GROWTH REPORT

2014

'The true power of a nation is the number of scientifically educated citizens.'

Hitel (Credit) 178.
Count István Széchenyi

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Pursuant to Act CXXXIX of 2013 on the Magyar Nemzeti Bank, the primary objective of Hungary's central bank is to achieve and maintain price stability. Low inflation ensures higher long-term economic growth and a more predictable economic environment, and moderates the cyclical fluctuations that impact both households and companies. Without prejudice to its primary objective, the MNB shall support the maintenance of the stability of the financial intermediary system, the enhancement of its resilience, its sustainable contribution to economic growth; furthermore, the MNB shall support the economic policy of the government using the instruments at its disposal.

The growth trends of the economy may influence, both directly and indirectly, the ability of monetary policy to reach its objectives set out in the MNB Act and consequently the conduct of monetary policy. Changes in the dynamics and structure of economic growth may determine the evolution of short-run inflation trends, while the longer-term growth potential and its factors may have a fundamental impact on the assessment of the financial stability of the economy. With that in mind, the Magyar Nemzeti Bank will provide an annual overview of the most important trends shaping economic growth over the short, medium and longer term, presenting its assessments to members of profession at home and abroad in its Growth Report.

The analyses in this Report were prepared under the direction of Dániel Palotai, Executive Director of the Directorate Monetary Policy. The Report was prepared by staff at the MNB's Directorate Economic Forecast and Analysis, Directorate Monetary Policy and Financial Market Analysis, and Directorate Economic Strategy and Planning. It was approved for publication by Dr György Matolcsy, Governor.

The Report incorporates valuable input from other areas of the MNB.

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SUMMARY OF KEY FINDINGS

The Growth Report provides a comprehensive view over a longer time horizon of the development trajectory of the Hungarian economy and the key factors that determine it.

The Magyar Nemzeti Bank issues a number of regular publications (e.g. Inflation Report, Report on the Balance of Payments, Financial Stability Report) which analyse economic growth. These publications, however, tend to focus on shorter-term movements in GDP and emphasise the effects on the variables that determine monetary policy. The purpose of this publication, which we plan to issue annually in the future, is to present growth and its determinants directly, using standard as well as alternative indicators and preferably identifying longer-term trends that may even encompass an entire business cycle. In addition to a detailed survey of the available domestic data, we complement our analyses with international and historical comparisons. The current analyses focus on the period since Hungary's EU accession and in particular on the domestic and global economic changes since the crisis. Relying on methodological innovations that have appeared in the literature since the crisis of 2008, we have created estimates for the rate of sustainable growth, and use these as our starting point for projections for the potential growth path in the decades ahead. The most important findings in the present publication may be summarised as follows:

In the years after 2004, Hungary's growth path started to lag more and more behind the development trajectories of the other economies in the Visegrád region, which had originally started from a similar level of development in the early 2000s

Increasingly, this weakening growth was attributable to the underlying structural deficiencies in the economy. Hungary's shortfall became all the more pronounced in the key production factors that determine growth potential. Prior to the onset of the global crisis, the structural deficiencies were obscured by the fast increase in the indebtedness of domestic economic agents and the overheating cyclical position of the economy. Excessive indebtedness may have characterised public finances until 2009 and households mostly in the years 2006 to 2009, a period marked by the wide spread of foreign currency loans. As a composite result of these processes, the global crisis found Hungary in an unsustainable financing situation and on a gradually deteriorating structural growth trajectory.

The global crisis has fundamentally changed the understanding of sustainable growth

Calculations of sustainable or potential growth prior to the crisis were mostly limited to quantifying the optimal use of production factors and the growth paths achievable without adding to inflationary pressures. Meanwhile, financial deepening was generally seen as a factor leading to the better allocation of resources and thereby underpinning long-term growth. However, the experiences from the crisis directed attention to the build-up of financial imbalances and the significance of debt sustainability. Since 2009, sustainable growth has increasingly meant a potential growth trajectory that maintains the financial balance in addition to optimally capitalising on resources; in other words, it does not lead to excessive and unsustainable debt ratios. The calculations performed with Hungarian economic data have revealed that the sustainable growth path of the economy would have been approximately 0.5 percentage points below the actual dynamics observed.

The 2008/2009 global crisis forced Hungary to modify the growth model it had followed until then

The crisis and the subsequent period of recovery raised the need, as is typical in a financial crisis, for improving economic balance and deleveraging as well as for restructuring and remedying the structural deficiencies characterising the economy. Even in an international comparison, Hungary has achieved significant improvements in its equilibrium indicators, and these improvements are now proving to be lasting. The budget deficit has stabilised below 3 per cent and the change in the behaviour of domestic institutional units significantly improved the external financing ability of the economy. Net external debt began declining after 2010, predominantly due to an improvement in private sector debt ratios. Meanwhile, progress in deleveraging is protracted, as is the case elsewhere internationally. An environment of low inflation and muted demand impedes the fast reduction of debt-to-GDP ratios, especially in the case of public finances.

The debts accumulated were fundamental in determining the dynamics and growth structure of the recovery period

As the fall in domestic demand after 2008 was in line with the pre-crisis level of indebtedness, Hungary's growth trajectory was initially comparable primarily to the European economies struggling with a debt problem. The post-crisis

decline in investment was attributable mainly to households and during a shorter period to the government cutbacks in fixed capital formation, justified by the need to reduce the debts accumulated in these two sectors. The decline in corporate investment was mainly driven by the weaker general demand outlook and tighter credit constraints. In an international comparison, exports developed favourably and facilitated an improvement in the external balance position. In recent quarters, the adverse effects of debt deleveraging have eased, and thus the growth rate as well as the structure of the economy has approached the regional economies with healthier convergence trajectories.

Since the crisis, the gap has narrowed between GDP and GNI (gross national income), which measures the condition of the domestic actors of the economy. This gap, which had been significant even in an international comparison, is the result of cyclical effects, the improving interest balance resulting from lower external debt and an environment of falling yields, and also the more active drawing down of EU funds.

Structural factors of growth weakened until 2011 and have exhibited gradual improvement since then

During the crisis, the institutional system of the Hungarian labour market underwent considerable changes. Government measures were targeted primarily at increasing labour market activity, which was extremely low in an international comparison. Tightening the conditions for retirement and rationalising the benefits system had the overall effect of boosting labour market activity, while the new Labour Code may have increased labour market flexibility. Although labour market activity increased markedly, it is still lower than the regional average. The post-crisis increase in migration represents a new challenge on the supply side of the labour market.

The adjustment of real labour costs may have contributed to the fact that the decline in employment in the private sector during the crisis was less pronounced than would have been justified by the economic trends. Employment returned to its pre-crisis level sooner than output. The investment rate bottomed out in 2012, and, following a reversal in 2013, it has now become comparable to the levels in the Visegrád countries with stronger growth potential. The efficiency of capital and labour use continues to be low, in which the duality still characterising the economy may have a defining role.

To achieve a faster growth rate further significant increases in the rate of investment are needed

A faster rate of convergence may be achieved only in the case of a further, sustained rise in the rate of investment. The results from our model show that achieving a growth potential of 3.5-4 per cent would only be possible at an investment rate of around 25 per cent. Projecting the rate of investment observed today (which approximates the average in the region), the sustainable growth rate of the Hungarian economy may be around 2.5 per cent, which may represent a potential annual convergence rate of approximately 1 per cent.

Further sustained improvement in profitability prospects may facilitate a growing rate of investment

With the exception of public sector investment, the investment rate is not a variable that economic policy can influence directly. Productive investment which boosts the growth potential is shaped primarily by profitability considerations. In that context, the following factors may be the most important looking forward. (1) In the current conditions, the size of the workforce potentially available to the labour market may peak in the second half of the decade, after which it is expected to decline in accordance with the projected demographic trends. This process may be altered by encouraging childbirth, increasing the general level of qualifications, gradually rationalising over the longer term the rules applicable to retiring to inactivity (with due regard to changes in life expectancy) and reversing the migration trend. Considering that the largest reserves of labour supply are to be found in the low-skilled category, it is especially important to improve the skills of these potential workers. (2) Higher profit margins require a higher technological level of production. The productivity of small and medium-sized enterprises (SMEs) falls considerably short of the productive large corporations operating at high technological standards. This duality may be mitigated if SMEs integrate into the global supply chains at a higher level and increase the weight of innovative and conventional services with higher added value. Apart from increasing private and public investment into innovation, this process may be encouraged by improving the ability of small and medium-sized businesses to adapt (e.g. new work organisation techniques, technologies and financing solutions). (3) The perception of the investment environment affects the risk premiums considered in the assessment of investments. The notable improvement in Hungary's balance indicators, the sustained decrease in inflation and the stable, low yield environment has contributed to an improvement in predictability, which is necessary for business planning. Continued improvements to the general economic and institutional conditions may increase the rate of

investment through lower risk premiums. (4) As far as demand is concerned, the current medium-term projections point to slower growth in global trade compared to the pre-crisis rate (due in part to a slower rate of growth and also to a decelerating rate of globalisation). Taking this into account, it may be important to shift the emphasis within the export structure, through both direct and indirect (supplier) relations, toward industries and markets of relatively more dynamic growth. In geographical terms, these may include the fast-growing economies in the region and in Asia, whereas in terms of product structure, they include the market of export services, which has continued to grow at a dynamic rate even after the crisis.

Given the permanent change in domestic economic agents' behaviour, Hungary may break out of the duality of growth and imbalance that characterised it for decades in the past

In the absence of sufficient domestic savings, Hungary has based its growth on external financing for decades. Depending on the way external financing was used (productive or non-productive investments) and the changes in global risk appetite, periods of faster growth were followed by periods of adjustment from time to time, restoring balance but halting or even reversing the convergence of the preceding years. Since restarting in 2013, convergence has not yet triggered the kind of deterioration in balance indicators that was observed in the past. The reasons for this lie in the sustained increase in household savings and the lower general government borrowing requirement, while global commodities market effects have improved the terms of trade. Looking forward, the financing required for the growth in the rate of investment is expected primarily from stronger corporate productivity, further reductions in the general government borrowing requirement and reliance on the stable external financing of EU funds and foreign working capital.

The changes in the global environment may continue to determine Hungary's growth outlook. The global economy may grow more moderately following the crisis, whereas the risks surrounding growth may remain strong given the still increasing debt levels

Current account deficits have fallen significantly in the years since the crisis. The adjustment occurred mainly at the expense of substantial shifts in internal balance indicators (output gap, unemployment). The crisis may have, however, caused lasting damage to the potential output and growth rate of the economies. At moderate rates of growth and low rates of inflation, the ratio of debt to national income overall did not fall in the advanced economies, whereas the exposure of emerging countries, which were less indebted before the crisis, grew considerably. In line with the high levels of debt, savers tend to favour interest-sensitive assets, which may raise the real economic costs of a future interest rate hike. In response to these risks, the central banks involved are striving to stay committed to low interest rate levels and to communicate their future actions in the most transparent way possible.

1. THIS CRISIS IS DIFFERENT – GLOBAL STATUS REPORT IN THE WAKE OF THE 2008/2009 CRISIS

The global financial crisis that started in 2007 and spread in 2008 differed in many ways from the recessions that affected the developed world since the Second World War and the recurring financial crises faced by the developing world in the past. Although the imbalance in the generation and utilisation of income and in the global distribution of savings and investment opportunities preceding the current crisis was similar to the imbalances prevailing in the past, as was ultimately reflected in the widening of current account positions, the emergence of protracted current account imbalances of unprecedented magnitude was a novelty, which simultaneously affected several economic agents and regions. The imbalances that emerged were unsustainable, and thus their adjustment following the crisis was inevitable.

Current account deficits have decreased substantially in recent years. This adjustment occurred mainly at the expense of internal equilibrium indicators (output gap, unemployment), while real exchange rates also partially adjusted. Private sector savings grew in indebted countries. In countries where the budget deficit was high to begin with before the crisis, substantial fiscal adjustment was carried out. At the same time, along with the substantial shift in flow-type variables, economic output still remains lower compared to pre-crisis levels in many countries, while the labour market and the credit market continued to exhibit subdued activity.

This stems from a key attribute of the current crisis, specifically from the fact that global capital flows and the related gross indebtedness grew at an even faster rate than current account imbalances, oftentimes independently of them. Adjustment of the accumulated debt may result in a different macroeconomic path than that of the current account. This is because the synchronised combination of the balance sheet adjustment process of indebted entities and measures aimed at improving the fiscal balance leads to a protracted weak demand environment in the affected economies. In addition to uncertain demand prospects, investment activity has also waned and high unemployment is stagnating or only improving slowly. As several key economic regions are simultaneously experiencing deleveraging, countries cannot rely on rapid growth in their export markets. At present, the most probable scenario is that economies' potential output and their growth rate may suffer long-term damage. Compared to the previous recessions and current account adjustments, recovery from balance sheet crises takes longer and their negative real economic impact may be more lasting.

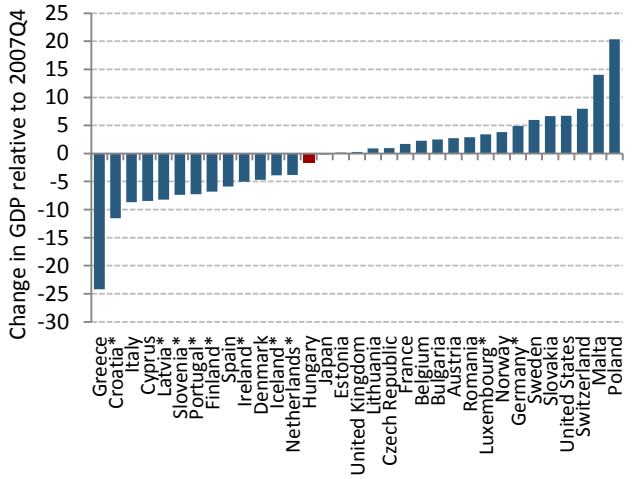
In a context of subdued growth and low inflation, outstanding debt as a proportion of national incomes has not fallen on the whole in developed economies, while the exposure of developing countries, which were less indebted before the crisis, has increased substantially. The historically high indebtedness of the global economy also entails substantial risks in terms of future growth prospects.

Outstanding debt, which is currently elevated, also has a substantial impact on the mechanisms of economic policy decisions. Investment and savings behaviours, which have undergone a lasting change, may keep equilibria interest rate levels low over the longer run, limiting the effectiveness of central banks' traditional interest rate channel, which is close to the zero lower bound. In line with high levels of debt, savers tend to favour interest-sensitive assets, which may raise the real economic costs of future interest rate increases. Reacting to these risks, the affected central banks are striving to stay committed to low interest rate levels, while presenting their future steps in the most transparent way possible.

Recovery from the global financial crisis that started in 2007 and deepened in 2008 **has been more protracted compared to recessions in the past**. Until mid-2014 most economies could not reach or could just slightly exceed their pre-crisis output levels. There seems to be little likelihood of the global economy making up for the lost growth in the future by expanding at a faster rate than before the crisis and resuming its former trajectory. More pessimistic economists claim that we need to prepare for a prolonged period of economic stagnation.[1]

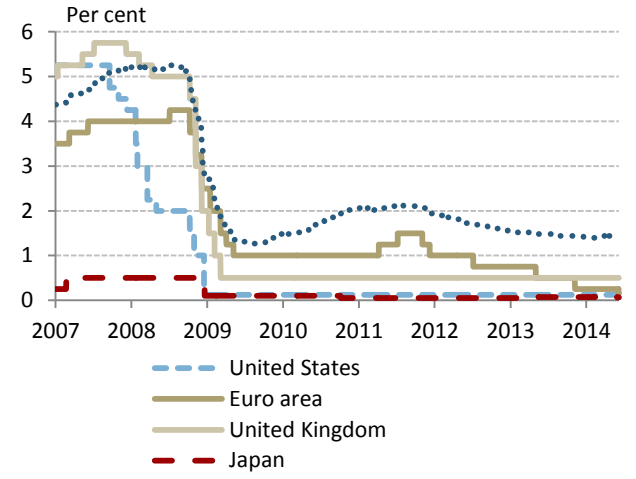
[1] Summers (2014), Teulings and Baldwin (2014).

Chart 1-1: Change in economic output compared that of before crisis



Note: * Latest data available is 2014Q1.
Source: Eurostat

1-2 Chart: Central bank rates



Source: BIS (2014)

The central banks of large regions continue to maintain an extraordinarily accommodative bias. They have used unorthodox measures widely, as the tools commonly used during normal periods to stimulate the economy and stabilise financial sectors are ineffective when key policy rates hover near zero (Chart 1–2). While the extremely low key policy rates in the global economy's developed regions and unorthodox tools fostered stabilisation and slow recovery in developed economies by keeping financial asset yields low, they also had the side effect of spurring investors to take on higher risk, channelling capital flows towards riskier financial segments and emerging markets. Investor sentiment, however, has remained sensitive and quick to react to news on relative yields.[2] Interest rates have been kept at low levels for an extended period and this has made the financial asset portfolios of investors and banks extremely sensitive to interest rate changes. For market participants, it has become increasingly important to be able to accurately estimate the start of the tightening cycle, in order to be properly prepared for the expected repricing. Until this happens, however, they have no choice but to invest in riskier assets due to profitability requirements and competition, in the context of low yields. This chapter provides an overview of the extent to which the imbalances that led to the global crisis have eased and conclusions about the economic recovery which can be drawn from these shifts and the chances for a new growth cycle.

1.1. Have global imbalances eased?

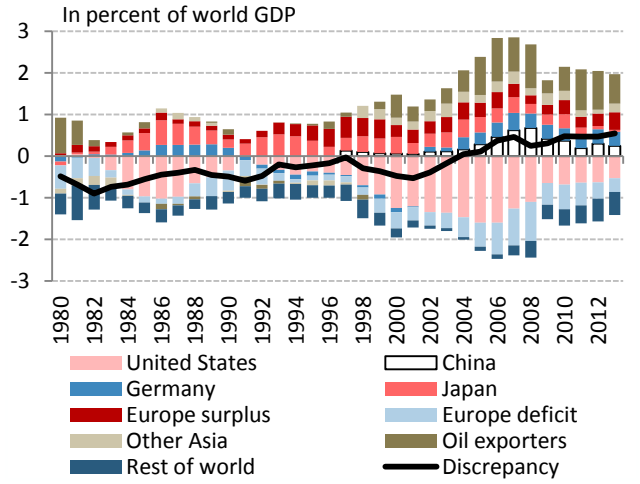
Prior to the crisis, most analyses identified the unprecedented rise in current account deficits and surpluses as the root cause of the imbalances plaguing the global economy. The unusually high US trade deficit and China's elevated trade surplus were highlighted as mirror reflections of each other, as the representative indicator of the imbalances, while the current account of the euro area as a whole was roughly balanced vis-à-vis the rest of the world.

1.1.1. Shifts in the external balance among the large regions and within the monetary union

Developments in current account deficits are considered the most characteristic indicator of global imbalances. Before the crisis, the position of the US, which had the largest deficit (5.7 per cent), and China, which had the largest surplus (over 10 per cent), served as the best examples of this (Chart 1–3).

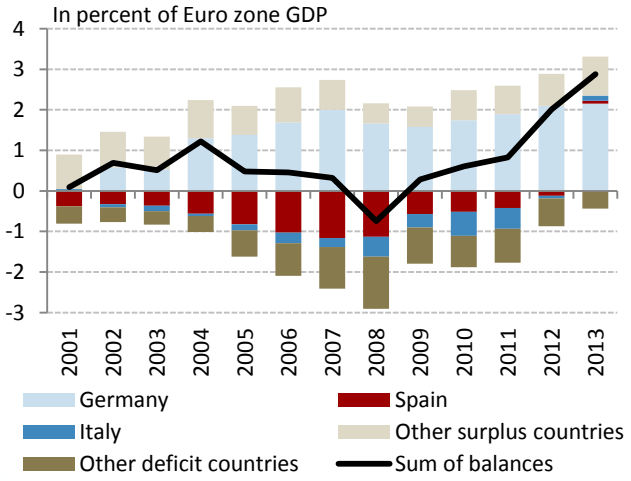
[2] The best example is the panic that swept through the emerging markets in 2013 when, after many years of accommodative monetary policy, the Fed's decision-makers first hinted publicly at the possibility of tapering the bond purchases if specific circumstances arose in the future, and the number months before it would start raising its key policy rate. This is referred to as the 'taper tantrum' in economic jargon.

1-3 Chart: Current account balances in percent of world GDP



Source: IMF WEO

1-4 Chart: Current account balances in percent of the Euro Zone GDP



Source: IMF WEO

The current account deficits within the euro area, which in terms of their ratios were similar or even higher than the global deficits, received less global attention, although some euro-area members regarded certain participating countries as overheated. Due to the single currency, however, the current account deficit of certain countries appeared less risky, and the current account of the euro area as a whole was balanced (Chart 1–4).

Many deemed the levelling out of imbalances with the gradual correction of external positions as both possible and desirable. Failure to do so entailed the risk of an uncontrolled adjustment, during which the US dollar exchange rate might depreciate due to the US trade deficit, and investors in dollar assets might lose confidence and start selling, triggering further depreciation. This could have resulted in a downward spiral, as the portion of the non-residents on the US government securities market was high before the crisis.

After the onset of the crisis, an adjustment of current accounts occurred both at the global level and within the euro area, albeit to different degrees.[3] The US saw a substantial adjustment (reducing its trade deficit), as did China (reducing its trade surplus), with these two developments accounting for two thirds[4] of the levelling out of the global imbalance. The US current account deficit had fallen to 2.3 per cent of GDP by 2013, while China's surplus had fallen to one-fifth or 2.1 per cent, and consequently the surpluses of several smaller developed countries currently exceed China's surplus.[5] At the same time, a substantial surplus developed in the euro area's trade position vis-à-vis the rest of the world, resulting from the drastic rebalancing of formerly deficit economies (Greece, Portugal, Ireland, etc.), which became surplus economies and the maintenance of surpluses in countries that had already run a surplus (Germany, the Netherlands, etc.). According to the IMF's estimate, the size of the total current account surpluses and deficits of major countries in 2013 diverges by 0.7 per cent of aggregate GDP in both directions from the

[3] IMF (2014b), pp. 7-9 The IMF decided to issue Pilot External Sector Reports (ESR) in an effort to foster the coordination of global adjustment in the wake of the crisis. The reports present developments in the key external balance indicators of major economies relevant based on the global weight, including their balance of payments, capital and financial accounts from the perspective of individual countries and global balance.

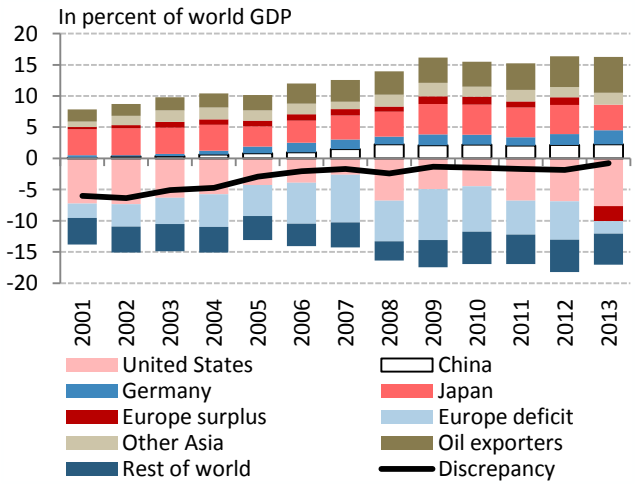
[4] IMF (2014b), p. 22

[5] In 2013, Germany's current account surplus was USD 274 billion, the Netherlands' was USD 83 billion and Switzerland's was USD 63 billion. China's current account surplus at this time was only USD 189 billion, down from USD 420 billion in 2008. Source: IMF WEO 2014 database. See also Gros (2013b).

equilibrium estimated based on fundamental variables. In other words, the deficit according to the norm of deficit economies is 0.9 per cent, while the actual figure was 0.7 per cent in 2013. Similarly, surpluses also exceed the 1.6 per cent GDP-proportionate surplus deemed as sustainable according to the norm by 0.7 per cent. This only falls slightly short of the approximately 0.75 per cent deviation exhibited in 2012.[6]

The international investment position, which is essentially the aggregate result of the accumulated current account deficits and surpluses and international capital and bank lending transactions and revaluation, also exhibited dynamic growth prior to the crisis. The international investment position is a key determinant of a country's external vulnerability (for more detail, see Box 1–1). Chart 1–5 illustrates that the proportion of external exposures compared to the global economy has not changed substantially since the crisis. In order to reduce the debt ratio, regions exhibiting a deficit would need to continuously maintain current account surpluses, while those exhibiting a surplus would vice versa need to maintain current account deficits. This, however, failed to occur, but the imbalances did shrink, and the balance of payments positions did not change their prefix, except in smaller countries.[7] At the same time, uncertainty, anaemic growth and low inflation rates only allow for slow growth in nominal incomes, which constitute the denominator of the debt ratio.

1-5 Chart: Net foreign asstes



Source: IMF WEO

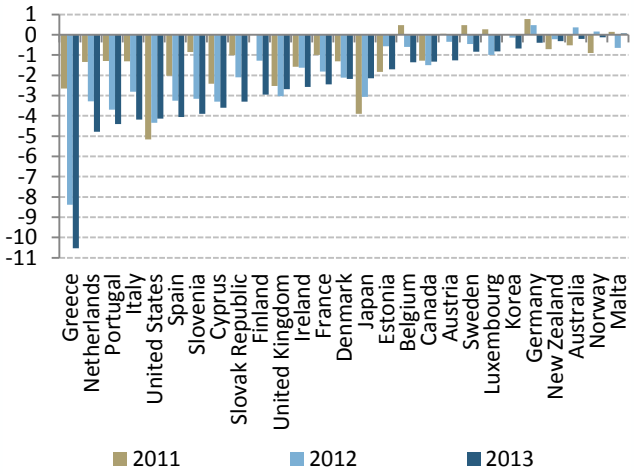
[6] IMF (2014b).pp. 21-22

[7] IMF (2014d), Chapter 4.

1.1.2. Changes in internal equilibrium indicators

Deleveraging among excessively indebted economic agents – mainly households and the corporate sector, but also the government sector in some cases – has played the biggest role in rebalancing so far. The affected stakeholders in this process attempted to curb their current and investment expenditures and set aside a larger portion of their income and savings to reduce debt, or if they did not hold substantial debt, they opted to hold larger volumes of liquid assets based on prudence in light of the future uncertainties.

1-6 Chart: Output gaps



Note: In percent of potential output.

Source: IMF WEO

Due to this behaviour which has been characteristic of the current crisis, it is referred to as a balance sheet recession, using the term coined by Richard Koo.[8] Such balance sheet recessions typically drag on much longer than traditional business cycles in terms of economic output. Reducing the ratio of accumulated debt relative to income can be achieved by saving from current incomes, which takes time if debt is high. However, the rise in incomes, the source of savings, generally grows at a slower pace than before the crisis, due to greater uncertainty and weakened demand caused by high propensity to save.

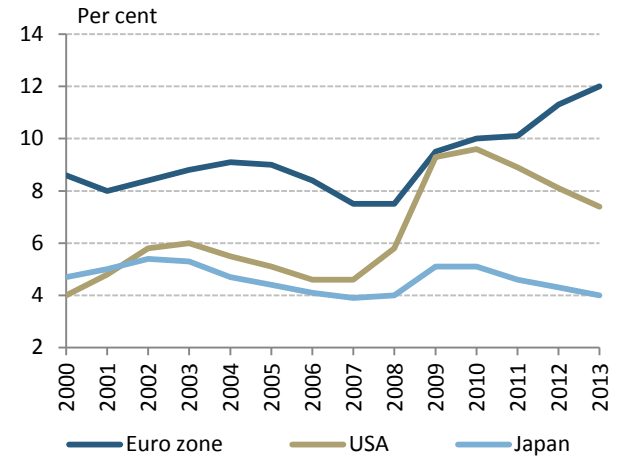
The improvements of external balances took place at the expence of deteriorating internal balances. Chart 1–6 shows that output still falls short of production capacity in most countries five years after the crisis. Overall, the lag (aggregate output gap) was 2.1 per cent in 2013, with that of developed countries amounting to 2.8 per cent.[9]

[8] Koo (2011).

[9] IMF (2014b), p. 7

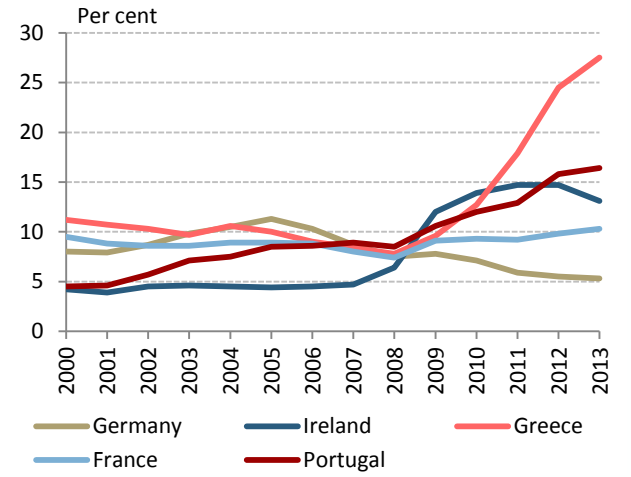
Unemployment, an often cited alternative indicator due to the uncertainties of measuring the output gap during the crisis, remains elevated, especially in the euro area (Charts 1–7 and 1–8).

1-7 Chart: Unemployment rate in advanced economies



Source: Eurostat

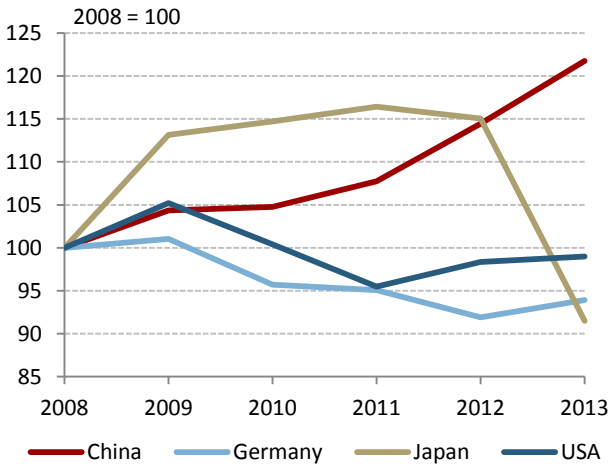
1-8 Chart: Unemployment in the Eurozone



Source: Eurostat

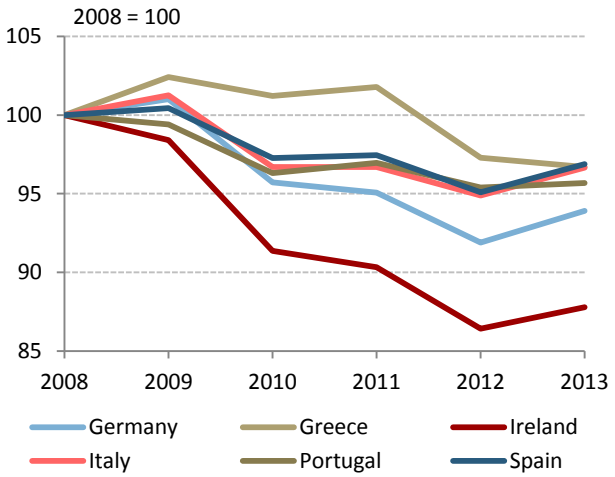
One of the channels of rebalancing the current account in open economies was to reduce unit costs compared to international competitors. This is reflected in *development in the real exchange rate* (Charts 1–9 and 1–10).

1-9 Chart: Real effective exchange rate in advanced economies (CPI deflated)



Source: Eurostat

1-10 Chart: Real effective exchange rates in the Eurozone (CPI deflated)



Source: Eurostat

The real exchange rate in the US, Japan and China shifted towards rebalancing,[10] which contributed to the narrowing of global current account imbalances.[11] Within the euro area, countries under market pressure carried out substantial adjustment of their real exchange rates, which fostered adjustment through relative prices. It can be seen, however, that the real exchange rate of Germany, which boasts a substantial surplus, has also depreciated compared to its pre-crisis level. The nominal

[10] IMF (2014b) pp. 11-12

[11] Expressed in absolute figures, Germany's current account surplus was USD 274 billion, the Netherlands' was USD 83 billion and Switzerland's was USD 63 billion in 2013. China's current account surplus shrank to only USD 189 billion by 2013, compared to USD 420 billion in 2008. Source: IMF WEO database, 2014. See also Gros (2013b).

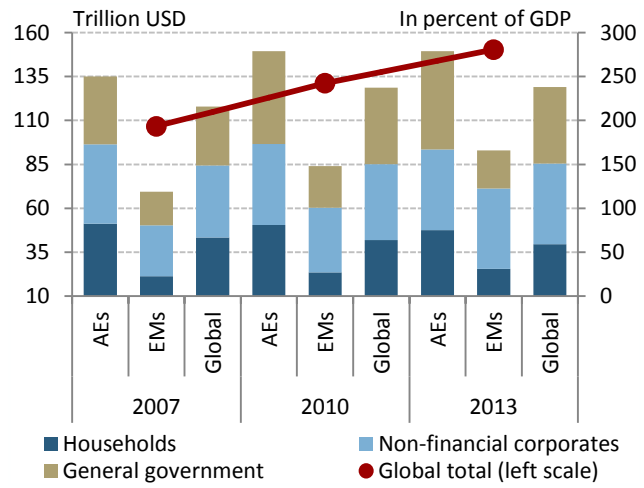
exchange rate of the euro vis-à-vis the US dollar has appreciated compared to its pre-crisis level, which made the adjustment of euro-area countries which needed to carry out adjustment even more difficult on global markets.

The reduction of government deficits constitutes another traditional channel of adjustment (Chart 1–14, Box 1–1). Certain countries had elevated government deficits to begin with, which contributed to the emergence of imbalances, for example in Greece. In the majority of cases, however, automatic fiscal stabilisers in response to the crisis[12] and economic policy crisis management, i.e. the intended increase of expenditures which were ultimately aimed at slowing and countering the economic downturn, are what led to higher deficits. Directly impacting GDP, they complemented central banks' accomodation aimed directly at stabilising the financial sector.[13]

The fiscal measures differed in size across major monetary regions and lasted for different periods of time. The euro area's deficit was smaller and the region returned to fiscal consolidation sooner than other regions. The US and Japan allowed the emergence of a larger deficit and returned to consolidation much more gradually (for the impact of this, see Box 1–1).

Government deficits have narrowed perceivably in the global economy, but outstanding debt has not for the time being. Countries' government debt was also increased by direct debt assumption in certain countries, such as bank recapitalisation. Moreover, in the context of pronounced deleveraging in the private sector, i.e. higher savings, the coefficient of fiscal multipliers is greater, which increases the real economic costs of budgetary adjustments during a synchronised balance sheet recession. In line with this, budgetary consolidation exerted a greater downward pull on growth, i.e. the debt ratio's denominator, than in other instances.

1-11 Chart: Debt levels



Note: AEs: Advanced economies, EMs: Emerging market countries.
Source: BIS (2014)

Despite the improvement in balance positions, the summary chart included in the BIS annual report (Chart 1–11) shows that both developed and less developed countries still saw their outstanding debt expand further last year.

In summary, the macroeconomic imbalances that emerged prior to the crisis have eased globally. This applies primarily to quickly reacting flow indicators, such as the current account deficit, the government deficit and relative price variables such as real exchange rates. Some prominent observers claim that the global economy is on the right path in that imbalances have essentially disappeared. Economic policymakers have learned the lessons of the crisis, therefore the re-emergence of imbalances is unlikely.[14] *As mentioned above, however, the same does not apply to stock indicators for the time being, which continue to represent substantial exposure to both changes in exchange rates and interest rates and economic growth risks.*

[12] Automatic fiscal stabilisers are budgetary items that are paid out or collected on the basis of specific rules, and their actual amount depends on economic performance. If unemployment rises during a crisis, for instance, expenditures automatically increase in line with the rules governing unemployment benefits, even if no new measures are specifically implemented in response to the crisis. The rise in budgetary expenditures may increase GDP if the beneficiaries spend their benefits, thereby offsetting waning demand during the crisis.

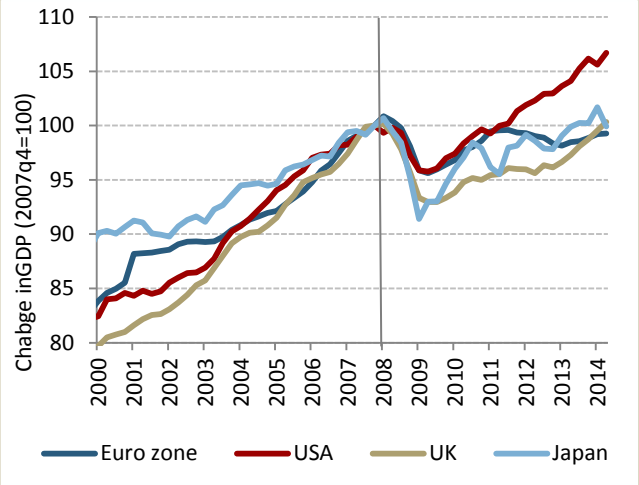
[13] See the coordinated economic policy measures of G-20 countries in the European Union's own exceptional coordinated fiscal measures. For more detail, see Szalai (2012): pp. 57-58

[14] Eichengreen (2014).

Box 1-1: Different economic policy answers – different growth paths

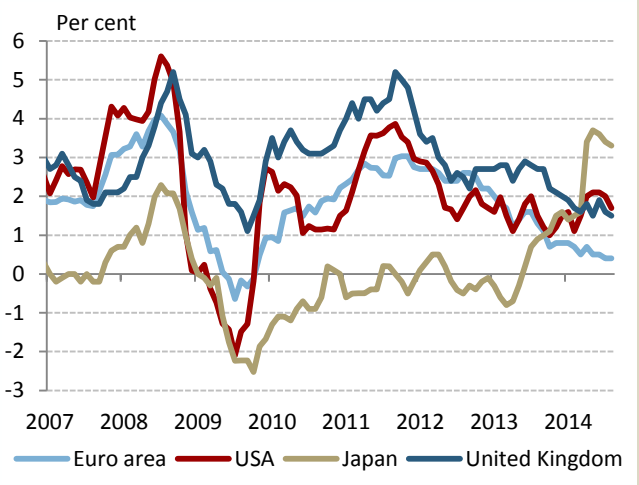
In the world's developed regions, which were most strongly affected by excessive lending, both the economic downturn and the recovery between 2009 and 2011 exhibited a similar pattern in the years following the crisis. The nearly simultaneous character of the downturn stemmed from the global nature of the crisis, while the similarities in the recovery stemmed from the globally coordinated fiscal and monetary easing.[15] More significant discrepancies in economic performance have emerged in the few years since 2011. The US economy's recovery over the past years has essentially continued steadily, while euro-area growth basically came to a halt during the same period. The different initial positions and attributes and the varying economic policies led to these different growth paths.

