 2012 is expected to benefit from the continuing growth in external demand and fixed investments and from the gradual recovery of private consumption. It is therefore most probable that domestic financial stability will be supported by sound macroeconomic developments. The situation in the near term will also be determined by public finance consolidation measures, which will, depending on their scope and timing, represent a demand shock for household disposable income and possibly also for the unemployment rate and corporate expenses. Although the ongoing fiscal consolidation will in the short-term horizon (especially in 2011)

have a dampening effect on economic growth, the success of its implementation is a sine qua non for the strengthening of long-term financial stability. The potential medium-term risks from the implementation of insufficiently ambitious fiscal adjustment are significant. Being a small economy, Slovakia is exposed to the risk of asymmetric market reactions to fiscal developments in smaller countries, even where the fundamentals are relatively sound.

Looking at the long-term financial stability in Slovakia in the light of recent negative experiences in certain euro area countries (and in other countries with fixed exchange rate regimes), closer attention will need to be paid not only to the soundness of public finances, but also to structural features of the economy and to the prudential aspects of the banking sector, which would support sustainable pace of borrowing in the private sector.

CHAPTER 1

EXTERNAL CONDITIONS FOR FINANCIAL STABILITY

1

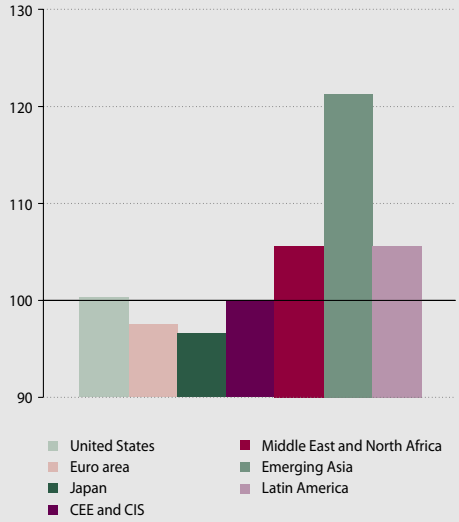
1 EXTERNAL CONDITIONS FOR FINANCIAL STABILITY

1.1 THE GLOBAL ECONOMY

The global recovery in 2010 proceeded very unevenly across advanced and emerging economies.

According to the International Monetary Fund (IMF), global economic output in 2010 increased by 5% year-on-year.[1] In line with expectations, world economic growth slowed in the second half of the year, as inventory rebuilding and, as a consequence, industrial production and trade moved into lower gear. In advanced countries, economic growth was modest and unemployment remained high. By contrast, many emerging economies saw signs of overheating and rising inflation pressures, particularly due to large-scale inflows of foreign capital. Growth in emerging countries was also boosted by robust private demand and accommodative policies. Global economic activity thus appears to be "two-speed", although even within the categories of advanced and emerging countries there are substantial differences in the pace of GDP growth (Table 1). The countries in which the recovery of activities is lagging are mainly those which were hardest hit by strong financial shocks during the crisis, whether due to the bursting of real estate bubbles or excessive external debt (Chart 1).

Chart 1 GDP in Q4 2010 (index, Q2 2008 = 100)



Source: IMF – World Economic Outlook, April 2011.
Note: CEE and CIS = central and eastern Europe and Commonwealth of Independent States.

The pattern of weak activity in advanced economies and strong growth in emerging economies will continue in the short-term horizon.

The IMF's outlook for the period 2011–2012 assumes that economic activity in advanced countries will remain modest even if forecasta-

Table 1 World output and world trade volume (annual percentage changes)

	2008	2009	2010	*2011(p)*	*2012(p)*
World output	**3.0**	**-0.5**	**5.0**	***4.4***	***4.5***
Advanced economies	**0.2**	**-3.4**	**3.0**	***2.4***	***2.6***
United States	0.0	-2.6	2.8	*2.8*	*2.9*
Euro area	0.4	-4.1	1.7	*1.6*	*1.8*
Japan	-1.2	-6.3	3.9	*1.4*	*2.1*
Emerging and developing economies	**6.1**	**2.7**	**7.3**	***6.5***	***6.5***
Central and eastern Europe	3.2	-3.6	4.4	*3.7*	*4.0*
Asia	7.7	7.2	9.5	*8.4*	*8.4*
China	9.6	9.2	10.3	*9.6*	*9.5*
World trade volume	**2.7**	**-10.9**	**12.4**	***7.4***	***6.9***

Source: IMF – World Economic Outlook, April 2011.
Note: Data for 2010 and 2011 are forecasts.

1 *IMF – World Economic Outlook, April 2011.*

ble risks do not materialise (see Chapter 1.6 for more details) and a major dent in the relatively high unemployment rates is not to be expected. This subdued activity is caused mainly by the fact that necessary fiscal consolidation measures have reached, and in some cases exceeded, the limits of sustainability; energy prices are rising, and repairs and reforms of financial systems in advanced countries are proceeding at a slow pace. Emerging economies are expected to maintain a brisk pace of growth based on strong domestic demand and high commodity prices. These economies will continue to face inflation pressures, stemming mainly from climbing food prices and from overheating in the form of rapid growth in lending and asset prices.

1.2 THE EU AND EURO AREA

The European economy continued to recover in 2010 and is expected to maintain modest growth in the near term, too. The main risk is the situation in financial markets and banking sector, which remains fragile owing to the still precarious sustainability of public finances in certain Member States.

In the EU/EA-17, GDP growth was relatively strong in the first half of 2010 and then, in line with expectations, it slowed significantly in the second half of the year. This was caused by a decline in global economic activity, brought on by the fading-out of the impetus from restocking and from some of the temporary stimulus measures introduced by national governments. Economic activity in some EU/EA-17 countries was adversely affected by very bad weather conditions in the last quarter of 2010. The main driver of the European economy in the near term (2011) will be export-oriented economies, given the relatively buoyant outlooks for external demand. This demand will come not only from expanding emerging economies, but also from the new government stimulus measures adopted in the United States in December 2010, which are designed to boost investment and private consumption. The fruits of these developments will be seen in capital formation as well as in stronger consumer demand. Economic development in the EU/EA-17 will, however, be adversely affected by the fragile situation in financial markets and in the EU banking sector, stemming from doubts about the sustainability of public finances in certain countries. Household income, and consequently household consumption, may come under further downward pressure from rising commodity prices. Domestic demand will also be dampened by the continuing fiscal consolidation in the EU periphery. The heavily indebted private and government sectors will face higher debt servicing costs, as the ECB "normalises" its interest rates, i.e. raises them to more standard levels.[2] The increasing divergences in economic developments within the EU will continue.

1.3 THE V4 COUNTRIES

Economic recovery in the V4 region was uneven in 2010, owing to differences in the pre-crisis conditions in the individual countries. The short-term outlook is favourable due to improving external conditions, but it is accompanied by high uncertainty about the situation in the medium term.

The speed at which the constituent economies of the V4 region underwent recovery was to a large extent determined by factors such as their structure, the size of their macroeconomic imbalances before the crisis, and the degree of their dependence on short-term external financing. In general, economic growth was slow owing to

Table 2 Real GDP growth (%)

	Quarter-on-quarter change								Year-on-year change				
	2009				2010								
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2008	2009	2010	*2011(p)*	*2012(p)*
Euro area	-2.5	-0.1	-0.4	0.3	0.4	1.0	0.4	0.3	0.4	-4.1	1.8	*1.5*	*1.8*
EU	-2.4	-0.3	0.3	0.5	0.4	1.0	0.5	0.2	0.5	-4.2	1.8	*1.8*	*1.9*

Source: Eurostat.
Note: Based on seasonally adjusted data. The data for 2011 and 2012 are taken from the European Commission's European Economic Forecast – Spring 2011.

2 *Financial markets expect the ECB to raise its key rates by 0.25 percentage points on three occasions during 2011. The ECB carried out the first such increase on 7 April 2011, effective from 13 April 2011, raising the key rates from their historically lowest levels.*

weak domestic demand and to external factors – financial market turbulences in the euro area had a negative effect on growth. The pick-up of production in Germany in the second quarter of 2010 was the main driver of the region's growth. The robust expansion of the German economy will continue to support this growth during 2011. Investor confidence in the V4 region is expected to bolster ambitious fiscal consolidation in each of the V4 countries. The effect of this policy in the short-term horizon will be to dampen private consumption. The main risks to the medium-term outlook are, first, uncertainty about the sustainability of euro area economic growth amid high internal imbalances and, second, the vulnerability of the euro area's banking sectors. The region may, on the other hand, capitalise primarily on its cost competitiveness, flexible markets, and the various ongoing reforms to support the business environment.

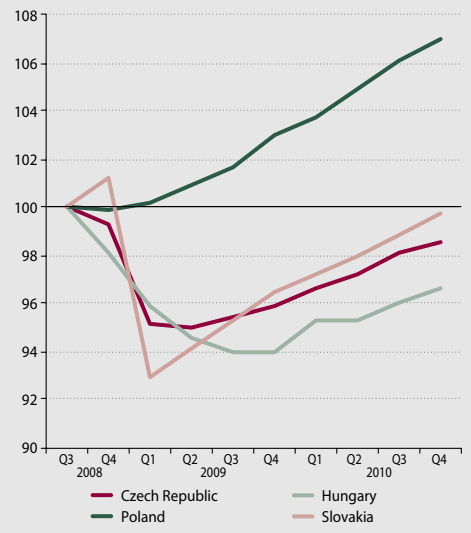
1.4 INTERNATIONAL FINANCIAL MARKETS

In 2010, global financial markets were dominated by fears about the sustainability of fiscal policies in euro area peripheral countries and the slowdown of growth in the global economy. The extent to which world financial markets support economic growth will not be significant in the near-term horizon.

Mounting sovereign risks and fears of financial contagion in the first half of 2010 brought the global financial system to the brink of another collapse at the beginning of May. In response, EU governments implemented several rescue measures and the ECB applied non-standard policies,[3] which together managed to stabilise the situation within a short time. From mid-2010, the risk aversion trend abated and investors restructured their portfolios by increasing the proportion of riskier assets. The US equity market in 2010 was boosted by strong corporate profits and approached its pre-crisis peak. The performance of European and Japanese equity markets lagged far behind, owing to investor fears about the soundness of the financial sector and about the sufficiency of external demand for the export-dependent economies (Chart 3). The best-performing equity markets were those in emerging Latin America and emerging Asia (Chart 4), which were boosted by inflows of foreign capital. Their volatility climbed to high levels in May amid turbulences related to the Greek bailout (Chart 5).

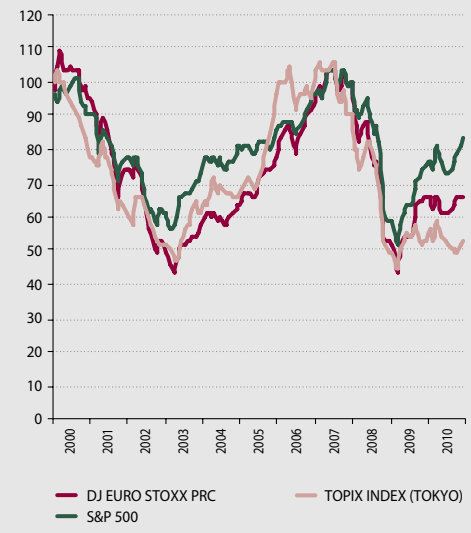
Prices of all significant commodities rose sharply (Chart 6). Base metal prices soared on the basis of strong demand from emerging countries and a slow supply response. Food prices were affected by the flood-related disruption of food supplies. Oil prices were driven up by better

Chart 2 GDP on a quarterly basis (index: Q3 2008 = 100)



Source: Eurostat.

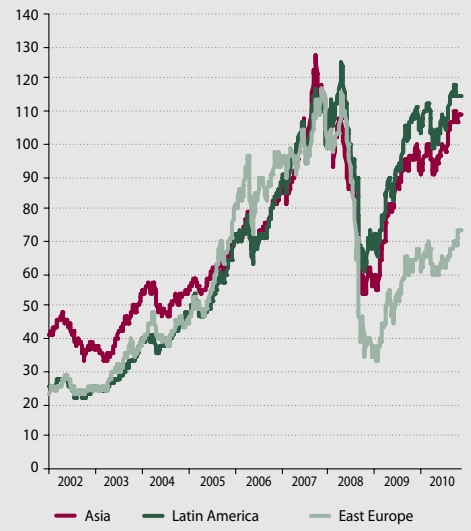
Chart 3 Advanced equity markets (monthly data; index: 2007=100)



Source: IMF – World Economic Outlook, April 2011.

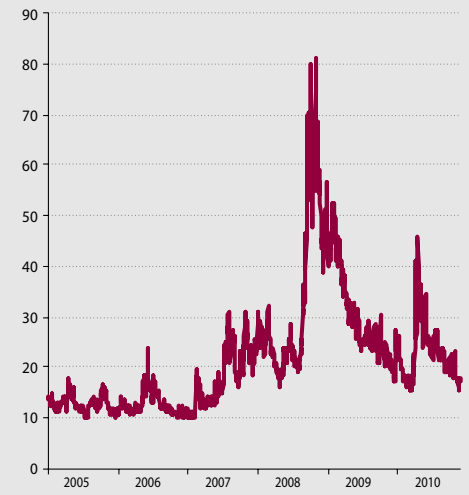
3 *For further details, see the Financial Stability Report for the First Half of 2010, http://www.nbs.sk/_img/Documents/ZAKLNBS/PUBLIK/SFS/SFS2010A-1.pdf*

Chart 4 Emerging equity markets (weekly data; index: 2007=100)



Source: IMF – World Economic Outlook, April 2011.

Chart 5 Implied volatility in equity markets measured by the VIX index (daily data; %)



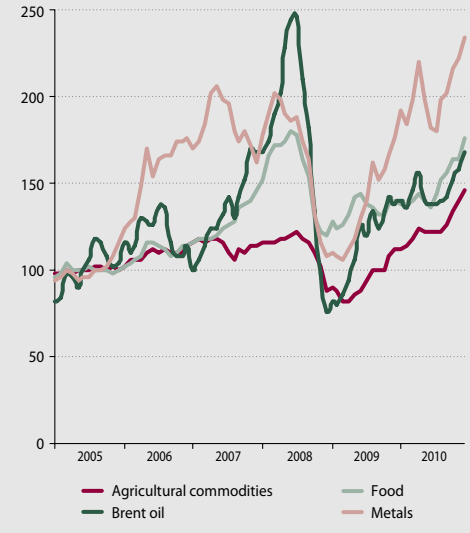
Source: CBOE
Note: The VIX is an index of volatility that measures the implied volatility of equity markets from option prices on the S&P 500 index. The VIX expresses the size of investors' risk aversion – a value of more than 20 indicates a high aversion to risk and a value of more than 50 indicates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

than expected macroeconomic conditions in the second half of 2010, by supply-side factors (OPEC responding with lower than expected extraction), and by quantitative monetary easing in the United States.[4] The weakening of the US dollar against almost all currencies in the second half of 2010 helped to some extent to dampen the full economic impact of high commodity prices.

As risk aversion fell in the second half of the year, interest rate spreads returned to low levels and government bond yields rebounded (Charts 7 and 8). From November 2010, when the Federal Reserve System announced the continuation of its quantitative easing programme,[5] interest on US government bonds with a maturity of 5 to 10 years increased by more than 100 basis points. Rates were also driven up by the fact that fiscal packages agreed to on 6 December 2010 were far more substantial then the markets had expected (worth USD 800–900 billion over a two-year horizon). Although this is contributing an estimated 0.3% to 1% to US GDP growth in 2011, it is also significantly increasing the risk that government bonds will sell off if measures to repair public finances are not taken in the medium-term horizon.

Unlike the Greek crisis in May 2010, the Irish crisis in the subsequent November did not spread to financial markets; nevertheless, interest rate spreads on government bonds and corporate CDS spreads in euro area peripheral countries remain at elevated levels (Charts 9 and 10).[6,7] This indicates that the vulnerability of euro area

Chart 6 Commodity price indices (USD; monthly data; 2005=100)



Source: International Financial Statistics.

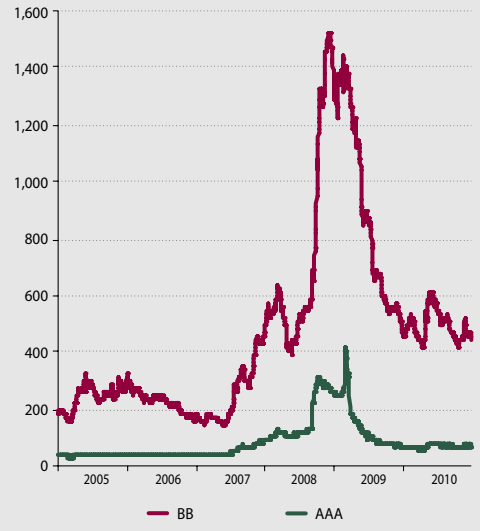
4 *From January 2011, oil prices rose also as a consequence of the civil unrest in North Africa and the Middle East. These developments also had a negative effect on investor sentiment in global financial markets during the course of March 2011.*

5 *QE2 – the Federal Reserve System is to purchase USD 600 billion of longer-term US Treasury securities by the end of June 2011.*

6 *Yields on Greek, Irish and Portuguese government bonds jumped up in March 2011 after the EU agreed on a new European Stabilisation Mechanism (ESM) – a permanent mechanism that is due to commence operation in mid-2013. Under the ESM, a euro area country might default and private investors will bear the related losses. The ESM will have a total subscribed capital of €700 billion (comprising paid-in/callable capital and government guarantees), which will allow it to borrow up to €500 million by issuing AAA-rated debt. Not only will the ESM be able to lend to the respective country, it may also, in exceptional cases, purchase bonds of this country in the primary market, subject to the consent of the country and to strict measures for supporting economic growth and budget deficit reduction.*

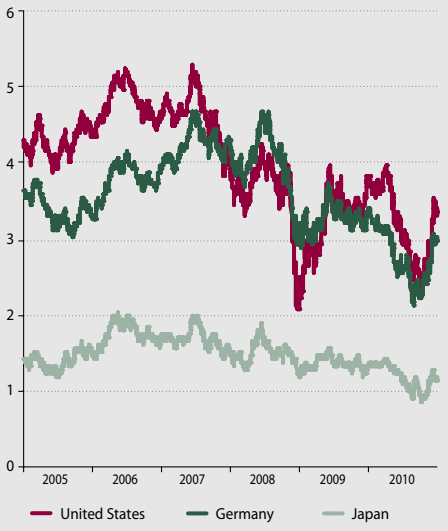
7 *On 7 April 2011, Portugal officially requested the EU and IMF for financial assistance. At the beginning of May 2011, it was agreed to provide Portugal with €78 billion over three years for financing the public debt and supporting the banking sector. As in the case of Ireland, the markets reacted relatively calmly to Portugal being bailed out with funds from the European Financial Stabilisation Mechanism (EFSM) – a temporary stabilisation mechanism initially established for the bailout of Greece.*

Chart 7 Interest rate spreads on corporate bond yields (daily data; average in United States and Europe for specific rating grades; basis points)



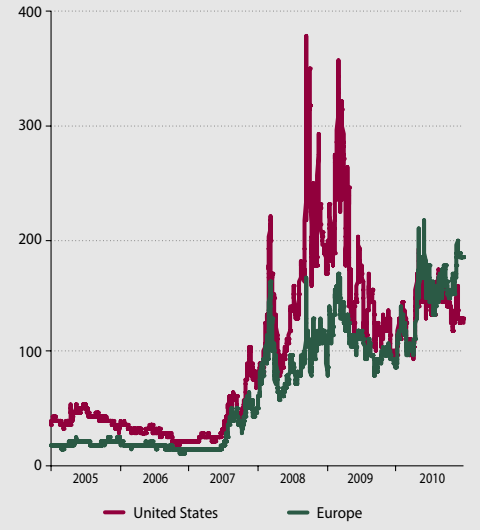
Source: IMF – World Economic Outlook, April 2011.

Chart 8 Yields on 10-year government bonds (daily data; %)



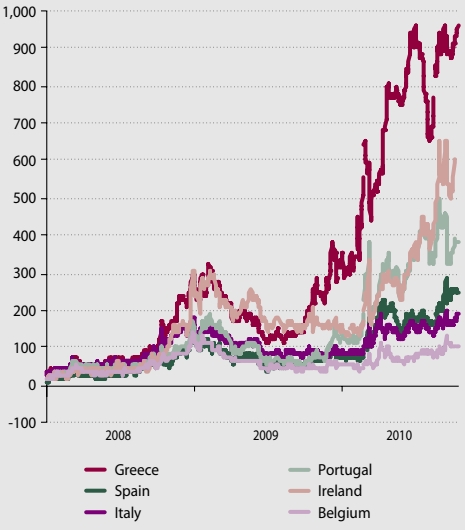
Source: IMF – World Economic Outlook, April 2011.

Chart 9 Bank CDS spreads (10-year; median; basis points)



Source: IMF – World Economic Outlook, April 2011.

Chart 10 Spreads between yields on government bonds issued by selected countries and German government bonds (basis points)



Source: Eurostat, NBS calculations.

periphery will remain elevated, as will the uncertainty surrounding the outcome of efforts to address the debt crisis in the euro area. Given that bank lending conditions in advanced economies are expected to improve only slowly, the changes in financial conditions will not be overly supportive to economic growth.

1.5 EU/EURO AREA BANKING SECTOR

The euro area banking system continues to face elevated risks and pressure to trim balance sheets.

The EU banking sector faces significant risks. At the national level, the banking sectors exposed

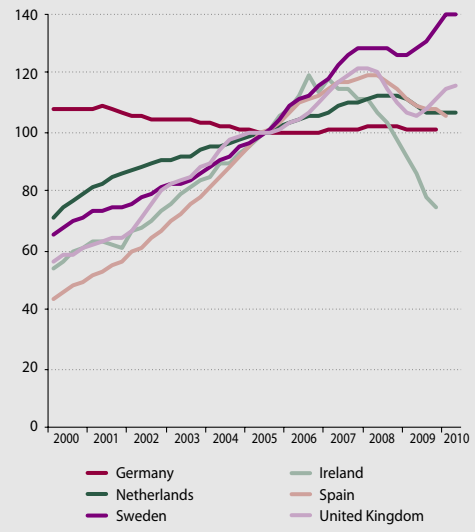
to the greatest risk are those in countries whose governments have severe financial difficulties. Rising sovereign risk premia and declining sovereign credit ratings are raising the cost of borrowing for these banks. At the same time, the banks hold a substantial amount of their domestic countries' debt, which is subject to high market risks in regard to the revaluation of these assets to fair value. Banks are facing elevated credit risks due to governments' austerity measures in order to repair public finances, which at the same time have a negative impact on the real economy and asset prices (especially real estate prices).

Banks from other EU countries also have a relatively high exposure to the EU periphery. The marking to market of these exposures does not give rise to large losses since the banks have, on average, up to 80% of the bonds in question in their held-to-maturity portfolios. These investments are, however, exposed to an elevated credit risk associated with the potential restructuring of the debts of the countries concerned. This risk is relatively high in certain countries – despite the existence of the European Financial Stability Facility (temporary or permanent) – due to negative outlooks for their potential GDP growth. This makes reducing the debt burden to a sustainable level far more difficult. For banks in other EU countries, the risk may be that investor fears spread to other assets of the periphery countries, for example covered bonds.

Among the other significant risks in the EU banking sector were credit risk exposures to the commercial real estate sector. Property prices in several EU countries have undergone a correction since 2008 (Chart 11), but uncertainty about their further movement persists, given the outlook for future economic developments. Banks also now face a strong risk of asset impairment in respect of consumer loans and loans to small and medium-sized enterprises.

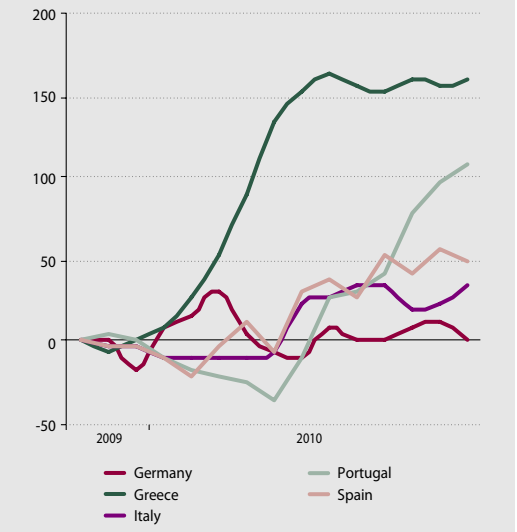
The banking sector also faces a high liquidity risk. The conditions under which banks may obtain long-term funding are particularly difficult, especially for banks based in countries that are perceived to represent a high default risk. There is little demand for bonds issued by the private sector in these countries; on the contrary, such assets are, in the circumstances, under pressure of being sold off by investors. The cost of refinancing is therefore rising sharply. In the period 2011–2012, European banks need to refinance long-term funds in the amount of around €1.35 billion, at the same that sovereign funding needs are rising. This increases the risk that bank bond issues will be crowded out, in which event yields would rise and weak banks would be shut out

Chart 11 Real estate prices (quarterly data; index: 2005 = 100)



Source: OECD.

Chart 12 Bank deposit rates (changes in basis points)



Source: IMF – Global Financial Stability Report, April 2011.
Note: The Chart shows deposit rates on new business up to one year.

of the market.[8] Even for sound banks, tensions in long-term funding markets are now being exacerbated by regulatory changes that require assets to be backed with longer-term funding. The supply of long-term funding to European banks may be further limited by new regulatory measures in the United States under which money market funds will only be permitted to invest in short-term securities. The European covered bond markets that banks customarily tap for long-term funding have a restricted absorptive potential owing to the limited supply of high-quality collateral for these type of bond issues. With banks stepping up their efforts to obtain more secure primary deposits, the prices of these funds are also rising (Chart 12).

Although the capital position of euro area banks continued to improve in 2010, banks in those countries that have financial difficulties will have to carry on increasing the amount and quality of their own funds in order to build up credibility.

The median value of the Tier 1 capital ratio for listed euro-area banks as at the end of 2010 was 10.6%. That represents a substantial improvement compared with the end of 2008, when the median value was below 8%. Nevertheless, the capitalisation of euro-area banks is weaker, and its improvement more modest, than that of banks in, for example, the United States or the United Kingdom. The improvement in the Tier 1 capital ratio was driven by increases in own capital from profits, the issuance of shares, and the slower rise in risk-weighted assets. Some banks, seeking to conform with the stricter regulatory capital framework that is due to be introduced under the Basel III accord, also undertook deleveraging, mainly by selling corporate securities and by reducing exposures to other financial institutions in the form of loans and securities. Those euro-area banks that face difficult conditions, particularly in relation to elevated sovereign credit risks, will have to press on in the deleveraging process and bolster the quality and levels of their own capital, so as to cushion themselves against potential losses. Certain euro-area banks are obliged to return in the near term the state assistance that they received through capital injections and questions are being raised about the sufficiency of their capitalisation.

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

The most significant negative risks in the short-term and medium-term horizons are:

- that sovereign risks in the EU periphery escalate and possibly spread to other segments of the financial market, including the banking sectors of advanced EU countries;
- that the banking sectors of advanced countries are slow in recovering;
- that emerging economies, including China, have a hard landing and experience sudden capital flight as a result;
- that further rises in prices of oil and other commodities have a substantial impact on real incomes and that, especially in emerging and developing economies, food and energy price increases start an inflationary spiral;
- that the implementation of fiscal adjustment plans in large advanced countries (the United States and Japan) is delayed.

The EU economy remains vulnerable due to substantial internal imbalances and structural problems for which an early solution cannot be expected.

Although the EU economy has a relatively favourable short-term outlook – largely due to the effect of positive external factors – its development cannot be described as sound. The financial stability of the euro area is under threat from excessive internal macroeconomic imbalances and from increasing divergence in economic growth. Solving these problems requires that Member States improve their fiscal discipline, that economies with current account deficits become more competitive, that conditions are created to increase the share of private consumption in countries with current account surpluses (particularly Germany), and that effective mechanisms are established to address sovereign defaults and cross-border financial crises in the EU and elsewhere. These questions are now occupying politicians, and progress was made last year in some areas concerning euro area governance. But some matters are politically demanding and time consuming, such as structural reforms in individual Member States aimed at strengthening the resilience of the euro area.

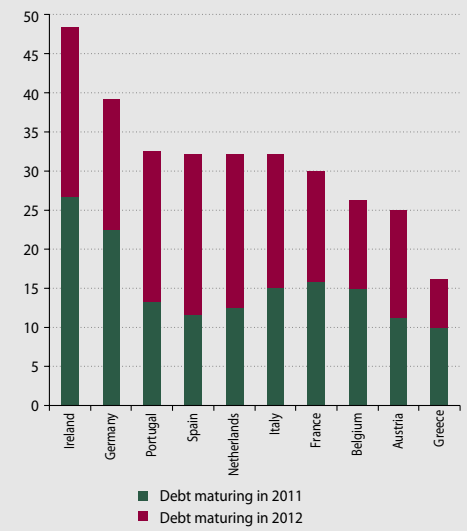
8 A large number of European banks are dependent on short-term central bank funding. In 2010, Eurosystem national central banks lent euro area banks €550 billion through refinancing operations, with €340 billion of that amount received by banks in Portugal, Ireland, Greece and Spain. The refinancing of banks through the Eurosystem may be complicated by the deteriorating credit ratings of the countries and banks concerned, i.e. certain assets may become ineligible for central banks to accept as collateral in Eurosystem credit operations.

9 The risks identified are marked by strong interconnection and a mutual feedback loop. This stems from the complex links between the real economy and the balance sheets of financial institutions, 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.

Refinancing of the EU banking sector is currently subject to extensive complications, notably the strong financial links between countries and the banking sector. The rise in tensions in the long-term funding market is caused by other factors, too (strong sovereign demand, Basel III).

At a time when financial markets have an elevated sensitivity to risks concerning the sustainability of the public finances of certain Member States, it is becoming evident that the soundness of public finances is an important factor in banking sector stability. Financial market tensions arising from heightened sovereign risks are pushing up interest rates on government bonds. As a consequence, financing costs are rising for banks (some banks have been completely shut out of interbank markets) and for the entire private sector in the countries concerned. Bonds issued by residents of these countries are being sold off in financial markets owing to the excessive volatility of their yields, high credit risks, and financial contagion risks. This is a critical situation given the large amount of long-term funding that banks will need to refinance in 2011 and 2012 (Chart 13). The substantial mismatch between supply and demand in the long-term funding market is also being exacerbated by the strong sovereign demand for such funding and the pressure from new banking regulatory regimes that require assets to be backed by longer-term funding. This situation is putting upward pressure on lending for households and enterprises. In the event of a more pronounced rise in aversion to sovereign risk, these mechanisms will continue to impair conditions for economic growth and financial stability in Europe.

