



The World Bank

EU10 Regular Economic Report

Main Report:
From Stabilization to Recovery

October 2009

Focus Notes:



Invitation Paper by Jiří Blažek, Charles University in Prague, Czech Republic

Regional unemployment impacts of the global financial crisis in the EU10 countries

Credit Crunch or Weak Demand for Credit?

EU10 Banking Sector Credit Losses

Responding to Climate Change

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The team is very grateful for the excellent inputs from the World Bank Global Prospect Group, coordinated by Annette De Kleine.

The EU10 refers to Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia. The EU10+1 includes Croatia.



EU10 October 2009

Summary of Main Report

One year after the breakout of the global financial crisis, economic activity and financial markets in the EU10 region have stabilized. Yet, most countries undergo large contractions this year, and the recovery is likely to be feeble and uneven. Strengthening economic prospects requires concerted policy actions to mitigate the impact of the crisis, unwind economic imbalances and advance structural reforms.

The economic situation has improved markedly over the last six months in a number of areas. First, the EU10 economies have bottomed out. The region is expected to contract by about 4.2 percent for the whole of 2009, in line with the outcome for the first half of the year. Trade flows have stabilized for the last few months, and current account deficits have narrowed in most countries, and turned to current account surpluses in the case of the Baltic countries. The EU economic sentiment index has improved continuously for the last six months. Second, a meltdown of the financial system has been avoided, as parent banks have maintained exposure to the region. Equity markets have rebounded, and are in some countries not far off pre-crisis levels. Non-performing loans have increased only moderately, and exceed 10 percent only in Latvia and Lithuania. The bond market is active, with issuances of US\$16 billion during the first nine months of 2009 in emerging EU10 countries, about the same amount as in the same period last year. Yield curves have steepened, and returned to pre-crisis levels in the Czech Republic and Poland. Finally, employment has held up relatively well. While unemployment rose by one million over the last year, the percentage decline in employment in most countries is smaller than the percentage drop in output.

The worst of the recession may be over, but the recovery is far from robust and certain. The countries of Bulgaria, Romania and Central Europe – with the exception of Poland – are expected to contract in 2009 by around 4 to 8 percent, and the Baltic countries by around 14 to 18 percent. Regional growth in 2010 could be as low as 1 percent. There are some upside risks to these projections, such as pent-up demand, faster-than-expected restocking, a quicker rebound of demand due to the low interest rate environment, and

strong multiplier effects from EU funded investment projects. Nevertheless, downside risks dominate. Medium-term growth prospects look weak as the recovery is not yet private-demand driven and potential growth is lower than before the crisis. First, a sustainable recovery in the EU15 is needed to support exports, spur credit growth and strengthen job prospects in the EU10. Yet, growth in Western Europe still relies more on fiscal stimulus, central bank support and inventory adjustment than on a recovery in private demand. The upswing in EU10 exports could be sluggish as households in destination countries reduce their consumption to cope with tighter budgets, rising unemployment and the need to rebuild their assets. Second, the economic crisis is likely to lower potential output in the EU10 countries. The region's productive capacity has suffered due to weak gross capital formation, as firms struggle to reduce excess capacity, and a higher cost of capital curtails investment, as banks in advanced countries continue to write-down loans and credits. In addition, a persistent decline in labor demand could raise structural unemployment, as the skills of the unemployed get eroded. Furthermore, the EU10 region's medium-term recovery will have to rely less on domestic demand and more on exports than in the past, because financing of current account deficits will be harder to come by and sectors like finance and construction are likely to shrink relative to other sectors in some countries. Yet, the rebalancing of global demand will make it difficult to boost exports.

Governments face the difficult challenge of reconciling three objectives: to protect priority programs for economic and social development so that growth prospects are enhanced and social costs of the economic crisis mitigated; to exit from anti-crisis policies and ensure fiscal consolidation once the recovery is under way to make room for a private sector led recovery; and to improve policies, regulations and coordination to prevent such crises in future. Further structural reforms, in line with the Lisbon agenda, can help to boost potential growth and facilitate the large fiscal consolidation. As part of the adjustment efforts, for some countries with multilateral support, coordination with other EU countries and trade partners is crucial to leverage benefits from market integration.

Recent Developments and Outlook

Output

After the sharp contraction following the breakout of the global financial crisis in September 2008, economic activity in the EU10 region has stabilized in the second half of 2009. Led by resurgence in Asia, the global economy is on the road to recovery (Table 1). Growth has resumed in a number of large EU economies in the second quarter of 2009. For the EU10 region, the incipient recovery in high-income countries is supporting exports, and the rising confidence in global financial markets is sustaining a rebound in capital flows.

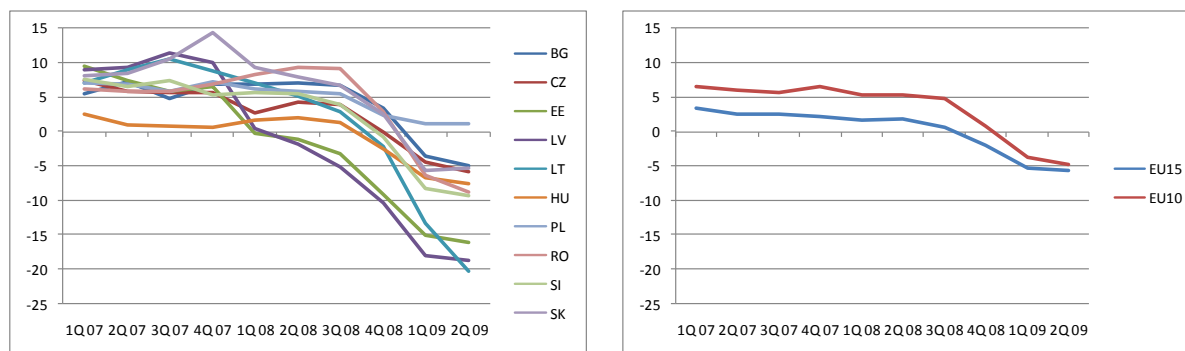
While the outlook has improved, the latest GDP figures still make grim reading. The recession deepened in the second quarter of 2009 in most of EU10 countries in response to the difficult external environment and tighter credit conditions. Year-on-year growth dropped from -3.8 percent in the first quarter of 2009 to -4.8 percent in the second quarter 2009, compared to a reduction from -5.3 percent to -5.6 percent, respectively, for the EU15 (Figure 1). The EU10 countries fall into three groups with regard to their recent growth performance. Poland is the only EU country whose economy has expanded throughout the last three quarters. The second group comprises the other central European countries and Bulgaria and Romania, with year-on-year contractions of 5 to 10 percent of GDP. The Baltic countries, where the output contraction started in 2008, make up the third group, with declines of 15 to 20 percent of GDP.

Table 1. Global growth prospects, percent

	2009	2010	2011
World	-1.1	3.1	4.2
United States	-2.7	1.5	2.8
Japan	-5.4	1.7	2.4
China	8.5	9.0	9.7
European Union	-4.2	0.5	1.8
EU15	-4.2	0.4	1.5
EU10	-4.2	0.9	3.6

Source: IMF, *World Economic Outlook October 2009*, World Bank staff calculations

Figure 1. EU10 countries and EU15 GDP growth, percent, year-on-year, nsa



Source: Eurostat, World Bank staff calculations

The scale of the contraction is linked to a number of factors. This includes the degree of trade openness, the export composition, the exchange rate regime and the magnitude of macroeconomic imbalances, and the reliance on growth in sectors such as finance, construction and automobile exports prior to the crisis. In particular, countries with the largest initial imbalances, as reflected in current account deficits, inflation and bank-related capital inflows, have seen the largest economic adjustments in the first half of 2009 (Figure 2, Figure 3).

Figure 2. GDP growth in 1H 2009 vs. current account balance in 2008

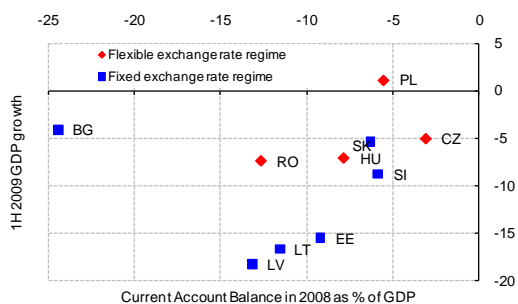
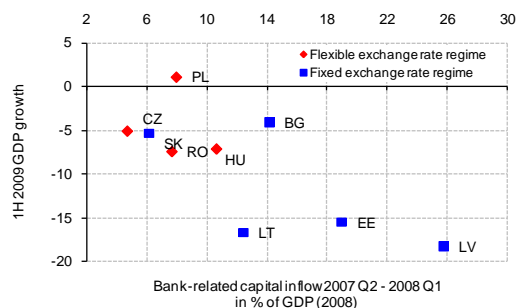


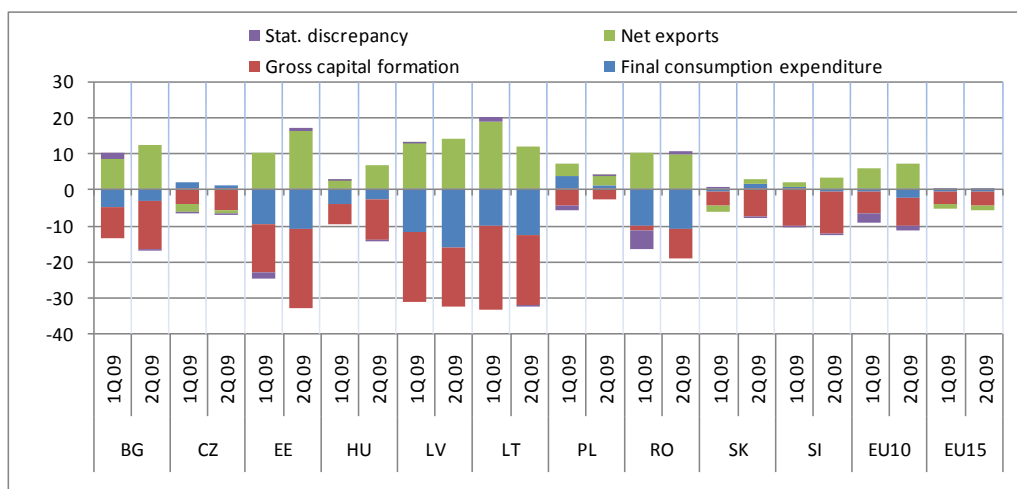
Figure 3. GDP growth in 1H 2009 vs. bank-related capital inflows in 2Q 07-1Q 08



Source: Central Banks, Central Statistical Offices, World Bank staff calculations

Investment and domestic consumption, with the exception of the Czech Republic, Poland and the Slovak Republic, fell in the downturn. The downturn was largely driven by a sharp contraction in investment, as companies scaled down their production capacities in view of low access to financing and uncertainty about future prospects. The contribution of investment to GDP growth declined across the region, and the year-on-year reduction reached double-digits in all EU10 countries aside from Poland, the Czech Republic, the Slovak Republic and Romania (Figure 4). Private consumption held up better, especially in Poland, the Czech Republic and the Slovak Republic, where it was supported by modest inflation, stable wages, and still largely robust labor markets. Public consumption boosted growth in most countries, as governments bolstered the economy with anti-crisis measures. Large declines in domestic demand led to increasing net exports even as exports fell with the exception of the Czech Republic.

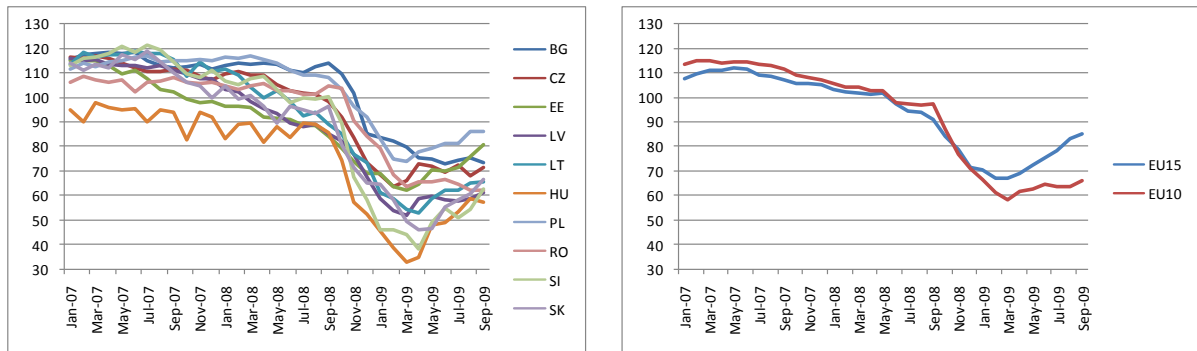
Figure 4. EU10 countries and EU15 GDP growth, percent



Source: Eurostat, World Bank staff calculations

High-frequency indicators suggest that economic activity will remain stable or expand moderately in the second half of 2009, on the back of a recovery in Western Europe and other major economies. The EU10 economies are set to contract year-on-year by around -3.9 percent in the second half of 2009 relative to -4.4 percent during the first half of the year. Overall, the EU10 countries are expected to contract by -4.2 in 2009, just like the EU15 countries. Growth is supported by a rebound in trade and manufacturing, a turn in the inventory cycle, a rise in equity values, and improvements in business and consumer confidence. In particular, the EU economic sentiment indicator has improved for six months in a row since March 2009 for both EU15 and EU10, and in case of the EU15 economies is now only 15 percent off its long-term average value (Figure 5).

Figure 5. EU10 and EU15 economic sentiment indicator (long term average = 100)



Source: European Commission, World Bank staff calculations

Trade

EU10 trade flows have stabilized at low levels across the region. With the global economy moving towards recovery, exports are slowly reviving from their steep falloff early in the year. Export growth has bottomed out at just over -20 percent year-on-year in the last few months. While this mirrors the performance of the EU15 region, export growth from early 2007 to late 2008 was more than 10 percentage points higher in the EU10 region than in the EU15 region. All EU10 countries have seen sharp downward adjustments in export growth over the last year (Figure 6). The drop is the largest in Lithuania and smallest in Hungary. Import growth has stabilized at levels even lower than for export growth (Figure 6 and Figure 7). Import growth of the EU10 region leveled off at -30 percent year-on-year, some 10 percentage points below export growth.

Figure 6. Exports performance of EU10, 3mma, percent, year-on-year

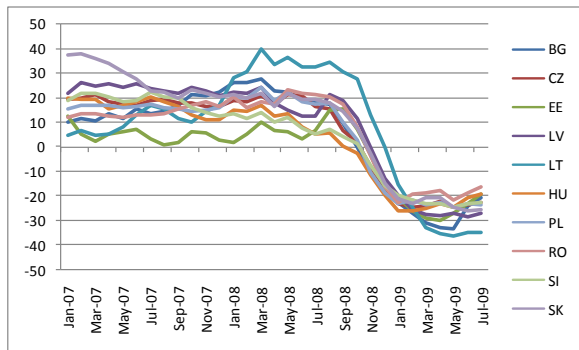
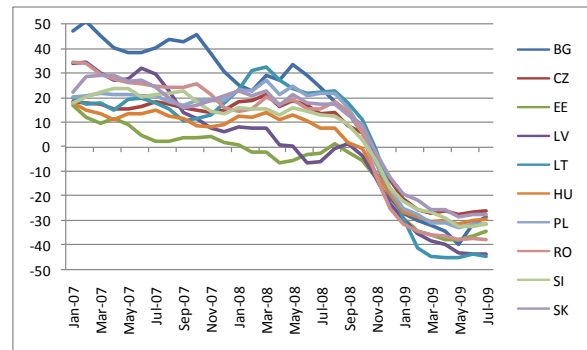


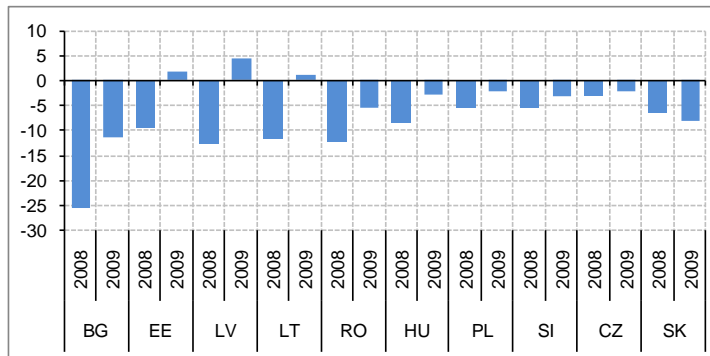
Figure 7. Imports performance of EU10, 3mma, percent, year-on-year



Source: Eurostat, World Bank staff calculations

The adjustment in trade balances is leading to a welcome improvement in current account balances (Figure 8). The dwindling of capital flows has made large current account deficit untenable for EU10 countries. Current account deficits are projected to contract significantly or, in the case of the Baltic States, to turn into surpluses.

Figure 8. Current Account Balances, percent of GDP



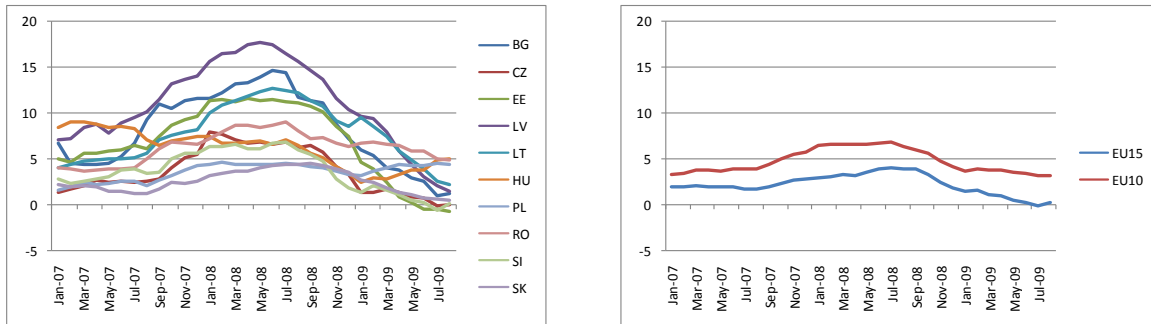
Source: IMF World Economic Outlook, October 2009, World Bank staff calculations.

Notes: According to the latest forecasts of the Ministry of Finance, the current account deficit in Slovakia in 2009 should not exceed 6 percent of GDP.

Inflation

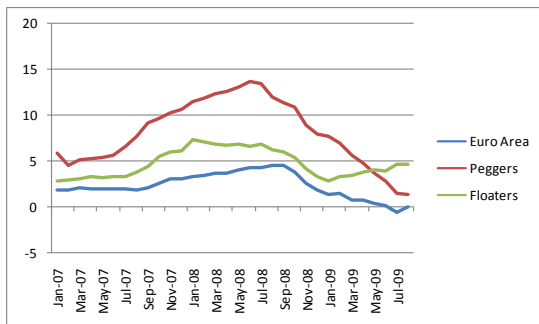
Inflation in the EU10 region has fallen sharply in line with the rise in the output gap, similar to trends in the euro area (Figure 9). However, the pace of the decline differs according to the exchange rate regime. The reduction in inflation is more pronounced for countries with fixed exchange rates, as improvements in competitiveness require “internal” devaluations, i.e. downward adjustment in domestic wages and prices (Figure 10). In the Baltic countries and Bulgaria, inflationary pressures continued to ease under sharp domestic demand contraction and labor market adjustments. As a result, inflation declined from double-digit rates a year ago to around 2 percent in August. Estonia recorded deflation for the last 3 months. While output may have started to stabilize in the Baltic countries, the slack in the labor market is expected to grow, which will support further disinflation later in 2009. Meanwhile, inflation in the countries with floating exchange rates remained stable or even picked up, as in the case of Hungary and Poland. The moderation in inflationary pressures through weakening domestic demand and labor market easing was offset by the lagged effect of depreciating currencies which put upward pressure on prices from rising import prices and higher export demand. In addition, prices rose due to a VAT increase in Hungary and higher administered prices in Poland. As investor sentiment and risk appetite improved, by early October 2009 the currencies reached levels seen in January 2009, some 13 percent (for the Czech koruna) to 27 percent (for the Polish zloty) below the peaks from summer 2008 (Figure 11). Among others, the appreciation of the koruna in the course of the spring 2009 has contributed to a recent decline in headline inflation to around zero in the Czech Republic. Apart from Bulgaria and Slovenia, all EU10 countries experienced deflation on a month-to-month basis in August 2009.

Figure 9. HICP¹ overall index for EU10 and EU15, annual rate of change, percent



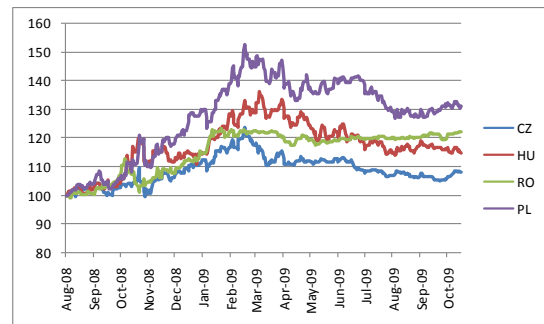
Source: Eurostat, World Bank staff calculations

Figure 10. HICP of peggers vs. floaters, annual rate of change, percent



Source: Eurostat, World Bank staff calculations

Figure 11. Exchange rates vs. Euro for countries with floating exchange rate system, August 2008=100



Source: Reuters, World Bank staff calculations

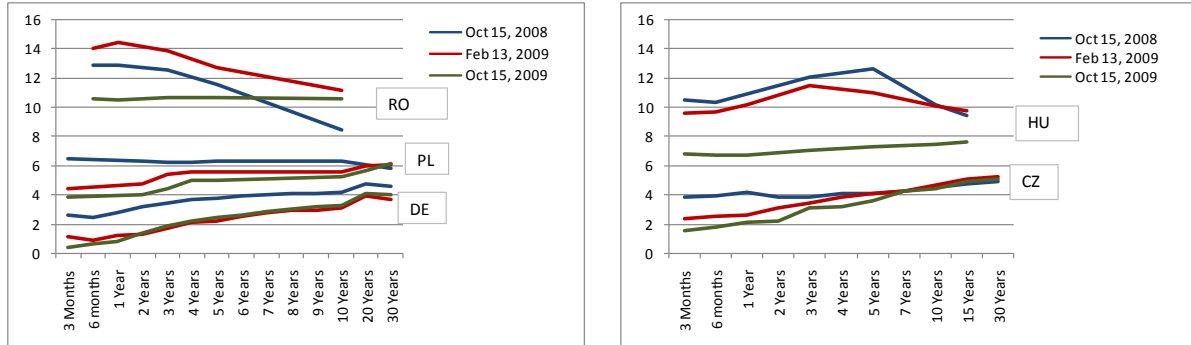
¹ HICP is a harmonized index of consumer prices.

Finance

The stabilization of financial markets is continuing with a return in confidence and risk taking. Strong policy action has helped to avoid a systemic regional crisis in the face of the global financial crisis, as discussed in the policy section of the report. Parent banks have continued to support their subsidiaries and viable local banks have managed to stay in business. Strong parent and subsidiary links have proven to be a source of resilience in the region, as cross-border flows to the region contracted less sharply than in other emerging economies in Eastern Europe and Central Asia.

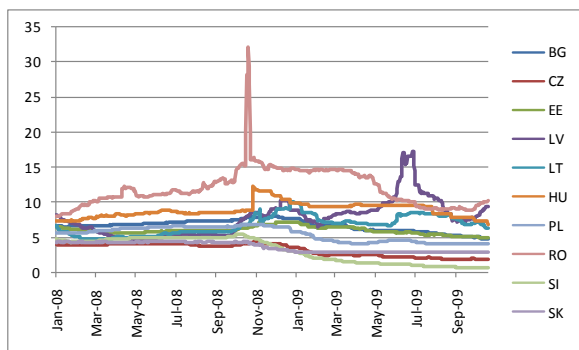
Global equity and bond markets have moved up quickly and yield curves steepened (Figure 12). This has led to a falloff in the volatility of stocks as well as a compression of bond spreads for emerging markets. Interbank markets have stabilized as counterparty risk has eased. U.S. LIBOR-OIS spreads which had peaked at 350 basis points have fallen to close to 10 points, well within their historical trading range. The VIX volatility index dropped from 80 in October 2008 to 25 at present (Figure 16). Longer-term bond yields in the euro area are similar to pre-crisis levels. Emerging-market bond spreads now stand at 311 basis points, the narrowest since September 2008, although there still remains a significant country differentiation.

Figure 12. Yield curves for selected countries, percent



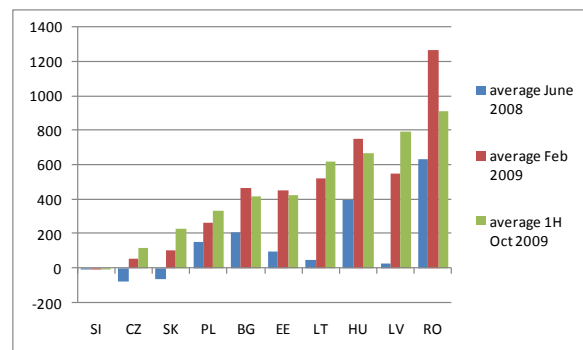
Source: Bloomberg, World Bank staff calculations

Figure 13. EU10 3M interbank rates, percent



Source: Bloomberg, World Bank staff calculations

Figure 14. EU10 3M interbank rates spreads over 3M Libor EUR, basis points

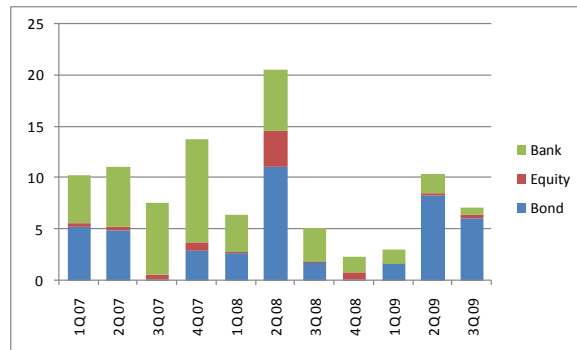


Source: Bloomberg, World Bank staff calculations

Bond issuance and equity placements have recovered, but syndicated bank lending continues to decline. For emerging economies, total bond inflows are down only 11 percent over the first three quarters of 2009 year-on-year. This reflects a rise in publicly-owned corporate and sovereign bond issuance that has been more than offset by a 40 percent decline in private corporate bond sales. In contrast, syndicated bank lending has plunged over the same period, declining 93 percent for public borrowing and 80 percent for private borrowing. Similarly, out of the US\$7.2 billion gross capital flows to emerging EU10 countries (Baltic

countries, Bulgaria, Poland, Romania and the Slovak Republic) in the third quarter of 2009, some US\$6 billion was bond issuance. Bank lending was only US\$800 million, compared to US\$10 billion in the fourth quarter of 2007. In the Baltic countries, non-debt creating capital inflows fell sharply, although Lithuania benefited from large investments in the oil-refining industry. For example, direct investment in Estonia was the lowest of the past fifteen years. Non-debt creating capital inflows to Bulgaria and Romania halved in the first half of 2009 as investments in real estate plunged.