1-12 Chart: Development of GDP



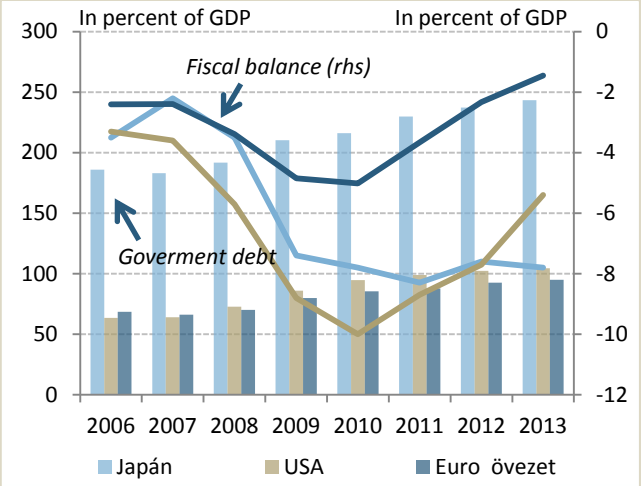
Source: Eurostat

1-13 Chart: Inflation in advanced economies



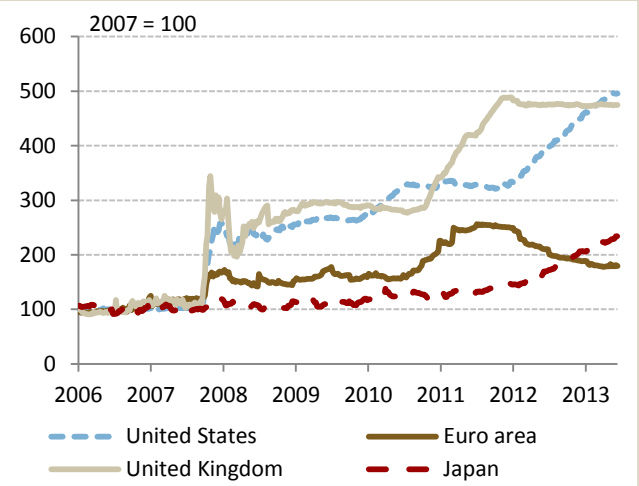
Source: OECD

1-14 Chart: Fiscal balances and government debts



Source: IMF WEO, IMF Fiscal Monitor

1-15 Chart: Total central bank assets



Source: BIS (2014)

After the start of recovery, the US and Japan were more cautious about starting with fiscal consolidation. They waited for economic growth to pick up durably to avoid jeopardising with recovery with premature fiscal restriction. By contrast, following the acute phase of the crisis, the rebalancing of deficits deemed excessive was undertaken sooner in response to improving growth prospects in the euro area (Chart 1–14) This was necessary not only to comply with the European Union's fiscal rules, but also because market fears had emerged regarding the insolvency of certain countries, reflected in the sudden rise in risk premia, which had all but vanished earlier. Therefore, in order to convince markets, they opted for

[15] The G-20 Pittsburgh Summit held in September 2009 was the forum for global coordination, preceded by the passing of the (ARRA) American Reinvestment and Recovery Act (ARRA, February 2009) and of the European Economic Recovery Plan (EERP, October 2008) in the US and Europe. See Szalai (2012).

fiscal consolidation and structural reforms. The contractionary fiscal policy led to a second recession in 2012 and fears of disintegration were only dispelled by the ECB President's commitment in the summer of 2012, with risk premia returning to sustainable levels.

Fiscal consolidation across the euro area was continued in a context of deteriorating economic indicators, resulting in another slowdown and a very low inflation environment in 2014. Due to elevated fiscal multipliers, fiscal consolidation held back already subdued domestic demand to greater extent than it would have in other economic situations. Recognising this fact, the ECB was compelled to increase its own balance sheet by another EUR 1 trillion to the record size reached in 2012, to EUR 3 trillion with the introduction of three new unorthodox tools (Chart 1–15). In addition, it directed economic policymakers' decision to the fact that, in addition to structural reforms boosting growth potential and the shaping of "growth friendly" budgets, they should take advantage of the available leeway for stimulation within European fiscal rules, both nationally and on a European scale. By contrast, the US seems to be slowly emerging from excessive deficit through continuous, albeit slow growth marked by risks. It has resorted less to expenditure cuts within its fiscal measures and is instead striving to narrow the deficit through the automatic effects of a pick-up in economic activity (e.g. growing tax receipts). Japan has decided on marked fiscal expansion, along with monetary easing in order to move away from the danger zone of deflation. The UK announced consolidation simultaneously to the euro area, but the market left more leeway, despite the elevated debt accumulated during the crisis. The British government took advantage of this when it saw that excessively quick consolidation can hamper recovery, as it did in the euro area.

Alongside fiscal policy, central bank policies were also more accommodating in the US, the UK and Japan (Charts 1–2, 1–14 and 1–15), while in Europe, the central bank's balance sheet shrank by one third following a quick and firm initial easing from 2012 (see the central bank balance sheets in Chart 1–15 in the proportion of non-performing loans in Chart 1–17).

Due to the differences in fiscal and monetary policy stances, USD and GBP depreciated against EUR, which may have further increased the differences in economic performance. At present, the UK's growth prospects are similar to those of the US, while numerous analyses suggest a protracted stagnation in the euro area under the current economic policy stance.

1.2. Emergence of financial imbalances

On the financial side, the period leading up to the crisis was characterised by growth in international capital flows outstripping GDP growth and even current account deficits by several-fold and unusually low risk-free returns and risk premia. Credit spreads spiked suddenly at the onset of the crisis, while interest rates on risk-free assets fell to or close to zero, due largely to the adjustment of central banks. The direct trigger of the crisis was the sudden freezing of interbank markets both at the international and national level. Central banks were compelled to take the place of the suddenly frozen interbank markets. Banks requiring funding had to resort to central banks to access funds, and the latter had no choice but to provide this funding in order to avoid the mass selling of bank assets (forced liquidation). During the crisis, a substantial portion of the assets accumulated in banks' books proved to be non-performing assets.

The crisis caused assets that would otherwise would have been performing to become non-performing, due to the economic downturn and higher unemployment. The complexity of bank assets and of the financial links between banks and the shadow banking system mutually made it impossible for banks to assess counterparty risk; they had no way of knowing when immediate settlements would fall due. The need for immediate solvency, in other words liquidity peaked dramatically.[16] This explains the fact that banks resorted to the liquidity provided by central banks in the context of unorthodox tools on a large scale and kept this liquidity on accounts held at the central bank.[17]

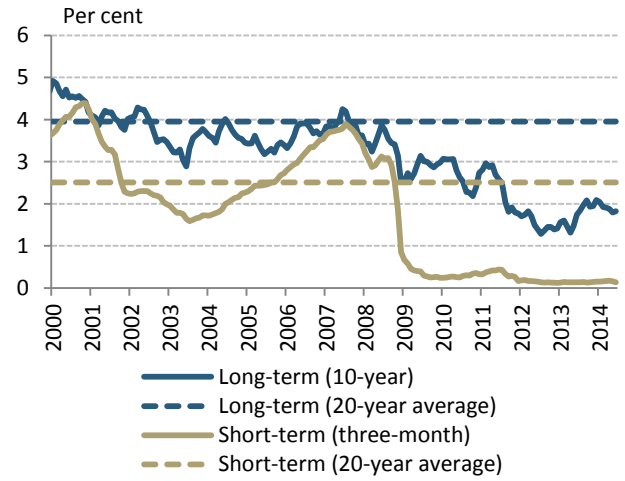
Table 1-1: Risk-weighted capital adequacy of international banks (CET1 – Common Equity Tier 1)

	Dec. 2009	June 2011	Dec. 2011	June 2012	Dec. 2012	June 2013
Large internationally active banks	5.7	7.1	7.7	8.5	9.2	9.5
Other banks	7.8	8.8	8.7	8.8	9.4	9.5

Source: BIS (2014)

The degree of recovery in interbank market turnover is one of the indicators of the normalisation of the financial market environment, and whether balances on accounts held at central banks return to their pre-crisis level. Another condition is cleaning up banks' balance sheets and restoring their capital position to allow them to resume lending (see Table 1–1). Risk spreads must return to an acceptable level, while risk-free returns must rise to a sustainable level from their current historical lows. These events can take place in parallel with an acceleration of the real economy, mutually reinforcing one another. Economic growth enables indebted actors to gradually improve their balance sheet position. This also improves the credit risk perception of debtors, which reduces risk premia, further reducing repayment burdens.

1-16 Chart: Long-term and short-term interest rates



Source: BIS (2014)

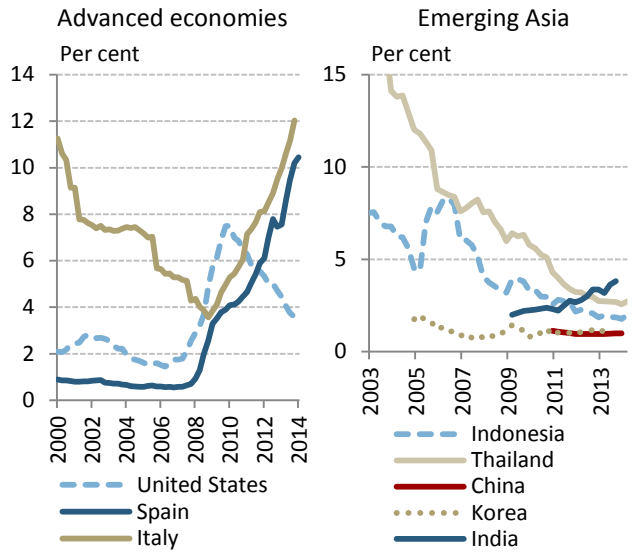
US banks unwound their bad debt and improved their capital stocks to greater degree compared to their euro-area peers. The Fed purchased larger volumes of securities than the ECB and was quicker to reduce its key policy rate to zero. The ECB's balance sheet shrank for a time long compared to the Fed's or the Bank of Japan's balance sheet, indicating that European banks may hold

[16] Keynes referred to this as the liquidity preference and considered it an important motif of holding assets generating little or no return. See Tily (2012).

[17] Funds "parked" at the central bank cannot be "lent out". See the useful and widely accessible article featured in the Bank of England's quarterly publication on the workings of the modern financial system that debunks many obsolete or outright incorrect views. McNealy et al. (2014).

additional bad debt on their balance sheets.[18] In October 2014, the ECB will complete its comprehensive assessment of the balance sheet position of large banks, which may accelerate portfolio cleaning and recapitalisation.[19] Publication of the results will provide more in-depth information on the banks' balance sheet position.

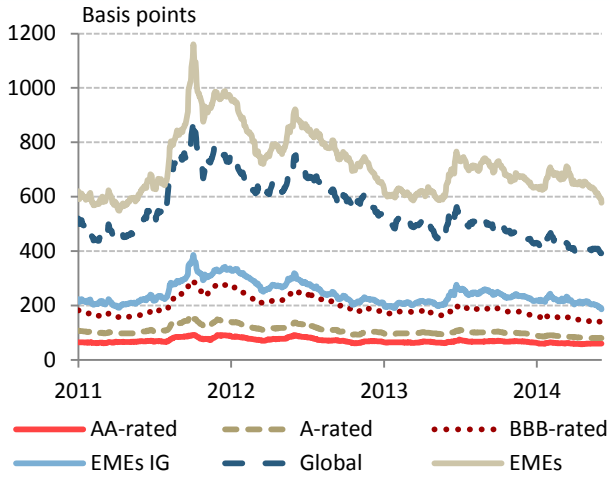
1-17 Chart: Non-performing loans



Source: BIS (2014)

In countries under market pressure, such as Portugal, Greece, Italy and Spain, banks face the challenge of the mutually detrimental impact of sovereign risk and banks' credit ratings.[20] One of the objectives of establishing a banking union is to eliminate or at least mitigate such "contagion".[21]

1-18 Chart: Risk indicators: Corporate bond spreads



Source: BIS (2014)

In the US, where the share of bank lending in corporate financing within the financial system, which is based primarily on capital markets, was far lower even before the crisis, corporate securities issuance is already picking up. Moreover, certain high-risk segments already exhibit excessive risk appetite.[22] Corporate bond issues by large enterprises in emerging countries have reached unprecedented volumes. US and European stock price indices are breaking historical records and the Japanese stock price index is also approaching its earlier record (Chart 1–20).

[18] At a press conference on 4 September 2014, ECB President Draghi announced that an orthodox tools would be introduced in an attempt to halt the decline in the ECB's balance sheet. He also announced the launch of a programme to purchase asset backed securities (ABS) starting from October, thus expanding the central bank's balance sheet to a record EUR 3 trillion from the current EUR 2 trillion. See Draghi (2014).

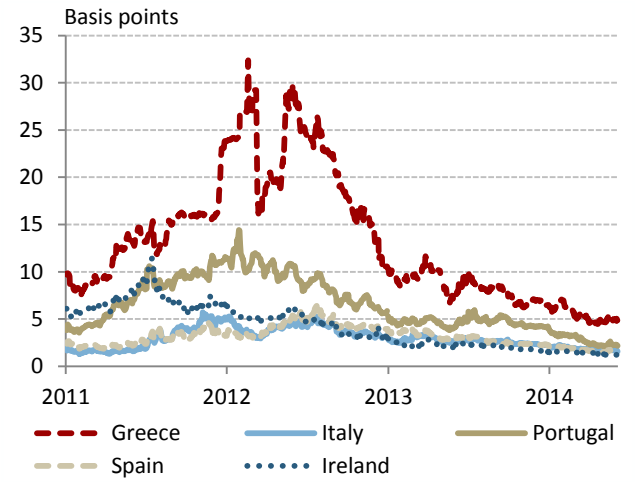
[19] From November 2014, the ECB will assume euro-area level banking supervision functions from national supervisory bodies, and has decided to carry out a comprehensive assessment of 131 significant euro-area banks or bank groups, consisting of portfolio audits and stress testing. Banks or national authorities must then carry out capital injections as necessary (see ECB, internet_a and internet_b).

[20] Due to banks with weak balance sheet positions, budgetary assistance was needed to stabilise the financial system and indirectly, the real economy; this placed a burden on general governments and increased sovereign risk. The sovereign risk premium refers to the base minimum risk premium on money markets compared to which additional premiums are applied to the debtors of a specific country, including the creditor partners of banks seeking to access funds, even if their position was otherwise identical or better than, for instance a bank registered in Germany, which featured a far lower risk premium.

[21] Kornél Kisgergely and Anikó Szombati (2014).

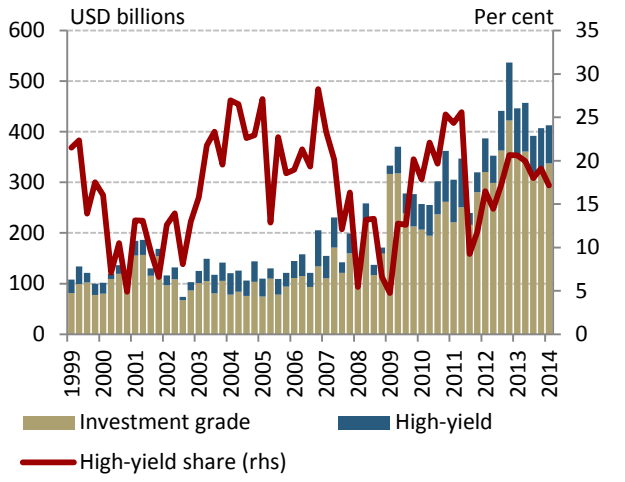
[22] Fed chair Janet Yellen said that there are signs of excessive risk-taking in certain financial market segments and the underestimation of actual risks, which warrants the use of macroprudential tools to change this behaviour. She mentioned corporate bond markets, credit markets with high gearing, corporate bond markets with lower credit ratings and derivatives on specific volatilities, identifying evidence of reach-for-yield behaviour on these markets. Yellen (2014).

Chart 1-19: Sovereign spreads



Source: BIS (2014)

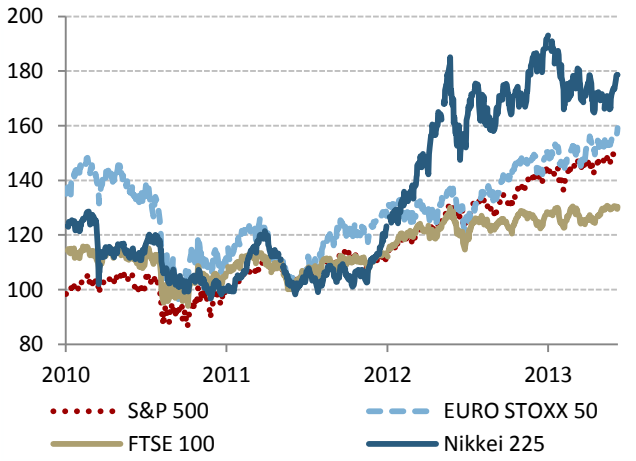
Chart 1-21: Corporate bond issuances



Source: BIS (2014)

At the same time, the pick-up in corporate security issuance is not being used to fund physical investments for the time being; in many cases, it is used to refinance higher interest rate or more disadvantageous – capital market or bank – financing, or for the repurchase of own corporate shares. At times, thinking ahead, companies simply take advantage of exceptionally favourable financing conditions for later use without having any short-term direct investment plans (Charts 1–19 and 1–21).

Chart 1-20: Major equity indices



Source: BIS (2014)

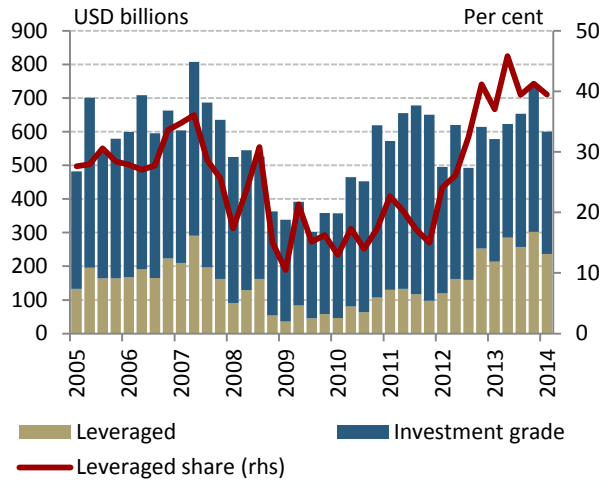
Bank lending is still declining in the euro area among corporate clients, albeit at an increasingly slower rate. This gives rise to substantial tensions, as small and medium-sized enterprises (SMEs) characteristically have a more difficult time accessing external funding by issuing bonds to replace bank funds. SMEs located in high-risk Southern European countries have an especially hard time, as their high risk rating due to country risk puts them at a disadvantage compared to their Northern competitors. The ECB views this as the fragmented nature of financial markets and a detriment to monetary policy transmission and is therefore seeking ways to provide direct funding backed by securities to these corporations, using a longer-term refinancing operation provided to banks on favourable terms.[23,24] In order to boost funding, surveys reveal that a simultaneous improvement in the supply and demand conditions of lending would be necessary, and improved developments in growth prospects[25] are a precondition for both of these.

[23] Longer-Term Refinancing Operation, see ECB (internet_b).

[24] Together with the Bank of England, the ECB initiated an amendment to the regulation of asset based securities (ABS) at the G-20 summit that will allow this market to grow. The ECB commissioned an external consultant to elaborate the details. For more on possible solutions, see Altomonte and Bussoli (2014).

[25] ECB (2014c).

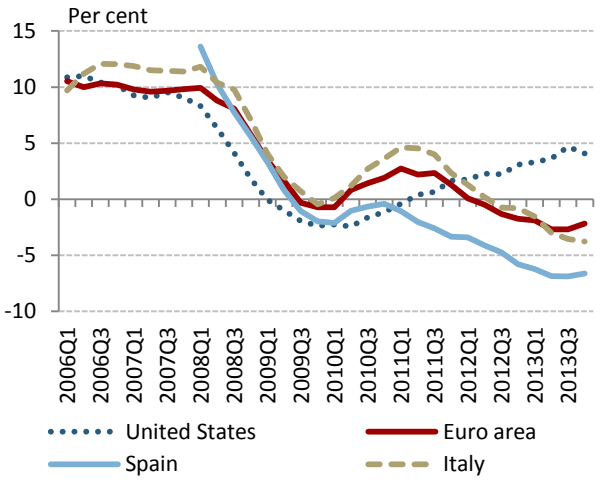
1-22 Chart: Syndicated lending, global signing



Source: BIS (2014)

Lending trajectories exhibit similar discrepancies as developments in GDP. Following the roughly simultaneous economic downturn, the US economy recovered gradually and uniformly, and also saw an increase in lending, while lending dipped during the second wave of recession in the euro area. A slowdown in the rate of decline has been observed in recent months in the euro area, but it is still uncertain when durable growth will resume (Chart 1–23).

Chart 1-23: Credit growth to the non-financial private sector



Source: IMF WEO (2014)

In light of the above, we can state that the stance of central banks continues to be accommodative, while a pick-up in activity can be observed on the financial markets. However, real economic growth and bank lending show a mixed picture, but remain broadly weak with predominately downside risks.

1.3. Global growth prospects

Experience from earlier similar financial and bank crises indicate that the current recovery is taking much longer than usually seen during business cycles since the Second World War. Reinhart and Rogoff's study[26] analysing 100 crises concludes that an average of 6.5 years is needed from the onset of the crisis to reaching pre-crisis activity levels, and a repeated downturn occurred in 40 per cent of the cases, meaning that recovery is not uniform. Another comprehensive study also warns that in order to reduce debt as a proportion of national income to a sustainable level following financial and bank crises, a combination of one-off measures was needed along with economic growth in most cases. These included the partial write-down of debt, different forms of debt relief and rescheduling, and the reduction of the real burdens of debt servicing by economic policymakers tolerating higher inflation.[27]

The growth rate of countries which were indebted during the current crisis remains sluggish and only a few have returned to their pre-crisis income level. Reaching the expansion trend prevailing before the crisis is still far off, and most analyses postulate that it will not be possible in the foreseeable future, due to the expected slower growth rate. Aggregate demand is moderate, as both the private sectors and budgets are focusing on deleveraging, and therefore a larger portion of their incomes, which are already low to begin with, is being set aside as savings. At the same time, these savings are not easily used for investment, as corporations are unable to utilise even their existing capacities, due to weak demand. Companies may even postpone the replacement of obsolete assets. Unemployment consequently remains high, negatively affecting the future employment and productivity of the labour force. There are also the costs incurred by the restructuring of current capacities among sectors. This is due to the fact that the proportion of pre-crisis growth among the various sectors proved unsustainable (e.g. excessive residential construction capacities in certain countries). Growth potential in the foreseeable future will therefore be lower than before the crisis.[28] According to the forecasts of large international organisations, the US and Chinese growth rate may amount to two-thirds, and the euro-area growth

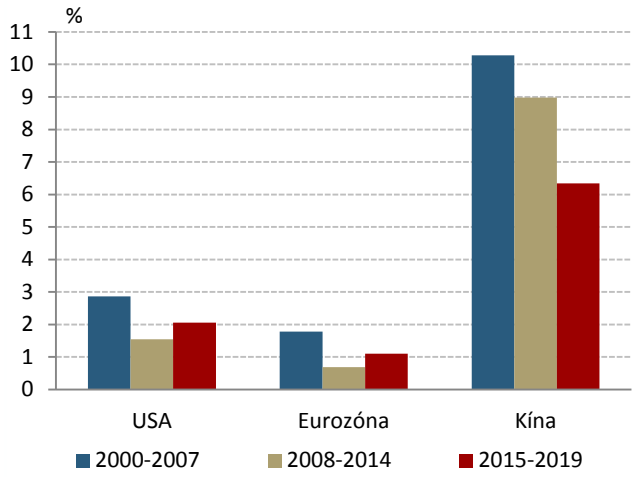
[26] Reinhart and Rogoff (2014).

[27] Reinhart and Rogoff (2013), Rogoff (2014).

[28] Some observers are more optimistic regarding a return to pre-crisis potential growth rates. See Broadbent (2014) and Wren-Lewis (2014).

rate may amount to half of the pre-crisis growth rate until the end of the decade.

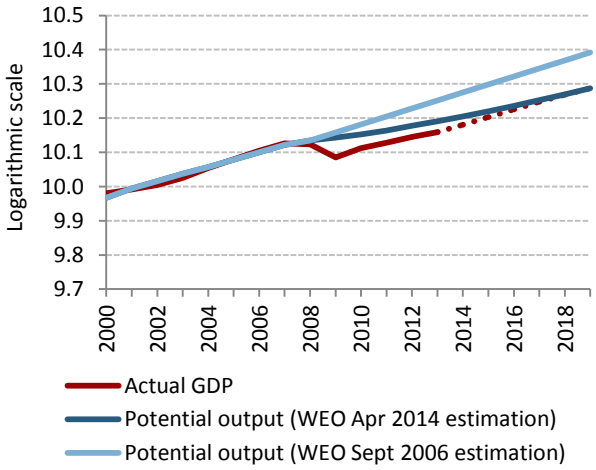
Chart 1-24: Growht rate of potential output



Note: Calculation based on purchasing power parity.
Source: World Bank WDI, Eurostat

Balance sheet recessions represent a new challenge for economic policy. While the relative price adjustment typical of traditional crises (among real exchange rates and real wages, for instance) and fiscal consolidation generally restore balance between absorption and savings, allowing the economy to return to a balanced and sustainable path, balance sheet recessions such as the current one exhibit different mechanisms: they work more slowly and sometimes exert the opposite effect than what was intended.

Chart 1-25: Developments of the potential output in G7 countries (in constant prices)



Source: IMF WEO

At the macroeconomic level, the aggregate impact of rational savings and deleveraging decisions from the perspective of individual participants may result in the income which participants want to use to improve their balance sheets position shrinking compared to its past **rate**.[29] This is because the majority of markets for goods and services are shrinking due to higher savings and falling expenditures, preventing corporations from utilising their existing inventories and capacity and becoming even more reluctant to expand them via investments.

For most stock variables, the means of *economic policy* interventions through flow variables can only materialise slowly, dragging on over time. Accumulated stocks, which sometimes amount to 60-100 per cent of GDP, can only be impacted slowly by changing the balance of proportionately smaller flow variables such as the net trade surplus, which only amounts to a few percentage points of GDP at most. Economic policy tools intended to decrease vulnerability (government deficit, trade deficit, measures aimed at reducing government debt) also simultaneously affect GDP, the variable serving as the basis of projection. As a result of the measures, GDP also grows at a slower rate and may even decline temporarily. This holds true in particular if the private sector is already carrying out deleveraging. Measures that may decrease foreign or domestic debt also hold back economic growth. The ultimate impact is uncertain and, especially in the short run, the GDP-proportionate value of the desired variable may even deteriorate and prevent achievement of the original objective.[30]

At the macroeconomic level, this may result in a contraction in GDP, with very slow growth and a substantial lag from the pre-crisis growth trend. In the globalised economy, weakening demand conditions also impacted the output of countries that were not directly the cause or part of the emergence of imbalances.

Finally, if economic policy affects variables that play a role in the valuation of stocks, such as interest rates or exchange rates, it also affects the net international

[29] This situation is what Keynes called the paradox of thrift.

[30] According to Koo, every sector saving at the same time during a balance sheet recession is not optimal, as it leads to a weak economy through the Keynesian paradox of thrift and may even give rise to a higher debt ratio compared to income. In other words, the deleveraging effort is self-defeating. Fiscal policy should therefore simultaneously allow private sector deleveraging and GDP growth by assuming further debt. By contrast, Borio, who accepted Koo's diagnosis, would opt for a different treatment: he does not believe in the aggregate demand boosting role of fiscal policy, which has already run its course in his opinion, but rather in using the available fiscal leeway to clean up and restructure bank balance sheets, followed by the reprivatisation of banks, hopefully closing the restructuring at a profit. Borio claims that the management of the Scandinavian banking crisis in the early 1990s should set the example. Borio (2012) 16 p. 19 and footnote 26.

investment position via these variables.[31] These market variables, however, are not fully controlled by economic policymakers or the central bank, and revaluation may also occur as a result of market impact, thus continuing to represent a source of vulnerability.[32]

In summary, we must brace ourselves for slower global economic growth compared to the pre-crisis period. The exposure of certain regions and economic sectors will only improve slowly. In the context of recovery, we must take into account the fact that the interest rate sensitivity of participants' balance sheet positions may rise substantially during times of crisis in a persistently low interest rate environment. **Central banks are therefore elaborating prudent and cautious normalisation strategies, in which forward guidance plays an increasingly important[33] role.**

[31] Borio (2014): pp. 1-2.

[32] There is no consensus regarding the specific rate of external debt that represents vulnerability and one that is still acceptable or even beneficial, as this depends on global circumstances and shifts in sentiment. In the European Commission's set of indicators adopted in response to the crisis, net external debt of 35 per cent of national GDP is regarded as critical (European Commission, internet). Other analyses emphasise the importance of gross indicators, as the netting applied in balance of payments statistics does not provide coverage against the different risk exposures affecting assets and liabilities. For more information, see Box 1-2.

[33] See Csortos et al. (2014).

Box 1-2: Global imbalances and capital flows: the idiosyncrasies of balance sheet recessions in an international context

Even before the crisis, numerous analyses had already highlighted the impact of global capital flows and the fundamental change in the functioning of the global financial sector as a result of financial globalisation. The 1997 Asian crisis was far more similar to a financial or bank crisis.[34] The body of literature addressing these changes has grown substantially since the onset of the crisis.[35]

New features

Past financial crises mainly affected less developed countries. They could be explained by financial systems still in development and the lack of experience of supervisory authorities, and the absence of the most developed risk management, micro and macroprudential tools. In addition, the relationship between the financial sector and governments was oftentimes close, giving rise to moral hazard. **The current crisis, however, affected the most sophisticated financial sectors and countries with the most well-equipped and experienced supervisory bodies.**

Another characteristic of the current financial crisis is that it differs from the current account crisis familiar from the past, despite featuring some of its elements. It is much rather a financial crisis stemming from excessive indebtedness, in other words, the international appearance of the phenomenon dubbed a balance sheet recession by Koo. In an international context, this is linked to the capital and financial accounts of the balance of payments, and not the current account. This explains that, much to the surprise of analyses focusing on current accounts, the crisis did not unfold as the usual exchange rate crisis (it was not USD that depreciated, but the US subprime mortgage bond market which collapsed) and did not only affect countries exhibiting unbalanced current accounts (the euro area was seriously affected despite its balanced current account). Therefore, the optimum mode of management also differs from that of traditional balance of payments crises. In other words, neither the onset of the crisis, nor the affected group, nor the optimal economic policy reaction are identical to the ones used to treat earlier current account deficits.[36]

International capital flows, which had increased to a multiple of their value from earlier years, did not have much linkage with the current account deficits. While the US current account deficit was unusually high, the capital flowing into the US was even higher by several orders of magnitude.

Much of the capital flowing into the US originated from regions where savings were high, such as China. However, at least the same or even a greater portion of total inflows originated from Europe. Partly from the euro area, where savings and investments were balanced on the whole, and partly from the UK, which *exhibited a current account deficit*. In 2007, for instance, total capital inflows into the US exceeded USD 2 trillion, while its current account deficit was USD 730 billion. Capital flowing in from Asia amounted to USD 450 billion, capital from Europe amounted to USD 1 trillion, while capital from the UK amounted to USD 560 billion (see Table 1–2).

[34] During the Asian crisis, fiscal policies in emerging countries were more or less disciplined, savings were high, wages were growing moderately and current account deficits were far from substantial, especially in light of the dynamic growth rates. The Asian crisis was not sparked by excessive (private or public) domestic consumption, but rather by the excessive business investment fuelled partially by foreign capital inflows, and doubts regarding their efficiency, triggered by a slump in the global export market and deterioration in international interest rate environment expectations. See Kregel (1998).

[35] See for instance Kregel (1998) and (2004), who had thoroughly addressed the crisis far before the current crisis. See also Johnson (2009), Borio and Disyatat (2011), Borio (2014) and Borio et al. (2014) and Obstfeld (2012a) and (2012b).

[36] Johnson (2009), Borio and Disyatat (2011) and Borio (2014).

Table 1-2: Gross financial flows from and to the United States in 2007 (USD, billions)

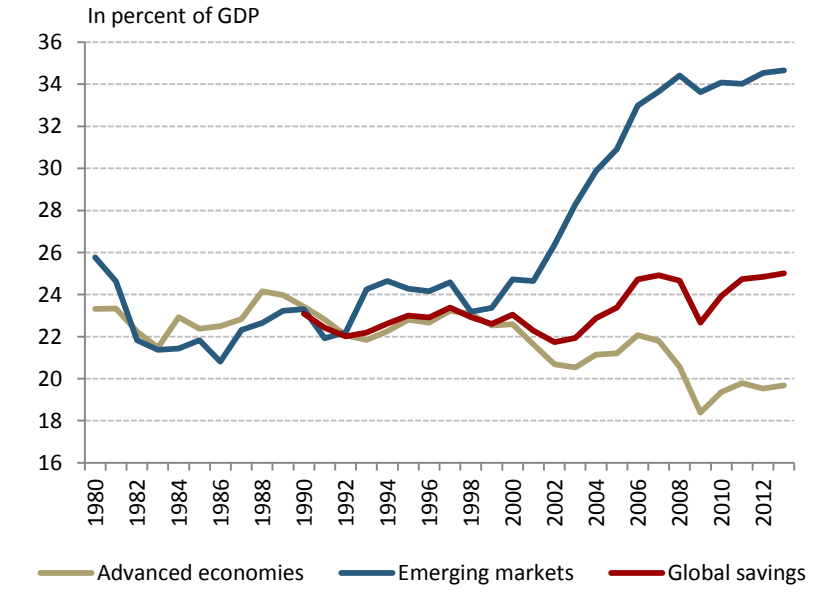
	from the US	to the US
Total	***1 472.1***	***2 129.5***
Europe	1 014.0	1 015.9
of which		
Euro area	477.2	360.3
United Kingdom	422.4	561.0
Asia and Pacific	26.8	450.0
of which		
China	-2.0	260.3
Japan	-50.0	65.9
Taiwan	-2.8	5.8
Singapore	14.0	20.9
Australia	27.3	-0.2
Canada	67.9	83.5
Middle East	13.6	39.8
OPEC	19.2	52.1

Note: USD billion, outflows with positive sign.
Source: Bureau of Economic Analysis in Johnson (2009)

Analysing the direction of the capital inflow reveals that Asians and other net "saver" countries (such as oil-exporting countries) mainly invested in US government securities. European banks were far more active on the US private securities markets and interbank markets. **Thus, the US financial markets at the eye of the financial turmoil during the crisis were not driven by investors from "saver" countries.**

Accordingly, the place where the crisis originated, i.e. the subprime market, shows that the crisis was not triggered by an excessive current account deficit. In this case, the crisis should have unfolded starting with depreciation of the US dollar, which would have later spread to domestic securities markets, but the latter would have only been a consequence rather than a trigger.

Chart 1-26: Saving rates



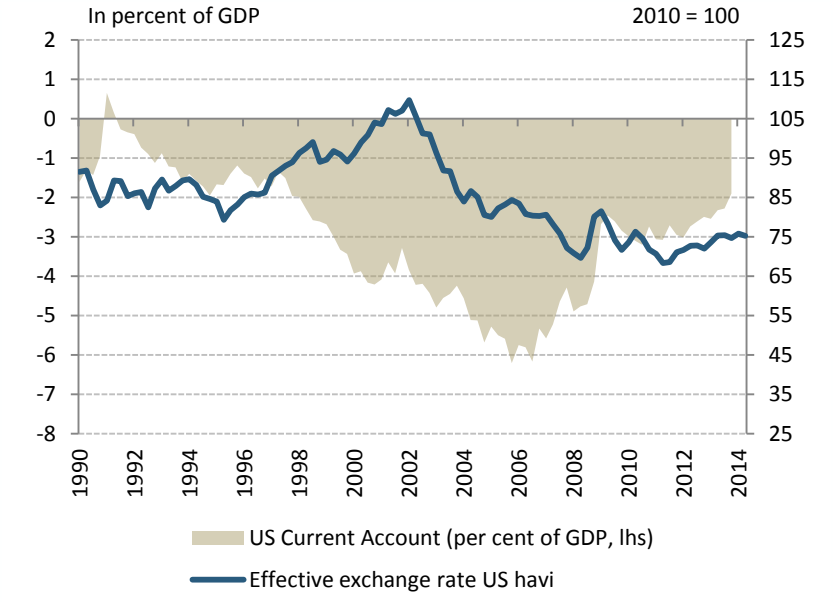
Source: IMF WEO, BIS (2014)

The response of capital flows to the crisis also provides a valuable lesson. While investors from Asian and other "saver" countries only withdrew approximately USD 27 billion, Europeans withdrew roughly the equivalent of the total inflow, that is, USD 1 trillion, with the euro area and the UK accounting for USD 900 billion (Table 1–2).

Borio and Disyatat (2011) scrutinised capital flows over a longer period and, along with quantitative data, examined whether developments in exchange rate and interest rate movements on the capital markets correlated with capital flows

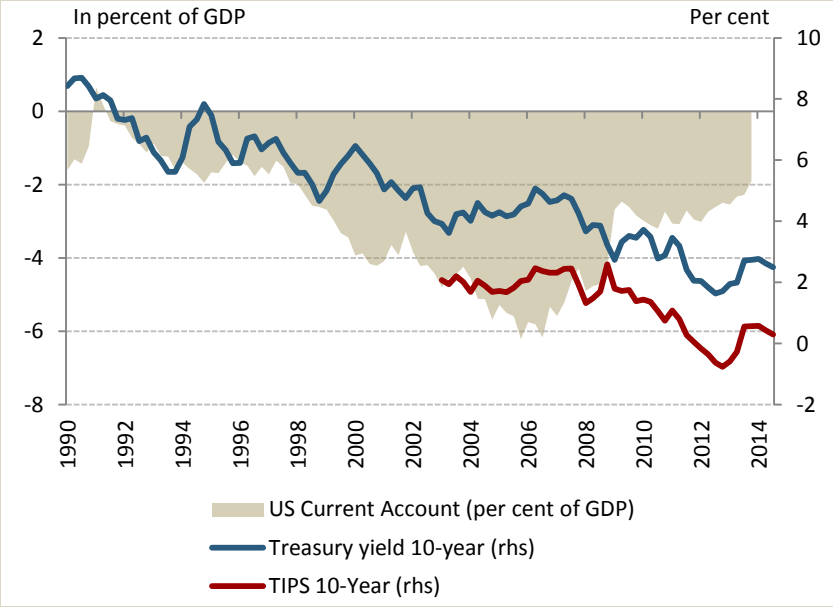
linked to the balance of payments. They found no link between the US current account deficit and developments in global savings: the former climbed from zero to over 6 per cent of GDP between 1990 and 2003, while global savings diminished. From the middle of the 2000s, global savings started to climb while the US current account stabilised or improved (Charts 1–26 and 1–27). The US deficit grew at the fastest rate (between 2000 and 2007) at a time when USD assets were far from attractive due to the depreciating exchange rate.

Chart 1-27: US current account and effective USD exchange rate (trade weighted)



Source: FRED Federal Reserve Bank, BIS (2014)

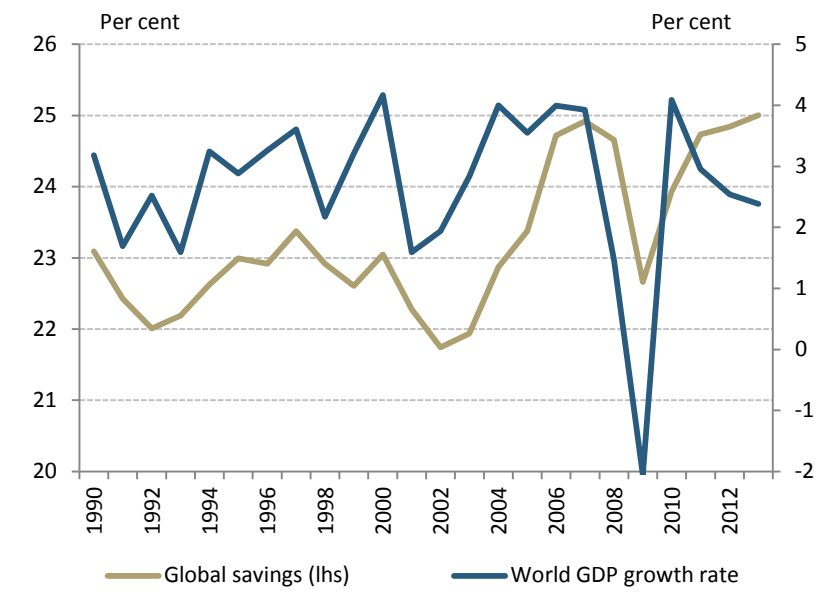
Chart 1-28: US current account and long term US interest rates



Source: FRED Federal Reserve Bank, BIS (2014)

The movement of long-term US interest rates does not corroborate analyses emphasising developments in the balance of payments. When long-term interest rates were falling, the US current account improved instead of deteriorating from 2007 onwards. Earlier, between 2005 and 2007 however, rising interest rates did not stop the growing deficit and capital outflows (Chart 1–27). Developments in global savings seem to be independent of changes in interest rates and are more likely linked to the economic cycle (Chart 1–28).