Chart 13 Bank rollover requirement, 2011–2012 (In percent of total debt)



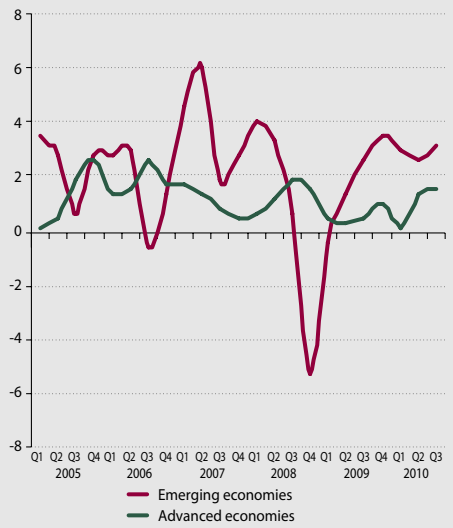
Source: IMF: Global Financial Stability Report, April 2011.

A combination of the still-high banking sector credit risks in advanced countries and the refinancing difficulties outlined above means that the conditions for financial stability are very fragile.

Analyses by the IMF show that the deleveraging process in advanced economies is progressing very slowly. The credit-to-GDP ratio is falling only gradually amid the slow increase in economic activity. However, the still-high amount of debt accumulated by households and enterprises in advanced countries is creating significant credit risks for banks and it makes them vulnerable to changing sentiment in financial markets. The most high risk credit assets include loans for real estate, loans to small and medium-sized enterprises and consumer loans. Banks are seeking to mitigate these risks by increasing their own capital. This process, however, is complicated by financial market tension brought on by higher sovereign risks. Persisting investor fears are pushing up equity and bond issuance costs. In such circumstances, banks may seek to deleverage more by adjusting the size of their balance sheets than by increasing capital. They will restrict the supply of new loans, which – at a time when borrowing demand remains weak due to persistently high private sector debt – will act as a further drag on the economic recovery in advanced countries. The reduction in bank balance sheets will accentuate the problems of excessive capacity in the banking sector, and competition for secure funding will put banks with weak business models under strong pressure. A key part of the solution to these problems is the consistent and credible implementation of fiscal consolidation plans, which must be supported with structural policies aimed at raising the potential output of the countries affected. It is also necessary to shed light on the situation in the euro area banking sector (for example, through credible stress tests)[10] and to restructure banking systems so that they are more secure, efficient and competitive.

10 The results of the latest stress tests of key European banks will be published in June 2011. They are expected to confirm the strong need for European banks to increase their own funds.

Chart 14 Net capital flows (percent of GDP)



Source: IMF – World Economic Outlook, April 2011.
Note: The data go up to the third quarter of 2010.

If emerging economies have a hard landing, the repercussions for the global economy and financial stability could be serious.

A further risk to the recovery of the global economy is that certain emerging economies of Latin America and South-East Asia, including China, could experience a hard landing. This risk is mounting due to the substantial foreign capital inflows that began in the second quarter of 2009 and the falling capacity of local economies to absorb them (Chart 14). The capital flows to emerging countries stem from the revival of investor confidence in this type of investment and from carry trades, i.e. the efforts of investors to achieve better returns on their capital rather than tolerate the extremely low interest rates in advanced countries. Rapid economic growth is also being driven by the advantageous terms of trade in commodity-exporting countries and accommodative monetary policies. The reaction of politicians in the countries concerned indicates that they are seeking to mitigate the risks of overheating economies, rising private sector debt, and increasing asset price bubbles. Investors, however, may have a different opinion on the adequacy of the various measures (in their view, for example, it may be better for certain countries to let their currency appreciate than to raise interest rates, which only attracts further capital inflows); this could give rise to sudden capital outflows and the bursting of bubbles in the property markets and credit markets of these countries. Since emerging countries have (according to the IMF) a 40% share in global consumption and a two-third share in global growth, such a turn of events would have serious consequences for the global economy and financial stability.

Another risk to the further recovery of the global economy is the continuing trend rise in prices of oil and other commodities.

A further rise in oil prices (WTI and Brent) to above the level of USD 100 per barrel will have a strong deflationary effect on global economic growth. The strongest upward pressure on oil prices is coming from a combination of factors: the relatively benign short-term outlook for the world economy; the liquidity surplus in risky asset markets driven up by (twofold) quantitative monetary easing in the United States; and geopolitical tension in North Africa and the Middle East. Rising input prices are squeezing producer margins, with the result that consumer prices and inflation are going up. As real incomes eventually decline and monetary policies are tightened more sharply in response (in both emerging and advanced countries), the effect may be to weaken demand and, in time, to undermine the recovery of the world economy. These factors will probably continue affecting oil prices in 2011, but they are expected to become less significant thereafter. The situation may, however, be seriously complicated by any spreading of unrest to Middle East countries that are significant producers of oil.

Fiscal sustainability risks may easily spill over to other large advanced countries. The effectiveness of monetary stimulation through quantitative easing is also waning, but there is the risk that its cessation will, given the bad condition of public finances, result in a sharp rise in long-term interest rates.

In the medium-term horizon the issue of fiscal sustainability and associated risks to financial stability concern also non-EU advanced countries. The additional fiscal stimulus package approved in the United States in December 2010 and the extensive injection of public funds into

the Japanese economy[11] is further complicating the process of securing fiscal sustainability in these countries. In the United States, the longer it takes to produce a credible strategy for medium-term fiscal consolidation in the United States, the greater the risk of a sudden and sharp hike in US interest rates.[12] The ultimate impact of such a development on global financial markets and the world economy would be very unfavourable. As inflation pressures mount, the scope for monetary stimulation through quantitative easing is also diminishing. Furthermore, this policy has undesirable spillover effects on financial stability by supporting riskier investments, strong capital inflows to emerging economies and rising commodity prices. While such policies may bring short-term benefits, the structural problems of economies and banking sectors cannot be addressed without the adoption of appropriate reforms. The fact, however, that the Federal Reserve System has stopped purchasing US government bonds, given the currently difficult fiscal situation in the United States, will most probably cause interest rates on these bonds to rise sharply. According to the IMF, the sensitivity of the United States and especially Japan to interest rate rises is considerable (greater than in most euro area countries), due to a combination of factors: high and rising public debt and low public revenues.[13]

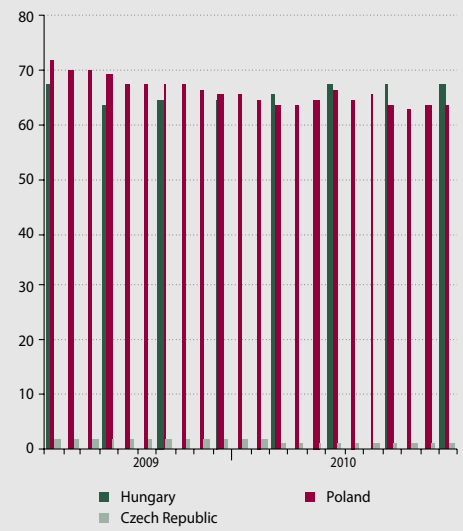
The economic and financial stability of the V4 region is determined by sovereign risks in the euro area periphery.

The greatest risk to financial stability and economic recovery in the V4 region in 2010 was euro area sovereign risk, and it will remain so in the near term. This is because the V4 countries have a strong economic dependence on the euro area economy (especially Germany) and there are close cross-border financial links between the banking sectors of the euro and the V4 countries. It is highly likely that financial market turbulences in the countries of the region will make a return if there is again a widespread lack of confidence in financial markets in the euro area and elsewhere in the world.

The elevated vulnerability of the Polish and Hungarian banking sectors persists due to their still-high share of foreign currency loans.

Despite measures taken by the competent authorities, a high share of the loans extended in Poland and Hungary are denominated in foreign

Chart 15 Foreign currency housing loans as a share of total housing loans (%)



Source: MNB, PBN, ČNB.
Note: The data for Hungary are quarterly. In Poland, almost 90% of the foreign currency housing loans are denominated in Swiss francs.

Chart 16 Nominal exchange rate of V4 countries' 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 30.160 SKK/EUR.

11 The Japanese public finances have in addition been heavily burdened by response measures to the earthquake and tsunami that hit the country in March 2011. The negative macroeconomic effects of this event will most probably be confined to the short-term horizon, while the process of rebuilding the shattered infrastructure is expected to have positive effects in the longer term. The intensity of the adverse effects will depend on the length of drop-offs in industrial production and exports resulting from the extensive damage to nuclear power plants.
12 The IMF estimates that the US fiscal deficit for 2011 will be at 10.8% (more than twice as high as the euro area fiscal deficit) and that the gross government debt to GDP ratio will be 110% in 2016.
13 IMF – Global Financial Stability Report, April 2011, page 21 (Chart 1.21).

currency (Chart 15).[14] The main reason for the rising share of foreign-currency financing in the pre-crisis period was the favourable interest rate differential. The high volatility of these countries' currencies (Chart 16) is contributing to the fact the large stock of unsecured foreign exchange loans is a source of the banking systems' elevated pro-cyclicality and of systemic risk. Depreciation of the domestic currencies is increasing the debt servicing costs of borrowers (during the crisis, these costs were to a certain extent offset by the decline in interest rates on the relevant foreign currencies), and this is reflected in the rising credit risk of local banks as well as of their non-resident parent undertakings. In addition to this risk there may be added liquidity risk (as was the case during the peak of the financial crisis). Since domestic banks do not have sufficient foreign currency funding, they rely on market financing, mainly from their parent undertakings. The funds in question are mostly short-term, which increases the maturity mismatch between assets and liabilities of domestic banks and contributes to systemic risk. In addition, any devaluation in the local currencies will lead to a rise in risk-weighted assets and hence an increase in capital requirements. In certain circumstances, a relatively substantial depreciation of local currencies may, through wealth effects, have an adverse impact on other markets (e.g., the real estate market or equity market) and on macroeconomic performance. Although the financial markets in the relevant countries of central and eastern European are currently calm (investors are paying more attention to euro area sovereign risks), the recent cases of financial market instability spilling over from one EU country to another should increase the urgency for finding a solution to the foreign currency lending issue, which would be best tackled at the EU level.

14 In the Czech Republic, foreign currency housing loans as a share of the outstanding amount of housing loans represented only 1.06% as at the end of 2010.

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

Domestic macroeconomic conditions improved in 2010 and the Slovak economy returned to a growth trajectory. The structure of domestic economic growth in 2010 was dominated by an increase in net exports, thus confirming the economy's dependence on external demand for Slovak exports and on economic conditions in trading partners. The determining factor of future development will be demand and its quality. Depending on this, the growth potential of the Slovak economy may accelerate in the medium-term horizon. NBS expects that economic activity will continue growing in 2011, but more slowly than in 2010 owing to fiscal consolidation measures.

The rebound of business confidence and rise in corporate profitability in 2010 resulted in growing investment demand. Lending to non-financial corporations also picked up.

A positive aspect is that a trade balance surplus was maintained amid the recovery and that the current account deficit increased only slightly. The external debt of the private sector declined, while the increase in the national economy's indebtedness was due to developments in the general government sector. Public finances were problematical in 2010 since the expected commencement of fiscal consolidation measures did not materialise, the general government deficit remained very high, and public sector debt continued to rise.

Because Slovakia retained the confidence of the markets during the crisis of confidence in other sovereign states, it was able to borrow funds under relatively favourable conditions and the spreads on Slovak government bonds were not significantly affected. The major credit rating agencies rate Slovakia at A+[15] with a stable outlook.

The Slovak economy returned to a growth trajectory in 2010.

Real GDP for 2010 increased by 4% year-on-year, driven up mainly by external demand. Domestic demand grew largely as a result of the inventory cycle and investment demand, amid stagnating domestic consumption and general government final consumption. Since the economic recovery did not begin to pass through to the labour market until the end of the year, the labour productivity growth recorded in 2010 was based on a combination of GDP growth and falling employment. Unit labour costs fell, since the rise in real labour productivity exceed the increase in real wages. The Slovak economy was operating below its potential in 2010, and NBS expects it to return to its potential in 2013[16].

Historically low inflation gradually increased.

The low annual inflation rate – it was in negative territory in the first months of the year – increased during the course of 2010. It is assumed that inflation will rise quite markedly in 2011, given the recovery in economic activity in the domestic environment as well as the effect of tax changes and sharper rises in prices of food, com-

Chart 17 GDP (annual percentage change)

Source: SO SR; EC–Economic Forecast, Spring 2011.
1) EC forecast.

15 Rated A+ by S&P, A1 by Moody's, and A+ by Fitch.
16 NBS Medium-Term Forecast (MTF-2011Q1).

Chart 18 Labour productivity and wages (annual percentage changes)

Source: SO SR.

modities and energy-producing raw materials in global markets.

Weakening of the euro and low inflation helped to maintain favourable price competitiveness.

The price competitiveness of Slovak exports, as measured by the index of the nominal effective exchange rate (NEER), improved in 2010. The depreciation of the NEER, combined with the effect of a negative inflation differential compared with a majority of relevant trading partner countries, led to a weakening of the real effective exchange rate. Another positive aspect is that the market share of Slovak exports in EU imports was not adversely affected by the crisis.

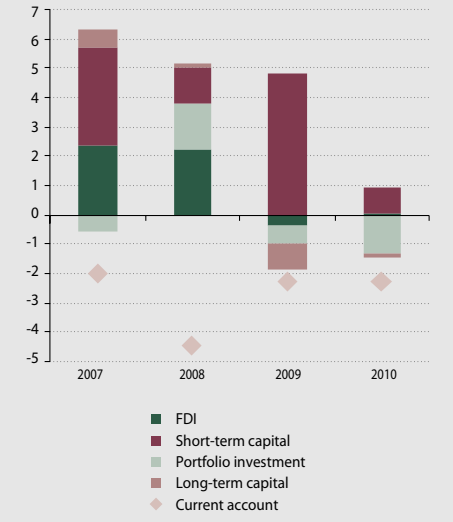
Current account balance remained largely unchanged.

The current account deficit for 2010 fell slightly year-on-year, to 3.5% of GDP. The trade balance surplus was preserved, albeit at a lower level (0.2% of GDP) than in 2009, with the amount of imported and exported goods both recording growth. Deficits in the services balance and current transfers balance were reduced, while the income balance recorded a marginal deterioration (the rise in dividend payments to foreign investors was offset by interest income in the NBS sector).

The inflow of funds to the capital and financial account continued to decline.

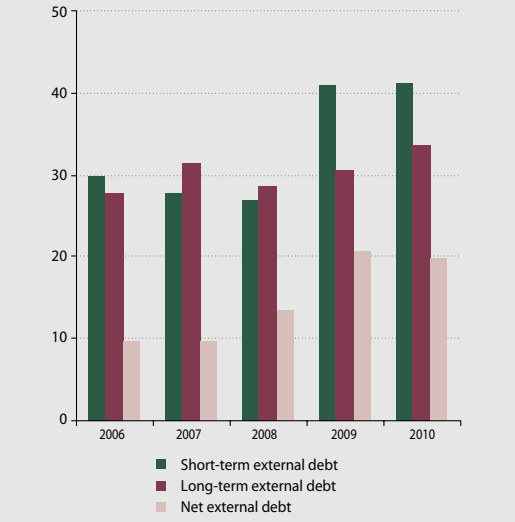
The surplus in the capital and financial account fell to €538.4 million. FDI inflows picked up largely through increased liabilities to parent undertakings, while non-resident investments in the form of equity capital declined. The net outflow of funds

Chart 19 Current account deficit coverage (EUR billions)



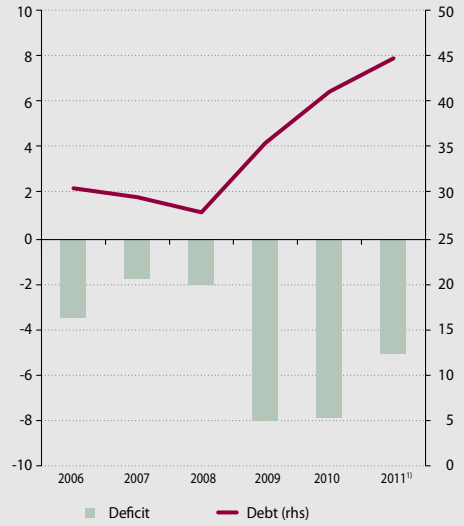
Source: NBS.

Chart 20 External indebtedness (% of GDP)



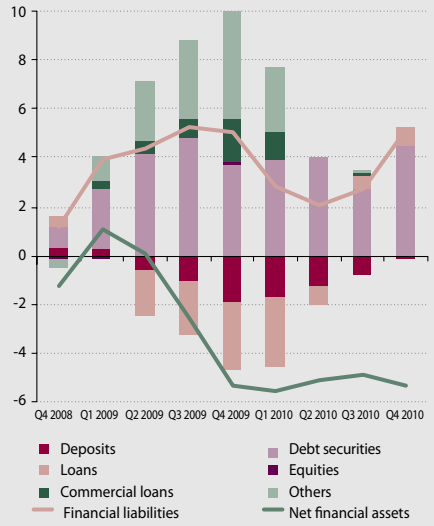
Source: NBS.

Chart 21 General government deficit and debt (% of GDP)



Source: SO SR, EC.
1) EC forecast.

Chart 22 Liabilities of general government (EUR billions)



Source: NBS, quarterly financial accounts.
Note: Cumulative transactions over four quarters.

in the portfolio investment category was caused mainly by rising demand among residents for foreign securities and by lower non-resident demand for government securities. The inflows recorded under the category of other short-term investment stemmed from the repayment of loans that NBS had received from the Eurosystem through TARGET2. The introduction of the euro triggered an outflow of non-residents' short-term deposits from accounts held with banks in Slovakia.

Trend rise in external indebtedness continues.

Gross external debt increased in 2010 and by the year-end stood at 74.8% of GDP. Short-term debt as a share of total gross external debt declined to 55.1%. The debtor position of Slovakia vis-à-vis the rest of the world declined marginally in net terms.

The plan to commence fiscal consolidation in 2010 was not realised.

The general government budget deficit for 2010 stood at 7.9% of GDP, again exceeding the budget target (of 5%). The government has set itself the challenging goal of bringing the public deficit to below 3% of GDP in 2013.

Government borrowed without difficulty

The government's annual borrowing in 2010 was its highest ever, at €9.5 billion. Of that amount, the government obtained €7.044 billion from the sale of bonds and the rest from the sale of Treasury bills and loan with a maturity of up to one year. The Debt and Liquidity Management Agency (ARDAL) made two benchmark bond issues (10-year and 15-year). Despite turbulences in European markets Slovakia obtained funds under very favourable conditions: the average interest rate on bonds issued in 2010 was 3.5% p.a. The risk premium on Slovak bonds had a slightly rising trend.

As regards the structure of general government borrowing in 2010, most of the funding was obtained through long-term debt securities; the proportion obtained through short-term funding markets increased modestly.

Box 1

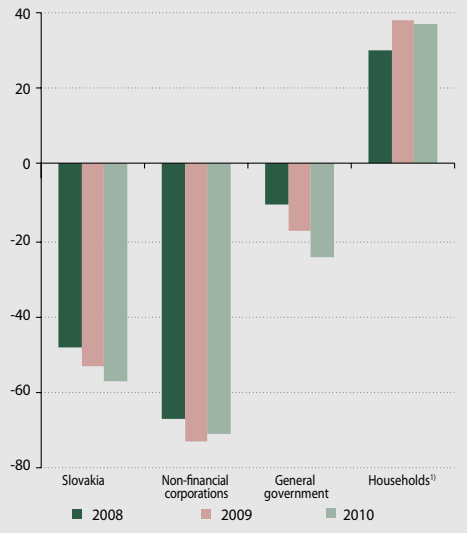
THE DEBTOR POSITION OF THE SLOVAK ECONOMY'S SECTORS IN 2010

The overall indebtedness of the Slovak economy at the end of 2010 represented 57% of GDP (€37.6 billion). The net debt of the non-financial corporate sector declined, and the debt of the general government sector increased (the financial institutions sector had an almost balanced position). The net credit position of the sector of households and non-profit institutions serving households (NISH) fell slightly in relatively terms.

Chart A Stocks of financial assets and liabilities (EUR millions)

Source: NBS.
1) Households and non-profit institutions serving households.

Chart B Net lending/borrowing (% of GDP)



Source: NBS.
1) Households and non-profit institutions serving households.

2.2 MEDIUM-TERM RISKS FROM THE DOMESTIC MACROECONOMIC ENVIRONMENT

The potential risks to financial stability in the domestic environment are related mainly to:
- developments in public finances,
- the economy's growth potential being lower than expected.

Risks from the domestic macroeconomic environment are persisting

The national economy returned to growth in 2010, which helped stabilise the financial position of (some) non-financial corporations. There has not yet been substantial pass-through of the recovery to household incomes. A positive aspect is that Slovakia had a relatively short-lived recession compared with other euro area economies. Despite operating in demanding conditions, the financial system in Slovakia remained stable.

The risks arising from the deteriorating position of public finances in Slovakia are persisting. The situation in the near-term will be determined by the consolidation of public finances, which, depending on its scope and timing, will cause a negative demand shock with repercussions for household disposable incomes (and possibly also unemployment) and for corporate costs.

It is important for the consolidation of public finances that the economy potential picks up to a certain extent. If the growth in potential slows, it will become more difficult for the country to keep debt ratios stabilised. Debt reduction must

to a greater extent be achieved with primary balance contributions and interest payments.[17] Revisions to the potential reveal that the assessment of the pre-crisis structural position was overly optimistic and that the general government deficit is largely a structural problem. This means that a further recovery may help reduce the deficit to a limited extent only. Tax revenue losses may be permanent or long-term, since, during the boom, several streams of tax revenue (from financial assets, property) temporarily increased the revenue side of the budget.

It is, however, essential that the sector's balance sheets are repaired. Slovakia, as a small economy, is also exposed to the risk of asymmetric market responses to developments in smaller economies, since markets have a tendency to react more sensitively to deficits in small countries, even where the fundamentals are relatively sound.

17 The debt position of the general government sector is discussed in Annex 2.

CHAPTER 3

NON-FINANCIAL CORPORATE AND HOUSEHOLD SECTORS

3

3 NON-FINANCIAL CORPORATE AND HOUSEHOLD SECTORS

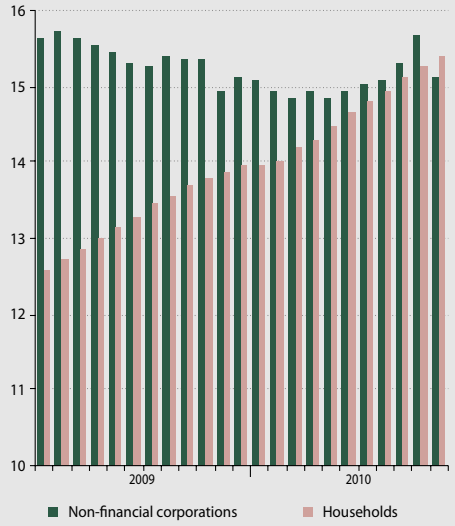
The domestic banking sector's financing of non-financial corporations (enterprises) and households picked up in 2010, although the situation in lending to enterprises was relatively heterogeneous. Lending growth was most pronounced in the second half of the year, when banks also increased their lending to non-financial corporations. Lending growth to households increased in 2010, with the new loans comprising mainly housing loans and to a lesser extent consumer loans.

3.1 NON-FINANCIAL CORPORATE SECTOR

The majority of business confidence indicators returned to pre-crisis levels.

The upturn in sentiment was maintained in the sectors of industry, services, and retail trade. In the construction sector, by contrast, the business climate assessments remained pessimistic. The majority of other short-term indicators also suggest a continuation of the economic recovery.

Chart 24 Outstanding loans to non-financial corporations and households (EUR billions)

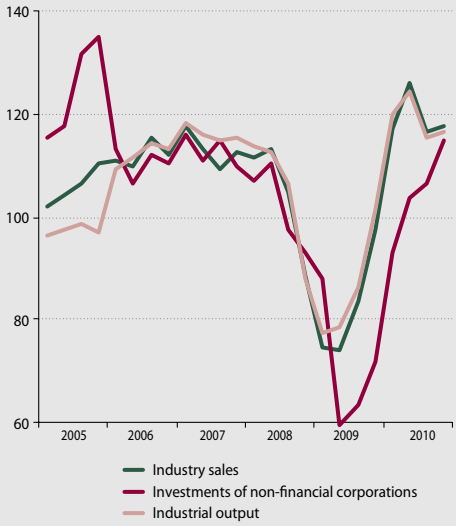


Source: NBS.

Chart 23 Investments of non-financial corporations and households (index: same period of the previous year = 100)

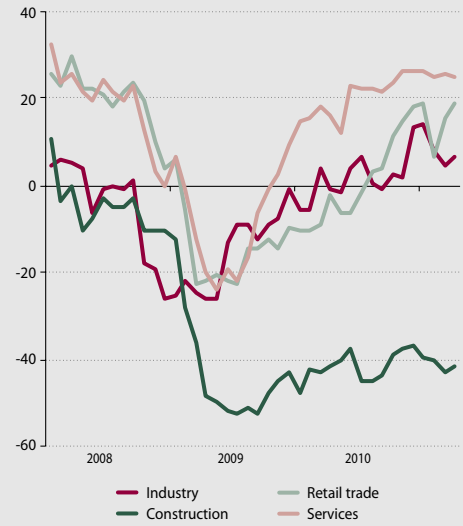
Source: Eurostat, SO SR.

Chart 25 Output, sales and investment (index: same period of the previous year = 100)



Source: SO SR.

Chart 26 Business tendency indicators



Source: Eurostat.

As the economy recovered, profitability returned to growth.

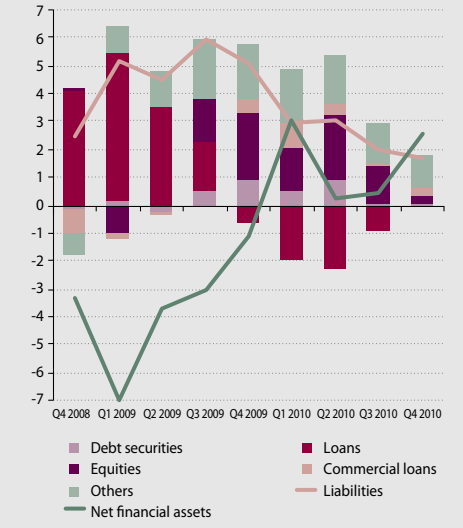
The overall profits of non-financial corporations rose by 30.4% in comparison with 2009, to €8,590 million. The largest share of total profits was recorded by enterprises in the sectors of manufacturing, electricity and gas supply, and trade. With the business environment becoming more conducive to the implementation of investment plans, there was a revival in investment activity and borrowing demand.

Non-financial corporations reduced their indebtedness.

As a result of the economic crisis, corporate balance sheets had to be adjusted. Non-financial corporations faced increasing difficulty in obtaining external financing, and this was reflected in a decline in the sector's debt-to-GDP ratio as well as in its ratio of its liabilities to financial assets.

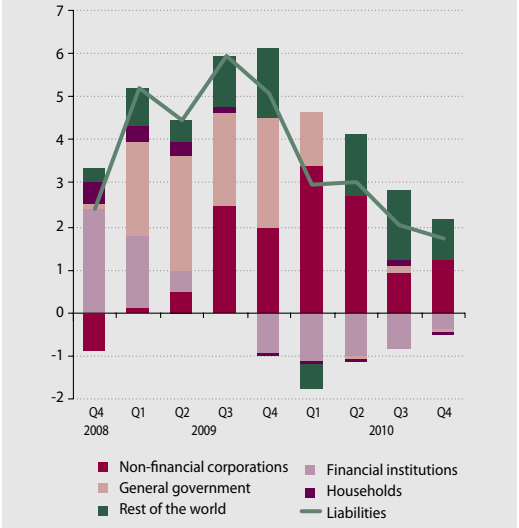
As regards the financing structure of non-financial corporations, an increasing proportion of their funding was obtained through the issuance of market instruments, mainly equity securities. Debt financing was lower than in the past, as enterprises opted for debt security issues and commercial loans and reduced their loan liabilities. However, the enterprises that are able to raise finance from diverse sources are mainly large corporates and firms under international ownership. Small and medium-sized enterprises are dependent on loans to a greater extent. Compared with the previous year, a smaller proportion of funds were borrowed from creditors in the domestic economy, mainly financial institutions. The share of inter-corporate lending increased.

Chart 27 Financing of non-financial corporations by instrument (EUR billions)



Source: NBS, quarterly financial accounts.
Note: Cumulative transactions over four quarters.

Chart 28 Financing of non-financial corpations by sector (EUR billions)



Source: NBS, quarterly financial accounts.
Note: Cumulative transactions over four quarters.

3.2 HOUSEHOLD SECTOR

The economic situation of households in 2010 was affected by the sluggish improvement in the labour market and by the stagnation of disposable income.

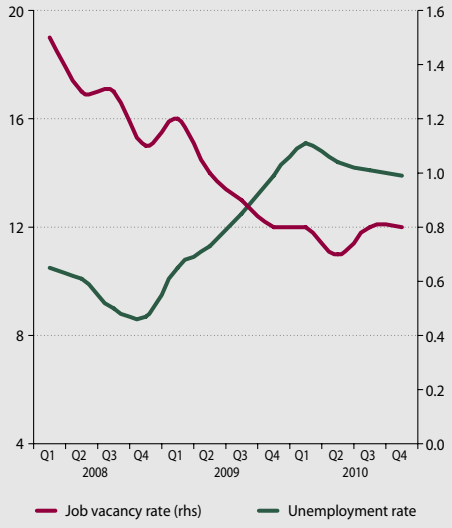
Consumer confidence recovered to some extent in the first half of 2010, only to slide back again in the second half of the year amid rising fears about the country's projected economic situation and about the future financial position of households. The situation in the labour market improved modestly as the year wore on; the unemployment rate declined and the supply of job vacancies rose slightly.

The gross disposable income of households stagnated. As for primary income, a crucial element in the repayment of household liabilities, it recorded a slighter higher rate of growth. After rising during the recession period, the household savings ratio stopped increasing in 2010. Households were cautious in their investment decisions, as the stagnation of the investment ratio indicated. In a low-inflation environment, the modest rise in nominal wages passed through to a small increase in real wage growth.

Chart 29 Savings rate and investment rate (% of GDI)

Source SO SR, NBS calculations.
1) Year-on-year changes.
2) Not including pension funds.
Note: GDI – gross disposable income
savings rate and investment rate – annualised.

Chart 30 Unemployment and job vacancy rates (%)



Source: SO SR.
Note: Job vacancy rate = number of job vacancies / (number of occupied posts + number of job vacancies).