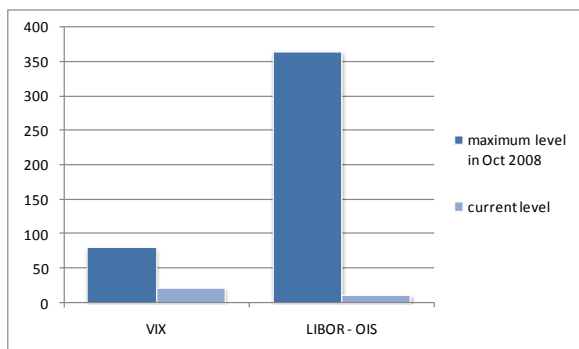
Figure 15. Capital inflows to EU10, USD billions



Source: World Bank, DECPG, staff calculations

As investors remain concerned about the availability of external financing and the instability of the exchange rate, interest rate spreads remain elevated for many EU10 countries (Figure 13, Figure 14). While short-term interbank rates have come down across the region, the spreads of 3-month rates in interbank markets declined in the last six months only in Bulgaria, Estonia, Hungary and Romania.

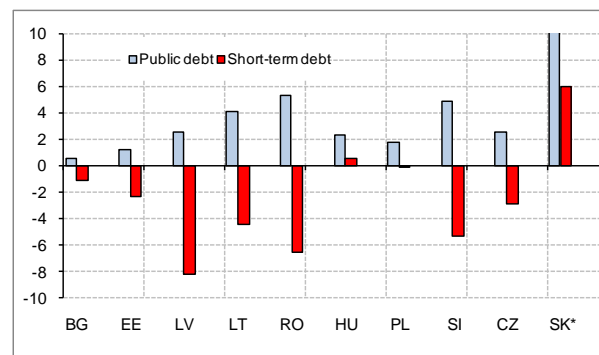
Figure 16. Change in VIX and Libor-OIS since Oct. 2008, basis points



Source: Reuters, World Bank staff calculations

Notes: VIX (volatility index) indicates the expected volatility of the S&P 500 stock index for the next thirty days; Libor-OIS is a barometer of money market distress.

Figure 17. Change in external debt structure compared to end-2008, in percentage points



Source: Central Banks, World Bank staff calculations

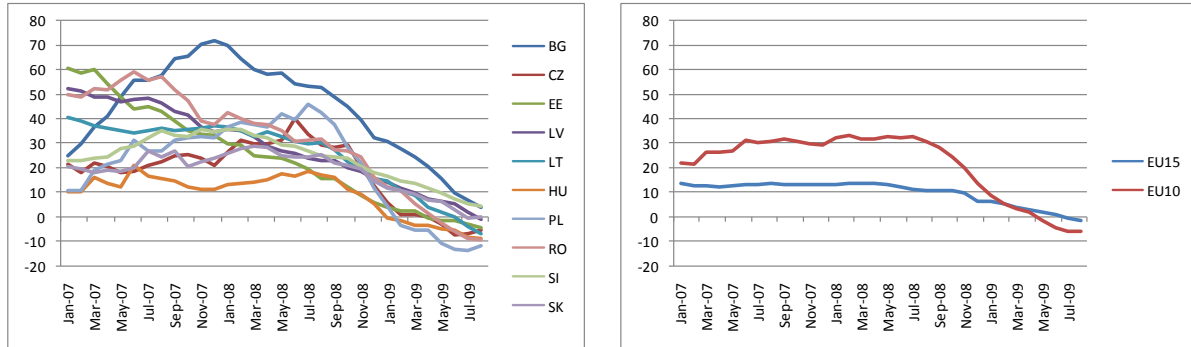
Note: Public external debt includes General government and Monetary authority. Slovakia's public debt change is off the chart because it exceeds 30 percentage points as a result of a negative balance on the NBS-ECB-TARGET2 account (a special account of NBS for receivables and liabilities vis-à-vis other central banks within the Eurosystem).

The adjustment in capital flows is also visible in the change of the external debt structure. Public external debt as percent of GDP is rising with higher fiscal needs and lower output, while private external debt is declining, partly in line with the corrections in the current account balance. From end-2008 to June 2009, short-term debt as percent of GDP decreased across the region with the exception of the Slovak Republic and Hungary (Figure 17).

Gross reserves increased in a number of countries, including Hungary and Poland, and remained stable in Romania. This reflects a pick-up in capital flows, reduction in external financing needs, and support from international partners. The allocation of additional special drawing rights by the IMF in September 2009 has boosted further countries' gross reserves. The total support amounted SDR 5.7bn (about USD 9bn), two thirds of which went to Poland, Hungary and Romania.

While the grip of the economic crisis is easing, credit to the private sector is shrinking. Credit growth turned negative in the Baltic countries (Figure 18). These trends reflect tighter lending standards, funding difficulties, weaker consumer sentiment, and cutbacks in enterprises' expansion plans in view of uncertain economic prospects. However, GDP growth declined even faster than credit aggregates in the euro area, which sends mixed signals about the extent to which supply constraints are affecting credit at this point (see Focus Note on Credit Crunch or Weak Demand for Credit?).

Figure 18. Credit growth to non-financial enterprises, percent, year-on-year

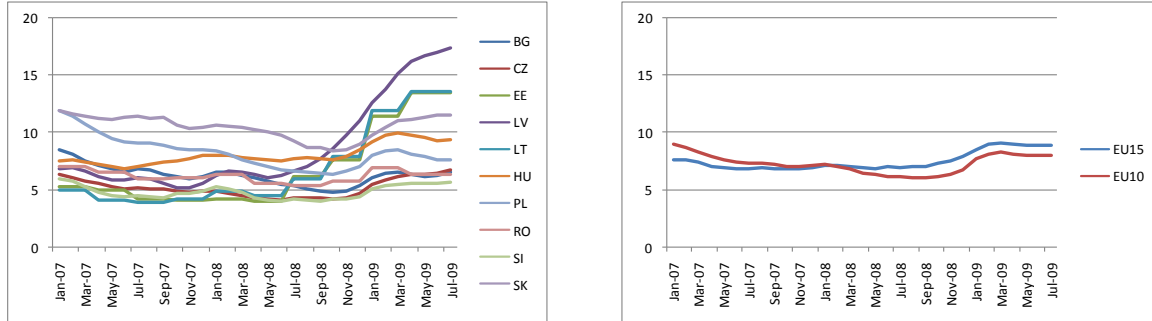


Source: European Central Bank, World Bank staff calculations

Employment

The recession has worsened labor market outcomes. Employment growth was negative in all EU10 countries and wage pressures - with the exception of Bulgaria - moderated in the second quarter of 2009 (for detailed data see Statistical Annex). Unemployment rates in the EU10 rose from 6.1 percent in August 2008 to 8.1 percent in July 2009, or from about 2.9 million to 3.8 million persons (Figure 19). Return migration of the over one million workers from EU10 countries who moved to crisis-hit countries such as the UK, Ireland and Spain after 2004 is heightening the pressure in domestic labor markets.

Figure 19. Harmonized unemployment rates, percent

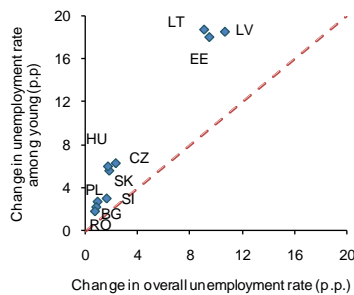


Source: European Central Bank, World Bank staff calculations

Across the region, the deterioration in the labor market was more modest than the deterioration in economic activity. Nevertheless, the double-digit contractions in the Baltic countries resulted into a more than doubling of the unemployment rate over the last year, relative to high initial employment rates in Estonia and Latvia. The impact of the reduction in trend growth on unemployment rates in Poland, the Czech Republic, the Slovak Republic and Romania has been particularly subdued. The changes in unemployment at the subnational level suggest that the crisis has affected leading regions more severely than lagging regions, including remote rural areas. However, capital cities have held up well due to the more diverse economic structure and stabilizing impact of public sector employment, with the exception of the Baltic countries, where they have been hit by the downturn in the financial, real estate and construction sectors (see Focus Note “Regional unemployment impacts of the global financial crisis in the EU10 countries”).

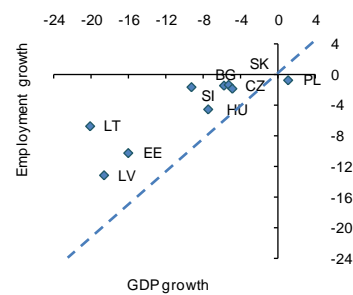
The economic crisis is affecting foremost workers with a basic education level and limited work experience, most of whom are young. Unemployment rates for workers aged 15 to 24 increased twice as much compared to the overall increase. As a result, almost one third of the economically active population below 24 years of age is unemployed in the Baltic countries, and around one quarter in Hungary and Slovakia (Figure 20).

Figure 20. Change in unemployment rate from June 2008 to June 2009 by age



Source: Eurostat, World Bank staff calculations

Figure 21. Year-on-year growth in output and employment in the 2nd Quarter 2009



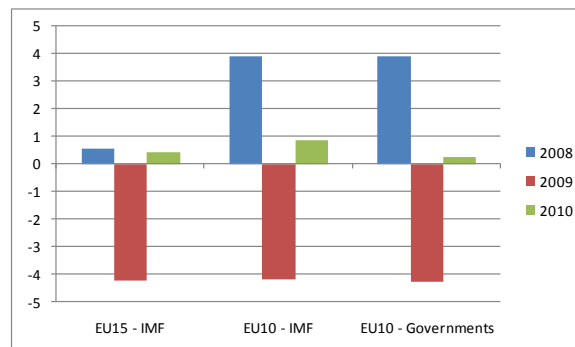
Source: Eurostat, World Bank staff calculations

Outlook

The rebound of the global economy has started, but the recovery in the EU10 region could be weak. Governments and private sectors will need to rebalance their balance sheets and reduce excessive reliance on foreign savings. The region will need to adjust to less capital inflows and use them more productively.

Future growth is likely to be lower than in pre-crisis years. EU10 countries are projected to contract by around 4.2 percent in 2009, and to grow by around 1 percent in 2010 and 3.6 percent in 2011, down from 3.9 percent in 2008 and around 6 percent in 2007 (Figure 22). While growth in 2010 and 2011 in the EU10 region is likely to be higher than in the EU15 region, the growth differential compared to the pre-crisis period is reduced by about 1.5 percentage points. Furthermore, the outlook is weaker for EU10 countries with the largest initial macroeconomic imbalances, as discussed previously. Large output gaps and modest increases in commodity prices are set to keep inflation subdued, and weak domestic demand and shallow capital flows are likely to maintain current account deficits at sharply reduced levels compared to before the crisis.

Figure 22. GDP growth forecasts for EU10 and EU15, percent



Source: Eurostat, World Bank staff calculations

Table 2. Macroeconomic Forecasts for EU10 countries

		GDP growth (yoy percent change)		Inflation rate (annual percent change)		Current Account Balance (percent of GDP)	
		2009	2010	2009	2010	2009	2010
BG	Government	-6.3	-2.0	2.3	2.2	-11.0	-8.0
	IMF	-6.5	-2.5	2.7	1.6	-11.4	-8.3
CZ	Government	-4.3	0.3	1.1	1.1	-2.0	-0.9
	IMF	-4.3	1.3	1.0	1.1	-2.1	-2.2
EE	Government	-14.5	-2.0	-0.1	0.2	2.1	3.6
	IMF	-14.0	-2.6	0.0	-0.3	1.9	2.0
LV	Government	-18.0	-4.0	3.5	-3.7	6.5	8.1
	IMF	-18.0	-4.0	3.1	-3.5	4.5	6.4
LT	Government	-18.2	-4.3	3.6	-3.0	-0.7*	5.0*
	IMF	-18.5	-4.0	3.5	-2.9	1.0	0.5
HU	Government	-6.7	-0.9	4.5	4.1	-3.0	-3.4
	IMF	-6.7	-0.9	4.5	4.1	-3.0	-3.3
PL	Government	0.9	1.2	3.6	1.0	-1.8	-3.4
	IMF	1.0	2.2	3.4	2.6	-2.2	-3.1
RO	Government	-7.7	0.5	5.5	3.7	-4.6	-4.8
	IMF	-8.5	0.5	5.5	3.6	-5.5	-5.6
SI	Government	-7.3	0.9	1.0	1.5	-0.2	0.0
	IMF	-4.7	0.6	0.5	1.5	-3.0	-4.7
SK	Government	-5.7	1.9	1.2	2.6	-5.8	-5.2
	IMF	-4.7	3.7	1.5	2.3	-8.0	-7.8

Source: IMF, World Economic Outlook October 2009, Official government forecasts valid as of October 20, 2009

Notes: * For Lithuania CAB is only trade balance of goods and services.

A number of factors suggest the growth projections from Table 2 could be too modest. Low inventory levels, pent-up demand, and low interest rates could support a rebound of the economy. For example, the ongoing inventory adjustment could proceed more quickly than many firms anticipate, which could prompt a faster recovery in orders. In addition, productivity, human capital, increased access and utilization of EU funds and convergence with the European Union, supported by structural reforms, provide a powerful engine of growth.

Yet, the downside risks to the projections are likely to outweigh upside risks, as robust growth is likely to return only once investment and exports rebound and consumer confidence is restored. First, in view of the deep trade and financial market integration, a sustainable recovery in the EU15 is needed to support exports, spur credit growth and strengthen job prospects in the EU10. Even though prospects for some of the largest economies in the EU are brightening, growth in Western Europe still relies more on fiscal stimulus, central bank support and restocking than on a recovery in private demand. The EU15 economies are set to emerge only slowly from the sharp and synchronized economic contraction triggered by the massive trade and financial shock. The upswing in EU10 exports could be sluggish as households in destination countries reduce their consumption to cope with tighter budgets, rising unemployment and the need to rebuild their assets. Furthermore, the prospects for an export-led recovery in Europe depend on a rebalancing of global demand to emerging Asia, which might be shortlived or insufficient to offset lower demand in advanced economies.

In addition, investment is likely to gain strength only slowly, held back by excess capacity and financing constraints, as banks in Western Europe and North America continue to write-down loans and credits. Non-performing loans are increasing in the wake of rising corporate defaults and unemployment. This can weaken bank balance sheets, prolonging the ongoing credit contraction in the region. As credit quality declines further because more households struggle with falling income and more firms enter bankruptcy, banks will be less willing or able to support the recovery. This would lead to negative feedback loops between parent banks and their affiliates abroad as well as the real and financial sectors. Banks' capacity to take on more risk is also limited, as balance sheet cleaning and recapitalization is yet to be completed. Estimated external debt refinancing needs in 2010 are still high in some countries, which expose the region to risks of exchange rate instability and accelerated retrenchment in cross-border lending.

Finally, maintaining potential output growth depends on successful structural reforms in areas such labor markets, education, and business climate. As discussed below in the section on structural policy, the consequences of the crisis could also loom long, because financial crises can damage the supply capacity of the economy. The loss in potential growth could be compensated at least in part by accelerating the implementation of the Lisbon agenda, which has so far been lagging.

Policies for Recovery

Financial and Monetary Policy

The economic crisis poses significant risks to the private sector. In spite of the recent improvements in global financial markets, heightened financial strains could return. As international investors take a closer look at the vulnerabilities of emerging economies, there is a large premium on strong domestic policies. While financial markets may have under-priced the risks relative to the fundamentals in the region prior to the crisis, this under-pricing has now disappeared. This requires a forceful and coordinated policy response aimed at providing financial institutions with access to liquidity, recapitalizing viable but weak institutions, facilitating corporate debt restructuring and resolution, and stepping up supervision, regulation and consumer protection. In view of the large foreign ownership of the banking system, this requires close coordination with authorities and banks from EU15 countries.

As the slowdown in economic activity reduces profit margins of the corporate sector and incomes of households, non-performing loans are likely to increase. Together with low profitability, or loss-making in some countries, of the banking sector, this could deteriorate capital adequacy ratios, which in turn would curtail credit to the private sector. Indeed, NPLs have increased across the region, rising for example in Latvia from 3.6 percent at end-2008 to over 10 percent in March 2009 (see Figure 54 in Focus Note on bank credit losses). However, based on the experience of previous severe banking crisis, rough calculations suggest that credit losses as percent of GDP are likely to remain below those of previous banking crises, partly because NPLs at this stage of the crisis still remain below levels observed in other banking crises. Governments should follow through on their programs aimed at lowering the risk of credit default of the most vulnerable households. Much of the rapid expansion of credit in the EU10 countries was driven by the household sector. This makes households vulnerable to default, although household indebtedness is still low in some of the countries (see Focus Note on Bank credit losses).

The reliance on cross-border funding has exposed banks in Bulgaria, the Baltic countries, Hungary and Romania, to potential balance sheet pressures of their parent banks in their home markets. Fortunately, to date, subsidiaries of foreign banks have largely maintained their exposure. In the Baltic countries, where the economic downturn was strongest during the last year, financial sector stability continues to be supported by the Nordic parent banks' strong commitments to finance their branches and subsidiaries. Banking sector capitalization is in general satisfactory. Nevertheless, foreign capital inflows are likely to remain more modest in the future and weakening credit quality and declining profitability could erode capital buffers. This is likely to restrain credit growth to the enterprise sector going forward.

Increased official financing and regional coordination between private and public agents have helped to avert a systemic banking crisis in the region. The Committee of European Banking Supervisors, supported by the ECB, has undertaken unified financial sector stress testing of 22 major European banking groups, many of which are active in the EU10 region. To help close some external financing gaps created by the crisis and ease the burden of adjustment, the IMF, EC and World Bank have provided substantial support. The Joint International Financial Institutions Action Plan of the EBRD, EIB and WB in support of banking systems and lending to the real economy in Central and Eastern Europe launched in February 2009 has made available EUR16 billion in crisis-related financial support for financial sectors in the region. Under the European Bank Coordination Initiative supported by the IMF and EC, home and host governments have discussed broad principles for the burden sharing of refinancing and recapitalization of the international banks and their subsidiaries between home and host countries, in addition to signed commitments from the banks with regard to refinancing and recapitalization and from individual governments with regard to policies. Large-scale financial rescue packages in Western Europe, together with continued foreign

private bank involvement with respect to both capital and rollovers, have lessened the need for domestic public interventions in the EU10 countries. Overall, financial rescue packages in the EU amount to nearly EUR 4 trillion. Of this, about EUR 26 billion originates from the EU10 region.

In June 2009, the EU has begun overhauling financial stability arrangements by setting up two new committees. The European System of Financial Supervisors will bring together national supervisors with independent European Supervisory Authorities to coordinate regulation and supervision of cross-border institutions; and the European Systemic Risk Board will identify systemic risks and recommend ways to address them.

Monetary policy has so far followed an easing cycle. As financial stability concerns moderated, policy rates were cut by a cumulative 250 basis points in Hungary and 150 basis points in Romania from June 2009 to late September 2009. Policy rates in Poland and the Czech Republic were also reduced, although from much lower levels. This followed ECB's lowering of its policy rate by 325 basis points to 1 percent. The large share of foreign currency loans and the large interest rate differential between FX and domestic currency loans have somewhat limited the effectiveness of the transmission mechanism of monetary policy in some countries. However, the policy stance may shift once the output gap declines and inflation pressures rise, including from global energy prices, even though central banks are likely to remain wary of excessive foreign exchange appreciation which could undermine growth. Global oil prices have so far remained below respective 2008 levels, bringing downward pressure on prices. With the improved global growth prospects, oil prices have picked up from the lows in early 2009 to reach levels of around \$70/barrel since July 2009. This may contribute to a pick-up in inflation by early 2010. It is important to note, that the impact of the financial crisis on potential output could be difficult to quantify, which leaves monetary policy makers with high uncertainty regarding the assessment of inflationary pressures in the economy. Nevertheless, while EU10 central banks have to tread careful in view of volatile exchange rates and capital flows, their policy stance could remain supportive of a recovery as long as the recovery remains uncertain and inflation subdued.

Fiscal Policy

Fiscal Deficits

After years of improving fiscal balances on the back of a strong economy, most countries in the EU10 region are now facing large and growing fiscal deficits. Fiscal deficits are now on the rise, mainly because public revenues shrink with falling imports and manufacturing production, declining assets prices, and worsening tax compliance. Public expenditures are on the rise due to higher outlays for unemployment benefits and social spending.

Faced with declining revenues and higher spending pressures, EU10 countries have undertaken substantial adjustments in fiscal policies (Table 3). Exercising a difficult balancing act between supporting the recovery and ensuring fiscal sustainability, governments have typically allowed automatic stabilizers to operate for both revenues and expenditures, propped up the financial sector without major up-front fiscal cost, and restrained from large discretionary expansionary fiscal measures. With the exception of Bulgaria and the Czech Republic, all EU10 countries have adopted supplementary budgets to accommodate higher fiscal deficits during the course of 2009. With the exception of Poland, Slovenia and the Slovak Republic, all EU10 members have frozen, or cut, public wages in either 2009 and/or 2010, and a number of countries have taken steps to limit increases in public pensions. Public employment cuts have been implemented or planned in the Baltic countries, Bulgaria, Poland and Romania. In addition all countries have adopted revenue measures. However, relative to the original 2009 budget laws, only the Governments of the Baltic countries expect to increase revenues relative to a declining GDP in their supplementary 2009 budgets or 2010 draft budget for state or general government, while expenditures remain unchanged or increase across all countries. Fiscal policy plays a crucial role for lowering aggregate demand in the Baltic countries in view of the pegged exchange rates and the need to reduce large current account deficits.

Table 3. Government measures in 2009 and 2010 budgets

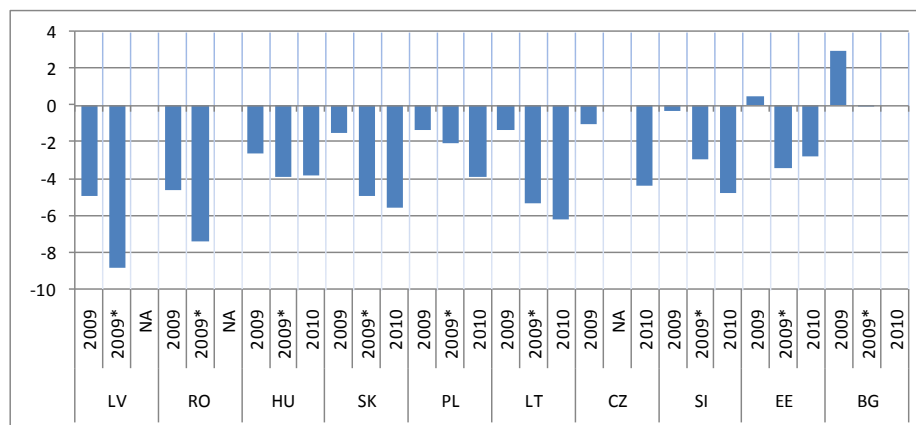
	Pensions		Public wages		New revenue measures			Supplementary budget in 2009
	Freeze	No change	Freeze (or cut)	No change	VAT	Direct Tax	Others	
BG	2009							N
	Y		Y				Y	
CZ	2009							N
	Y		Y		Y	Y	Y	
EE	2009		Y	Y	Y	Y	Y	Y
	2010		Y	Y			Y	
LV	2009	Y		Y	Y	Y	Y	Y
	2010	Y		Y		Y	Y	
LT	2009		Y	Y	Y	Y	Y	Y
	2010	Y		Y			Y	
HU	2009	Y		Y	Y	Y	Y	Y
	2010	Y		Y		Y	Y	
PL	2009		Y		Y	Y	Y	Y
	2010		Y		Y		Y	
RO	2009		Y	Y		Y		Y
	2010							
SI	2009		Y		Y		Y	Y

	2010	Y	Y		
SK	2009	Y	Y	Y	Y
	2010	Y		Y	Y

Source: World Bank staff

Notes: Data apply to different levels of government and is in line with respective country budget documentations. General government: Latvia, Romania, Hungary, Bulgaria, State Budget for the remaining countries.

Figure 23. Fiscal deficit in EU10 countries according to 2009 budget, 2009* supplementary budget and budget proposal for 2010, percent of GDP

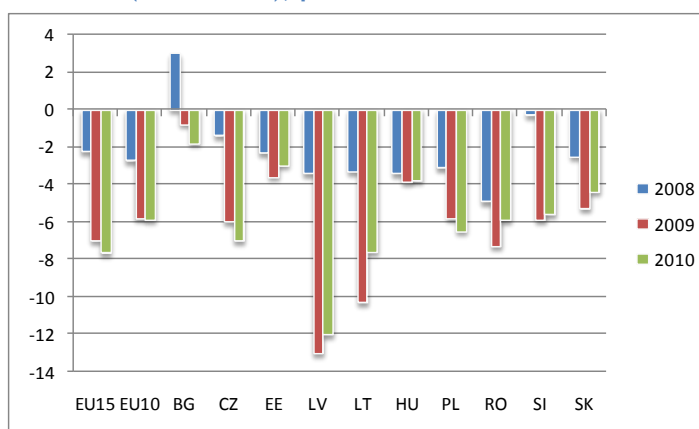


Source: World Bank staff.