Chart 1-29: Savings and Growth



Source: FRED Federal Reserve Bank, BIS (2014)

Net and gross capital outflows

The aforementioned contradicts the traditional analytical framework which focuses on current accounts and net capital flows. For this reason, analyses are increasingly focusing on examining the role of "gross" capital flows alongside the current account.[37] In the balance of payments statistics, the current account includes items which represent the trade of goods and services between residents of various countries,[38] and the related payment transactions. In the case of small, open economies, these settlements are usually performed in a major foreign currency (USD, EUR), in other words, the balances are in a currency different from the domestic currency. The current account also records current income transfers, such as transfers home from migrants and the current incomes of other factors of production, such as interest, dividends, etc.

These tie into the capital and financial account of the balance of payments. This balance records all transactions between a country's residents which are not current items but rather capital transactions, such as FDI or the purchase of existing plants or company shares (portfolio investment) or bank lending (other capital flows). There are large volumes of such transactions between the residents of a country in every period, but these are not linked directly to external trade. At the same time, incomes on investments are generated during the same period, flowing in both directions as actual income in the current account. What is apparent is that the capital account and the current account are linked, but the link is not direct and may have many different configurations.

When capital flows are not liberalised, as during the three decades following the Second World War, there was barely any movement on the capital account, as external trade was predominant.[39] Capital movements were mainly restricted to financing the current account. External trade consisted primarily of finished goods, although the required raw materials

[37] See for instance Borio and Disyatat (2011), Borio (2011), Borio (2014), Johnson (2009), Kregel (1998), (2008) and (2010), Lane and Milesi-Ferretti (2014), Ma and McCauley (2013), Obstfeld (2012a), (2012b) and Shin (2011).

[38] In the balance of payments statistics, the basis of the distinction between foreign and domestic is the resident or non-resident concept. Residents comprise persons or companies carrying out their principal activity within the specific country. These may be foreign-owned corporations, such as the subsidiary of a large automaker registered in Hungary. This corporation is regarded as resident from the perspective of balance of payments statistics, but is foreign in terms of nationality. A resident corporation may perform most of its settlements in a foreign currency, because it settles most of its imports and exports in foreign currency. For more on the background and significance of the distinction between "resident " and "non-resident", see Borio et al. (2014).

[39] This was essentially a reflection of the original concept devised by the creators of the Bretton Woods system established in 1944. For more, see Kregel (2010).

and energy were often imported by most developed countries. In the context of liberalised capital movements which became increasingly common on a global scale from the 1980s onwards, capital flows increased several-fold, with this development driven by a variety of motives. It is possible for there to be substantial capital inflows far outstripping the needs of external trade in a country, but if the same volume of capital flows out, it adds up to no capital flows in net terms. One of the motives behind gross capital flows cited in the literature is that such flows contribute to cost minimisation through the optimal geographic positioning of real economic value chains. In reality, we can see that the external trade in intermediate goods (components, processed raw materials, articles, semi-finished goods)grows at a faster pace than that of finished goods, and is already predominant in certain countries. The diversification of financial investments represent a sort of insurance against uneven economic cycles and shocks ("consumption insurance"). It also facilitates the optimal distribution of financing expertise, the investment horizon, etc. These benefits may also arise if a country's capital outflows are identical to its capital inflows, amounting to no resources exported or imported.[40] Borrowers can choose whether to borrow from a domestic bank or abroad, and whether to keep their foreign currency incomes at resident or non-resident banks. Countries now rarely strive to maintain fixed exchange rates and exchange rate fluctuations have much greater impact on expectations regarding central banks' interest rate moves and the resulting yield and exchange rate spreads than the current account deficit.

In this new, liberalised system, large gross capital flows may be coupled with little or no net capital flows. An example of this was the capital flow which developed between the US and the euro area in the period leading up to the crisis, while external trade was largely balanced. It is nevertheless possible for a country to exhibit a current deficit and for there to be related net capital inflows, but these are small compared to the domestic financial markets. **This was the case in the US before the crisis, as illustrated in Table 1–2. Market conditions on the domestic US financial market were not primarily shaped by Asian capital inflows, but by the activities of domestic banks and European-owned banks, despite the fact that no new capital was brought into the country in net terms.** Both US and European banks collected liabilities on the US market, increasingly in the form of interbank liabilities instead of traditional US household or corporate deposits. Financial innovation and the shadow banking system (unregulated by prudential banking requirements) allowed the modern banking system's lending capacity to avoid restrictions from the amount of US domestic savings or the inflow of foreign capital.[41] The case of Japan had already illustrated that a *hazardous increase* **in lending is possible within the domestic financial sector even if it is not coupled with capital inflows, or even if it is accompanied by simultaneous capital outflows or a trade surplus. Finally, international financial centres emerged, handling huge capital turnover, but this capital had nothing to do with domestic savings or investment opportunities.** In the period leading up to the crisis, this role was played by the UK (London) and Switzerland, along with Singapore among the Asian countries.

One of the key lessons from the crisis is that while an excessive current account deficit may still be a symptom of unsustainable developments, the modern financial system and gross capital flows well in excess of the current account warrant closer attention than in the past. The current account primarily provides information on the link between domestic consumption and production and the contribution of non-residents to aggregate demand. In the event of a deficit, consumption outstrips output, which must be funded and often goes hand-in-hand with a depreciating currency (flexible exchange rate regime) and potentially an outflow of international reserve holdings (if depreciation is excessive or in the case of a fixed exchange rate).

By contrast, significant gross capital flows are indicative of the impact of non-residents on the financial conditions of other countries, and the exposure of residents to foreign risks. Capital invested abroad and capital brought into a country are exposed to very different risks. Substantial exchange rate or interest rate fluctuations may significantly revalue assets and liabilities and net positions may quickly change. The gains or losses on investments also generate capital flows in and of themselves, sometimes within the factor income item of the current account, which is completely unrelated to the

[40] Theoretically, there is nothing that says that accumulated savings must be invested in the country where they were generated. In practice, however, the lion's share of investments are still funded by domestic savings, referred to in the literature as the "Feldstein-Horioka puzzle" and explained by some sort of imperfection (real economic, financial, institutional or informational, etc.). See the Special topic 5.1 entitled for Savings and growth.

[41] The modern banking system is not a "passive intermediary" between savers and borrowers. The modern banking system does not lend previously accumulated savings to its clients. Banks provide funding to all borrowers assumed to be able to repay the loan. For more detail, see the appendix to Borio and Disyatat (2011) and the aforementioned Bank of England study (McLeay et al. 2014).

trade deficit or the proportion of domestic consumption and output in the traditional sense. At the same time, however, it may substantially impact this, because if revaluations result in significant changes in wealth for residents, it may change their behaviour and savings or investment decisions in the subsequent period. The activities of European banks in the US required European states and central banks to ensure the stability of these banks when the crisis hit.

Capital flows are an active process in modern economies, shaped by many different factors and motives, which add up to net positions in both the current account and the capital and financial account. If debt is elevated, adjustment calls for the adjustment of stocks, which is a slow process if leverage is high compared to incomes. At the same time, they may undergo substantial unexpected revaluation, which exacerbates uncertainty. **The role of macroeconomic policy in such a context is to *prevent excess indebtedness*, or if this has failed, *to facilitate stabilisation and the gradual emergence of conditions which allow for deleveraging*.**

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2. ADJUSTMENT OF THE HUNGARIAN ECONOMY SINCE THE CRISIS

In the years preceding the crisis, the Hungarian economy was characterised by increasingly widespread structural deficiencies and mounting financing risks. Until late 2006, the dwindling growth potential was masked by a rapid and, as was subsequently revealed, excessive indebtedness. Although indebtedness was characteristic in every sector, it proved to be particularly unsustainable in the case of the general government and households, while the spread of FX-based financing made numerous participants vulnerable to exchange rate depreciation. Following the 2008 financial crisis, Hungary was compelled to modify the previous model of debt-financed growth, as this practice could no longer be maintained. In the recovery period following the crisis, the need arose to simultaneously improve the equilibrium position of the economy and reduce debt (a concomitant of financial crises), to restructure the economy and to correct its structural deficiencies.

In an international comparison, Hungary has achieved a considerable improvement in its equilibrium indicators in recent years and this improvement has proved to be lasting. The budget deficit has stabilised below 3 per cent and the change in the behaviour of the private sector has significantly improved the economy's net lending position. After 2010, net external debt started to decline, mainly due to improvement in private sector debt ratios. At the same time, progress is being made in debt deleveraging in line with the international experiences discussed in the previous chapter. An environment characterised by low inflation and moderate demand impedes the decrease in debt ratios relative to GDP, especially in the case of the general government.

During the years that followed the crisis, the rate and pattern of growth in the Hungarian economy were basically determined by prolonged debt deleveraging. As the fall in domestic demand was proportionate to the pre-crisis level of indebtedness, Hungary's initial growth trajectory was comparable to the European economies which were struggling with debt problems. Both consumer and investment demand decreased significantly. The post-crisis decline in fixed investments is mainly explained by state and household cutbacks in fixed capital formation, caused by the reduction of debts accumulated in these two sectors. Corporate fixed investments declined primarily because of the overall deterioration in the demand outlook. In an international comparison, developments in exports were favourable and facilitated an improvement in the balance of payments position. Last year, the adverse impacts of debt deleveraging weakened, and thus the rate and structure of economic growth also became more similar to economies on a healthier convergence path in the region.

Labour market developments were determined by the dual trends of subdued demand and increasing labour supply. During the crisis, Hungarian labour market institutions underwent considerable changes, which, on the whole, increased incentives for labour market participation and enhanced the flexibility of the labour market. The participation rate increased significantly, but still remains below the regional average. At the same time, the post-crisis increase in migration is a new challenge with respect to both labour force participation rate and economic growth. The adjustment of real labour costs may have contributed to the fact that the decline in employment was slower than justified by business cycle developments, and to the fact that employment returned to pre-crisis levels sooner than output.

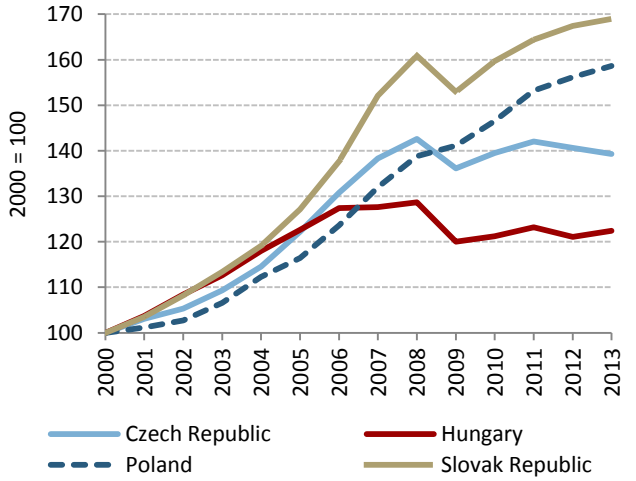
Developments in production followed the shifts that were seen in the structure of demand. In open economies, a decline in external debt is accompanied by an expansion of sectors engaged in exporting (primarily manufacturing), with sectors producing for the domestic market losing significance. This process could also be observed in Hungary. In addition, the labour intensity of production also increased in the private sector, due to low capacity utilisation, credit supply constraints, increasing labour supply and the reduction in employment-related taxes.

2.1. Hungary's path to the crisis

In the mid-2000s, the Hungarian economy was characterised by mounting structural problems. This was reflected in the fact that after 2004 GDP growth fell increasing below the trend of the other Visegrád countries (Czech Republic, Poland and Slovakia). **Thus, the Hungarian economy was unable to take full advantage of the convergence potential arising from European Union membership.** According to estimates by the European Commission, on average Hungary's potential growth lagged 1.3 percentage points behind the other Visegrád countries between 2003 and 2007. After the crisis, this gap increased due to the adjustment of high indebtedness. Only in recent years did Hungary's

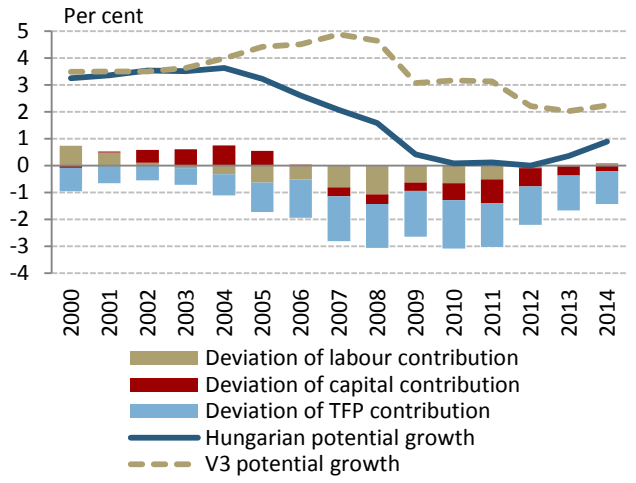
growth rate begin to converge with the regional peers. All production factors – employment, capital accumulation and productivity – contributed to the decline in potential growth.

Chart 2-1: GDP volume in the Visegrád economies



Source: Eurostat

2-2 Chart: The deviation of potential growth from the Visegrád economies according to the estimation of the European Commission[42]



Source: European Commission (Spring 2014 forecast)

The analyses of the time (e.g. OECD, 2008) identified several problem areas which impeded growth in the Hungarian economy:

- **Imbalances** made the macro-economic environment unstable and unpredictable, and this may have contributed, *inter alia*, to the decline in the investment ratio.
- **Labour market participation** was reduced by high labour taxes and an overly generous transfer system with weak incentives for employment. Both the participation rate and the employment rate were among the lowest in the European Union. At the same time, high taxes encouraged tax evasion.
- In addition to the number of employees, challenges arose in the **quality of human capital.** The ratio of employees with tertiary qualifications was low, and the school system did not properly serve the convergence of disadvantaged groups. Deficiencies in human capital and the low level of resources dedicated to **research and development** may have impeded technological development. At the same time, the general health of the population was even worse than in countries at a comparable level of development.
- **Regulations affecting business** and the quality of governmental sector operations were barriers to the establishment and development of businesses.

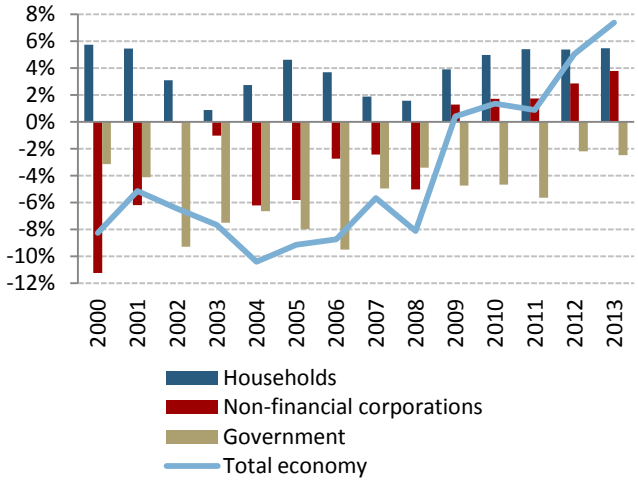
Structural deficiencies were temporarily masked by a phase of debt-financed, consumption-led growth. Prior to the crisis, several sectors in the economy accumulated debt simultaneously. As a result of stable economic growth, income prospects were overestimated, while the expected risks were underrated. This increased households' and corporations' willingness to borrow. On the other hand, lending conditions were continuously eased on account of declining international funding costs and banks' race to gain market shares. Consequently, both supply and demand developments contributed to the build-up of the debt. In addition, the government failed to offset households' declining financing capacity. On the contrary: sustained loose fiscal policy only added to the borrowing requirement in the economy. A twin deficit evolved, as the private sector and the state jointly increased the current account deficit.

Rising debt was accompanied by increasing exchange rate risks in every sector. The spread of foreign currency-based financing resulted in the accumulation of an open FX position (net FX debt) by households and corporations that amounted to 43.5 per cent of GDP. The Hungarian economy became increasingly sensitive to exchange rate

[42] This chart shows the estimation of the European Comission. The methodology and results of this estimation are argued by Hungary (as other EU member states as well). Thus, the evaluation of the processes shown on the chart is suitable for the illustration of relative positions.

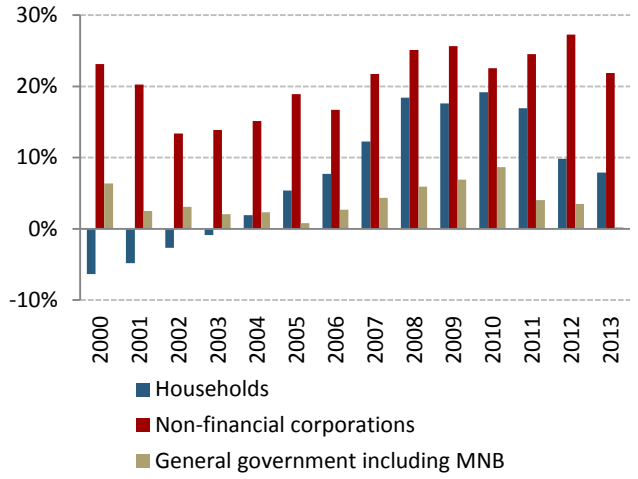
fluctuations, but prior to 2008 this was concealed by the relative stability of the forint.

Chart 2-3: Net financing capacity by sector (percentage of GDP)



Source: MNB

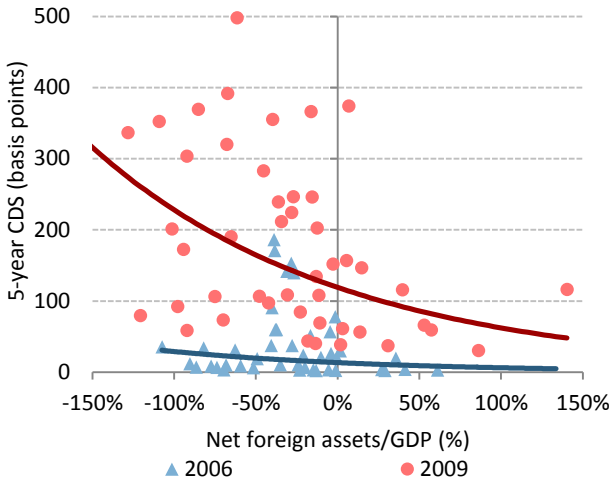
Chart 2-4: Open FX position by sector (percentage of GDP)



Source: MNB

The external debt-financed, consumption-driven economic growth model became unsustainable as a result of the 2008 crisis. The crisis shed light on the fact that in the preceding years the financial markets had seriously underestimated investment risks. Consequently, the refinancing the previously accumulated debt suddenly became significantly more expensive: after the onset of the crisis, a considerably higher risk premium was charged per unit of debt than in the preceding years. **In addition to the drying-up of external funding, Hungarian debtors were also hit by the revaluation of FX-based debt. These changes required adjustment by economic participants, i.e. a considerable cut in their debt portfolios.**

Chart 2-5: Net foreign assets and country risk before and during the crisis

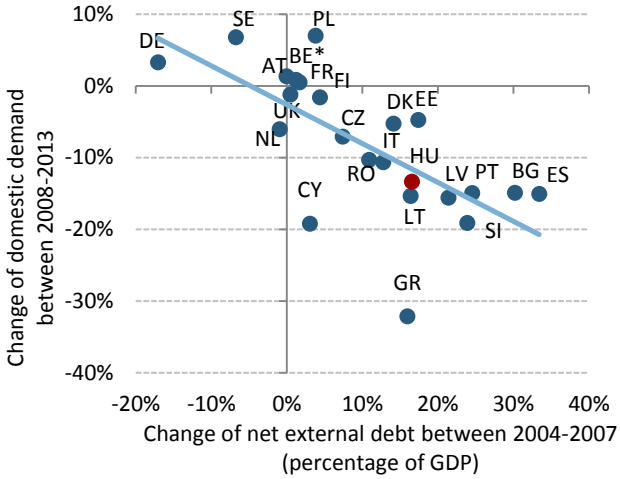


Note: Net foreign assets include debt-type instruments, foreign direct investments and other investments. An exponential trend was fitted on data for 48 countries.

Source: Bloomberg, extended dataset of Lane – Milesi-Ferretti (2007) (http://www.philiplane.org/EWN.html)

The Hungarian economy's post-2008 performance was basically determined by the debt accumulated before the crisis. Simultaneous debt reduction by households, corporations and the state lowered domestic consumption and investment for a prolonged period. Even in 2013, domestic demand was 15 per cent lower than in 2008. The drop in domestic demand was proportionate to the pre-crisis debt accumulation. Consequently, after the crisis GDP developed similarly as in economies that accumulated the largest external debt stocks (periphery countries in the euro area).

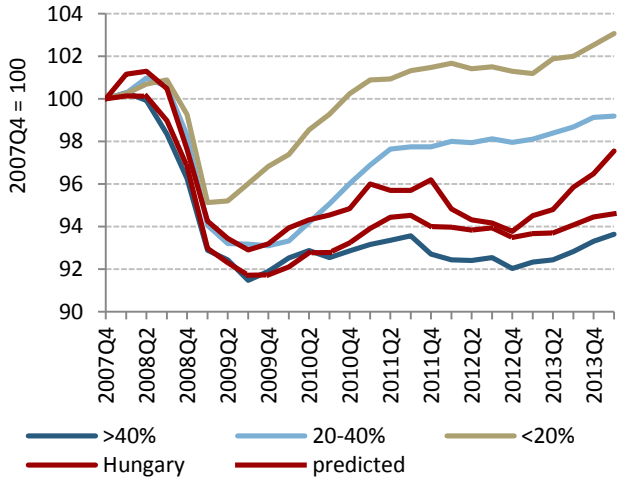
Chart 2-6: Debt accumulation before the crisis and the decline of domestic demand in the European Union



Source: Eurostat

Since 2012 however, in parallel with the decrease in the external debt stock, Hungary's GDP path has diverged from that of the most indebted countries, and the growth performance became more similar to the Visegrád countries. This may indicate that the correction of excessive debt in the Hungarian economy is possible with a smaller real economic sacrifice as compared to the countries of the periphery.

Chart 2-7: The evolution of GDP in EU Member States by pre-crisis indebtedness



Note: The lines indicate the evolution of GDP in EU Member States where the net external debt/GDP ratio in 2007 stood in the range defined in the legend. The predicted GDP path was obtained by estimating linear regressions between the 2007 debt ratio and the level of GDP for each quarter, and then substituting in the Hungarian debt ratio.

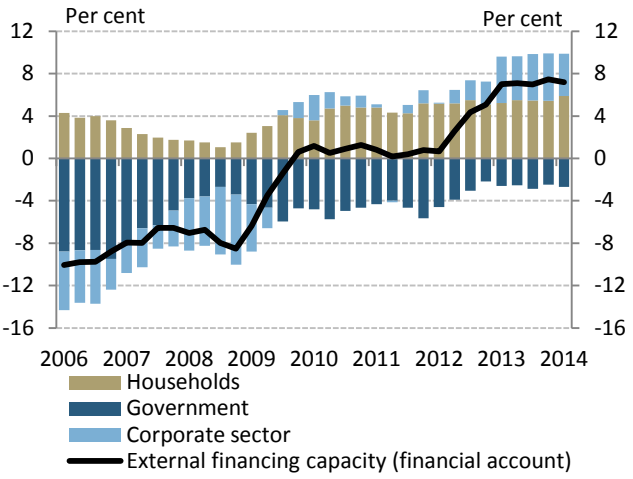
Source: Eurostat

2.2. Post-crisis correction of imbalances

2.2.1. Macro-economic equilibrium

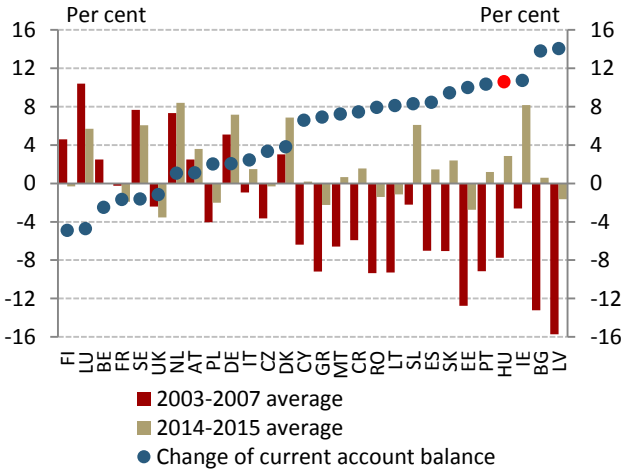
Hungary's flow-type equilibrium indicators have improved considerably since the crisis. By the end of 2009, the economy had become a net saver rather than a net borrower. For the most part, this was due to the improvement in the household and corporate sectors' financing capacity; the gradual adjustment of government deficit also contributed to some extent. Households' financing capacity rose to levels observed in the early 2000s. In addition, businesses turned from net borrowers into net savers. In 2012, the financing requirement of the general government was also cut considerably. The adjustment observed in the external financing capacity was outstanding in an international comparison.

Chart 2-8: Breakdown of external financing capacity by sectors (four-quarter cumulation as a proportion of GDP)



Source: MNB

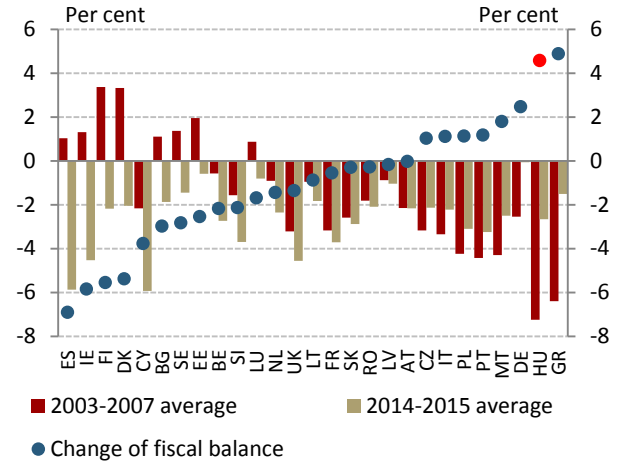
Chart 2-9: Current account adjustment after the crisis in the European Union (percentage of GDP)



Note: * forecast by European Commission.

Source: Eurostat, European Commission (Spring 2014 forecast)

Chart 2-10: Fiscal adjustment after the crisis in the European Union (percentage of GDP)



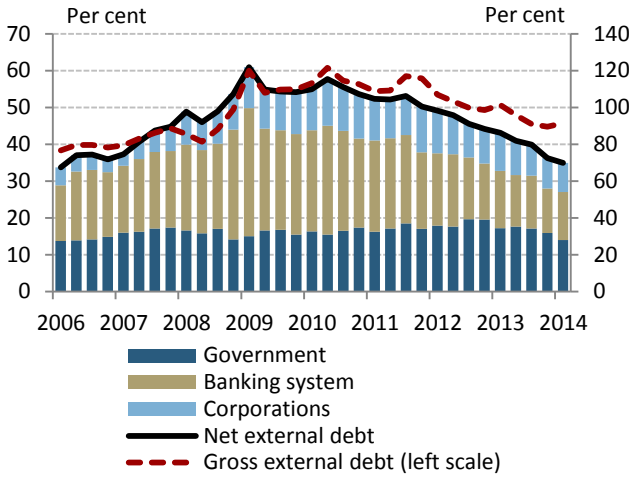
Note: ESA95 methodology. In the case of Poland the government takeover of private pension funds was excluded from the 2014 balance (in accordance with the newly introduced ESA2010 methodology). * Based on the May 2014 forecast of the European Commission; for Hungary, based on the September 2014 Inflation Report of MNB.

Source: Eurostat, European Commission, MNB

Reducing the debt stock is a lengthier process. In the six years since the onset of the global crisis in 2008, Hungary's external debt initially increased and since 2010 it has been declining. The initial deterioration was due primarily to the revaluation of external debt. As a significant portion of external debt was denominated in foreign currency at the onset of the crisis, nominal debt increased greatly due to the 2008–2009 exchange rate depreciation.

By 2014, external indebtedness had dropped to pre-crisis levels. Compared to the pre-crisis period, debt was cut back primarily in the banking system – and through this, in the household sector. The government's external debt-to-GDP ratio remained at the pre-crisis levels, while the external indebtedness of businesses actually increased slightly. In addition to the significant improvement in net external debt, gross debt also fell. Although the 2013 level of net external debt remains higher than the regional average, it is considerably lower than the indebtedness of the euro-area periphery countries.

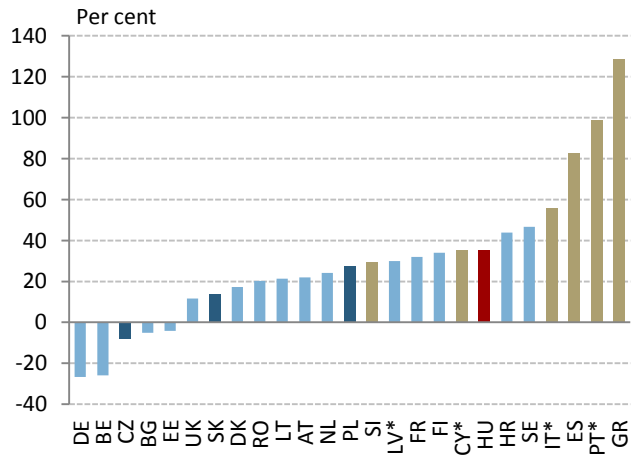
Chart 2-11: Breakdown of net external debt by sectors (values as a proportion of GDP, 2006 Q1 - 2014 Q1)



Note: * Excluding intercompany loans.

Source: MNB

Chart 2-12: Net external debt in the European Union at the end of 2013 (percentage of GDP)



Note: * 2013Q3 data. Excluding intercompany loans.

Source: Eurostat

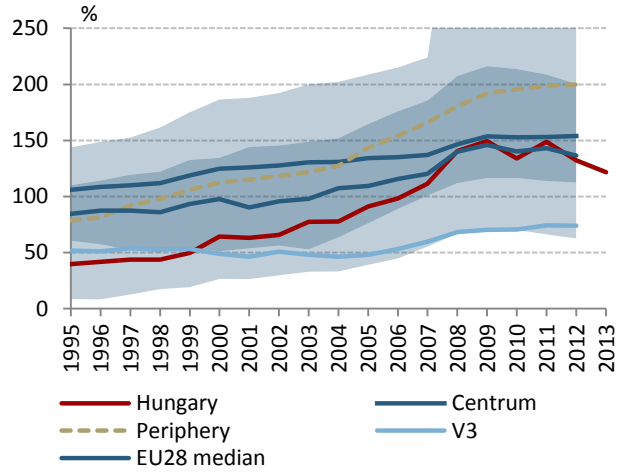
2.2.2. Developments in private sector debt

The private sector played a key role in the pre-crisis build-up of external debt as well as in the post-crisis adjustment. The following section analyses developments in the debt of (non-financial) enterprises and households. Debt is defined as the sum of loans and debt securities. In the course of the analysis, developments in consolidated debt are taken into consideration; in other words, the claims of businesses and households vis-à-vis each other are disregarded.[43] Debt is compared to income in order to

[43] Theoretically, debt within a sector may also pose macroeconomic risks. However, statistical considerations do not support the use of non-

take the repayment capacity of the various participants into account. Consequently, corporate debt is expressed relative to the sector's gross operating surplus, while household debt is relative to disposable income.[44]

Chart 2-13: The debt of nonfinancial corporations and households in Hungary and in the European Union (percentage of GDP)



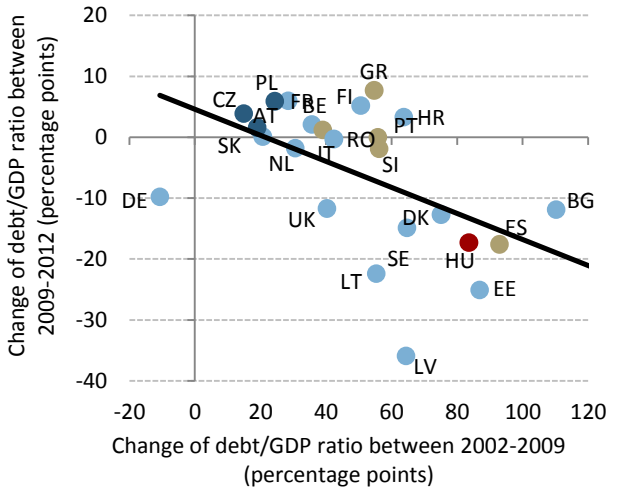
Note: Centrum = AT, BE, DE, FI, FR, NL. Periphery = CY, ES, GR, IE, IT, PT, SI. V3 = CZ, PL, SK. The dark grey band indicates the range between the 25th and 75th percentiles, the light grey band indicates the range between the minimum and maximum values. Debt = debt securities and loans. Consolidated data.

Source: Eurostat

The debt-to-GDP ratio of Hungarian companies and households was among the lowest in the European Union in the early 2000s, whereas at the onset of the global financial crisis, indebtedness was already average in international comparison. The increase in debt must have partly resulted from an equilibrium development, as – similarly to other Central and Eastern European countries – the financial intermediary system was relatively underdeveloped at around the turn of the millennium. However, considerably more debt was accumulated in Hungary than in comparable Visegrád countries. This may have reflected excessive and unsustainable indebtedness.

The pre-crisis build-up of debt was followed by prolonged deleveraging. Between 2002 and 2009, private sector debt increased by 14 per cent of GDP per annum, while between 2009 and 2013, it fell by an annual 6.5 percentage points. Debt deleveraging is proceeding slowly throughout Europe. The fastest reduction is being recorded in countries where the build-up was faster in earlier years. Hungarian debt dynamics are on par with international trends: the rise in debt after 2002 was the third most rapid, and reduction in debt between 2009-2013 ranked fifth in Europe.

Chart 2-14: Change in the debt of non-financial corporations and households between 2002 and 2012 in the European Union



Note: Debt = debt securities and loans. Consolidated data. Excluding LU and MT due to lack of data. The regression line excludes CY and IE.

Source: Eurostat

Several analyses have shown that lending in Hungary prior to the crisis exceeded the capacity of the economy, and a credit bubble appeared. The Magyar Nemzeti Bank published a number of estimations which attempted to quantify the deviation of lending from its long-term (cointegrating) relationship with economic performance (Bauer et al., 2013; Endrész et al., 2014; Kiss et al., 2006; MNB, 2010). These analyses signalled unsustainable indebtedness especially for households in the pre-crisis years. In the European Commission's macro-economic imbalances procedure (MIP), private sector indebtedness

consolidated data. Certain Hungarian companies serve as cash pools, or intermediaries of funds received from foreign parent companies to (domestic or foreign) subsidiaries. The activities of such companies increase the gross debt of non-financial enterprises, although their net borrowing remains zero. On the other hand, the parent companies of foreign-owned businesses may also finance the local subsidiaries in the form of direct investments or loans, and the distinction between these two categories is somewhat blurred. In Hungary these processes involve especially large volumes, and this may distort the debt indicators of the corporate sector (see e.g. Koroknai – Lénárt-Odorán, 2011).

[44] Debt may also be related to other indicators, e.g. to financial assets. These indicators do not change the essential conclusions of our analysis, and therefore they are not described here. The data collected before 2011 is presented in an international comparison by Cuerpo et al. (2013).

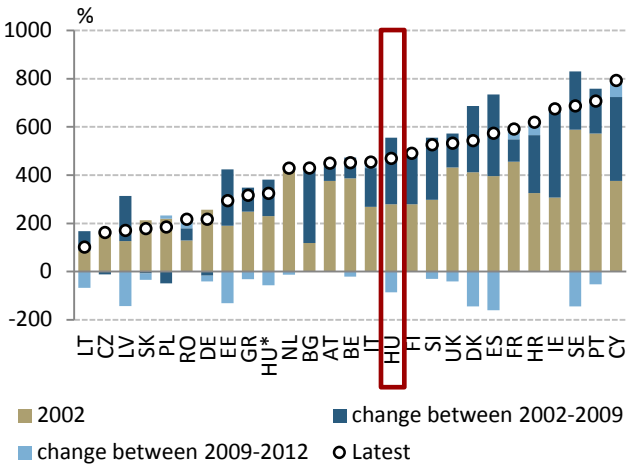
is considered as excessive if it exceeds 150 per cent of GDP. Hungary's debt has exceeded or fluctuated around this level since 2008. However, as methodological features (intercompany loans granted by foreign-owned businesses) bias this indicator upwards, the Commission does not conclusively consider the Hungarian value as excessive (ECFIN, 2014). Cuerpo et al. (2013) assess non-financial corporations' debt as excessive, but their analysis may be distorted by the same methodological problems. By contrast, Lahnsteiner (2013) found the indebtedness and the debt service-to-income ratio of Hungarian households to be extremely high in a regional comparison.

2.2.3. Non-financial enterprises

Hungarian businesses' debt-to-income ratio was already average in the European Union before the crisis and considerably exceeded the indebtedness recorded in other Visegrád countries. This indicator is, however, biased by intercompany loans provided by foreign-owned firms to their local subsidiaries. These can be filtered out with the help of balance of payments data. **The debt ratio adjusted for intercompany loans was similar to the other Visegrád countries in 2002.**

However, corporate debt accumulation between 2002-2009 exceeded the average, and this may have indicated excessive indebtedness. On the supply side, the spread of FX-based loans also contributed to the rapid increase in lending, as due to lower interest rates, they allowed higher leverage ratios and thus eased loan supply constraints (Endrész et al., 2012).

Chart 2-15: Non-financial corporations' debt in international comparison (percentage of gross operating surplus)



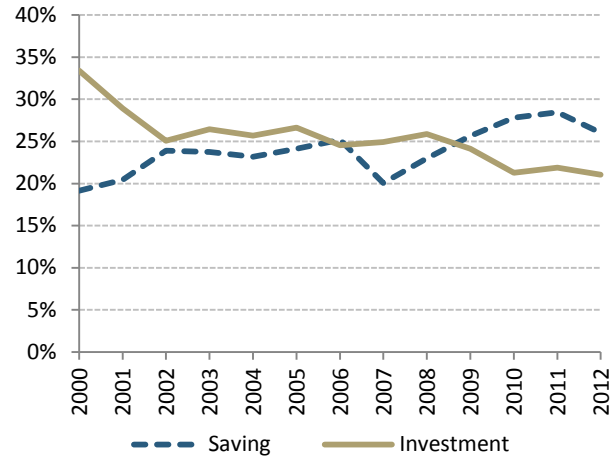
Note: Debt = debt securities and loans. HU* shows Hungarian data without intercompany loans. This correction was only performed on Hungarian data, therefore its comparability with other countries is limited. Consolidated data.

Source: Eurostat, MNB

Following the 2009 drop in output, excessively indebted corporations raised funds required for debt service by cutting their capital investments and production costs. The corporate sector's saving rate rose by 5 percentage points between 2008 and 2011, while the investment rate fell to the same extent. Based on the analysis of Bakker – Zeng (2013), more employees fell victim to the crisis in those European countries where the corporate sector was more heavily indebted before the crisis and the labour market was less flexible. In their estimate, 1-2 per cent of the drop in employment in Hungary between 2008 and 2011 may be attributed to corporate debt deleveraging.