Household indebtedness

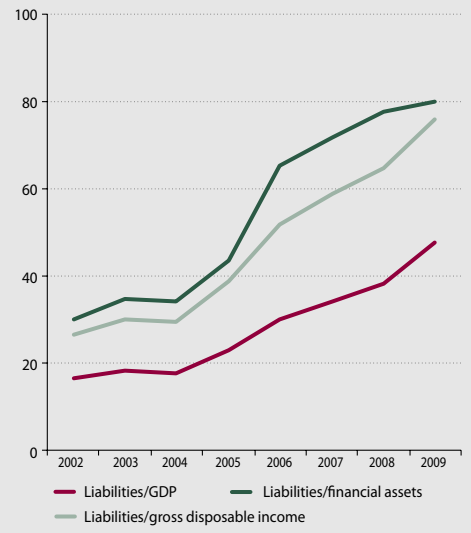
The accumulation of savings in 2009 was affected by the slower rate of borrowing, as measured by the ratio of liabilities to financial assets. At the same time, however, the moderation of disposable income growth caused a deterioration in the ratio of liabilities to gross disposable income.

The ability of households to service their debts (liabilities) on a regular basis was satisfactory at the aggregate level, with the ratio of loan repayment liabilities to disposable income standing at 26%.

The increase in financial assets was lower than in 2009. As regards the structure of household financial assets, the proportion of higher-risk assets began rising again, as their rates of return rebounded. The amount of term deposits also increased, mainly in the second half of the year.

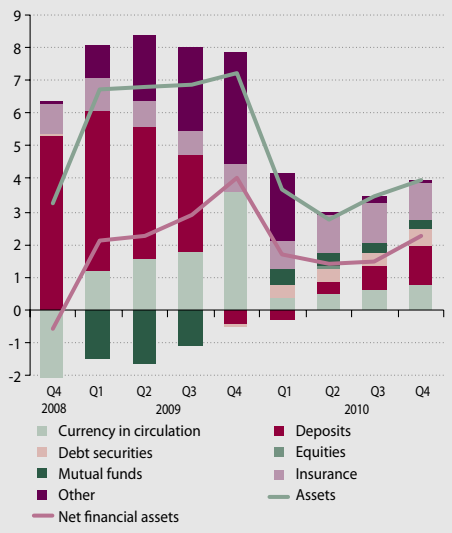
A proportion of households took advantage of low interest rates to refinance debts taken on in the past. In the second half of the year there was also an increase in new lending. With interest rates falling, households had an incentive to make greater use of longer interest rate fixation periods. The cautious approach of households to consumption expenditure was accompanied by a lower demand for consumer loans.

Chart 31 Household debt ratios (%)



Source: SO SR, Eurostat.

Chart 32 Household financial assets[1)] (EUR billions)



Source: Eurostat.
1) Households and non-profit institutions serving households.
Note: Cumulative transactions over four quarters.

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

Since the banking sector is focused on lending to non-financial corporations and households, banks are highly exposed to credit risk on such loans.

The medium-term risks relate mainly to:
- the financial position of non-financial enterprises focused on the domestic economy;
- the budgetary strains of indebted households;
- consumer demand slackening due to the repercussions of fiscal measures on household disposable income.

Medium-term risks persist in the non-financial corporate and household sectors.

Exported-oriented non-financial corporations were able to generate balance-sheet profits and reserves in 2010. As for enterprises focused on the domestic economy, their position remains difficult owing to low consumer demand.

Although the household sector balance sheet in 2010 did not represent a significant risk to financial stability, the fact that the domestic banking sector is increasing its credit exposure to households may in future make it more susceptible to household credit risk.

The labour market has yet to recover to the extent necessary to bring about an improvement in the financial position of households. It appeared in 2010 that households still lacked capacity to accumulate savings, given the stagnation in disposable income growth and the need to cover necessary expenditure. If household income growth fails to accelerate, low consumer demand may continue to subdue profits in those industries that depend on domestic household consumption.

CHAPTER 4

FINANCIAL SECTOR DEVELOPMENTS AND RISKS

4

4 FINANCIAL SECTOR DEVELOPMENTS AND RISKS

Conditions in the Slovak financial sector were more benign in 2010 than in 2009. This was reflected in the amount of assets managed by institutions regulated by Národná banka Slovenska which increased year-on-year by 5.1%, to €72.7 billion. The highest annual growth was reported by pension funds and collective investment funds (Chart 33). Asset growth in the banking sector picked up again in 2010, after declining sharply in 2009 due to the impact of the economic crisis and the changeover to the euro (an outflow of surplus short-term deposits of foreign banks). The pace of growth in banking sector assets in 2010 lagged far behind its levels recorded from 2005 to 2008. Profits in the financial sector showed a year-on-year improvement in 2010. The only exception was the insurance sector, whose profits fell slightly in year-on-year terms.

4.1 THE BANKING SECTOR

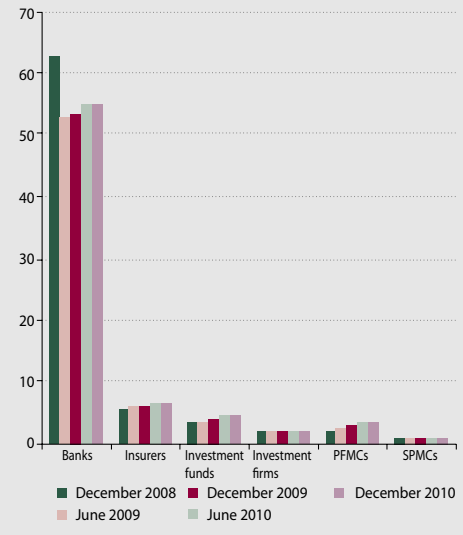
In 2010, the profitability of the banking sector as measured by return on equity (ROE) was twice as high as in 2009, when the sector's profits slumped. Even so, the profitability of the banking sector in 2010 remained far below its pre-crisis levels. The sector was more heavily oriented on households, and the increasing competition among banks was reflected in both their lending and deposit-taking activities. Corporate financing stagnated and banks preferred investment in securities, mainly those issued by governments. Stress testing confirmed significant resilience of the banking sector to shocks. Corporate risks still dominate, although certain banks reported a higher sensitivity also in respect of loans to households.

4.1.1 MAJOR TRENDS IN THE BANKING SECTOR BALANCE SHEET

Housing finance market recovered in the course of 2010.

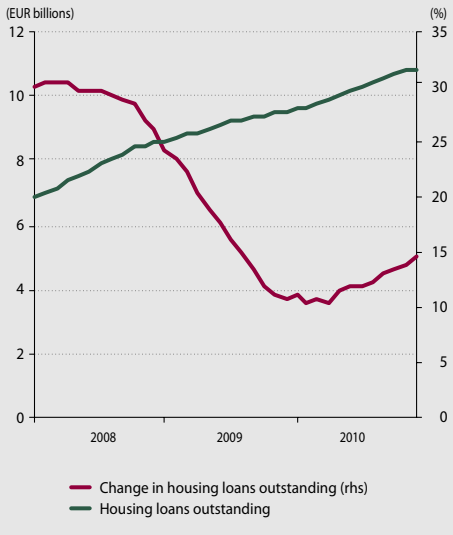
The further acceleration in the housing loan growth was driven by a considerable increase in the amount of new loans (Charts 34 and 35). In early 2010, the substantial rise in new loans was only moderately reflected in the stock of loans as the new loans were predominantly used for refinancing old loans while interest rates were low.

Chart 33 Amount of assets or managed assets by financial market segment (EUR billions)



Source: NBS.

Chart 34 Housing loans to households (EUR billions; %)

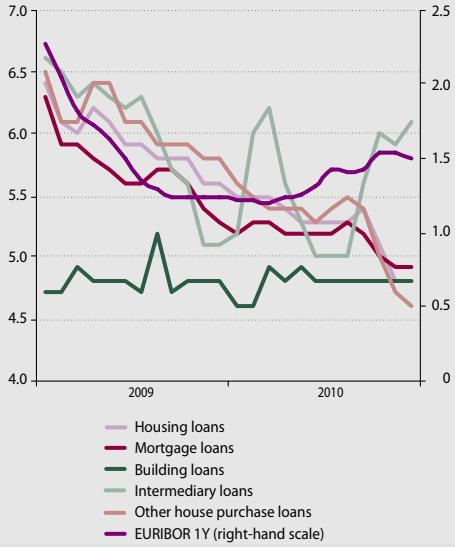


Source: NBS.

Chart 35 New mortgage loans and other housing loans (EUR millions)

Source: NBS.

Chart 36 Interest rates on new housing loans (%)



Source: NBS.

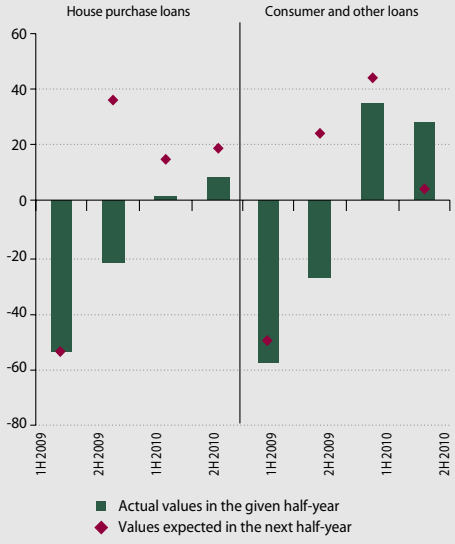
Supported by favourable conditions, the refinancing trend continued in the second half of 2010, but the amount of new housing loans for the direct purchase of property started to increase more significantly. This was reflected in the increased number of transactions for new apartments, particularly in the last quarter of 2010.

Intense competition among banks translated into lower interest rates, while the easing of credit standards supported customer demand for new housing loans.

The average weighted interest rate for the banking sector fell relatively sharply, even as interbank rates went up in the same period (Chart 36). This development was inconsistent with the rate-setting behaviour of banks over the long term. Competition among banks for customers thus intensified in the second half of 2010, which was reflected in the loosening of standards for collateral.[18] The easing of lending standards for loans to households had a more general character in the second half of the year (Chart 37). Competition among banks intensified, probably because those banks that had lost market share during the crisis in the first half of 2009 began trying to claw it back as soon as the macroeconomic situation stabilised. The behaviour of customers also changed, as they became far more discriminating between the different interest rates offered by different banking groups.

Increased competition among banks was also reflected in household deposits whose structure changed in favour of term deposits with longer maturities.

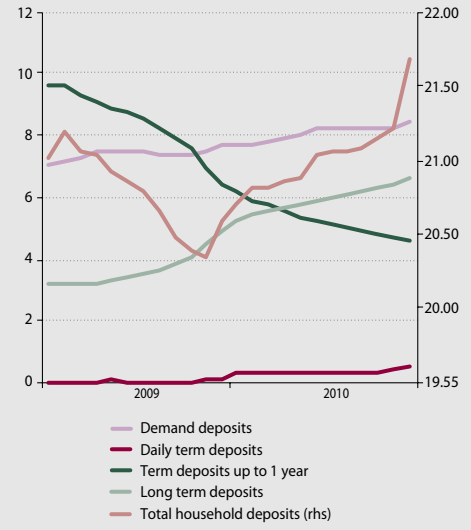
Chart 37 Credit standards for loans to households



Source: NBS.
Note: Data are given as a net percentage share, with a positive value indicating an easing of standards. Changes in standards express the subjective view of banks.

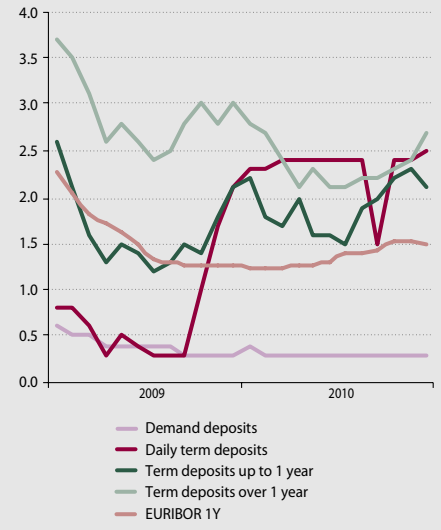
18 Several banks increased the amount of new loans that have a loan-to-value (LTV) ratio of between 80 % and 100 %.

Chart 38 Household (resident) deposits in the banking sector (EUR billions)



Source: NBS.

Chart 39 Interest rates on new household deposits (%)



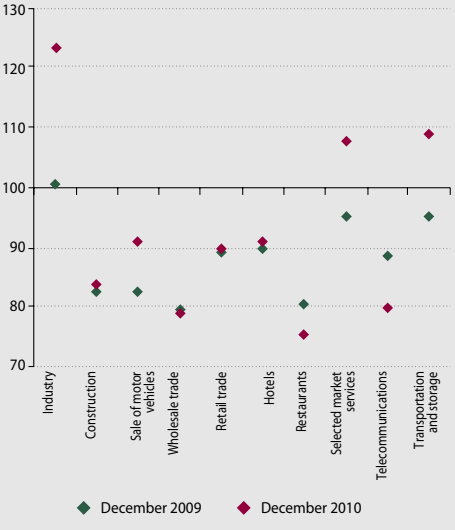
Source: NBS.

In 2010, bank customers were attracted to term deposits with a longer interest rate fixation period (Chart 38). By contrast, demand for term deposits with an agreed maturity of up to one year had a declining trend. A substantial increase was seen in a new segment of term deposits – overnight deposits – dominated by one smaller bank. These changes in the structure of term deposits resulted from rising competition among banks as reflected in their interest rate policies. The rise in deposit rates was substantial and it occurred before the increase in interbank market rates (Chart 39). Similarly to loans, this behaviour was inconsistent with the long-term behaviour of banks in setting household deposit rates. The main gainers from the sector's growth in the second half of the year were small banks, which saw their market share approach that of medium-sized banks.

The improvement in the economic situation of firms in 2010 had little effect on their demand for loans, which may also relate to a rise in corporate financing from abroad. The approach of domestic banks to corporate loans remained cautious: the total amount of loans further stagnated.

Reflecting the macroeconomic upturn in 2010, several sectors reported higher sales. Only a few sectors, however, saw a return to pre-crisis levels (Chart 40). A decline in spare capacity in industry created conditions for higher demand for further sources of financing. The rise in demand for corporate loans was counterbalanced by tendency to replace, in corporate balance sheets, external financing by own funds from abroad.[19] The result was a partial revival in loan demand from large firms as well as small and medium-sized enterprises. On the other hand, bank credit standards were only slightly modified, and remained tight at the end of 2010

Chart 40 Comparison of sales in selected sectors with 2008 (index: Dec. 2008 = 100%)



Source: SO SR.

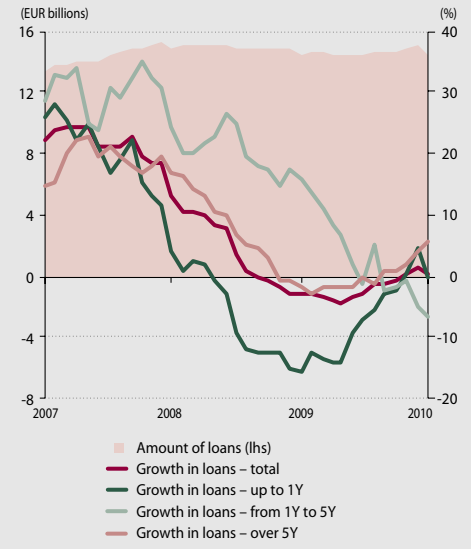
19 This deleveraging was a way of repairing balance sheets impaired by the financial crisis.

Chart 41 Credit standards for new loans to enterprises

Source: NBS.
Note: Data are given as a net percentage share, with a positive value indicating an easing of standards. Changes in standards express the subjective view of banks.

(Chart 41). As a result, the total amount of loans to enterprises rose by only 0.4% in 2010, thus stagnating for the second consecutive year (Chart 42). In 2010, banks also remained cautious about supplying housing loans, which before the outbreak of the crisis had been among the fastest-growing segments in loans to non-financial corporations.[20]

Chart 42 Loans to enterprises (EUR billions; %)



Source: NBS.

Corporate deposits remained flat. Within corporate financial assets, the amount of assets invested abroad climbed.

The amount of corporate deposits has remained almost unchanged in 2010. As a share of total corporate financial assets, the amount of assets invested abroad climbed from 16% to 20%. These investments predominantly comprised loans to non-residents, probably as intra-group transactions. As for movements in corporate demand for deposit accounts, it can be interpreted from the long-term view as a consequence of changes in the liquidity management of groups to which domestic enterprises belong.

The amount of loans provided to non-resident enterprises increased in 2010, whereas loans to financial intermediaries further declined.

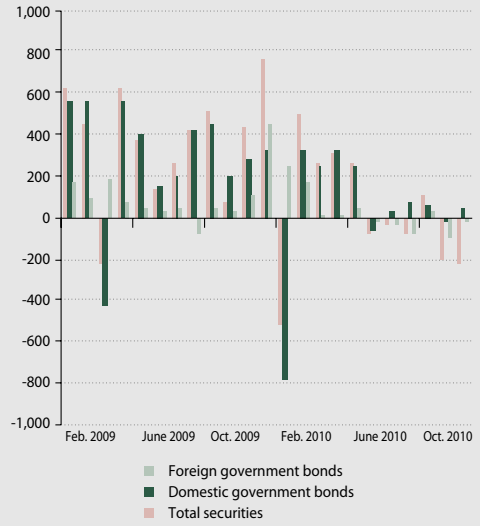
Almost solely in the first two months of 2010, a significant rise in the amount of loans to foreign corporates was registered. However, only certain banks were involved in these developments. The negative trend in loans to other financial intermediaries continued. By the end of 2010, the stock of loans to financial intermediaries was at the level reported in the first half of 2004. The situation among banks, however, was relatively heterogeneous.

To compensate for stagnating corporate loans, banks invested in securities, mainly governments bonds. A small number of banks held bonds issued by countries with high sovereign risk. The decline in the market value of selected bonds has not so far had a major effect on the banking sector's profitability.

Securities investments by banks increased mainly during 2009. The sharp increase of investments in government bonds in some banks can be explained by attractive interest rate differentials between government bonds and funds from the Eurosystem. Purchases of securities continued over the first half of 2010. In the second half of 2010, banks did little more than maintain their security holdings (Chart 43). In the sector's portfolio of purchased securities, government bonds accounted for 90% of the real value of the securi-

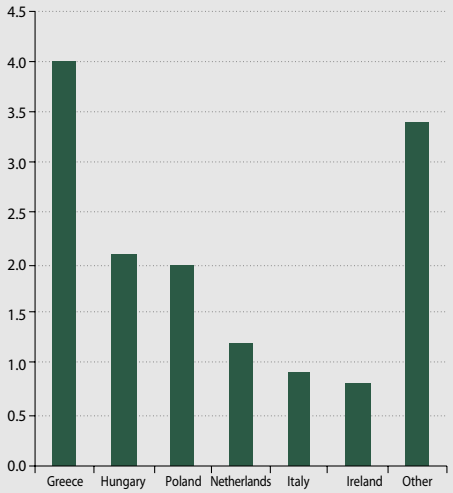
20 In 2008, the credit portfolio recorded year-on-year growth of 33%, but in 2010 it rose by only 3.6%.

Chart 43 Changes in the amount of securities in banks' portfolios (EUR millions)



Source: NBS.

Chart 44 Foreign debt securities as a share of total bonds by country as at 31/12/2010 (%)



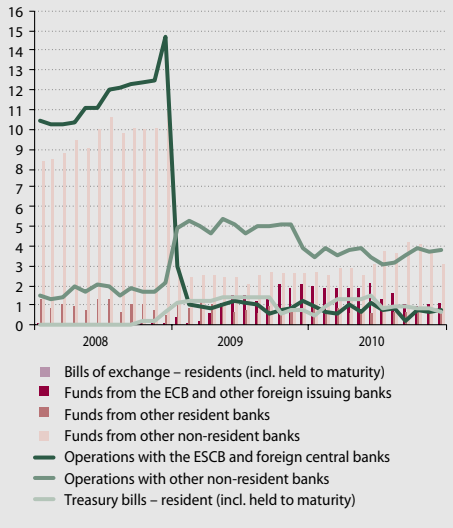
Source: NBS.

ties and they consisted mainly of Slovak government bonds. There were also a significant proportion of bonds issued by Greece, Poland, Hungary, Ireland and Italy (Chart 44). The majority of these bonds were, however, held by a limited number of banks. As regards the portfolio breakdown, a majority (54%) of bonds were recorded in the portfolio of securities held to maturity and 35% were in available-for-sale portfolio. Thus, in 2010, only a negligible proportion of bonds were revalued at fair value through profit and loss. These investments may result in considerable losses for the given banks if risky countries restructure their debt. Markets are becoming increasingly concerned that some highly indebted countries (Greece and Portugal) may not be able to reduce their debt, given that their economies have serious structural problems and therefore cannot grow at a fast enough pace.

The most prevalent transactions in the domestic interbank market remained transactions with non-resident banks, in particular intra-group transactions. The average maturity of interbank assets and liabilities continued to be relatively short.

Interbank liabilities and assets were relatively volatile in 2010, as they had been in the past. The largest changes in the total amount took place in funds from non-resident banks (Chart 45). It remained the case in 2010 that a significant proportion of transactions with non-resident banks (on both the asset and liability sides) were intra-group transactions. Banks used funds from the interbank market mainly for investment in more liquid assets (investments in the interbank market, investments in debt securities or Treasury bills, short-term loans to enterprises and general

Chart 45 Selected interbank assets and liabilities (EUR billions)



Source: NBS.

government) or as a means of offsetting developments in more volatile liabilities (short-term deposits from the general government and from enterprises). This means that even in a liquidity crisis (as during the global financial crisis) in which banks would be unable to obtain funds from non-resident banks, the functioning of most banks in Slovakia would probably not be seriously jeopardised. Banks prefer more stabile domestic sources for financing longer-term assets.

4.1.2 Profitability

The banking sector's net profit as at 31 December 2010 was 100% higher year-on-year, after plunging by 50% in 2009. The retail sector made the largest contribution to this rise. Profitability continued to differ greatly between individual banks.

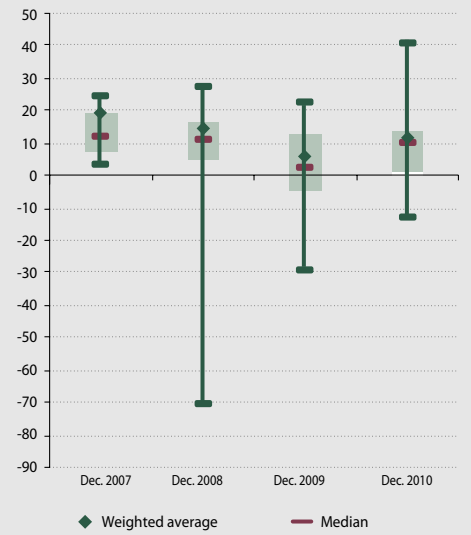
The median ROE returned almost to the pre-crisis level recorded in 2007 and 2008 (Chart 46). Nevertheless, the interquartile spread expressing the heterogeneity of profitability in the banking sector remains relatively large. The sector's net profit of €504 million as at 31 December 2010 did not, however, reflect losses from the revaluation of securities in the portfolio of financial instruments available for sale, which were relatively significant in certain banks in 2010. These losses were taken into account in the so-called comprehensive financial result.[21] In 2010, they amounted to 13% of the reported profit, largely due to the negative revaluation of portfolio holdings of government bonds issued by higher-risk countries. The profit of the sector was mainly supported by retail transactions – both interest and non-interest income from these transactions increased (Chart 47). Banks profited from the growth in retail lending and also from falling costs of retail deposits. Banks also reported a rise in income from investments in securities, largely due to an increase in the volume of debt securities. Another key factor of profitability in 2010 was the fall in provisioning costs. The trend decline in the ratio of provisions to non-performing loans reached around 73% in 2010.

4.1.3 Capital requirements

Own funds in the sector increased more slowly in 2010 than in 2009. There was a rise in the highest-quality component of banks' own funds, and the upturn in lending activity was reflected in an increase in risk-weighted assets. This had a downward effect on the capital adequacy ratio of the sector.

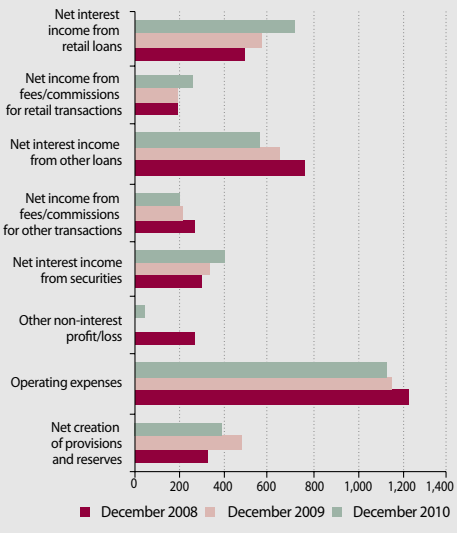
The total amount of own funds in the banking sector increased by 4.0% year-on-year. The

Chart 46 Distribution of ROE in the banking sector (%)



Source: NBS.
Note: The Chart shows the median, weighted average, interquartile range, and the minimum and maximum ROE values for individual banks. The Chart does not include branches of foreign banks.

Chart 47 Main components of profitability (EUR millions)



Source: NBS.
Note: Net provisions and reserves include the net gain on the assignment to third parties of claims on customers.

21 'Comprehensive financial result' is defined as the net financial result less valuation differences adjusted for current taxes. Valuation differences express the changes in the real values of securities held in the portfolio of financial instruments for sale, which led to changes in equity in 2010, without affecting the reported financial result. Although valuation differences would affect the financial result at the time when the securities are sold, it is recommended, given the possibility of their sale in the near future, to monitor their potential impact on the financial result.

growth in own funds in 2010 represented only 47% of the amount of the increase in 2009. The slower rise in own funds was mainly related to the fact that profits in 2009 were lower than in the previous years and that the situation in financial markets was somewhat calmer following the global financial crisis. The increase recorded during the first six months of 2010 comprised mainly a rise in the highest-quality component (Tier 1), drawn mainly from retained earnings from previous years (Chart 48). In the second half of the year, own funds were increased using lower-quality Tier 2 capital in the form of subordinated debt. The slight rise in own funds and substantial increase in risk-weighted assets had a downward effect on the capital adequacy ratio in the second half of 2010. In June of that year, the CAR stood at 13.1%, but by December it had fallen to 12.7% (Chart 48). The Tier 1 capital ratio for the banking sector was 11.5% at the end of 2010 (compared to 11.4% a year earlier). The lowest Tier 1 ratio reported by any bank in the sector at the end of 2010 was 7.2%.

4.1.4 Risks in the banking sector

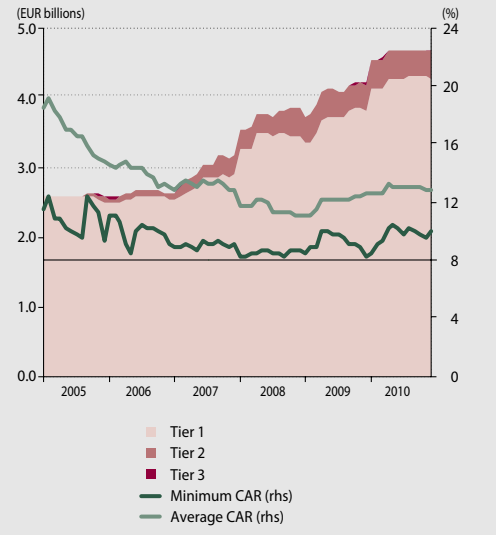
The financial position of households was improved in 2010, as the period of low interest rates enabled households to reduce their interest rate burden. This, in combination with an upturn in the labour market and recovering economic growth, contributed to the easing of household credit risk. On the other hand, this risk may increase in the future due to changes in the structure of unemployment that disadvantage higher-income households and to rising interest rates. Although conditions for improving corporate credit risk persisted in 2010, this risk remained significant for banks due to the size of banks' exposures to firms, the relatively heavy concentration of loans, and the high sensitivity of firms to economic developments. Corporate credit risk remains the most significant risk in the banking sector. Liquidity risk in the banking sector was largely unchanged in 2010 and the short-term and long-term liquidity indicators were in positive territory. The most significant of the market risks in the banking sector is the risk of the effect of interest rate movements on the banking book.

4.1.4.1 Household credit risk

The credit risk of households eased during the course of 2010.

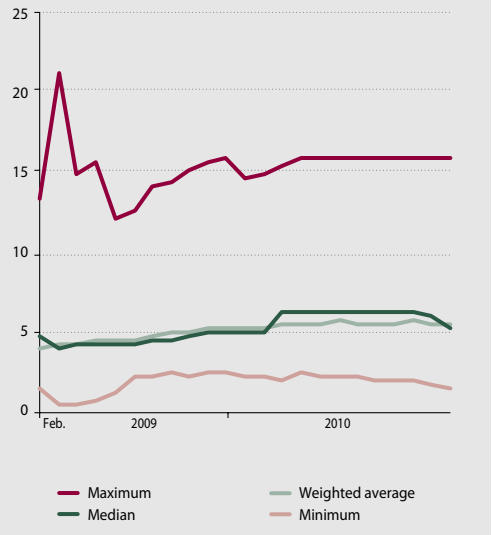
The increase in non-performing household loans reported by the banking sector in 2010 was substantially lower than in 2009. The ratio of non-performing household loans declined as well (Chart 49). This positive development was partly

Chart 48 Capital position of the banking sector (EUR billions; %)



Source: NBS.
Note: CAR = capital adequacy ratio.

Chart 49 Ratio of non-performing household loans (%)



Source: NBS.

attributable to the sale or write-off of non-performing loans.

The decline in household credit risk stemmed mainly from the improving economic situation, labour market stabilisation and low interest rates.

The debt servicing ability of households was positively influenced by the improving situation in employment. In industry, the sector with the most employees, the employment trend remained positive as a consequence of the upturn in the global economy. In this sector, as well as in the trade sector, further employment growth is assumed. By contrast, employment in sectors oriented on the domestic economy (particularly construction, services, and the public sector) is expected to decline. Although unemployment growth stabilised over 2010, however, its structure underwent a change towards the year-end (Chart 50). Rising unemployed in the higher-income categories is seen as a negative factor in terms of credit risk, since the majority of the outstanding amount of loans is concentrated in the middle- and higher-income categories. As interest rates declined and loans with a short interest rate fixation period retained a high share in total loans, customers were able to reduce their overall interest repayment burden. From the end of 2009 and during 2010, many customers refinanced an old loan by taking out a new loan under a more favourable interest rate.

The rise in household credit risk in the near term may be driven by a potential increase in interest rates and by excessive loosening of bank credit standards due to increased competition.