Note: Data apply to the level of government indicated in Table 3; NA- data not available.

The EU10 fiscal deficits are set to more than double in 2009 and 2010, exceeding initial forecasts in some cases by a large margin. According to the latest IMF projections, general government budget deficits in the EU10 region are projected to widen from around 2.7 percent of GDP in 2008 to over 5.8 percent in 2009 and 6 percent in 2010 (Figure 24). With the exception of Bulgaria, all EU10 members will exceed the 3 percent of GDP threshold in 2009, some significantly. Latvia, Lithuania and Romania are projected to exhibit the highest fiscal imbalances, but deficits will also be large in the Czech Republic² and Poland. Projections indicate that fiscal deficits will remain high in 2010, and possibly in the medium term, in most of the EU10 countries. Only Bulgaria and Estonia are estimated to maintain the deficits below 3 percent of GDP in 2010.

Figure 24. General government fiscal balance in EU10 and EU15 (2008-2010), percent of GDP



Source: IMF Regional Economic Outlook, October 2009, World Bank staff calculations.

² The Czech Parliament is in the process of approving austerity package aimed at curbing general government deficit to 5.3 percent of GDP in 2010

Figure 25. General Government fiscal balance in 2008 and 2009, percent of GDP

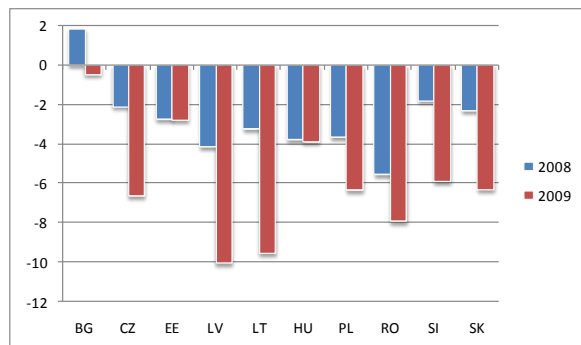
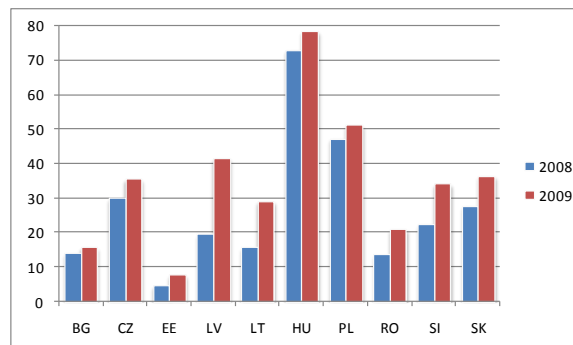


Figure 26. General Government public debt in 2008 and 2009, percent of GDP



Source: Eurostat, based on October 22, 2009 Fiscal Notifications, World Bank staff calculations.

A sustainable reduction in the fiscal deficit is required in view of commitments under the EU Stability and Growth Pact. Countries are required to steer fiscal policy in line with medium-term objectives to safeguard against the risk of breaching the 3 percent of GDP budget deficit threshold. The rise in the fiscal deficit has led to a sharp increase in the number of excessive deficit procedures in the European Union (Table 4). Among the EU10 countries, only Bulgaria and Estonia have currently no such procedure opened or initiated. Overall, some 20 out of the 27 EU member countries have ongoing procedures, and are expected to bring the fiscal deficit below 3 percent of GDP from 2010 to 2014. Fiscal consolidation is also crucial for euro adoption. In Poland, the Government had to delay plans in mid-2009 for an entry to European Exchange Rate Mechanism in 2010 with a view of Euro adoption in 2012 due to, among other reasons, the fiscal deterioration. In Estonia, the government maintains 2011 as target for Euro adoption.

Table 4. Excessive Deficit Procedures

Country	Date of the Commission report	Council Decision on existence of excessive deficit	Current deadline for correction
Belgium	7-Oct-09		
Czech Republic	7-Oct-09		
Germany	7-Oct-09		
Italy	7-Oct-09		
The Netherlands	7-Oct-09		
Austria	7-Oct-09		
Portugal	7-Oct-09		
Slovenia	7-Oct-09		
Slovakia	7-Oct-09		
Poland	13-May-09	7-Jul-09	2012
Romania	13-May-09	7-Jul-09	2011
Lithuania	13-May-09	7-Jul-09	2011
Malta	13-May-09	7-Jul-09	2010
France	18-Feb-09	27-Apr-09	2012
Latvia	18-Feb-09	7-Jul-09	2012
Ireland	18-Feb-09	27-Apr-09	2013
Greece	18-Feb-09	27-Apr-09	2010
Spain	18-Feb-09	27-Apr-09	2012
UK	11-Jun-08	8-Jul-08	financial year 2013/14
Hungary	12-May-04	5-Jul-04	2011

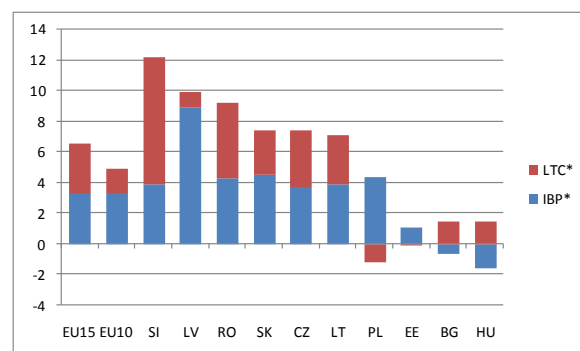
Source: European Commission

Public Debt and Fiscal Consolidation

The deterioration of the fiscal balances is reflected in a sharp rise of public debt. According to EC projections, public debt to GDP ratios are set to increase by about 12.5 percentage points of GDP from 2008 to 2010 in the EU10 region, ranging from 23 percent in Latvia to 5 percent in Bulgaria. This is in line with the increase in the EU15 countries. In addition, some EU10 Governments have committed resources to guarantee, recapitalize and resolve financial institutions, although the numbers pale in comparison to some of the amounts spent by advanced European economies. The sharp increase in actual and contingent public debt could raise concerns about the sustainability of fiscal balances and trigger increases in interest rates on government paper, which in turn would undermine the economic recovery. Fortunately, the recent decline in sovereign default risk premia for EU10 countries suggests that financial markets have confidence in public debt management in the region.

Fiscal balances would have to improve considerably to ensure the long term sustainability of public finances. The scale of the adjustment required to stabilize the public debt-to-GDP ratio is sizable. Recent calculations from the EC suggest that, in order to stabilize public debt at the level of 2009, the current cyclically adjusted primary balance in the EU10 countries would have to increase from a deficit of -2.3 percent of GDP to a surplus of 2.6 percent of GDP, about the same percentage point change as in the EU15 region (Figure 27). When factoring in any additional expenditure arising from an ageing population, the current primary balance would have to improve by 4.9 percentage points of GDP. While the exact impact of the crisis on fiscal deficits and public debts will remain uncertain for some time, the size of the required adjustment makes it advisable to step up the consolidation as soon as the state of the cycle allows.

Figure 27. Results of the sustainability gap calculations in the baseline scenario, percent of GDP



Source: European Commission, World Bank staff.

Notes: * IBP = required adjustment given the initial budgetary position, LTC = required adjustment given the long-term change in the primary balance due demographic ageing.

Fiscal consolidation is likely to remain one of the most important channels of bringing debt-to-GDP ratios down. Inflation would lower debt-to-GDP ratios, but not without undermining economic health. Real appreciation of the national currencies would also reduce public debt, but pose risks to the competitiveness of the economy. Rapid growth can play a crucial role in reducing large debt-to-GDP ratios, both directly, as it increases the denominator, and indirectly, as it facilitates rapid revenue growth, yet growth prospects are uncertain with potential growth today lower than before the crisis.

While the fiscal consolidation strategies have to be tailored to country circumstances and are likely to be broad based, successful fiscal adjustments typically involve expenditure measures. The economic literature on fiscal adjustments highlights factors that favor successful fiscal consolidations. Such consolidations tend to be crisis-related, perhaps because this facilitates broader consensus about the need for reform; expenditure-based, perhaps because they reflect deeper structural reforms and a stronger political commitment to adjustment; and incremental, spanning periods from two years to a decade, perhaps because they allow for savings from structural reform to materialize. Enhancing the quality of public spending, based on comprehensive reviews, rests on addressing institutional, policy and process weaknesses, including reforming the civil service by better aligning performance with pay,

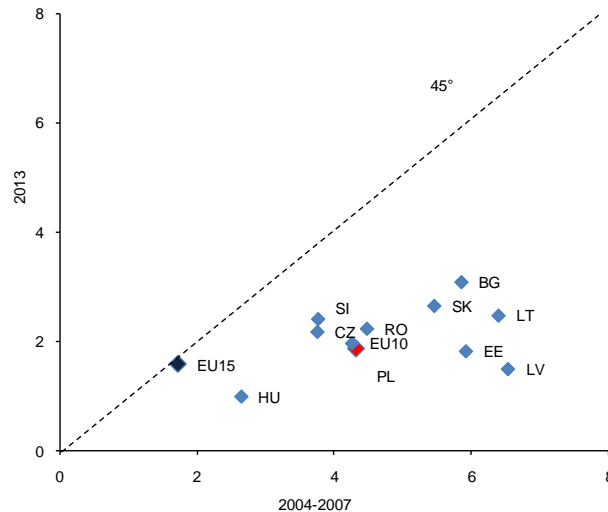
bringing pension funds on sustainable long term paths and strengthening the links between resources and results in the economic and social sectors.

Fiscal management tools are taking on an added importance in the context of declining resources. A number of countries, in particular Bulgaria, Latvia, Poland and Slovakia, already began introducing elements of medium term expenditure frameworks and performance-based budgeting as tools for improving the quality of public spending and service delivery, and Hungary recently set up a fiscal council. However, there is still scope for additional initiatives to enhance fiscal frameworks.

Structural Policy

The economic crisis is likely to lower substantially potential output in the EU10 countries (Figure 28).³ First, the regions' productive capacity has suffered as a result of weak gross capital formation, as firms struggle to reduce excess capacity. Higher cost of capital will curtail investments also in future. In addition, just as in the unemployment crisis in Western Europe during the 1980s, a persistent decline in labor demand could raise structural unemployment, as the skills of the unemployed get eroded. Finally, some countries relied on growth in particular sectors, such as finance, real estate or automobile exports, that are now undergoing major downward adjustments. The EU10 region's medium-term recovery will have to rely less on domestic demand and more on exports than in the past, if only because financing of current account deficits will be harder to come by. At the same time, the ongoing rebalancing of global demand suggests that exports alone will not drive the recovery. For these various reasons, potential growth is set to slow considerably over the next few years. According to estimates of the European Commission, the reduction in potential growth is projected to be severe in the EU10 region, particularly for the Baltic countries, even though it is fairly modest in the EU15 region.

Figure 28. Potential growth by EU10 Member Country, percent



Source: *European Economy 7/2009. Economic crisis in Europe: causes, consequences and responses*, World Bank staff calculations.

The crisis has reemphasized the importance of supporting potential growth through structural change, as envisioned in the EU's Lisbon Agenda and the European Economic Recovery Plan. Boosting potential growth would limit the fiscal deterioration resulting from the crisis, and would help to tackle the multiple challenges of globalization, energy deficiency, climate change (see Focus Note on "Responding to Climate Change in the EU10 and Croatia"), and population aging. Short-term measures to mitigate the impact of the crisis should be coupled with medium-term actions to promote sustainable growth with productive employment. After all, the economic crisis has put a greater onus on countries to innovate. Countries that fail to reform face the risk of lower living standards, marked by anemic growth, weak investment, and poor social services. The crisis offers an opportunity to question, remove or alleviate longer term constraints to economic growth, unlock new sources of productivity to enhance competitiveness, and ensure that the benefits of growth are shared more equitably. Achieving sustainable broad-based growth and converge requires, among others, knowledge-based growth by improving the skills of the workforce and getting these skills productively employed in the economy, and boosting firm innovation.

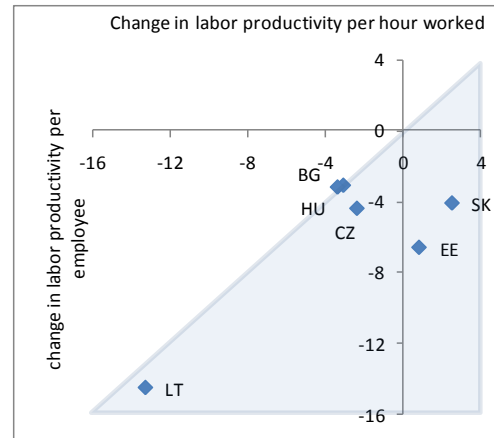
³ Projections of potential output are subject to large uncertainties due to the uncertain economic outlook and different methodologies for estimation. For example, 2013 potential output growth in Hungary is estimated at 2.4 percent by the IMF and 1.0 percent by the EC.

Labor Market Policy

With the growth outlook modest, firms are likely to adjust their wages downward and postpone rehiring until the recovery is on firm footing. Employment has remained remarkably high in the EU10 region, similar to key countries of the euro area, and opposite to the trends seen in the US. However, while employment tends to hold up better during downturns, it could take much longer to increase during upturns. As a consequence, the recovery could be jobless. Such a situation could derail growth, as higher joblessness could translate into lower household incomes, lower remittances and weaker consumer demand which in turn could undermine the confidence in the financial sector.

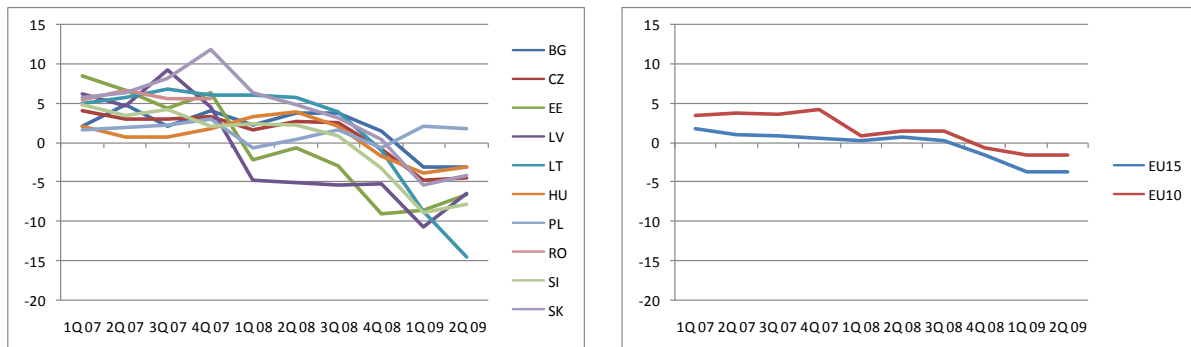
The modest increase in unemployment could be a sign of labor hoarding, reflecting a tendency to respond to changes in demand by lowering hours worked rather than the number of workers (Figure 29). Indeed, real growth in labor productivity per worker declined in the EU10 region over the last three quarters, even though at a lower rate than in the EU15 region (Figure 30). It remained positive only in Poland over the first half of 2009.

Figure 29. Change in labor productivity per employee vs. change in labor productivity per hour worked in 2Q 2009



Source: Eurostat, World Bank staff calculations.

Figure 30. Real Labor Productivity Growth per Employee, year-on-year, nsa



Source: Eurostat, World Bank staff calculations

The rise in unemployment creates pressure on the growth in labor market expenditures. Workers who lose their jobs claim unemployment benefit and expect government's assistance in finding a new job. There is also pressure to protect the existing jobs, for example by means of government wage subsidies. These expenditures act as an automatic stabilizer and dampen the fall in income and demand. However, all this creates fiscal strain. It is important that labor funds have enough resources to finance unemployment benefits and active programs, as unemployment benefits go mainly to poorer households and are thus an effective poverty mitigation instrument. At the same time, the unemployment benefit systems are typically not overly generous and thus do not create significant labor supply disincentives.

One reason for the modest increase in unemployment rates in some countries is Governments' active efforts to alleviate the impact of economic slowdown on the labor markets (Table 5). In addition to standard measures aimed at limiting the reduction in income levels in case of unemployment, such as unemployment benefits, some Government measures are directed towards supporting labor demand via job subsidies, reductions in non-wage labor

costs, work-time reductions, or active labor market programs. In particular, measures to grant temporary flexible working-time arrangements, as temporary adjustment of working hours (“short-time”) in line with production needs, appear to have mitigated the increase in unemployment in Estonia and the Slovak Republic. Productivity per hour increased, while productivity per employee decreased, as Government schemes facilitated the reduction in hours worked per employee.

Table 5. Labor Market Policies in Response to the Crisis in EU10

	BG	CZ	EE	HU	LV	LT	PL	SK	SI	RO
Measures to support labor demand										
short-time working and hiring subsidies,	x	x	x	x		x	x	x	x	
public sector job creation	x		x		x	x				
(temporary) cuts in social security contributions	X			x			x	x		
other labor demand measures			x							
Measures to help unemployed find work										
enhanced job search assistance				x						
job finding and business start up programs	x	x	x	x	x	x	x	x	x	
training programs for the unemployed	x	x	x	x	x	x	x	x	x	
other				x				x		
Income support										
generosity and duration of unemployment benefits										x
Other measures										
training and retraining for existing workers	x	x	x		x	x				

Source: World Bank staff based on information available on European Employment Observatory website and OECD Tackling the Jobs Crisis - The Labor Market and Social Policy Response, September 2009.

However, such temporary initiatives would have to be combined with measures supporting employability and guiding people towards new jobs, empowering workers to take advantage of new opportunities when the economy recovers. Among others, this includes job training, including for young workers, which can help to boost mobility and prevent skill loss when unemployed; ensuring efficient systems of job search assistance and activation policies; and increasing labor market flexibility in service and product markets.



EU10 October 2009

Summary of “In Focus” Notes

Invitation paper: Regional Unemployment Impacts of the Global Financial Crisis

Rising unemployment in response to the global financial crisis, a major policy challenge at a country level, has a distinct regional dimension. This invitation paper provides a country-by-country overview of the changes in unemployment at the subnational level in the EU10 region from June 2008 to June 2009. Despite some obvious differences among the countries due to their size, geographical conditions, economic structure and general macroeconomic performance, some common features emerge from the analysis:

- Capital cities generally remain more immune to the crisis with the exception of the Baltic countries, where they have been hit due to the sharp contraction in construction and financial sectors.
- Leading regions with smaller urban centers are more affected.
- The crisis has relatively limited impact on the peripheral, agricultural regions.
- The crisis reached leading regions earlier than lagging regions.

Credit Crunch or Weak Demand for Credit?

Domestic credit growth has declined sharply in all EU10 countries since the first half of 2008. Two groups of factors could have been at play:

- On the supply side, this could result from the global credit tightening due to increased uncertainty, weaker growth prospects as well as elevated banks' funding costs and balance sheet constraints.
- On the demand side, the decline in credit may reflect weaker demand given a sharp downturn in output and worsened economic prospects across the region.

The note analyzes the credit developments in Hungary, Poland and Latvia and, using the switching regression framework, determines whether the observed decline in credit is more likely to reflect supply side constraints due to a credit crunch or demand side constraints due to weak demand for credits. At the onset of the global financial crisis, there is evidence of a credit crunch in all three countries, albeit with differences in timing and magnitudes. However, as domestic aggregate demand has declined and the recession has deepened, the demand for credit also declined. By the first quarter of 2009, the supply side constraint had turned into a demand side constraint in Latvia and Poland, although not in Hungary.

EU10 Banking Sector Credit Losses

A year after the collapse of Lehman Brothers, the situation in the banking sector in the EU10, one of the channels through which the global financial crisis affected the region, seems to have largely stabilized. Earlier concerns about the strength of the commitment of the foreign parent banks in the region to continue supporting their local subsidiaries have diminished. Concerns about liquidity and solvency of the sector have also lessened, largely owing to forceful interventions by the regional central banks, governments and international institutions. However, the banking sector is not out of the woods yet. In particular, there is a growing concern about the impact of the rising banking credit losses resulting from the economic downturn on banking sector's stability. This note provides an estimate of the likely credit losses in the region if economic conditions were to deteriorate even further and discusses factors that may affect the final credit cost. The main conclusions emerging from this analysis, building in part on a forthcoming book (World Bank 2009), are:

- even if the macroeconomic environment was to worsen, credit losses in the EU10 banking sector are likely to be substantial but manageable, particularly with continued support from parent banks and the domestic authorities;
- the expected rise in corporate credit losses is likely to be mitigated by a relatively low corporate leverage and high interest cover, although not in all countries;
- household debt is vulnerable to default, but the risk is partly offset by a still fairly low level of household indebtedness, in particular when compared to advanced countries in the region.

Responding to Climate Change

The global challenge climate change is affecting the EU10 countries seriously, with Bulgaria, Romania (South) and Croatia being the most vulnerable. While the EU10 countries contribute only modestly to the global greenhouse gas emissions, they will bear social and economic costs related to global climate change, in terms of both mitigation (reduction of emissions as part of the global and EU efforts) and adaptation to environmental changes. The latter will need to include coordinated measures across a number of sectors, including health, water and land management, agriculture and forestry, urban areas, transport and energy. In the view of the existing energy efficiency gap in the EU10 region and huge investment needs in infrastructure and housing, there is substantial scope for climate-smart policy choices with spinoffs for economic development.



EU10 October 2009

In Focus: Regional unemployment impacts of the global financial crisis in the EU10 countries⁴

Macroeconomic and geographic context for the crisis

Notwithstanding many internal problems of the EU10 countries like low productivity of their economies, uncompleted reforms in the sphere of pensions, health care, education, weak institutional framework, poor law enforcement, etc., the global financial and economic crisis was clearly imported into the region. Although some of EU10 economies are very open, even these countries with an open economy had only limited direct contacts with the US economy. Therefore, the crisis affected EU10 countries with certain delay - only after the crisis struck the Western Europe. Consequently, the global economic crisis manifested itself clearly in the Central Europe only during autumn 2008, although the Baltic countries entered the economic downturn earlier in 2008

Before moving onto regional level, at least basic similarities but also differences between the individual EU10 countries should be stressed. Generally, all EU10 countries exhibit several important common features. Firstly, their position in global economic system is roughly similar (and therefore also the economic crisis started with the above mentioned exception of Estonia, Latvia and Lithuania at the same time, i.e. in October or November 2008). Also the population and territorial size of the most of the countries is quite similar while the biggest exceptions are Poland and Romania which can be (at least in European context) considered as middle-size countries. Importantly, all these countries exhibit also some similarities in institutional and cultural framework and heritage.

On the other hand, the macroeconomic performance of individual countries differed significantly not only after the crisis arrival but differed sharply even before the crisis. Namely, the Baltic countries recorded drop of GDP already in 2008, while other countries still continued in moderate growth (Hungary, Czech Republic and Slovenia) or even in strong growth (Slovakia, Romania, Bulgaria and Poland - see Table 1). When the crisis arrived, Poland was one of few European countries that was able to achieve (at least) moderate growth even in the first half of 2009, while the most of EU10 economies dropped significantly (Slovakia, Czech Republic, Bulgaria, Hungary, Romania and Slovenia), and while all the Baltic states suffered a severe drop of GDP accompanied by a dramatic increase of unemployment.

Moreover, despite approximately similar position of EU10 countries in the global economic system, there are significant differences in economic structure and openness of their economies (for example the share of employment in agriculture in Poland and Romania contrasts with much lower share in the Czech Republic and Slovenia). In addition, there are significant differences in traditional regional structure of these countries. For example, the size and domination of capital city within the national settlement system differs significantly among these countries, there are differences in the share of urban and rural population, differences in endowment by natural resources and in physical-geographic conditions and in their diversity (such as mostly lowland character of e.g. the Baltic states versus hilly or mountainous character of Slovakia, or highly internally differentiated countries like Romania, Bulgaria and Slovenia). All these factors contributed to the fact that regional patterns of manifestation of the global economic crisis differ a lot among the particular EU10 countries.

⁴ Prepared by Jiří Blažek, Dept. of Social Geography and Regional Development Faculty of Science, Charles University in Prague, Czech Republic email: blazek@natur.cuni.cz

Table 6. Key macroeconomic data of EU10 countries⁵

Country	GDP growth in 2008	GDP growth in Q2 2009 ⁶	LFS Unemployment rate June 2008	LFS Unemployment rate June 2009
Bulgaria	6.0	-4.9	5.7	6.4
Czech Republic	2.7	-5.5	4.3	6.5
Estonia	-3.6	-16.1	4.1	13.3
Latvia	-4.6	-18.7	6.4	17.1
Lithuania	2.8	-20.4	4.8	13.7
Hungary	0.6	-7.5	7.8	9.6
Poland	5.0	1.4	7.1	8.0
Romania	7.1	-8.7	5.7	6.4
Slovenia	3.5	-9.0	4.4	6.0
Slovakia	6.4	-5.3	9.6	11.2

Source: Eurostat, Author's calculations

Regional impacts of the global crisis by individual countries⁷

Bulgaria

Regional impacts of the crisis in Bulgaria represent a very interesting case as on different hierarchical levels different patterns emerged (Spiridonova, 2009). Namely, over the last 12 months, on NUTS II level,⁸ a trend of rapid increase of the unemployment rate, esp. in previously lagging or affected regions was observed. However, this conclusion was not confirmed by an analysis performed by Spiridonova (2009) at lower hierarchical levels where the impacts of the crisis seem to be relatively evenly distributed among all types of the regions (Figure 31). The only exception is the capital city of Sofia where the unemployment rate rose from 1.3% to still insignificant 1.7%. On NUTS III level no clear regional pattern was identified, as the unemployment increased most significantly in the regions fitting into very different types of regions. Likewise, the lowest unemployment growth was recorded in Sofia (with an exceptionally low rate of unemployment) but also in the district of Targoviste suffering from the highest unemployment before the crisis. Accordingly, on municipal level, there is no clear pattern whatsoever as the lowest increase or even decrease (!) of unemployment was recorded in so different municipalities such as Dragoman (unemployment 4.8% in June 2009) and Dimovo (30%).