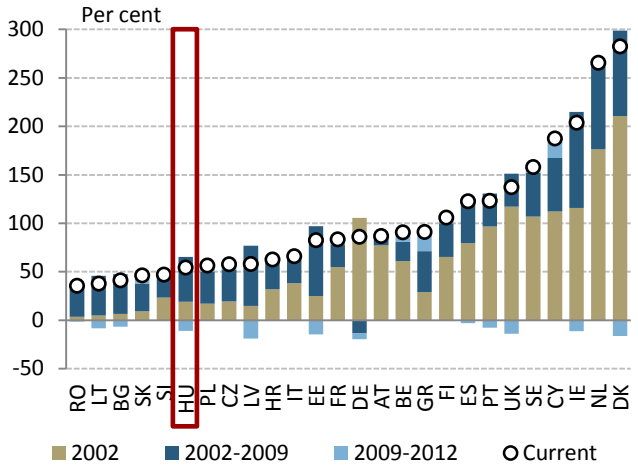
In addition to falling demand, the deterioration of corporate balance sheets played a role in the decline in corporate investment. This is suggested, for example, by the fact that in 2009 the investment rate of companies with a foreign currency loan fell by 4-5 percentage points more than the investment rate of companies with the same features but without an FX loan (Endrész and Harasztosi, 2014). This may be due to the fact that as a result of the revaluation of FX-based debt, corporate indebtedness increased abruptly and unexpectedly.

Chart 2-16: Saving and investment of non-financial corporations (percentage of value added)



Source: Eurostat

Chart 2-17: Households' debt in international comparison (percentage of disposable income)



Note: Debt = debt securities and loans. Households and non-profit institutions servicing households together; consolidated data.

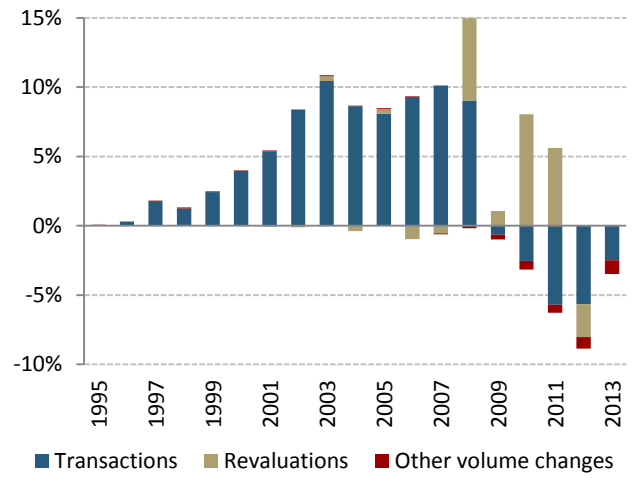
Source: Eurostat, MNB

2.2.4. Households

Although **relative to income, the indebtedness of Hungarian households was not conspicuously high** before the crisis, household indebtedness became a serious problem during the crisis:

- The rate of pre-crisis **debt accumulation was already above average**. A rapid increase in lending may be a symptom of the fact that less creditworthy customers have easier access to loans. Thus, the ratio of vulnerable customers may also be relatively high within the household sector.
- **Due to the spread of FX-based loans, exchange rate depreciation after the crisis considerably increased household debt:** between late 2007 and mid-2014, household debt grew by more than HUF 3000 billion due to revaluations. Moreover, FX-based lending coincided with the most intensive lending period, and therefore debt revaluation presumably hit the most vulnerable households harder.
- Finally, after the crisis households' ratio of monthly instalment to income increased to a level considered high even in an international comparison. The debt burden in the lowest quintile by income continued to exceed 30 per cent of income even in 2013.[45]

Chart 2-18: Evolution of household debt (percentage of disposable income)



Note: Debt = debt securities and loans. Households and non-profit institutions servicing households together; consolidated data.

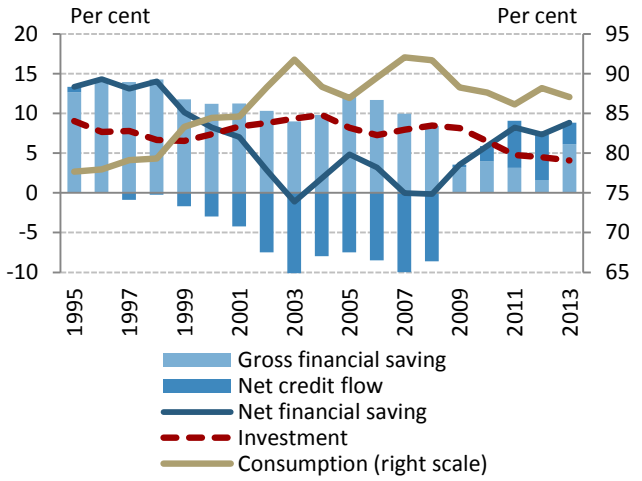
Source: Eurostat, MNB

In the years following the crisis, households became net repayers. In order to repay their debt, households' saving rate considerably increased in 2009–2010, and investment activity continued to shrink until 2013. In addition, financial asset accumulation also slowed, and the gross savings rate fell to a historical low. Finally, as a one-off effect, the early repayment scheme for FX mortgages provided an opportunity for significant debt deleveraging. As a result of these developments, the debt-to-income ratio of the household sector dropped to

[45] Report on Financial Stability, November 2013, Magyar Nemzeti Bank (p. 37).

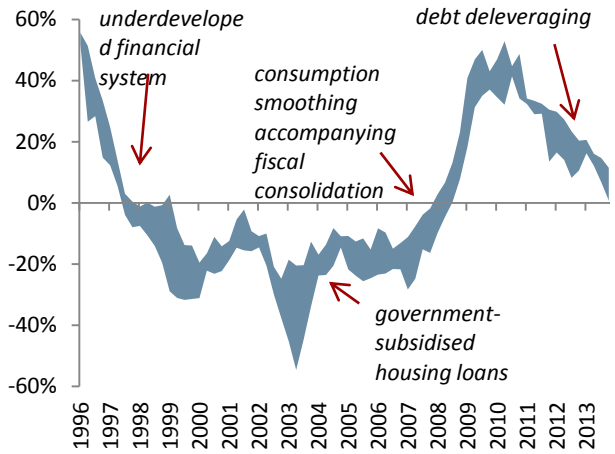
49 per cent by the end of 2013, which was already below the 2007 level.

Chart 2-19: Uses of household income (percentage of disposable income)



Source: CSO, MNB

Chart 2-20: The deviation of household credit stock from its medium-term equilibrium value



Note: Equilibrium credit was estimated with a vector error correction model. The long-run equilibrium level of credit is determined by household income and the cost of credit.

Source: Endrész et al. (2014)

Based on aggregate data, household indebtedness may now approach the equilibrium level. With the help of the vector error correction model in Bauer et al. (2013), it is possible to identify the long-term equilibrium relationships between household income, financial assets and loans, and consumption. Results suggest that by late 2013 the overall indebtedness of households may have contracted to a level that corresponds their income and financial position.

However, there may still be considerable differences between the indebtedness of individual households, and therefore household debt deleveraging may continue. Even in the autumn of 2013, more than half of indebted households considered their debt excessive, which was the highest ratio in Central and Eastern Europe. In addition, barely more than two per cent of the respondents planned to take new loans, which was the lowest ratio in the region (Corti – Scheiber, 2014).

Box 2-1: A recurring Hungarian dilemma: balance or growth

As a recurrent motive in Hungarian economic history, rapid economic growth only took place when accompanied by external indebtedness. Moreover, between the 1970s and the 2008 crisis, **the state played a significant role in debt accumulation, in addition to the private sector**. Consequently, a **twin deficit**, i.e. the simultaneous deficits on the current account and the budget, repeatedly emerged in Hungary (in the 1970s, in 1993–1995, and in 2002–2008).

In small, open and poorly capitalised economies, it is natural that due to the scarcity of domestic funds, the investments required for growth are also financed from abroad. In this case, the new production capacities created by the investments ensure that the economy will be able to repay its debt.

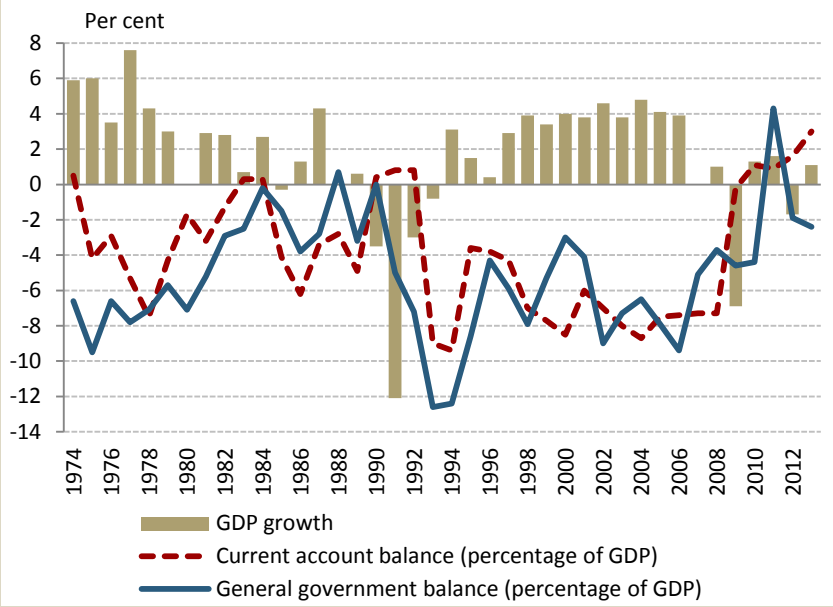
However, in Hungary **foreign resources were repeatedly used for financing consumption instead of investments**, either through government spending or through direct household borrowing. If foreign resources are used for consumption, they typically do not result in the substantial expansion of production capacities.

Moreover, domestic **fiscal policy was frequently pro-cyclical**: the budget deficit increased when the financing capacity of the private sector decreased (e.g. between 2002–2006). Thus, instead of stabilising the economy, fiscal policy increased external imbalances.

For this reason, debt-financed growth came up against barriers from time to time. When external debt or public debt increases to a level that creditors consider excessive, external financing becomes expensive or even dries up entirely. As a result, consumption must be cut to ensure the improvement of the budget balance and current account.

The repeated episodes of the twin deficit in the past can mainly be traced back to deficiencies in economic policy. Amongst other things, they were due to weak control of fiscal policy and inappropriate regulation of the financial system. Thus, an appropriate fiscal policy framework and efficient macro-prudential regulation may both help to prevent the re-emergence of a twin deficit, which may result in a more sustainable growth trajectory in the medium term. Economic growth in the last two years was not accompanied by a deterioration of equilibrium indicators, which might signal that the economy will be able to break free from past pattern of the twin deficit.

Chart 2-21: Economic growth, external balance and budget balance in Hungary since the 1970s



Source: CSO

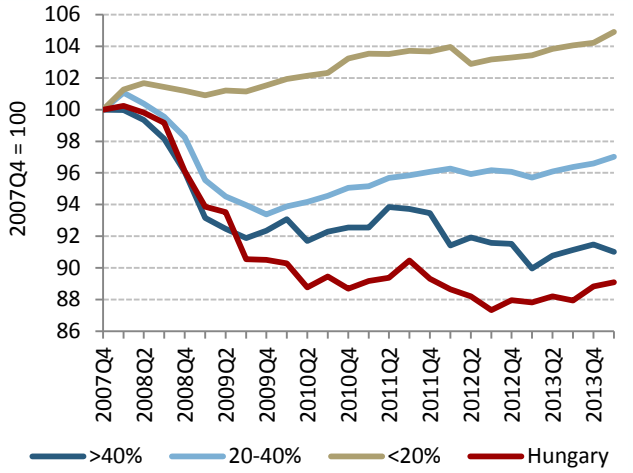
2.3. Aggregate demand adjustment

In the years following the crisis, GDP developments were basically determined by the pressure to reduce debt. The performance of the Hungarian economy most closely resembled that of the most indebted euro-area countries in the periphery. The high initial level of debt not only required more intensive deleveraging by the private sector, it also limited the leeway for fiscal and monetary policy. As a result, during the crisis Hungary applied pro-cyclical economic policies (fiscal consolidation, limiting of exchange rate depreciation), and this further deepened recession in the short term.

The economic downturn affected all of the key demand factors. The decline in consumption is explained by a combination of household debt deleveraging, fiscal consolidation and precautionary savings due to deteriorating prospects. The decline in investments was related for the most part to the weaker growth outlook and corporate debt deleveraging.

The extent of the decline in domestic demand correlates with the pre-crisis debt accumulation. Historical experience shows that the faster the pre-crisis build-up of debt in the private sector was, the deeper the post-crisis economic recession is (Jordà et al., n.a.). However, the adjustment of demand occurred in a slightly different structure in Hungary than in other countries: **in comparison to the other indebted countries, consumption decreased more and investments less rapidly**. In Hungary, revaluation of FX-denominated debt and the resulting additional balance sheet adjustment also contributed greatly to the decline in consumption.

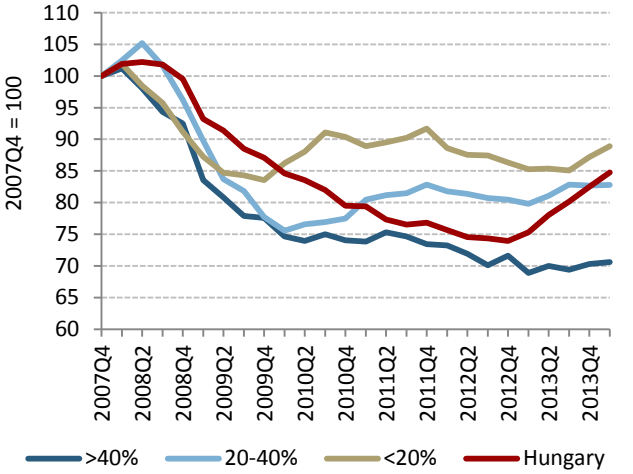
Chart 2-22: The evolution of household consumption expenditure in EU Member States by pre-crisis indebtedness



Note: The lines indicate the evolution of consumption in EU Member States where the net external debt/GDP ratio in 2007 stood in the range defined in the legend.

Source: Eurostat

Chart 2-23: The evolution of investments in EU Member States by pre-crisis indebtedness



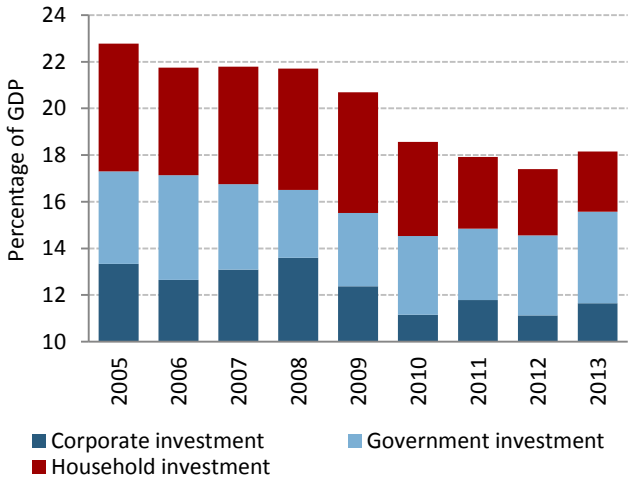
Note: The lines indicate the evolution of investments in EU Member States where the net external debt/GDP ratio in 2007 stood in the range defined in the legend.

Source: Eurostat

Investment activity in various sectors developed in different ways after the crisis. The decline in gross fixed capital formation primarily resulted from the fall in government and household investments. The initial decrease in government investments was primarily explained by fiscal consolidation. However, the utilisation of funds from the 2007–2013 budgetary cycle of the European Union accelerated at the end of the cycle, and consequently, government investment increased

considerably after 2013. Households' real estate investment grew rapidly in the 2000s, but the post-crisis decline in income, the tightening of credit conditions and oversupply in the real estate market resulted in a massive downturn.

Chart 2-24: Development of sectoral investment

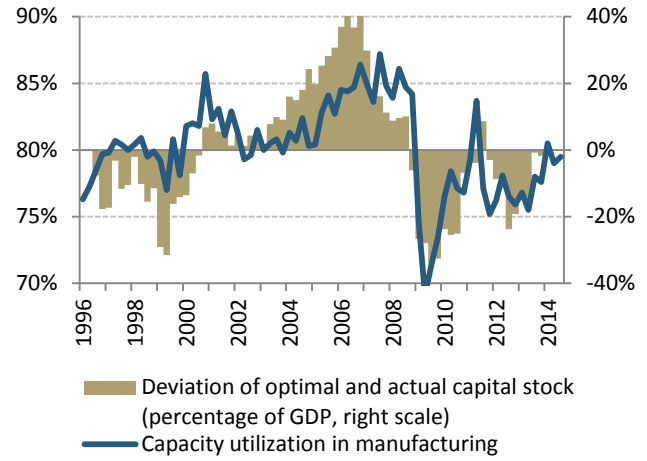


Source: CSO, MNB

Corporate investments were basically determined by the economic growth prospects. Due to the sustained fall in production and weak capacity utilisation, the corporate capital requirement fell. Although the funding costs of larger firms decreased, tighter credit conditions made external borrowing more difficult, especially for companies with unhedged FX-denominated debt. Changes in the tax system affected the various companies to different extents. The 2010 reduction in corporate taxes brought considerable relief to smaller companies. At the same time, the special crisis taxes reduced the return on capital in particular sectors.

The divergence of corporate investments from the long-term equilibrium is analysed with a simple neo-classical model of investments (Caballero, 1999). In the absence of adjustment costs, corporate capital demand is determined by the level of output and the cost of capital. However, the capital stock can only adjust slowly to its optimum level, due for example to financing constraints, uncertainty, or the long gestation period of investment projects. Consequently, there are long-lasting, significant deviations from the long-term equilibrium relationship between the capital stock, output and the cost of capital. In Hungary, most of the 2000s was characterised by a relative capital shortage; in other words, the optimum capital stock was higher than the actual one. Since the crisis, however, output has dropped and a capital surplus appeared, which entailed a downturn in investments. The model suggests that **at about 2013 the adjustment of corporate investments may have come to an end, and the capital stock may have reached a level that corresponds to the current output and cost of capital**. Thus, if the cyclical prospects improve, investment activity may recover. Since the crisis, investment activity was also raised by new capacities in the car industry; while the Funding for Growth programme launched in 2013 improved the access to credit for small and medium-sized firms.

Chart 2-25: The deviation of optimal and actual capital stock in the private sector



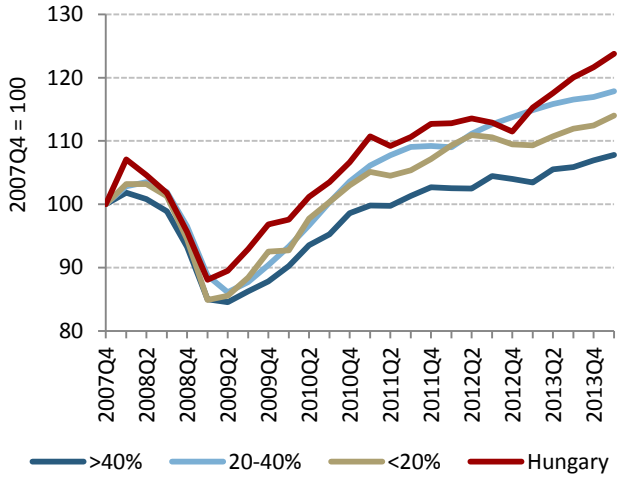
Note: The deviation of optimal and actual capital stock was calculated by estimating a cointegrating relationship between optimal capital stock, output and the user cost of capital; then the observed capital stock was deduced from the optimal value (thus, positive values indicate shortage of capital, negative values signal excess capital relative to the optimum). Dynamic OLS estimation for data between 1996 and 2013 yield the following relationship:: log(Kt/Yt)* = 1.462 + 0.048t - 0.551UCt (where K is the volume of capital in the corporate sector, Y is the volume of GDP, * denotes the optimal value, t is a trend, UC is user cost calculated with the method of Hayashi). All estimated parameters are different from zero at 10 per cent significance level. The trend is included to capture sustained capital deepening in the sample period due to the real convergence of the Hungarian economy. For details of the methodology, see Caballero (1999).

Source: European Commission (ESI survey), MNB calculations

Following the initial fall, export developments were favourable relative to other European countries. Hungary's export output was substantially better than that of the most indebted euro-area countries of the periphery. This may have contributed to the fact that, in contrast to the periphery countries, Hungary managed to reduce its external debt. The more favourable product structure of Hungarian exports and higher non-price

competitiveness may have played a role in stronger exports (the quality of exported products was examined, among others, by Vandenbussche, 2014).

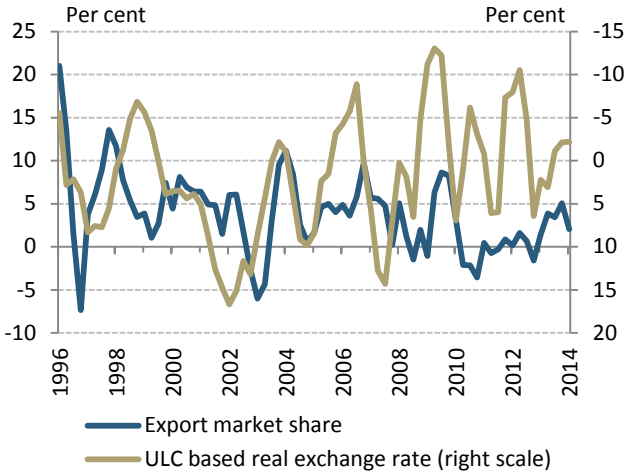
Chart 2-26: The evolution of exports expenditure in EU Member States by pre-crisis indebtedness



Note: The lines indicate the evolution of exports in EU Member States where the net external debt/GDP ratio in 2007 stood in the range defined in the legend.

Source: Eurostat

Chart 2-27: Export market share and unit labour cost (ULC) based real exchange rate in Hungary



Note: Export market share is measured as the ratio of goods and services exports to the import of main trading partners (at constant prices). An increase of the real exchange rate means depreciation.

Source: European Commission, MNB

Due to depreciation of the nominal exchange rate, the price and cost competitiveness of Hungarian exporters improved. However, international experience shows that during this crisis, the real exchange rate played a limited role in external rebalancing (IMF, 2014). After the crisis, the link between the real exchange rate and the export market share also loosened in Hungary. However, in certain sectors, for example in the export of services, real exchange rate depreciation may still have played a significant role.

Box 2-2: Recovery periods following financial crisis

Financial crises entail long-lasting output losses (see e.g. Jordà et al., n. a.). As the repayment of debts accumulated before the crisis takes a long time, domestic demand falls over a longer period. **In open economies, the pick-up in exports may be the main driving force of recovery, which in turn may be facilitated by exchange rate depreciation.**

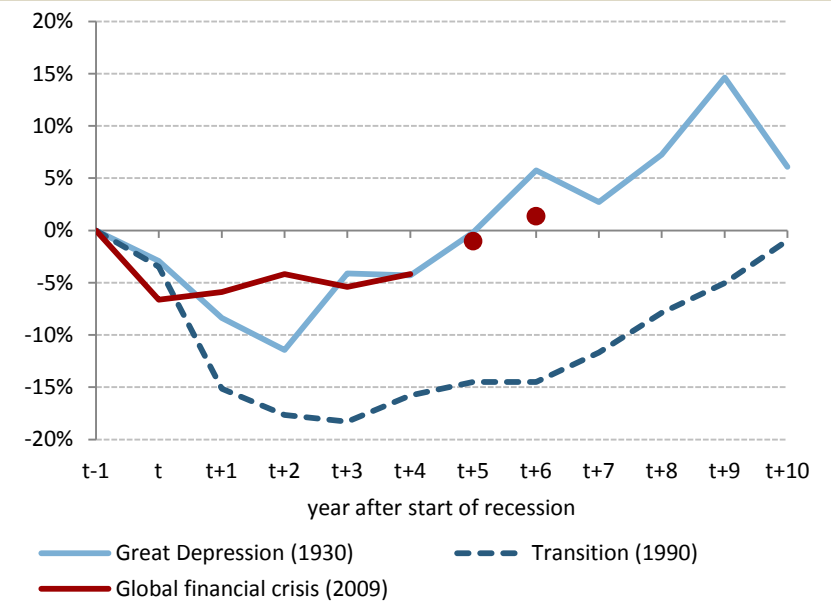
The output loss of the current crisis is larger than in previous typical crisis episodes. This has three main reasons. First, the **debt accumulation** preceding the current crisis **was outstanding in its extent** in comparison to previous crisis episodes in the past (see e.g. Taylor, 2012). Second, the crisis **affected several major economies economy simultaneously**. In a globally synchronised crisis, individual countries also face recession in their export markets, which slows the pick-up in exports. Finally, **within the euro area**, which was hit hard by the debt crisis, **nominal exchange rate depreciation is not feasible**. Accordingly, the countries of the periphery within the euro area made efforts to improve their competitiveness by internal devaluation (cutting domestic wage costs), but this exacerbated the downturn in domestic demand.

Chart 2-28: The evolution of GDP after financial crises

Note: The pre-crisis trend is derived by extrapolating the average growth rate between the t-10 and t-3 years (where t is the year of the crisis). The band indicates the 90 per cent confidence interval of the average of previous crisis episodes. For details of the methodology see Abiat et al. (2009). The country series show actual and forecasted values since the 2008 crisis.
Source: IMF World Economic Outlook Database, April 2014

In the case of Hungary, the current crisis is worth comparing to two previous outstanding economic downturns: the Great Depression that started in 1929/1930, and the 1990 recession caused by the transition from the socialist system.

Chart 2-29: Recovery periods after major recessions in Hungary



Note: Deviation of GDP from its pre-crisis level. In the case of Great Depression, per capita GDP. Dots indicate forecasts for 2014-15, based on the September 2014 Inflation Report of MNB.
Source: KSH, Maddison adatbázis, MNB

In Hungary, the current crisis resulted in a recession that is slightly milder than the Great Depression: GDP fell by 6.6 percent, while the reduction amounted to 11 per cent after 1929. **However, recovery was similarly slow and uneven.**

Following 1929, output decreased for three years, while in the recent episode another downturn took place in 2012. According to the MNB's forecast, GDP may recover to the pre-crisis level in the sixth year following the crisis; after 1929 this recovery took five years.

The 1990 transition caused a recession that was deeper and longer than the financial crisis: GDP fell by 18 per cent and recovered to the 1989 level only after a decade. Such a deeper recession may have been explained by the profound changes in the economic structure and the collapse of Hungary's main export markets (the Soviet Union and the COMECON).

2.4. Labour market adjustment

The crisis overall took a heavy toll on society: employment dropped rapidly and drastically, and the unemployment rate rose to above 11 per cent.

In the years preceding the crisis, one of the principal structural weaknesses of the Hungarian economy was low labour market participation (for more details, see Kátay, 2009). Low labour market participation and employment rates impeded the growth potential of the economy, and imposed an excessive burden on welfare services. In addition, the pre-crisis period was characterised by persistently high wage dynamics, which may have contributed to the fact that inflation continually exceeded the central bank's medium-term goal. **Following 2008, the participation rate rose, employment recovered to the pre-crisis level earlier than output**, and wage growth remained subdued, helping to maintain the post-crisis disinflation.

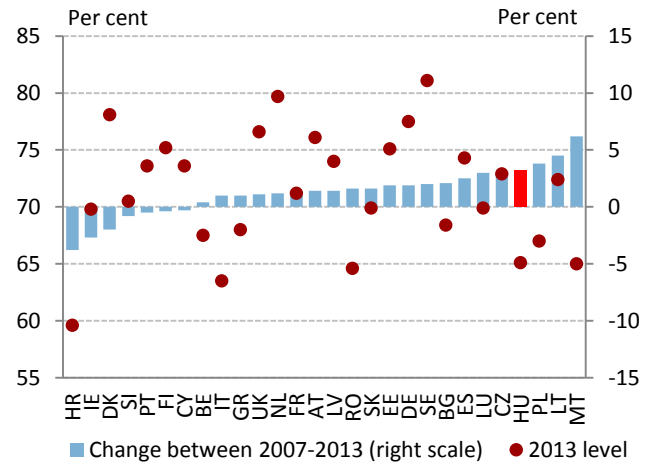
In the years after the crisis, labour market developments were shaped by the dual trends of **subdued demand and increasing labour market supply**. In the short term, declining demand and increasing supply resulted in rising unemployment, and efforts were made to reduce this through public work programmes. On the other hand, stronger incentives for employment may have a beneficial impact on economic growth over the longer term. Finally, labour market slack made it possible to break the persistently high wage dynamics. The flexible adjustment of wages may have contributed to the fact that the employment loss remained moderate in comparison to the drop in demand. In addition, moderate wage growth may facilitate price stability in the longer term.

A brief description of the factors underlying growth in labour market participation is presented below, followed by an overview of the institutional factors behind the relatively favourable performance of employment.

2.4.1. Increasing labour force participation

While labour force participation has increased since the crisis, by international standards it has been relatively low in Hungary for a longer time: the country's labour force participation rate was the third lowest among the EU Member States before the crisis. This deficit in labour market participation may be attributed primarily to a few (partly overlapping) social groups (people with low qualifications, women with small children, young adults, people just before retirement). Nonetheless, even the participation rate of highly qualified people is the lowest in international comparison.

Chart 2-30: Activity rate in EU countries



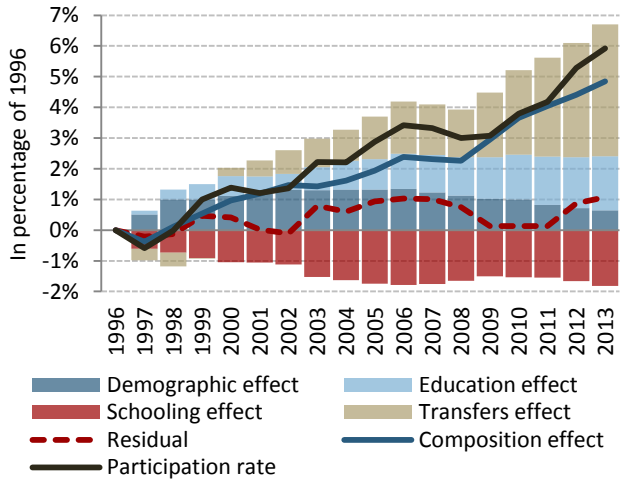
Source: Eurostat

The reasons for low labour force participation can be traced back to the years following the transition from the socialist system. Employment fell by 30 per cent in the wake of restructuring accompanying privatisation and stringent bankruptcy regulation. In addition, the matching of labour demand and supply deteriorated considerably. Welfare institutions led the people released from employment towards inactivity (through early retirement, disability pensions, social security benefits), thus reducing the participation rate in the long term. The participation rate only started to grow in 1997, increasing by approximately 2 percentage points before the crisis, and rising by another 2 percentage points since 2009. Despite

this rise, the participation rate is still considered to be low by international standards. This is because labour force participation has also increased in other countries since the crisis. This may be explained by the added worker effect: if the crisis reduces the income of a family's primary breadwinner, then other family members may seek employment to make up for the income loss. Precautionary savings or the need to reduce excessive debt may also be incentives for the activation of secondary earners.

Since the beginning of the crisis, participation has increased primarily because of the restructuring of welfare transfers (Kátay and Nobilis, 2009). By tightening the conditions of old-age and disability retirement, the government reduced flows into inactivity, and by cutting the amount and term of social benefits it discouraged people from leaving the labour market. In addition, the job protection plan – which mainly supported labour demand – and public work programmes also facilitated access to jobs for groups with low participation rates, and consequently, their exit from inactivity.

Chart 2-31: Factors behind the increase of labour market participation

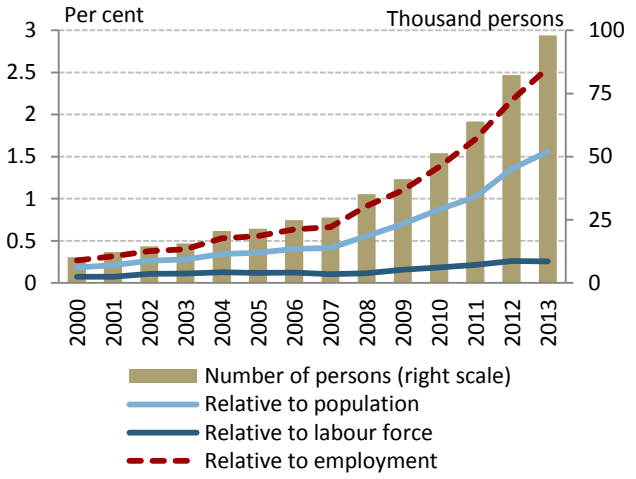


Note: The decomposition on the chart is based on the observation that the participation rate of certain demographic and social subgroups is relatively stable over time. The demographic effect stems from changes in the composition of population by age and sex. The education effect reflects the effect of changes in the average education attainment of the population. The schooling effect captures changes in the average years spent in school. The transfers effect stems from changes in the number of people receiving welfare benefits (e.g. pension, maternity support, social benefits). The composition effect is the sum of these effects, while the residual is the deviation from observed data.

Source: MNB calculations based on CSO data using the methodology of Kátay & Nobilis (2009)

In the meantime, since the crisis the increase in outward migration from Hungary poses a new challenge. There are numerous different motives behind emigration, the most significant being the difference in income levels in comparison to developed economies. In addition migration has also been substantially boosted by accession to the EU, and then the lifting of temporary restrictions by some Member States, making employment abroad considerably easier. Among those employed abroad, **people with higher qualifications, younger people and potentially more productive workers** are overrepresented (for more details, see Bodnár and Szabó, 2014). Thus it is of key significance for medium-term growth prospects whether employment abroad is temporary or permanent. If it is transitional, then the experience obtained abroad and the incomes transferred home may turn the economic balance of migration positive. In the case of permanent migration, however, the country may lose considerable human capital and this may translate into an obstacle to growth.

Chart 2-32: Workers employed abroad according to the Labour Force Survey



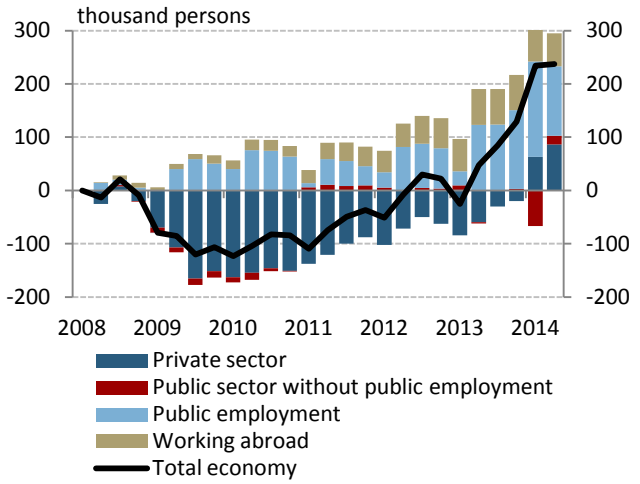
Source: CSO

2.4.2. Employment developed more favourably than output after the crisis

At the end of 2008, companies' demand for labour dropped considerably as a result of reduced aggregate demand. Consequently, the total number of people in employment fell by about 150,000 between 2008 and 2010. Employment reached its low in 2010, a few quarters after the trough in GDP. Subsequently, **following the return of economic growth, the number of people in employment also started to grow.** In 2012 H1, the total number of people in employment reached the pre-crisis level, and by 2014 the total number of people in

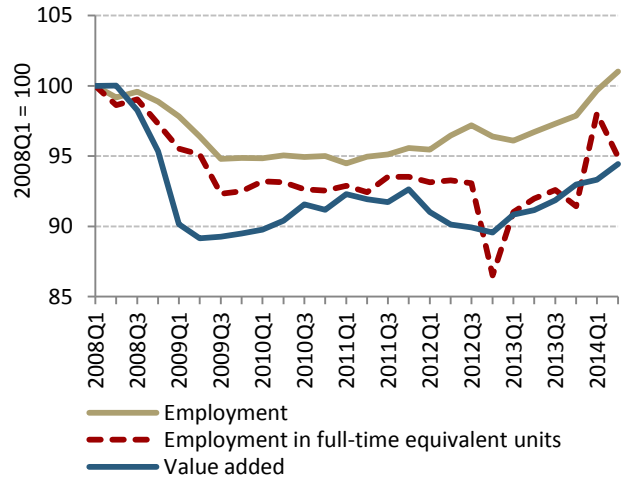
employment exceeded 4 million. Public work programmes played a significant role in the overall expansion of employment. In addition, the number of people employed abroad has also increased considerably. We only have reliable time series data for people employed on a temporary basis at foreign sites: their headcount increased by about 60,000 in the years following the crisis. In the domestic private sector employment growth was slower. Private sector employment fell well below the levels observed before 2008, and exceeded it only in early 2014.

Chart 2-33: Decomposition of the cumulative change of employment since 2008Q1



Source: CSO (Labour Force Survey)

Chart 2-34: Employment and value added in the private sector since 2008

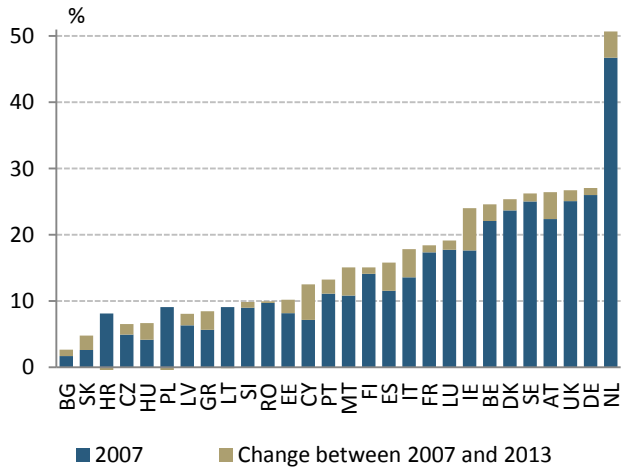


Source: CSO

The total number of hours worked gives a more precise picture of labour utilisation in the economy, as compared to the number of employed. Taking the average number of hours worked by an employee into consideration, labour demand **remained below the pre-crisis level even in 2014. This is because increasing employment was accompanied by shorter average working hours.** The reduction in the number of hours was due in part to the decrease in the hours of people in full-time employment, and in part to the spread of part-time employment.

Prior to the crisis, part-time employment was extremely rare in Hungary: in 2007 barely 5 per cent of employees were employed part-time, whereas in some Western European countries the comparable figures exceeded even 20 percent. The lack of part-time employment may have been related to the low participation rate of certain groups (e.g. young people, women with small children). **Both cyclical and persistent factors contributed to the spread of part-time employment after the crisis.** In manufacturing, labour hoarding may have been the principal motive: if employee dismissal or hiring is costly, then laying off the best qualified employees is not reasonable during a temporary decline in demand. In this case, a temporary reduction of working hours may be more expedient. In the service sector, more permanent and structural changes may have taken place instead: labour demand may have shifted towards employment with more flexible working times, which also facilitates part-time employment (for more details, see Bodnár, 2014). This trend was also supported by the new Labour Code, which eased the application of flexible employment forms.