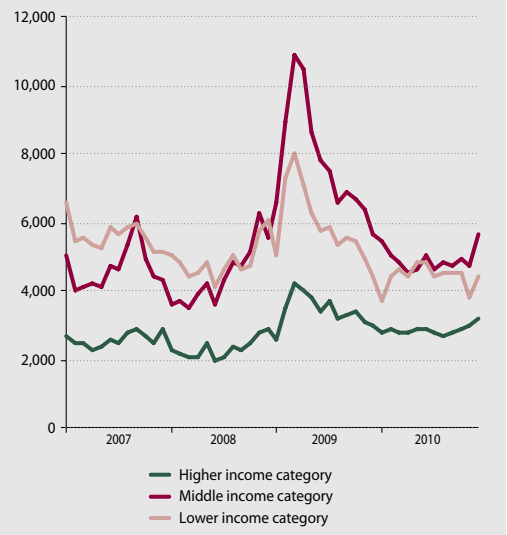
The expected rise in interest rates will create upward pressure on credit risk. The risk of a rise in customer rates will be subdued by the fact that the vast majority of interest rates on new loans arranged in 2010 had a longer fixation period and by increased bank competition in lending. Where, however, rising competition leads to an excessive loosening of lending conditions (interest rates that are inappropriate for the quality of the customer; high LTV ratio), it increases the risk of losses from lending (Chart 51).

4.1.4.2 Credit risk of non-financial corporations

The positive trends in many business sectors passed through to decelerating growth of non-performing loans.

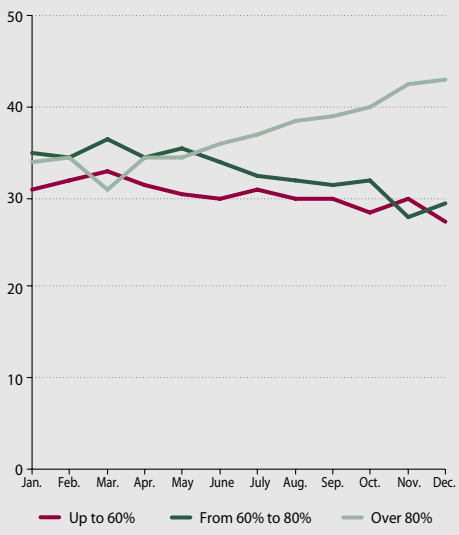
For the first time since the onset of the crisis, the pace of growth of non-performing loans to enterprises slowed as, in the last two months of 2010,

Chart 50 Increases in the number of unemployed



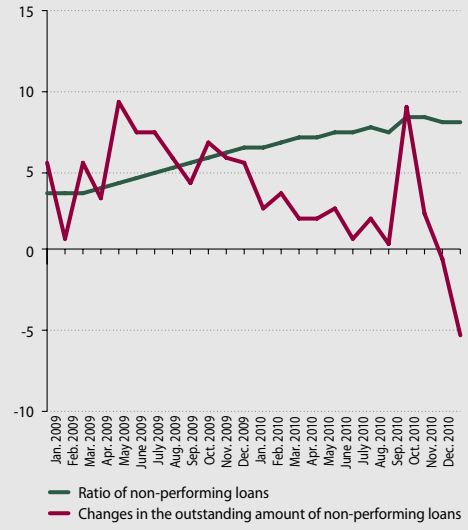
Source: Central Office of Labour Social Affairs and Family.

Chart 51 Share of new housing loans by LTV ratio (%)



Source: NBS.
Note: LTV – the ratio of the amount of a loan to value of the collateral provided for it.

Chart 52 Non-performing loan ratio in the corporate sector and year-on-year change in the amount of non-performing loans to enterprises (%)



Source: NBS.

several banks began purging their portfolios of bad loans (Chart 52), mostly by selling them and to a lesser extent by writing them off. While this trend appeared in loans to most sectors, it was particularly pronounced in the sectors of transportation, chemical industry, wholesale trade and real estate.

The economic upturn contributed to a reduction in corporate credit risk.

The gradual recovery of the global economy favoured mainly the export-oriented domestic firms. This was reflected in their sales growth and in an overall improvement in business confidence. Expectations for continuing growth in industrial activity are also supported by a rise in new orders.

Loans arranged for the construction of commercial properties continue to be a significant source of credit risk.

This segment, which was the fastest growing before the crisis, remains a significant source of credit risk for the banking sector. The reason lies not only in the high level of exposure to this segment and its elevated concentration, but also in the fact that commercial property market has weak transparency and very low liquidity. The office segment stabilised to some extent in 2010, as amid unchanging prices and constant supply of office space, the office vacancy ratio gradually declined. Nevertheless, the office segment remains highly sensitive, particularly due to strong market concentration on both the supply and demand sides. The residential segment also recorded a slight improvement in the last quarter, when the number of sold apartments increased and their overall supply fell. The main problem remains the still high number of projects that are struggling to sell apartments.

4.1.4.3 Liquidity risk

The long term liquidity position of the banking sector was favourable and stable in 2010. The short-term liquidity of the sector was equally stable and reported the required levels.

The loan-to-deposit ratio remained favourable in 2010, at below 100% (Chart 53). It remained largely unchanged during the year, due to stagnation in corporate lending. In the household sector, the trend of loans increasing by a greater margin than deposits continued. Should this trend continue in the medium-term horizon, domestic resources for the financing of loans will be exhausted, thus increasing the banks' dependence on financial markets. Although the current maturity mismatch between assets and liabilities became more pronounced in several banks, it is positive, in terms of the banking sector resilience, that most banks are still managing to finance long-term loans with customer deposits. The mortgage bonds issued by banks[22] have an appreciable role in this regard, since they increase the diversification and stability of loan funding. The ratio of fixed and illiquid assets reported a positive development and remained comfortably below the limit of 100% during 2010 (Chart 53).[23] The liquid asset ratio was stable during 2010 (Chart 54).[24] In general, larger banks continued to report the lower ratios.

4.1.4.4 Market risks

The most significant risk to the banking sector as a whole has remained interest rate risk in the banking book.

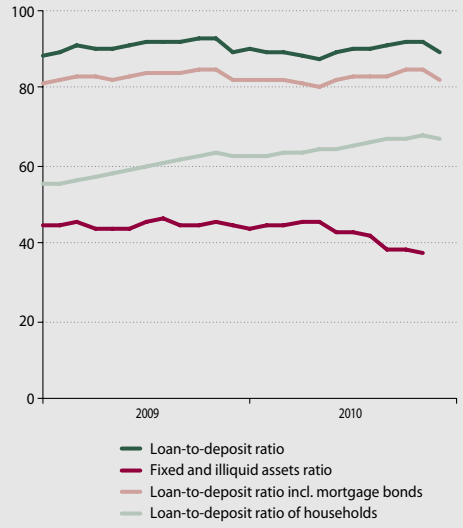
The interest rate risk in the banking book is the risk that net interest income gradually falls in the

22 As at the end of 2010, mortgage bonds constituted more than 91% of the total amount of securities issued by banks.

23 The ratio of fixed and illiquid assets is defined as the ratio of fixed and illiquid assets to selected own funds items. Its level should not rise above 100%.

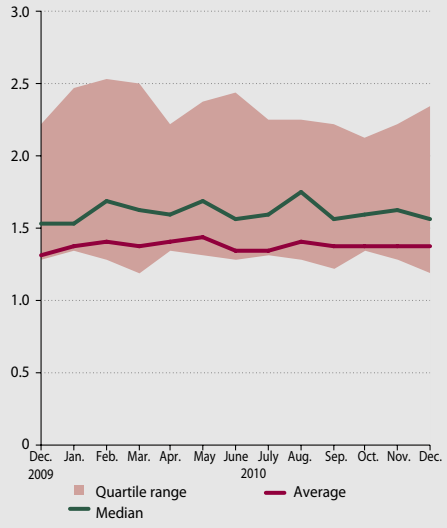
24 The liquid asset ratio is defined as the ratio of liquid assets to volatile liabilities over a horizon of one month. Its level should not fall below 100% (or 1).

Chart 53 Long-term liquidity ratio of the banking sector (%)



Source: NBS.

Chart 54 Liquid asset ratio of the banking sector



Source: NBS.

event that interest rates rise (since interest rate fixation periods are shorter on the liability side than on the asset side of bank balance sheets). The impact of this risk on banks' profitability is amplified by the fact that banks are having to increase interest rate spreads due to stronger competition. The results of macro stress testing (see Part 4.5) indicate that in the case of almost all banks, a raising of interest rates would contribute to a reduction in their net profit, assuming that the banks keep their interest rate policies unchanged when reacting to movements in the yield curve.[25] The exposure of banks to interest rate risk in the banking book remained largely unchanged during the second half of 2010. Although the average fixation period for interest rates on customer transactions became longer, it did so to around the same extent for loans and deposits.

Interest rate risk in the trading book remained low in all banks, largely due to the small size of the trading books.

The ratio of trading book assets and liabilities to total assets and liabilities was only 2.0% and 2.9%, respectively. In the event of a parallel rise in interest rates of 2 percentage points, the overall loss of the banking sector would thus be around 0.14% of own funds, and no bank should make a loss of more than 6% of own funds.

The general interest rate risk was relatively low in banking book portfolios revalued at fair value through profit and loss or own funds.

The bulk of banking book assets and liabilities are not revalued at fair value; this, however, does not apply to equity and debt securities that banks hold in their portfolios of financial instruments available-for-sale and financial instruments revalued at fair value through profit and loss (not including those held for trading).[26] The exposure of the banking sector as a whole to the risk of losses in the two mentioned portfolios was relatively low as at 31 December 2010. Were interest rates to increase in parallel by 2 percentage points, the overall loss would stand at 6% of own funds.

Only certain banks in the Slovak banking sector are significantly exposed to counterparty risk.

Only a few banks are significantly exposed to counterparty risk, i.e. the risk that securities will drop in value owing to a decline in the issuer's (counterparty) credit quality. These are banks that invested heavily in highly risky government bonds issued by certain euro area countries (Table 3). As banks hold these assets mostly in portfolios that are not revalued at fair value, their profitability and own funds were not significantly affected when the prices of these bonds fell sharply in

25 These results also reckon on a partial decline in the amount of loans, resulting from the assumed rise in interest rates.

26 At present, the revaluation of available-for-sale financial instruments is not recorded in the profit and loss account, as the respective securities are still held by the bank. Own funds are reduced only by a downward revaluation of equity securities. The revaluation of financial instruments included in the second of the portfolios mentioned has a direct effect on the value of the reported profit or loss, and in the case of a downward revaluation, also on the level of own funds.

Table 3 Investments in debt securities of selected countries as a share of total assets (%)

		Greece	Hungary	Ireland	Italy	Spain	Portugal
Banks	VI.10	1.1	0.7	0.1	0.1	0.1	
	XII.10	1.1	0.6	0.2	0.2	0.1	0.1
SPMC funds	VI.10	0.1	0.8	1.3	0.5	0.7	
	XII.10	0.1	0.9	0.6	0.8	0.8	
PFMC funds	VI.10		0.9	1.4	1.6	0.2	4.5
	XII.10		0.3	2.1	1.9		0.4
Investment funds	VI.10	0.3	1.6	0.8	0.6		
	XII.10	0.2	1.4	0.3	0.5	0.1	0.1
Insurers	VI.10	0.1	0.1	0.1	2.3	0.2	
	XII.10	0.1	0.1	0.2	2.6	0.2	
Unit-linked insurance	VI.10						
	XII.10			0.3			

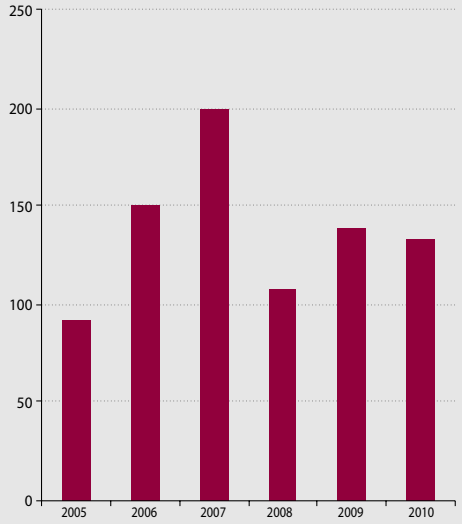
Source: NBS.
Note: Values represent debt securities issued by the respective country, or institutions established in that country, as a share of total assets or NAV. Where a cell of the Table is left empty, it means that the respective values are zero or negligible.

2010. However, the own funds of some banks would be significantly affected if those bonds in the held-to-maturity portfolio were revalued due to a decline in the issuer's credit quality.[27]

The exposure of the banking sector to equity risk and foreign exchange risk is negligible.

Investments in equities and investment fund shares/units as a proportion of the balance sheet total remain negligible in a majority of banks. As regards open foreign-exchange positions, all banks also have a low exposure to foreign exchange risk.

Chart 55 Total profits of insurance companies (EUR millions) (%)



Source: NBS.

4.2 THE INSURANCE SECTOR

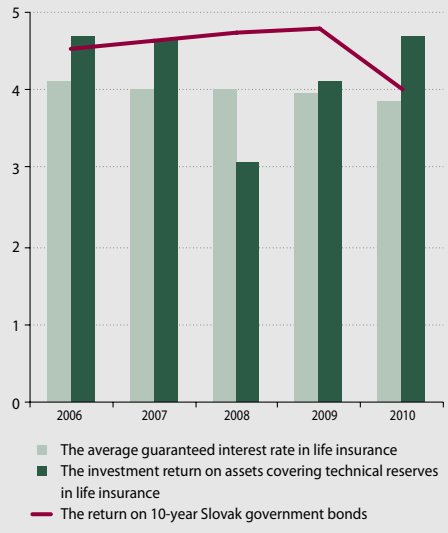
4.2.1 Financial position of the insurance sector

In 2010, life insurance was on the rise and profits in the non-life insurance sector fell sharply.

Total profits in the insurance sector in 2010 amounted to €133.7 million, representing a strong rise of 2.9% in comparison with the previous year (Chart 55). The result was largely attributable to a single insurance company. If the effect of this insurer's result is excluded, the sector's overall profit climbed by more than one-third. More than half of the insurers saw a year-on-year improvement in their financial results. Profits from financial operations rose by 1.1%. A positive contribution was also made by the results of insurance activities in life insurance. However, these positive aspects were outweighed by unfavourable results in non-life insurance. Although technical costs recorded a year-on-year decline (owing to the marked increase in the participation of reinsurers in insurance claims), the profits from insurance activities in non-life insurance came to only around half the level of the previous year. The profits in the non-life insurance sector declined as a result of lower premiums, higher reinsurance and a drop in other technical income.

27 In economic terms, it cannot be ruled out that the debts of these countries' will be restructured, despite the financial assistance they have received from the European Financial Stability Fund (EFSF), which is due to be terminated in 2013.

Chart 56 The guaranteed interest rate in comparison with the actual return (%)



Source: NBS.

4.2.2 Risks in the insurance sector

For insurance companies, the most significant risk is that of a persisting period of low interest rates.

The risk of persisting low interest rates, especially on longer maturities, is mostly connected with life insurance. An environment of low interest rates makes it difficult for life insurers to generate returns on the assets that make up the respective reserves at least at the level of the guaranteed interest rate (Chart 56). This risk is associated above all with the necessity of accepting a lower return when reinvesting funds obtained from maturing financial instruments. Insurers mitigate the above-mentioned risk by transferring market risks to customers through investment insurance products – i.e. unit-linked insurance.

Among the other main risks to the insurance sector are a weakening of the economy, the effect of competition on the calculation of premiums in motor third-party liability insurance, the concentration of claims on a single counterparty, and interest rate risk.

For the insurance sector, any further weakening of the economy represents a downside risk to its outlook for new insurance contracts and upside risk to its outlook for surrender rates. While this may not necessarily mean a loss to an insurer (if the surrender value is set low), it could disrupt the insurer's business strategy aimed at securing an appropriate balance-sheet structure and risk profile. Other risks to the financial position of insurance sector results lie in the persisting strong competition in motor third-party liability insurance (MTPL) and the high value of the combined ratio in certain sectors. Motor insurance (MTPL and motor vehicle insurance) together with the property insurance segment account for almost 83.2% of non-life insurance by amount of premiums. Heightened competition is putting downward pressure on prices (which are not reflecting the expense ratio in these sectors)[28] and it is therefore squeezing the profitability of insurance activity. The risk of a concentration of exposure to a single specific counterparty is most pronounced in several smaller insurance companies. The relatively long duration of the debt securities portfolio (which increased slightly even during 2010 – Table 4), together with the high share of securities revalued at fair value, helped ensure that rates of return on assets remained solid even during the period of low interest rates and financial market turbulences. While an increase in rates would cause a downward revaluation of these securities, such a scenario would also bring down the value of liabilities. The ultimate effect is difficult to quantify. The insurance sector's exposure to other market risks – equity risk, foreign-exchange risk, and the risk of a drop in the value of bonds owing to a decline in the issuer's credit quality – is relatively small (Table 4). Only a few insurance companies would be affected to a significant degree.

4.3 THE COLLECTIVE INVESTMENT SECTOR

The net asset value of mutual funds increased rapidly during the first half of 2010 and then more slowly in the second half.

The net asset value of mutual funds sold in Slovakia increased by 9.1% in 2010, to €4.5 billion. (Chart 57). Net sales of funds and the performance of funds were at their highest in the first four months of the year, continung the positive trend recorded in the second half of 2009. During the next two months, the value of net sales was around zero and the value of certain assets decreased, as global financial markets were af-

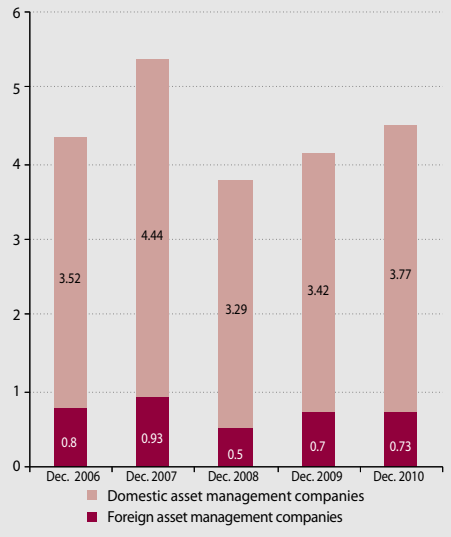
28 Main expense ratios in non-life insurance (loss ratio and combined ratio) reached in 2010 their highest values for more than ten years.

Table 4 Share of equity, foreign-exchange and interest-rate positions in different sectors of the financial market (%)

		Banks	Insurers	PFMC funds	SPMC funds	Investment funds	Unit-linked insurance
Equities and investment fund shares / units	XII.09	0.2	2.6	0.1	4.7	17.6	80.8
	XII.10		3.8	0.1	20.3	19.1	81.2
Foreign-exchange positions	XII.09	0.4	0.9	0.1	4.9	12.5	12.9
	XII.10		1.5	0.1	12.2	11.2	13.9
Debt securities	XII.09	28.3	63.1	68.0	70.8	51.8	17.2
	XII.10	26.5	68.2	68.5	66.0	46.3	17.4
Duration of debt securities	XII.09	2.7	5.7	0.5	2.1	1.1	5.9
	XII.10	3.0	6.1	0.4	3.2	1.2	5.5
Duration of entire portfolio	XII.10		5.7	0.4	2.1	0.6	1.0
Residual maturity of debt securities	XII.09	2.8	7.8	0.8	3.0	1.8	6.2
	XII.10	3.8	7.8	0.4	3.8	1.7	5.1

Source: NBS.
Note: Values are given as a percentage share of assets or NAV and they represent the asset-weighted average for the given group of institutions. Durations and residual maturities are given in years. Foreign exchange positions were calculated as the sum of the absolute values of the positions for each institution. Equity positions do not include participating interests in subsidiaries and affiliates.

Chart 57 Net asset value of mutual funds marketed in Slovakia (EUR billions)



Source: NBS.

fected by major turbulences related to the Greek debt crisis. The net asset value began to grow again over the subsequent period, albeit at a far slower pace than at the beginning of the year.

Asset structures in different mutual fund categories underwent only a small change in 2010.

In money market funds, the trend of selling bonds and reinvesting the proceeds in term accounts continued. Equity funds, too, followed on from 2009 in raising the share of investments in equities and mutual fund shares/units, at the expense of other, more conservative asset components. In real estate funds, participating interests in real estate companies increased as a share of the asset portfolio. The changes in other categories were minimal.

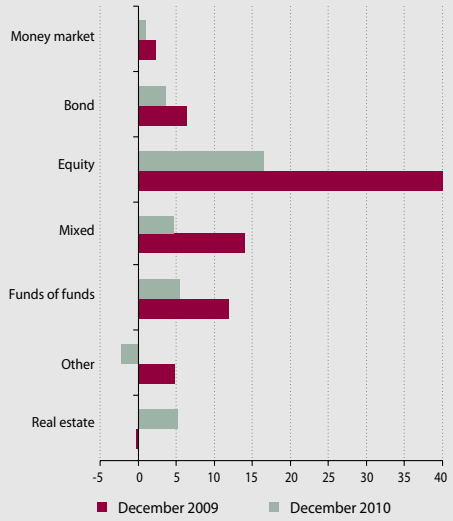
The returns on mutual funds decreased in 2010 as compared with 2009, although in some cases this reflected the very sharp depreciation recorded by the mutual funds in 2008.

The performance of mutual fund returned to a standard level in 2010, after fluctuating wildly in 2008 and 2009 amid the global financial crisis and subsequent recovery of financial markets. By far the average highest rate of return in 2010 was in equity funds, at 16.5% (Chart 58). That figure was even slightly higher than the appreciation of the benchmark S&P 500 equity index. In terms of performance over a three-year horizon, however, equity funds, mixed funds, and funds of funds remain in negative territory, having still not wiped out all the losses incurred at the peak of the financial crisis.

The most significant risk for mutual funds continues to be equity risk.

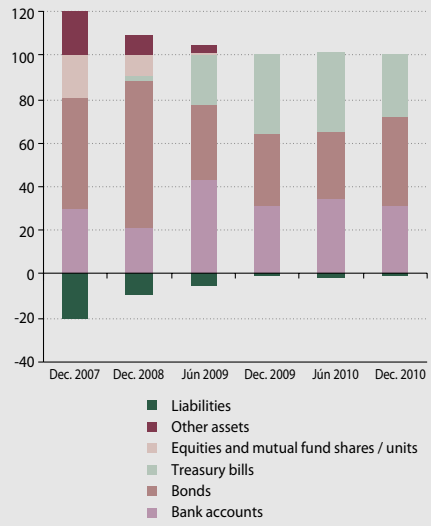
Collective investment funds were sensitive to any return of rising uncertainty in financial markets.

Chart 58 Average returns on mutual funds by fund category (% p.a.)



Source: NBS.
Note: Average return weighted by net asset value.

Chart 59 Structure of funds' assets by main instruments (%)



Source: NBS.

This is caused by an increased exposure of funds to equity risk. Several funds have a relatively high net foreign exchange position, caused by unhedged positions in financial instruments denominated in non-euro currencies. The credit risk of issuers related to investments in bonds is a majority of funds relatively low.

4.4 THE PENSION SAVING SECTOR

Pillar II

The amount of assets managed by PFMCs increased in 2010 due to regular contributions of savers and minimum fluctuations in the valuation of funds assets. Pension funds continued to make very conservative investments.

The net asset value in Pillar II of the pension saving system reached €3.72 billion. The share of particular asset classes owned by PFMC barely changed at all and the funds retained a conservative structure that kept fluctuations in performance to a minimum (Chart 59). Pension funds invested in bonds, Treasury bills and bank deposits. After being heavily sold in the previous year, equities accounted for an almost negligible proportion of the net asset value during the year not exceeding 0.13% and falling to less than half of that value before the end of December. Assets denominated in foreign currency had minimal share in the asset structure of funds (Table 4), and at no point during the year did this share exceed 0.5% in any of the funds.

Savers lack a genuine choice between conservative, balanced and growth funds.

In the second half of 2009, the differences between the asset structure of each type of fund almost completely disappeared in all PFMCs. This situation persisted throughout 2010, not only at the level of the basic distribution of assets between different investment types, but also in regard to the specific choice of particular securities. Thus, a saver who is deciding between the different funds offered by a given PFMC cannot in fact choose one that has a risk-return profile most suitable for his requirements. Moreover, the asset structure of funds of different PFMCs also converged to some extent during 2010.

Exposure to sovereign debt securities of higher-risk euro area countries declined during 2010.

Towards the end of 2010, PFMCs reduced their exposure to government bonds issued by Greece, Ireland, Portugal and Spain, which declined as a share of the sector's net asset value to

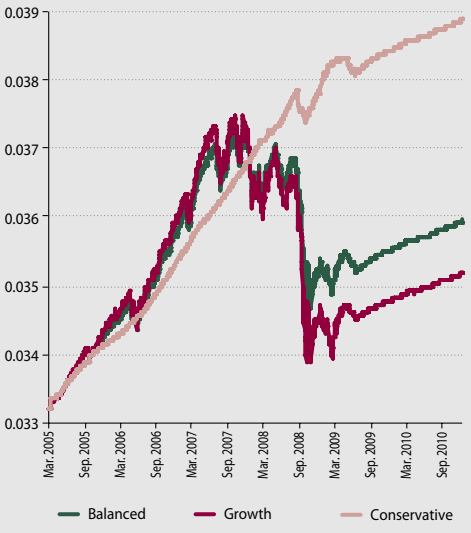
around 2% as at the year-end, from a relatively high level of 11% as at 31 December 2009. The bulk of these positions were closed naturally, through the maturing of these securities. Of those securities that were sold, only one bond issue was traded at a substantial discount (due to its higher residual maturity. At the end of 2010, Slovak government bonds accounted for almost 53% of all the sector's government securities, or 27% of the overall net asset value. The stability of the whole portfolio of PFMC funds is therefore heavily dependent on the value of Slovak government bonds remaining stable.

The performance of Pillar II funds in 2010 corresponded to their asset structure and it was negative in real terms. Pension funds have been recording low returns since they began operation.

Since funds were not exposed to equity markets and held interest-sensitive instruments of short duration, the current values of pension units recorded linear growth and almost no volatility during the course of 2010 (Chart 60). As a result, the year-on-year performance stabilised at a constant level, and the weighted average for each of the three types of fund was the same, 1.2%, as at 31 December 2010. Such a return was not enough to cover inflation rate for 2010, which, as measured by the Harmonised Index of Consumer Prices, reached 1.3%. Looking at fund performance over the long-term (since the current system came into being), it is conservative funds that have achieved the highest average annualised return (of around 2.8%); the repercussions of the financial crisis were less severe on conservative funds than on the other two types. The average annualised return on balance and growth pension funds over the same period was only 1.4% and 1.0%, respectively.

The conservative asset structure of PFMC funds was also reflected in the low risk of losses.

Chart 60 Current value of pension units by type of fund



Source: NBS.

For PFMC funds, the risks of asset value impairment are low, given the very conservative structure of their portfolios. The most significant risk in the portfolio of PFMC funds is that the issuers of certain government securities held in the portfolio suffer a deterioration in credit quality. This risk, however, concerns the funds of a single company and it is limited by the short maturity of the respective bonds and Treasury bills. As at 31 December 2010, PFMC funds did not have any holdings of Greek government bonds.

The vulnerability of Pillar II funds was increased by their relatively high concentration in bank accounts.

The relatively low diversification of bank deposits also contributed to counterparty risk. The median value for the share of the largest counterparties in NAVs was 9%. The risk that one of the counterparties would default was relatively low. In most

Table 5 Annual rate of return on pension funds as at 31 December 2010 (%)

	Min	Weighted average	Max
Conservative funds	0.8	1.2	1.9
Balanced funds	0.8	1.2	1.9
Growth funds	0.8	1.2	1.9

Source: NBS.
Note: The average annual return on pension funds 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.

cases, these deposits are held directly in Slovak banks (approximately half of the total volume), or they are held in banks that are part of banking groups which have a subsidiary or branch in Slovakia. The risk was also mitigated by the short residual maturity period of term deposits, which as at 31 December 2010 was around three months and did not exceed one year in any fund.

Pillar III

The more or less linear increase in the net value of assets under management in the sector continued in 2010. As regards asset class structure, the most significant change in 2010 was the rapid rise in the share of investments in equities and mutual funds. The overall changes in the portfolio of Pillar III funds has made them more sensitive to movements in equity indices, interest rates and foreign exchange rates.

The net asset value in Pillar III of the pension saving system reached €1.15 billion at the end of September 2010. The growth in net asset value recorded by each SPMC was close to the sectoral average of 9%.

During 2010, the largest component of fund assets at the sectoral level was bonds, but their share fell to 67%. The duration of the bond portfolio underwent a relatively substantial increase (from 2.1 years to 3.2 years). The trend decline in the amount of funds held with banks in current and term accounts continued. Bank deposits accounted for as much as one-half of fund assets at the end of 2007; at the end of 2010 they only accounted for 13%. The most significant change in the portfolio was the rapid rise in the share of equities and investment funds. As at 31 December 2010, their share stood at 20%, making them the second largest asset class in funds, after bonds, while in previous periods their share had not exceeded 5%. The inclusion of a large volume of equities and mutual fund shares/units in the portfolio contributed substantially to the rise in the proportion of assets denominated in foreign currencies. The amount of foreign exchange assets more than quadrupled during the year, to stand at 13% of the net asset value of funds in the sector. The rise in foreign currency assets was accompanied by a more intensive utilisation of currency derivatives in order to reduce open foreign exchange positions.

Only certain SPMC funds were exposed to securities issued by higher-risk countries.

At the end of 2010, investments in securities issued by high-risk countries accounted for 3.2% of the sector's NAV. In comparison with PFMC funds, however, this risk is much greater owing to the high residual maturity of these bonds, at 5.1 years.

Although funds undertook a greater degree of risk, their performance did not improve as a result.

In the case of both payout and contributory funds, the average annual return fell year-on-year, to 1.5% and 1.9%, respectively, as at 31 December 2010. While the performance of payout funds declined only slightly, the return on contributory funds as a group was only around a half of the return made in 2009. The lowest return recorded by any fund was 0.2%.

4.5 MACRO STRESS TESTING

As at the end of 2010, the banking sector again reported relatively strong resilience to unfavourable macroeconomic scenarios due to its initially strong capital position and its ability to make a profit, especially through net interest income.[29] The Cost-Push Inflation scenario would be expected to have a negative effect on the banking sector.