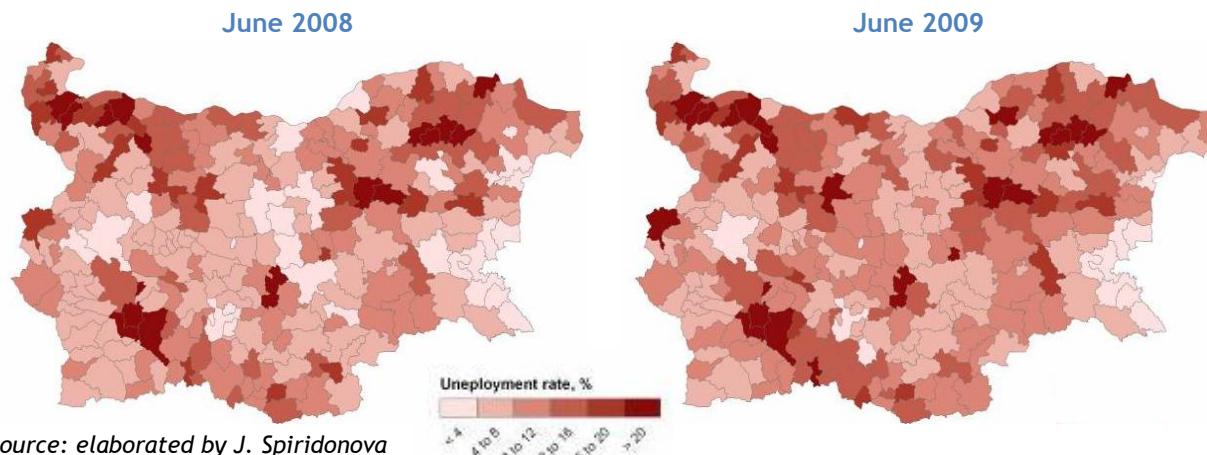
⁵ Seasonally adjusted data of LFS harmonized monthly unemployment rates.

⁶ Comparison with the same quarter of previous year.

⁷ The analysis of subnational trends in unemployment is based on registered unemployment rates.

⁸ NUTS refers to Nomenclature of Territorial Units for Statistics. It is a hierarchical classification that subdivides EU member state into I to V levels.

Figure 31. The rate of unemployment in Bulgarian municipalities in June 2008 and June 2009



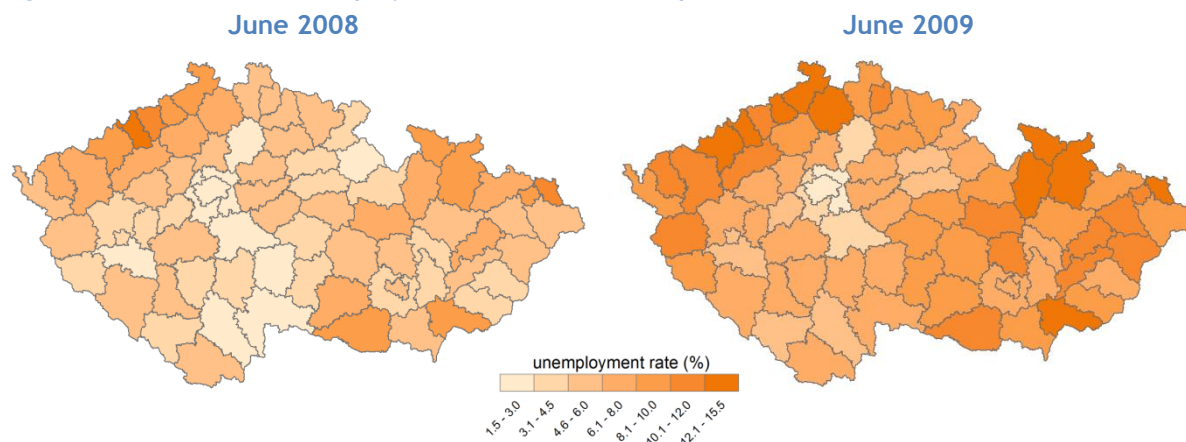
Source: elaborated by J. Spiridonova

Czech Republic

Regions on the level of NUTS II and NUTS III are too large in the Czech context and hide deep intra-regional differences. Therefore, more relevant are results of analyses performed on the level of districts (77 units, corresponding to NUTS IV or LAU I units). Unexpectedly, on the level of districts, the lowest relative change in the rate of unemployment during the period under scrutiny (i.e. June 2008 - June 2009) has been recorded in the districts suffering from the highest unemployment in June 2008 (Blažek, 2009). Surprisingly, the most vigorous differentiation proceeded among the pre-crisis well-performing districts (at least according to the rate of unemployment). The group of well-performing districts can be divided into two subtypes. The first subtype is represented by the districts with the strong regional centre - regional capital, while the second subtype consists of the predominately industrial districts with smaller urban centre. It was the second subtype of the districts which was hit most severely by the global crisis.

Otherwise, there is no clear pattern according to a type of the districts affected as among the worst performing districts under current crisis are both the peripheral rural regions as well as the industrial districts and even one district with regional capital - the district of Olomouc. This blurred picture is attributable to a combination of hard and soft factors of regional development. The most important could be the geographic position and related economic structure of particular regions but other factors might be now even more important, for example, the type of competitive strategy of the main employers (high-road vs. low-road strategy), the scale of the crisis in particular export markets, the stability of relations with the foreign partners (voice vs. exit, see Hirschman, 1970), the crisis strategy employed by plant management etc. Nevertheless, the data seem to suggest that rather paradoxically, the current crisis led up till now rather to convergence than to divergence. This may be explained by, among others, the more important support of active labor policies in high unemployment districts. However, the most likely feature of the “crisis regional pattern” would be even higher differentiation of the regional pattern on a micro regional level due to local specifics.

Figure 32. The rate of unemployment in Czech municipalities in June 2008 and June 2009

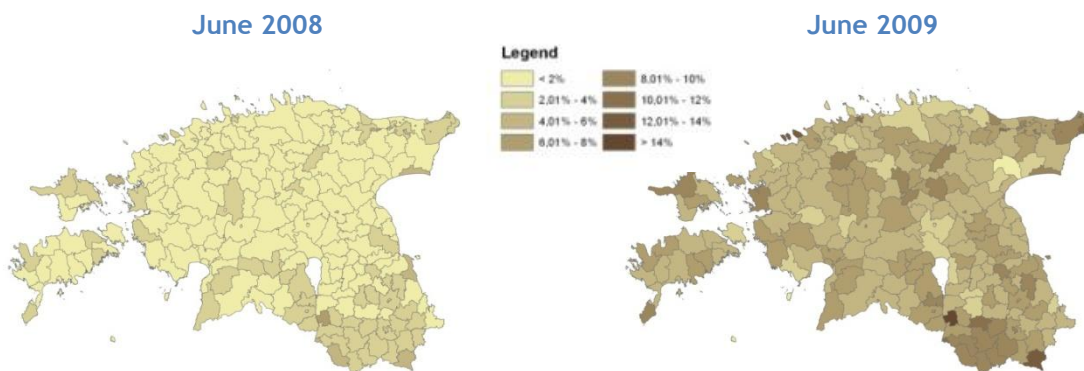


Source: elaborated by P. Netrdová

Estonia

Regional differences in Estonia are quite significant despite both small territory and small population size of the country. Traditionally, the western regions (esp. the north-western regions) have been more socio-economically more developed than Estonian eastern (esp. south-eastern) regions. According to Raagmaa (2009), two stages of the impact of the global economic crisis can be distinguished in Estonia. The first shock hit more seriously the recently booming regions - the core and suburban areas. On the contrary, peripheral areas have under the conditions of present global crisis less to lose and can manage by old methods like self-sustaining food supply. The next - recovery - stage will probably cause new capital inflow into the core and suburban areas and cause new wave of restructuring supported by new technologies and business models. Such technologies and business models are usually applied first in the core areas. Therefore, in Estonia, it can be expected that in the long-run the traditional core-periphery model will manifest itself again.

Figure 33. The rate of unemployment in Estonian municipalities in June 2008 and June 2009



Source: elaborated by G. Raagmaa

Hungary

Hungary is a country with traditionally high inter-regional disparities and with extreme domination of the capital city - Budapest. In addition, according to Fazekas and Ozsvald (2009), Hungary is a country with traditional (north)west - (south)east gradient in socio-economic development. This gradient has been according to these authors during the transition replicated by the location of export oriented, high-tech FDIs which gave a rise to a „dual economy“. Distinctive feature of the impacts of global crisis in Hungary is the fact that the plummeting demand hit the most developed regions first, especially due to concentration of

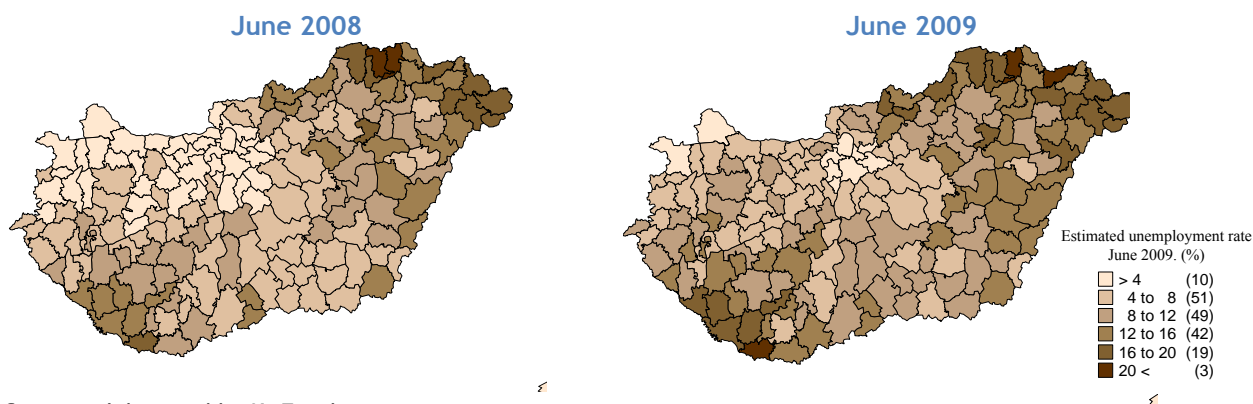
FDIs supplying predominately west-European markets that were affected by the crisis sooner (Fazekas, Ozsvald, 2009).

However, with certain time-lag, the negative impacts of both the crisis and austerity measures taken by the Hungarian government hit the other end of the regional spectrum - the historically least developed micro-regions. In other words, while the mass layoffs announced and realized by FDIs can be considered as the first signs of the global crisis arrival into the country, these mass lay-offs represent only smaller part of the unemployment problem as the vast majority of job destruction was a consequence of the frozen credit market and of plunging domestic consumption after the outbreak of the economic crisis often in SMEs (Fazekas, Ozsvald, 2009).

According to these authors, differences between the maps depicting unemployment in June 2008 and June 2009 highlight the two major groups of hard hit micro-regions. The first group consists of Central and Western Transdanubian core regions which are a host to many manufacturing sites with relatively modest increase of unemployment since the crisis arrival. The second group represents the belt of high unemployment in micro-regions along the eastern and the southern periphery of the country. This high unemployment belt widened significantly during the global crisis. The number of micro regions with higher than 16% unemployed has increased from 12 to 30 in one year. The largest increase in unemployment was registered in villages where joblessness was high already before the crisis.

Finally, a third type of regions can be identified - the capital city of Budapest and it's agglomeration. The diversified economic structure of this metropolis explains why the pre- and post-crisis levels of unemployment remained at low and almost unchanged level.

Figure 34. The rate of unemployment in Hungarian micro regions (NUTS IV) in June 2008 and June 2009



Source: elaborated by K. Fazekas

Latvia

The situation in Latvia is specific by the fact that until now the global crisis hit this country the most severely from all EU10 countries mainly due to huge scale of external imbalances. This specific situation has led to radical cuts in public sector (Muravska, 2009). Consequently, in contrast to other EU10 countries, where public sector helped to moderate the impacts of the global crisis not only on national level but especially in large cities with sizeable public sector, this is not the case with Latvia. Nevertheless, according to Baltina (2009), the highest level of redundancies during the last year has been recorded in the manufacturing (by 25%), while public administration with a reduction by 15% comes second, and wholesale and retail trade third with 12% drop of the employment.

The global economic crisis seems to confirm an existence of the west-east gradient also in Latvia as the regions suffering from the highest rate of unemployment are concentrated in the east of Latvia. Unemployment rate in these eastern regions ranged between 10.8% and 28.1% in September 2009 which contrasts with significantly lower rate of joblessness that can be found in the western regions, including the capital city of Riga, (the rate of unemployment lower than 10% was recorded only in the district of Tukuma (with advantageous geographic position between Riga and Ventspils) and Ventspils (district in the hinterland

of the marine port of Ventspils). In Riga, the rate of unemployment reached 10% in August 2009 (in contrast to mere 3.3% unemployment in June 2008) indicating deep manifestation of the crisis even in the Latvian capital city.

Figure 35. The rate of unemployment in Latvian districts (NUTS IV) in June 2008 and June 2009

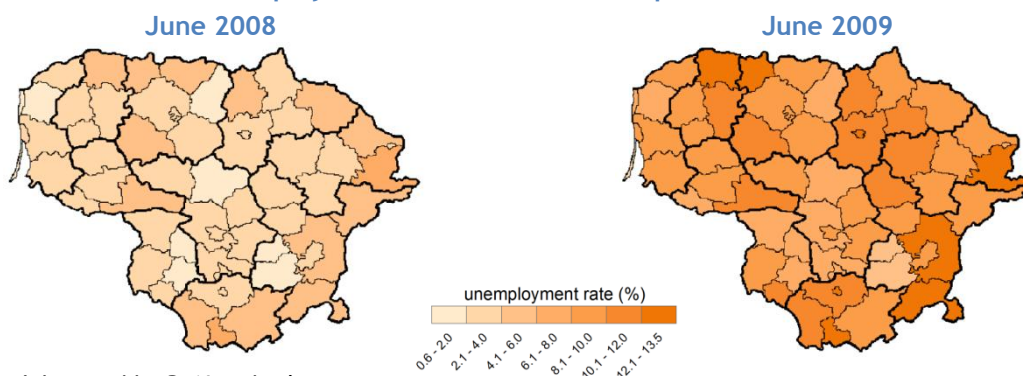


Source: Latvian State Employment Agency, elaborated by P. Netrdová

Lithuania

According to Burneika (2009), in Lithuania, the most appropriate level for analysis of the interregional differences is the level of 72 municipalities. According to the same author, all major economic fluctuations in Lithuania had very uneven spatial consequences and present crisis is not going to be an exception. The unemployment data show, that the biggest negative impact manifested itself in the border municipalities, which is in line with the regional impacts of previous economic crises in Lithuania. Nevertheless, rapid worsening of the situation in some other cities (Alytus and Panevėžys) is a new phenomenon, because these cities proved to be more resistant during the previous recessions. Related, but completely new phenomenon is the large impact of the current global crisis on the Lithuanian’s capital - Vilnius where unemployment more than tripled between June 2008 and June 2009. Strong impact on the capital city also contrasts with a situation in other EU10 countries (with the exception of Riga) where the labour markets in the capital cities were affected only moderately. The capital city of Vilnius as well as its surroundings have been hit significantly especially due to until recently strong construction and financial sector, while agricultural market in rural areas remained relatively more stable. Therefore, bigger cities seem to be affected by the global economic crisis first in Lithuania.

Figure 36. The rate of unemployment in Lithuanian municipalities in June 2008 and June 2009



Source: elaborated by P. Netrdová

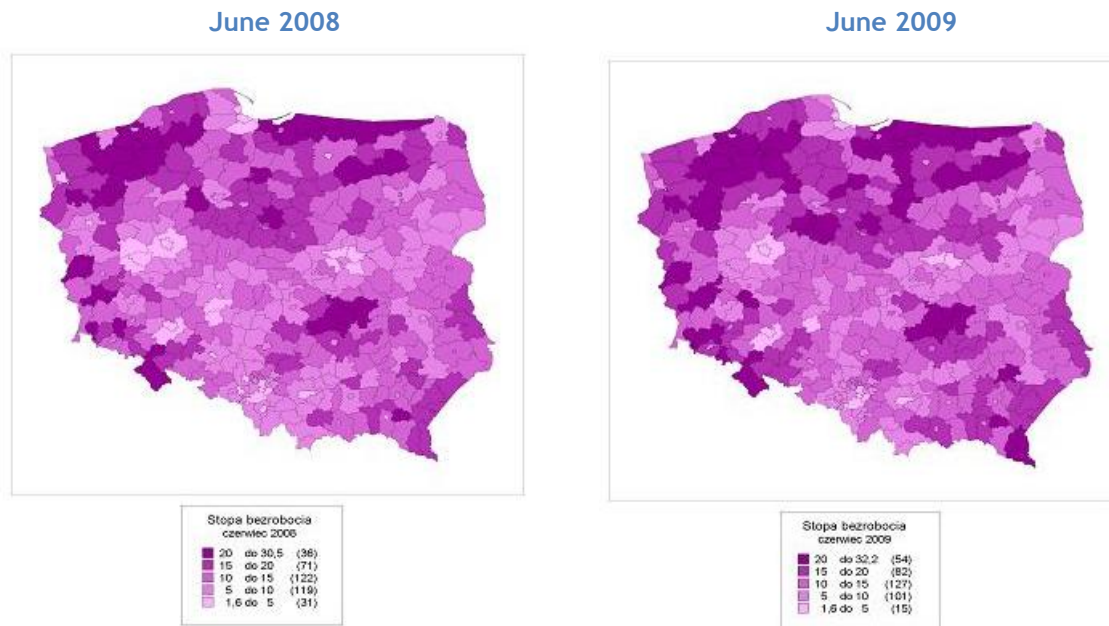
Poland

According to Gorzelak (2009), the regional distribution of unemployment in Poland has been stable over the recent years. Namely, in Poland, the highest unemployment is being recorded in the regions where the state farms used to dominate (esp. northern and western Poland, as well as regions along the eastern border) and in the old industrial regions. On the other hand, metropolitan cores and centre-west regions with diversified

economic structure used to enjoy better situation on the labour market. The recent slowdown of GDP growth (Polish economy was growing even in the first half of 2009) has not changed this pattern. According to Smetkowski (2009), four types of regions can be distinguished by a combination of the initial situation on the labour market (good - bad) and its changes after the crisis arrival (positive - negative), specifically, “leaders” (good - positive), “improving” (bad - positive), “disappointing” (good - negative) and “losers” (bad - negative). The first feature worth mentioning is the fact that there are not too many “losers” in Poland, i.e. there are only few counties that had been suffering from high unemployment before the crisis where now the situation on the labour market would deteriorate even further. Second, as the “leaders” were identified localities around Warsaw, the city of Warsaw itself, Upper Silesia (energy sector) and Kraków, the second biggest city in the country as well as some other regions. While “improving” micro-regions are scattered relatively evenly across the country, “disappointing” regions are more concentrated in the western Poland that is generally more developed part of Poland.

According to Gorzelak (2009), the positive changes on the labour markets in peripheral rural regions seem to confirm the hypothesis that these regions would not notice any “crisis”, since they are poorly connected with the external world. Needless to say, that in Poland, farmers are not eligible for the status of “unemployed”, consequently, the registered unemployment is low in the regions where the share of employment in agriculture is high.

Figure 37. The rate of unemployment in Polish counties (NUTS IV) in June 2008 and June 2009



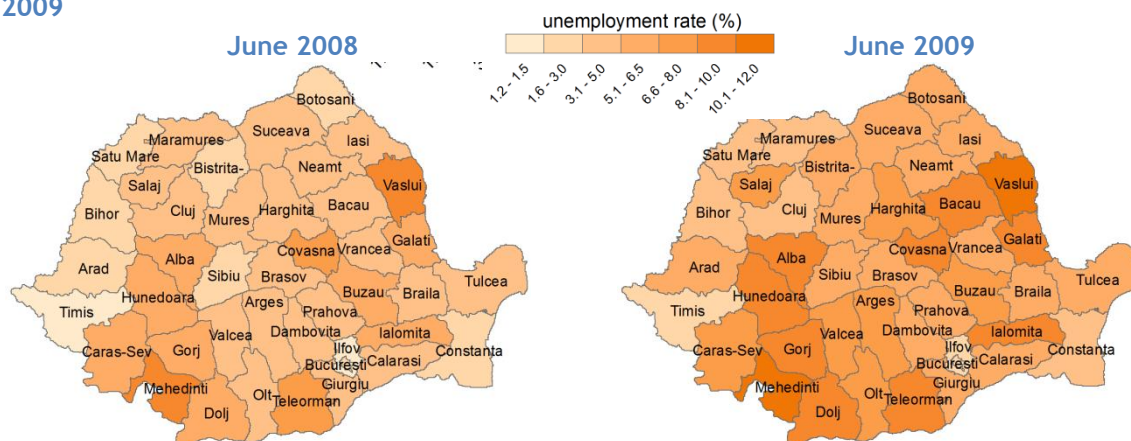
Source: Central Statistical Office. Prepared by M. Smętkowski

Romania

According to June 2009 data on unemployment, Romania was one of EU10 countries with a moderate impact of the global economic crisis on the unemployment. Despite this, the range of variation among counties according to the unemployment rate has increased since the crisis has reached Romania. While metropolitan Bucharest-Ilfov region succeeded in retaining a very low rate of unemployment (below 2%), in the most affected counties like Vaslui or Mehedinti unemployment increased to 10-12% (Goschin, 2009). A recent study by Amariei and Hritcu (2009), estimates that 25 counties out of the total of 42 are in danger to be seriously hit by the recession. In these counties, the industrial production dropped by 30% to 70% in the first quarter of 2009, while the unemployment doubled in many cases in just five months (i.e. between September 2008 and February 2009). According to these authors, the worst situation is being recorded in highly specialized cities, for example Galati (steel industry) or Pitesti (car industry). On the other hand, this study estimates that traditionally agricultural counties, located in south and east of Romania will suffer less than

the developed regions due to their subsistence agriculture, where the crisis influence up till now is low (Botosani, Calarasi).

Figure 38. The rate of unemployment in Romanian counties (NUTS IV) in June 2008 and June 2009

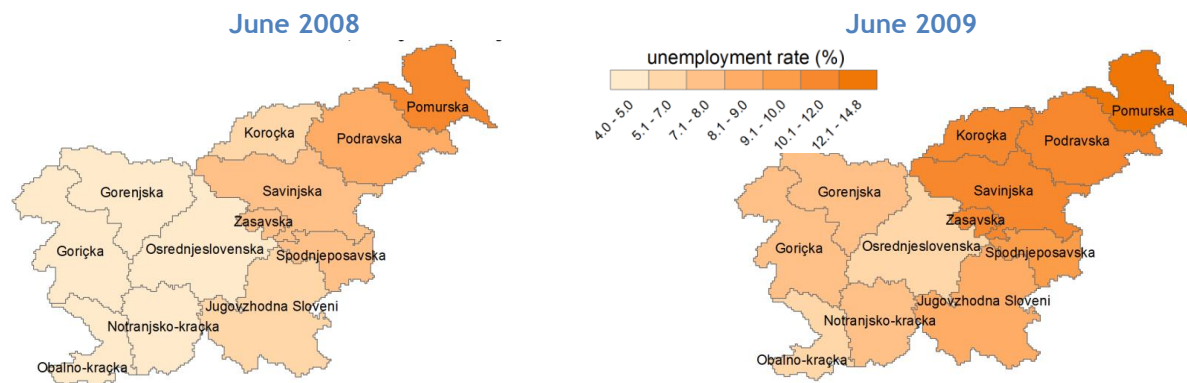


Source: elaborated by P. Netrdová

Slovenia

According to Wostner (2009) Slovenian regions with the dominance of the service sector proved to be the most resistant to the global crisis. Otherwise, the regional impacts of the crisis are highly differentiated in Slovenia mostly due to differences in the sectoral structure as well as in the type of competitiveness of the largest firms in particular regions. One of most severely hit regions in Slovenia is the region Pomurje which is the most peripheral region with relatively low level of education and traditionally high level of unemployment. Problems in this region are of such a scale that even a special law on Pomurje region is being currently (autumn 2009) considered.