Chart 2-35: Change in the proportion of part-time workers

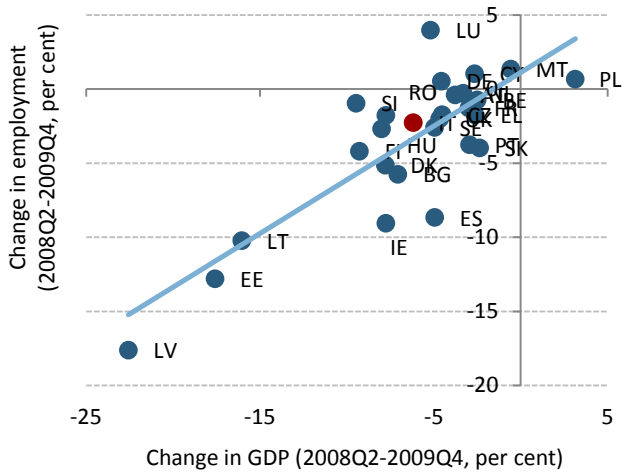


Source: Eurostat

In a European comparison, employment in Hungary responded less to the 2009 recession: the number of people in employment did not decrease to the extent implied by the contraction of demand. Downturns

accompanied by financial crises are generally followed by permanently high unemployment and jobless recoveries. By contrast, in Hungary **employment returned to pre-crisis levels before output.**

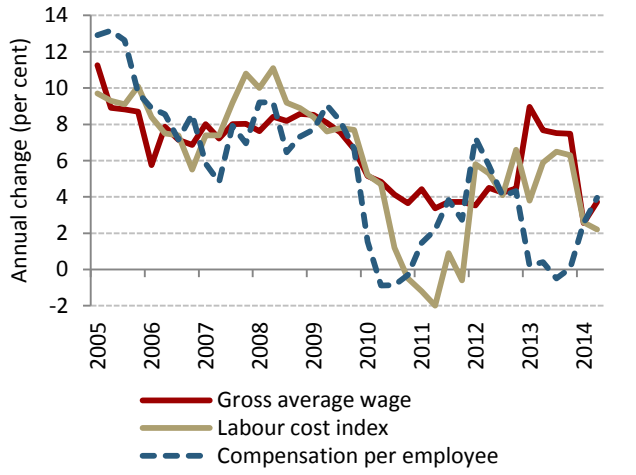
Chart 2-36: The decline in GDP and employment during the crisis in EU Member States



Source: Eurostat

Labour market institutions (and reform measures) played a major role in the relatively moderate employment loss. On the one hand, they facilitated real wage adjustment, and on the other, they may have contributed to the spread of part-time employment, and finally, over the medium term, they may encourage job creation.

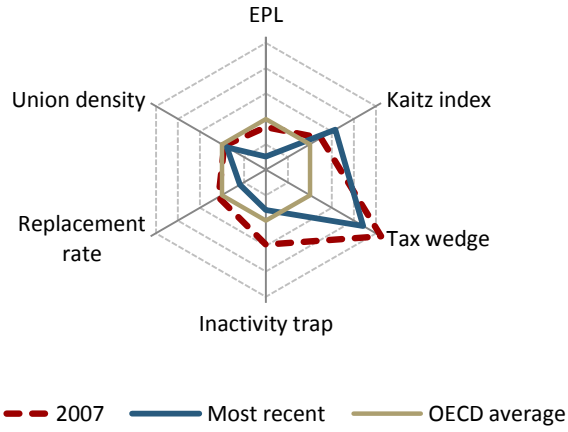
Chart 2-37: Wage developments in the private sector



Source: Eurostat, CSO

Calvo et al. (2012) find that after financial crises, higher inflation entails more intensive real wage adjustment and less employment sacrifice (*wageless recovery*), whereas with low inflation the employment sacrifice is higher (*jobless recovery*). Hungarian companies are in a strong bargaining position in terms of wage setting: wages are not centrally regulated; wages are rarely indexed to inflation; with the exception of a few sectors, trade unions are weak; and finally, employment protection legislation is among the most lenient in Europe. According to a survey by Gál et al. (2013), after 2008, out of 20 OECD member states, real wage adjustment was the strongest in Hungary, while the employment adjustment was the third lowest. Real wage adjustment was not only due to subdued nominal wages, but also to the reduction in employer contributions and to the rise in inflation in 2009 as a result of exchange rate depreciation (as well as indirect tax hikes).

Chart 2-38: Hungarian labour market institutions in international comparison



Note: EPL = Employment Protection Legislation (higher values indicate stricter rules). Kaitz index = ratio of minimum wage to median wage. Tax wedge = ratio of taxes and social security contributions at average wage. Inactivity trap = marginal tax rate on labour if an inactive person becomes employed (average value for all reported income levels). Replacement rate = unemployment benefits relative to labour income (net, first year after job loss, average value for all reported income levels). Union density = ratio of union members among employees. The indicators were standardized, and thus represent deviations from the OECD average in points of standard deviation. One unit on the axis represents 0.5 standard deviation, values increase from the centre.

Source: OECD

Certain labour market institutions may have substantially limited job creation before the crisis. However, after the crisis progress was made in several respects. In an international comparison, the tax wedge on labour was high. Moreover, the ratio of the minimum wage to the average wage (the Kaitz index) was also high in the 2000s. Upon transformation of the personal income tax system and social benefits, the tax wedge

decreased. By contrast, the Kaitz index remained relatively high.

The spread of part-time employment was also due to changes in the labour market institutions, although for the time being detailed information is not available about the effects of the individual measures. Rules for simplified employment, adopted in 2010, reduced the administrative burdens on casual employment; work sharing (when a single job is performed by several persons) was supported by lower social security contributions; and the regulation of working hours became more flexible.

Labour market institutions also influence the post-crisis recovery in employment. The findings of Bernal-Verdugo et al. (2013) suggest that in countries with more flexible labour markets the initial employment sacrifice of banking crises is stronger, but it dissipates over the medium term. For instance, the loose regulation of dismissals first reduces job losses, but over the longer term it discourages companies from job creation. In addition, generous social security benefits may reduce the intensity of job seeking and increase the reservation wage of the unemployed. In Hungary, the regulation of dismissals was already lenient before the crisis, and this was further eased by the new Labour Code. The duration of unemployment benefits became shorter, and the conditions of (disability and old-age) retirement, sickness and social security benefits became more rigorous. As a result of these developments, **labour market flexibility has increased further in Hungary since the crisis.** Over the medium term, all of this may facilitate job creation. In addition, **changes to the personal income tax system** considerably reduced the marginal tax rate of more productive employees earning higher incomes; this **may encourage employees to make additional efforts.** According to the calculations of Benedek et al. (2012), performed by a micro-simulation model, the tax and transfer changes adopted after 2010 may result in as much as 2.5 per cent employment expansion over the long term.

2.5. Supply side developments

The decline and structural changes in demand were also followed by the supply side of the economy. Due to the decrease in domestic demand and the relatively favourable export performance, the output structure shifted towards tradable sectors after the crisis. On the other hand, unutilised capacities, credit supply constraints and measures aimed at increasing labour supply may have increased the labour intensity of production overall. A detailed analysis of these developments is presented in the following.

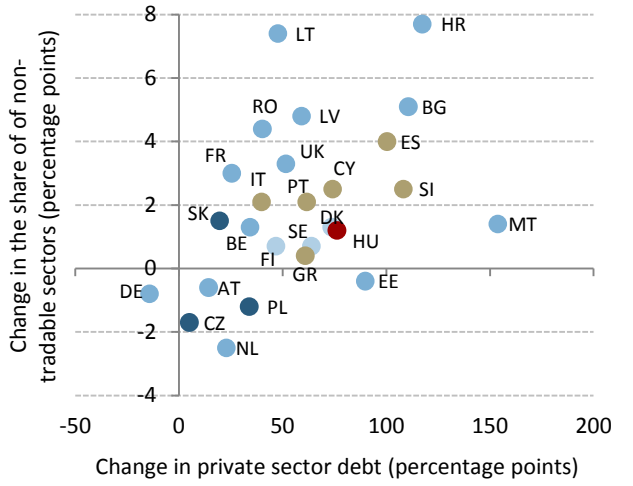
2.5.1. Tradable sector gains significance

The years preceding the crisis were characterised by an expansion of sectors producing for domestic demand, but since 2008 the share of export-oriented sectors has increased. This phenomenon can be observed all over Europe. The expansion of the non-tradable sector is in part a natural phenomenon, reflecting the continuous growth of the service sector. At the same time, the growth of the non-tradable sector **was also fuelled by private sector indebtedness:** real estate financing facilitated rapid growth in the construction industry, while loans granted for consumption purposes may have promoted expansion in trade and other service sectors. Finally, expansion in lending automatically increased value added in the financial sector.

In the real economy, the repayment of external debt is facilitated by the reallocation of resources towards the tradable sector (exporters). The reallocation of production and productive resources is encouraged by changes in the relative prices of traded and nontraded sectors.[46] If prices of export products increase relative to the prices of non-tradable products, domestic consumption is slowed and export is encouraged, thus facilitating an improvement in the balance of payments position. Consequently, in countries where considerable debt was accumulated before the crisis, the significance of non-tradable sectors has started to erode since the crisis.

[46] Benczúr and Kónya (2013) present a formal description of this process.

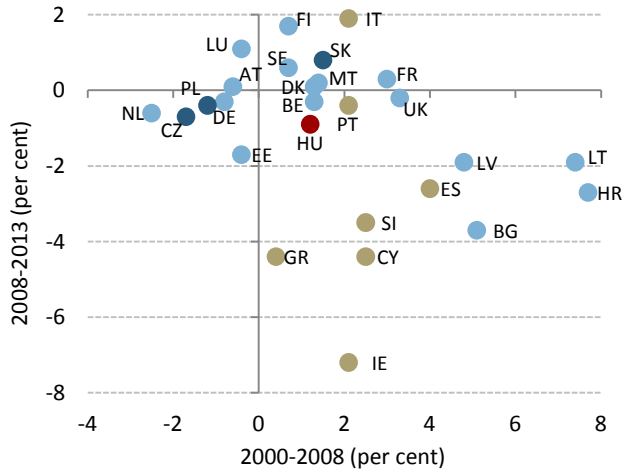
Chart 2-39: Changes in private sector debt and in the share of non-tradable sectors in EU Member States between 2000 and 2008 (percentage of GDP)



Note: Non-tradable sectors = trade, accommodation, transport, finance, real estate, other personal services. Debt = debt securities and loans (not consolidated data).

Source: Eurostat

Chart 2-40: Change in the share of non-tradable sectors in EU Member States between 2000 and 2013 (percentage of GDP)

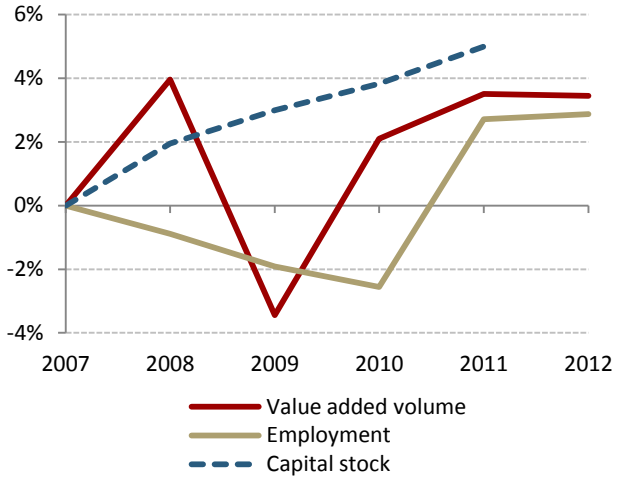


Note: Non-tradable sectors = trade, accommodation, transport, finance, real estate, other personal services.

Source: Eurostat

An important mechanism facilitating structural change is exchange rate depreciation, which raises the price of export products expressed in the domestic currency. In addition, in Hungary's case **fiscal policy may have also fostered a reallocation of resources between sectors**. Consumer tax hikes and the simultaneous reduction of the labour tax wedge may have similar consequences to an exchange rate depreciation in the real economy (Farhi et al., 2014). In addition, the crisis-related special taxes also typically affected the non-tradable sector.

Chart 2-41: Changes in relative value added and factor inputs since 2007 (tradable/non-tradable)

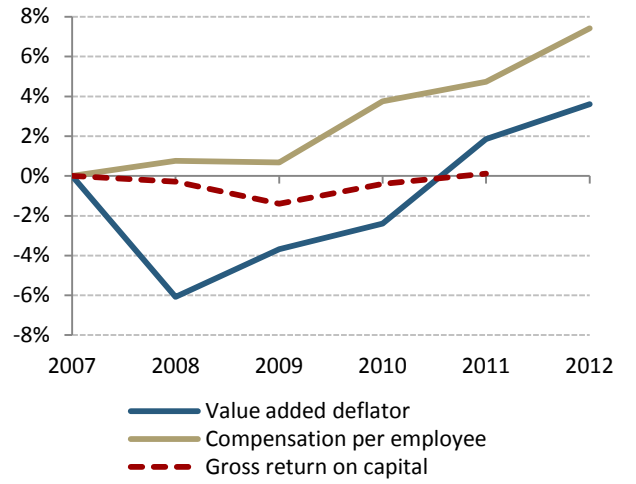


Note: Based on national accounts data. Tradable = agriculture, industry, accommodation, transport and storage, information and communication, professional, scientific and administrative services. Non-tradable = construction, trade and repair, finance, real estate, other personal services.

Source: CSO

The sectoral rearrangement of production has been perceptible in real variables and in prices since the crisis. By 2012, the share of tradable sectors in value added, in the capital stock and in employment had increased tangibly. Meanwhile, the relative wage level of the tradable sector increased by nearly 8 per cent. Rearrangement between sectors may continue in the next few years, as external debt reduction typically takes a longer time, and the reallocation of productive resources also proceeds gradually.

Chart 2-42: Changes in the relative prices of output and factor inputs since 2007 (tradable/non-tradable)



Note: Based on national accounts data. Tradable = agriculture, industry, accommodation, transport and storage, information and communication, professional, scientific and administrative services. Non-tradable = construction, trade and repair, finance, real estate, other personal services.

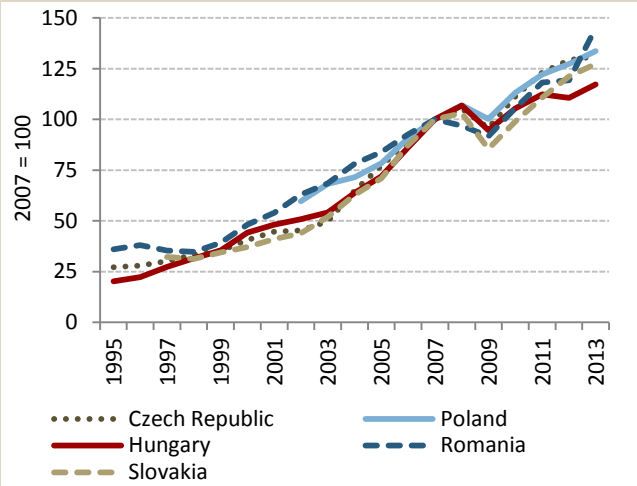
Source: CSO

Box 2-3: Competitiveness of Hungarian exports

Level of exports exceeds substantiallya pre-crisis levels. The global financial crisis, starting in 2007–2008, resulted in a decline in international trade, and since the trough of the crisis, its growth rate has been lower than before the crisis. In most European countries, the level of export already exceeds those observed before the crisis (Chart 2–43). This is true for Hungarian exports – measured in volumes and in current prices – as well. However, compared to the countries in the region, Hungarian exports have increased at a little bit slighter rate.

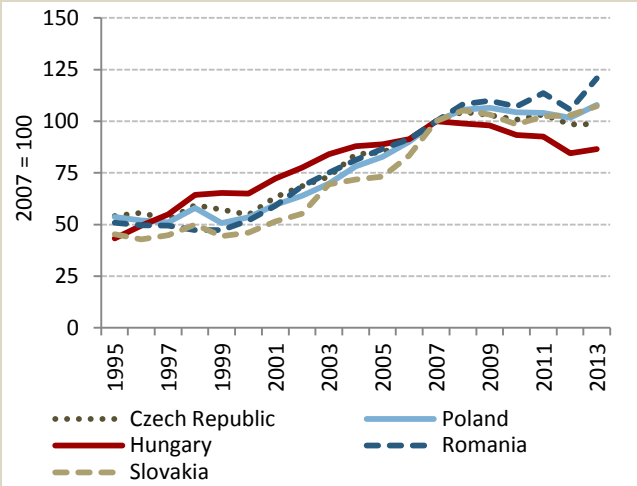
Market share of the Hungarian exports has declined after 2006. Market share of exports – one of the main indicators of export competitiveness – grew fast until the early 2000s. In the pre-crisis years, the growth rate of market share declined both in absolute terms and relatively to the competitors in the region, while its level dropped markedly since the start of the crisis till 2013 (Chart 2–44). This may reflect a decline in export competitiveness, however, it is also important to examine the driving forces of this phenomenon.

Chart 2-43: Volume of exports in Central and Eastern European countries (exports of goods and services)



Source: Eurostat

Chart 2-44: Export market share (exports of goods and services at current prices)



Source: WTO

Developments in export market share are partially related to the restructuring of the manufacturing sector. In the electronics sub-sector significant capacities were abolished, explained mainly by the global problems experienced by major companies in the sector (e.g. Nokia, Elcoteq). Abolished capacities in the sector resulted in a shrunk of export volume by around 3 percentage between 2010 and 2013. As opposed to this, new capacities in the automobile production started to operate mainly since 2013. The effect of the post-crisis abolishment of existing capacities appeared in the indicators of production faster than the implementation of new investment projects and the installation of new capacities. As a result, the restructuring of manufacturing lead to a decline of export market share in the short run, while in the long run production in the new automobile factories may contribute to a further increase of export market share (Quarterly report on inflation, March 2014, Box 1–3.) This has been realised in 2013 towards the European Union, however, share of Hungarian exports in world trade could not increase yet, the difference explained by the diverging rate of growth of the European Union and the world economy

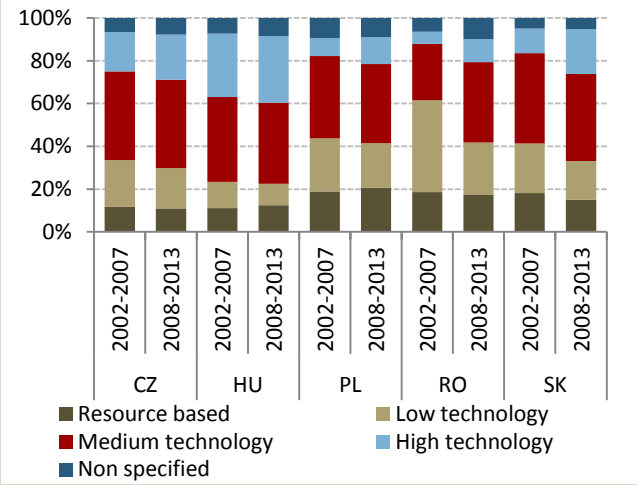
The quality of Hungarian export products is good in a regional comparison, while the level of their prices is high. Prices of Hungarian export products have been stagnating in the last decade, while the regional competitors could increase their export prices. This is presumably a result of a high price level of Hungarian export prices, while countries in the region have gradually converged to this level. Unit value of export products is high mainly in case of trade inside the European Union, giving a major part of export. The high price level may reflect the good quality of Hungarian export products. Relative improvement was most significant until the early 2000s[47] (Hallak – Schott, 2008). After that, other regional countries may have converged, contributing to the fast increase of the price level of their export products. According to the examinations of Benkovskis – Rimgailaite (2011)[48], quality and variability of Hungarian export products is similar to the regional competitors, while a significant improvement was observed between 1999 and 2009. Our calculations suggest that the ratio of high-technology products – an indicator of quality – is highest in Hungary in the region (Chart 2–45). The 2014 Report of the European Commission on export quality found that quality of Hungarian export was one of the best ones before the crisis and it could improve its ranking by 2011.

Despite the high level of economic openness, value added ratio of Hungarian exports is relatively low (Chart 2–46). The openness of the Hungarian economy is significant. Since the growth rate of global trade is lower than it was before the crisis, growth contribution of exports can be supported mainly by a higher domestic value added of exports.

[47] Hallak, Juan Carlos–Schott, Peter K. (2008): Estimating Cross-Country Differences in Product Quality, NBER Working Paper, 13807

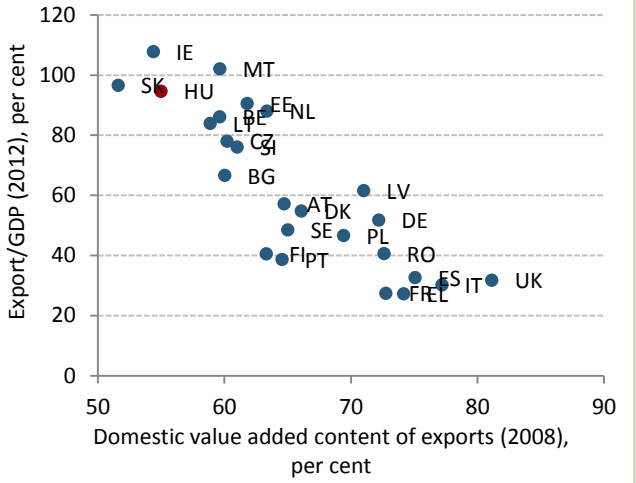
[48] Benkovskis, Konstantins – Rimgailaite, Ramune (2011): The quality and variety of exports from the new EU member states. Evidence from very disaggregated data, Economics of Transition, Volume 19(4) 2011, pp. 723–747

Chart 2-45: Technology structure of exports of goods in Central and Eastern Europe



Source: Eurostat

Chart 2-46: Domestic value added content of exports and the export/GDP ratio



Source: Eurostat, OECD TIVA

One way to increase the domestic value added component of exports is to strengthen the role of Hungarian suppliers. One explanation for the low domestic value added content is that exports are highly concentrated. 80 per cent of exports is carried out by roughly 5 per cent of enterprises[49]. Most of these are large multinational enterprises that optimise their production on global level. Hungary joined the global production chains at the lower value-added segment, similarly to other Central and Eastern European countries. This resulted in a high import content of production. Although research found that foreign direct investment had positive effect on Hungarian enterprises[50], the Hungarian economy is characterised by significant duality. Smallest companies do not take part in foreign trade, and their productivity also lags behind that of large enterprises taking part in external trade. The lag is marked mainly in manufacturing where productivity of small and medium sized enterprises is as small as 20-50 per cent of the corresponding value of large companies. Taken together, these factors point to a substantial level of duality that hampers both the increase of productivity and competitiveness of exports. Higher involvement of local suppliers in the global production chains would result in an increase of domestic value added of exports as well as a higher productivity of domestic small and medium sized enterprises.

Increasing the ratio of services exports would also result in a higher domestic value added of exports. The import content of the services exports is lower than that of goods exports, thus, increasing the ratio of services exports would result in higher domestic value added content of exports. Services exports amount only to a fifth of total ex-ports at the moment. Similarly low ratios are observed in other countries of the region (Chart 2–47), that may be a result of a low ratio of services to GDP. However, the significance of services exports in the external balance is much bigger: in 2013, a half of the positive balance of external trade came from the external trade of services[51]. This was supported by the fact that the global trade of services recovered earlier than the trade of goods (Chart 2–48). Since exports of services are less sensitive to business cycles[52], diversifying exports would also result in lower volatility of the economic growth.

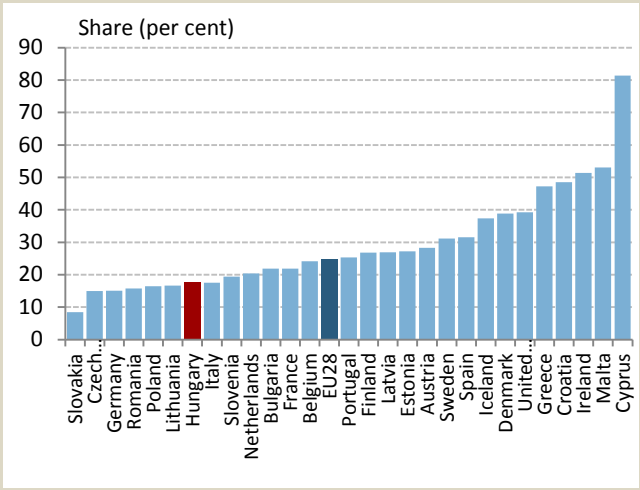
[49] Békés, Gábor–Halpern, László–Muraközy, Balázs (2013): Heterogeneous firms and foreign trade, Közgazdasági Szemle (Economic Review), Vol. LX, January 2013, pp. 1–24.

[50] Halpern, László–Muraközy, Balázs (2010):Innovation and company performance in Hungary, Közgazdasági Szemle (Economic Review), Vol. LVII, April 2010, pp.293–317.

[51] Magyar Nemzeti Bank (2014): Inflation Report, June 2014, Box 3-2.

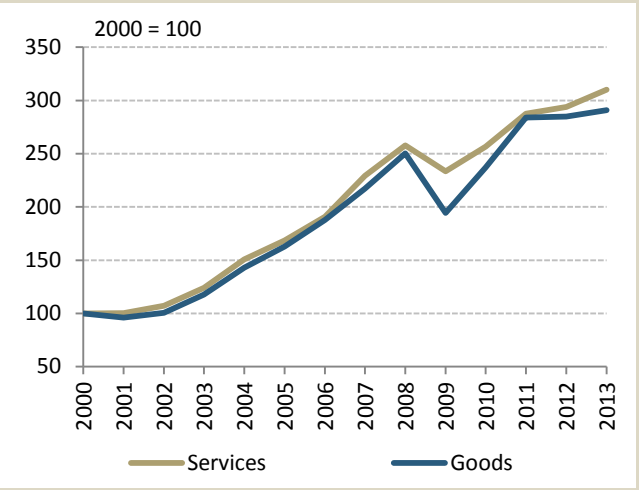
[52] For a more detailed explanation see Bodnár, Katalin—Molnár, György—Pellényi, Gábor—Szabó, Lajos—Várhegyi, Judit (2013): Dynamics of the trade balance and developments in exports and imports, MNB Bulletin, October2013

Chart 2-47: Share of services in exports (2012)



Source: Eurostat

Chart 2-48: The evolution of world trade



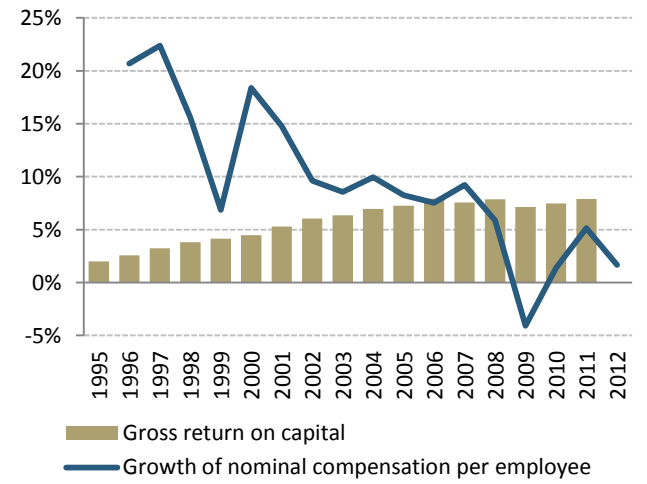
Source: World Bank

2.5.2. Production becoming more labour intensive

After the crisis, labour productivity growth slowed in the Hungarian economy, and this was interpreted by some of the observers as a deterioration in competitiveness.[53] However, the slowdown in productivity is explained in part by the natural adjustment of the economy: the relative volumes of production factors can follow the changes that take place in their relative prices. As labour has become cheaper relative to capital since the crisis, production may have become more labour-intensive.

In the decade that preceded the crisis, capital intensity increased considerably in the Hungarian economy. During the years leading to the crisis, (nominal) wages increased by around 8-10 per cent in the private sector. At the same time, the (nominal) return on capital rose from 5 per cent in the early 2000s to nearly 8 per cent.[54] The relative increase in the price of labour was accompanied by a massive expansion in the capital intensity of production. Between 1999 and 2009, the relative price of labour increased by approximately one-third, while employment remained broadly stable, and the capital stock per employee increased by one quarter.

Chart 2-49: The cost of capital and labour in the private sector



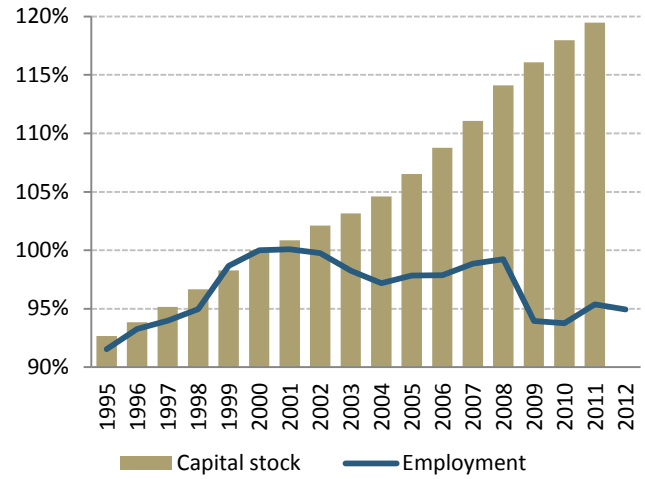
Note: Based on national accounts. Gross return on capital = gross operating surplus and mixed income relative to real capital stock (at 2005 prices). Electricity, gas, heating and water supply, and transport are excluded from the private sector.

Source: CSO

[53] See e.g. ECFIN (2014, p. 24): "Hungary's manufacturing productivity growth has also been lagging behind compared to regional peers, i.e. the export performance could have been hindered by supply side constraints."

[54] The return on capital was calculated on the basis of national accounts, as a ratio of gross operating surplus to real capital stock. For the purposes of the analysis, the private sector excludes the energy and transport sectors: these industries have a high share of state-owned companies, whose investment decisions do not necessarily depend on the market rate of return.

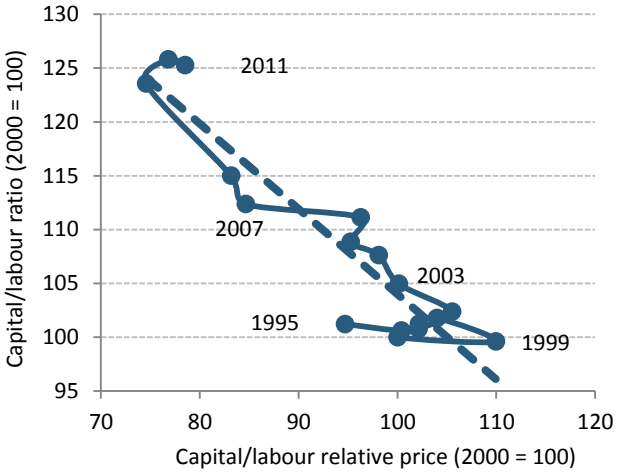
Chart 2-50: Capital stock and employment in the private sector (2000=100%)



Note: Based on national accounts. Capital stock is measured at 2005 prices. Electricity, gas, heating and water supply, and transport are excluded from the private sector.

Source: CSO

Chart 2-51: The relative price and usage of capital and labour in the private sector



Note: Based on national accounts data. The dashed line is a linear trend fitted on data between 1995 and 2011.

Source: CSO

Since the crisis, the relative price of labour has been reduced by several factors. Firstly, as a result of the financial crisis, the interest premium on corporate credit has steadily increased (by approximately 100–150 basis points), and non-price borrowing constraints have also become more stringent. Secondly, government measures aimed at increasing labour market participation, the personal income tax reform and the new Labour Code have all contributed to lowering wage costs. Persistent labour market slack and the government measures may have jointly contributed to a substantial slowdown in wage dynamics. Since 2009, corporate wage cost growth has slowed from the previous 8–10 per cent to 1–2 per cent on average, and the relative price of labour vis-à-vis capital has fallen by about 5 per cent. **In accordance with the above, the capital-labour ratio has also stabilised.**[55] The years that followed the crisis show patterns that are similar to the second half of the 1990s: labour became relatively cheap at that time, while capital intensity remained stable, and employment increased simultaneously with output.

[55] Theoretically, the ratio of capital to labour should decrease if the relative price of labour falls. However, capital stock adjustment may be asymmetric, as it more difficult to deleverage an existing capital stock than to make new investment (see e.g. Caballero et al., 1995).

Box 2-4: Performance of the Hungarian economy in light of alternative indicators

GDI and GNI – indicators derived from the National Accounts

Gross domestic product or GDP, the most widely used measure of economic output, is defined as the difference between the gross value of output and intermediate consumption. However, in order to gain a deeper understanding of the processes and to better assess the situation of resident institutional units, other indicators are also worth looking at. Non-resident institutional units benefit from much of the incomes generated in Hungary due to substantial FDI inflows and foreign indebtedness, while the past years have seen a rise in the inflow of European Union transfers and more and more Hungarian migrants working abroad transferring incomes back home. If the value of the GDP is adjusted for the net income from abroad, we obtain gross national income (GNI). GNI is better suited for examining the disposable volume of income available to the residents of a country. Another alternative indicator is gross domestic income (GDI), which expresses whether relative developments in export and import prices contribute positively or negatively to the welfare of resident institutional units. While GDI is conceptually similar to GDP and only controls for relative commercial price changes, the GNI highlights important differences.

2-1 Table: Growth indicators in Hungary (average annual change)

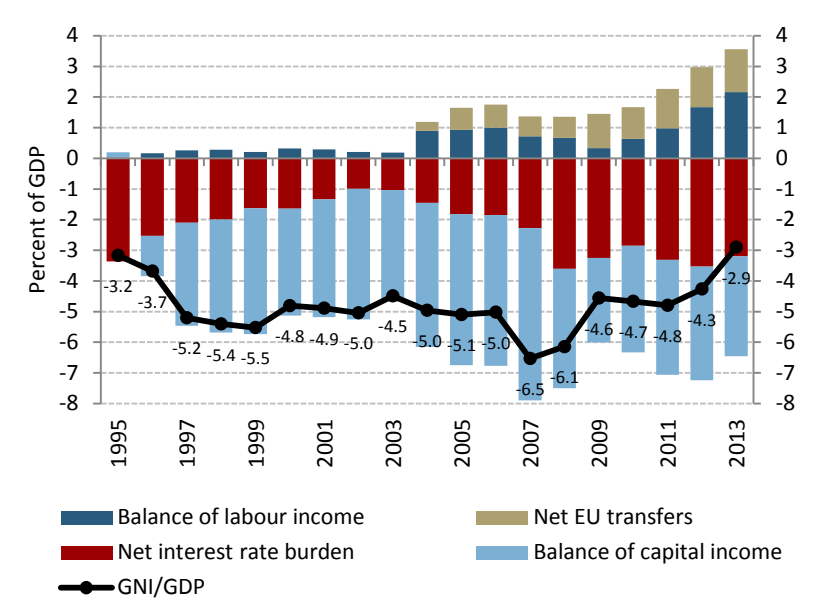
	GDP change	GDI change	GNI change	GNI-GDP difference
2004–2008	2.9	2.3	2.5	–0.4
2009	–6.6	–5.7	–5.0	1.6
2010–2013	0.7	0.3	1.1	0.4

Source: MNB, CSO

In the years leading up to the crisis, GDP exhibited faster growth than both GDI and GNI. While the reason for the slower growth in the case of GDI is a rise in commodity prices, leading to deteriorating terms of trade, in the case of GNI, the profit realised by non-resident corporations operating in Hungary and rising external debt resulting in a deteriorating interest balance are the factors that dampened dynamics.

During the year of the crisis, all indicators exhibited substantial deterioration, but the situation of resident institutional units deteriorated less than suggested by GDP. This partially stems from deteriorating profitability due to falling global commodity prices and cyclical causes – particularly affecting large, foreign-owned exporting corporations – and changes in the taxation environment. GNI growth, which exceeded that of GDP, continued to prevail during the recovery. Alongside these impacts, the increasing inflow of EU funding and higher transfers of income from migrant Hungarian workers abroad also played a part. Compared to the onset of the crisis, the balance of labour incomes has grown by 1.5 per cent of GDP by 2013.

Chart 2-52: Decomposition of GDP and GDI difference in Hungary

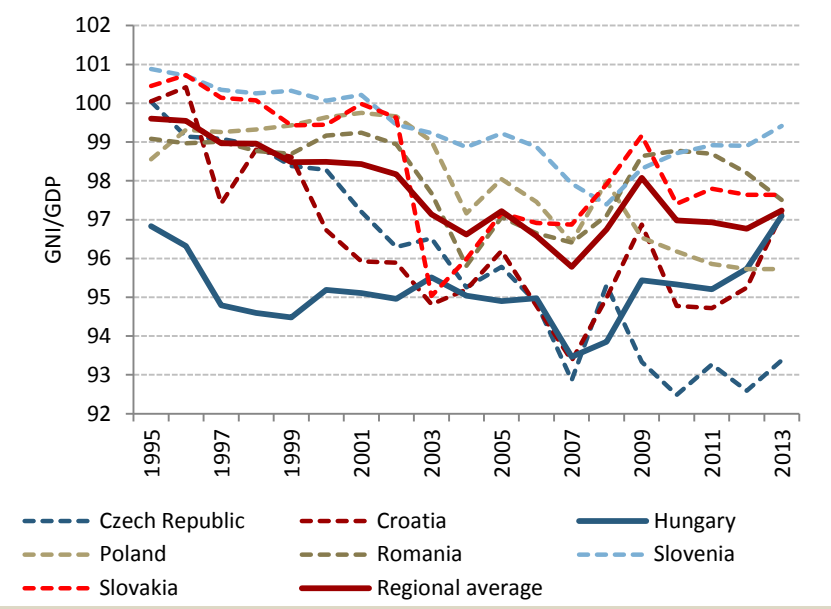


Source: CSO

We also examined developments in a regional comparison in the case of the difference between GNI in GDP. The majority of countries exhibited similar trend developments over the past two decades. Until the onset of the crisis, the difference between GDP and GNI exhibited trend-like growth, albeit at different rates, which temporarily slowed between 2008 and 2010, due to deteriorating corporate profitability, but the GNI/GDP proportions prevailing before the crisis have been more or less reinstated as the economy slowly recovers. Hungary forms an exception to this return, with the difference between GNI/GDP falling compared to pre-crisis levels.

Examining a longer period, two key findings emerge. The first is that Hungary's GNI as a percentage of GDP lags 2–3 percentage points behind the regional average. This difference only narrowed materially towards the end of the period (2012–2013), explained by increasing utilisation of EU funding and higher incomes transferred home. The substantial difference prevailing in the past stemmed from higher external debt and the related interest payments, and the elevated FDI inflow, which started earlier than in other countries in the region. Looking forward, interest burdens are set to decline as net external debt decreases, which may permanently narrow the GNI/GDP difference.

Chart 2-53: Developments of GNI to GDP ratios in the region



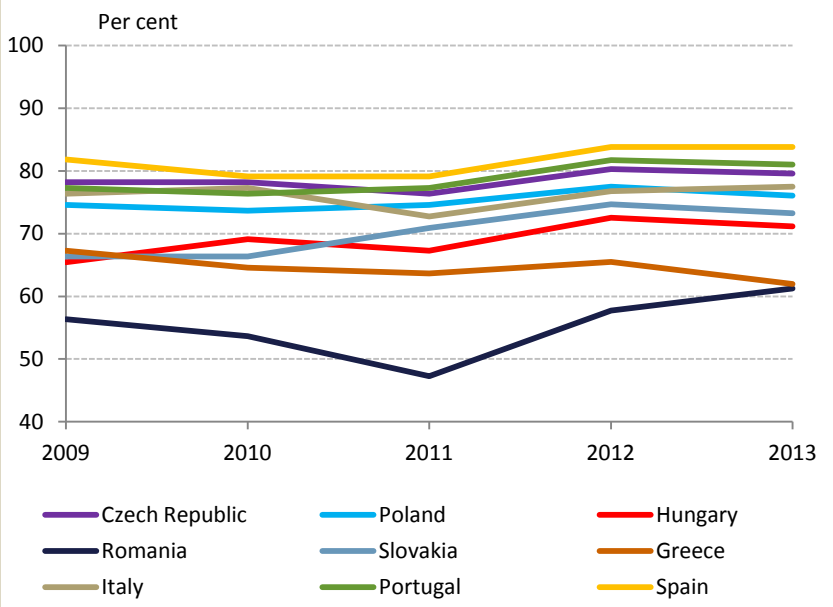
Source: Eurostat

LPI and HDI – other development indicators

Along with the traditional indicators derived from national accounts, we can also examine indicators factoring in other, not purely economic factors. These indicators rank countries based on dimensions such as quality of life, costs borne by future generations, work not expressed in money or the environmental burden. The interpretation of the majority of these indicators, however, is rendered difficult by various methodological challenges (short time series, comparability of methodologies, changes in the groups of countries examined), nevertheless a comparison with regional and similarly developed countries may yield relevant information.