Macro stress testing is used to give a fuller picture of the risk profile of different sectors or financial corporations. Since this is a comprehensive estimate of developments in the financial sector, one requiring a fairly large number of assumptions (Table 6), the results are used more for purposes of comparison than as an absolute quantification of potential profits/losses under particular scenarios. The testing involved designing two stress scenarios and comparing them with a third, baseline scenario. Scenario 1, "the Sovereign Crisis scenario", is based on the risk that public finances in certain euro area countries are unsustainable. An important development of this scenario is the negative spillover effects on other countries. Scenario 2, „the Cost-Push Inflation scenario", envisages a rise in commodity prices influenced by an expansive monetary policy of the US Federal Reserve. The stress testing period comprises the years 2011

29 A detailed description of scenarios, assumptions and stress testing parameters can be found in The Analysis of the Slovak Financial Sector for 2010, published by the NBS in April 2011 http://www.nbs.sk/_img/Documents/_Dohlad/ORM/Analyzy/2010-1a.pdf

Table 6 Stress testing parameters

			Baseline scenario		Sovereign Crisis		Cost-Push Inflation	
			Q4 2011	Q4 2012	Q4 2011	Q4 2012	Q4 2011	Q4 2012
Baseline assumptions	External demand (year-on-year change)		5.30 %	6.82 %	-10.00 %	6.00 %	-10.00 %	5.56 %
	USD/EUR (year-on-year change)		0 %	0 %	-40 %	24 %	0 %	0 %
	Exchange rates of CHF, JPY, GBP, DKK, CAD, HRK, LVL against EUR (year-on-year change)		0 %	0 %	-40 %	24 %	0 %	0 %
	Exchange rates of other currencies against EUR (year-on-year change)		0 %	0 %	40 %	-24 %	30 %	-12 %
	Equity prices (year-on-year change)		10 %	10 %	-40 %	24 %	-30 %	28,57 %
	ECB base rate (year-on-year change)		0 b.b.	0 b.b.	0 b.b.	0 b.b.	200 b.b.	0 b.b.
	3-month EURIBOR (year-on-year change)		47 b.b.	34 b.b.	116 b.b.	-12 b.b.	305 b.b.	27 b.b.
	iTraxx index (year-on-year change)		0 b.b.	0 b.b.	105 b.b.	-84 b.b.	105 b.b.	-84 b.b.
	Rise in credit spreads on debt issued by GR and IE		0 b.b.	0 b.b.	315 b.b.	-252 b.b.	315 b.b.	-252 b.b.
	Rise in credit spreads on debt issued by ES, IT and PT		0 b.b.	0 b.b.	210 b.b.	-168 b.b.	210 b.b.	-168 b.b.
Macroeconomic variables estimated using a model	GDP growth (year-on-year change)		2.75 %	5.07 %	-6.86 %	5.40 %	-5.54 %	4.19 %
	Inflation (HICP)		4.34 %	2.72 %	2.02 %	-1.61 %	8.13 %	-0.30 %
	Unemployment		14.13%	13.69 %	15.17 %	16.17 %	14.97 %	15.97 %
Variables for credit risk estimated using macroeconomic variables	Annual probability of default	1.35 %	1.69 %	1.92 %	3.74 %	2.21 %	3.61 %	7.9%
		2.02 %	2.20 %	2.92 %	5.99 %	2.70 %	6.27 %	15.5%
		4.65 %	4.70 %	6.36 %	8.38 %	6.32 %	10.22 %	24.8%
	Ratio of non-performing household loans		5.46 %	4.96 %	6.08 %	6.08 %	8.01 %	7.22 %

Source: NBS.

and 2012. Branches of foreign banks were excluded from the calculation. The banking sector at the end of 2010, as under previous stress tests, reported relatively strong resilience to unfavourable macroeconomic scenarios (Table 7). This was largely due to two factors: the sector's strong initial capital position and its ability to make a profit, especially through net interest income. So although four banks would make a net loss in 2011 and 2012 under the Sovereign Crisis scenario and six banks would do so under the Cost-Push Inflation scenario, a majority of these banks would comfortably meet the 8 % capital adequacy requirement in each year. [30]

The most significant risk for banks remains corporate credit risk. Depending on the scenario, however, certain banks would record higher losses from household credit risk than from corporate credit risk. Losses from market risks would be marginal, except in a few banks where they would have greater impact.

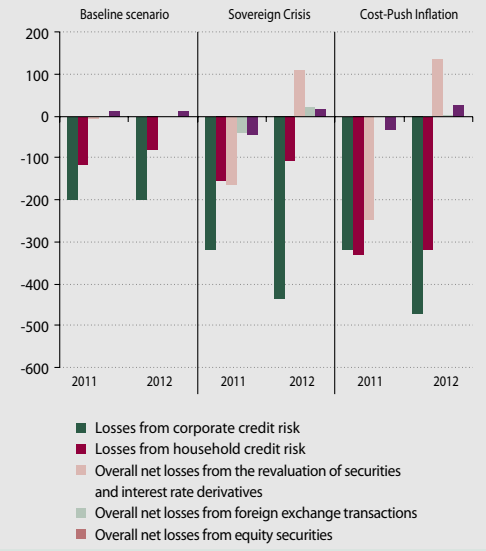
Table 7 Impact of stress scenarios on banking sector capital adequacy (%)

	Lower quartile	Median	Average weighted by amount of risk-weighted assets	Upper quartile
As at 31 December 2010	11.2	12.2	12.7	15.1
As at 31 December 2010 after the addition of net profit	12.5	13.4	13.6	16.5
Baseline scenario (2011)	12.2	13.9	14.5	17.6
Baseline scenario (2012)	13.6	14.7	15.9	19.1
Sovereign Crisis (2011)	11.4	13.1	13.8	17.4
Sovereign Crisis (2012)	11.5	14.0	14.5	18.5
Cost-Push Inflation (2011)	11.0	12.6	13.3	17.0
Cost-Push Inflation (2012)	11.0	13.5	13.8	17.9

Source: NBS.

[30] *When quantifying the impact of particular scenarios on the capital adequacy ratios of banks, it was not envisaged that any euro area country or other country would default. As a consequence, only debt securities in the trading book or available-for-sale portfolio were revalued at fair value.*

Chart 61 Simulated losses from credit risk and market risks in the banking sector (EUR millions)



Source: NBS.

The sector's largest losses under particular scenarios are from corporate credit risk. However, the weight of household credit risk has increased. The largest losses in the retail loan portfolio would be incurred under the Cost-Push Inflation scenario; in several banks, this loss would exceed the loss from non-performing loans. Under each of the scenarios, corporate credit risk is related to the fact that the default rate on corporate loans is highly sensitive to GDP developments. As for household loans, their default rate reflects the impact of inflation and the related effect of interest rates. Losses from foreign-exchange and equity risks would continue to have a marginal effect (Chart 61).

Banks' losses arising from different types of risk would be mitigated mainly by net interest income and a strong initial capital position.

The resilience of the banking sector as at the end of 2010 was largely determined by its initially strong capital position and its ability to make a profit, especially through net interest income. Although four banks would make a net loss in 2011 and 2012 under the Sovereign Crisis scenario and six banks would do so under the Cost-Push Inflation scenario, a majority of these banks would comfortably meet the 8% capital adequacy requirement in each year due to having a strong capital position at the outset.

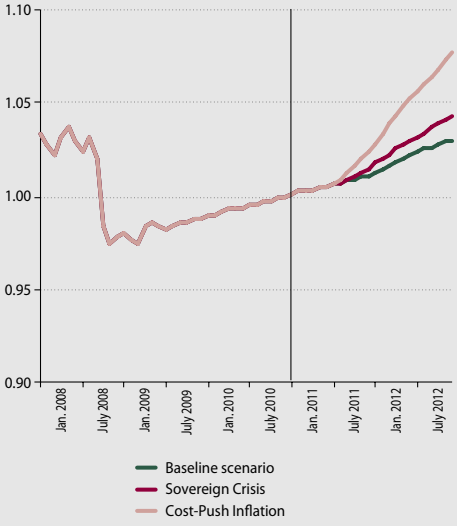
Under a rise in interest rates as assumed in the stress scenarios, PFMC funds would increase their returns.

Given the structure of their portfolios, PFMC funds are not sensitive to a decline in equity prices or to exchange rate movements, nor, in the majority of cases, to an increase in the credit spreads of bonds issued by high-risk countries. For the overall portfolio of PFMC funds, the average residual period of interest rate fixation is only five months, and therefore the stress scenarios would have almost no effect on the returns on a majority of PFMC funds. After the end of this period, the rate of return would even rise owing to the growth in interest income amid rising interest rates, as assumed in the stress scenarios (Chart 62).

SPMC contributory funds would make relatively large losses under the stress scenarios.

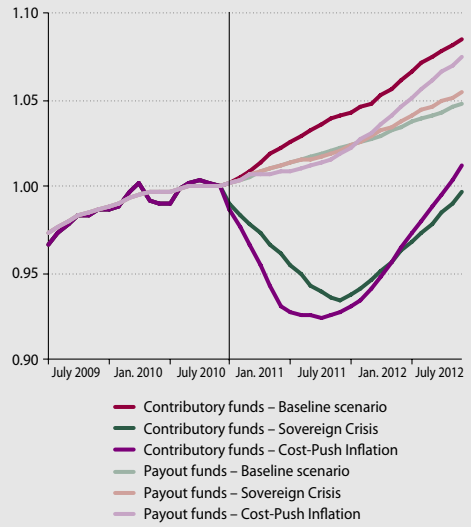
Since SPMC funds have a significant exposure, particularly to equity risk and interest rate risk, they would record a comparatively sharp drop in the pension unit value under both stress scenarios (Chart 63). The largest losses would be seen in growth funds under the Sovereign Crisis sce-

Chart 62 Impact of stress scenarios on PFMC funds (index: December 2010 = 1)



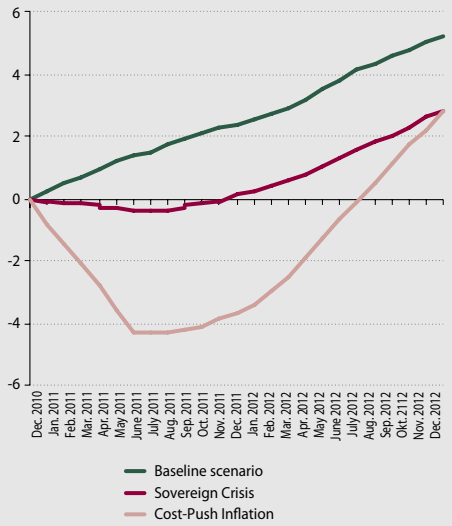
Source: NBS.
Note: The left-hand scale shows the current value of the pension unit index (weighted by the net asset value of individual funds).

Chart 63 Impact of stress scenarios on SPMC funds (index: December 2010 = 1)



Source: NBS.
Note: The left-hand scale shows the current value of the pension unit index (weighted by the net asset value of individual funds).

Chart 64 Impact of stress scenarios on collective investment funds (%)



Source: NBS.
Note: The left-hand scale shows the estimated gain/loss as a share of the net asset value (weighted by the net asset value of individual funds).

nario, owing to a substantial fall in equity prices (by approximately 15% to 20% of NAV).

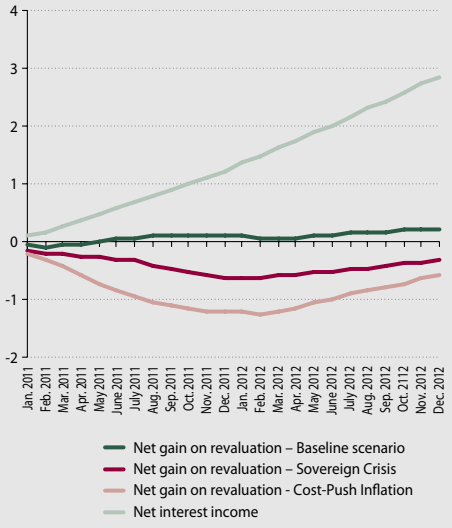
The results of stress testing of the collective investment sector are influenced by the high proportion of less risky funds.

Investment funds would not make substantial losses under the „Sovereign Crisis" scenario (Chart 64), because money market funds and bond funds constitute a large proportion of all funds in terms of their share in the overall net asset value. At the same time, losses caused by a fall in equity prices in riskier funds would be partially offset by the assumed strengthening of the US dollar against the euro, the currency in which these investment funds have open foreign-exchange positions. Under the Cost-Push Inflation scenario, this effect of an appreciating dollar is absent and the losses, on average, would therefore be greater.

Insurance companies would cover any negative revaluation of assets with interest income.

As for insurers, their interest income would be practically unaffected for all scenarios within the stress testing horizon, given that the debt securities portfolio, as the main part of insurers' assets, has a relatively long duration. This interest income would, moreover, be sufficient to cover any losses from the revaluation of assets that may take place under the stress scenarios (Chart 65).

Chart 65 Impact of stress scenarios on insurers' assets (%)



Source: NBS.
Note: The left-hand scale shows the estimated gain/loss as a share of assets except for assets covering technical provisions in unit-linked insurance (weighted by the asset value of individual insurance companies). The effect of stress scenarios on the value of liabilities was not taken into account.

CHAPTER 5

THE TARGET2-SK AND EURO SIPS PAYMENT SYSTEMS – SECURITY AND RELIABILITY IN 2010

5

5 THE TARGET2-SK AND EURO SIPS PAYMENT SYSTEMS – SECURITY AND RELIABILITY IN 2010

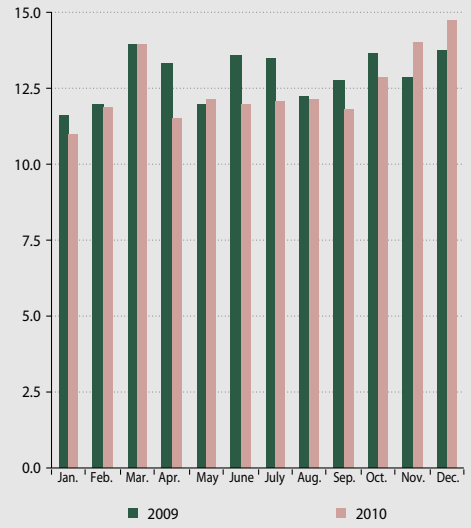
The TARGET2-SK payment system was put into operation in Slovakia on 1 January 2009, the same date on which the country adopted the euro. From the view of financial stability risks, the system performed well in 2010, without any impairment.

Upon joining the euro area on 1 January 2009, Slovakia became connected to the TARGET2 payment system and Národná banka Slovenska started operating its component of this system – TARGET2-SK. The second year of the TARGET2-SK payment system's operation can be judged to have been successful and free of problems. No incidents were recorded, regarding either the system itself or its participants, which would jeopardise the smooth processing of payments or disrupt the system's operation. Apart from being responsible for the system's daily operation, for providing its participants with consultation and business support, and for regular testing of recovery procedures, Národná banka Slovenska is involved in coordinating the development, modification, testing and implementation of software releases for the single shared platform (SSP) that forms the technical basis of TARGET2. It is through new releases of this software that new functionalities and modifications (approved by the Eurosystem at the request of the system's participants) are implemented in the SSP and that bugs identified in the previous release are removed. The 2010 SSP release introduced internet-based access to TARGET2 without requiring a connection to the SWIFT network, previously the only means of accessing the system.

The number and value of transactions executed in the TARGET2-SK system in 2010 decreased year-on-year.

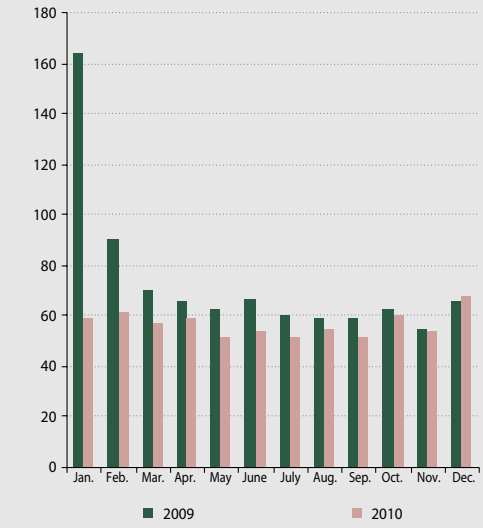
A total of 33 participants were connected to the TARGET2-SK payment system in 2010. Of that number, 30 were direct participants (including Národná banka Slovenska) and three were ancillary systems – EURO SIPS, Centrálny depozitár cenných papierov SR, a.s. (CDCP – the central securities depository), and First Data Slovakia, a.s. Almost 150,000 transactions with an overall value of more than €682.2 billion were execut-

Chart 66 Volume of payments processed in TARGET2-SK (thousands)



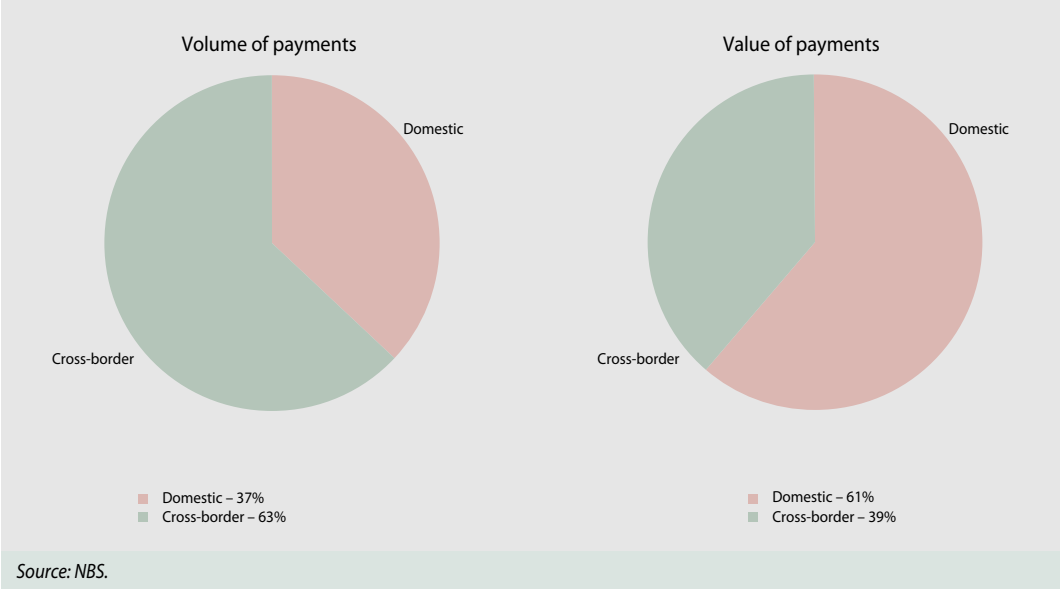
Source: NBS.

Chart 67 Value of payments processed in TARGET2-SK (EUR billions)



Source: NBS.

Chart 68 Structure of payments sent by TARGET2-SK participants in 2010 (%)



Source: NBS.

ed in the TARGET2-SK payment system in 2010. In comparison with 2009, the number of transactions fell slightly, by 3.4% (Chart 66), and the value of transactions declined by 22.6% year. The disparity is caused by the unusually large amounts of payments made in January 2009, probably influenced by the euro changeover (Chart 67).

The value of interbank payments in TARGET2-SK was substantially higher than the value of customer payments, while the value of domestic payments exceeded the value of cross-border payments.

As for the payments processed in 2010 and their breakdown into customer and interbank transactions, customer payments have the slightly higher share by number (56:44) while interbank payments have the overwhelmingly larger share by value (96:4). Of the total number of payments made by TARGET2-SK participants in 2010, 37% were domestic transactions and 63% were cross-border transactions. As regards the value of such payments, however, the ratio is almost exactly the opposite (Chart 68).

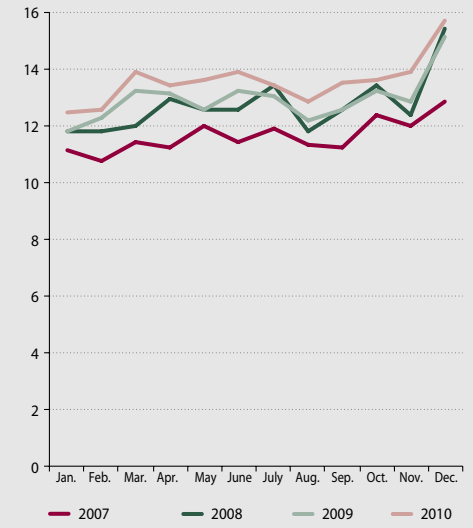
The EURO SIPS retail payment system satisfies all the required principles of functionality, security and reliability.

EURO SIPS is a retail payment system for the processing and clearing of customer payments in euro; it is an ancillary system using the trans-European TARGET2-SK payment system. Payment transactions are processed in EURO SIPS in clearing cycles and their results are financially settled in TARGET2-SK. Since 1 January 2009, interbank transactions have been processed and settled exclusively in TARGET2-SK. In connection with the implementation of SEPA payment instruments in Slovakia, the EURO SIPS payment system will be made compatible with the Single European Payments Area (SEPA) by the end of 2012. During 2010, Národná banka Slovenska assessed the EURO SIPS system in compliance with a Eurosystem requirement for countries entering the euro area. When assessed against the „Core Principles" for retail payment systems, EUR SIPS was found to be fully compliant with the required principles.

The number and value of transactions executed in EURO SIPS in 2010 increased year-on-year.

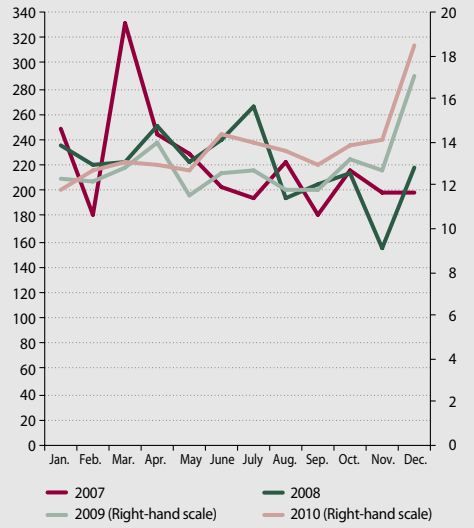
The EURO SIPS retail payment system had 30 participants in 2010. A total of 162,796,000 transactions were processed in EURO SIPS, corresponding to a trend increase of almost 5% over recent years (Chart 69). The value of the transactions amounted to €164,590.1 mil-

Chart 69 Volume of transactions executed in EURO SIPS (millions)



Source: NBS.

Chart 70 Value of transactions executed in EURO SIPS (EUR billions)



Source: NBS.

lion, representing a rise of 6.5% year-on-year; However, this followed a sharp fall in the value of transactions executed in EURO SIPS in 2009 resulting from the migration of large-volume transactions to the TARGET2-SK system (Chart 70).

ANNEXES

THE VIEWS AND RESULTS EXPRESSED IN THE ANNEXES ARE THOSE OF THE AUTHORS AND DO NOT NECESSARILY REFLECT THOSE OF NÁRODNÁ BANKA SLOVENSKA

1 EFFECTIVE TAXATION OF THE FINANCIAL SECTOR

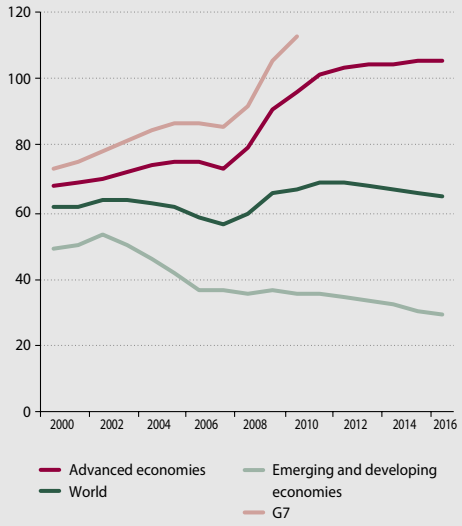
TOMÁŠ TŐZSÉR

Modern finance can seriously jeopardise the financial stability of countries, a fact all too evidently confirmed by the recent global financial and economic crisis. For a sustainable long-term solution, it is necessary to change the approach to financial sector regulation and to redesign government safety nets.[31] Alongside the ongoing global changes in these areas, a number of countries – mainly those whose public finances have been most heavily burdened by bailouts of insolvent banks – are starting to impose additional taxes and levies on financial corporations. The main aim in this regard is to recover at least part of the public funds expended on the rescue of private banks. Another benefit of additional taxation of the financial sector may be, however, that it strengthens financial stability through the above-mentioned changes in safety nets. In this paper, we examine the most effective methods of additional taxation of financial institutions for both purposes.

THE NET DIRECT COST OF RESCUING FINANCIAL INSTITUTIONS WAS RELATIVELY SMALL, BUT THE INDIRECT COST OF THE FINANCIAL CRISIS HAS BEEN CONSIDERABLE

The International Monetary Fund (IMF) has estimated that the average net fiscal cost of direct support to the financial sector in the G-20 advanced countries as at the end of 2009 amounted to 2.8% of GDP (Table 8). According to Deutsche Bank, the final direct cost of taxpayer support for financial sectors will in most advanced countries not exceed 1% of GDP.[32] Although the direct fiscal costs of bank rescue measures may in the end be relatively low in comparison with the amount of public funds originally set aside for financial sector bailouts, the indirect costs for taxpayers are very high. Indirect cost arise, for example, from lower tax revenues and higher government spending as a result of crisis-induced recession, but they also include higher debt servicing costs resulting from increases in interest rates and debt levels. The IMF estimates that the public debt-to-GDP ratio for the G-20 advanced countries in the period 2008–2015 will soar by almost 40 percentage points – with much of that increase attributable to the crisis. It is clear that the repercussions

Chart 71 Public debt (% of GDP)



Source: IMF, World Economic Outlook, April 2011.
Note: Data for the years 2011 to 2016 are forecasts.

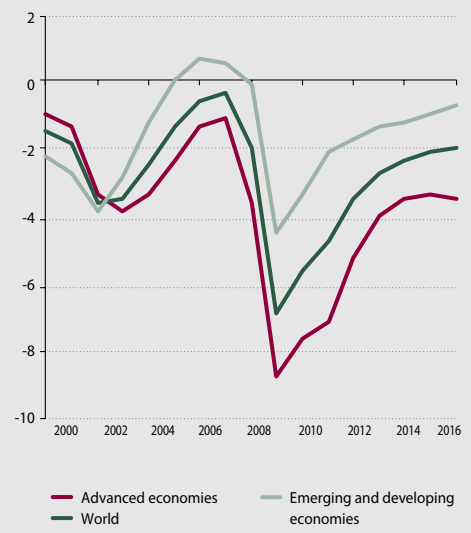
Table 8 Recovery of outlays and net direct cost of financial sector support (% of 2009 GDP)

	Direct support			Net direct cost
	Pledged	Utilised	Recovery	
G-20 average	4.0	2.2	0.4	1.8
Advanced economies	6.2	3.5	0.8	2.8
In billions of USD	*1,976*	*1,114*	*237*	*877*
Emerging economies	0.8	0.3	-	0.3
In billions of USD	*108*	*43*	-	*43*

Source: IMF, "A fair and substantial contribution by the financial sector – final report for the G-20", June 2010.
Note: The direct fiscal cost is the sum of recapitalisations, asset purchases and borrowings from public funds.

31 Alessandri, P., Haldane, A.G., "Banking on the state", Bank of England, November (2009).
32 Schildbach, J., "Direct fiscal cost of the financial crisis", Deutsche Bank Research, 14 May (2010).

Chart 72 Fiscal balance (% of GDP)



Source: IMF, World Economic Outlook, April 2011.
Note: Data for the years 2011 to 2016 are forecasts.

of the financial crisis for the real economy, and especially for public finances, will be long term in character (Charts 1 and 2).

Taxation of financial institutions – a useful tool of prudential policy[33]

Taxes and levies are commonly used to address externalities in the areas of environmental protection, health, and security. Nevertheless, the various market failures in the financial intermediation sector (asymmetry of information, externalities from restricted provision of collateral, excessive volatility in financial markets) are dealt with almost entirely through financial regulation. This applies mainly to the prudential regulation of individual institutions (micro-prudential regulation). The financial crisis has sharpened the need for high-quality macro-prudential regulation of the financial sector (where the focus is on systemic risk). This is an endogenous risk of the financial system arising from the procyclical behaviour of banks and it is also related to the presence of large and complex financial institutions. Basel III, the refined global regulatory standard for banks, is also focused in this direction – it introduces a counter-cyclical capital surcharge and additional capital requirements for systemically important financial institutions. The changes in financial regulation concern a range of other areas (bank liquidity, remuneration, accounting standards, etc.).[34] The failure of supervision and financial regulation vis-à-vis the containment of systemic risk, and the considerable damage done to public finances as a result, has given rise to calls for the deployment of taxes as a tool of prudential policy in the financial sector.

In a theoretical world, without uncertainty and with complete information, taxation and regulation would be equivalent tools in the task of containing systemic risk. In practice, however, the imposition of taxes is more advantageous. For example, a corrective tax may be levied directly on a financial institution's activity that is deemed socially undesirable due to being a source of systemic risk. Achieving the equivalent effect through a capital surcharge would require an estimation of the bank's cost of capital,[35] which can be complicated as the cost of capital varies over time and across institutions. Also, the costs that taxes impose on banks are smoother and more continuous than those imposed by capital surcharges. From the view of the state, taxes have a considerable advantage in that they create fiscal space and help reduce the fiscal impact of bank failures, especially if a resolution framework for banks is in place. Imposing taxes or levies is also simpler, faster and less costly than the (unavoidable) introduction of harmonised regulation of those financial institutions and activities which have up to now not been covered by regulation (so-called shadow banking).[36] Another unquestionable advantage of taxation is that it is non-discriminatory in nature, in contrast to the well-known problems of the political economy related to regulatory decisions on taking preventive measures during a boom.

On the other hand, addressing system risk through capital surcharges has an advantage over taxation in that it can rely on better international coordination, since there is already a global regulatory standard and international framework in the form of the Basel Committee for Banking Supervision. Capital surcharges increase the buffer against losses and therefore, unlike taxes, directly reduce the probability of bank failure, which is particularly important in the case of systemically important institutions. Furthermore, capital surcharges have stronger corrective effects when taxes cannot be made risk-sensitive enough. In such case, taxation could even be counterproductive.

33 This part draws heavily from the IMF publication "A fair and substantial contribution by financial sector – final report for the G-20, June 2010".
34 For further details, see, for example, the Financial Stability Board publication "Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability" (February 2010), available at http://www.financialstabilityboard.org/publications/r_110219.pdf
*35 Capital surcharge * cost of capital = tax.*
36 For example, the lengthy preparations and implementation within the Basel III framework of counter-cyclical capital surcharges and additional capital requirements for systemically important financial institutions. These measures are not expected to be implemented until 2019. Banks need a relatively long period to adjust to the new regulatory regime, given the scope of the changes and the financial costs they will involve.

For completeness, it must be added that regulatory and tax policies share certain similar drawbacks. These include incidence (the question of who bears the final burden), perimeter (the set of firms to be taxed or regulated), calibration (assessing the benefits and costs/undesirable effects), and international coordination (important at present in regard to the effectiveness of measures).

Overall, the discussion suggests that the taxation of banks may be a useful complement to macroprudential regulation.