Figure 39. The rate of unemployment in Slovenian micro-regions (NUTS III) in June 2008 and June 2009



Source: elaborated by P. Netrdová

Slovakia

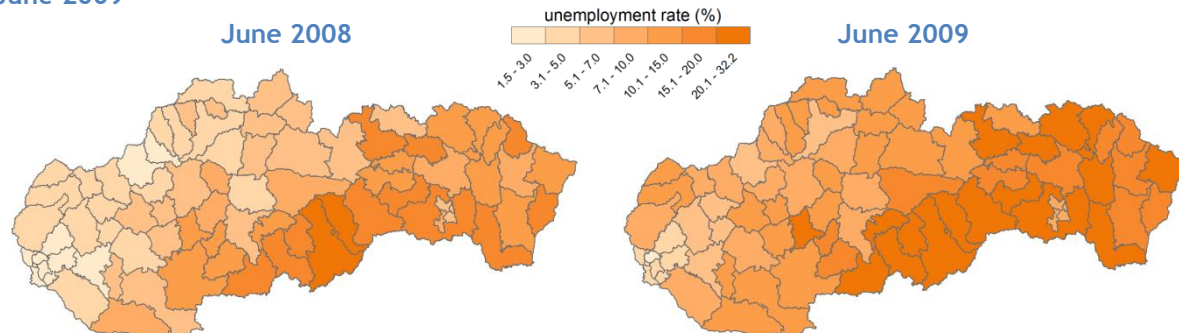
In Slovakia, during the transition, the traditional west-east gradient has been modified only partially into north-west/south-east gradient (Buček, 2009). Although the regional pattern of spatial distribution of the unemployment rate seems unchanged, this would be according to Buček (2009) an oversimplified conclusion. Surprisingly, three best performing regions according to the rate of unemployment (Bratislavský, Trnavský and Trenčianský regions) more than doubled the rate of joblessness between June 2008 and June 2009. On the other hand, the unemployment in two regions that were before the crisis suffering from the highest level

of unemployment (Košícký and Banskobystrický regions) increased by less than 40%. This proves that even the best performing Slovak regions are not immune against the adverse impacts of the global crisis (Buček, 2009).

According to Buček (2009), at the district level, the highest resistance to the crisis showed urban districts of Bratislava and Košice, but also the districts with strong regional centres such as Žilina and Trnava, as well as the district Zvolen (with diversified economy) and Turčianske Teplice (spa city). The districts that suffered a sharp increase in unemployment can be divided into two groups. The first group consists of the districts with smaller urban centre and with dominant industrial function. Many of these districts exhibited remarkably low level of unemployment before the crisis (for example the unemployment rate in the district of Skalica jumped from 3,5% in June 2008 to 10,2% in June 2009, analogical figures for the district of Senica are 5,0%, resp. 11,4%, etc).

The second group consists of the districts with the long-term economic and social problems where the crisis deepened their scale. These districts are mostly located in the peripheral eastern part of Slovakia (Rožňava, Trebišov, Svidník). In these districts, in June 2009, the unemployment rate already exceeded 20%. Nevertheless, the highest level of unemployment rate in Slovakia is being currently recorded in the peripheral and rural districts of Rimavská Sobota and Revúca (south central Slovakia). In June 2009, the rate of unemployment in both these districts exceeded even 30% (Buček, 2009).

Figure 40. The rate of unemployment in Slovakian micro-regions (NUTS IV) in June 2008 and June 2009



Source: elaborated by P. Netrdová

Preliminary conclusions

The analysis of the shifts in regional unemployment as a result of the global economic crisis showed quite complicated regional pattern not only across the countries but even within individual countries. Uneven regional impacts are attributable to differences in economic and social profile of particular regions, differences in their geographic position, orientation on domestic market versus on export (and in the later case also due to differences in the situation on particular foreign markets - for example demand for smaller cars shrunk less than for large cars) and on a set of soft-factors like the strategy of the firms to cope with the global crisis etc.

The only general similarity (though hardly surprising) is a moderate impact of the crisis upon the capital cities. The financial sector in these cities has not massively engaged itself in buying risky financial instruments like the banks in western cities so the capital cities in the EU10 region were hit by the crisis only indirectly. Inevitably, the capital cities are more immune to the crisis esp. due to their very position within the national economies and settlement structure (confer also to the effect of dominance coined by J. Friedmann). Despite this general trend, the capital cities of the Baltic states, i.e. Tallinn, Riga and especially Vilnius have been hit significantly.

Nevertheless, there are at least some other more subtle similarities in the regional patterns of the crisis' impacts at least among some EU10 countries. Firstly, in case of the Czech Republic, Slovakia and Slovenia, the crisis has induced differentiation among until recently well performing regions. Generally, there were two basic types of until recently well performing functions in these countries - metropolitan regions but also some of the regions with smaller urban centres. While metropolitan regions mostly remained affected only

moderately, the crisis manifested strongly in the formerly successful regions with smaller urban centers. Two basic factors can explain rapid worsening of economic situation in these less urbanized regions. Firstly, metropolitan regions have an advantage of their foothold given by much stronger public sector in larger cities which moderates not only impacts on (un)employment but due to more stable purchasing power of public employees minors also the impacts on at least part of the local businesses. The second explanatory factor is a more diversified economic base of the metropolitan regions as well as more educated and presumably also more flexible labor force.

Second interesting feature common to several EU10 countries is limited or relatively limited appearance of impacts of the crisis in peripheral, agricultural regions due to their limited openness to global economy. This is especially the case of Poland, Romania and partly also Lithuania.

Thirdly, in several countries, the crisis manifested firstly in more developed regions and only later in less developed and less open regions. This pattern clearly manifested itself in Hungary, Estonia and also in the Czech Republic. Nevertheless, even in those countries where the crisis hit the most developed regions first, it can be reasonably expected that these regions have much better chances (esp. during the recovery) than peripheral and rural regions with only limited options for re-specialization. This was already proved by the development in Hungary, where the crisis arrived to less developed and often peripheral regions latter than to more developed regions but the impacts were much more profound than in more developed western and central regions.

The obvious question arises, namely, why there are only so limited similarities in the regional impacts of the global crisis in EU10 countries?

In addition to differences in macroeconomic and geographic factors that have been already mentioned in the first section, several other factors can be employed here to explain this rather blurred overall picture. Firstly, the scale of the analysis matters a lot. The overall regional pattern depends strongly upon the hierarchical level of the analysis. Obviously, the more aggregated level of analysis, the deeper are differences within the regions. In other words, the regions of NUTS III or even NUTS IV level can hide huge differences inside. Moreover, as was shown on the case of Bulgaria, patterns identified on the level of NUTS II regions can be misleading as these patterns “disappear” when the data on the lower hierarchical levels (i.e. districts, municipalities) are analyzed. Therefore, the best level for thorough regional analysis would be the lowest possible level, i.e. the level of municipalities. Unfortunately, such detailed data are not available for all countries. On the other hand, the lower the hierarchical level, the bigger role of subjective and specific factors can be expected resulting in a huge variation and in overall fragmentation of regional pattern.

Nevertheless, despite such methodological imperfections, perhaps the most important reason for such blurry picture of the regional impacts of the crisis can be attributed to the fact that the available analyses deal only with the first phase of the crisis. It can be reasonably expected that when the crisis is over, the traditional regional structure of individual countries will re-emerge. Namely, it can be expected that the key factor for „success“ in the future will be the position of the region (and esp. of its regional capital) in the national settlement hierarchy (i.e. the differentiation in socioeconomic development between metropolitan and non-metropolitan regions will re-emerge again). This factor will be in most countries combined with the traditional west-east gradient.

Therefore, one might suppose that the most likely pattern will be following:

- 1) capital cities
- 2) western metropolitan regions
- 3) eastern metropolitan regions
- 4) western non-metropolitan regions
- 5) eastern non-metropolitan regions

This general picture might be in some countries modified by still unsolved problems in old industrial regions (like the Northern Bohemia in the Czech Republic) and also by specific and subjective factors, esp. on lower hierarchical levels.

Finally, it should be stressed that policy response to the global economic and financial crisis in most of the countries was focused at the national level; regionally specific measures seem to be rather exceptional. Nevertheless, due to complex multi-conditionality of regional development, it can be hardly expected that even regional specific measures would be able to achieve more significant changes or even alteration of the regional development trends. Regional policy can at best only moderate some of the most depressing and regionally strongly concentrated effects of the global crisis. A much larger potential can be - in line with the recent theoretical debates on the role of regional policy in developed countries - attributed to “regionalization” of sectoral policies (i.e. to a sort of adjustments of a overall design of sectoral policies to specific regional conditions and needs - see for example Blažek, Macešková, 2010).

Moreover, all analyzed EU10 countries currently enjoy vigorous support from the EU cohesion policy. These financial sources might be used not only for mitigation of the most severe impacts of the crisis on the regional level but especially for enhancing the institutional structures (see for example the Barca’s report (Barca, 2009) on relevance of institutions for regional development) and for the enhancement of an overall efficiency of the economy and society (education, public services etc.). Nevertheless, it should be stressed that differences among the regions should not be one-sidedly considered as something to be overcome but also as a potential offered for specialization of the different parts of a national system. However, inevitable condition for such a model is an existence of a fully functioning integrative institutional and policy framework as well as an existence of highly developed infrastructure (both “hard” and “soft”) enabling high mobility of goods, knowledge and people.

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EU10 October 2009

In Focus: Credit crunch or weak demand for credit?⁹

Introduction

Domestic credit growth has declined sharply since the first half of 2008. As Figure 41 shows, in most countries domestic credit growth has turned negative from the relatively high growth rates seen at the beginning of 2007.

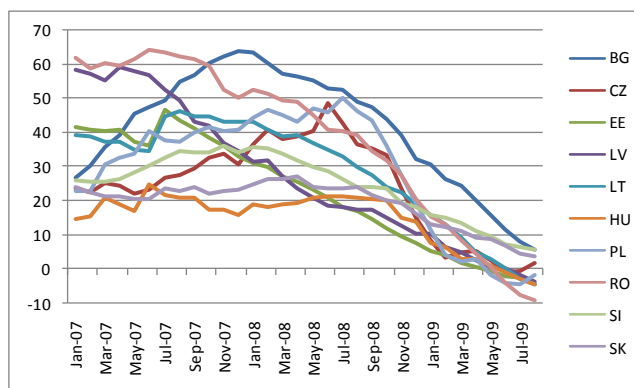
Indeed, since the collapse of Lehman Brothers in September 2008 there has been a tightening of lending conditions, widespread increase in uncertainty and large scale repatriation of capital from emerging markets as a whole, driven by a reassessment of growth prospects and the need for firms and investors in the high-income countries to strengthen their balance sheets. The Banks' Lending Survey—which covers the Euro Area banks—indicated significant net tightening of credit standards for loans to enterprises in the third quarter of 2008¹⁰.

According to the survey response this tightening was due both to expectations of weak future economic activity and hence lower profitability of borrowers (and hence greater risks to lenders), but also due to the impact of banks' funding costs and balance sheet constraints, including their ability to access market financing. The impact of banks' funding costs and balance sheet constraints increased further in the fourth quarter of 2008. Given the substantial role that foreign banks play in all EU10 economies (the share of foreign bank assets in total banking sector assets ranges from 60 percent in Romania to almost 98 percent in the Czech Republic and Slovakia) developments in these parent foreign banks and their subsidiaries have a significant bearing on the EU10 domestic credit markets overall.

Domestically-owned banks in the EU10 have also faced difficulties as liquidity in the inter-bank market dried up. Inter-bank markets in the EU10—which are smaller and shallower than the rest of the EU—are dominated by unsecured borrowing and FX swaps and shocks emanating from the global money markets spilled over to the EU10 economies to a large extent via the FX swap markets. Liquidity in the FX swap markets of the EU10 was significantly impaired in the last quarter of 2008 as evidenced by the sudden surge in bid ask spreads in the forward exchange markets. With foreign and parent banks hoarding euro liquidity, local institutions faced difficulties hedging their euro asset exposure through the euro FX swap market and could not raise short term euro funding¹¹.

Thus the decline in credit could reflect supply side constraints (or a credit crunch) resulting from a variety of factors. Banks may be unwilling to lend because of a perceived increase in the risk of default that cannot be internalized by raising the cost of borrowing. Banks may also be unable to lend because of shrinking banking sector deposits and other sources of funding and/or the need for them to hold greater reserves and increase their capital provisioning to meet more rigorous capital adequacy standards. Thus on

Figure 41. Domestic credit to the private sector has fallen significantly across the EU10 countries (percent change, yoy)



Source: European Central Bank, World Bank staff calculations

⁹ Prepared by Swati Ghosh.

¹⁰ The ECB Bank Lending survey reports the difference (net percentage) between the share of banks reporting that credit standards have been tightened and the share of banks reporting that they have been eased. A positive net percentage as stated in the text therefore indicates that a larger proportion of banks have tightened credit standards (“net tightening”).

¹¹ see Inter-bank Markets and Spillover from the Global crisis in EU10 report February 2009

the supply side it could reflect perceived increased riskiness of borrowers and uncertainty, liquidity constraints, new credit standards by banks, capital constraints or tighter bank supervision.

Alternatively, however, the observed decline in credit may now reflect the fact that the demand for credit has declined given the sharp deterioration in output and worsening economic prospects across the region. Output has plummeted across the region, reflecting the deteriorating global environment for trade and declining domestic consumer confidence. As Figure 42 below shows, projections for 2009 have been revised down progressively for all EU10 countries. Lower expected profits and deteriorating economic prospects may in turn reduce firms' investment and demand for credit.

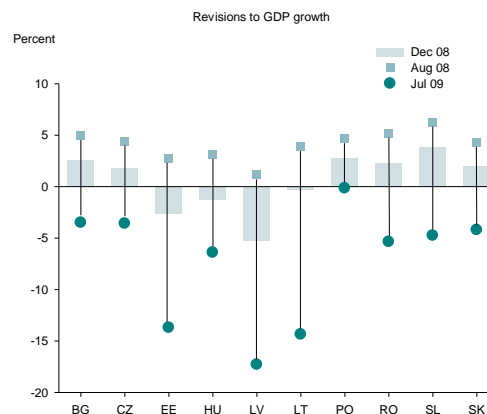
From a policy perspective, the distinction is important. If banks are unwilling to lend because, for instance of a perceived increase in the risk of default that cannot be internalized by raising the cost of borrowing, attempts to increase liquidity and reduce interest rates to stimulate aggregate demand and the demand for loans will prove largely ineffective. In this case, initiatives that reduce the uncertainty and increase the information base to encourage banks to be willing to lend to creditworthy borrowers may be useful. This is especially likely to be the case for SMEs—making the design of schemes that reduce uncertainty and encourage lending particularly important. On the other hand if the contraction in credit reflects demand side problems—implying that banks would be willing to lend but may be unable to due to weak demand for credit, then in principle, easing the fiscal stance—to the extent that there is scope for doing so taking into account the availability of financing and fiscal sustainability issues— or the effective use of EU structural funds to promote lending to SMEs or investment in energy efficiency may help to expand aggregate demand and generate an expansion in credit. It should be recognized however, that in for many of the EU10 countries, the scope of stimulative fiscal policy is likely to be limited (see RER May 2009 for a discussion of fiscal positions in the EU10 countries).

This note analyzes the credit developments in Hungary, Poland and Latvia more closely examining whether the observed decline in credit likely reflects supply side issues (or a credit crunch) or rather weaknesses in credit demand. The selection of these countries allows the analysis to capture some of the diversity of the impact of the global financial crisis on domestic credit markets.

Macroeconomic context and developments at the outset of the global crisis

All three countries were affected by the crisis, albeit to different degrees. While Latvia's spreads on 5-year CDS increased by 23 percentage points during September-October 2008, and Hungary's by 33 percentage points, Poland saw an increase of 9 percentage points during the period (Figure 43). Latvia and Hungary also saw declines in cross-border bank flows in the third quarter of 2008 over the second quarter of 2008 (by 1.8 percent and 2.7 percent respectively) and sharp increases inter-bank rates in the third quarter of 2008. Although Poland also experienced an increase in inter-bank rates as liquidity dried up, the spike was significantly lower (Figure 44).

Figure 42. Revisions to GDP growth projections for 2009



Source: Based on consensus forecasts

Figure 43. Changes in CDS spreads and bank flows (CDS changes Sep-Oct 08, flows June-Sep 2008)

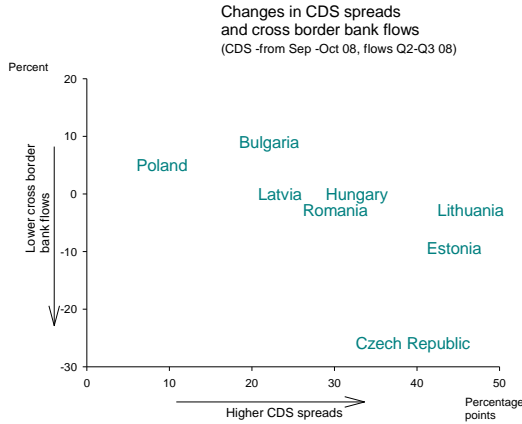
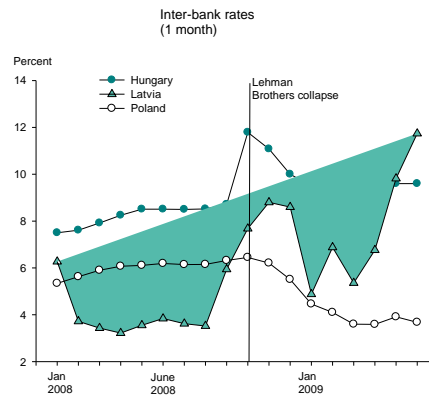


Figure 44. Inter-bank rates

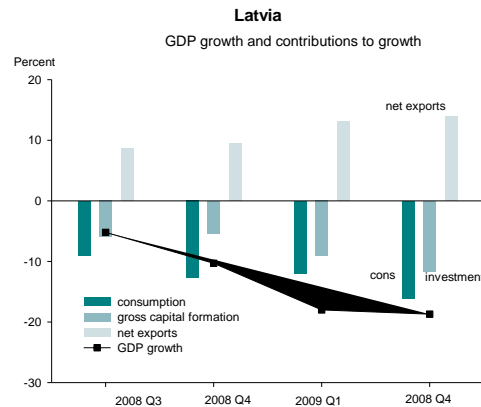


Source: Eurostat, World Bank staff calculations

Given the significant variation on banking systems’ reliance on non-deposit sources of financing across countries, the impact of the decline in access to foreign finance on the supply of domestic credit also varied. Latvia’s loan to deposit ratio at around 230 was one of the highest among the EU10 countries; that of Poland’s was considerably lower at 108, while Hungary’s was in between at around 140. Together with the extent of decline in cross border bank flows, this had a bearing on the domestic credit growth. Thus Latvia’s domestic credit growth fell the most rapidly of the three countries to 3.4 percent quarter on quarter by the third quarter of 2008. In Hungary credit growth fell more slowly in the third quarter of 2008 while in Poland, credit growth (quarter-on-quarter) continued to rise slightly in the third quarter.

As the crisis deepened, economies were affected not only through tighter credit and declining investment (resulting from both tighter credit as well as uncertainty about prospects) but also a collapse in export demand; in turn this intensified the negative impact of the global crisis on domestic consumption and the demand for credit. Latvia’s GDP growth which had turned negative at -2 percent by the second quarter of 2008 even before the collapse of Lehman Brothers, fell sharply to -5.2 percent year-on-year in the third quarter of 2008 and by 10 percent in the last quarter of 2008. By the first quarter of 2009, GDP had declined by 18 percent year-on-year (Figure 45). Hungary still registered positive growth in the third quarter of 2008 (1.3 percent year-on-year) but by the fourth quarter GDP had fallen by 2.5 percent, and by 6.7 percent in the first quarter of 2009 (Figure 46). Of the three countries, Poland is the only one that continued to register positive growth during the second half of 2008 and the first quarter of 2009 (when growth was around 1 percent)—although this still entailed a sharp decline from the almost 6 percent growth seen in the first half of 2008 (Figure 47).

Figure 45. GDP developments in Latvia



Source: Eurostat, World Bank staff calculations

Figure 46. GDP developments in Hungary

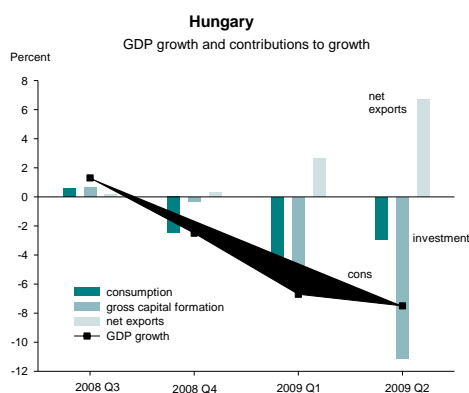
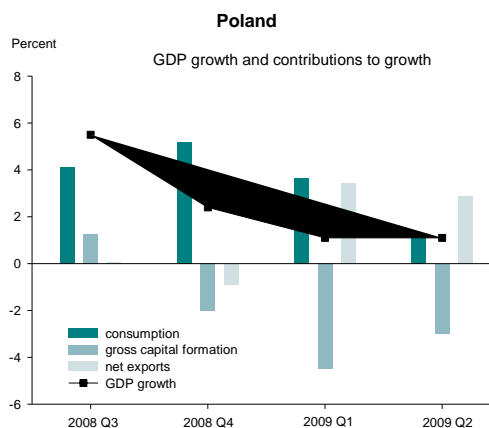


Figure 47. GDP developments in Poland



Source: Eurostat, World Bank staff calculations

Empirical results

This note adopts the switching regression framework following Ghosh and Ghosh (2000) to determine whether the issue is one of a credit crunch or weak credit demand. An observed decline in credit can be consistent with a decline in the supply of credit or a decline in the demand for credit. Distinguishing between the cases and hence determining whether there is a credit crunch or not, requires a framework that explicitly allows for market disequilibrium. The methodology we adopt is a switching regression framework in which we estimate both the demand for and supply of credit. This framework allows for, but does not impose, non-market clearing interest rates. As such, the methodology is ideally suited to examining the behavior of the loan market in these countries both prior to the crisis and in the aftermath. Based on this methodology the analysis finds the following¹²:

Latvia

For Latvia, the analysis points to a credit crunch during the third and fourth quarters of 2008, and a weak demand as the binding constraint in the first quarter of 2009 (Figure 8). The extent of the credit crunch was highest in the third quarter of 2008 when demand exceeded supply by 26 percent. By the fourth quarter of 2008, however, the demand for credit had declined, in line with the economic downturn, while the supply of credit increased somewhat (reflecting increased exposure of parent banks) so that the excess demand was only around 3 percent. And by the first quarter of 2009, the demand for credit had declined significantly -the decline in credit was no longer a reflection of supply side difficulties but rather weak demand for credit. Indeed, the estimated supply exceeded the estimated demand for credit by 15 percent (Figure 49).

Concerns by parent banks from early 2007 about their overexposure in the Baltics had already led to a slowdown in economic activity much before October 2008 and the global credit crunch, (around 55 percent of the banking system is foreign-owned, primarily involving Swedish banks). However, following the collapse of Lehman Brothers, the largest locally owned bank faced liquidity pressures and a deposit run (which led the Government to take it over and later introduce a partial deposit freeze to stem the (mainly non-resident) deposit outflow).

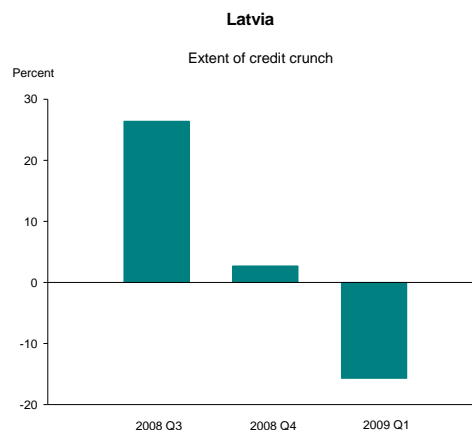
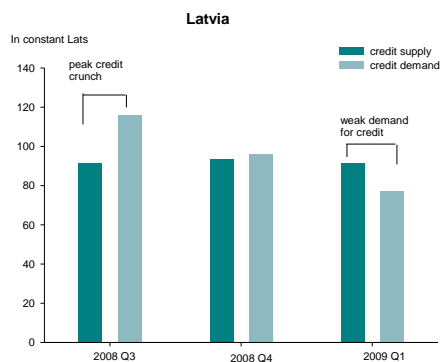
By the end of 2008, GDP had declined by 10 percent which would explain the decline in seen in the estimated the demand for credit as well. Thus the excess demand for credit declined significantly in the last quarter of 2008.

¹² For further details see "Credit crunch or weak demand for credit" S. Ghosh (background paper prepared for the Regional Economic Report, October 2009).

And by the first quarter of 2009, the economy had contracted by almost 16 percent. Construction and consumer durables fell sharply in reflecting rising unemployment (to around 14 percent) and loss of consumer confidence.

Although the exposure of foreign banks was scaled back in the first quarter of 2009 and domestically owned banks also made relatively large repayments, the weak economy meant that the demand for credit fell by more. Hence, as noted above, the analysis suggests that the weak demand for credit was the underlying factor by the end of 2009¹³.

Figure 48. Estimated supply of and demand for credit in Latvia **Figure 49. Extent of credit crunch in Latvia**



Source: World Bank staff calculations

Hungary

The analysis suggests that in Hungary there was a credit crunch—or excess demand for credit—from the third quarter of 2008 through the first quarter of 2009 (Figure 50). The extent of the credit crunch peaked in the fourth quarter of 2008, when the analysis suggests that, at the aggregate level, demand for credit exceeded the supply of credit by almost 14 percent.

As noted earlier, Hungary experienced significant capital outflows following the collapse of Lehman Brothers. By the first quarter of 2009 the demand for credit had also declined, reflecting developments in the real economy, when output declined by 6.7 percent year-on-year. As a result the extent of excess demand for credit was lower at around 10 percent (Figure 51).

¹³ A survey of advanced and emerging market banks on factors affecting the supply and demand for trade finance was undertaken recently. The survey found that the downturn in trade largely reflected falling demand rather than a lack of trade finance—trade generally fell much more than trade finance during 2008 and 2009. Correspondingly six of the seven banks pointed to a decrease in trade as the main driver of the decrease in their trade finance activities (see Box 1.1 IMF World Economic Outlook October 2009).