The Legatum Prosperity Index (LPI) developed by the Legatum Institute is based on 89 different variables grouped into eight sub-indexes (economy, entrepreneurship and opportunity, governance, social capital, personal freedom, education, health, safety and security). The institute ranked 110 countries annually based on the index between 2009 and 2011, and 142 countries since then. Hungary's global ranking improved slightly during the period under review. In 2009, it ranked 41st among the 110 countries examined, while in 2013 it ranked 38th among the 142 countries examined; nevertheless, this performance still lags behind that of its regional peers.

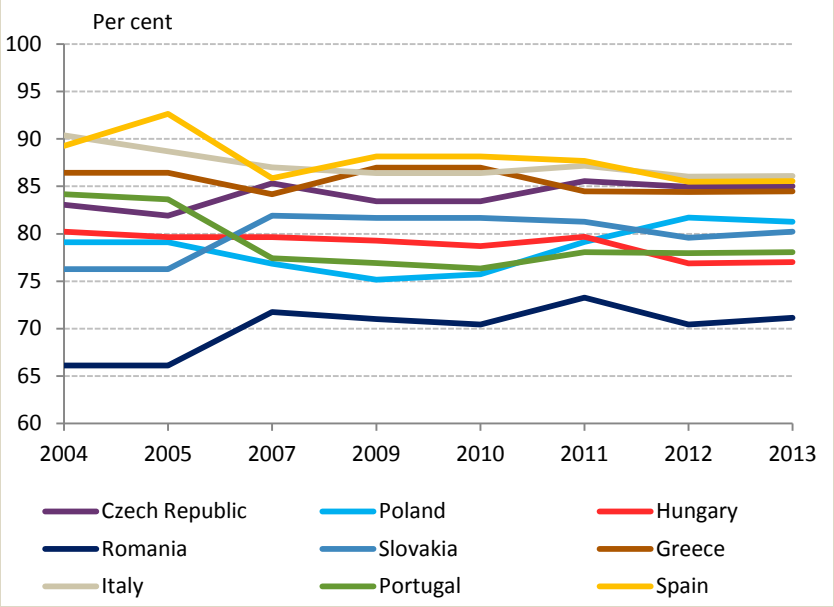
Chart 2-54: Relative position changes in the Legatum Prosperity Index (LPI) global ranking



Note: LPI relative position: the number of overtaken countries in proportion of the total statistical population (%) (The range of countries ranked changed in time).
Source: Legatum Institute, 2013: The Legatum Prosperity Index

The UN's Human Development Index (HDI) was created in the context of the United Nations Development Programme and has been published annually since 1990 in the Human Development Report. The index is one of the most commonly used indicators supplementing GDP, and interprets the concept of human welfare and social progress in a wider context than gross domestic product. It factors in life expectancy at birth, the mean years of schooling and GNI, the latter expressing resident institutional unit income. In 2013, Hungary ranked 43rd among the 187 countries examined. Its relative ranking has slid downward since the crisis, and shows a similar picture in regional terms as for the LPI.

Chart 2-55: Relative position changes in the Human Development Index (HDI) global ranking



Note: HDI relative position: the number of overtaken ranked countries in proportion of the total statistical population (%) (The range of countries ranked changed in time); Years 2006 and 2008 no published HDI ranks from UN.
Source: United Nations: Human Development Report 2014, 2013, 2012, 2011, 2010, 2009, 2007/2008, 2006

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3. SUSTAINABLE GROWTH IN HUNGARY

Before the crisis, growth financed from debt was generally considered as financial deepening that supports long-term growth. However, in most cases, growth in domestic savings in the individual countries could not keep pace with the credit expansion. Thus, borrowing had to be financed from external funds, resulting in high current account deficits. Despite imbalances in the financial indicators, in the majority of the developed countries, inflation remained low, and this fuelled the idea that the utilisation of production capacities was not excessive, growth was close to equilibrium and sustainable, and no cyclical adjustment was required. However, the crisis made it clear that any growth trajectories that disrupt the financial balance are unsustainable.

The assessment of the sustainability of growth has undergone profound change as a result of the crisis. The calculations made on sustainable or potential growth prior to the crisis were basically confined to the quantification of the optimal use of production capacities and the growth trajectories achievable without additional inflationary pressures. However, the experiences gained from the crisis directed attention to the build-up of financial imbalances and the significance of debt sustainability. After 2009, sustainable growth increasingly means a potential growth trajectory that maintains the financial balance in addition to an efficient use of resources, that is to say, it does not lead to excessive and unsustainable debt ratios. Based on this definition, taking into account the financial developments, this chapter develops two methods for the quantification of the growth trajectory for Hungary for the past nearly fifteen years. This is important, as estimations that disregard the necessity of financial balance may give considerably biased results: in periods when the financial balance is disrupted, they overestimate growth trajectory, while in periods when the financial equilibrium is restored they underestimate growth trajectory.

The growth model followed by Hungary prior to the crisis proved to be unsustainable in terms of both financing and the utilisation of production factors. The swelling of financial accounts prior to the crisis resulted mostly in the expansion of credits granted to less productive sectors and households, which ultimately fuelled the real estate sector and consumption, instead of investments. As domestic savings were insufficient, the increasing consumption and investment activity caused a high current account deficit and strong dependence on external funds. Similarly to other economies that built up significant external debt, post-crisis deleveraging basically determined developments in domestic demand and, through this, the dynamics of economic growth in the period of recovery.

In accordance with this and with the calculations on the sustainable growth rate, prior to the crisis the Hungarian economy grew at a rate exceeding its financial balance preserving growth potential, and due to this, the subsequent efforts to restore the financial equilibrium further diminished the otherwise slowing equilibrium growth opportunities during the crisis. In the period between 2002 and 2007 the Hungarian economy grew on average by an annual 0.4–0.5 per cent faster than predicted by its long-term sustainable growth opportunities, and as a result, in the period between 2009 and 2013, compared to the economy's demand opportunities, the annual average growth rate was 1.2–1.5 per cent lower.

3.1. Correlation between lending and growth that is sustainable over the long term

In the period preceding the financial crisis, growth was fuelled by demand funded from rising credit portfolios in many countries. The rapid increase in credit seen in a wide range of countries was considered, for the most part, as financial deepening which supported long-term growth.[56] This approach was based on a study by Levine (1997) marking a new direction of research, in which he assumed that financial deepening leads to the better allocation of economic resources by facilitating the channelling of savings to investments and promoting risk sharing, thus improving the efficiency of information exchange between the economic stakeholders, the project monitoring capability of creditors, and through all these, strengthening the increasingly intensive flow of goods and services. Basically, it followed from this assessment that the pre-crisis lending bubble, which generally also entailed a fast increase in asset prices, was not considered as a particularly dangerous development. On the contrary: in the case of less developed countries, where in the early 2000s debt-to-GDP ratios and, in numerous cases real estate prices remained low, the take-off in lending and real estate prices was seen as part of an equilibrium convergence process.

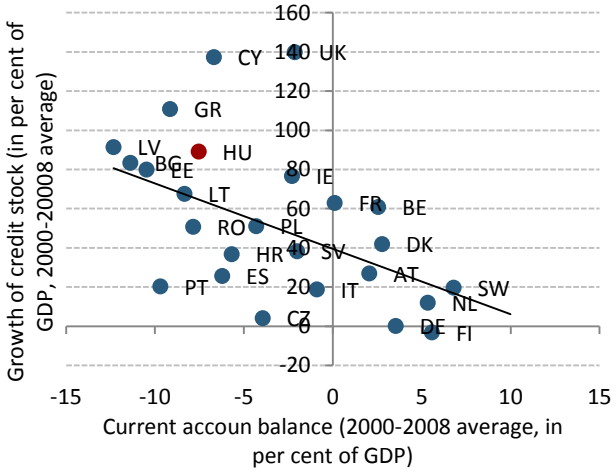
[56] A similar assessment is made by Nowotny (2013) in his conference inaugural speech.

Generally, the increase in domestic savings in the individual countries could not keep pace with increase credit expansion. Thus, borrowing was necessarily financed from external funds, and this resulted in high current account deficits (see Chart 3–1). However, during the period of abundant liquidity, high current account deficits and increasing external debts could be financed by the financial markets for years without any special worries, i.e. underpricing the real risks. In the case of developing countries, the reasoning of neo-classical growth theory, which says that convergence and external financing may be naturally interlinked, could have also played a role.[57] The reason is that it can be generally observed that development differences between countries are due to different capital stocks. For this reason, a less developed country needs to expand its capital stock to the largest possible extent in order to converge. However, in the case of open countries, the required investments may be financed not only from internal savings, but also from external funds. Consequently, according to the neo-classical growth theory, the current account deficit, in other words external financing, may be a resource that can accelerate capital formation and economic convergence. However, it is worth mentioning that prior to the crisis, credit expansion and dependence on external funds were features characteristic not only of developing countries. As opposed to the expectations of the above outlined theory, there were some developed economies such as the United States of America or the Southern European countries which built up considerable current account deficits and there were developing countries, especially from the Southern Asian region which financed other countries' current account deficits.

Prior to the crisis, the belief in the sustainability of the growth model was further reinforced by another factor, namely the stable low level of inflation. According to one of the basic correlations in new Keynesian economics, inflation is an indicator of the sustainability of economic growth. According to this, potential growth, in other words, growth that is sustainable over the long term, does not entail the excessive use of the available production factors, and therefore it does not result in inflationary pressures.[58] This correlation established between inflation and the real economy, and the steadily low inflation rates in the period preceding the crisis served as a solid basis for the opinion that the factors of production were not being used excessively, i.e. growth was close to equilibrium and was sustainable, and consequently no cyclical adjustment was needed.

It can be seen from the above that the model of financing growth from debt, applied prior to the crisis, was considered sustainable on the basis of strong arguments offered by several prevailing economic theories. However, the crisis that started in 2007 and became global in 2008 modified or overwrote several fundamental assumptions at numerous points.

Chart 3-1: Credit stock growth and current account balance (2000-2008 average)



Source: Eurostat, MNB

Analyses conducted after the crisis still find a correlation between the size of a financial system and economic development, and so it can be said that a well-functioning financial system still remains a precondition of economic prosperity (Beck, 2013). However, Levine, who – still before the crisis – raised the question of a more detailed analysis of the potential correlation between financial deepening and growth, admitted (Levine, 2005) that "we are still far away from giving a definite answer to the question if financial developments shape growth, and if yes, through what channels." This is because proving causality between financial deepening and economic development is a major challenge. Empirical studies frequently make efforts to grasp the development of the financial intermediary system on the basis of quantitative indicators, but this is often misleading, as the expansion of credit aggregates cannot

[57] See e.g. Chapter 7 in Obstfeld – Rogoff (1996).

[58] Various international institutions basically also rely on this approach. According to the OECD's (2001) definition, "potential GDP is a level of output that an economy can produce at a constant inflation rate". According to the definition given by IMF (see Jahan – Mahmud, 2013), it is "a level of output that fails to result in price hikes and price reduction."

necessarily be attributed to the achievement of higher efficiency performance in the financial system. Thus, there is a risk that a seeming correlation between the inflation of balance sheets and growth is caused by reasons falling outside the scope of the banking system, for instance the overheating of the real estate market, seen in the period preceding the crisis (Beck, 2009). Moreover, balance sheet growth rates and their sector breakdown are not insignificant either. The reason is that the availability of several financing options does not necessarily mean additional growth. As demonstrated by Arcand et al. (2012), Cecchetti and Kharroubi (2012) or Manganelli and Popov (2013), the correlation between financing and growth is not linear. There are various reasons for this. Rapid credit expansion is highly likely to lead to financial crises, which have a much more destructive effect than other kinds of cyclical downturns.[59] In another perspective, the tradable sector's credit absorption capacity is limited, and therefore – in addition to financing projects which promise good returns – an increasing number of less productive investments may also be implemented in the event of abundant credit. Simultaneously, the volume of unproductive loan allocations may also increase. Although the household credit portfolio may represent prompt demand primarily for housing investment and consumption markets, households are only able to raise part of the long-term coverage required for repayment. Ultimately, a credit glut does not necessarily lead to an efficient allocation of economic resources. Certain sectors, typically the financial or the real estate sector, may drain qualified labour from the other sectors and result in the build-up of capacities that might prove to be unnecessary after the bubble bursts.

Similarly to balance sheet inflation, the use of external funds does not necessarily result in any growth surplus. In contrast to the prediction given in the theory of growth, empirical analyses are generally unable to reveal any surplus attributable to external funds in converging countries. An analysis by Abiad et al. (2007) is perhaps the only exception that can be mentioned, as they demonstrate a correlation expected in the theory between the current account balance and growth.[60]

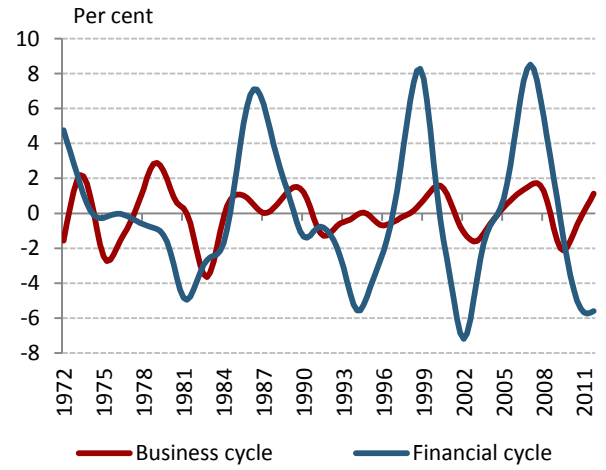
Finally, in respect of inflationary pressure and the presumed direction of economic overheating, it can be established that despite the fact that the correlation between financial and growth processes is stressed by many, the recognition that, in addition to correlation over the long term, these two factors may correlate already in the short term has not been given sufficient emphasis. This is because a fast rise in lending also has a significant cyclical effect, which is typically underrated, while the pace of sustainable growth is systematically overrated in pre-crisis analyses. The reason for this may be that the simultaneous impact of the financial cycle on growth has not been realised to the required extent. This is partly the reason for the excessively optimistic expectations regarding the future cycle, which in turn further accelerated credit outflow among non-corporate stakeholders, and resulted in the inflation of the real estate bubble in numerous countries. As in the wake of the crisis the direction of the financial cycle turned, numerous countries and stakeholders found themselves in a vulnerable position.

Thus, the crisis shed light on the fact that in addition to business cycles, consideration of financial cycles is also unavoidable when sustainable growth processes are to be assessed. Prior to the crisis, sustainable or potential growth was determined exclusively on the basis of the volume of resources available for the economy (typically capital and labour). However, developments related to resources and their distribution are also affected by financial processes, while over a longer term, financial processes may also not depart from the fundamental factors of the economy. For this reason, in addition to the optimum use of the available resources, the sustainability of financial processes was also fit into the image created of sustainable growth as a result of the crisis. In view of the fact that financial cycles are typically longer and have higher amplitudes than business cycles (see Chart 3–2, and Drehmann et al., 2012), the estimates of a sustainable growth trajectory that also allows for financial sustainability can identify growth options that differ from the current level of output over a longer time horizon and to a larger extent than the previous estimates of potential output.

[59] Fast credit expansion is also one of the most important precursors of financial crises (Csortos and Szalai, 2014). This is because if unfavourable shocks are present, speedy deepening accelerates the adverse impacts. As Kraft and Jankov (2005) aptly pointed out: "speed may kill".

[60] A fact that reflects that their finding is location- and time-specific is that in their estimates calculated on a total – i.e. not narrowed to Europe – country sample, they could not identify any correlation between growth and financial deepening.

Chart 3-2: Business cycle and financial cycle

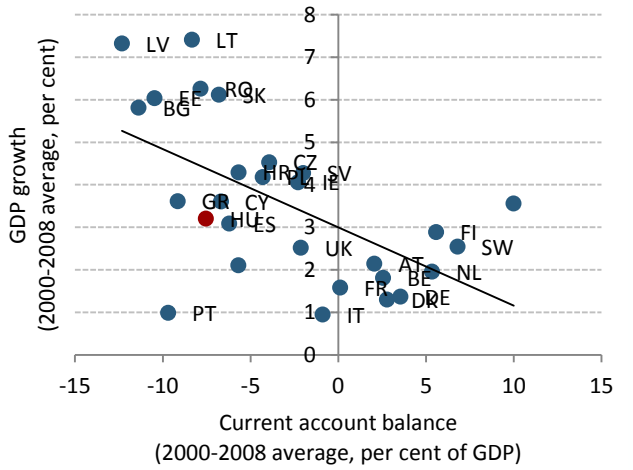


Note: Business cycle is the 1.5–8 year frequency variation of output. Financial cycle is the medium term variation of credit to GDP ratio obtained by frequency filter.
Source: Eurostat, MNB

3.2. Experiences in Hungary

As for Hungary, the pre-crisis swelling of financial accounts and the external deficit resulted in the expansion of credits granted to less productive sectors and households, which ultimately fuelled the real estate sector and consumption instead of investments. At the Magyar Nemzeti Bank, numerous analyses have shown that lending in Hungary departed from and exceeded the output capacity of the economy. Based on the method of Kiss et al. (2006), in the 2010 publication entitled Analysis of the Convergence Process it was established (MNB, 2010) that "the increase in household loans in 2007 and 2008 was so high that the activity performed in these years may be considered as a lending boom." Similarly, household indebtedness was considered excessive by Bauer et al. (2013) and Endrész et al. (2014) in their analyses performed in an error correction model. Overall, with the sudden rise in non-corporate private loans, to a major extent the financial system actually financed production investments that hardly affected long-term growth or not at all.

Chart 3-3: External finance and growth before the financial crisis



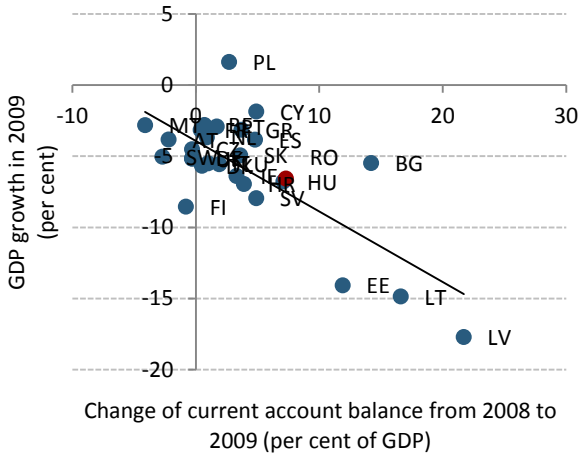
Source: Eurostat, MNB

Prior to the crisis, Hungary was characterised by a high current account deficit. On the one hand, during this period, the current account deficit exceeded the 4–6 per cent band resulting from the calculations on sustainable current account balances.[61] On the other hand, the use of external funds, especially after the 2000s, did not contribute to the acceleration of convergence, as opposed to the period leading up to the 2000s, the current account deficit was financed from external debt rather than FDI type funds (Hoffmann et al., 2013). This is reflected in Chart 3–3, which shows that Hungary, in comparison to the volume of external funds used, relatively underperformed in terms of growth in the years preceding the crisis, and its growth performance was similar to the Mediterranean countries, which also have considerable current account deficits.

As a result of the credit portfolio increase and the current account deficit that remained significant for years, when the financial crisis started, in addition to extensive indebtedness, the Hungarian economy depended heavily on external resources, which were denominated in FX for the most part. When these dried up, domestic demand dropped immediately and forced the economy to correct the previous unsustainable growth model (Chart 3–4).

[61] For more on this topic, see the analyses of Bussiere et al. (2004), Vamvakidis (2008) or Ca'Zorzi et al. (2009).

Chart 3-4: Correction in current account balance and GDP growth in 2009



Source: Eurostat, MNB

In view of the volume of the accumulated debts, the adjustment forced by the financial crisis (called a balance sheet adjustment period) is a lengthy process which may affect the rate and structure of growth in Hungary over a prolonged period. Accordingly, the next section quantifies the sustainable growth trajectory that results for Hungary from the analysis of the past nearly fifteen years, taking the financial developments into account. In a forward-looking perspective, tightening regulatory conditions (e.g. the adoption of macro-prudential rules and the approval of regulations on general government debt) may moderate the chance of growth from excessive credit expansion over the medium term. Accordingly, in addition to the use of funds, the sustainable growth rate that allows for the financial equilibrium may also be helpful in the identification of the future growth opportunities.

3.3. Sustainable growth path calculations for Hungary from a financial perspective

Drawing the conclusions from the crisis, a sustainable growth path refers to a potential path which can be achieved through the efficient utilisation of resources while having a sustainable debt path. Accordingly, the purpose of our calculations is to filter out not only the effects of the usual business cycles from Hungarian growth data, but also the cyclical effect of equilibrium-disturbing or equilibrium-restoring financial trends. We examined this issue on the basis of two approaches. On the one hand, we identified financial positions that proved to be unsustainable over the long term, and then, based on the appropriate assumptions, we defined a financially sustainable growth path, and finally filtered out business cycles from this growth path (so-called sector-based approach). On the other hand, relying on the method used by Borio et al. (2013, 2014), in an aggregate model framework we determined the sustainable growth path, simultaneously excluding business and financial cycles from growth data.

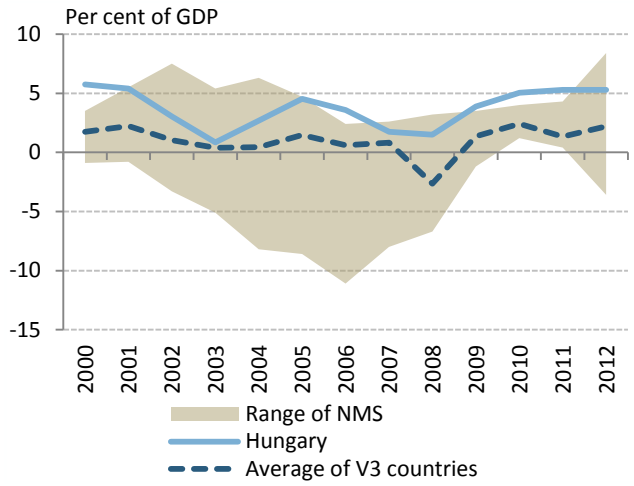
3.3.1. Sustainable growth path under a sectoral approach

Based on a sectoral approach, as a first step, we identified development deviating from the equilibrium processes in a breakdown of households, corporations and the general government. As a benchmark, we identified the average of the Visegrád countries excluding Hungary (V3). Visegrád countries can be a sound point of reference not only because they have parameters comparable to those of Hungary in respect of numerous structural characteristics (e.g. similar initial economic development, strong Western European economic integration), but also because the pre-crisis indebtedness of these countries was more moderate, which softened the pressure for balance sheet adjustment after the crisis. Accordingly, the financial indicators (external and internal balance) of the V3 evolved in a sustainable manner. Owing to these characteristics, a comparison of the financial indicators of these countries may offer guidance for identifying which particular sectors' balance disruption was mainly responsible for increasing the vulnerability of Hungary.

Compared to the rest of the recently joined European Union Member States, the saving capacity and net financial worth of Hungarian households could be considered relatively high (Charts 3–5 and 3–6). At the same time, their outstanding borrowings increased faster compared to other countries in the region; consequently, their net financial worth conceals the heterogeneity unfolding among households as a result of substantial indebtedness, and their rising exchange rate and interest rate exposure. Looking at the household sector, based on the MNB studies cited above (MNB, 2010; Bauer et al., 2013; Endrész et al., 2014), it was basically the period of rapid debt accumulation, i.e. the strong expansion of foreign currency lending, that departed most from the equilibrium processes, for two main reasons: on the one hand, foreign currency lending peaked in a period when economic policy had already taken measures to restore the fiscal balance, reducing the disposable income of households substantially while households' expectations, which had relied on their accelerated income growth observed until the mid-2000s, adjusted belatedly to the change in outlook. As a result, their judgement on their borrowing capacity was overly optimistic. On the other hand, foreign currency lending entailed a hard-to-predict level of risk-taking on the part of households.

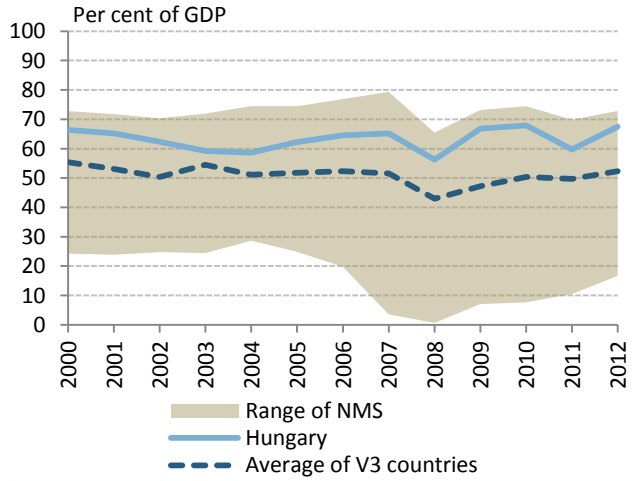
In order to eliminate these effects, we based the benchmark scenario for households on an output that would have permitted only forint-denominated borrowing in the same period.

Chart 3-5: Net savings of the households in the new member states of EU



Source: Eurostat, MNB

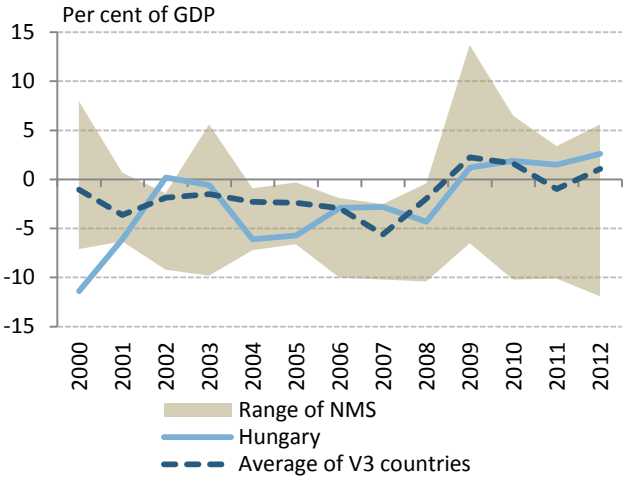
Chart 3-6: Net financial assets of the households in the new member states of EU



Source: Eurostat, MNB

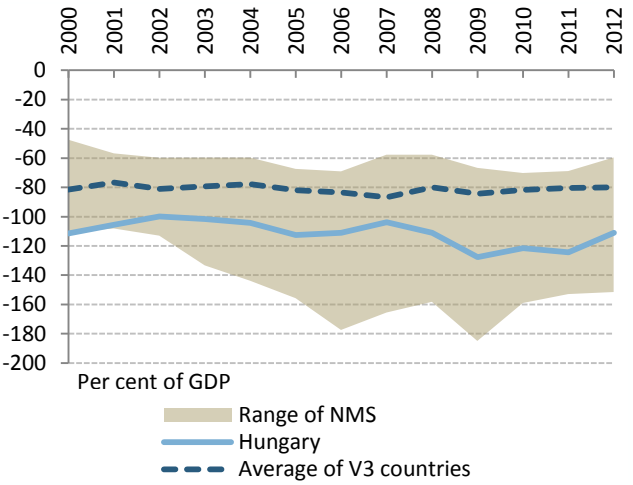
As regards changes in the balance sheet position of corporations, there is no clear evidence of over-indebtedness in the sector (MNB, 2010). The borrowing requirement of Hungarian corporations was moderate by international standards, consistent with the values observed in the rest of the Visegrád countries (Chart 3–7). While the sector's indebtedness was relatively high on a permanent basis, as a percentage of GDP it more or less stayed at the same level until the outbreak of the crisis (Chart 3–8). Therefore, due to the lack of sector-level evidence, in the case of corporations we do not use in our calculations a sustainable finance path other than the one realised.

Chart 3-7: Net savings of non-financial corporations in the new member states of EU



Source: Eurostat, MNB

Chart 3-8: Net financial assets of non-financial corporations in the new member states of EU

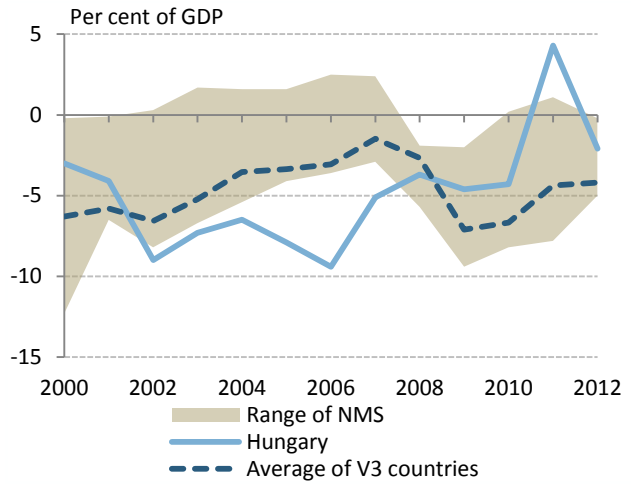


Source: Eurostat, MNB

As opposed to the financial indicators of households and corporations, in 2002–2007 the Hungarian general government deficit was strikingly high in comparison to newly joined EU Member States (Chart 3–9).[62] As a result, although most EU Member States were able to reduce their debt-to-GDP ratios – in certain cases, substantially – Hungary posted the second largest public debt growth behind Portugal, and had amassed a remarkably high debt ratio relative to its level of development (Chart 3–10).

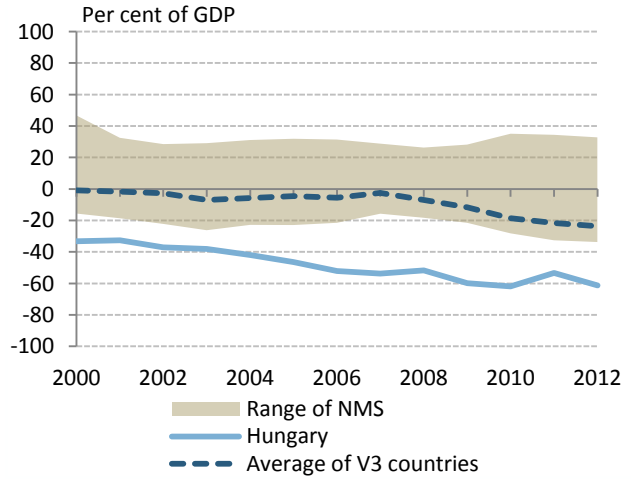
[62] The steep rise observed in the deficit in 2002 was the net result of several factors. The jump in the budget deficit was mainly attributable to the reduction of the effective rates of the personal income tax and consumption taxes on the revenue side, and to the increase in personnel expenditures, financial transfers and transfers in kind on the expenditure side. For details, see Hornok et al. (2008).

Chart 3-9: Fiscal balance in the new member states of EU



Source: Eurostat, MNB

Chart 3-10: Net financial assets of government in the new member states of EU



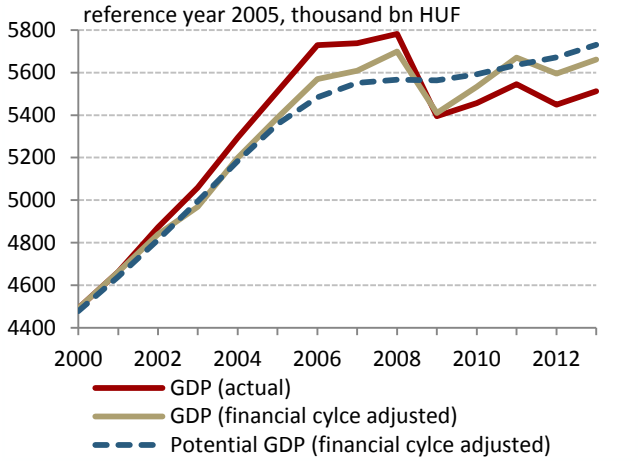
Source: Eurostat, MNB

In view of the public deficit significantly exceeding the deficits of newly-joined Member States and steadily increasing public debt, it can be concluded that the fiscal developments observed in the period 2002–2007 were not sustainable. Therefore, applying the method used by Hornok et al. (2008), we defined a neutral fiscal path for this period, which assumes the maintenance of the effective tax rates of 2001 on the revenue side, and assumes public wages growing in line with private sector wages, compliance with the effective pension rules and unchanged GDP-proportionate transfers in kind on the expenditure side.[63]

[63] It is noteworthy that fiscal expenditures and revenues in 2008 as implied by the sustainable fiscal path defined on the basis of the above proved to be very close to the actual values. In other words, by 2008, the main figures of the budget had returned to the same position as they started from in 2001.

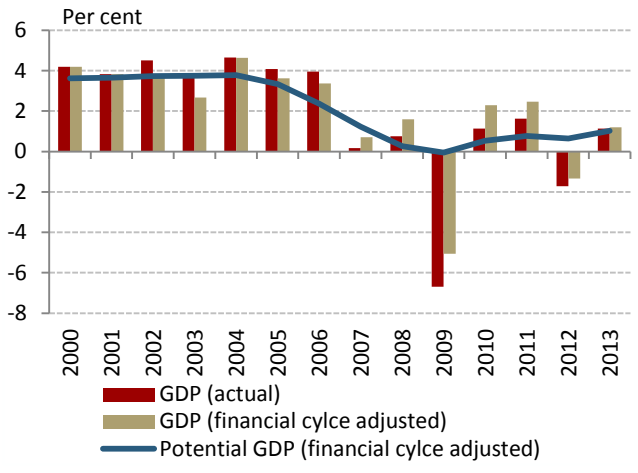
We quantified the effects of the scenario described above using DELPHI, the macro-econometric model of the MNB (Horváth et al., 2010). Consistent with the results of Hornok et al. (2008), we found that growth during the pre-crisis period was fuelled to a large degree by fiscal expansion and the rapid increase in foreign currency loans outstanding; consequently, demand would have been dampened both by a neutral fiscal path and the more limited borrowing options of households. **Overall, the path excluding the financial cycle would have resulted in a growth rate 0.4 percentage points lower on average than the actual figures for the period of 2002–2007.** At the same time, after the crisis, the lower level of indebtedness and a more moderate adjustment pressure compared to actual values would have resulted in a growth rate 0.8 percentage points higher on average than the actual figures for 2009–2013 (Charts 3–11 and 3–12).

Chart 3-11: Actual and financial cycle adjusted (potential) output



Note: Volume, reference year 2005, thousand bn HUF.
Source: MNB

Chart 3-12: Actual and financial cycle adjusted (potential) output growth



Source: MNB

As a last step, the time series of economic growth excluding financial cycles was also cleansed of business cycles. To that end, we estimated a state-space model, in which we used the resource utilisation indicator to identify the cycle:

$$y_t = y_t^{pot} + y_t^{cycle}$$

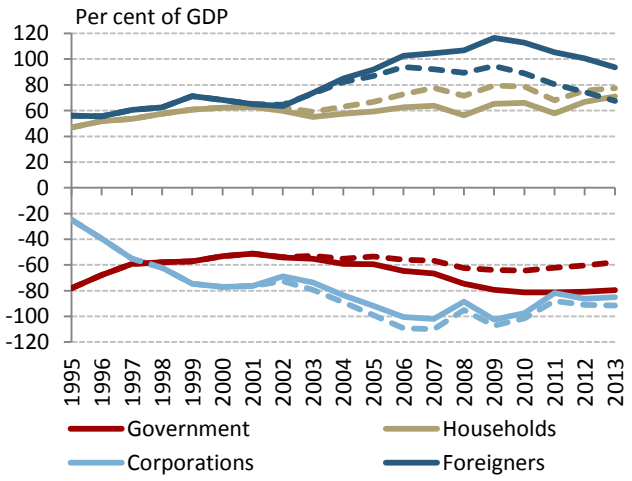
$$\Delta y_t^{pot} = \Delta y_{t-1}^{pot} + \varepsilon_t$$

$$y_t^{cycle} = \beta \cdot CAPU_t + \xi_t$$

where y_t is GDP excluding financial cycles; y^{pot} is potential output; y^{cycle} is the output gap; and $CAPU$ is the resource utilisation indicator.[64] The resulting potential output excluding financial and business cycles is presented in Charts 3–11 and 3–12**Error! Reference ource not found.**. We can conclude that the "sustainable growth path" calculated in this way points to a deceleration from 2004, reaching its trough during the years of the crisis before gradually rising once again after 2010. Potential growth exceeds 1 per cent in 2013 and reaches 2 per cent by 2015, which are higher values than the potential growth estimates of large international institutions (European Commission, OECD, IMF) for Hungary. This is because the estimates of these international institutions take into account, for the most part, the effect of the business cycle only, and consider to a lesser degree – or disregard altogether – the effect of the financial cycle. By looking at the position of the financial cycle based on this approach (large "financial output gap" stemming from balance sheet deleveraging), the international financial institutions listed above may underestimate the actual growth potential of the Hungarian economy.

Similarly, in case of a growth path cleansed of financial cycles, balance indicators would have been more favourable (Chart 3–13). As opposed to the actual increase, the public debt-to-GDP ratio would have remained at a nearly constant level up until the outbreak of the crisis. In this case – even assuming that the fiscal measures adopted since 2008 remained constant – government debt may have moved on a dynamically decreasing path after 2010, partly owing to the lower initial debt level, and partly due to improving cyclical developments. In contrast to the path that actually materialised – in which the debt-to-GDP ratio increased by more than 25 percentage points and the net external debt of Hungary rose by 30 percentage points – by 2013 both the public debt and the external debt ratios would have approached the values recorded in 2002 under the sustainable growth path scenario. Given that these two indicators play a key role in the assessment of a country's vulnerability, it can be stated that the country would have been far less exposed to the turbulences of the financial crisis if it had not departed from its financially sustainable growth path. However, throughout the simulation, we are not able to account for this mechanism.

Chart 3-13: Net financial positions of sectors along actual and sustainable growth path



Source: MNB

[64] In order to identify the model, by using a search algorithm, we set the relative variance of the two error terms (Var(ε) and VAR(ξ)) in such a way which ensured that the variance of the resulting potential GDP time series was identical with the empirical variance of the trend time series of actual GDP derived by using the Hodrick-Prescott filter. The same solution was used by Borio et al. (2013, 2014) as well. In order to reduce endpoint uncertainty, we extended actual data until 2015 based on the MNB's forecasts.

Table 3-1: Net financial position of sectors along actual and sustainable gowth path

	Actual			Change from 2002	
	2002	2007	2013	2007	2013
Housholds	59.7	63.8	71	4.1	11.3
Corporations	-68.9	-102	-85.1	-33.1	-16.2
Government	-54.2	-66.5	-79.5	-12.3	-25.2
Foreigners	63.4	104.7	93.6	41.3	30.2

	Actual	Sustainable growth path		Change from 2002	
	2000	2007	2013	2007	2013
Housholds	59.7	77.7	77.5	18	17.9
Corporations	-68.9	-110	-91.5	-41.1	-22.6
Government	-54.2	-56.8	-57.9	-2.5	-3.6
Foreigners	63.4	92.2	67.6	28.8	4.2

Source: MNB

3.3.2. Finance-neutral growth path (aggregate approach)

In addition to the calculations based on the sectoral decomposition described above, we define the growth path which preserves financial balance on the aggregate level as well. In line with the analysis of Borio et al. (2013, 2014), in addition to real economy indicators (such as capacity utilisation, unemployment), we also used financial indicators for the identification of cyclical developments in the economy. It is important to consider the latter variables as, on the one hand, financial imbalances may build up without the emergence of real economy and inflationary tensions for a long period of time; on the other hand, as Drehmann et al. (2012) found, the amplitude and duration of financial cycles are wider and longer compared to the normal business cycle. Therefore, without controlling for financial cycles, potential output calculations may mistakenly identify a smaller cyclical effect in output developments. Accordingly, the difference between the two paths identified above indicates the effect of financial developments on potential growth.