An uneven approach to the taxation of financial institutions in the EU

The G-20 meeting in June 2010 failed to reach a political agreement on a global bank tax, as several countries, headed by Canada (which has not had to spend any public funds on bank bailouts), refused to countenance any additional taxation of their banks. The strongest advocates in favour of such taxation were the United States, the United Kingdom, Germany and France. The European Council, at its meeting on 17 June 2010, agreed that "Member States should introduce systems of levies and taxes on financial institutions to ensure fair burden-sharing".[37] These levies and taxes should be part of a resolution framework for dealing with bank failures. Under European Commission plans, a legislative proposal for a comprehensive EU framework for crisis management in the financial sector is due to be presented in summer 2011. At the same time, however, ten EU countries have unilaterally decided to introduce their own systems for the additional taxation of banks (see Table 9). Some countries have introduced taxes on bonuses paid to bank employees.[38] The drawback of such an uncoordinated approach is that the impact differs in different parts of the EU. The main problem may be the prevention of double taxation of bank balance sheets, the result being that certain cross-border banks could face a considerable (up to 25%) drop in profits.[39]

The IMF, in its recommendations to the G-20 regarding the best way to impose additional taxes on banks, suggests two categories of tax (levy):[40]

Table 9 European bank levies

	Rate	Taxable base	Start date	Estimated receipts
Belgium	0.15%	Bank deposits to households and similar insurance products	2010	€700m annually
Germany	0.02% for a base of less than €10bn; 0.03% for a base that is more than €10bn but less than €100bn; and 0.04% for a base of more than €100bn	Liabilities of German banks adjusted for capital and deposits of non-bank institutions	2011	Approx. €1bn
France	0.25%	Minimum capital requirement	2011	€555m in 2012
Austria	0.055% for a base that is more than €1bn but less than €20bn, increasing to 0.085% for a base of more than €20bn; derivatives will face a levy of 0.013% of nominal value	Liabilities of Austrian banks less equity and insured deposits	2011	€500m annually
Denmark	Capped at 0.2% of liabilities	Covered deposits and securities	2011	-
Hungary	0,15% for a base of less than Ft50bn, increasing to 0.53% for a base above this limit	Hungarian banking assets adjusted for domestic interbank loans and securities issued by other domestic financial corporations	2010, 2011	€670 million
Sweden	0.036% but reduced to 0.018% during 2009 and 2010	Banks' liabilities less equity and subordinated debt	2009	€250 million annually
United Kingdom	0.075%	Liabilities less insured deposits, capital, and repo transactions secured with government bonds or bonds issued by supranational institutions (the IMF, etc.)	2011	€3bn in 2012

Source: FT Reporters, "European states braced for tax backlash", www.ft.com, 11 January 2011.
Laznia, M., "Systém krízového riadenie bank: nástrahy návrh", *Biatec*, April 2011.

37 http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/SK/ec/115368.pdf

38 In 2009, a temporary tax on bonuses was adopted in the UK (on banks and building societies) and in France (on credit institutions and investment firms other than asset management companies). In Italy, a permanent tax on bonuses and stock options paid to managerial employees and to independent financial professionals entered into force on 1 January 2010.

39 Jenkins, P. and Wiesmann, G., "New taxes slash European bank profits. www.ft.com", 9 January 2011.

40 IMF, "A fair and substantial contribution by the financial sector – final report for the G-20", June 2010.

1. a financial stability contribution (a corrective tax),
2. a financial activities tax.

Financial stability contribution

A financial stability contribution (FSC) – a corrective tax on financial institutions – could in conjunction with macro-prudential regulation restrict the negative externalities arising from private decisions in the financial sector.

Ex ante taxation may be perceived by the financial sector as an explicit insurance against failure such that supports moral hazard (where activities of financial institutions are risky to the point of being socially undesirable). What matters here is the possibility of failure of a bank, even a systemically important financial institution (SIFI). Market discipline can be enforced and excessive risk-taking discouraged only if the cost of any failure will be fully borne by the shareholders and unsecured creditors – without involving the taxpayer. A special resolution regime for any failure of SIFIs must be in place, in order to avoid a financial panic and a domino effect of failures in the financial sector.[41] Bank taxes collected ex ante should therefore be linked to a special resolution mechanism and their collection should be the responsibility of a resolution agency under which the mechanism will be operated.

If the taxes were imposed only on banks, the system risk would move to other segments of the financial sector. Therefore, all financial institutions should be subject to an FSC, with their significance in systemic risk terms taken into account in the tax base (e.g. a lower base for insurers than for banks) and in the tax rate (a substantially lower rate for small, conservative banks than for large, complex banks). After the system has been launched, it could be gradually refined to the point where each institution is subject to a particular rate that reflects its individual risk profile, and/or its contribution to systemic risk. The level of rates could also take into account the current phase of the business cycle, which would have a mitigating effect on its procyclical behaviour.

The preferred tax base is the financial liabilities of financial institutions, ideally after deducting equity and insured liabilities. There is, for example, a proposal to tax banks' non-core liabilities,[42] comprising various types of wholesale funding (including funding in foreign exchange) outside retail deposits. During a credit boom, the aggregate share of non-core funds in the banking sector's total liabilities will have a rising tendency, since the amount of retail funds is insufficient to fund the rapid expansion of lending. Other factors in this regard are the increasing interconnectedness of financial institutions (through the rise in mutual exposures) and the shortening of maturities on the liability side, as more entities become involved in the intermediation of funding (securitisation). Since the amount of the banking sector's non-core funds is a sound indicator of the stage of the credit cycle and the extent to which risks are underestimated, the introduction of a tax on these funds could restrict externalities related to excessive lending growth and to systemic risk arising from the interconnection of banks. The tax base may also include certain off-balance sheet items that are sources of systemic risk.

The gross government outlays initially required in the event of a systemic crisis may be far exceeded by the final net outlay. This means that the capacity of the resolution fund may also be exceeded. In that case, the IMF recommends that the resolution agency be given access to a government credit line as well. Since such credit lines represent a permanent claim on government funds, financial institutions should have to pay the government a special charge for the privilege (far lower than the tax). The government may decide to continue levying the tax on financial institutions even after acquiring the target amount of revenue for the resolution fund. The tax receipts could then be redirected to the state budget, while the corrective effects of taxes on the behaviour of financial institutions are maintained.

Financial activities tax

As we mentioned at the beginning of the paper, the overall costs (fiscal, economic, social) that a country will face as a result of a systemic crisis are many times higher than the direct fiscal cost of rescuing financial institutions. The corrective taxes analysed above are focused only on the marginal social damage of certain financial sector activities. It is legitimate to levy additional

41 Within the scope and subject-matter of this article, it is not possible to discuss which characteristics should be met or how a SIFI resolution regime should be made to operate effectively.

42 Shin, H.S., "Macroprudential policies beyond Basel III," Policy memo, Princeton University, 22 November 2010.

taxes on financial institutions, provided that these taxes are directed at the average social damage and their principal objective is to raise fiscal revenue; otherwise, the damage would have to be compensated out of a rise in general taxation and public spending cuts. The IMF, in its recommendations to the G-20, proposes the introduction of a financial activities tax (FAT), levied on the sum of profits and remuneration of financial institutions. This is analogous to value-added tax (VAT), since an income equivalent of overall value added is the sum of wages and profits with the latter defined in terms of "cash flow". A FAT in effect taxes net transactions of financial institutions. At the same time, the IMF does not recommend the imposition of taxes on gross financial transactions – i.e. the various forms of financial transactions tax (FTT), such as a "Tobin tax" on foreign exchange transactions.[43]

A FAT offers the state another benefit, apart from substantial additional revenue potential. If the base is correctly set – to include only profits above a "normal" level and "high" remuneration – a FAT will serve as a tax on excessive profits in the financial sector, i.e. it will be a type of tax on rents in the financial sector (income that is purely related to the specific nature of the business and the position of the financial sector in the economy). As a tax on excessive profits, a FAT could help reduce excessive risk-taking by financial institutions, where managers or dealers at financial institutions underestimate risks due to the expectation that any losses will ultimately be borne elsewhere (by the state/taxpayers).

With the inclusion of all remuneration in the tax base, a FAT would effectively be a tax on value added in the financial sector. Such a tax would offset the favourable treatment that the financial sector receives under existing VAT in comparison with other sectors. For technical reasons, financial services are VAT-exempt in certain countries; consequently, the financial sector may be "too big" vis-à-vis the rest of the economy. The rate of this tax should not be too high, so as to avoid any undesirable effect (the transfer of profits and wages to countries with a lower tax burden). Even a FAT that is levied at a rate well below the VAT rate could bring in significant revenue (depending on the size of the financial sector in the given country).[44]

Another advantage of a FAT, according to the IMF, is that it would be relatively straightforward to implement, since it would draw on the practices of established taxes. Like VAT, it would not directly affect the structure of the activities undertaken by financial institutions. But unlike VAT, a FAT would also fall on businesses (financial corporations), not just on final consumers. The incidence of, and revenue from, a FAT would depend on the precise definition of the base. The closer the tax is to falling on rents in the financial sector (profits above a "normal" level and "high" remuneration), the less is the incentive for it to be passed on to customers of financial institutions – through higher charges and interest rate margins – rather than be borne by owners and managers. In order to tax the rents included in profits, it would be necessary to define profits in terms of cash flow, i.e. similar to the definition implicit in VAT (investments are fully deductible; interest expenses are not deductible).[45] Rents, as a part of profits, which should be the (main) target of taxation, would then equal the return to equity above a selected reference rate. The reference level for setting the rent components of remuneration, as with profits, is determined by an expert estimation. Thus, in both cases there is a risk that the tax falls on profit/income which is high as a result of strong productivity and not of excessive risk-taking.

Conditions for the effective additional taxation of financial institutions

History indicates that no country is completely immune from the risk of financial crisis and that financial crisis entails high costs. That is why it makes sense to look at effective ways of meeting the cost of future crises. One solution would appear to be some form of additional taxation of banks. In order to maximise the effect of imposing a corrective tax on financial institutions and taxes on financial activities, several conditions will have to be satisfied:[46]

1. The global nature of financial markets means that there must be international coordination not only in financial regulation, but also in the additional taxation of banks. An international agreement, at least on basic principles for the taxation of financial institutions, will help reduce the incentive to avoid tax through the relocation and restructuring of

43 An FTT does not have corrective potential in relation to systemic risk; its impact would be substantial on customers, but minimal on the managers and owners of financial institutions. There are already far more efficient means for the state to generate revenue. For a more detailed discussion on FTTs, see Matheson, T., "Taxing Financial Transactions: Issues and Evidence", Financial sector taxation: The IMF's report to the G-20, September 2010.

44 For further details, see the IMF publication "A fair and substantial contribution by the financial sector – final report for the G-20", Appendix 6, Part B, June 2010.

45 A basic feature of this type of taxation is its neutrality in regard to investment decisions. Further information on the technical details of how to define profit for FAT purposes can be found in Keen, M., Krelove, R., Norregaard, J., "The Financial Activities Tax", in "Financial sector taxation: The IMF's report to the G-20", September 2010.

46 IMF, "A fair and substantial contribution by the financial sector – final report for the G-20", June 2010.

financial activities.[47] International coordination is important not only for the mitigation of competitive distortions, but also for the prevention of double taxation (through a tax agreement);
2. In the context of the additional taxation of financial institutions, it is very important to step up efforts against their aggressive tax planning;
3. Actions will be needed to reduce current tax distortions, such as the deductibility of interest expenses. These represent a tax bias that favours debt financing (leverage) at the expense of equity financing.
4. When implementing and designing new taxes/levies on financial institutions, it will be necessary to take into account the expected costs of future regulatory policies, in order to avoid excessive taxation of financial institutions.

Which approach/procedure to choose for Slovakia?

From the above, it may be concluded that while conditions in Slovakia are politically very conducive to the imposition of additional taxes on financial institutions (banks) – given the weakened state of public finances (see Box) – the technically preferable approach should be to increase the focus on financial stability. Since the general government budget deficit and public debt in Slovakia have been rising (particularly in the last two years) due to a combination of the adverse repercussions of the global economic crisis and an excessive increase in government expenditure (mainly in 2009), the grounds for ex post taxation of financial institutions are less strong here than they are in those countries that spent large amounts of public funds on the direct rescue of financial institutions and on the stabilization of their financial systems.

Box 2

SPECIAL BANK LEVY PLANNED IN SLOVAKIA[48]

A levy on banks and branches of foreign banks in Slovakia is laid down in a draft law concerning a special levy on selected financial institutions and amending Act No 479/2009 Coll. on state administration authorities in taxes and fees (hereinafter referred to as the Act). The base of the levy is defined in the draft law as the sum of liabilities less the sum of equity and the value of protected deposits. The proposed rate of the annual levy is 0.2% of this base. The levies should constitute revenue of the state budget, and they should be administered by Tax Authority. The law is due to enter into force on 1 January 2012.

At the technical level, a more pertinent issue is how to meet the costs of future financial crises. Banking in Slovakia has a conservative model, but even here there are elements of systemic risk. It is therefore justified to impose at least a minimum additional tax on the banks, in order to create within a specified time period a special resolution fund for dealing with any future financial (banking) crisis.[49] Such a fund would be part of the resolution mechanism in the financial sector, which would in no event be used to rescue banks, whether systemically important or not (on the contrary, its main role would be to support the controlled failure of a financial institution). In view of the undesirable effects, it would be counterproductive if Slovakia unilaterally decided to impose a tax on financial institutions in order to support financial stability. The European Commission's draft law on a new crisis management framework for the EU financial sector is due to be presented in summer 2011.[50] This framework will apply to banks and investment firms and it will also require Member States to establish bank resolution funds.[51] These funds should be financed out of contributions from banks and investment firms, with the contribution of each firm set according to the size of their liabilities. During the approval process for this legislation, Slovakia should push for an agreement on common principles in the taxation of financial institution's liabilities – i.e. an EU-level agreement on the tax base and minimum rate – one in which the Member States have some discretion in adjusting the taxation parameters to their local conditions (the

47 *For example, the common adoption of minimum tax rates can help to substantially limit collective losses from non-cooperative tax-setting.*
48 *https://lt.justice.gov.sk/Material/MaterialDocuments.aspx?instEID=-1&matEID=3973&langEID=1*
49 *A decision on the taxation of other financial institutions, for example, insurers should take into account their contribution to systemic risk. In Slovakia, this contribution is at present negligible.*
50 *http://ec.europa.eu/internal_market/consultations/docs/2011/crisis_management/consultation_paper_en.pdf*
51 *Before the end of 2011, the EC will put forward a proposal for similar measures in relation to other types of financial institution, including insurance companies.*

extent to which financial institutions contribute to systemic risk).[52] The main consideration when setting the tax base should be the corrective effects of the tax.

In October 2010, the European Commission expressed support for the introduction of a FAT (as a bank tax on profits and wages) at the EU level.[53] Another EC initiative in this regard was a public consultation that closed in April 2011.[54] On one hand, the introduction of a FAT across the EU would temper the edge that the financial sector has been given over other sectors of the economy by virtue of its position under the VAT regime; on the other hand, the imposition of a FAT on banks would very likely lead to a further increase in customer fees and to a rise in interest margins, which are already high. Banks also argue that since their reporting is not based on the recording of cash flows, the introduction of the tax in its planned form would place a heavy administrative and financial burden on them.[55] The reason for imposing this tax should be to refund the public funds or other indirect costs spent or incurred on measures to resolve the crisis in the financial sector. To levy this tax at the national level, however, except as a short-term policy, would in the context of the EU Single Market involve the risk of undesirable effects in the banking sector and economy. Further drawbacks of such an ex post tax are that it would affect only the surviving firms (not those that went bankrupt) and would have a procyclical effect (increasing cost at the worst possible time).

References

Alessandri, P., Haldane, A.G., "Banking on the state", Bank of England, November 2009.

European Banking Federation, *EBF comments on the European Commission's consultation paper on financial sector taxation*, April 2011, available at *www.ebf-fbe.eu*

Financial Stability Board, *Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability,* February 2011, available at *http://www.financialstabilityboard.org/publications/r_110219.pdf*

FT Reporters, "European states braced for tax backlash", Financial Tines, 11 January 2011, available at *www.ft.com*

Keen, M., Krelove, R., Norregaard, J., "The Financial Activities Tax", *Financial Sector Taxation: The IMF's Report to the G-20 and Background Material,* September 2010.

Laznia, M., "Systém krízového riadenie bánk: nástrahy návrhu", *Biatec,* April 2011.

Matheson, T., "Taxing Financial Transactions: Issues and Evidence", *Financial Sector Taxation: The IMF's Report to the G-20 and Background Material,* September 2010.

IMF, A *fair and substantial contribution by the financial sector – final report for the G-20,* June 2010.

Schildbach, J., "Direct fiscal cost of the financial crisis", *Deutsche Bank Research,* 14 May 2010.

Shin, H.S., "Macroprudential Policies Beyond Basel III", Policy Memo, *Princeton University,* 22 November 2010.

52 Minimum common principles should also be agreed for any additional taxation and fees, where the resolution fund is found to be insufficient to deal with a crisis and the government or central bank needs to borrow funds for this purpose.

53 http://ec.europa.eu/taxation_customs/resources/documents/taxation/com_2010_0549_en.pdf

54 http://ec.europa.eu/taxation_customs/resources/documents/common/consultations/tax/financial_sector/consultation_document_en.pdf

55 EBF comments on the European Commission's consultation paper on financial sector taxation, April 2011, available at www.ebf-fbe.eu

2 THE EFFECT OF THE FINANCIAL CRISIS ON PUBLIC FINANCE POSITIONS

ANNA STRACHOTOVÁ

In this paper, we examine the identification of the channels through which the financial and economic crisis has affected the debt position of the public sector in Slovakia and in selected EU countries. In particular, we analyse how changes in the growth rate of the economy, inflation, and fiscal deficit are affecting the sustainability of the debt position and sensitivity to movements in these parameters.

The financial and economic crisis has caused a sharp rise in the fiscal deficits and public debts of EU countries. In advanced economies, mounting indebtedness has resulted in governments providing substantial support for aggregate demand and key sectors (stimulus measures) and assuming liabilities from financial and non-financial corporations. In new EU countries, the rise in public debt had more to do with a drop in revenues caused by the decline economic activity.

Besides steeply rising debt, certain EU countries have in the last two years seen an unprecedented rise in the risk premium on their long-term sovereign debt. With financial markets lacking confidence in several EU Member States, the EU and international organisations[1] faced the necessity of supporting these countries. Thus, the debt crisis in euro area peripheral countries emerged during the course of 2010.

Sovereign debts are expected to rise still further in the years ahead, before the countries would be able to meet their fiscal consolidation targets. Given the negative effects of high indebtedness on potential growth and on monetary and financial stability, fiscal policy must pursue a strategy that, firstly, stabilises the debt ratio at the current level and then, secondly, normalises the fiscal and balance-sheet position of the general government sector in the medium-term horizon. For a number of countries, this will entail consolidation measures that go some way further than simply restoring the pre-crisis situation. Countries need to reckon not only on the most probable scenario, but also on risks associated with shifts in the parameters that affect government debt dynamics.

The medium and long-term sustainability of government debt positions is an issue made more urgent by Europe's ageing populations, which will in future add considerable costs to public finance balance sheets.

The recent difficulties have led to questions about the adequacy and sustainability of public sector debt, which could have a strongly adverse effect on growth outlooks in EU countries and on private sector financing. The escalation of sovereign debt crises and the possibility of contagion mean heightened risks also for financial institutions exposed to sovereign debts, as well as for other countries that have so far been reporting a basically sound debt position but weaker macroeconomic fundamentals.

SIGNIFICANCE OF THE GOVERNMENT SECTOR FOR FINANCIAL STABILITY

The public sector debt position is an important aspect of macroeconomic fundamentals and financial policy. Since public finances are able to generate stable revenue streams in the future, government securities carry a low risk of default or extension and they are highly liquid. Government securities therefore have the right properties to serve financial markets as a benchmark for measuring the risk level of other financial assets in a given economy.

The indebtedness of the general government sector stems mainly from fiscal policy decisions, but also from the monetary-policy framework. Imbalances in private sector balance sheets (implicit liabilities and guarantees to financial and non-financial corporations) may spill over to the public sector balance sheet, as may the effects of interactions between the financial balance sheets of economic sectors (Allen, 2002).

56 Hungary and Latvia adopted IMF programmes under which they implemented stabilisation measures, including the tightening of fiscal policy in 2008; Greece received financial assistance from the EU in May 2010, followed by Ireland in November 2010, and Portugal in May 2011.

The relationship between public finances and financial stability is affected by the nature of fiscal policy (the level of revenues), the debt stock, the debt profile (type of debt instruments and their maturity), the investor base, the stage of development of the capital market, and institutional factors (Das, 2010). In this paper, we focus only on risks arising from the overall debt stock.[57]

Fiscal sustainability

Retaining confidence in fiscal solvency is crucial. According to economic theory, fiscal solvency means that the government is able to generate primary balance surpluses in the future in order to cover debt servicing payments (i.e. the present, discounted value of future primary surpluses must equal the value of the current public debt). The theoretical concept of sustainability is flawed in that it is too general and cannot be applied in decisions on the nature of fiscal policy, since it states only that the debt must be repaid at some point in the future.

In practice, the most frequently used benchmark for distinguishing sustainable fiscal policies from unsustainable ones is non-increasing government debt (usually as the ratio of gross government debt-to-GDP). Fiscal sustainability in the most narrow sense means achieving a fiscal balance that stabilises the public finance deficit and government debt at a certain specified level. Under the widely known Maastricht criteria, which are binding on EU countries, government debt should not exceed 60% of GDP, or should converge to this limit if it is at a higher level. Recent developments indicate, however, that a simple numeric target is insufficient and that when assessing the sustainability of debt, it would be more appropriate to take into account the particular circumstances of a specific country (e.g. the level and volatility of its budget revenues, the debt structure, etc.).

Box 3

MATHEMATICAL APPARATUS FOR THE CALCULATION OF GOVERNMENT DEBT DYNAMICS

The accounting identity of the budget of the consolidated government sector can most generally be expressed as:

$$G_t + i_t D_{t-1} = T_t + (D_t - D_{t-1}) + (H_t - H_{t-1}) \quad \text{(b1)}$$

where:
G is the government's nominal primary expenditure;
i is the nominal implicit interest rate of the debt *D*. The implicit interest rate is calculated as the ratio of paid interest expenses to the debt as at the end of the previous year;
T is the government's budget revenues;
$D_t - D_{t-1}$ is the issuance of new debt;
$H_t - H_{t-1}$ is seignorage, the change in the stock of the central bank's liabilities or monetary base. We assume that the long-term inflation rate is low and stable, so that this source of public finances generates low revenues, and we then abstract from it.

The equation (b1) implies that government expenditure *G* and debt servicing costs accumulated in the previous period D_{t-1} must be lower or equal to the sum of tax revenues *T*, issuance of new debt $D_t - D_{t-1}$ and revenues from seignorage $H_t - H_{t-1}$.

The change in public debt is expressed in terms of ratios to nominal GDP:

$$d_t - d_{t-1} = \frac{i_t - y_t}{1 + y_t} d_{t-1} - pb_t \quad \text{(b2)}$$

where *y* is nominal GDP growth and *pb* is the primary budget balance, or

$$d_t - d_{t-1} = \frac{r_t - g_t}{1 + g_t} d_{t-1} - pb_t \quad \text{(b3)}$$

where *r* is the real implicit interest rate and *g* is real GDP growth.

Government policy affects the level of debt through the primary balance ***pb*** and real interest rate ***r***. If real interest rates are higher than the real growth of the economy, the debt ratio may rise even if the government achieves a primary surplus.

57 The different features of the debt structures of 23 EU countries are presented in a study by Eminescu (2010).

A basic condition of debt sustainability is convergence of the debt to a specific final limit. The increase in the debt ratio must be lower than the rise in interest rates (the so-called no-Ponzi game condition). In the case of a Ponzi financial scheme, the current debt is serviced (for infinite time horizon) by the issuance of additional debt, which covers the debt interest and principal payments. Assuming that creditors behave rationally, financing on the basis of a such a Ponzi scheme would not work (Chalk, 2000).

Condition for maintaining a constant debt ratio

Where the debt ratio in relationship (3) does not change, $d_t - d_{t-1} = 0$, then

$$\frac{pb_t}{d_{t-1}} = \frac{r - g}{1+g} \qquad \text{(b4)}$$

The primary surplus-to-debt ratio must match the difference between the real yield on the debt and the real output growth. This relationship may be depicted graphically by a straight line intersecting the x-axis at an angle of 45 degrees.

The primary balance that allows the given debt ratio to be attained within a finite time horizon

If a constant primary balance *pb** is maintained, the target debt ratio can be attained where:

$$pb_t^* = \frac{\lambda}{(1+\lambda)^{-N}-1}((1+\lambda)^{-N} d_N^* - d_0) \qquad \text{(b5)}$$

where d_0 is the initial debt ratio, and
d_N^* is the planned debt ratio that should be attained within *N* time periods

$$\lambda = \frac{r-g}{1+g}$$

Decomposing the increase in the debt ratio, including a stock-flow adjustment

If we assume that the debt is also affected by financial operations, such as privatisation revenue or the effect of exchange rate movements on debt issued in foreign currency, equation (b2) will be expanded to include a stock-flow adjustment

$$d_t - d_{t-1} = \frac{i_t - y_t}{1+y_t} d_{t-1} - pb_t + sfa_t \qquad \text{(b6)}$$

where *sfa* is a stock-flow adjustment.

The role of interest rates, inflation and economic growth in debt dynamics

The development of the debt ratio ***d*** is characterised by the equation[58]

$$d_t - d_{t-1} = \frac{r_t - g_t}{1+g_t} d_{t-1} - pb_t \qquad (1)$$

where ***d*** is the debt ratio, ***r*** are real implicit interest payments (adjusted for real economic growth ***g***), and ***pb*** is the primary balance.

The change in the debt ratio is influenced by debt servicing costs from the past and by the primary balance of the general government budget. Equation (1) shows that the size of the debt affects the extent to which real GDP growth reduces the debt dynamics. A change in the differential between interest rates and growth (where real growth is *g* and real interest rates are *r*) means that, in relation to the debt ratio, fiscal consolidation must be more intensive (the primary surplus necessary for stabilisation must be higher). Countries with a high debt burden are more sensitive to a decline in growth, but also to a fall in the inflation rate.

The difference between real interest payments and real GDP growth – the differential **(r - g)**[59] – is a basic parameter that determines the development of the debt ratio. For advanced market economies, the differential **(r - g)** is positive over a long time period, since real interest rates are higher than real growth. A negative differential is treated as a temporary phenomenon[60] that occurs mainly in emerging economies, where economic growth is rapid and the inflation rate, as measured by the GDP deflator, which has been the case in the new EU countries. This was even the case in the euro area periphery economies in the period following their entry into the bloc, when interest rates fell sharply.

Economies with a negative differential can report a primary deficit (up to a certain level) and at the

58 The mathematical apparatus for the calculation of government debt dynamics is presented in Box 3.
59 For simplicity, we refer to the entire equation $(r_t - g_t)/(1+g_t)$ as (r - g) in the rest of the paper.
60 Escolano, 2010.

Table 10 Debt consolidation (% GDP)

	Debt ratio				Primary balance	
	2002	Change 2002-2007	Change 2008-2010	Change 2010-2012[1)]	2010	Structural PB[2)]
Czech Rep.	28.2	0.8	8.6	4.4	-3.3	-2.6
Estonia	5.7	-2.0	**2.0**	0.4	0.3	**2.6**
Ireland	32.1	**-7.1**	51.8	21.7	-29.2	-27.0
Greece	101.7	3.8	32.0	23.4	-4.9	-2.7
Latvia	13.5	**-4.5**	25.1	4.7	-6.2	-3.6
Lithuania	22.3	**-5.4**	22.6	5.4	-5.3	-3.3
Hungary	55.6	10.5	7.9	**-7.5**	-0.1	**2.0**
Poland	42.2	2.8	7.9	0.1	-5.2	-4.7
Portugal	53.7	14.4	21.4	14.4	-6.1	-5.8
Slovenia	28.0	**-4.8**	16.1	8.0	-4.0	-1.4
Slovakia	43.4	**-13.8**	13.2	5.8	-6.6	-6.1

Source: EC, May 2011.
1) EC forecast.
Note: Structural payment balance – primary balance adjusted for cyclical effects.

same time maintain an unchanged debt ratio. Where a negative differential **(r - g)** is maintained over a long period, there is a certain maximum primary deficit consistent with a non-increasing debt burden.[61]

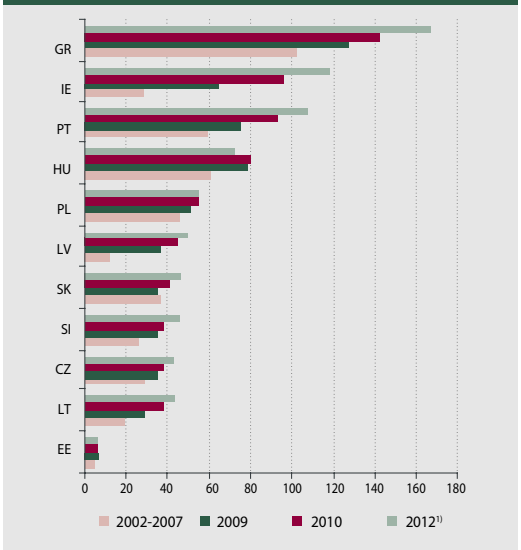
Debt position of the public sector

We will compare the developments in public sector debt position in one group of countries comprising Slovakia and five other euro area countries (Greece, Ireland, Portugal, Slovenia, and Estonia) and a group of new EU Member States comprising the Czech Republic, Hungary, Poland, Lithuania and Latvia.

In terms of their general government balances, these countries are relatively heterogeneous. Greece, Hungary, Portugal and Poland have long been accumulating high debts, while other countries recorded rising debt as a repercussion of the financial crisis (Ireland) and after the crisis spilled over to the real economy. Before the crisis, all the countries apart from Greece had a debt ratio that complied with the Maastricht criteria.

The very low levels of government debt reported by the Baltic States were to a large extent the result of the fixed exchange rate regime used by these countries. Nevertheless, domestic economic conditions led to a sharp rise in the external debt of the private sector. The steps taken to solve the imbalances that emerged after 2007 have had a strong upward effect on public sector debt.