Figure 50. Estimated supply of and demand for credit in Hungary

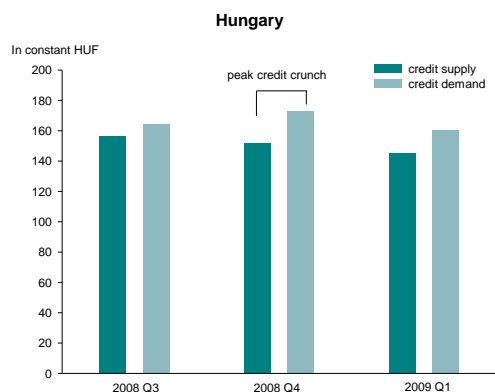
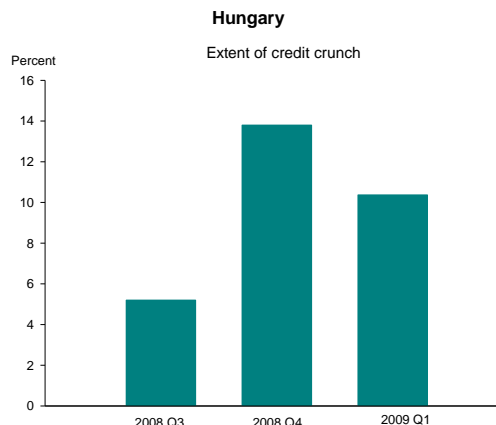


Figure 51. Extent of credit crunch in Hungary



Source: World Bank staff calculations

During the second quarter of 2009 the liquidity position of Hungarian banks improved significantly with liquid assets a share of the total having increased sizably. The FX market has normalized in line with global developments and bank deposits—especially corporate deposits have increased. In view of the much better liquidity position of banks, parent banks of Hungarian subsidiaries have been able to withdraw some of the additional funding that had been injected during the strains in October 2008 and March 2009. The short to medium term FX position of domestic credit institutions has also improved since April 2009 with the direct loans that the government has extended to these institutions.

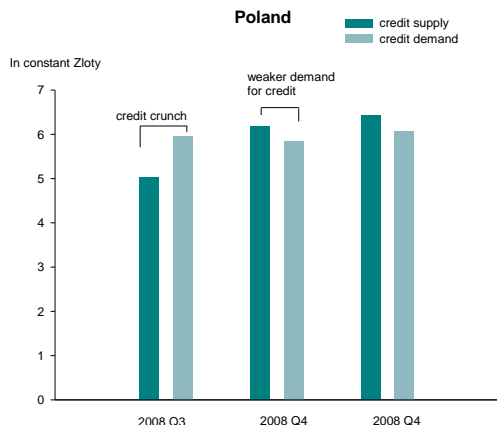
Poland

Although Poland was the least affected of the three countries in the wake of the financial crisis, as in other countries, inter-bank markets froze in late October 2008 reflecting greater uncertainty and risk aversion. As a result a number of banks had difficulty in obtaining foreign exchange liquidity to fund their foreign currency denominated mortgage portfolio. And while foreign bank exposure has remained stable since the third quarter of 2008 surveys suggest that banks have tightened their credit criteria. Such lending policies have been influenced by economic outlook and expected deterioration in capital positions.

Although growth was still around 5.5 percent in the third quarter of 2008 by the fourth quarter it had fallen to 2.4 percent year-on-year. The decline reflected weaker investment and consumption. And economic activity declined in the first quarter of 2009 to around 1.0 percent.

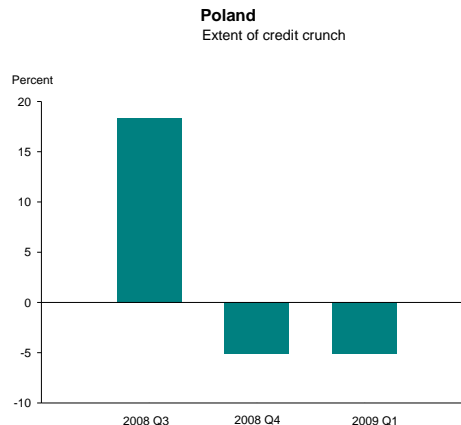
The econometric analysis corroborates this trend pointing to a credit crunch in the third quarter of 2008 but then weaker demand for credit through the first quarter of 2009 (Figure 52). Since the fourth quarter of 2008, a decline in the demand for credit together with some increase in the supply of credit (relative to the third quarter of 2008) has meant that the binding constraint has been weakness in the demand for credit (Figure 53).

Figure 52. Estimated supply of and demand for credit in Poland



Source: World Bank staff calculations

Figure 53. Extent of credit crunch in Poland



Conclusions

It bears emphasizing that the results of this note pertain at the aggregate level and to the aggregate economy. Thus no distinction is made in the supply of credit between credit that is rolled over and the provision of new credit. Clearly the provision of fresh lending is a key element for the restoration of firms' health. Second, even when there is no evidence of credit rationing at the aggregate level, at the microeconomic level, individual firms who are otherwise creditworthy may well have found that their demand for credit at prevailing interest rates was unmet. In particular, smaller firms are more likely to be prone to a credit crunch arising from informational problems.

Second, there are dynamics associated with a credit crunch. In the immediate aftermath of the Lehman Brothers collapse and onset of the global financial crisis, there is evidence of a credit crunch in all three countries, albeit with differences in timing and magnitudes. That is—over and above any increases in interest rates, there is evidence of quantity rationing. However, as domestic aggregate demand has declined and the recession has deepened, the demand for credit also declined. In Poland and Latvia, the supply constraint had turned into a demand constraint (at the aggregate level) by the first quarter of 2009. Indeed, the initial credit crunch and credit supply problem is likely to have contributed to the decline in GDP and hence to the decline in demand in credit subsequently.

Once the recovery process is underway, in principle there may be a period during which the incipient demand for credit may outpace the supply of credit, resulting in a credit crunch. With ongoing bank deleveraging pressures, it is likely that the supply of bank credit will continue to fall through the remainder of 2009 and into 2010 in both the US and in the EU15. The significant role of foreign (EU15) banks in the EU10 countries could well constrain liquidity and the supply of credit in the EU10 countries. Moreover, the level of non-performing loans (NPLs) in emerging Europe has also started to increase as corporate loan quality (and to a lesser extent household credit quality) has deteriorated reflecting the high leverage and overall worsening of the business environment. While the current level of provisions appears generally sufficient to cover loan losses at this time, the additional provisioning required going forward could limit banks' capital positions and their ability to issue new loans.

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EU10 October 2009

In Focus: EU-10 Banking Sector Credit Losses¹⁴

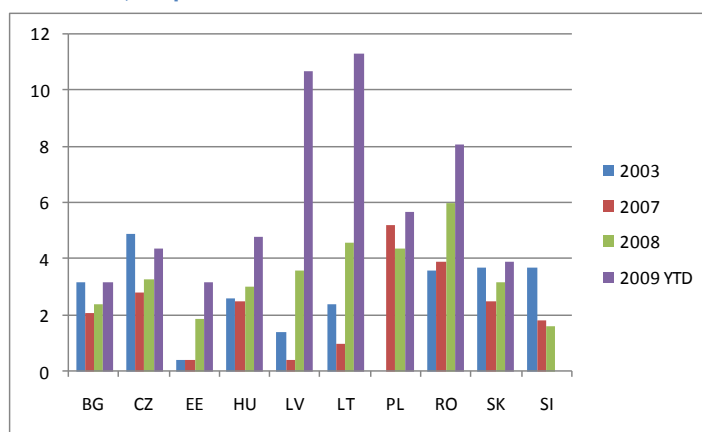
A year after the collapse of Lehman Brothers, the situation in the banking sector in the EU10, one of the channels through which the global financial crisis affected the region, seems to have largely stabilized. Earlier concerns about the strength of the commitment of the foreign parent banks in the region to continue supporting their local subsidiaries have diminished. The risk of a sudden withdrawal of foreign financing is now substantially lower. Concerns about liquidity and solvency of the sector have also lessened, largely owing to forceful interventions by the regional central banks, governments and international institutions. However, the banking sector is not out of the woods yet. In particular, there is a growing concern about the impact of the rising banking credit losses resulting from the economic downturn on banking sector's stability. This note provides an estimate of the likely credit losses in the region if economic conditions were to deteriorate even further and discusses factors that may affect the final credit cost.

The main conclusions emerging from this analysis, building in part on a forthcoming book prepared by the World Bank¹⁵, are:

- even if the macroeconomic environment were to worsen, credit losses in the EU10 banking sector are likely to be substantial but remain manageable, particularly with continued support from parent banks and the domestic authorities;
- expected rise in corporate credit losses is likely to be mitigated by a relatively low corporate leverage and high interest cover, although not in all countries;
- household debt is vulnerable to default, but the risk is partly offset by a still low household indebtedness, in particular when compared to advanced countries in the region.

Bank losses are increasing in the region as corporations and households are facing increasing difficulties in servicing debt. Banks are seeing their loan portfolio deteriorate as firms are hit by the collapse of demand and higher costs of financing while households are affected by rising unemployment and increased debt burden following large currency depreciations. In Latvia, the hardest hit country in the region, non-performing loans (NPLs) have increased from 3.6% at end-2008 to more than 10% in May 2009 (Figure 4). On a broader definition including substandard, doubtful and lost loans, NPLs in Latvia as of end-March reached nearly 25% (and 15% in Romania), not far from earlier banking crises in Asia, Russia, and Latin America where NPLs exceeded 30% (see Table 7). Given that the economic recovery in the region is likely to remain tepid, NPLs are set to rise further.

Figure 54. Non-performing loans in EU10 countries, 2007-2009 YTD, in percent of bank loans



Source: IMF Global Financial Stability Report (October 2009) and National Bank of Romania.

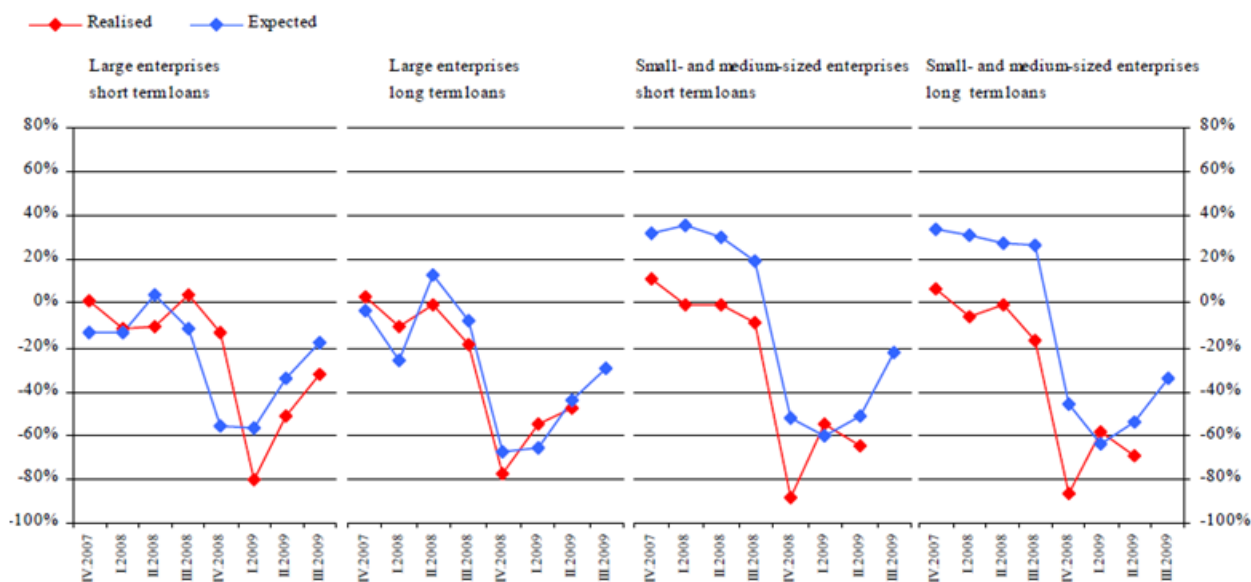
Rising bank losses may undermine the impending economic recovery, as banks reduce lending to companies and households to secure their capital base, improve liquidity, and reduce new risks. Banks in the region have already substantially tightened lending criteria, increased credit margins, and reduced access to credit, particularly for small and medium enterprises. In Poland, a country the least affected by the crisis,

¹⁴ Prepared by Marcin Piątkowski.

¹⁵ Mitra, Selowsky, and Zalduendo, 2009, *Turmoil at Twenty*, The World Bank (Washington DC: The World Bank Press).

banks continued to tighten credit lending criteria for enterprises even in the third quarter of 2009 (Figure 41)¹⁶. The uncertainty about future developments in the corporate and household market, especially as regards the impact of rising unemployment, additionally constrains bank funding available in the economy.

Figure 55. Poland: Loan Officers Survey of Corporate Credit Lending Criteria, 4Q2007-3Q2009



Note: Figures present the net percentage. A negative value of the index indicates that banks tighten lending policy or demand for loans falls.

Source: National Bank of Poland

While the full impact of the crisis on asset quality in the region is still unknown, past banking and currency crises offer a rough guide to assess underlying risks. This should be viewed as an illustration of the possible risks in a worsening economic environment, including a currency crisis. The focus is on banking crises where declines in GDP in the year following the onset of the crisis exceeded 5 percent and that were accompanied by a currency crisis. In such cases, the non-performing loans on average rise to 30 percent (Table 7). These are assumed to be a proxy for the *probability of default*. In addition, *recovery rates* are assumed to be roughly 40 percent on mortgages, in line with the marked declines that have occurred in housing prices, and 15 percent on loans to firms, which broadly matches the average assumption made by the Swedish Riksbank on the exposure of Swedish banks to the Baltic States.¹⁷ The shares of households and firms in the total loan portfolio—a measure of exposure—are provided by broad characterization of the consolidated banking sectors in ECA countries. A preferable approach no doubt would be to calibrate the recovery rate by sector and country depending on country-specific bankruptcy resolution frameworks and other institutional characteristics that impact recovery rates, but such data is only available to banking supervision authorities of each individual country.¹⁸

¹⁶ Although fewer banks than before expect to further tighten credit policy in the coming quarter.

¹⁷ Sveriges Riksbank (2009), *Financial Stability Report*, March 2009.

¹⁸ Many countries in the region have conducted their own banking sector stress tests based on adverse macroeconomic scenarios. The stress tests show that banking sectors would generally be able to accommodate the projected increase in credit losses.

Table 7. List of Banking and Currency Crisis Countries

Country	Crisis year	NPLs (% of all loans)	Country	Crisis year	NPLs (% of all loans)
	<u>Banking and Currency Crisis</u>			<u>Banking Crisis Only</u>	
Argentina	1980	9.0	Argentina	1995	17.0
Argentina	1989	27.0	Bolivia	1994	6.2
Argentina	2001	20.1	Colombia	1982	4.1
Brazil	1994	16.0	Colombia	1998	14.0
Bulgaria	1996	75.0	Croatia	1998	10.5
Chile	1981	35.6	Czech Republic	1996	18.0
Dominican Republic	2003	9.0	Finland	1991	13.0
Ecuador	1998	40.0	Japan	1997	35.0
Estonia	1991	7.0	Latvia	1995	20.0
Indonesia	1997	32.5	Lithuania	1995	32.2
Jamaica	1996	28.9	Nicaragua	2000	12.7
Korea	1997	35.0	Norway	1991	16.4
Malaysia	1997	30.0	Paraguay	1995	8.1
Mexico	1994	18.9	Sri Lanka	1989	35.0
Philippines	1997	20.0	Thailand	1997	33.0
Russia	1998	40.0	Vietnam	1997	35.0
Sweden	1991	13.0			
Turkey	2000	27.6			
Ukraine	1998	62.4			
Uruguay	2002	36.3			
Venezuela	1994	24.0			
Average		28.9	Average		19.4
Median		27.6	Median		16.7

Source: Laeven and Valencia (2008) ¹⁹.

The result of the analysis suggests that the credit losses in EU10 countries may be substantial but still remain manageable. In a scenario based on past banking and currency crises, the estimated losses vary from 9 percent of GDP in Romania to 21 percent of GDP in Estonia, with an average of some 13 percent of GDP for emerging Europe as a whole, comprising EU10 and other countries in Central and Eastern Europe (Table 8). The variation across countries is largely accounted for by the size of the loan portfolio that is the share of credit in GDP. Of course the scenario could be more optimistic about recovery rates. For example, housing prices in many countries in the region have not declined as much and banks might choose not to proceed immediately to sell these assets to avoid worsening housing market conditions. In a scenario in which recovery rates in mortgages average 75 percent, credit losses would range anywhere from 6 to 16 percentage points of GDP.²⁰ Importantly, non-performing loans in the EU10 at this stage of the crisis are much lower than recorded during recorded during earlier banking crises, where NPLs peaked at 32 percent in Indonesia, 35 percent in Korea, 30 percent in Malaysia during the East Asian crisis, and at 40 percent in Russia and 36 percent in Uruguay during their crises in the late 1990's and early 2000's (Figure 56).²¹ In EU10 countries with pegged exchange rate regimes and large unhedged FX liabilities, NPLs

¹⁹ Laeven and Valencia (2008), "Systemic Banking Crises: A New Database," IMF, WP/08/224. Estonia had a currency crisis in 1991 and a banking crisis in 1992.

²⁰ The adopted methodology does not take into account the individual country circumstances, which are discussed in the following sections, and should be seen as an illustration in a scenario in which economic developments take a turn for the worst.

²¹ The increases observed in past capital account crises reflect a combination of both increased and widespread corporate distress, as well as the introduction of better loan classification standards for financial institutions.

Table 8. Credit Losses—Extrapolating from Past Crisis Events

	Share of lending to		Outstanding private credit		Alternative assumptions	Losses (w/ NPLs)	
	HH	Firms	in bill. LCU	in % GDP		in bill. LCU	in % GDP
Belarus 2/	0.25	0.75	37159	29	NPLs 3/	8632	7
Bulgaria	0.35	0.65	50	74	29.50	11	17
Croatia	0.50	0.50	222	65		48	14
Czech Republic	0.40	0.60	1947	53	LRGD - HH 4/	431	12
Estonia 1/	0.50	0.50	245	99	0.40	52	21
FYR Macedonia	0.40	0.60	175	44		39	10
Hungary	0.40	0.60	18527	69	LRGD - Firms 5/	4099	15
Kazakhstan 2/	0.25	0.75	7972	50	0.15	1852	12
Latvia 1/	0.50	0.50	15	90		3	19
Lithuania 1/	0.45	0.55	70	63		15	14
Montenegro	0.40	0.60	3	81		1	18
Poland	0.40	0.60	633	50		140	11
Romania	0.40	0.60	194	38		43	9
Russia 2/	0.30	0.70	17102	41		3910	9
Serbia	0.40	0.60	1072	38		237	8
Turkey 2/	0.30	0.70	310	33		71	7
Ukraine 2/	0.30	0.70	700	74		160	17
Average				58			13
Median				53			12

1/ Assumes somewhat higher role of mortgage lending given developments in housing prices.

2/ Assumes a lower share of HH lending; loans to corporates still dominate.

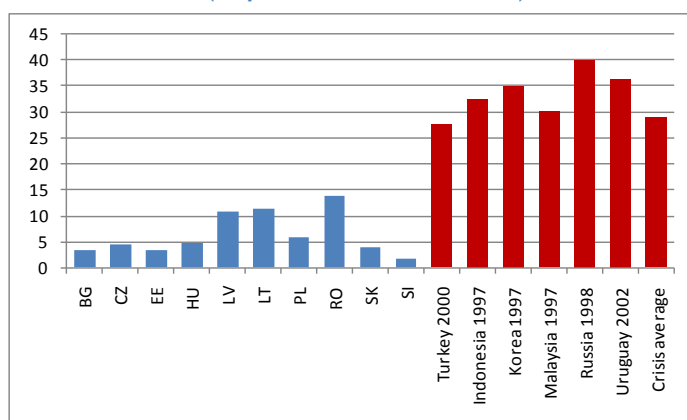
3/ NPLs are assumed to match the levels observed in the Laeven and Valencia database for cases with a currency crisis; in effect this is broadly equivalent to cases where the decline in GDP in period t+1 is at least 5 percent.

4/ Assumes loan-to-value ratios of one and a recovery rate of only 40 percent given the decline in housing prices.

5/ The loss recovery given default is set at the average level observed during the Asian crisis.

Source: Mitra, Selowsky, and Zalduendo, 2009, *Turmoil at Twenty, The World Bank* (Washington DC: The World Bank Press).

Figure 56. Non-performing loans in the EU10 in 2009 and Historical Data for Banking and Currency Crisis Countries (in percent of bank loans)



Note: Crisis average taken from Table 7.

Source: IMF Global Financial Stability Report, October 2009 for the EU10; Table 7 for other countries.

Banking sector losses may be mitigated by a relatively low corporate leverage. Debt leverage of non-financial companies, as measured by the ratio of total debt to total assets, is lower in EU10 countries than in emerging markets three years prior to, during, and three years following the year in which they experienced a capital accounts crisis.²² The leverage is also lower than in the four EU cohesion countries—Greece, Ireland,

²² For details on the DataStream (WorldScope) data; refer to Mitra, Selowsky and Zalduendo (2009), op.cit.

Spain and Portugal—that have been hard hit by the current crisis (Table 9). Overall leverage in Poland and Czech Republic remained moderate throughout the period. Leverage was much higher Hungary, but it was still about half of the elevated levels seen in East Asia during its crisis in 1997-98 and was also generally lower than in Argentina (2001), Brazil (1998), Mexico (1995), and Turkey (2001) in the years of their crisis. Table 10, based on Bloomberg database and covering a wider set of countries in the region,²³ presents a similar picture: even EU10 countries with the highest leverage have a total debt to total assets ratio that is broadly similar to those in East Asia and somewhat less than in EU15 countries in 2008.

Table 9. Non-Financial Corporate Leverage—Recent History for Selected EU10 Countries and Crisis Years for Comparator Countries (median values)

	Number of Firms 1/	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
		Period ('t' represent the year of the crisis) 2/									
		t-3	t-2	t-1	t	t+1	t+2	t+3			
Czech Republic	31	23.9	18.0	12.8	10.3	8.9	10.1	10.8	9.7	8.9	11.6
Hungary	33	11.1	17.4	11.7	12.8	17.2	17.1	15.7	21.1	13.2	27.6
Poland	167	11.7	13.0	16.5	17.7	18.3	15.9	15.6	15.9	15.5	17.1
Turkey	182	25.5	27.5	26.2	25.1	19.7	16.7	16.7	19.2	16.5	21.7
Greece	268	20.2	20.4	26.8	28.0	29.5	29.2	31.9	30.2	32.6	34.4
Ireland	68	25.5	27.4	30.6	29.3	28.7	23.5	27.0	29.3	28.4	34.7
Portugal	64	29.3	32.4	35.6	37.1	35.2	35.2	34.8	38.9	40.8	46.3
Spain	163	20.4	23.2	24.0	26.0	27.7	28.1	31.9	33.0	33.3	34.1
Korea (1997)	442	44.1	45.1	46.1	50.5	44.6	33.4	31.1			
Thailand (1997)	273	32.6	37.7	40.9	53.1	45.1	41.1	43.4			
Indonesia (1997)	171	28.6	31.6	34.7	51.8	61.3	50.3	47.1			
Argentina (2001)	78	33.4	30.6	31.2	27.7	31.4	25.8	23.1			
Brazil (1998)	257	18.0	24.3	26.1	27.3	26.2	26.1	31.4			
Mexico (1995)	82	28.7	29.9	31.1	31.9	28.3	28.7	28.0			
Turkey (2001)	158	24.1	25.5	27.5	26.2	25.1	19.7	16.7			

Source: DataStream

Notes: 1) Average over period, 2) Crisis year is defined as “t” and is indicated in parenthesis next to the corresponding country

Table 10. Non-Financial Corporate Leverage in ECA Countries (median values)

	ECA Countries		Other Countries		
	Number of Firms	2008	Number of Firms	2008	
Bulgaria	142	16.4	Korea	116	27.8
Croatia	201	26.5	Thailand	364	24.9
Czech Republic	13	10.8	Indonesia	244	30.2
Estonia	14	26.2			
Hungary	24	19.5	Argentina	78	21.2
Latvia	23	25.6	Brazil	313	28.0
Lithuania	34	29.4	Mexico	83	23.5
Macedonia	30	18.6			
Poland	247	14.8	Portugal	53	41.1
Romania	151	18.5	Ireland	44	26.9
Russia	713	23.5	Greece	255	33.5
Slovakia	11	13.7	Spain	115	27.5
Slovenia	41	31.9			
Turkey	219	20.6			
Ukraine	193	17.5			

Source: Bloomberg.

Source: Bloomberg

²³ See “Turmoil at Twenty”, op. cit.

High interest coverage ratio will also help reduce losses, although not for all countries. In the same context as the previous table on corporate leverage, Table 11 reports the interest coverage ratio, that is the ratio of EBIT (earnings before interest and tax) to total interest expense, for selected EU10 countries and emerging market countries three years prior to, during, and three years following the year in which they experienced a capital accounts crisis. The table also reports the ratio for the selected EU15 countries. Table shows that only in Hungary the interest coverage ratio fell sharply to reach a low of 1.3 in 2008, a figure comparable to the lows reached in East Asia during its crisis and in Turkey in 2001. Interest coverage ratio in Poland and the Czech Republic was at a comfortable level, reflecting the overall milder impact of the crisis on the real sector. Table 12 shows the same ratio for a wider set of countries; it is the lowest in Croatia, Slovenia, Latvia and Hungary and the highest in the Czech Republic, Estonia, Poland, Romania and the Slovak Republic. The table also reports the proportion of firms that had interest coverage less than unity, i.e., where EBIT did not cover interest expense. Worryingly, half of the surveyed companies in Hungary had insufficient earnings to fully cover interest expense, which was the worst result among all the surveyed countries except for Croatia.