The range of financial variables (real credit growth, real residential property price growth, real interest rate) used by Borio et al. (2013, 2014) in their method determining finance-neutral potential output was primarily selected on the basis of the characteristics of the economies they analysed. The countries they focus on (United States, United Kingdom and Spain) are larger, but less open economies than Hungary. In addition, in adapting their method to Hungary, it is worth widening the range of financial variables analysed to include variables capable of capturing the characteristics of a relatively small, open economy such as Hungary. With that in mind, on the one hand, in our analysis we included variables capturing the changes in external balance (current account, net lending) and, on the other hand, the real exchange rate, which captures the currency value relative to other currencies.[65] In line with Borio, we then proceeded to examine each individual variable, in order to narrow down the broad range of possible variables suitable for capturing the financial cycle to variables that have a significant explanatory power in relation to changes in the economic cycle. Finally, we used this narrower group of variables to build a model that included the explanatory variables which retained as many significant effects as possible. Eventually, for estimating finance-neutral potential output we relied on industrial capacity utilisation ($CAPU$), real interest rate ($RRATE$), and net lending-to-GDP ($FINCAP$) data. Similar to the disaggregate approach, the actual model is a state-space model, which identifies the business cycle and the financial cycle simultaneously.

$$y_t = y_t^{pot} + y_t^{cycle}$$

$$\Delta y_t^{pot} = \Delta y_{t-1}^{pot} + \varepsilon_t$$

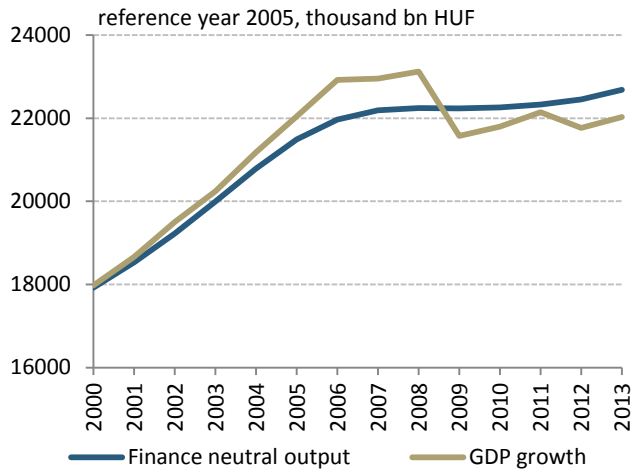
$$y_t^{cycle} = \beta_1 \cdot CAPU_t + \beta_2 \cdot RRATE_t + \beta_1 \cdot FINCAP_t + \xi_t$$

For the end of 2002, the results of our estimation indicated a sustainable finance-neutral potential GDP growth peaking at 4 per cent, which demonstrated a gradual deceleration until 2009. After 2010, potential GDP growth increased dynamically once again, approaching a growth rate of 2 per cent by the end of 2015 (Chart 3–15). The deceleration in potential output after 2002 can be partly attributed to the GDP-proportionate corporate investment rate, which fell drastically from its near 14 per cent peak in 1999 to 11.5 per cent by 2012, and was unable to maintain the fast expansion of capacities in the years thereafter. As regards changes in the output gap, the economy was overheated throughout the pre-crisis period due to the negative net lending position of the

[65] Finance-neutral potential output estimates have been produced for several countries based on the method applied by Borio et al. Alberola et al. (2013) also used the real exchange rate and current account time series for examining the sustainable growth of the United Kingdom, Spain, China and Germany. Bernhofer et al. (2014) analysed the financial cycles of eight economies – including four developed countries (Austria, Ireland, the Netherlands and the USA) and four developing countries (Bulgaria, Estonia, Poland and Slovakia) – using real property prices and real credit growth. A noteworthy paper by Kemp (2014) examines the cyclical position of South Africa. Krupinka et al. (2014) analysed the sustainable growth of 28 developing countries, including Hungary, using credit-to-GDP, broad money and market capitalisation data. The Ministry for National Economy (NGM, 2014) published finance-neutral output calculations for Hungary, using real interest, net lending, capital account and capacity utilisation data.

country. This was exacerbated by higher-than-equilibrium capacity utilisation after 2005. While the real interest rate restrained the economy between 2002 and 2004, from 2005 it contributed to the overheating of the economy. After the crisis, both capacity utilisation and the positive turnaround in the external financing position led to actual output underperforming its potential level.

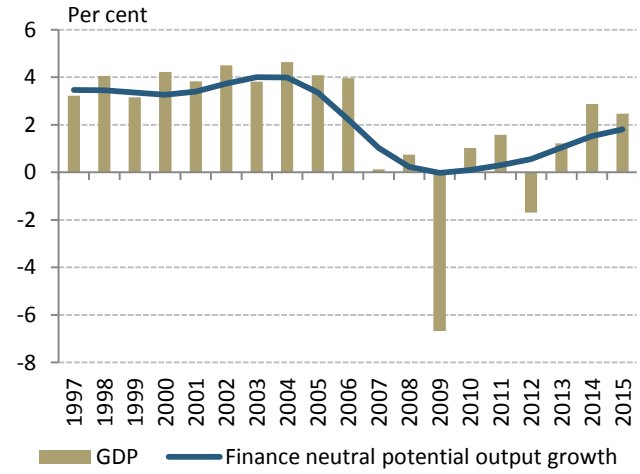
Chart 3-14: Actual and finance neutral potential output



Note: Volume, reference year 2005, thousand bn HUF.

Source: MNB

Chart 3-15: Actual and finance neutral potential output growth



Source: MNB

On the whole, the picture emerging both from the sectoral approach and the aggregate approach indicates that Hungary exceeded its finance-neutral potential growth during the period of 2002–2008. In the context of a normal business cycle, the growth path of Hungary was influenced by the opening up of the financial cycle and the ensuing rapid accumulation of debt. Owing to the adjustment measures and behaviour shifts aimed at restoring the financial balance, the dynamics of the recovery following the crisis lagged behind the sustainable growth rate.

Hungarian GDP increased by 3.1 per cent on average during the 7 years preceding the crisis, whilst domestic actors accumulated significant financial imbalances. **According to our calculations, in this period a sustainable, finance-neutral potential growth path would have resulted in a lower growth rate of 2.6–2.8 per cent compared to the actual value.** The economy contracted by 0.9 per cent annually on average in the period covering the crisis and the post-crisis years (2009–2013); at the same time, on an annual basis GDP would have increased by 0.3–0.6 per cent on average along a sustainable potential growth path. In summary, compared to its sustainable long-term growth potential, in the period 2002–2007 the annual growth rate of Hungary was 0.4–0.5 per cent higher on average, while – as an adjustment to its vulnerability and the financial cycle – its growth was 1.2–1.5 per cent slower than its potential in the period 2009–2013 (Table 3–2).

Table 3-2: Net financial position of sectors in case of actual and sustainable growth

	2002-2008 average	2009-2013 average	Difference from actual 2002-2008 average	Difference from actual 2009-2013 average
Actual	3.1	–0.9		
Finance neutral potential growth				
Sectoral approach	2.6	0.6	–0.5	1.5
Aggregated approach	2.8	0.3	–0.4	1.2

Source: MNB

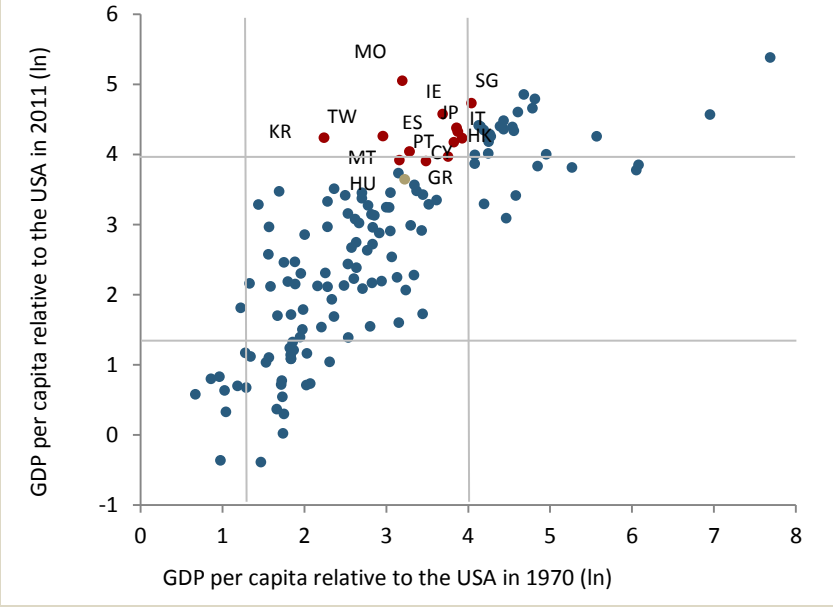
Box 3-1: Characteristics of economic convergence in light of the key factors of production

The properties of economic convergence and the related factors are the subject of extensive research in economic theory. In periods of high growth in the global economy – during the upswing in both business and financial cycles – many projections are made for the anticipated convergence period of dynamically expanding regions, although **looking at the experience of the past forty years, one can conclude that successful convergence is mostly an exception, rather than a usual phenomenon.**

In the post-WWII period, most countries rapidly reached middle income levels, while between 1970 and 2011 less than 10 per cent of the countries were able to catch up to the most developed economies.

Examining the aforementioned countries in respect of their economic structure (population, availability of natural resources), and in terms of their governmental engagement and social structure, significant differences can be identified. There is no clear-cut formula for successful convergence which is applicable for every country. In this box, we do not intend to present a detailed discussion of such differences, as our goal is only to analyse differences in the key factors of production.

Chart 3-16: Changes in GDP per capita between 1970 and 2011



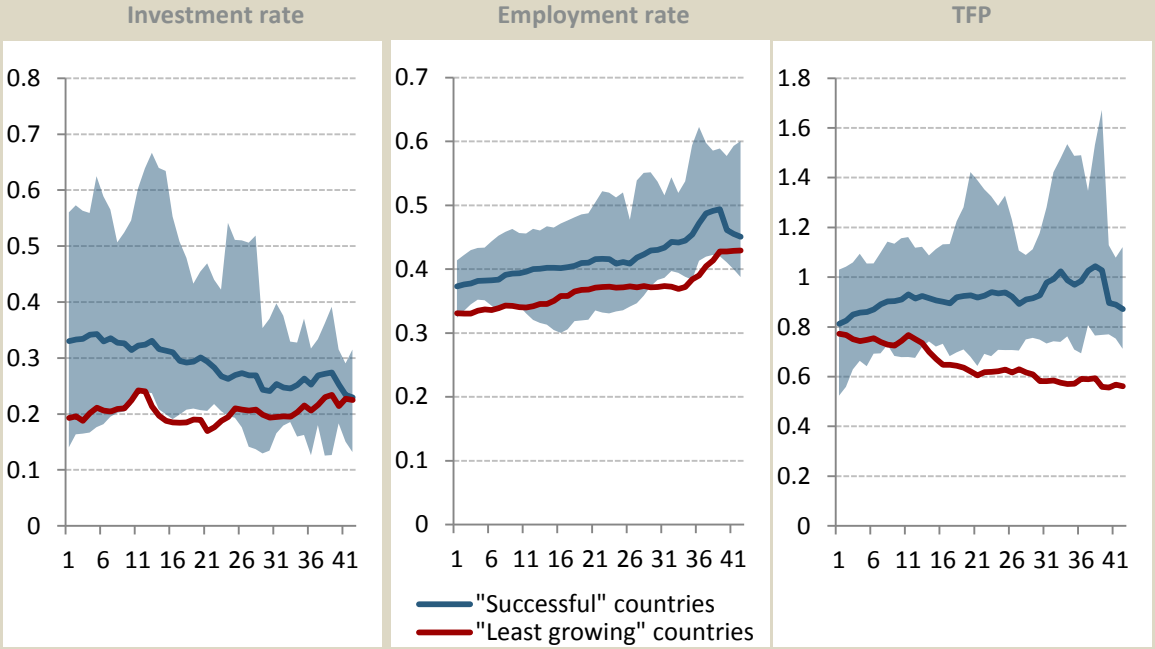
Source: PWT, Virág (2014)

During the last 40 years, some successful countries (Macao, Hong Kong, Taiwan, Korea, Singapore, Cyprus, Malta, Italy, Spain, Greece, Ireland) have managed to break out from their medium level of development.

Investments played a key role in the economic convergence process. Successful countries – though with a declining trend – managed to maintain higher levels in the investment ratio. High sustainable growth took place with an investment ratio of 25 per cent or above in this group of nations.

The employment rate in emerging economies generally increased. Demographic trends determined similar international processes. Younger, more qualified working-age age groups entered the job markets and were more likely to find employment in the structurally transforming economies, while low wage levels triggered FDI inflows which significantly raised labour demand.

Chart 3-17: Factors of production



Note: Examined countries: "Successful countries": Macau, Singapore, Taiwan, Hong Kong, Spain, Ireland, South Korea, Greece, Italy, Cyprus, "Least growing countries": Chile, Turkey, Brazil, South-Africa, India, Uruguay, Peru, Paraguay, Mexico.
Source: Penn World Table, IMF WEO, World Bank WDI

In addition to investment, total factor productivity also plays an important role in economic convergence. Along with structural transformation (moving from a less productive, agriculture-dominated economy to a more productive industry- and IT-based economy), adapting new technologies, rapid integration to global trade and promoting innovation all contributed to rapidly increasing productivity.

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4. HUNGARY'S GROWTH OUTLOOK

Financial crises generally result in a significant, long-term reduction in output. The lasting shortage of demand induced by the crisis and the accumulated financial and real economy imbalances negatively affect all factors of production and may thus erode the potential growth prospects of the economy. According to forecasts drawn up by major international organisations for the global economy, achieving the trend or the rate of growth prior to the crisis is unlikely in the coming decade.

Due to the short period of time elapsed, it is still difficult to find clear answers in the international literature which quantify the impacts of the crisis on the potential growth or, even more importantly, on sustainable growth. For that reason, we have based our calculations of Hungary's future growth prospects on Kaldor's growth model, a simple yet popular model for the analysis of longer-term growth prospects. According to the model, at a longer time horizon, per-capita capital and per-capita output tend to grow at a nearly identical rate, leaving the capital/output ratio essentially unchanged. Consequently, the longer-term growth of the economy is driven by the rate of the accumulation of capital. At a given capital intensity and amortisation rate, the higher the rate of investment, the faster the rate of the growth of the amount of capital and consequently of the economy.

In consideration of the above, in our estimate, projecting the actual investment ratio (which is around the average of the region) over the medium term, the longer-term growth outlook of the Hungarian economy may be around 2.5 per cent, potentially representing an annual convergence rate of approximately 1 per cent. The convergence process may only be accelerated by an additional sustained increase in the rate of investment. According to the results of our model, achieving a growth potential of 3.5 to 4 per cent would only be possible at an investment rate of approximately 25 per cent.

Faster growth would therefore require a further increase in the investment rate. However, it should be emphasised that, with the exception of investments financed from the state budget, the investment rate is a variable which economic policy cannot directly influence. Productive investments adding to growth potential are primarily shaped by profitability considerations. In that context, looking forward, the following factors may be the most relevant. (1) In light of the current demographic conditions, the workforce potentially available on the labour market may peak during the second half of the decade, after which it is expected to decline in accordance with the demographic trends. That process can only be adjusted by encouraging an increase in the birth rate, increasing the general level of skills and further tightening the rules of retirement. Considering that the greatest reserves in terms of labour supply are to be found among people with a low level of skills, increasing the level of skills of these potential workers is of particular importance. (2) A high profit margin requires a higher technological level in production. Apart from increasing private and public investment into innovation, this may be encouraged by improving the ability of small and medium-sized businesses for adaptation (e.g. by the innovative organisation of work, technologies and financing solutions). (3) The perception of the investment environment affects the risk premiums taken into account on the assessment of investments. Continuing to improve the predictability of the general economic environment may increase the investment rate through lower risk premiums. (4) As far as demand is concerned, the current medium-term projections point to slower growth in global trade compared to the pre-crisis rate (due in part to a slower rate of global economic growth and a decelerating rate of globalisation). Taking that into account, it may be important to shift the emphasis within the export structure, through both direct or indirect (supplier) relations, toward industries and markets with relatively more dynamic growth. In geographical terms, these may include the fast-growing regional and Asian economies, whereas in terms of the product structure, they include the market of export services, which continues to grow at a dynamic rate despite the crisis.

In addition to increasing the investment rate, the availability of the required funds is of equal importance. During the pre-crisis period, domestic savings were insufficient to finance investments, which meant that a significant amount of external funding was required. According to our savings rate projection, the moderate growth scenario does not require the use of external funds and may dynamically reduce the external debt rate, i.e. it is considered to be sustainable from a debt point of view. The more dynamic growth scenario would require a long-term increase in the savings rate. This is considered a viable option for all domestic sectors. For households, the general improvement of savings-consciousness and supporting long-term savings could stabilise the savings rate at a higher level over the long term. For domestic businesses, by achieving a higher added value (e.g. stepping forward in the production chains, entry into higher added-value segments), they may increase their financial resources. Finally, as far as the state budget is concerned, following a significant and

long-term improvement in recent years, it is worth considering further improvement in the budget balance. In that context, however, it is important to take into account the characteristics of deleveraging-related recessions, as discussed in detail in Chapter 1, for the timing and magnitude of the measures. Finally, if domestic savings are insufficient, a shift in external funding is desirable from debt-type financing toward a more sustainable working capital-based financing.

In the previous chapter, the growth process of the past fifteen years was described from a sustainability point of view. Having explored the growth lessons of the past, Hungary's growth outlook is analysed in this chapter. We first present a brief overview of the impacts of financial crises on growth on the basis of the relevant literature.[66] This is followed by a quantification of Hungary's growth outlook, taking into account the sustainability of the projected growth scenarios, i.e. whether the trap of the debt-generating pre-crisis growth model can be avoided.

4.1. The impact of financial crises on growth

Over the short or medium term, financial crises may affect the production potential of the economy through both the production factors and productivity (for a summary of the major part of these channels, see, *inter alia*, ECFIN, 2009). The stock of human capital and labour may also be affected by changes in the structural unemployment and the activity rate. Consequently, structural unemployment may rise due to increasing lay-offs from liquidity-intensive sectors as a result of the decline in lending, while job-creation slows down in industries dependent on external financing (Gallego and Tessada, 2012). Moreover, if the crisis is protracted, the knowledge of people who have been unemployed for a long time becomes obsolete and their skills and experience become outdated, decreasing their chances of finding a new job, which raises the long-term structural unemployment rate (hysteresis effect). Similarly, the activity of the population may decline primarily during long-lasting crises. Having given up hope as a result of the deteriorating chances to find a job, unemployed persons may become inactive. Moreover, the measures to support the unemployed taken during the crisis (e.g. extending the duration of entitlement to unemployment benefit) may also lead to an increase in structural unemployment. At the same time, the decline in activity may be counterbalanced by households responding to their deteriorating income situation by increasing their labour supply.

Financial crises hinder the accumulation of capital through various channels. The increase in risk premiums in the wake of the crisis will raise the net returns expected on capital expenditure, preventing less lucrative investment projects. The tightening of lending conditions will also restrict investment activity. Finally, corporate bankruptcy rates will increase as a result of the recession and the shortage of credit. The assets of liquidated businesses may be withdrawn from production over a longer period (or even for good), particularly where bankruptcy and liquidation procedures are lengthy and inefficient.

Finally, financial crises may also have a negative effect on productivity. Analyses have shown that changes in labour and capital only account for a fraction of the output losses observed during financial crises (e.g. Ohanian, 2001, Sandleris and Wright, 2011). During a recession, the least efficient businesses are the first to withdraw from the market, which results in an increase in the average productivity level of the surviving businesses. However, that reallocation-related increase in productivity is compensated for by various factors during financial crises. A financial system whose risk appetite and lending capacity are declining will be less likely to finance capacity-increasing investments by the more productive businesses (see, *inter alia*, Ziebarth, 2011). Moreover, the uncertainty of the macroeconomic environment tends to grow drastically during crisis periods, which encourages businesses to take a wait-and-see attitude. Efficient businesses will therefore postpone the expansion of their capacities, which will in turn slow down the reallocation between businesses and sectors (Bloom et al., 2012). As a result, the deceleration of reallocation may lead to a decline in productivity. Moreover, during the crisis period, research and development may also decline due to the increasing uncertainty and the shortage of financing, which may set back growth in productivity. The spread of corporate bankruptcy undermines the organisational capital of the economy. Organisational capital is the knowledge related to the organisation of production, accumulated by specific businesses (Prescott and Visscher, 1980). Moreover, employees also accumulate company-specific information that will be lost due to closures and lay-offs (Jovanovic, 1979).

[66] For a more detailed discussion, see the analysis of Gábriel and Motyovszky (2013).

In addition to exploring the channels potentially affecting growth, the impacts of financial crises on output and moderating growth have also been widely documented. Examining over 700 recession and subsequent growth periods, Cerra and Saxena (2007) found that while financial crises tend to set back the economy to a higher extent, the growth rates during the subsequent recovery period also tend to be lower than in the case of other types of crises. Examining 40 financial crises in the post-1980 period, Checcetti et al. (2009) concluded that in 50 per cent of the crises under review, output declined by more than 9 per cent from the pre-crisis peak to the lowest point. Reinhart and Rogoff (2009) also found that GDP tends to drop by 9 per cent on average over 2 years' time during financial crises. Analysing 7-year post-crisis horizons, Abiad et al. (2009) found a significant and lasting drop of 7-8 per cent in output compared to the pre-crisis trend. Focusing on potential growth, Furceri and Mourougane (2012) estimate that potential output is set back over a long period by an average of 4 per cent by serious financial crises. Through an analysis of changes in the rate of inflation, Bijapur (2012) found indirect evidence confirming that financial crises undermine potential output.

The conclusions in the literature reviewed are consistent. All of the studies document a significant decline in output during periods of financial crisis. Apart from the loss of output, it is also important whether growth also tends to be set back by financial crises. A survey of nearly 140 years by Schularick and Taylor (2009) reveals that 5 years following a crisis, the rate of growth still remains below that of normal years, and this is particularly true of the post-WWII period. Also focusing on the 5-year period following a crisis, Cavallo and Cavallo (2008) demonstrate that the negative growth impacts of the crises may be alleviated by appropriate economic policies which are more likely to be implemented in countries with strong democratic institutions. Looking at a horizon of 4 years following the crisis, Haltmeier (2012) finds that, by the 3rd and 4th year following the crisis, neither developed nor developing countries had managed to reach the growth trend of the two years preceding the crisis. Estavão and Tsounta (2010) analysed the potential growth outlook of Canada during the two years immediately following the crisis. On the basis of data available until 2010, Benati's (2012) stochastic trend estimate reveals that, following the crisis, the potential growth rate of the euro area and the US dropped by 0.9 and 1.3 percentage points, respectively. Furceri – Mourougane (2012) estimated an insignificant decline of 0.1 percentage point in the rate of growth. Similarly, the ECFIN (2009) estimates do not reveal a significant deceleration of growth at the end of the third year following the crisis.

In summary, the time horizon of the studies analysing the impacts of the financial crisis on GDP growth extends to a few (2 to 7) post-crisis years. Approaching the end of 2014, however, their findings are less relevant to the survey of the growth potential of the Hungarian economy, given that our growth outlook estimate concerns the post-2015 period, i.e. a period beyond the 8th post-crisis year.[67]

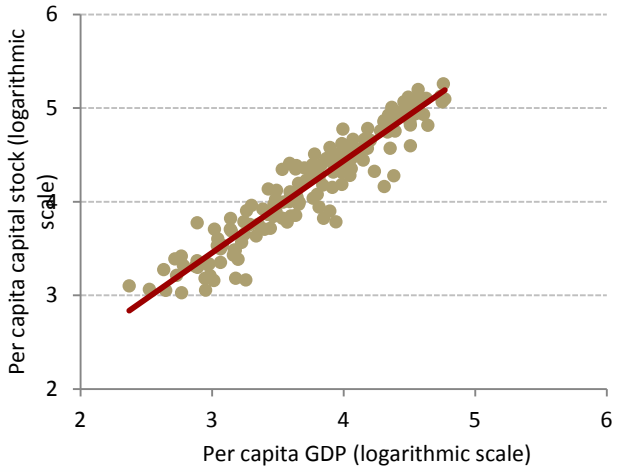
4.2. Growth outlook: a technical projection

In order to quantify potential growth over a longer term, we rely on Kaldor's (1957) observation, according to which the per-capita capital and per-capita output tend to grow at a nearly identical rate, leaving the capital/output ratio essentially unchanged. If capital/output ratio remains the same, then the growth rate of output must correspond to the growth rate of capital. It follows that the output level of the economy is ultimately determined by the amount of available capital.

While Kaldor discusses essentially invariable interrelations, there is in fact a remarkably close (almost one-to-one) correlation between capital and the output level (Chart 4–1) and growth (Chart 4–2). As the latter chart shows, the growth pattern of the member states of the European Union corresponds to Kaldor's assumption of nearly invariable capital intensity. While per-capita output, in particular in the new Member States, has significantly increased, the output per unit of capital, i.e. the reciprocal of capital intensity, has hardly changed during the same period. Since both the capital figures of more than 160 countries and the data of EU Member States over two decades confirm Kaldor's assumptions, the final result of the following calculations can also be considered to be well founded.

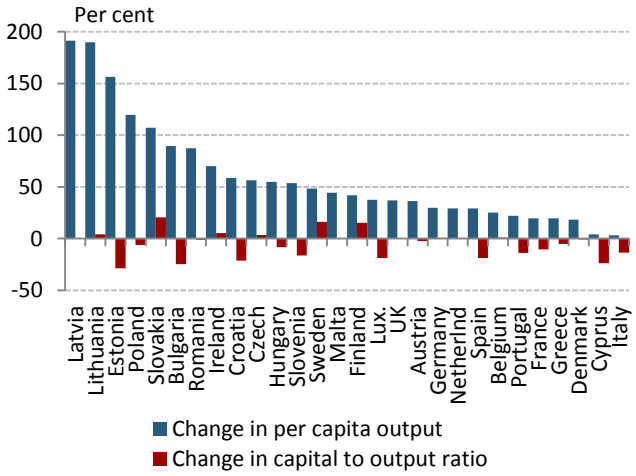
[67] For our projection, we draw on the macroeconomic forecast of the central bank for 2014 and 2015.

Chart 4-1: Per capita output and capital stock in 2005 (US dollar)



Source: Penn World Table, World Bank, MNB

Chart 4-2: Change in per capita output and capital to output ratio in the meber states of EU 1995-2015



Source: MNB

On the basis of Kaldor's observation, the rate of output growth quite closely corresponds to the rate of capital growth, which is shaped by two factors, i.e. the amortisation of the existing capital and the magnitude of investments. This relation can be expressed by the following formula:

$$(1) \qquad g = \frac{Y}{Y_{-1}} - 1 \approx \frac{K}{K_{-1}} - 1 = \frac{(1-\delta)K_{-1} + I}{K_{-1}} - 1 = \frac{I}{K_{-1}} - \delta$$

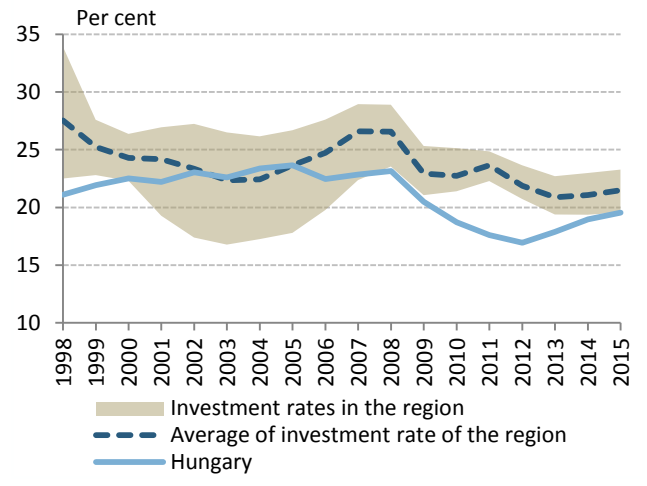
where g is the growth rate of the economy, Y is output, K is the amount of available capital, δ is the amortisation rate, and I stands for investments. The lagged values of the variables is indicated by the -1 index. On the basis of formula (1), growth is increased by the investments to capital ratio and decreased by the amortisation rate at a rate of one to one. Manipulating formula (1), and using Kaldor's finding concerning constant capital/output ratio, the growth rate can be linked to even more tangible macroeconomic indicators:

$$(2) \qquad g = \frac{I}{K_{-1}} - \delta = \frac{I}{Y}\frac{(1+g)Y_{-1}}{K_{-1}} - \delta \Rightarrow g \approx \frac{\frac{I}{Y} \div \frac{K}{Y} - \delta}{1 - \frac{I}{Y} \div \frac{K}{Y}}$$

where I/Y is the investment rate while K/Y is the capital-output ratio or capital intensity. Expression (2) makes it even more obvious that, over the medium term, the growth of the economy is determined by the investment rate if the capital intensity and the amortisation rate determined by technology remain essentially unchanged. At a given capital intensity and amortisation rate, the higher the rate of investment, the faster the rate of the growth of capital and consequently of the economy.

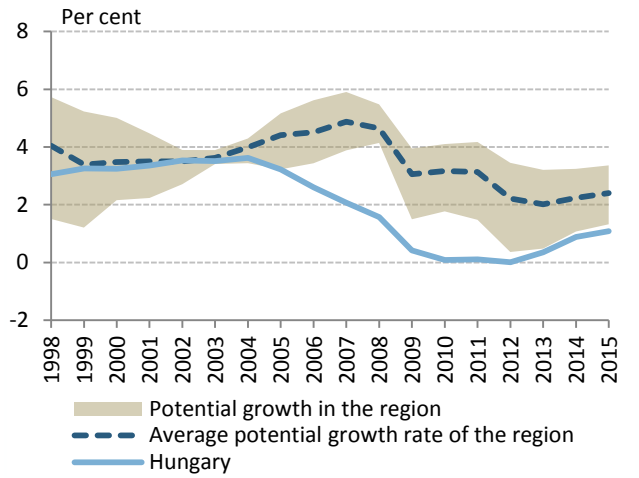
The validity of the above argumentation shedding light on the relation between the investment rate and the rate of growth is illustrated by the evolution of regional investment rates and potential growth rates. As Chart 4–3 and Chart 4–4 show, changes in potential growth are very similar to those of the investment rate. Regional data excluding Hungary show that, during the 2000s, up to the outbreak of the financial crisis, investment rates were increasing and potential growth was accelerating. Following the financial crisis, the investment rates were lower than the average of the pre-crisis years, similarly to the potential growth trends. The Hungarian investment and potential growth rates remained similar to the regional average up to about 2005. Subsequently, both the Hungarian investment rate and the rate of potential growth fell behind the regional average. By the end of the forecast horizon, however, both variables start to catch up with the regional average.

Chart 4-3: Invetment rates in Hungary and in other Visegrád's counties



Source: AMECO

Chart 4-4: Potential growth rates in Hungary and in other Visegrád counties



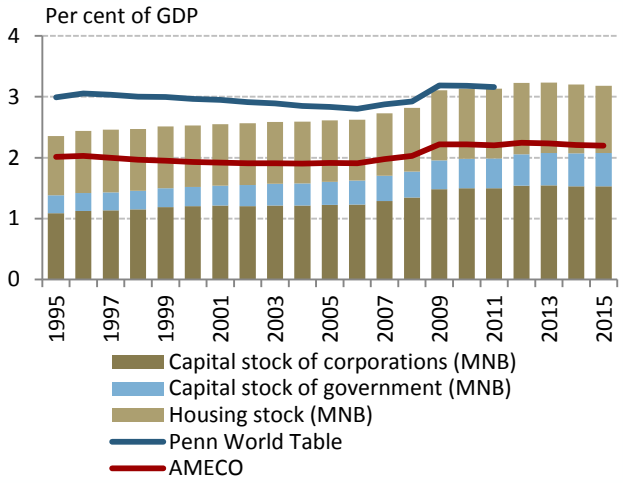
Source: AMECO

The relationship between the investment rate and growth can also be seen in the regional economic indicators. The following economic growth projections also rely on the basis of the relationship expressed by formula (2). Based on Kaldor's observation, assuming an unchanged capital intensity and amortisation rate in the future, one can calculate potential growth for any given investment rate.

The reliability of the calculations may, however, be affected by a number of factors. First, it is not clear which set of capital goods are relevant to the actual performance of the economy. Residential property and housing investments account for a significant portion of a country's capital. However, there are arguments that output is primarily determined by the amount of production capital, which means that residential real estate and housing investments can be disregarded in the calculations. Similarly, the significant, yet difficult-to-quantify value of agricultural land is not taken into account for the calculations, on the basis that it can be regarded as a fix endowment. Second, even if the relevant group of capital goods is identified, their stock can only be estimated with a substantial degree of uncertainty. The perpetual inventory method (PIM) is used to determine the capital stock, where both the assumptions for the initial value of capital stock and the rate of amortisation are burdened with uncertainties.[68] Third, not only the capital stock but also the amortisation rate is uncertain. Fourth, capital intensity and amortisation are not necessarily constant in time. Kaldor assumes capital intensity to be "practically" constant in time, i.e. the changes in capital intensity are assumed to be negligible during the calculations.

For Hungary, capital and amortisation data are available from various sources. Chart 4–5 shows that, in the post-crisis years, the magnitude of total capital to GDP according to the calculations of the MNB corresponds to the figures of the Penn World Table database; in the pre-crisis years, however, the calculations of the MNB show an increase in the capital ratio whereas the figures in the Penn World Table indicate a decrease.[69] The latter appears to be less plausible as convergence normally requires an increase in capital intensity. While the capital ratio of the MNB net of residential property is similar to the calculations of the European Commission (AMECO database), the latter is based on aggregated investment data (i.e. including housing investments), and thus it also includes residential property. Taking that into account, the AMECO data indicate a substantially lower capital ratio than the figures of the MNB or in the Penn World Table.

Chart 4-5: Capital stock to GDP ratio



Source: Penn World Table, World Bank, MNB

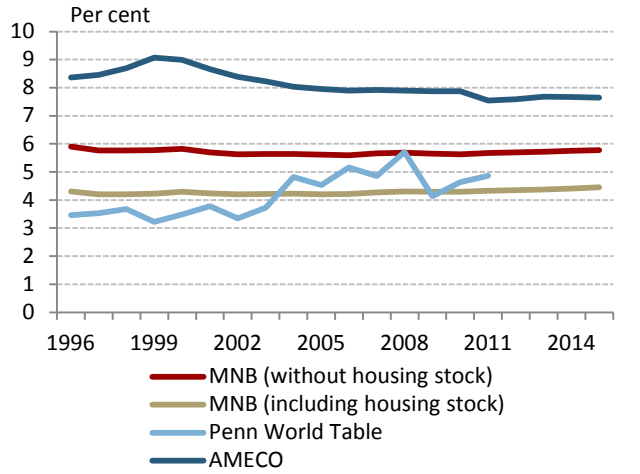
As for amortisation rates, the MNB's amortisation rate taking into account residential properties is again similar to the figures in the Penn World Table (Chart 4–6). As the rate of the amortisation of residential property is lower than that of corporate machinery and equipment for example, the amortisation rate of capital net of residential property is obviously higher. At first glance, the AMECO's assumption of a high rate of amortisation may appear surprising. Considering, however, that it uses

[68] The time series of the value of capital used for the calculations are based on the perpetual inventory method, see Pula (2003).

[69] All of the data show an increase in capital intensity in the post-crisis years. The reason for this is that the GDP in the denominator of capital intensity declines during the crisis.

a lower relative capital ratio than the MNB and the Penn World Table, faster amortisation will ultimately abate the fast increase of the capital ratio.

Chart 4-6: Amortization rates



Source: Penn World Table, World Bank, MNB

In summary, while the various available data sources show slightly different values for both capital and the amortisation rate, their value remained rather stable over the last two decade.

On the basis of that stability, by combining the end-point capital ratios and the amortisation rates of the various data sources and assumptions for the investment ratio, the rate of potential growth corresponding to the dynamics of capital can be estimated by formula (2).[70] In the following, two scenarios based on different investment rates are examined. Under the first scenario, the projection is based on the investment rate forecast for 2015 taken from the June 2014 Inflation Report of the MNB, whereas the second scenario is based on the assumption that the rate of investment will continue to increase beyond 2015.

Table 4-1: Medium term growth potential of Hungarian economy (technical projection)

	Investment rate	Capital-to-GDP ratio	Amortisation rate	Growth
MNB (Including housing investment)	19.8%[1]	3.18	4.4%	1.9%
MNB (without housing investment)	17.1%[2]	2.08	5.8%	2.7%
Penn World Tables	19.8%[1]	3.21	4.9%	1.4%
AMECO	19.8%[1]	2.2	7.6%	1.5%

[1] Investment rate forecast for 2015 including housing investment.

[2] Investment rate forecast for 2015 without housing investment.

Source: AMECO, Penn World Tables, MNB Inflation report June 2014

Three important factors need to be considered for the assessment of the first calculations, which are based on a technical projection. First, the results are based on the assumption that the investment rate forecast for 2015 remains unchanged beyond 2015. (This assumption is modified in the alternative scenario to be described below.) If the dynamics of investments moderate to a lower extent and the investment rate is higher beyond 2015, the growth potential may also improve compared to Table 4-1. It is a risk factor, however, that the volume of public sector investment is kept high until 2015 by projects financed out of the seven-year budget of the European Union over the 2007–2013 period. Considering the back-loaded utilisation of EU financing, it is expected that beyond 2015 *on average*, EU-financed public sector investment will be lower than in 2015.

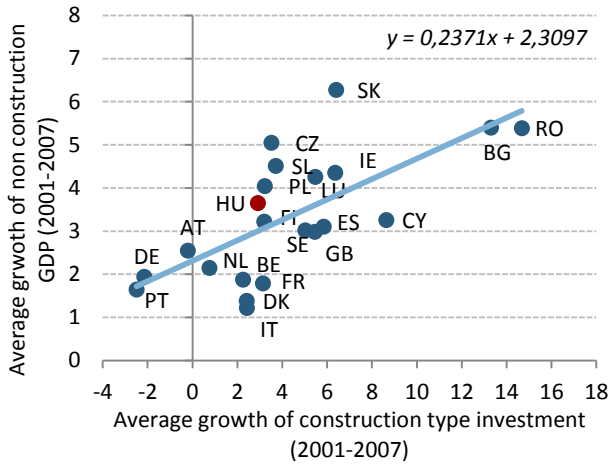
On the other hand, the calculations based on the total investment rate are unable to take into account the composition of investments. The composition of investments, however, is not indifferent from the point of view of potential growth. As shown in Charts 4–7 and 4–8, investment in machinery tends to generate a higher growth potential than investments in buildings. Partly for the same reason, corporate investments have greater impact on the future output than, for example, residential investments by households. On the basis of Chart 4–9 showing the composition of investments, by 2015, the corporate investment-to-GDP ratio is expected to be higher than its average from the pre-crisis years, as opposed to the figure for housing investments. Therefore, while the total investment rate forecast for 2015 will remain below the average of the 2000–2007 period, due

[70] A similar approach for growth rate calculations was used by Darvas-Simon (1999).

to the higher ratio of corporate investments, its composition is deemed positive from the point of view of the growth outlook. Consequently, the figures based on the total investment rate are considered to be underestimated.