Chart 73 Gross debt (% of GDP)



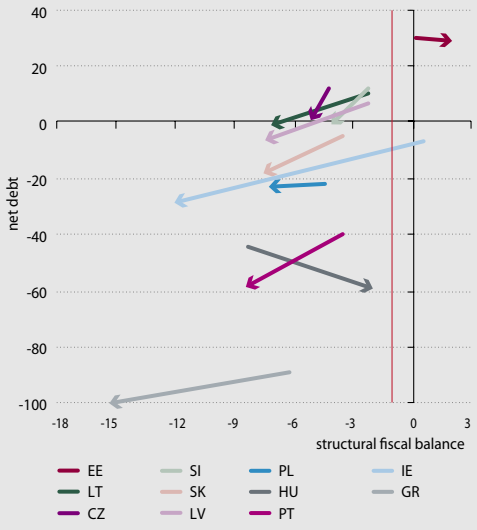
Source: EC.
1)EC projections.

During the period from 2002 to 2008, a worsening of the debt ratio was recorded by all the countries under review except for those that joined the euro area[62] (Slovenia, Slovakia, and Estonia) and Lithuania. The European Commission assumes a further deterioration in the debt ratio of all the countries (except Hungary) both at present and in the horizon up to 2012.

Chart 73 shows the differences between the debt ratio in the pre-crisis period and its subsequent rise.

61 According to the equation (b4) in Box 3.
62 Slovenia joined the euro area in 2007, Slovakia in 2009, and Estonia in 2011.

Chart 74 Net debts and fiscal balances (% of GDP)



Source: EC, Eurostat, NBS calculations.
Note: Average for 2002-2007 in comparison with the situation in 2009.

The public sector debt position may also be assessed on the basis of net debt development. Net debt (liabilities less financial assets) indicates the extent in which sector's liabilities are covered by financial assets that could potentially (relatively quickly) be used for debt repayment. The net debt position is usually referred to less often, given the higher volatility of its development and lower transparency.[63]

The fiscal position in Chart 74 (adjusted for one-off and cyclical effects) provides additional information about the extent to which the countries have increased their debt through additional fiscal flows. Under the revised Growth and Stability Pact, countries are required as a medium-term objective to achieve a structural deficit not exceeding 1% of GDP. Except for Estonia and Ireland, none of the countries under review met this requirement prior to the crisis, and, at present, this group of countries are further away from this benchmark than they were then, except for Hungary.

Of the five countries that had a net creditor position before the crises, only Estonia[64] has maintained it. Estonia was also reporting a fiscal surplus before the crisis, as was Ireland, and so these countries were not accumulating debt through additional fiscal flows. The largest relative indebtedness – as well as largest gross and net debts – were recorded by Greece, Portugal and Hungary.

GDP DEVELOPMENTS

In the pre-crisis period, the countries were recording robust growth that helped to mitigate the debt dynamics. In the new EU Member States, this development was driven by an extensive inflow of

Chart 75 Real GDP (annual percentage changes)

Source: EC May 2011.
1) EC projection.

63 *The gross debt data are immediately accessible and accurate, while the evaluation of the amount and liquidity of financial assets is more problematical.*

64 *The accumulation of considerable fiscal reserves in the pre-crisis period meant that Estonia was able to meet the Maastricht criteria despite its GDP contracting in the 2008 and 2009.*

Chart 76 Real implicit interest rates (%)

Source: EC May 2011, NBS calculations.
1) EC projection.

capital from abroad and favourable conditions for financing. By the end of 2008, the countries had remained unscathed by the financial crisis. Market confidence in emerging economies dissipated after September 2008 and countries were hit hard by the crisis through financial channels/markets.[65] Two countries that largely escaped this pressure were Slovenia, already by then a member of the euro area, and Slovakia, with the conversion rate of its currency vis-à-vis the euro having already been set and the country confirmed as being on course to join the euro area. In 2009, however, the troubles in financial markets spilled over to the real economy and resulted in a recession (in all the countries except for Poland).

In 2010, a majority of the countries saw a return to growth. The EC does not, however, expect growth to return to pre-crisis levels before 2012.

Interest rate developments

Charts 76 show the development of implicit interest rates over the last ten years. These rates are formed by the sum of interest expenses paid in the given year relative to the overall debt in the previous year. The level of interest expenses is determined by decisions taken in the past and is dependent on the composition and maturity of the debt. After deducting the rate of inflation in the economy, as measured by the GDP deflator, we obtain information about the real interest rates.

In the period 2000–2007, the conditions for debt consolidation were favourable also because real interest rates were low and falling. It was generally the case before the crisis that real interest rates were low, liquidity in the markets was sufficient, and risk premia were modest. In addition, new EU Member States were viewed very positively in comparison with other emerging economies, as their risk premia were relatively low (Luengnaruemitchai, 2007).

Following a change in the parameters (slump in GDP, decline in inflation), the rates climbed sharply. The rise in interest rates was probably affected also by risk factors such as the development of expected inflation, the deterioration of the fiscal position, and the expected exchange rate movement.[66]

The overall effect of the crisis on the differential (r-g) and expected development up to 2012 is shown in Chart 77.

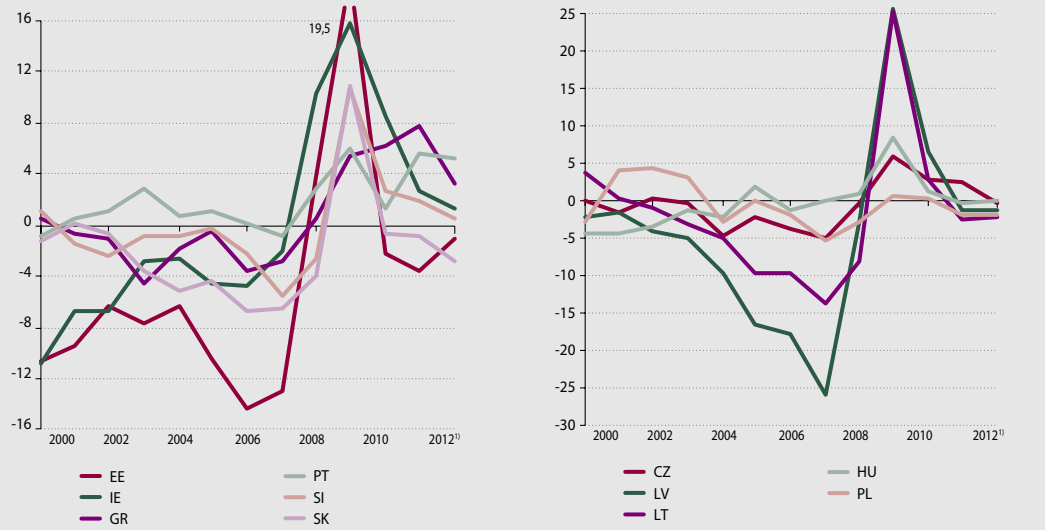
Public finance developments

The EC uses the cyclically-adjusted primary balance as the main indicator of a country's fiscal

65 For further analysis of how the financial and economic crisis affected new EU Member States, see, for example, Gardo (2010), Lewis (2010).

66 The literature on the determinants of interest rates on government securities issued by new EU Member States does not as yet offer any clear conclusions. It is stated that variables explaining spread movements in the case of advanced market economies function substantially less well in the case of new Member States.

Chart 77 Differential (r-g) (%)



Source: EC May 2011, NBS calculations.
1) EC projection.

Chart 78 Primary balance (% of GDP)

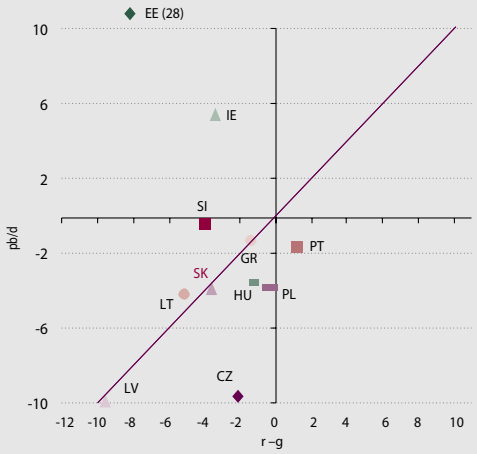
Source: EC May 2011, NBS calculations.

position. The cyclically-adjusted budget balance measures what the fiscal budget balance would be if there were no cyclical fluctuations and if the economy was at its potential/trend level.

The economic crisis depressed potential output. Some of the losses may be permanent, which would mean the loss of certain revenues (related to, for example, the property boom). A further result of the decline in potential output is a deterioration in the general government structural deficit, which was even worse during the boom than had been expected.

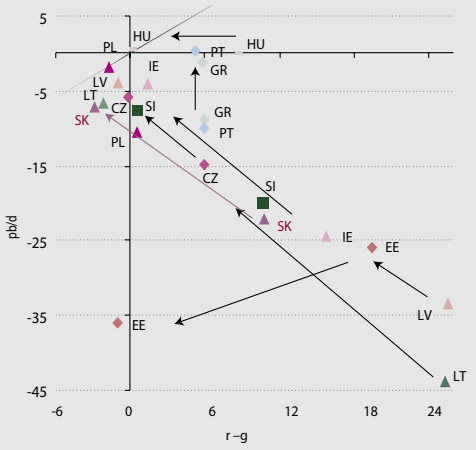
The fiscal balance deteriorated during the crisis, from a position that was (on average) relatively weak even during the boom.

Chart 79 Differential (r-g) and primary balance – average for 2002-2008



Source: EC May 2011, NBS calculations.
1) EC projection.

Chart 80 Differential (r-g) and primary balance – 2009 and 2012[1)]



Source: EC May 2011, NBS calculations.
1) EC projection.

Interaction between the fiscal position and the economy's macroeconomic parameters

The interaction between the fiscal position and the differential (r-g) is illustrated in Charts 79 and 80. For the debt ratio not to worsen, the primary balance-to-gross debt ratio must be greater than or equal to the differential (r-g).[67] This position is indicated by a 45-degree straight line. A country lying on (or above) this line has a stable (or falling) debt ratio.

In the pre-crisis period, most of the observed economies had a primary balance deficit, but the debt was stabilised by the favourable (i.e. negative) differential (r-g). The overall sound result therefore masked the fact that fiscal policy did not contribute sufficiently to the sustainability of public sector finances and that the debt was stabilised mainly by the "automatic" effect of macroeconomic parameters.

This problem was revealed after the outbreak of the crisis and the change in parameters. As the crisis mounted (in 2009), fiscal policy positions shifted to an unsustainable trajectory. According to the EC forecast of May 2011, a certain correction is expected to be recorded until 2012,

Table 11 Debt-stabilising primary balance in 2010

	Real implicit interest rate (r)	Real growth (g)	(r – g)	Debt ratio	Primary balance	Debt-stabilising primary balance
Czech Rep.	5.2	2.3	2.9	38.5	-3.3	1.1
Estonia	0.8	3.1	-2.3	6.6	0.3	-0.1
Ireland	7.4	-1.0	8.4	96.2	-29.2	8.2
Greece	1.8	-4.5	6.2	142.8	-4.9	9.3
Latvia	6.3	-0.3	6.7	44.7	-6.2	3.0
Lithuania	4.2	1.3	2.9	38.2	-5.3	1.1
Hungary	2.5	1.2	1.3	80.2	-0.1	1.0
Poland	4.3	3.8	0.5	55.0	-5.2	0.2
Portugal	2.7	1.3	1.4	93.0	-6.1	1.3
Slovenia	3.9	1.2	2.7	38.0	-4.0	1.0
Slovakia	3.5	4.0	-0.6	41.0	-6.6	-0.2

Source: EC May 2011, NBS calculations.

67 Equation (b4) in Box 3.

given the recovery of economic growth. The main requirement for putting public finances on a sustainable footing is, however, a substantial improvement in the structural primary balance.

Debt-stabilising primary balance

In order to assess the extent to which the current fiscal position deviates from the sustainable level,[68] we show in Table 11, in the last column, the benchmark level of the primary balance that the country must attain if it is to maintain its debt ratio at the current level.

In 2010, all the countries (except Estonia) had a primary balance position that was worse than would be necessary to stabilise the debt at the current level. Given the change in the differential (r-g), from negative to positive, stabilisation of the debt ratio cannot be achieved with a primary deficit but requires a primary surplus (except in Slovakia and Estonia).

As the results for new Member States imply, favourable debt dynamics did not help achieve a sufficient consolidation of public finances. Incidentally, a situation in which real interest rates in the economy are lower than the rate of economic growth is not standard in advanced countries, indicating as it does the presence of inefficiency in the economy. An environment of very low (in some countries, even negative) interest rates was driving up borrowing in the private sector, too. In several countries (particularly the Baltic states and Hungary), the situation was made worse by private borrowing in foreign currency.

Stock-flow adjustment

In the preceding decomposition of debt dynamics, we assumed that neither the level of the debt in foreign currency, nor value of public sector financial assets undergoes any change and that the debt is pushed up solely by fiscal flows and the effect of macroeconomic parameters. If these effects are taken into account, however, the debt ratio will also increase through a stock-flow adjustment.

This adjustment takes account of the accumulation of financial assets, differences between cash and accrual flows, and the effect of exchange rate movements on the value of the debt denominated in foreign currencies, and other statistical adjustments, including the realisation of collateral and assumption of liabilities of the private sector. The effect of the financial and economic crisis on public finances was also reflected in the contribution of the stock-flow adjustment to debt growth (due to, for example, bank rescue operations in several countries in 2008).

Chart 81 Stock-flow adjustment (% of GDP)

Source: EC May 2011, NBS calculations.
1) EC projection.
Note: A positive value indicates a contribution to debt growth.

68 Equation (b4) in Box 3.

Table 12 Contributions to the debt ratio change – cumulative for 2002-2008 and 2009-2010 (% of GDP)

		Primary deficit[1)]	Snowball effect	Stock-flow adjustment	Debt ratio change
Czech Rep.	2002 – 2008	12.3	-4.6	-5.9	1.8
	2009 – 2010	7.8	2.9	-2.2	8.5
Estonia	2002 – 2008	-8.3	-2.1	9.3	-1.1
	2009 – 2010	1.1	0.8	-0.1	1.8
Ireland	2002 – 2008	-5.9	-2.1	20.3	12.3
	2009 – 2010	41.4	13.4	-3	51.8
Greece	2002 – 2008	12.2	-12.5	9.3	9
	2009 – 2010	15.2	14.3	2.5	32
Latvia	2002 – 2008	4.7	-8.4	9.8	6.1
	2009 – 2010	14.4	8.7	2	25.1
Lithuania	2002 – 2008	2.9	-8.6	-1.1	-6.8
	2009 – 2010	13.6	5.5	3.6	22.7
Hungary	2002 – 2008	14.7	-0.8	2.7	16.6
	2009 – 2010	0	7.6	0.3	7.9
Poland	2002 – 2008	9.2	-4.6	0.3	4.9
	2009 – 2010	9.9	0.3	-2.4	7.8
Portugal	2002 – 2008	6.7	4.1	6.8	17.6
	2009 – 2010	13.3	5.4	2.6	21.3
Slovenia	2002 – 2008	0.7	-3.1	-3.4	-5.8
	2009 – 2010	8.6	3.4	4	16
Slovakia	2002 – 2008	4.5	-10.6	-9.7	-15.8
	2009 – 2010	13.1	3	-2.9	13.2

Source: EC May 2011, NBS calculations.
1) Minus sign indicates a surplus.

The decomposition of debt ratio dynamics[69] in Table 12 indicates that in the pre-crisis period, all the countries other than Portugal benefited from the positive differential between growth and interest rates. The debt dynamics were affected to varying extents by the deficit-debt adjustment. In Ireland, as well as in Latvia, Estonia and Greece, the adjustment contributed significantly to the debt growth. Even with decomposition into these factors, consolidating countries (Lithuania, Slovakia and Slovenia) benefited from the contribution made by the stock-flow adjustment.

At present, primary deficits are making a significant contribution to debt ratio growth. The effect of the difference between nominal interest rates and nominal growth (snowball effect) – was significant in Greece and Ireland, as well as in Hungary and Latvia, as rising risk premia pushed up debt financing costs.

Sustainable debt levels

The current growth in public debt is high in historical terms. It is difficult to determine an optimal level of debt (economic theory is not helpful in this regard). In the absence of any consensus on the ideal debt ratio, we assume that a return to the pre-crisis debt level is the minimum necessary correction (even though it is evident that the Greek debt ratio was already very high in the pre-crisis period. On the other hand, for example, Estonia is even now not under any necessity to reduce its debt ratio.

In Table 13, the extent of the necessary correction is illustrated using a scenario in which the debt ratio is reduced to the pre-crisis level in a horizon of 5 or 10 years. We assume that the real implicit interest rates for the countries will be at the 2012 level and that real economic growth will match the EC forecast[70] for 2012. The EC assumes

69 According to equation (b6) in Box 3.
70 EC (2010).

Table 13 Primary balance needed to reduce the debt ratio (% of GDP)

	Reduction to pre-crisis level Scenario 1			Reduction to pre-crisis level Scenario 2		
	5 years	10 years	(r-g)[1] in %	5 years	10 years	(r-g) in %
Czech Rep.	2.5	1.2	-0.2	3.0	1.7	1
Estonia	0.4	0.2	-1.1	0.5	0.3	1
Ireland	15.9	8.5	1.4	15.6	8.2	1
Greece	15.8	10.2	3.3	12.5	6.9	1
Latvia	5.6	2.6	-1.1	6.3	3.3	1
Lithuania	4.9	2.2	-2.2	5.9	3.1	1
Hungary	0.1	0.1	0.1	0.8	0.7	1
Poland	0.8	0.0	-1.7	2.1	1.3	1
Portugal	13.3	9.0	5.2	9.3	5.1	1
Slovenia	4.9	2.6	0.6	5.1	2.7	1
Slovakia	2.7	0.9	-2.9	4.2	2.3	1

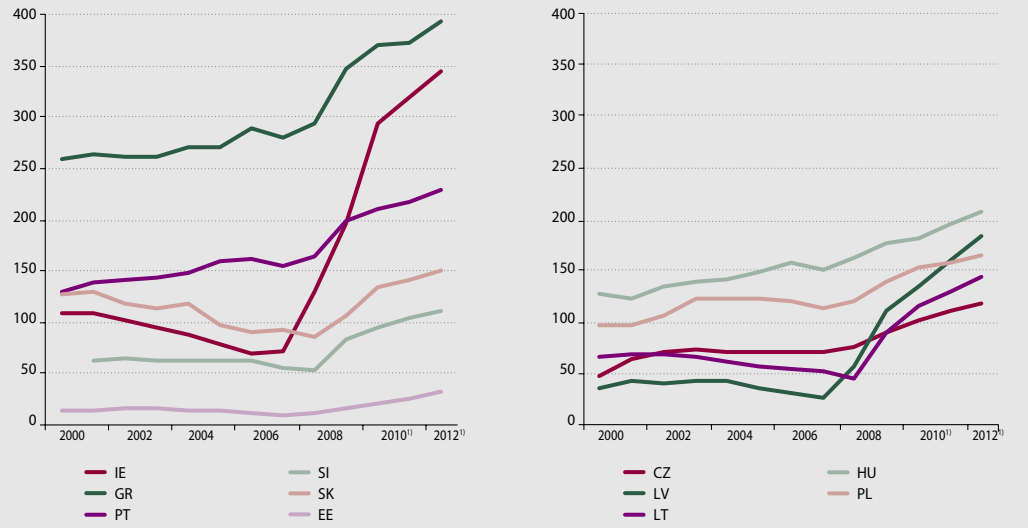
Source: EC, NBS calculations.
1) EC forecast for 2012.

a positive growth differential for Ireland, Greece, Lithuania and Portugal – i.e., a more demanding position for fiscal consolidation. Other countries could take advantage of a negative differential.

The scenario 1 results indicate how demanding the consolidation should be. For countries with a high differential (r-g), it would be very demanding to consolidate in the given scope within the stipulated time horizon, since the selected assumptions require a very high level of primary surpluses.[71]

Scenario 2 illustrates how the required scope of consolidation is affected by the value of the differential between growth and interest rates. If we assume that countries record the same differential (r-g) during consolidation, at the level of 1% (where implicit interest rates are 1% higher than real growth), the most indebted economies could reduce their primary balance and countries with a negative differential would have to consolidate at a more intensive pace.

Chart 82 Debt-to-revenue ratio (%)



Source: EC, NBS calculations.
1) EC projection.

71 Annual consolidation with a primary balance of up 3% can be considered feasible. In the past, Belgium and Bulgaria had a primary balance of 6% of GDP for a period in which they reduced excessive public debt. The IMF programme for Greece assumes that the country's consolidation will be supported with privatisation revenues.

Where a country loses the advantage of the negative differential (r-g), consolidation becomes more demanding. In order to stabilise the debt ratio, it is necessary to achieve a higher primary balance surplus. For that to happen, the government needs to have large and stable revenues. The ability of the general government sector to generate revenue is illustrated by the debt-to-government revenue indicator. Its high value indicates a disparity between the acquisition of funds for public sector financing and the level of (accumulated) liabilities that have to be repaid; it often indicates potential problems in debt sustainability.

For emerging economies that have gone into default since 1998, the average value of this indicator is 350%, while for advanced, non-defaulting economies its average level is 250%.[72]

Charts 82 indicate that the main problem in this regard is again the positions of Greece and Ireland, which have unfavourable and rising debt-to-revenue ratios. By contrast, the new Member States are in a substantially better condition, even though their ratios have evidently been deteriorating since the outbreak of the crisis and also need to be corrected.

Impact of the financial and economic crisis

The crisis period generally entailed the deterioration of fiscal positions, rises in the real costs of debt financing due to increasing interest rates, and a decline in inflation. The sustainability of public finances was diminished by the combination of these adverse factors. In such altered circumstances, it became necessary to change the strategy of debt management/debt reduction.

A key factor in future developments will be the extent to which the rate of growth of potential output recovers. Slower growth may be linked to a lower rate of inflation, which would in turn pass through to an increase in real interest expenses. With financial markets perceiving an escalation in risks, it may be assumed that debt financing costs will rise. In some countries under review, the general government deficit is largely a structural problem, meaning that the contribution of any further recovery to a reduction in the deficit may be only limited. Tax revenue losses could be permanent or long-term, since tax revenues from financial assets and property during the boom overvalued the revenue side of the budget.

Any slowdown in potential output growth would make the stabilisation of debt ratios more demanding. It will be important to ensure that debt is reduced through primary balance contributions and interest payments.[73] The question is: to what extent would governments be willing and able to modify fiscal policy in this way – especially in those countries that do not have past experience of such a tight fiscal policy?

Risks of high debt

High public debt has an adverse effect on the economy. The results of empirical studies reveal that countries in which the debt ratio exceeds 90%, have lower GDP growth and that this effect is more pronounced when the share of external debt is high (Reinhart and Rogoff, 2010). When debts need to be repaid, it means that large amounts of funds must be allocated for this purpose – funds that therefore cannot be used to develop the economy's potential.

To stabilise the debt at a high level means having to restrict the flexibility of fiscal policy and reducing its ability to respond to shocks. At the same time, the flexibility of fiscal policy as an instrument for eliminating the effect of asymmetric shocks is now being emphasised, especially in the case of countries that are members of the monetary union.

A potential problem in a country having a long-term, persistently high level of debt is that interest rates spiral upwards and push up the debt, thereby adversely affecting market expectations regarding the country's ability to repay its sovereign debts. Furthermore, the rise in the risk premium is increasing financing costs and causing a shortening of refinanced debt maturities, thereby impairing the portfolio parameters and increasing risks in the future. High indebtedness is a particularly pressing issue for small economies, which are more vulnerable to shifts in financial market sentiment.

Another problem related to the bad state of public finances is that the conduct of monetary policy becomes more complicated, as a conflict emerges between fiscal and monetary policy. When the debt ratio is high there is a greater risk that fiscal policy will push up inflation expectations, since

72 World Economic Outlook, 2003.
73 For an analysis of the response of the primary balance to the debt ratio, see Hajnovič (2011).

the uncertain outlook for public finances makes it difficult to estimate future developments and to set interest rates at an appropriate level (Ceccetti, 2010). A central bank that follows a policy of inflation targeting must respond to the situation by tightening monetary policy. In doing so, it will counteract the need to reduce debt servicing costs – given the rise in interest rates in a low-inflation environment.

In response to the financial crisis, the ECB (and other central banks in advanced market economies) have cut interest rates substantially and adopted non-conventional measures, including some of a quasi-fiscal nature.[74] At the same time, the central banks are exposing themselves to the risk of potential losses (Cottarelli, 2009). Any return to "normality" would be expected to include a re-tightening of monetary conditions and a shrinking of central bank balance sheets.

Conclusion

In all of the EU countries compared in this paper, benign macroeconomic conditions in the pre-crisis period contributed to a reduction in the public debt. The favourable debt dynamics have not been vigorously exploited for the consolidation of public finances. On the contrary, an environment of low real interest rates has given the private sector, too, an incentive to borrow. As a result, private sector balances are also subject to mounting risks, particular in those countries where lending in foreign currencies is well established.

The crisis period brought about a modification of inflation, interest rate, and output levels. In these changed circumstances there was a heightened need to adjust debt ratio reduction strategies. What will be crucial to future developments is whether the rate of growth of potential output will return to its pre-crisis level. Slower growth would entail a decline in inflation, which would result in higher real interest rates. If potential output growth slowed over the long run, debt reduction would have to be achieved through primary balance contributions and interest payments.

Slovakia has one of the lowest debt ratios of any country in the euro area. However, as a small economy with a lower economic level, it must heed the fact that markets can reassess fiscal risks, and the effect on interest rate spreads may appear even at debt levels that are lower than the Maastricht threshold. At the same time, these effects are non-linear and highly destabilising.

References

Allen, M., Rosenberg, C., Keller, C., Setser, B., Roubini, N. "A Balance Sheet Approach to Financial Crisis", IMF Working Paper 02/210, 2002.

Chalk, N., Hemming, R., "Assessing Fiscal Sustainability in Theory and Practice", IMF Working Paper 00/81, 2010.

Ceccetti, S.G., Mohanty, M.S., Zampolli, F. (2010), "The future of public debt: prospects and implications", BIS, 2010.

Cottarelli, C., Vinals, J., "A strategy for renormalizing fiscal and monetary policies in advanced economies", IMF Staff Position Note, 2009.

Das, S.U., Papapioannou, M., Pedras, G., Ahmed, F., Surti, J., "Managing Public Debt and Its Financial Stability Implications", IMF, 2010.

Eminescu, S.J., "Structure of Government Debt in Europe in 2009", Eurostat, Statistics in focus 3/2011.

Escolano, J., "A Practical Guide to Public Debt Dynamics, Fiscal Sustainability, and Cyclical Adjustment of Budgetary Aggregates", IMF, 2010.

European Commission, European Economic Forecast, May 2011,

Gardo, S., Martin, R., "The Impact of the Global Economic and Financial Crisis on Central, Eastern and South-Eastern Europe", *Occasional Paper Series,* No 114, ECB 2010.

Hajnovič, F., Zeman, J., Žilinský, J. "Konsolidačné úsilie a kritická hranica vládneho zadlženia v krajinách EÚ, NBS, 2011.

Lewis, J., "How has the financial crisis affected the Eurozone accession outlook in central and eastern Europe?", De Nederlandsche Bank 2010.

Luengnaruemitchai, P., Schadler, S., "Do Economists' and Financial Markets' Perspectives on New Members of the EU differ?", IMF Working Paper 07/65, 2007.

Reinhart, C., Rogoff, K., "Growth in a time of debt", CEPR Discussion Paper 7661, 2010.

"Public debt in emerging markets: Is it too high?", *World Economic Outlook,* IMF, September 2003.

74 Quantitative easing – a policy of purchasing government securities.

3 Interest rates on long-term housing loans to households in the Slovak Republic

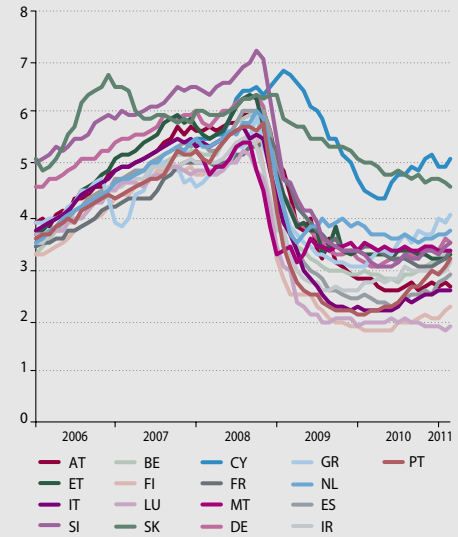
FRANTIŠEK HAJNOVIČ, JÁN KLACSO

Beginning from 13 May 2009, the ECB gradually cut its base rate to 1.0% in response to the effects of the economic and financial crisis. This reduction was accompanied by a drop in EURIBOR interbank interest rates, as well as by a steady drop in retail lending rates in a majority of euro area countries. With the Slovak Republic having joined the euro area on 1 January 2009, the fact that housing loan interest rates in this country have developed differently from those in most other euro area countries has given rise to discussion.[75] The attention paid to these interest rates reflects the fact that movements in interest rates on housing loans to households send the public an important signal about the situation in the credit market. Before the differing developments can be explained or assessed, it is necessary to identify the factors that influence the level of these interest rates.

In this paper, we examine interest rates on new housing loans to households – i.e. loans for new projects or loans used to refinance earlier loans at the actual lower rates of interest. Specifically, we will analyse the development of interest rates on new housing loans that have an initial rate fixation period of up to 1 year and on those that have a fixation period of between 1 and 5 years. Such loans constitute the bulk of the housing loans provided to households in Slovakia; loans with an initial rate fixation period of more than 5 years are seldom provided or requested.

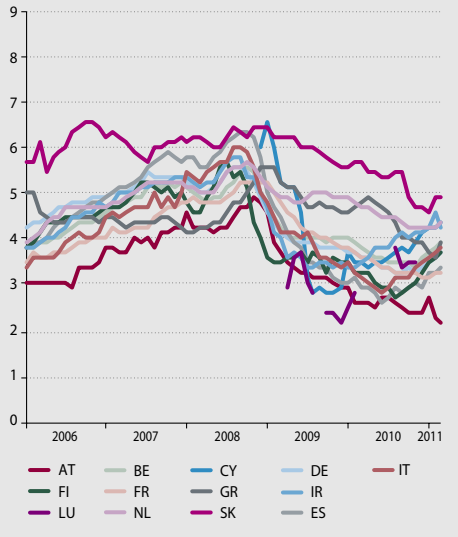
This analysis follows up a study previously published by one of the authors[76] and information from the Analysis of the Slovak Financial Sector for 2010 ("the ASFS").[77] Based on the plotted development of interest rates on loans that have an initial rate fixation period of up to 1 year, Klacso noted that the rates in Slovakia in the period after the country joined the euro area differed considerably from the rates in other euro area countries. Using a model, he went on identify a relationship between interest rates on loans

Chart 83 Interest rates on new housing loans to households with an initial rate fixation period of up to 1 year (%)



Source: ECB.

Chart 84 Interest rates on new housing loans to households with an initial rate fixation period of between 1 and 5 years (%)



Source: ECB.