Table 11. Interest Coverage in Non-Financial Firms—Recent History for ECA and Cohesion countries and Crisis Years for Comparator Countries (in percent; median values)

	Number of Firms 1/	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Czech Republic	33	1.7	4.0	3.8	4.6	6.1	8.1	6.6	11.7	14.1	22.3
Hungary	34	5.5	5.9	5.7	4.7	4.8	3.4	4.1	5.1	4.2	1.3
Poland	240	3.6	2.1	1.5	2.1	3.7	6.0	6.4	9.4	11.5	4.8
Turkey	194	1.7	2.3	1.2	1.8	3.2	3.1	3.7	3.3	4.5	2.2
Greece	281	6.0	5.8	3.9	3.1	2.9	3.2	2.9	3.1	3.0	1.7
Ireland	70	4.4	3.8	2.0	1.4	2.6	3.1	3.7	4.0	4.4	1.5
Portugal	65	4.1	2.9	2.4	1.8	2.0	3.1	3.2	3.0	2.5	1.3
Spain	166	7.2	5.8	4.5	3.8	5.0	5.8	5.9	4.6	3.5	2.3
		Period ('t' represent the year of the crisis) 2/									
		t-3	t-2	t-1	t	t+1	t+2	t+3			
Korea (1997)	436	1.4	1.4	1.2	1.1	1.1	1.7	1.8			
Thailand (1997)	259	4.1	3.2	2.2	1.2	1.6	1.0	1.5			
Indonesia (1997)	169	4.2	3.3	2.6	1.0	0.1	1.8	0.6			
Argentina (2001)	468	3.3	1.9	1.4	1.2	0.1	1.6	2.2			
Brazil (1998)	255	1.6	1.6	1.8	1.3	0.9	1.4	1.2			
Mexico (1995)	73	3.2	2.7	1.1	1.8	3.1	3.1	1.7			
Turkey (2001)	170	2.4	1.7	2.3	1.2	1.8	3.2	3.1			

Source: DataStream

Notes: 1) Average over period, 2) Crisis year is defined as "t" and is indicated in parenthesis next to the corresponding country

Table 12. Interest Coverage Ratio in Non-Financial Firms (in percent; median values)

	ECA Countries			Other Countries			
	Number of Firms	Less than one percent 1/	2008	Number of Firms	Less than one percent 1/	2008	
Bulgaria	123	34	2.1	Korea	1550	39	2.2
Croatia	204	52	0.8	Thailand	397	33	3.5
Czech Republic	16	6	33.3	Indonesia	243	20	2.7
Estonia	13	15	5.5				
Hungary	14	50	1.5	Argentina	83	24	3.1
Latvia	24	38	1.5	Brazil	157	27	2.6
Lithuania	31	32	2.8	Mexico	96	19	3.9
Macedonia	30	50	1.1				
Poland	319	28	4.2	Portugal	49	37	1.5
Romania	186	28	3.5	Ireland	51	35	2.1
Russia	705	19	5.5	Greece	256	31	2.1
Slovakia	9	33	3.3	Spain	81	23	3.1
Slovenia	38	32	2.0				
Turkey	214	45	1.3				
Ukraine	46	41	2.0				

Source: Bloomberg

Notes: 1) Proportion of firm with an interest coverage ratio of less than 1 percent

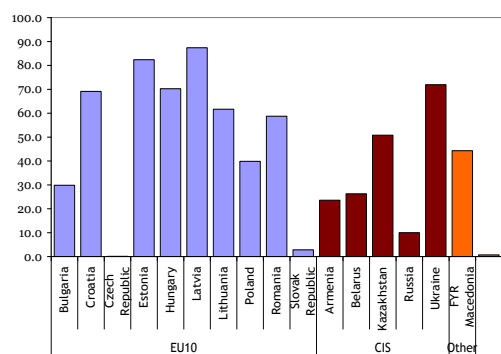
Household debt may be vulnerable to default. This reflects the fact that much of the rapid expansion of credit in EU10 countries throughout the last decade was driven by the household sector. The ratio of lending to households to lending to corporations doubled in most countries between 2003 and 2008 (Table 13). Furthermore, mortgage lending as a share of lending to households increased sharply during the period. Lastly, mortgage loans are vulnerable to exchange rates (Figure 57) and interest rates shocks (Figure 58) as well as falling real estate prices (Figure 59).²⁴

Table 13. Growth of Credit to Households and Corporations, 2003-2008

	Average Growth of Credit to Households 2003-2008	Average Growth of Credit to Corporations 2003-2008	Ratios of Lending to Households to Lending to Corporates		Share of Housing Loans in Total Household Lending	
			2003	2008	2003	2008
			Bulgaria	40.7%	57.3%	37.2%	59.0%	-	42.8%
Czech Republic	26.5%	11.8%	69.1%	126.2%	65.4%	70.3%
Estonia	38.7%	32.3%	82.5%	103.3%	77.6%	80.5%
Hungary	21.3%	7.2%	52.9%	95.0%	64.3%	50.7%
Latvia	44.1%	28.0%	50.3%	87.8%	64.0%	78.9%
Lithuania	59.1%	30.6%	28.9%	75.1%	76.4%	69.3%
Poland	27.5%	13.3%	101.8%	181.8%	30.1%	52.5%
Romania			-	104.9%	-	21.1%
Slovak Republic	28.2%	9.8%	39.8%	84.3%	68.9%	67.7%
Russia	59.4%	26.6%	11.4%	33.2%	-	27.6%
Turkey	45.4%	23.6%	36.9%	78.9%	27.2%	32.5%
Ukraine	83.8%	46.6%	33.6%	63.2%	24.9%	31.5%

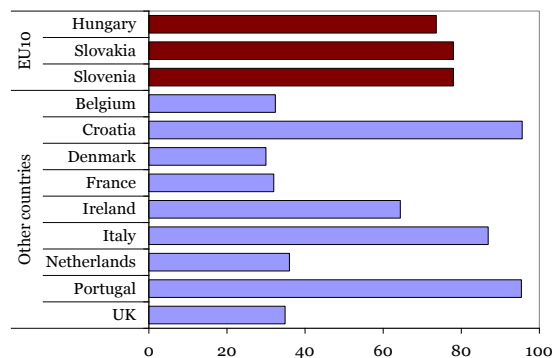
Source: IFS and Central Banks

Figure 57. Foreign Currency Denominated Loans 2008 (in percent of bank loans to households)



Source: Central Banks, World Bank staff calculations

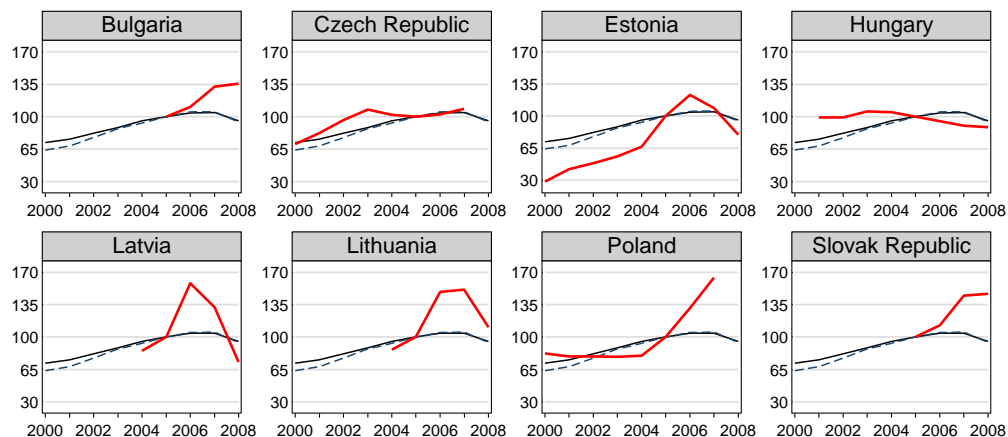
Figure 58. Mortgage Loans with Adjustable Interest Rates 2006 (in percent of all housing loans)



Source: IMF; OECD; and National Central Banks

²⁴ World Bank 2009, "The Crisis Hits Home: Stress Testing Households in Europe and Central Asia".

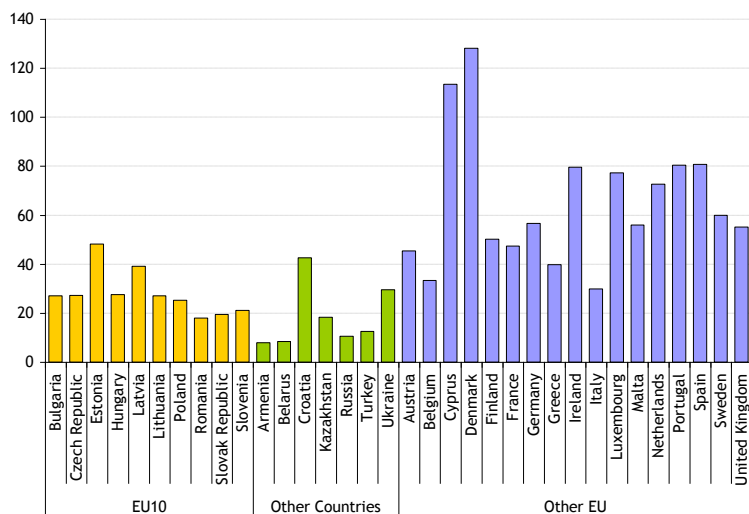
Figure 59. Real Housing Price Developments, 2005=100, (red line for country; solid black for benchmark mean; dash line for benchmark median)



Source: Global Property Guide based on data from statistical offices and real estate companies. Benchmark countries are France, Germany, Ireland, Spain, and the United Kingdom.

However, despite recent high growth rates, household indebtedness is generally still low, thus reducing potential for banking losses. Household debt in EU10 countries represents on average over a quarter of GDP but there is significant cross-country variation, with the figure reaching above 40 percent in some countries (Figure 60). These ratios are below the present average of about 65 percent of GDP for the EU15 and closer to those for Ireland, Italy, Portugal and Spain during the late 1990s. Moreover, mortgage interest service burden on the poorest households, most vulnerable to a credit default, are on a moderate level of 7 to 13 percent of household income. Importantly, the fraction of household with mortgages in the poorest quintile is quite small.

Figure 60. Household Debt, 2008 (% of GDP, end of period)



Source: European Central Bank; National Central Banks; IMF; and UniCredit.

Many countries are experimenting with measures that may additionally help limit household defaults and thus reduce credit losses. In Hungary, the authorities have argued for agreements where banks convert foreign-exchange denominated loans to households into local currency loans without penalty, capitalize the increase in mortgage payments arising from the conversion and potentially extend the term of the loan for creditworthy borrowers. The option however has not been widely exercised on account of forint interest rates still being substantially higher than euro rates. Hungary has also introduced legislation to provide temporary state guarantees for mortgage payments of the unemployed and submitted legislation to

Parliament to expand the partial mortgage debt servicing guarantee scheme for the unemployed to other debtors whose payment capacity has been temporarily impaired by the financial crisis. Poland introduced a similar scheme for mortgage repayment among the newly unemployed. Romania has sought an agreement with commercial banks to facilitate the restructuring of debt contracted in foreign currency by adjusting the maturity and repayment schedule of the debt, including offering the option to voluntarily convert it into domestic currency. In Latvia, the authorities are considering to provide a partial state guarantee for mortgage loans restructured under certain guidelines that is intended to relieve borrowers' debt service to a level commensurate with their capacity to pay. As justified as some of these initiatives are, the use of public monies should be carefully targeted based on need as public resources are limited. They should also be informed by medium-term repayment capacity. Indeed, where the circumstances are such that repayment capacity has ceased, recognizing early such circumstance by banks provisioning against loan losses should not be postponed.

Banks in the region seem to be able to accommodate rising losses. Capital adequacy ratios are significantly above the mandatory 8% floor in all countries in the region. Losses on loans have been largely provisioned. Bank's profitability remained positive in most countries in the region, providing additional cushion against losses (Table 14). Crucially, foreign parent banks have so far continued to support their local subsidiaries with injections of both capital and liquidity. So did central banks, governments, and international institutions such as the World Bank, European Investment Bank and the EBRD.²⁵

Table 14. Banking sector's stability and profitability indicators for the EU10 and selected countries, 2003-2009

	Capital adequacy 1/				Loan provisions 2/				Return on equity			
	2003	2007	2008	2009	2003	2007	2008	2009	2003	2007	2008	2009
Bulgaria	22	13.9	14.9	16.5	50	...	...	...	22.7	24.8	23.1	15.7
Czech Republic	14.5	11.5	12.3	13.7	76.7	70.4	67.5	61.3	23.8	25.4	21.7	23.4
Estonia	12.5	10.8	13.3	15.2	214.5	...	...	...	14.1	30	13.2	8.7
Hungary	11.8	10.4	11.1	12.3	47.3	58.1	59.6	52.6	19.3	18.1	11.6	15.3
Latvia	11.7	11.1	11.8	12.8	89.4	129.8	61.3	40.7	16.7	24.3	4.6	-19.7
Lithuania	13.2	10.9	12.9	13.9	...	...	...	...	11.4	27.3	16.1	-1
Poland	13.8	12	11.2	11.7	53.4	...	...	...	5.8	22.4	20.7	15.6
Romania	21.1	13.8	12.3	...	12.6	25.7	28.7	...	20	11.5	18.1	...
Slovak Republic	22.4	12.8	11.1	12.2	85.8	93.3	91.4	88.3	10.8	16.6	14.1	4.1
Slovenia	11.5	11.2	10.5	...	81	...	...	...	11.9	16.3	9	...
Russia	19.1	15.5	16.8	18.5	118	144	118.4	90.8	17.8	22.7	13.3	3.6
Turkey	30.9	19	18.1	19.2	88.6	88.4	81.4	79.4	16	21.6	16.6	25.1
Ukraine	15.2	13.9	14	14.5	22.3	26.3	29.6	29.8	7.6	12.7	8.5	-24.5
Austria	14.5	11.8	12.7	12.9	68	76.4	64	63	7	17	2.6	...

Source: IMF Global Financial Stability Report, October 2009

Notes: 1) Risk weighted capital assets ratio, 2) Bank provisions to non-performing loans

However, given that risks to the banking sector's stability remain elevated, continued support from private and public sources is needed. EU10 countries remain vulnerable to shifts in global market sentiment and potential growth reversals. There are number of ways to minimize the risks of the return of market turbulence and support the impending recovery. First, foreign parent banks need to continue to support their subsidiaries in EU10 countries, whenever needed. Second, central banks and governments need to remain vigilant to liquidity and solvency risks in the banking sector. Third, governments should follow through on their programs aimed at lowering the risk of credit default of the most vulnerable households. Lastly, financial supervision authorities need to learn from the lessons of the previous banking crises and facilitate orderly restructuring of the corporate and household debt. Greater collaboration between home and host supervisory banking authorities would also be helpful.

²⁵ The three institutions have pledged to provide up to €24.5 billion to support the banking sectors in Central and Eastern Europe and to fund lending to businesses hit by the global economic crisis.



EU10 October 2009

In Focus: Responding to Climate Change in the EU10 and Croatia²⁶

While climate change is a global challenge, also the EU10 countries are seriously although unevenly affected, with Bulgaria, Romania (South) and Croatia being the most vulnerable. The EU10 contribute only modestly to the global greenhouse gas emissions, but nevertheless will have to bear social and economic costs related to global climate change, both in terms of mitigation (reduction of emissions as part of the global and EU efforts), but more importantly in terms of adaptation to environmental changes. The latter will need to include coordinated measures across a number of sectors, including health, water and land management, agriculture and forestry, urban areas, transport and energy. Moreover, in view of existing energy efficiency gap in the EU10 and huge investment needs in infrastructure and housing, there is a substantial scope for climate-smart policy choices set to reap net benefits regardless of climate developments. This note provides an overview of climate change issues relevant for the EU 10 countries, including a selection of recommended specific practices, policy measures and actions.

Climate change is a global challenge. The EU10 and Croatia are seriously but unevenly affected, with Bulgaria, Romania (South), and Croatia being the most vulnerable to projected climate change in this group. A recent report²⁷ to the Directorate General DG for Regional Policy presents a climate change vulnerability index²⁸ (see -Figure 61). Generally, Southern Europe appears the most vulnerable, while North and Western regions are relatively less affected, except lowland coastal areas. In the EU10 region Bulgaria and South Romania are the most vulnerable, followed by Hungary, while the remaining countries are relatively less vulnerable.

Baettig has developed a separate index of exposure to climate change²⁹ that suggests the EU10 countries are generally moderately exposed to climate change (see -Figure 62). Again South European and South Caucasus countries see greater climate variability. As such, countries already experiencing substantial variability and extremes are less likely to rank highly on this index (for example, India and the Czech Republic have about the same score).

Nonetheless, climate change is a global issue driven by emissions of greenhouse gases (GHGs). There is little space for complacency even for the EU10 countries, which face lower exposure (Poland) and low public awareness of their climatic vulnerability. In a poll conducted worldwide in 2008, covering also selected EU10 countries, global warming was perceived as less serious by almost 60% of Poles and Russians, while the awareness of Turks, Bulgarians or Slovaks was much higher (see -Figure 63). Although the problem is not of their making as two-thirds of the carbon emission into the atmosphere since 1850 was put by high-income countries (Box 1), the repercussions of augmented GHG concentration have been felt worldwide.

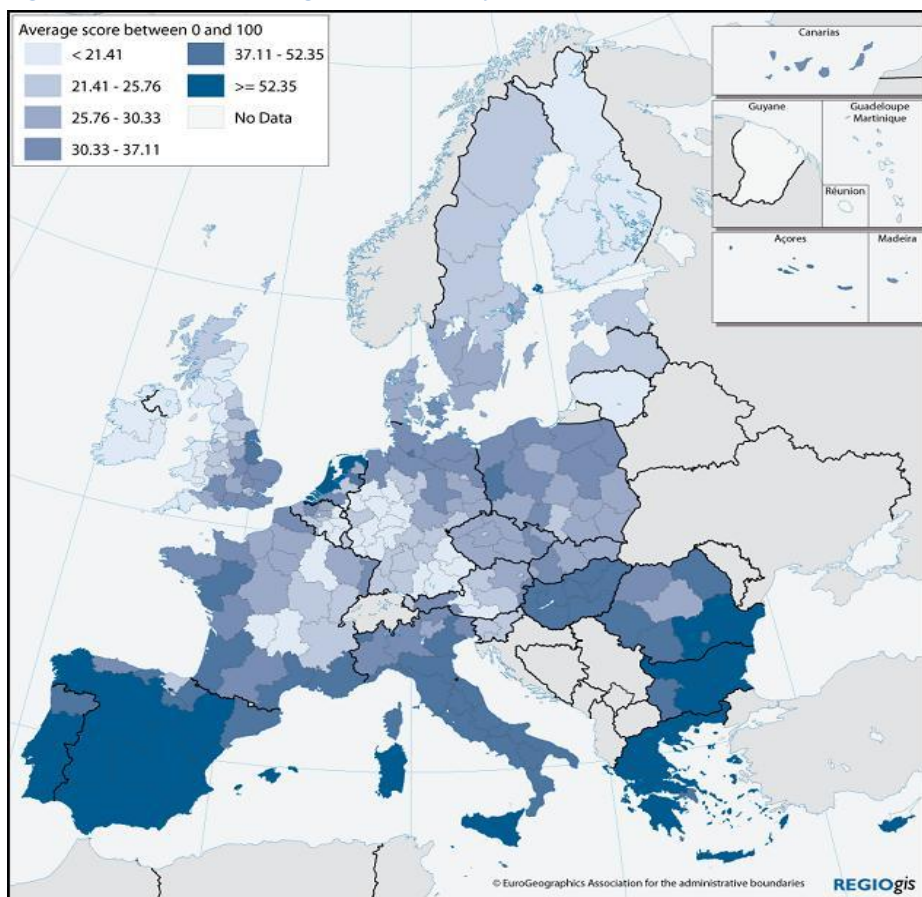
²⁶ Prepared by Leszek Kąsek.

²⁷ Regional challenges in the perspective of 2020, Regional disparities and future challenges, Background paper on climate change to the DG for Regional Policy, April 2009.

²⁸ The index is based on change in population affected by river floods, population in coastal areas below 5m, potential drought hazard, vulnerability of agriculture, fisheries and tourism, taking into account temperature and precipitation changes.

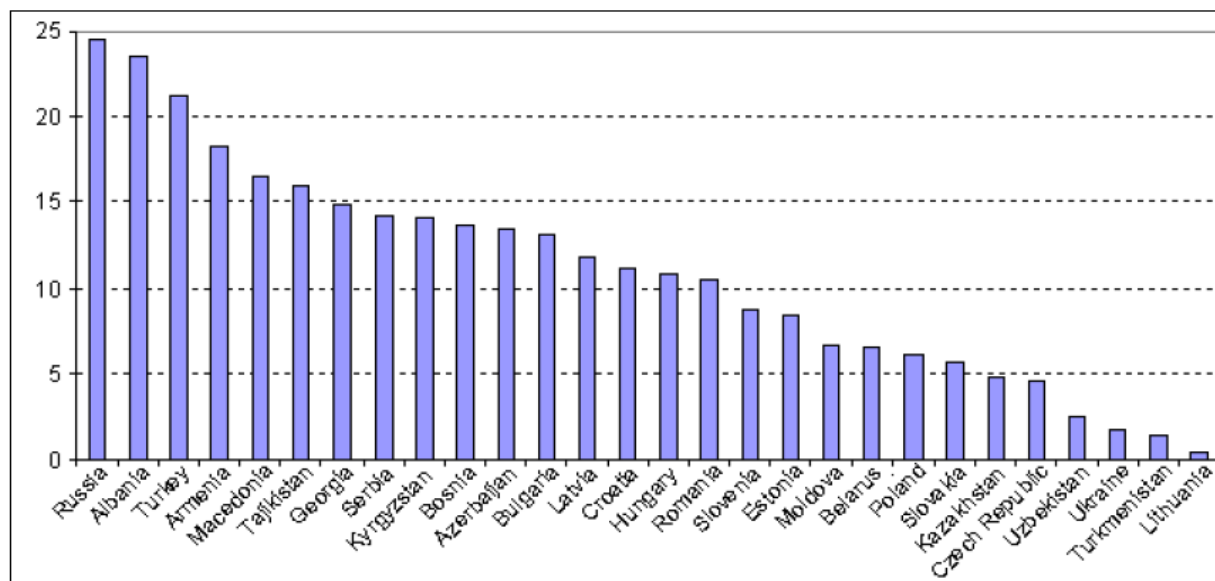
²⁹ Baettig's index combines the number of additional hot, dry and wet years; hot, dry, and wet summers; and hot, dry, and wet winters projected over the 2070-2100 period relative to the 1961-1990 period.

Figure 61. Climate change vulnerability index



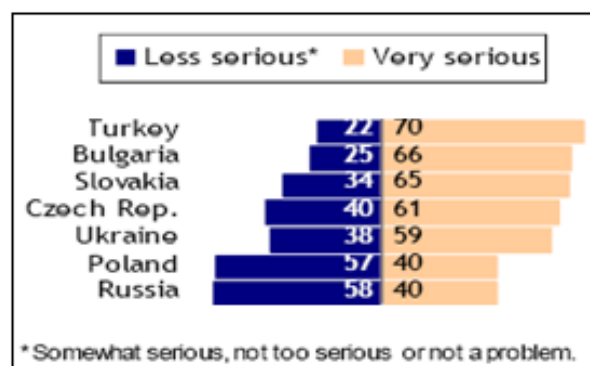
Source: Eurostat, JRC, DG REGIO

Figure 62. An index of exposure to climate change



Source: Baettig et al 2007.

Figure 63. Global Warming: How serious a problem?



Source: Pew Research Center 2008.

Based on historic patterns and projected trends, the expected climate changes are more pronounced in southern parts of Europe and in Central Asia. The changes comprise, inter alia, higher temperatures, changing hydrology including rising sea level, more extreme floods, windstorms, heat waves, forest fires, and more frequent and intensive natural disasters (see - Table 15 and Table 16). Across the region, the economic loss potential of natural disasters generally does not exceed 5% of GDP, with somewhat higher losses estimated for Croatia and Romania (see -Figure 64). According to Buys et al. (2007), only the rising sea level will have an impact of 0.5-1.5% of GDP in countries like Romania, Poland, or Estonia (see -Table 17). The impact of environmental changes by sub-region in the Europe and Central Asia are extensively discussed in the recent ECA regional report³⁰.

Table 15. General climate trends in selected sub-regions of ECA

Sub- region	Current trends and weather related events	Projected Temperature Rise by 2050	Mean annual Precipitation	Runoff	Rainfall intensity & variability	Heat waves
Baltics [Estonia, Latvia, Lithuania, Poland]	Warming trend over the past century. Flood damage significant.	1.6°C, warmer winters, decrease in frost days	Unclear	South: decrease; North increase	Increase	Increase
Central Europe [Czech Republic, Hungary, Romania, Slovakia]	Warming in the last 20 years but no trends in precipitation	1.7°C, decrease in frost days	Unclear	Decrease (median 13%)	Increase and more variable	Increase
Southeastern Europe [Bulgaria, Croatia, Slovenia]	No trends, but vulnerable to floods and drought	1.8 - 2.1°C, decrease in frost days	Decrease except summer	Decrease (25%)	Increase	Increase

Source: Derived from climate summary tables (Westphal, 2008).

³⁰ World Bank, Adapting to Climate Change in Europe and Central Asia, June 2009.