75 This is one example of the consequences of the common currency – of how it allows prices to be compared.

76 Klacso, Ján, (2010), "Analysis of interest rates on retail housing loans with fixation of up to one year", BIATEC, Národná banka Slovenska, Bratislava, August.

77 NBS, "Analysis of the Slovak Financial Sector for 2010", Bratislava (available at: http://www.nbs.sk/_img/Documents/_Dohlad/ORM/Analyzy/2010-2a.pdf).

with a fixation period of up to 1 year and yields on Slovak government bonds with 2 years maturity. He also demonstrated that these retail interest rates are affected by the level of liquidity in the government bond market. In the ASFS, it is stated that interest rates fell far more sharply in the fourth quarter of 2010 than had been expected on the basis of this model. Based on market information, this decline was attributed to stronger competition in the provision of long-term loans to households – banks that in the past had a smaller share in this market have strengthened their position by offering loans at lower rates of interest.

In this analysis, we have specified and supplemented the arguments made in the mentioned works. The results of a panel regression form the basis of our observation that banks in Slovakia behaved differently in the period leading to up the outbreak of the financial crisis and following the crisis that is approximately coterminous with the period in which the decision was taken on Slovakia's entry into euro area. We then describe this different behaviour using simple models for housing loan interest rates for the period before and after euro area entry. We pay particular attention to determining the effect of competition in the banking sector on the level of housing loan interest rates. Finally, we identify the effect that property price increases have had on these rates.

3.1 THE KEY FACTORS THAT MAY HAVE AFFECTED THE DEVELOPMENT OF INTEREST RATES ON LONG-TERM HOUSING LOANS TO HOUSEHOLDS IN SLOVAKIA

The retail lending rates charged by Slovak banks are in most cases not linked directly to a market rate (e.g. EURIBOR), and therefore the pass-through of market factors and the Slovak banking sector's particularities to the development of these rates can be estimated only indirectly. The principal explanatory factors in this regard are:

- interbank interest rates (EURIBOR, and previously BRIBOR): these interest rates indicate the price at which banks can obtain funds on the interbank market, i.e. the price of the funds used to cover or provide loans;
- government bond yields: for banks, government bonds represent an alternative form of investment that offer relatively low risk in comparison with either retail or corporate loans. The yields on these bonds therefore provide banks with opportunity cost information;
- steepness of the yield curve: even though housing loans usually have a shorter initial rate fixation period (up to 1 year or up to 3 years), their maturity is longer and far exceeds the maturity of the funds borrowed to cover these loans. The steepness of the yield curve indicates, inter alia, the expected change in interest rates. An expected rise in interest rates implies a higher future cost of interbank borrowing. These higher future costs may be priced into current bank lending rates in order to cushion banks to some extent from their future higher borrowing costs;
- customer credit risk: it is relatively difficult to select a direct indicator of customer credit risk, since basically each loan is assessed on its merits and each customer represents a different counterparty risk. Despite this diversity, however, it may be assumed that the average credit risk premium for the sector indicates with a sufficient degree of precision the sector's exposure to this risk. It is, of course, questionable, whether this premium, which may be constant over a shorter time interval, has not changed in response to certain significant events (such as the euro changeover);
- the level of competition: as competition increases, interest rates would be expected to fall, down to a certain limit. From market information, it is clear that the pass-through of competition to the lending policies of certain banks was relatively substantial during the last quarter of 2010 (see the ASFS). From among the many indicators that may be used to measure the level of competition, this analysis opts for the concentration of the total long-term lending to households in March 2011, i.e. the overall market share in these loans of the banks that have the largest shares (the First 3, First 5, First 7, and First 10).
- exchange rates: Slovak banks borrow and lend almost entirely in the domestic currency, but in the past, exchange rate movements conveyed information about the course of inter-

est rates which banks could take into account when setting retail interest rates;

- property price movements: rapidly rising property prices lower the real level of interest rates and create scope for increasing them. Furthermore, a robust increase in property prices is, as a matter of course, reflected in expectations for further price growth, which in turn drives up demand from households. Elevated demand also increases the potential for interest rate rises. By the same token, a decline in property prices puts downward pressure on interest rates;
- institutional factors: the enforceability of laws, the costs and delays involved in the realisation of collateral, the legislative treatment of relations between creditors and borrowers, and the protection of their rights are all important factors, too.

3.1.1 Market concentration in long-term lending to households

The competition environment can be assessed in various ways. We proceeded on the assumption that the level of competition in the segment of banking business under review has an inverse relationship to the level of concentration in the segment. We express the market concentration in long-term lending to households in terms of the cumulative shares in this market of the banks that have the largest shares. Chart 85 shows how this concentration has developed since January 2004.[78]

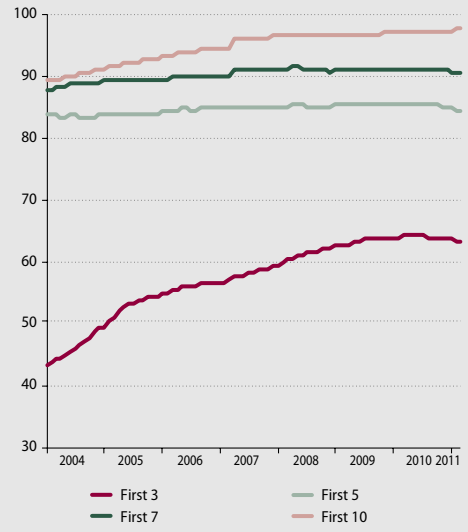
As Chart 85 shows, the market share of the three leading banks in the sector of long-term lending to households rose gradually for a period after 2004, as did the market share of the five leading banks. These market shares then recorded slower growth and, in mid-2010, a slight decline, which indicated rising competition from the group of banks that have lower shares in the total volume of long-term loans to households. The rise in their cumulative market share is illustrated by, for example, the difference (First10 – First 5).

The rising competition from smaller providers of long-term loans to households is further illustrated in Chart 86, which makes clear, in particular, the rapid rise in the cumulative market share of those banks that rank between fifth and tenth place in terms of their share in long-term lending to households.

3.2 INTEREST RATES ON HOUSING LOANS TO HOUSEHOLDS WITH AN INITIAL RATE FIXATION PERIOD OF UP TO 1 YEAR (IN THE EURO AREA)

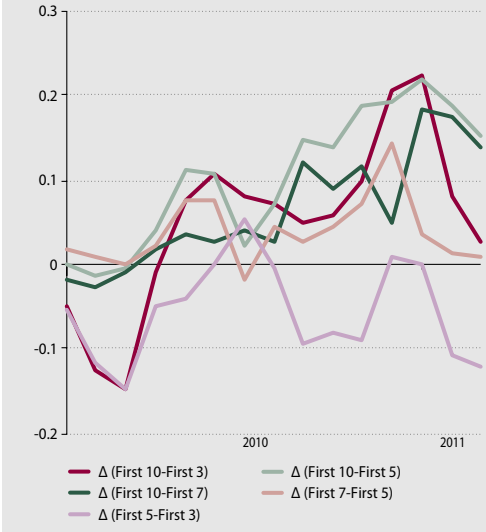
The development of retail interest rates on housing loans in different euro area countries can be compared by looking at interest rates on loans

Chart 85 Market concentration in housing loans to households (%)



Source: NBS.

Chart 86 Dynamics in market concentration in housing loans to households (%)



Source: NBS.
Note: Δ – year-on-year change.

78 *The ranking of the most significant banks is determined according to their market share in long-term lending as at March 2011. The sum of total market share for the 3, 5, 7, and 10 most significant banks in the market determined the respective indicators of concentration: First 3, First 5, First 7 and First 10.*

that have an initial rate fixation period of up to 1 year, since this information is available for all euro area countries. Chart 83 shows that in Slovakia (and Cyprus) the average rate on such loans has fallen only slightly since mid-2008, whereas in the other euro area countries it has declined substantially. The gap between the rate in Slovakia and the rates in the other countries ranged between 1 and 3 percentage points.

To better interpret and understand the background to these differences, we estimated a simple panel regression model for the above-mentioned rates in different euro area countries. The explanatory variable was the 12-month EURIBOR. In the case of Slovakia we used the BRIBOR for the period until the end of 2008.

In other member countries, a relatively large proportion of loans are granted with interest rate that is linked directly to interbank rates, i.e. the retail rate is set in the credit agreements as the EURIBOR + premium. The estimation also reflects this fact, and its results are shown in Table 14. It was apparent that the largest influence on interest rates came from a direct change in interbank rates, i.e. from their short-term dynamics. This means that a change in interbank rates feeds directly through to retail rates. The correction of the deviation from the long-run relationship is relatively weak. The estimations confirmed that the behaviour of interest rates in Slovakia and Cyprus differed markedly from the behaviour of rates in other euro area countries. They showed, inter alia, that interest rates in Slovakia following the country's entry into the euro area were subject to an additional premium that made them higher than rates in other euro area countries and also higher than the rates in the previous period.

3.2.1 Panel estimation of interest rates for the euro area

The response of the euro area interest rates under review and its change in the period after Slovakia joined the euro area is fully documented in Table 14. The starting point for the analysis and assessment of the differences between Slovakia and other euro area countries was a panel estimation in which we assumed that the relationship between lending rates and money market rates was the same for all euro area countries – expressed by the common parameters in this relationship. In formal terms, this relationship implies a so-called error-correction model and an assumption that, in the long run,[79] the interest rate on long-term housing loans to households with an initiation rate fixation period of up to 1 year ("IR") is determined by a linear relation with the money market rate. The most optimal rate for explanatory purposes was the 12-month EURIBOR. Using so-called fixed effects, we expressed the differences between countries as different interest-rate levels:

$$d(R_{i,t}) = c(2) * (R_{i,t-1} - c(1) - c(3) * EURIBOR12M_{t-1}) + FE_i,$$

where $(IR_{i,t})$ denotes the retail interest rates on housing loans with an initial rate fixation period of up to 1 year for country *i* at time *t*, and FE_i is the fixed effect for country *i*. We then modified this long-run relationship by expressing short-run effects.

Parameter c(3), which should be positive, shows the strength of the proportion in this relationship. If c(3) = 1, there is a complete pass-through (one to one) to retail interest rates of a rate change in the given country or of a difference in interbank rates between countries – whether such changes or differences are upward or downward. If parameter c(3) is less than 1, the pass-through of any movement in interbank rates to retail rates is only partial, but this may imply that differences between retail rates in different countries are only partially related to money market rates (we identified precisely such a relationship, as we show later). If parameter c(3) has a lower value in the second period, it implies that retail rates in the in second period are less closely related to interbank rates. Since these rates were falling, it implies that banks only partially passed on this decline to retail rates.

In this model, we assume that movements in lending rates are linked to movements in money market rates. A further two key parameters are entered in the model. Parameter c(1) denotes the common fixed premium for retail rates[80] vis-à-vis the level based on the relation with interbank rates for a group of countries – in our case, for the euro area countries. Parameter FE_i denotes the additional premium for retail rates in the given country *i*. These three parameters provide a profile of the interest rate policy of banks, both in the euro area as a whole and in a particular country within it. We will call parameter c(1) the

79 In this instance, the term "long run" is used only to distinguish trend relationships between variables (so-called integrated variables) and their changes, which act as a short-run impulse effect on interest rates.

80 This risk premium includes the risk premium for individual risks not covered by the model and the average profit margin of banks.

common premium for interest rates ("common premium"), and parameter FE_i the additional premium for interest rates for country *i* ("the additional premium").

The higher the value of parameter c(1), the greater the extent to which banks have "fixed" retail interest rates. In conjunction with a lower value of parameter c(3) (or c(3) + FE_i), such an interest rate policy implies that banks in the euro area, or in a given country, have hedged against a fall in interest rates by ensuring that they fix them to a greater extent than they link them to interbank rate movements.

We made the panel estimation on the basis of monthly data for the period from January 2006 to March 2011 (where the respective data were available) using OLS. Since the data for certain countries were not available at the beginning of the period under review, the estimation was made using data for periods of varying lengths for a panel of countries.[81]

According to the estimation, the relationship between interest rates on housing loans and the 12-month EURIBOR did not change in the period after the crisis and Slovakia's entry into the euro area (parameter 0.813); however, the response to the deviation from this relationship is weaker (the value of the error-correction parameter fell from 0.202 to 0.115). The common premium for interest rates increased marginally (from 1.637 percentage points to 1.921 percentage points). The most substantial change, however, is in the additional premium for certain countries, including Slovakia. As a result, the overall premium in Slovakia represented 1.8 percentage points.[82]

3.3 ANALYSIS OF INTEREST RATES IN SLOVAKIA WITH AN INITIAL RATE FIXATION PERIOD OF UP TO ONE YEAR

The first question is: to what extent are lending rates affected by the cost of interbank borrowing and to what extent by yields on an alternative

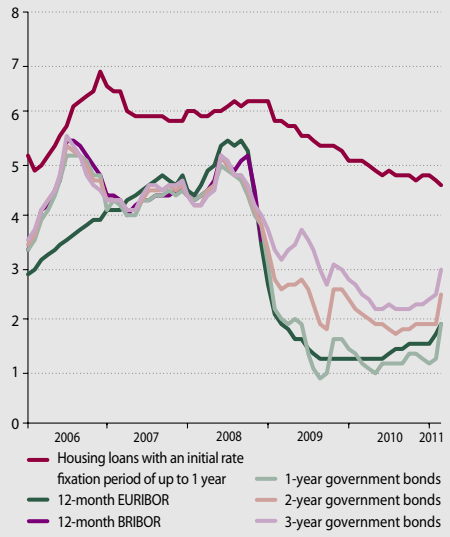
Table 14 Panel estimation results for the euro area

EC form parameters	Jan. 2006 – June 2008	July 2008 – Mar. 2011
Error-correction parameter	-0.202	-0.115
Common premium for the euro area (percentage points)	1.637	1.921
12-month EURIBOR (t-3)	0.813	0.813
Additional premium for individual euro area countries (percentage points)		
AT	0.161	-0.332
BE	-0.096	-0.175
CY	0.260	2.106
DE	0.610	0.111
ES	-0.021	-0.496
ET	0.317	0.113
FI	-0.453	-1.197
FR	-0.471	0.229
GR	-0.384	0.376
IR	-0.256	-0.439
IT	0.091	-0.783
LU	-0.382	-1.339
MT	-0.700	-0.001
NL	-0.029	0.429
PT	-0.198	-0.657
SK	0.338	1.837
SL	1.128	0.217
R^2	32.88 %	58.34 %
Adjusted R^2	29.47 %	56.76 %
Durbin-Watson statistic	1.96	1.74

Source: NBS, own calculations.

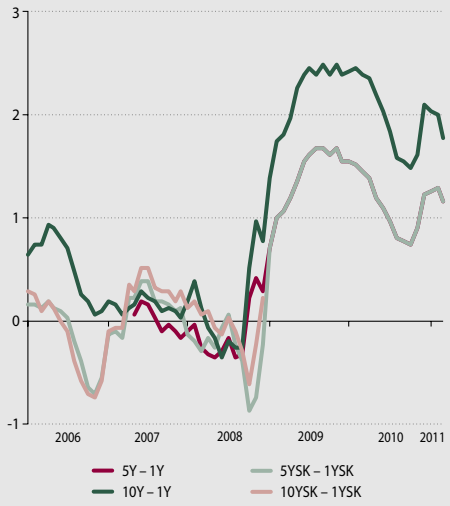
81 The so-called unbalanced panel.
82 The only country for which a larger total premium was reported was Cyprus, and this is also reflected in the plotting of retail rates.

Chart 87 Retail and interbank rates and Slovak government bond yields (%)



Source: NBS, ECB.

Chart 88 Difference between long and short-term interest rates (p.p.)



Source: NBS, ECB.

form of investment (Slovak government bonds)? The difference between these two factors was relatively insignificant until the end of 2008, with their development showing considerable colinearity. From January 2009, after Slovakia joined the euro area, the BRIBOR interbank rates ceased to be listed and were replaced by EURIBOR rates. It is apparent, however, that the development of implied Slovak interbank rates has so far largely mirrored that of EURIBOR interbank rates (the Analysis of the Slovak Financial Sector for the Year 2010).

From estimations, it may be concluded that interbank interest rates (in this case, the 12M BRIBOR/EURIBOR) have a certain explanatory power for the development of interest rates on housing loans with an initial rate fixation period of up to 1 year. It is apparent, however, that the estimated relationship for the level of rates has changed over time; the turning point may have occurred at the time when Slovakia was receiving the green light for entry into the euro area, i.e. in June 2008. Based on the estimation of the given equation for the period from January 2006 to June 2008 and from July 2008 to March 2011, it appears that the pass-through of interbank rate movements to retail rates was far lower in the second period than in the first period. It also appears that where there had been a deviation from the simulated relationship, the speed of the return to it was greater in the first period mentioned. Thus it was confirmed that the interest policy of banks before and after July 2008 was different.

We also found that yields on Slovak government bonds, like interbank rates, have a capacity to explain the retail rates under review and that this capacity is even greater than in the case of interbank rates. The stronger explanatory power of government bonds can be seen in the better statistical explanation of retail rate developments in the second period – during the interval (06/2008–03/2011). In the model in which we used 3-year government bonds to explain the development of retail rates, it was also the case that the pass-through of yield changes to retail rates was weaker in the second period and that the premium for interest rates in the model increased in the second period; this happened despite gradually rising competition from less significant lenders. The use of the three-year government bond yield meant that liquidity movements were reflected in the model to a certain extent. These may have played a relatively significant role in the second period (from July 2008). Taking into account movements in the SKK/EUR exchange rate did not significantly improve the estimation.

3.3.1 Model of interest rates in Slovakia with an initial rate fixation period of up to 1 year.

We expressed the development of interest rates using an error-correction model, in which there is

Table 15 Estimation of the error-correction equation, including the impact of 12-month EURIBOR (BRIBOR) and lending market concentration

Error-correction model	Jan. 2006 – June 2008	July 2008 – Mar. 2011
Error-correction parameter	-0.29 ***	-0.20 **
Premium (fixed margin), percentage points	1.24 *	4.59 ***
12-month EURIBOR(BRIBOR), t-2	1.06 ***	0.39 ***
12-month EURIBOR(BRIBOR), change t-1	0.28 **	0.14 *
Concentration, change (First 10 – First 5)		-0.79 **
Concentration, change (First 10 – First 3)	-0.18 **	
R^2	67.14 %	50.65 %
Adjusted R^2	61.88 %	41.52 %
Durbin-Watson statistic	2.25	1.88

Source: NBS.
Note: Asterixs denote significance levels of coefficient stimates.
* *Significance level of 10%.*
** *Significance level of 5%.*
*** *Significance level of 1%.*

Table 16 Estimation of the error-correction equation, including the impact of the yield on the 3-year government bond and lending market concentration

Error-correction model	Jan. 2006 – June 2008	July 2008 – Mar. 2011
Error-correction parameter	-0.21 **	-0.41 ***
Premium (fixed margin), percentage points	1.22	3.33 ***
Yield on the 3-year government bond, t-2	1.12 ***	0.60 ***
Yield on the 3-year government bond, change t-1	0.38 ***	0.16 **
Concentration, change (First 10 – First 5)	-0.29 ***	
Concentration, change (First 7 – First 5)		-0.41***
R^2	61.81 %	56.84 %
Adjusted R^2	55.70 %	50.67 %
Durbin-Watson statistic	1.86	1.91

Source: NBS.
Note: Asterixs denote significance levels of coefficient stimates.
* *Significance level of 10%.*
** *Significance level of 5%.*
*** *Significance level of 1%.*

assumed to be a "long-run" relationship between the retail rate and interbank rate (12-month EURIBOR/BRIBOR) or yields on Slovak government bonds with (3-year maturity).

In both models, we identified the statistically significant effect of competition from smaller providers of long-term loans to households. For example, the stronger competition they brought to the market in long-term loans with an initial rate fixation period of between 1 and 5 years – together with their rising share of the long-term loan market (particularly at the end of 2010) – put downward pressure also on interest rates on loans with an initial rate fixation period up to 1 year. In the case of these interest rates, the competition caused them to decline gradually in 2010, by around 0.4 to 0.7 percentage points.

3.4 ANALYSIS OF INTEREST RATES IN SLOVAKIA WITH AN INITIAL RATE FIXATION PERIOD OF BETWEEN 1 AND 5 YEARS

As for retail interest rates in Slovakia on new housing loans that have an initial rate fixation period of between 1 and 5 years, as in the previous case, we indetified an effect of 3-year Slovak government bonds yields based on our estimations. This implies that banks, when setting these interest rates, also took account of the yield on an alter-

native investment. These rates, too, were affected by changes in the level of market competition in long-term lending to households.

In contrast to the estimated model parameters for loans with an initial rate fixation period of up to 1 year, the parameters in this case did not change substantially when the overall period was divided into two parts (from January 2006 to June 2008 and from July 2008 to March 2011). The main changes occurred in the speed of return, which fell sharply during the second period under review. However, the model's lower explanatory capacity in the second period indicates that factors which are not included, or only partially included, in the model had an increasing influence in the period after Slovakia joined the euro area, and/or as a result of the effect of the global crisis on the Slovak economy.

The changing competition environment had a marked influence. The parameter of the effect of competition from smaller lenders is several times higher for this type of loan than it was for loans with an initial rate fixation period of up to 1 year. Furthermore, the intensity (parameter) of the effect of competition on interest rates rose twofold after Slovakia joined the euro area – from 0.6 to 1.37. According to the estimation results, the competitive pressure during 2010 caused interest rates on this type of loan to fall by around 1.5 percentage points. As in the previous case, the inclusion of movements in the SKK/EUR exchange had a certain explanatory power until the end of the first half of 2008, but did not significantly improve the estimation.

3.4.1 Model of interest rates in Slovakia with an initial rate fixation period of between 1 and 5 years

The estimation of interest rate developments was made using an error-correction model, which assumed the existence of a relationship between the retail rate and the yield on Slovak government bonds. For the estimation results stated in this part, the yield on 3-year government bonds was used.

3.5 EFFECT OF PROPERTY PRICES ON HOUSING LOAN INTEREST RATES

In the period before Slovakia joined the euro area and before the Slovak economy was hit by the global financial crisis, property prices in the country were booming. The main drivers of this growth was rising demand, supported by the favourable development of interest rates, and the availability (supply) of housing loans. There is also a feedback loop between property prices and interest rates – a high rate of growth in property prices slows the increase in real interest rates on housing loans (or even causes them to decline) and accelerates demand for housing loans, which in turn creates scope for raising interest rates.

To analyse the effect of property prices on housing loan interest rates, we included the annual rate of growth in property prices in the model for interest rates on new housing loans to households – both on loans with an initial rate fixation period of up to one year and on loans with one of between 1 and 5 years.[83]

Table 17 Estimation of the error-correction equation, including the impact of the yield on 3-year government bonds and lending market concentration

Error-correction model	Jan. 2006 – June 2008	July 2008 – Mar. 2011
Error-correction parameter	-0.99 ***	-0.41 ***
Premium (fixed margin), percentage points	4.25 ***	4.40 ***
Yield on 3-year government bonds, t-2	0.42 ***	0.44 ***
Concentration, change (First 10 – First 5)	-0.60 ***	-1.37 **
R^2	63.70 %	34.12 %
Adjusted R^2	57.90 %	24.70 %
Durbin-Watson statistic	2.00	1.99

Source: NBS.
Note: Asterixs denote significance levels of coefficient stimates.
* *Significance level of 10%.*
** *Significance level of 5%.*
*** *Significance level of 1%.*

83 Residential property prices in Slovakia have been systematically tracked since 2002, first on an annual basis and then quarterly, using sale prices that are jointly processed by the National Association of Real Estate Agencies and Národná banka Slovenska. To analyse their effect at monthly intervals, we interpolated them using the Cardinal Spline approach in E-views.

Table 18 Results of the estimation of models for interest rates on housing loans in which the effect of residential property prices is expressed

Dependent variable: month-on-month change in the interest rate

factor/parameter	fixation period of up to 1 year	fixation period of between 1 and 5 years
Error-correction parameter	-0,404	-0,397
Base level, percentage points	4,886	7,427
Yield on 3-year bonds	0,441	0,212
Competition from smaller lenders	-0,091	-0,218
Annual rate of growth in house and apartment prices	0,0013	0,0016
R^2	0,480	0,233
Adjusted R^2	0,430	0,154
Durbin-Watson statistic	1,530	1,789
Period: Dec. 2004 – Mar. 2011		

Source: NBS.

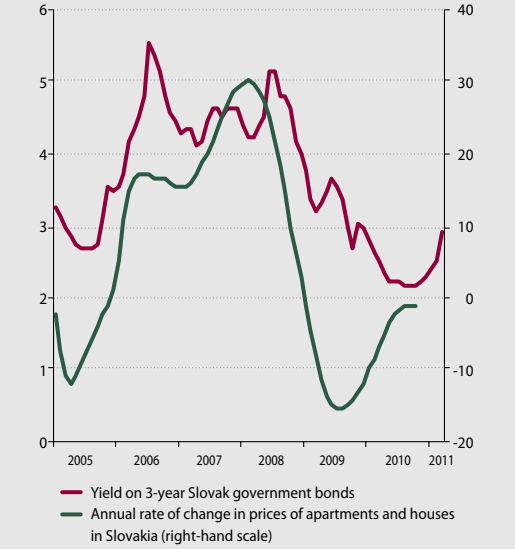
3.5.1 Models for interest rates with an initial rate fixation of up to 1 year and 1 to 5 years in which the effect of property prices is expressed

Table 18 shows the estimation results for the parameters of the interest rate model for both types of loans. We show only the parameters of the long-run part of the model, without lags.[84]

The estimations of premium parameters in the models differ – the premium is higher for interest rates with an initial rate fixation period of between 1 and 5 years. In the case of these interest rates, the relationship to yields on 3-year government bonds is weaker, but the effect of competition from smaller lenders was stronger. As these banks increased their market share in long-term lending to households by 1 percentage point, interest rates with a fixation period of up to 1 year fell by 0.1 percentage point and those with a fixation period of between 1 and 5 years declined by 0.2 percentage point.[85] The pass-through of property prices to interest rates was also significant. Although the value of the respective parameter is low, it should be noted that property prices were rising (and then falling) rapidly – by tens of percent year-on-year.

By plotting the stability of the parameters, two significant turning points became apparent. These were in July 2008 (decision on Slovakia's entry into the euro area and response to the crisis) and at the beginning of 2010 (strengthening of market competition). The parameter changes corresponded to our findings based on estimations for the period before and after euro area entry. The effect of property prices in interest rates is smaller now than it was in the past. The effect of competition became more pronounced in the market in loans with a fixation period of between 1 and 5 years. It should, however, be noted that, despite showing high statistical significance, the estimations (and therefore also the conclusions) are not sufficiently robust and require further investigation.

Chart 89 Three-year government bond yields and annual inflation in prices of apartments and houses in Slovakia (%)



Source: NBS.

84 *There is a lag of 4 months in the effect of government bond yields and 5 months in the effect of property prices. Both models include short-run effects – changes in competition (change in the market share of smaller lenders at time t), changes in government yields (t-4).*

85 *During 2010, the market share of smaller lenders (ranked fifth to tenth) increased by 2.4 percentage points, which in the long-run caused interest rates with a fixation period of up to 1 year to fall by 0.24 percentage point and those with a fixation period of between 1 and 5 years to decline by 0.48 percentage point. In addition, competition from smaller lenders caused an even larger short-run movement in interest rates.*

Conclusion

The results of the simple analysis presented here show that in the period approximately after June 2008, certain divergences existed between the setting of interest rates in Slovakia and in other euro area countries and that bank interest rate policies for long-term housing loans to households underwent a change in comparison with the previous period. In most other euro area countries, interest rates on housing loans to households are linked to interbank rates, but in Slovakia this link has been weakened, as (fixed) premiums for interest rates have assumed a greater role in interest rate policy.

In several euro area countries there is a contractual link between retail interest rates on housing loans and money market rates. Such a contractual link at the level of individual customers does not mean that the pass-through of money market rates to retail rates is automatically proportional at the aggregate level, but it does increase the predictability of the transmission of the government's and central bank's economic and monetary policy aims.

According to estimations, it seems that while bank retail rates in other euro area countries reflected mainly the cost of interbank borrowing, those in Slovakia were affected (also) by yields on alternative investments, namely government bonds. As regards the setting of interest rates on loans with an initial rate fixation period of up to 1 year, the role of the fixed premium for interest rates increased quite substantially in the respective period and the link to money market rates and government bond yields declined. The effect of competition on these interest rates was more indirect, and therefore not large, since the competition from smaller lenders was more pronounced in the market in loans with an initial rate fixation period of between 1 and 5 years.

During the period in question – after the repercussions of the global crisis on the Slovak economy had become more substantial – it is possible to observe a divergence in bank behaviour also in the setting of interest rates on loans with an initial rate fixation period of between 1 and 5 years. The link between, on one hand, housing loan interest rates and, and on the other hand, money market rates and bond yields had been relatively high and, in the case of this type of loan, substantially unchanged. Nevertheless, the response of retail interest rates to market rates slowed During 2010, the pass-through of competition from smaller housing-loans providers to this type of loan was significant. This may be explained by the fact that customer demand for such loans was greater during the period of low interest rates, as people sought to fix their interest burden and loan repayments for a longer period. Therefore, the market rivals also paid attention to that segment.

It was also evident that the level of interest rates was affected by property prices, too. Their rapid growth in the past had brought about a decline in real interest rates, stimulated demand for loans, and therefore created a certain scope for raising retail interest rates on housing loans. Overall, however, this growth caused rates to rise by only a few tenths of a percentage point. At present, after the downturn in residential property prices, it contributed to a slight drop in interest rates.

ABBREVIATIONS

Abbreviations

ARDAL	Debt and Liquidity Management Agency
b.p.	basis points
BRIBOR	Bratislava Interbank Offered Rate (Slovak interbank interest rate fixing up to 31 December 2008)
CBOE	Chicago Board Options Exchange
CDS	credit default swap
DFI	direct foreign investment
ECB	European Central Bank
EC	European Commission
EU	European Union
EURIBOR	Euro Interbank Offered Rate
Fed	Federal Reserve System
GDP	gross domestic product
H	half year
HICP	Harmonized Index of Consumer Prices
IMF	International Monetary Fund
LTV	Loan-to-Value ratio
NAV	net asset value
NBS	Národná banka Slovenska
(p)	preliminary data
PFMC	Pension Asset Management Company
p.p.	percentage points
ROE	return on equity
SPMC	Supplementary Pension Asset Management Company
SO SR	Statistical Office of the Slovak Republic
TARGET	Trans-European Automated Real Time Gross Settlement Express Transfer
Tier 1, 2, 3	components of banks' equity capital

LIST OF CHARTS AND TABLES

List of charts

List of charts in the boxes

List of tables

List of boxes