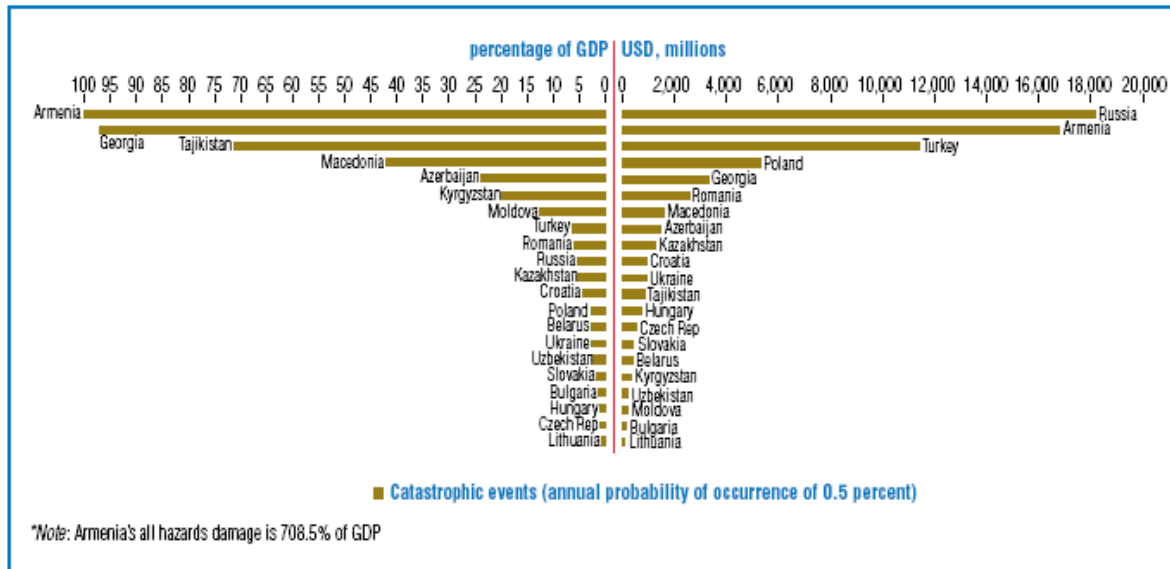
Table 16. Disaster Matrix by ECA Country

	Flood	Land Slides	Drought	Extreme temperature	Wind storm	Wild fire
Bulgaria	X	X	X	X	X	X
Croatia	X		X	X	X	X
Czech Rep.	X	X		X	X	
Estonia	X	X		X	X	
Hungary	X		X	X	X	
Latvia	X			X	X	
Lithuania	X		X	X	X	
Poland	X			X	X	X
Romania	X	X	X	X	X	
Slovakia	X			X	X	X
Slovenia	X	X		X		

Note: Although not included in the table above, ECA countries are also affected by non-hydrometeorological hazards such as earthquakes, technological disasters and epidemics.

Sources: EM-DAT 2008 and Pusch 2004.

Figure 64. Economic loss potential of natural disasters in the ECA Region



Note: The figure includes such climate-related disasters as floods and windstorms, but does not include drought and forest fire

Source: Pusch, Preventable Losses: Saving Lives and Property through Hazard Risk Management, 2004.

Table 17. % of GDP affected by a sea level rise of 1, 2 or 3 meters

	% GDP Affected		
	SLR (1 meter)	SLR (2 meter)	SLR (3 meter)
Estonia	1.3	1.42	1.53
Georgia	1.44	1.72	1.99
Poland	0.72	0.79	0.85
Romania	0.51	0.53	0.56
Ukraine	1.26	1.4	1.54
Turkey	0.7	0.9	1.1

Source: Buys et al. (2007)

The EU10 contribute only modestly to the global greenhouse gas emissions (see Box 1), but nevertheless will have to bear social and economic costs of mitigation and adaptation to climate change. Mitigation of climate change generally involves actions to reduce greenhouse gas emissions and to enhance sinks aimed at reducing the extent of global warming. Adaptation involves actions to minimize potential impact of climate change. These two are clearly interlinked - the degree and success of global mitigation efforts will influence the extent to which countries will have to adapt. While mitigation strategies of the EU10+1 are based on international³¹ or EU-wide arrangements (EU Energy and Climate Package “3x20 by 2020”³²), adaptation strategies need to be rather *locally* formulated³³. This is because of a great variation in exposure to climate change linked to geographic location, state of infrastructure, or institutional capacity.

Box 1. Drivers of climate change

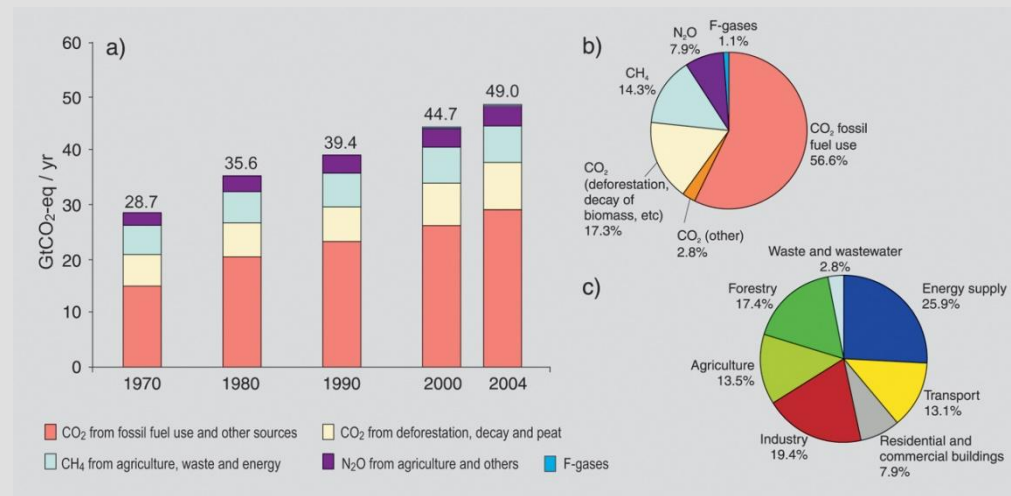
According to the Fourth IPCC Assessment Report, the main drivers of climate change (alteration in the energy balance of the climate system) are changes in the atmospheric concentrations of GHGs and aerosols, land cover and solar radiation. Human activities result in emissions of four long-lived GHGs: CO₂, methane (CH₄), nitrous oxide (N₂O) and halocarbons (a group of gases containing fluorine, chlorine or bromine). Atmospheric concentrations of GHGs increase when emissions are larger than removal processes. Global atmospheric concentrations of CO₂, CH₄ and N₂O have increased markedly as a result of human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years. Global increases in CO₂ concentrations are primarily due to fossil fuel use, with land-use change providing another significant but smaller contribution. It is very likely that the observed increase in CH₄ concentration is predominantly due to agriculture and fossil fuel use. The increase in N₂O concentration is primarily due to agriculture.

³¹ Like Kyoto Protocol and expected post-Kyoto agreement to be negotiated during the COP15 meeting in Copenhagen in December 2009.

³² See more in the October 2009 EU10 Regular Economic Report.

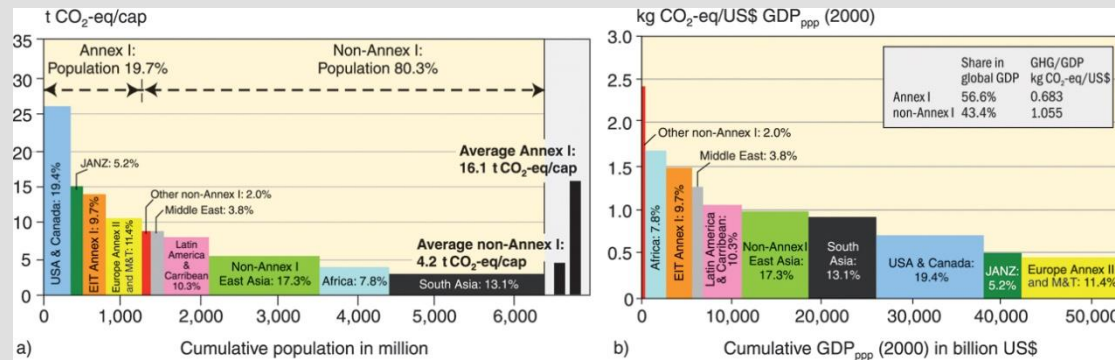
³³ Adaptation is also one of 4 major pillars in the Bali agreement (with mitigation, technology and finance) and is being extensively discussed at UNFCCC.

Figure 65. Global annual emissions of Greenhouse Gases (GHGs)



Note: (a) Global annual emissions of anthropogenic GHGs from 1970 to 2004 (b) Share of different anthropogenic GHGs in total emissions in 2004 in terms of CO₂-eq. (c) Share of different sectors in total anthropogenic GHG emissions in 2004 in terms of CO₂-eq. (Forestry includes deforestation.)
Source: IPCC, 4th Assessment Report, 2007.

Figure 66. (a) Distribution of regional per capita GHG emissions according to the population of different country groupings in 2004, (b) Distribution of regional GHG emissions per US\$ of GPP over the GDP of different country groupings in 2004.



Note: The percentages in the bars in both panels indicate a region's share in global GHG emissions.
Source: IPCC, 4th Assessment Report, 2007.

In addition to mitigation efforts, cross-sectoral policy measures will be required in order to adapt the economies to climate changes, exploiting synergies between the two. There are adaptation options that minimize harmful impact of changing climate and contribute to the mitigation objectives. For example, measures to reduce car traffic in congested area by offering attractive alternatives in public transport reduce system vulnerability while also mitigating greenhouse gas emissions. The same applies to aligning transport demand management and modal shifts. The recent World Bank Report³⁴ acknowledges that the adaptation measures are needed in particular in: health; water and land management; agriculture and forestry; urban areas, transport, and energy³⁵. A selection of recommended practices is presented in the Annex.


³⁴ World Bank, Adapting to Climate Change in Europe and Central Asia, June 2009.

³⁵ For example a critical point for water-stressed areas is a dialogue between energy users, water users and agriculture. Also improved dialogue and information flow between hydrometeorology institutions and sectoral users of information, as well as regional dialogue, data sharing and cooperation between countries with for example shared water sheds, energy and water systems.

The sectors will be differently affected, as they are differently resilient to climate change and some may be not prepared to use a potential window of opportunity. For example, energy sector is quite resilient, as it has significant expertise in managing day to day grid operations to adjust to and cope with short term weather changes. Nonetheless, regional energy cooperation is needed as a strategy to manage supply-demand constraints and energy security as well as to reduce vulnerability. This will need to include the areas of energy efficiency, demand side management, diversification of supplies, design of new infrastructure that accounts for climate change, as well as better information on weather and climate trends. On the other hand, there are also sectors or regions, which, if adequately prepared, may reap potential benefits.

For example, in agriculture net gains are expected in the Baltics, net losses - in Southeastern Europe, while outcomes for Central and Eastern Europe are mixed or uncertain. Across the Europe and Central Asia sub-regions, major shifts of general climate classes are expected (one “notch” towards a warmer category), which will have severe implications for crop potential at the end of the century (see -Table 18). In some countries, preventive adaptation activities (including addressing historic adaptation deficit - see below) could minimize risks, while in others - maximize potential benefits.

Table 18. Crop Potential in the ECA Region Today and Possible Shifts by 2100

General Climate Class	Average Temperature of Warmest Months (°C)	Crop-Growing Period (Days)*	Crop Potential	ECA Regions in 2008	ECA Regions in 2080
Very Cold	8.5 - 11	<90	Quick maturing green root vegetables e.g. lettuce & radishes.	Parts of Artic Region, Siberia & Far East (Russia)	
Cold	10.5 - 16	<100	Early varieties of vegetables, e.g. cabbage, spinach, turnips, early varieties of barley, oats, buckwheat, flax, hardiest local varieties of apples & pears	Northern parts of Urals, Western Siberia & Far East	
Moderately Cold	15 - 20	100 - 150	Winter wheat, spring wheat, rye, barley, oats, legumes, flax, potatoes, cabbage, beets, locally adapted winter-hardy varieties of apples, pears, plums.	Baltics, Northern parts of Central Russia & Volga Region & Southern Siberia, Northern Kazakhstan	
Moderate	18 - 25	150 - 180	Grain, corn, sunflower, soybeans, rice, wheat, melons, early cotton vegetables, walnuts, peaches, apricots, apples, grapes, cherries, plum.	Ukraine, Southern parts of Central Russia & Volga Region, Northern Caucasus, Central Europe	
Warm	>25	>180	Cotton, citrus, figs, olive, wheat, rice, vegetables during winter, subtropical perennials e.g. tea, corn, nuts and a variety of fruit crops.	Central Asia, Caucasus, South Eastern Europe , Turkey, Southern Kazakhstan	

Compare to South Mediterranean & Middle East in 2008

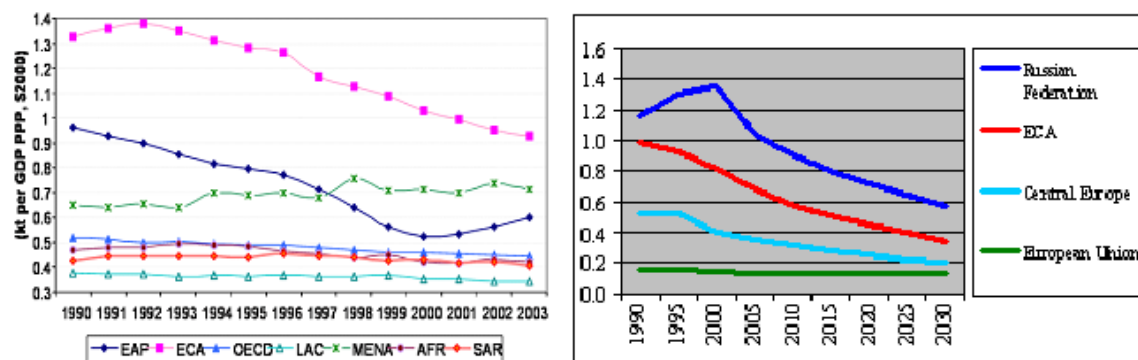
Source: ECA report.

Adaptation covers a range of issues and challenges, including a potential adaptation deficit. Adaptation issues are related to siting of facilities, design of parameters, monitoring and forecasting of weather and climate events, emergency response planning, dealing with current system inefficiencies (e.g. energy and water losses or end use), etc. The ECA report also talks specifically about adaptation challenges for ECA like significant climate threats, driven by socio-economic legacy that translated into an adaptation deficit. Countries that could benefit from climate change (in particular agriculture) are not well placed to benefit because of this deficit. However, there is a window of opportunity in next 1-2 decades to focus on dealing with the adaptation deficit and this should be the immediate priority.

It is recommended that the EU10 develop adaptation strategies which will remain robust regardless of future climate developments. Given the existing uncertainty, such strategies should involve scenario-based planning. ‘Wait and See’ strategy (generally not recommended as climate change is already taking place) or a reactive approach to adaptation would result in substantial costs in the near future. However, developing robust adaptation strategies will be a challenge for public institutions, which are generally not prepared to work in uncertainty and lack of a long term vision.

On the other hand, in the EU10 there is also a large scope for climate-smart policy choices, which belong to the so called “no regrets” options. These are actions that are beneficial irrespective of climate change scenario, i.e. that deliver benefits exceeding the costs, whatever the extent of climate change is. In particular, the existing energy-efficiency gap - Europe and Central Asia has the world’s highest carbon intensity - provides a substantial scope for such options. While Central Europe is not that far from the European Union as a whole, aggregate energy efficiency measures have a large scope to converge (see - Figure 67). Obviously, energy-efficiency gap translates into higher GHG emission intensity as measured per unit of GDP. In 2007, the EU10 and Croatia had generated 8% of EU-wide GDP, while their share in EU-wide GHGs emissions reached almost 19%.

Figure 67. Total primary energy supply in Ktoe per GDP in millions of US\$, 2004 prices



Source: World Bank 2007; World Bank 2008. Data - WDI, IEA and ECA Energy Flagship Model.

The issue of climate-smart policy choices is particularly relevant for the EU10 region, as it has huge investment needs in infrastructure and housing. Infrastructure investments have accelerated recently across the region as budgets benefited from strong growth and EU funds availability. It is critical that low-carbon choices of how this infrastructure is built now pay off with benefits of lower GHG emissions for future decades, and also that the design reflects projected climate trends to ensure that countries do not lock into unsustainable development patterns for long lived infrastructure. In particular, this is valid for housing infrastructure, which built from prefabricated concrete panels some decades ago now requires substantial refurbishment investment. This will require huge support programs in order to make a headway as already achieved in Eastern Germany (see -Table 19). The same applies to energy sector assets, whose typical lifespan is usually several decades. Adopting cleaner technologies presents a unique window of opportunity to address both climate change mitigation - by reducing the overall carbon footprint - and climate change adaptation - by incorporating projected climate change in their design. This may require supporting regulation and enforcement.

Table 19. Projected Housing Refurbishment Needs Relative to Support Programs

	Latvia	Poland	Lithuania	Estonia	Eastern Germany
Number of flats in panel buildings, built 1950-1990	416,460	5,200,600	790,000	406,570	2,150,000
Assumed average refurbishment requirement per flat (EUR)	8,000	8,000	8,000	8,000	20,000
Overall refurbishment requirement (EURm)	3,332	41,605	6,320	3,253	43,000
Investment achieved with support programs (EURm)	3	250	20	30	30,000
Refurbishment covered to date by support programs	0.10%	0.60%	0.32%	0.92%	69.77%

Source: *BEEN Project Results, Practical Manual, 2007*

In transport, there is also a large scope for “no regrets” policies, particularly with regard to maintenance and drainage. Adequate maintenance and rehabilitation of transport infrastructure, and particularly routine maintenance, are sound “no regrets” policies. Crack sealing, pothole paving, culverts cleaning, improving drainage by designing larger culverts are further good examples. These activities yield additional benefit by reducing the impact of climate change, while inflicting minimal incremental costs.

Options to abate GHGs emissions will not necessarily undermine growth prospects; however a prudent country-specific analysis is required. P. Krugman³⁶ suggests that the cost of climate protection would reduce long-term GDP growth rate (private consumption) only marginally, referring to the analysis of the effects of Waxman-Markey bill on the US economy by the Congressional Budget Office. However, these results ignore the benefits of limiting global warming. Estimating the impact of a commitment to a low-carbon growth path in a selected national economy (as opposed to significant global costs³⁷) requires prudent analytical work using sophisticated macro modeling techniques. Such an analysis is currently being conducted for Poland by the World Bank.

According to most recent World Development Report³⁸, a “climate-smart” world is possible, but only if countries and individuals act now, act together, and act differently than in the past. The report acknowledges that *immediate action* is the best option for two reasons: first, GHG emissions today trap heat in the atmosphere for decades, and second, costs go up as more and more investments are made in the wrong kinds of infrastructure and energy. While calling for countries to *act together*, the report stresses that high-income countries have a historical responsibility to take strong action to reduce their heavy carbon footprints and to help developing countries with the funds and technology needed for low-carbon progress. Countries must also act together to adapt to climate change, share technologies and finance new approaches to increase agricultural productivity. *Acting differently* means taking concrete steps to fundamentally transform energy systems so that global emissions drop 50-80 percent by mid-century; by managing land and water differently, and by implementing policies that take into account deepening knowledge about climate change.

³⁶ Krugman P., It’s Easy Being Green, The New York Times, 25 September 2009.

³⁷ According to the IPCC (Fourth Assessment), the cost of keeping global warming down to an increase of 2-2.5°C above preindustrial temperatures by 2050 could be in the range of 1-3 percent of GDP. That is the minimum cut most scientists believe is needed to have a reasonable chance of limiting global warming.

³⁸ World Development Report 2010, Development and Climate Change, World Bank, 2009.

Annex: Selection of Recommended Practices, Policy Measures, Actions

Area / Sector	Practices, Policy Measures, Actions
Health	<ol style="list-style-type: none"> 1. Prepare anticipatory strategies in case of floods <ul style="list-style-type: none"> – Establish communication systems for the public and health professionals, and emergency responders – Design education campaigns for population at risk, including evacuation plans – Set up information systems that can function in case of floods and power outages – Limit settlement in flood plains 2. Prepare anticipatory strategies in case of heat waves <ul style="list-style-type: none"> – Make sure there is sufficient surge capacity in the power system – Make sure new house design maximize natural ventilation; include space for trees – Plan back-up water supplies – Coordinate forecasting and early warning systems – Create cool spots and havens that use natural and designed systems 3. Strengthen monitoring and surveillance activities to detect any new epidemics 4. Develop a map of high-risk areas along with plans for vector-control programs 5. Establish screening for uncommon diseases in response to a potential increase in migration due to climate change
Water and land management	<ol style="list-style-type: none"> 1. Reduce water losses, encourage water saves, and improve the efficiency of water use across the economy (address the inefficient irrigation systems and poorly managed water supply networks) 2. Conservation - establish networks of protected areas (shielded by buffer zones and connected through vegetation corridors) to tackle directly stressors that undermine adaptation of species and ecosystems, e.g. EU Natura 2000 or the UNESCO World Network of Biosphere Reserves
Agriculture and Forestry	<ol style="list-style-type: none"> 1. Reduce distortions in markets for cereals and oilseeds (export restrictions become contagious, significantly reduce trade and the ability of global food markets to respond to climate change) 2. Provide incentives for farmers to purchase machinery required for conservation tillage and planting of drought-resistant seedlings 3. Reconsider farmers' subsidies - subsidies targeted at production of specific crops may be counterproductive as comparative advantages change 4. Promote private sector investments in new technologies through tax incentives, matching grants, technical assistance, etc. 5. Explore opportunities for a system of weather index insurance (as opposed to traditional multi-peril crop insurance) 6. Ensure land tenure security, improve land registration and cadastre systems, and reduce market transaction costs 7. Provide training and financial support to encourage non-farm rural employment or skills for urban employment 8. Provide targeted income support for the poor and vulnerable groups in areas where agriculture becomes unviable
Urban Challenges	<ol style="list-style-type: none"> 1. Engage with a broad range of stakeholders to design effective adaptation strategies and ensure buy-in <ul style="list-style-type: none"> - Cross-sector solutions are required due to increased urbanization trends and rapid growth in energy demand. Policy and regulation, including land use planning, design and construction standards will play an important role in reducing overall consumption and improving resilience. 2. Improve demand-side management <ul style="list-style-type: none"> - Reduce water demand - Cut energy consumption through a variety of conservation measures and efficiency improvements (see Energy section) - Rehabilitate water supply infrastructure to reduce losses. 3. Improve water storage <ul style="list-style-type: none"> - Provide more storage by constructing new dams and reservoirs - Improve the management of existing reservoirs and dams. 4. Improve flood protection and drainage systems 5. Develop new and sophisticated planning skills 6. Create locally determined adaptation plans 7. Learn from 'Eco-cities' - cities that chose low energy and/ or zero carbon growth paths (like Freiburg im Breisgan in Germany, Dongtan in China).
Transport	<ol style="list-style-type: none"> 1. Establish systems for climate-attuned monitoring of key structures 2. Update design standards for key transport systems, incorporate current projections for warming, new

	<p>precipitation patterns and higher sea level</p> <ol style="list-style-type: none"> 3. Ensure more accurate and timely storm warning and weather information systems, ensure efficient communication with transportation managers 4. Acquire new technologies to better understand and manage climate-related challenges (digital elevation maps, satellite-based monitoring, and computer-assisted scenario planning) 5. Share knowledge and improve communication between climate scientists and transportation professionals
Energy	<ol style="list-style-type: none"> 1. Design strategies to engage a broad range of stakeholders to be affected by climate change <ul style="list-style-type: none"> - Transfer best practice developed for the energy sector in other parts of the world - Improve demand side management - provide a cost effective win-win solution through energy efficiency programs, in particular related to buildings, through: <ol style="list-style-type: none"> (i) building design - insulation, efficient windows, building orientation to use sun for heating and lighting, and minimize north face window area, ventilation, energy efficiency standards, building codes aligned with principles of green design; (ii) codes and standards - norms for efficient air conditioning as well as building codes that target cooling needs; (iii) equipment - efficient lighting, efficiency standards for appliances, space heating and cooling; (iv) change of consumption patterns - reduce demand notably at peak hours; flexible working hours, leave during hot periods; (v) low energy cooling - district cooling, ceiling fans, gas air conditioning; (vi) energy cutoffs - agreement with key industries that supply can be temporarily cut off at times of constrained supply in exchange of a reduction in tariffs; (vii) demonstration - pilot programs, government energy efficiency measures; (viii) policy - higher energy prices, financial incentives, taxation; and (ix) awareness - training, education and outreach regarding options and benefits, energy audits and certification. - Optimize the design of new or retrofitted investments - the anticipated large investment in the EU10's energy infrastructure in next decades provides a window of opportunity for smart climate-resilient design. - Introduce proactive maintenance programs - routine monitoring, regular repairs and strictly observed maintenance standards. 2. Prepare flexible adaptation strategies for existing and planned infrastructure, including: <ul style="list-style-type: none"> - emergency plans for sudden and/or severe energy shortages; - monitoring systems to track and assess the degree of climate change (with a possibility to influence adaptation decisions); - research and development of new technologies, e.g. carbon capture and storage (knowledge development and commercialization supported by the EU) 3. Improve regional energy cooperation through trade and power swaps (thanks to expanding regional grid interconnections) 4. Improve knowledge systems - to provide more lead time and accurate tracking of climate trends and weather events; to provide data tailored for sector operations, maintenance and design needs; to develop workable emergency plans 5. Underpin the above initiatives through regulatory support, incentives, and most importantly an outreach to key stakeholders.
Disaster Risk Management and Weather Forecasting	<ol style="list-style-type: none"> 1. Mitigate risks through insurance schemes 2. Apply retrofitting - modify existing structures to withstand natural disasters, e.g. by installing back-up valves in sewage and water pipes, elevating structures, installing storm shutters or seismic strengthening. 3. Control the use of land and the construction of buildings, enforce existing building codes. 4. Protective structures, e.g. seawalls and levees, to protect buildings and people and mitigate the impact of floods (and hurricanes). 5. Improve Natural Resource Management to minimize the risk of disasters, including by controlling erosion, managing forests, and restoring wetlands. 6. Analyze human settlements and infrastructure in the high-risk areas; use Geographic Information Systems with layers of digital data to create risk maps. 7. For flood risk areas: implement a flood monitoring and early warning system; develop a program of regular inspections of key infrastructure in high risk areas; modify or develop construction standards and land use planning tools; protect energy facilities using physical barriers; develop emergency planning and disaster risk insurance.

Source: Derived from World Bank, *Adapting to Climate Change in Europe and Central Asia, June 2009, and its background papers.*