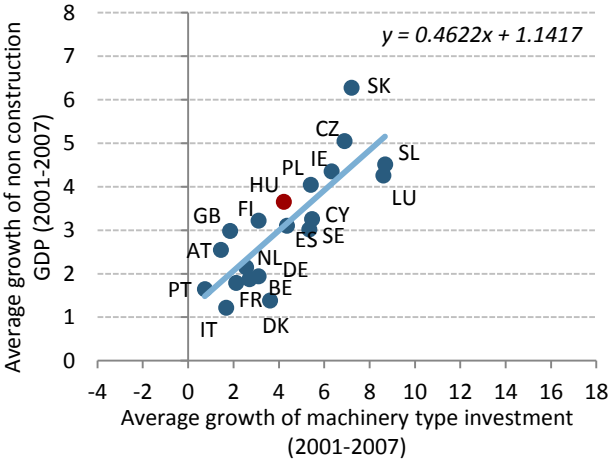
Thirdly, while the capital ratios only changed to a slight degree in time, the various data sources indicated different directions in the changes before the crisis. The ratios published in the AMECO and Penn World Table declined slightly, whereas the calculations of the MNB indicate a slight increase. The data sources agree that, during the crisis, the capital ratios rose as a result of declining GDP. During the 2009–2015 period, however, the capital ratios remained stable according to each data source.

Chart 4-7: Construction type investment against GDP growth



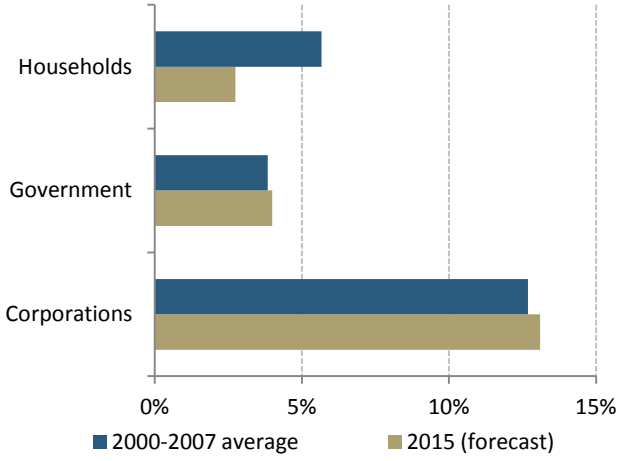
Source: Eurostat

Chart 4-8: Machinery type investment against GDP growth



Source: Eurostat

Chart 4-9: Investment rates by sectors



Source: MNB

While the growth range defined by the calculations is rather broad, on the basis of the above considerations, the calculations based on the total investment and capital stock figures and thus disregarding the structure of investments probably underestimate the growth potential. Taking that into account, assuming an unchanged investment rate of just below 20 per cent, the growth potential of the Hungarian economy over the medium term is estimated to be between 1.9 per cent and 2.7 per cent.

4.3. How can a more dynamic growth path be achieved?

Based on the relation between the investment rate and growth, as described above, it is now examined how the change in the investment rate will affect growth and what level of investment rate is required for a more dynamic growth scenario.

In order to quantify the effect on growth of the change of the investment rate, we again refer to formula (2), which enables the determination of the growth implications of the change of the investment rate:

$$\Delta g \approx \Delta \frac{I}{Y} \div \frac{K}{Y} \quad (3)$$

On the basis of approach (3) above, the excess growth is essentially dependent on the capital ratio. The higher the capital ratio, the lower the excess growth. The reason for the reverse relation is that, in fact, investments serve two purposes, i.e. to replace the amortised capital stock and to increase the capital stock. Given the level of investment, if the capital ratio is higher, replacement due to amortisation absorbs more investment, leaving less to increase the capital stock, which would in turn be conducive to growth.

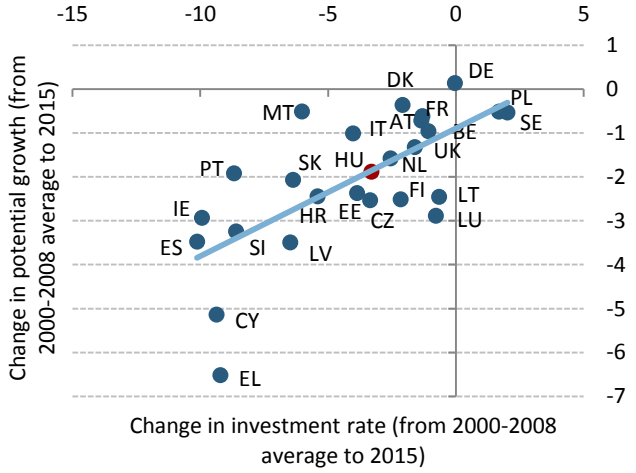
Table 4-2: Growth rate increment induced by an 1pp increase in investment rate

	Growth
MNB (Including housing investment)	0.35%
MNB (without housing investment)	0.55%
Penn World Tables	0.35%
AMECO	0.53%

Source: MNB számítás

As Table 4-2 indicates, **a 1 percentage-point increment in the investment rate will increase the rate of the potential growth of the economy by 0.4 to 0.6 percentage points**. The rate of excess growth determined by approach (3) is similar to the magnitude indicated by the calculations of the European Commission. The comparison of the investment rates and potential growth figures of the Member States of the European Union reveals that a 1 percentage-point decline in the investment rate will reduce the potential growth rate on average by 0.3 to 0.4 percentage points (Chart 4–10).[71]

Chart 4-10: Changes in investment rates and growth from 2000-2008 average to 2015 (percentage point)



Source: AMECO, MNB

The economic policy recipe for accelerating the growth rate via an increase in the investment rate is of general validity. In a development textbook, Ray (1998) refers to investment and savings as "the foundations of all models of economic growth". Similarly, in their book on economic development, Todaro and Smith (2002) claim that an increase in investment is "a necessary condition" for an economic upswing. Similar arguments have often been made by international organisations. "Recent experience has underlined the central importance of national saving and investment rates in promoting growth." (BIS, 1996) "Policies to increase the investment rate are of critical importance in order increase the rate of growth and employment" (ILO, 1996). "Further investment is the answer, or at least part of the answer, to economic and social policy issues" (UN, 1996). In Latin America, "an 8 percentage-point increase in the savings and investment rates would increase annual growth rates by 2 percentage points" (The World Bank, 1996). In its most recent country survey on Hungary, the OECD (2014a) pointed out: "growth potential is held back by weak investment".

In the spirit of the economic policy proposals to increase the rate of investment, the approach employed in the technical projection also enables us to determine what the potential growth rate would be like if the investment rate of the Hungarian economy returned to the level during the first years of the third millennium. As Table 4–3 indicates, at an investment rate of 25 per cent, potential growth may approximate 4 per cent.

Table 4-3: Medium term growth potential of Hungarian economy in case of 25 per cent investment rate

	Investment rate	Capital-to-GDP ratio	Amortisation rate	Growth
MNB (Including housing investment)	25.0%	3.18	4.4%	3.7%
MNB (without housing investment)	20.0%	2.08	5.8%	4.3%
Penn World Tables	25.0%	3.21	4.9%	3.2%
AMECO	25.0%	2.20	7.6%	4.2%

[1] Investment rate forecast for 2015 including housing investment.

[2] Investment rate forecast for 2015 without housing investment.

Source: AMECO, Penn World Tables, MNB calculations

In addition to the numerical results, it should be pointed out that while the investment rate is closely linked to economic growth, it cannot be seen as a variable which can be directly influenced by economic policy. Investment projects financed from the state budget are an exception, as these are obviously directly affected by economic policy. Public-sector investments in infrastructure and institutions ensure the networks required for the smooth functioning of the economy and public administration and contribute to the accumulation of human capital and the preservation of the health of the

[71] A higher impact can be quantified where the change in potential growth is entirely linked to the change in the investment rate (there is no constant in the regression). At the lower impact, a general deceleration of growth by nearly 0.9 percentage points is added to the change of the investment rates (value of the constant in the regression).

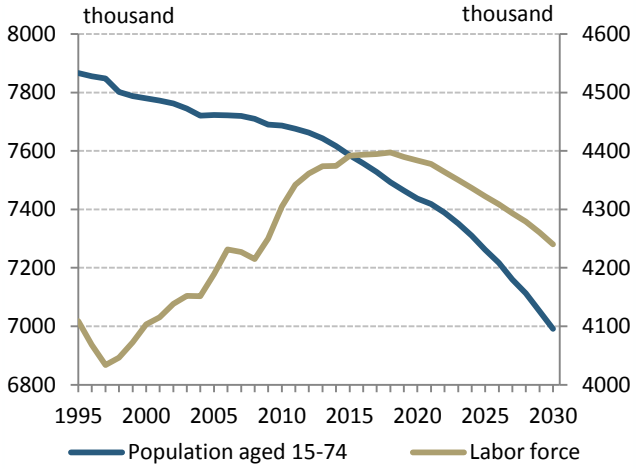
society, including workers. However, since these investments alone are insufficient to bring about the production capacities required for long-term growth, they constitute necessary but not sufficient factors of growth. While the optimum level of public-sector investment is difficult to estimate, excessive state investment carries the risk of creating idle capacities, while the desired level of cost-efficiency may not be achieved.

The major part of the investment of households is real estate investment, whereas investment in agricultural machinery and equipment account for a smaller part of the investments of households. While the former are indispensable in satisfying housing needs, over the medium term they do not significantly boost the output capacity of the economy beyond their direct demand effect. The latter, however, may improve the productivity of the agricultural sector and therefore the production potential. In addition to the substantial rate of co-financing, such investments in machinery and equipment are based on profitability considerations. The higher the potential return on investment, the higher the demand for such investment.

To put it simply, corporate investment decisions are also based on an assessment comparing the present values of the potential revenues and the required investments involved by a project. On that basis, the better the revenue outlook, the more attractive the project is for investors, i.e. a high profit margin leads to a high rate of investment. A high profit margin requires a high technological level in production, based on ongoing innovation and the efficient organisation of work. As far as demand is concerned, the current projections tend to suggest slower growth in global trade compared to the pre-crisis rate. The development of domestic demand is similarly restrained, due to deleveraging pressures and precautionary considerations. In that context, it may be important to shift the focus toward dynamically growing sectors and markets. In geographical terms, these may include regional and Asian economies, whereas in terms of the product structure, they include the market of export services, which has continued to grow at a dynamic rate following the crisis. Low costs are also conducive to investment. In addition to the competitive price of investment, important factors include the availability of sufficiently skilled labour and the costs of employment. In addition to the above, an entrepreneur-friendly business environment and predictability can also contribute to the growth in investments by reducing the risk elements in the implicit discount factor used for the present value calculation.

In addition to profitability criteria, investment decisions in the private sector are, however, also shaped by other considerations. **For example, the quantity and quality of the workforce available to operate the physical assets acquired are also important.** Considering future demographic trends, a rapid decrease is anticipated in the number of the active population aged between 15 and 74 in the coming fifteen years (Chart 4–11). In recent years, this unfavourable demographic trend has been overcompensated by a significant increase in the activity rate induced by government measures, resulting in an increase in the number of the active population. **Without further measures to encourage activity, however, the evolution in the number of the active population will probably be dominated by the demographic trends again beyond 2015.**

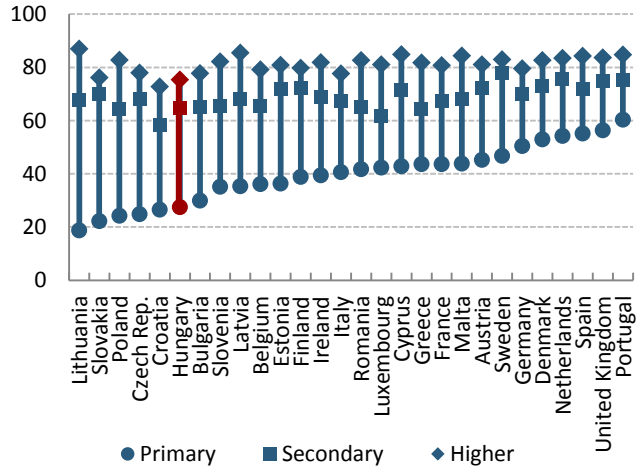
Chart 4-11: Population and labor force



Source: CSO, MNB

Despite the favourable increase in the last couple of years, the Hungarian activity rate is still low in international comparison (the third lowest among the Member States of the European Union), the labour market has potential reserves, mainly among people with a low level of education, and to a lesser extent among young people, people close to retirement and middle-aged women. **However, the reverse of migration could also contribute positively to the labour reserves of the Hungarian economy.**

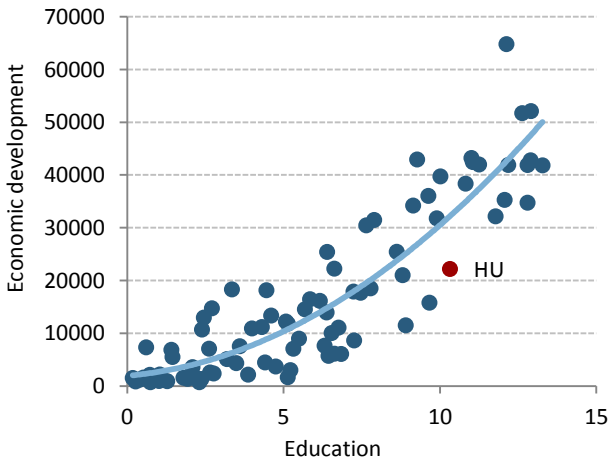
Chart 4-12: Participation rate by education (2012)



Source: Eurostat

Apart from quantity, the quality of the available workforce is also of crucial importance. In Hungary, the ratio of workers with a college degree is lower than the average of the OECD. (OECD, 2014b) This could present an obstacle to technological knowledge transfer (Nelson and Phelps, 1966) and restrain the capacity to innovate (Romer, 1990). General skills, as measured by the PISA tests for example, may also affect potential growth (Hanuschek and Kimko, 2000). Because of these factors, investment in both physical assets and human capital is required in order to catch up (Chart 4–12). According to the latest comparative data (OECD, 2014b), Hungary has a lower level of investment in education in proportion to GDP (4.4 per cent as opposed to the 6.1 per cent average of OECD member states). Altogether, beside increasing the amount invested in education, adjusting the quality measures of education to market needs may lead to an increase in the human capital in Hungary.

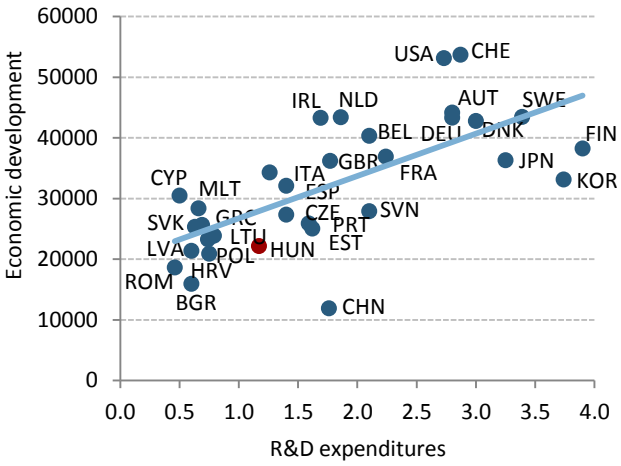
Chart 4-13: Education and economic developement



Note: Average of years of education of population aged 40-64 (2000), per capita GDP at purchasing power parity (USD, 2012).
Source: Cohen and Soto (2007), Penn World Table, MNB

In addition to well-trained human capital, continuous innovation is also required in order that the productivity-increasing effect of the completed investment projects can be exploited to their best effect. Both the innovation capacity and investments into research and development are crucial for development (Chart 4–13). As a proportion of GDP, Hungary spends a little over 1 per cent on research and development, as opposed to an average 2 per cent of the European Union and 3 per cent or more spent by innovative Germany and Scandinavian countries. In addition to the innovation capacity, the strengthening of the adaptive abilities of enterprises, such as the adoption of best practices in work organisation and technological and financing solutions, are also conducive to productivity.

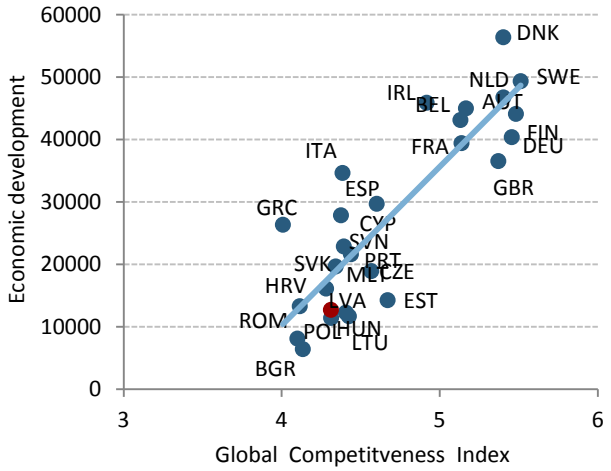
Chart 4-14: R&D expenditure and economic development



Note: KR&D expenditures (per cent of GDP, 2011), per capita GDP at purchasing power parity (USD, 2012).
Source: Eurostat, Penn World Table, MNB

Additional factors affecting decisions on potential investments include the general business environment sentiment. Considerable improvement in the country's balance indicators, a substantial decrease in the inflation rate and a steadily low yield environment have all contributed to improving predictability, which is important from the perspective of business planning. Further improvement in the general economic and institutional setup and in the competitiveness rating might increase the investment rate through a lower risk premium (Chart 4–14).

Chart 4-15: Global competitiveness index in relation with the economic development



Note: Global competitiveness index (2006-2014 average), per capita GDP at purchasing power parity (USD, 2012).
Source: World Economic Forum, Penn World Table

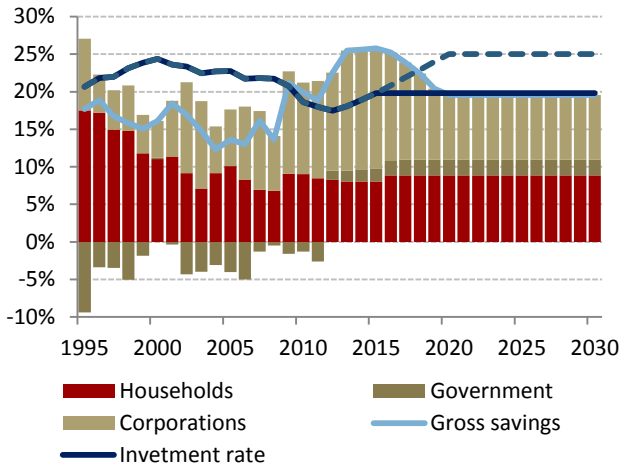
As discussed above, while investment decisions are based on a complex set of criteria, there are a number of factors that affect the success of the investment projects and thus the longer-term growth of the country. Achievement of the investment rates required to reach the dynamic growth necessary for economic convergence can therefore be promoted by jointly shaping the factors affecting investment decisions and by successfully coordinating several areas of economic policy.

4.4. Potential sources of financing – financing and sustainability

In the chapter discussing the pre-crisis model of growth, it was demonstrated how the growth model involving fast growth in lending and, at the same time, the disruption of the external balance proved unsustainable. It should therefore be examined whether the growth projections carry risks to sustainability and to what extent they do so.

The assessment is based on the national account identity according to which the capacity of external financing is equal to the difference between gross savings and investments. Looking at the pre-crisis years, it is observed that the gross savings of sectors were far below the not-too-high level of investments (Chart 4–15). On average, the resulting annual need for external financing during the period 1995 to 2008 amounted to almost 7 per cent of GDP. Post-crisis deleveraging efforts reversed the balance of gross savings and investments, creating an increasing financing capacity as proportion of GDP. According to the calculations of the MNB, the ratio of financing capacity to GDP may vary around 6 to 7 per cent until 2015. The significant improvement in the external balance is the sum of various factors, including declining domestic demand and the increase in savings. The latter trend is accounted for by the increasing budgetary discipline, stabilising the deficit at a low level, the increasing utilisation of EU financing and an increase in the gross savings of businesses.

Chart 4-16: Gross saving and investment rate



Source: MNB

A technical projection beyond the MNB's forecast horizon has been drawn up for gross savings trends. It is based on the assumption that the gross savings of both businesses and households will gradually revert to their respective average between 2000 and 2008. For households, this involves an increase in the gross savings rate forecast for 2015 by a few tenths of a percentage point, whereas in the case of businesses, it represents a decrease of almost 7 percentage points. While the latter is a substantial decrease, the current high corporate savings rate is due to deleveraging pressures. As far as the state budget is concerned, it is assumed, in accordance with the 2014 convergence programme (NGM, 2014), that the balance of the budget will gradually reach the medium-term objective (MTO), i.e. 1.7 per cent of GDP. Also, over the medium term, the public sector investment rate will be around the average of the 2000–2008 period (3.8 per cent of GDP), i.e. the financing capacity of the sector will be around 2.1 per cent of GDP.

A comparison of the saving projection with the investment needs of the two growth scenarios reveals that the growth scenario based on the technical projection may result in an almost neutral external financing position, whereas the dynamic growth scenario might require external financing. In the more restrained growth scenario, external debt may be further reduced at a steep rate, whereas under the dynamic growth scenario, external debt may, as a result of a

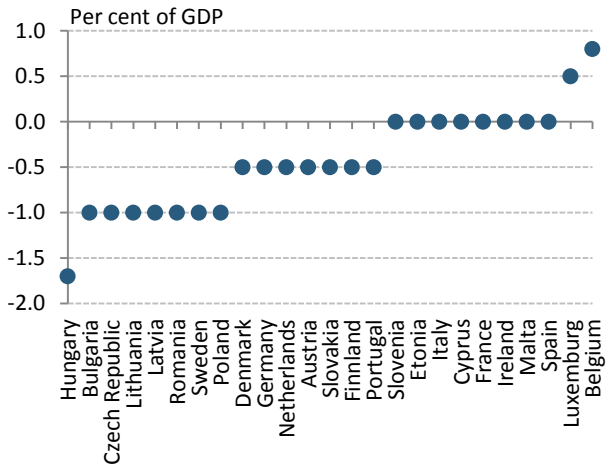
similarly positive decline, diminish to nearly 50 per cent of GDP by 2018, which may, however, be followed by slight increase.

The sustainability of the scenarios can be assessed using the Lane and Milesi-Ferretti (2004) approach. According to this, an external debt scenario is sustainable if it does not involve an increase in the external debt-to-GDP ratio. According to that criterion, the restrained growth scenario is probably sustainable whereas the sustainability of the dynamic growth scenario would be consolidated by a further long-term increase in savings rates.

Looking at specific sectors, it appears that the savings decisions of businesses and households are indirectly affected by economic policy, whereas government savings are directly affected. Savings in the corporate sector may primarily be shaped by profitability considerations. Profitability may be boosted by increasing productivity, an increase in the value added of export, which is currently low in international comparison, a shift toward industries generating higher value added and a business environment and tax system that ensure the further improvement of international competitiveness. The saving capacity of households is affected by the demographic trends. An increase in the old-age dependency ratio reduces the savings rate of a society (Modigliani, 1970), whereas it is increased by the increase in income (Loayza et al., 2000). Similarly, financial deepening may contribute to an increase in household savings (Bandiera et al., 2000), particularly if it involves increasing financial awareness (Lusardi, 2008). Moreover, certain factors will have a temporary effect on the savings rate and therefore their longer-term effects are less relevant. The crisis, which encouraged precautionary savings, may be one such factor. According to estimates by Mody et al. (2012), crisis-related precautionary savings accounted for two-fifths of the increase in the savings rates between 2007 and 2009. At the same time, experiencing repeated crises may lead to a long-term increase in the savings rate of households, as demonstrated by Aizenman and Noy (2013), examining major depressions during the 20th century.

Economic policy is able to shape the aggregate savings rate directly, through public-sector savings. Whereas before the crisis the gross savings of the budget were largely negative, it is a positive development that by strengthening fiscal discipline and maintaining the deficit below 3 per cent, the gross savings of the sector have become positive in recent years, making a significant contribution to restoring the country's external balance. Also, over the medium term, in accordance with the Stability and Growth Pact and as indicated in the Convergence Programme of the Government (NGM, 2014), the medium-term deficit target is 1.7 per cent. Compared to the current deficit below 3 per cent, the target 1.7 per cent will inevitably result in additional savings. However, in order to finance the high investment rate required for dynamic growth from domestic savings and thus to reinforce the sustainability of growth, the general government balance may require further improvement. Comparing Hungary's medium-term budgetary objective (MTO) with those of the other Member States of the European Union, the Hungarian deficit target is the least restrictive one.[72]

Chart 4-17: Medium term objectives of budget balance



Source: European Commission

The Hungarian central bank could also play a role in the achievement of the dynamic growth scenario and creation of the required funds. Ensuring price stability and a credible monetary policy may also result in lower real returns over the long run. These factors will in turn encourage investment. The development of financial culture may improve the financial awareness and increase the savings of households. The macroprudential monitoring and strengthening of the financial sector's ability to raise and allocate funds could lead to a more efficient channelling of savings into productive projects.

One of the key factors of the sustainability of the growth scenarios is that the sources of investments should be guaranteed. **In the event that domestic sources of financing need to be supplemented, foreign direct investment should have priority**. Compared to other

[72] In the event that the balance of the Hungarian budget was restored, the increase in external debt could, *ceteris paribus*, also be avoided even in the dynamic scenario.

types of external financing, FDI is the form of financing least sensitive to the changes of financial sentiment, and may also contribute to the country's capital stock, technological development and thus to economic growth.

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5. SPECIAL TOPICS

5.1. Impact of savings on economic growth: What has changes since the crisis?

The link between the savings and the economic growth is one of the most often analysed areas of economics. **Based on the majority of the academic approaches and the international figures, a positive link can be identified between economic growth and savings over the long run,** but there are major differences between the various approaches in terms of the strength of the link and the direction of the causal relation (Chart 5-1). The conclusions of these approaches often change also in time, in line with the prevailing macroeconomic environment. The current economic crisis once again directed the focus of research to the analysis of the link between savings and economic growth.

In the developed countries in particular, the investment and saving rate – and in relation to this the growth rate of global GDP– has showed a declining trend in recent decades. As opposed to this, the investment ratio increased in the emerging countries and in countries at a medium level of development, generating strong growth. In this period, the deeper underlying causes and processes determining the investment and saving trends underwent a significant transformation. Prior to the crisis, based on the relation between investment and the business cycles, in terms of trends the less developed regions financed the developed countries, based on which the link between economic growth and domestic savings could have changed significantly.

The endogenous and neo-classical growth theories examine the issue in terms of production opportunities, i.e. from the supply side, and take the availability of appropriate demand as given; i.e. at a given saving rate the necessary investment demand is always available. However, the post-Keynesian growth theory, which goes back to the original thoughts of Keynes, puts the emphasis on the manner of establishing the fragile balance between the aggregate demand and supply, and deals with the production opportunities only incidentally. **One of the biggest achievements of Keynes and the economic discipline hallmarked by his name is the more realistic approach to the motivation factors underlying investments,** which assigns a major role – in addition to the interest rate – to the entrepreneurs' profit expectations, while it attributes the reasons of saving intention not only to the interest rate. This approach reassesses the mechanism of classic economics that automatically guaranteed the investment-saving balance, and thereby also the demand-supply balance in the economy.

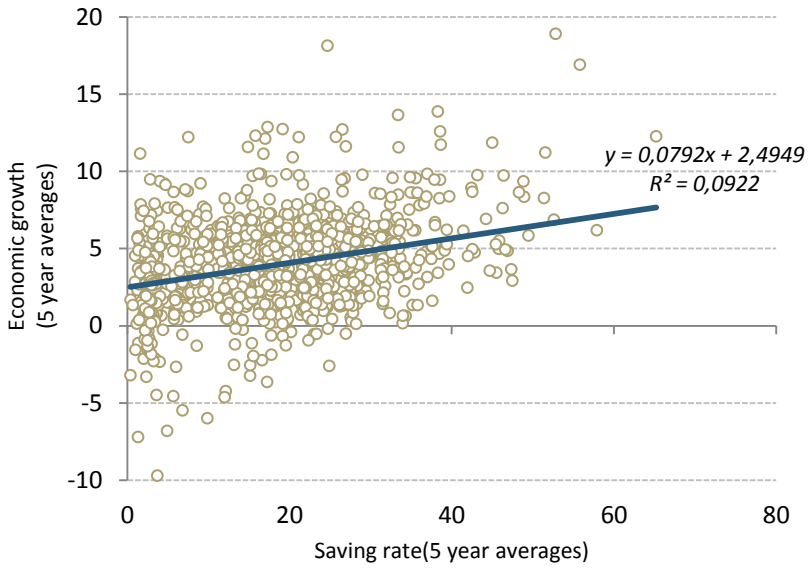
In this topic, we review the most important theories dealing with the relation of savings and economic growth, and the major changes that have occurred in this area since the crisis.

5.1.1. Fast growth: Is it the cause or consequence of the high saving rate?

One piece of early empirical evidence for the long-term positive relation between savings and growth was provided by Houthakker and Modigliani (Houthakker (1961, 1965), Modigliani (1970)). In their interpretation, economic growth has a positive impact on savings basically through the increase in aggregated incomes. In the so-called lifecycle models used by the authors, faster economic growth raises aggregated savings, since economic growth increases the savings of the younger generations to a larger extent than the older generations use up their existing reserves. Thus, although the aggregated saving rate is independent of the aggregated income level in the long run, in the short run it is closely related to the growth rate of the population and the per-capita income.

Carrol and Weil (1994) arrived at similar results. In the so-called "habit models" used by them, faster economic growth increases savings, since households only slowly adjust their consumption level to their rising income level. If households' current consumption decision is also influenced by their past consumption level, the improvement in income prospects results in an accumulation of additional savings in the short run, to ensure that in the event of a potential future fall of income they should not have to overly reduce the consumption level they have already achieved.

Chart 5-1: Economic growth and saving rates (1960–2013, 5-year averages)



Source: WDI

The relation between savings and growth may also be significantly distorted by frictions existing in the financial sector. The low level of financial development is also capable of increasing the macro-level savings. Firstly, the undeveloped financial system decreases the borrowing opportunities and the incomplete or inefficient financial intermediation reduces the flexibility of investments, while productivity increases. In the models that examine the current account perspectives, these reasons often accumulate considerable current account surplus in financially underdeveloped countries when there is fast economic growth. The underdeveloped banking system diverts the national savings towards external assets, thereby generating a current account surplus. Another consequence of the underdeveloped financial system – if accompanied by the absence of social care – is that it may encourage the economic agents to accumulate precautionary savings in order to prevent future negative income shocks.

When examining the impacts of savings on economic growth, the main focus is on the analysis of investments. This is because macro-level savings may serve as the source of investment funding, through which capacities may be expanded, technology can be developed and thus the output of the economy can be increased. In closed economy, neo-classical growth models (Solow-Swan (1956), Ramsey (1928)), the exogenous increase in the saving rate results in higher economic growth, since the increase in the saving rate generates a higher investment level with a given capital stock, thereby resulting in higher output. At the same time, in small open economies this causal relation is not inevitable, and indeed even a negative correlation may exist. The reason for this is that in the event of households' consumption smoothing, the high future growth is preceded by low savings and external indebtedness, thus the savings of the given period correlate negatively with future growth.

In macroeconomics dealing with open economies, one of the most frequently researched anomalies is the "Feldstein-Horioka puzzle" (Feldstein, Horioka, (1980)). **The two authors examined the economic intuition, according to which in the case of perfect international capital mobility, the national savings should follow the globally most attractive investment and return opportunities, and thus they do not have to move together with the domestic investments.** The majority of the studies dealing with the “Feldstein-Horioka puzzle” evaluate the correlation as robust in time, although the correlation between savings and investments has gradually lessened in the case of both developed and lesser developed countries.

One possible explanation of the causal relation between savings and economic growth and the aforementioned F-H puzzle originates from the exaggerated focus of the national corporate sector on the domestic markets and institutions, which is referred to by the specialist literature as the "home bias" phenomenon. The essence of this is that corporate savings play a key role in macro-level savings and due to the institutional determinants and external risks, domestic companies prefer and dare to invest at home to a greater extent. Based on the empirical results, also taking

account of the size and openness of the individual countries, the mobility of capital is low indeed. Low capital mobility may also be attributable to structural factors (lack of information, investors' risk aversion, differences in the legal environment).

Due to the rising indebtedness of the household sector in recent decades, an increasing part of macro-level savings comes from the savings of the corporate sector, which are primarily determined by its profitability. However, companies are not always able to reinvest the realised high profit in full, mostly due to the absence of stable demand prospects, which results in a savings glut. Ben Bernanke, former chairman of the US Fed, shared this opinion. Others – e.g. Raghuram Rajan – believe that the real challenge comes from the investment shortage. When the earned incomes lag behind capital incomes, the generation of surplus capital is inevitable and as it circulates in the financial institutional network, there is increased willingness to use it even for the financing of consumption in the hope of return. Thus, consumption which is financed by future incomes became prevalent, which also includes home construction. According to the experiences of recent years, certain states provided excessive support for home construction, or at least allowed the mortgage business to develop under preferential conditions, which finally led to overheated real estate market and consumption, which contributed to the development of the financial and real economic crisis.

The above theories all tried to capture the relation between savings, investment and growth in terms of the real economy. In this approach, the increase in the supply of savings interpreted in real terms reduces the real interest rate, which finally leads to a recovery in real investments. Real interest here is interpreted as the price of the exchange between the current and future excess consumption (realised through investments), i.e. as a time preference. **As opposed to these expected effects, after the crisis, the increased savings clearly have not so far led to an automatic increase in investments, even with a historically low level of interest rates.** As a result of post-crisis deleveraging, the balance of gross savings and investments turned around, creating ever increasing GDP-proportionate financing capacity. **These observations may be in line with the statements of the monetary approach, according to which the relation between savings and investments may turn around: the banking system – rather than disbursing the previously collected real savings as loans – in the given case is able to generate nominal purchasing power through lending, which simultaneously appears in the banks' balance sheet as nominal deposits.** The borrowers spend the purchasing power, and as a result of the large number of investment, consumption and savings transactions, finally part of the new purchasing power becomes real saving at the macroeconomic level through the realised aggregated output and inflation (see e.g. Borio and Disyatat, 2011 and McLeay at al., 2014). Thus, macro-level savings are not the precondition for investments, but rather they adapt to investment demand residually. In this approach, it can be assumed that typically there are free capacities, which can be utilised by lending. As opposed to this, according to the neo-classical theory, all resources are already fully utilised and thus investment becomes possible if real savings are accumulated, abandoning part of the consumption and this is lent for investment purposes. In other words, the correspondence of savings and investments is not an equilibrium condition, but merely a subsequent accounting correspondence.

The key difference between the two approaches is that the latter one takes into account, or even focuses on the fact that the relation between individual saving and investment decisions is mediated by aggregate demand, and through that by the level of macroeconomic activity. The traditional approach disregards this mediation and treats these decisions as the individual decisions of a representative actor, where macroeconomic mediation and aggregate demand play no material role or happen automatically. **In the neo-classical approach, the efficiency of the investments made in the economy can be regarded as given,** since the perfect competition inevitably renders the financing of efficient investment projects possible. **However, in the other approach, the efficiency of investment activity is an important consideration in terms of sustainable economic growth,** since bad investment projects of excessive size cannot provide the necessary income processes through the return, which may generate a fragile financial position due to debt accumulation.

The relevance of the monetary approach may increase in the current post-crisis situation. Economic agents keep a higher than usual part of their savings in liquid assets. This is attributable to the fact that in times characterised by high uncertainty, agents give preference to immediate solvency over the realisable interest; therefore, they keep the larger part of their income in liquid form to cover their unexpected expenses, as a security against involuntary asset sales (Tily, 2012). This is because in the mediation between the savings and investments not only the interest rate – treated as time preference – plays a role, but other monetary motives as well, which Keynes referred to as the liquidity preference. The

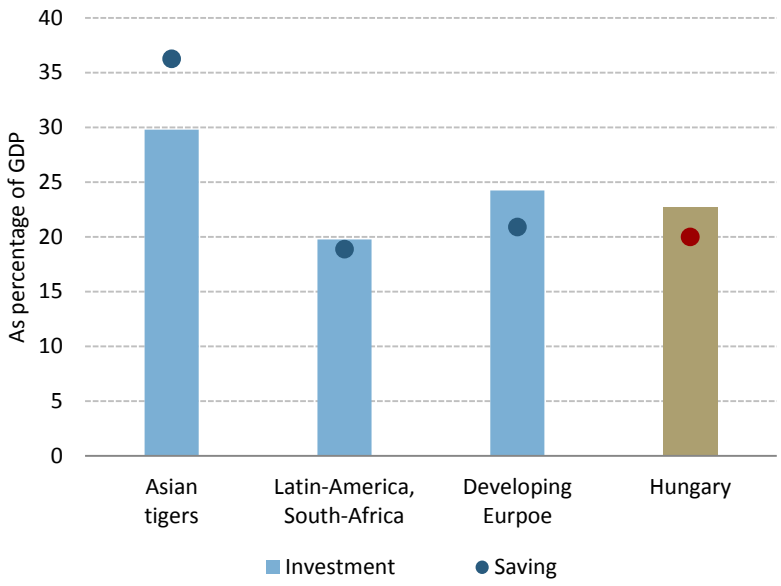
liquidity preference contributes to the decrease in the interest rate on safe, liquid assets. On the other hand, the indebtedness of economic agents and the uncertainty of future prospects also curb consumption and investment demand, thereby – together with the low interest rates –aggregate demand and macro-level output may be persistently weak.

5.1.2. Significance of savings in the growth strategy of the individual economies

Having reviewed the specialist literature dealing with the relation of savings and economic growth, we now briefly analyse the savings profile that could be observed during the last almost half-century in the case of economies that moved for shorter or longer periods on a convergence path.

In the case of the fast-growing Asian economies, we can mostly observe an extremely high saving rate. In this region to the high level of savings is explained by – in addition to the fast expansion of the economy and income growth – the absence of the welfare systems, as well as the strong saving motivations attributable to the emerging market crises of the 1990s. Although the high saving rate is coupled with high investment ratios, in international comparison, the region still typically has surplus savings. **In the case of the less advanced European economies, savings in the last decade typically remained below the investment ratio, and thus external funds also appeared in the financing of investments in the increasingly open capital markets.** The lower saving rates are attributable – to extents varying by countries – mostly to households' rapid accumulation of debt and fiscal policy which was disposed to spending overruns over longer periods. Finally, it may be worth examining the situation of the South American and South African economies, which often operated under stronger capital controls. In their case, the lower saving rate was coupled with lower investment performance. Hungary's experiences in the last decade are closest to the "model" of the developing European economies (Chart 5-2).

Chart 5-2: Investments and savings (1980-2009 average)



Source: WDI

When evaluating the growth achievements together with the saving and investment performance, we can make the following more solid statements: **(1) there is no straightforward mapping between permanently higher growth performance and the saving rate.** The convergence path present for several decades can be achieved both at higher saving rates (Southeast Asian model) and lower saving rates (model of developing European economies). Economic growth primarily depends on the volume and productivity of investments; **(2) the higher saving rate is accompanied, with a higher probability, by more investment and ultimately by a more stable convergence path; (3) convergence paths which intensively rely on external funds show greater volatility over time, and may even be exhausted over time.** The probability of these risks increases particularly when the external funds finance non-productive investments and consumption to a great extent; **(4) low internal savings and effective capital controls together may be accompanied by a decrease of the investment rate and a halt or turnaround in convergence.**

5.1.3. Conclusion

On the whole, we can assess that, based on the discussed theories and the international figures, there could be a positive relationship between long-term economic growth and savings. However, concerning the strength of this relationship and the direction of the causal relation, the results are much more diverse. The experiences of the crisis and the recovery period thereafter have strengthened the criticism of the arguments that formerly assumed an ex ante relationship between savings and investments. According to the so-called monetary approach, for the financing of investments it is not inevitably necessary to have ex ante real savings, as nominal savings adjust exogenously to investment demand. **All in all, the existence of unutilised capacities and the direction of the shocks hitting the economy may determine the causal relation between economic growth and national savings.**

It is worth mentioning that this debate may point beyond the framework of academic macroeconomic interpretation, since it may fundamentally influence the future perception of financial mediation. While the previous approaches were dominated by the mediation function of the financial intermediary system (collection of savings and placing them as loans), where the placement of loans could be limited by the availability of funds, according to the monetary approach, the financial intermediaries on the supply side may react endogenously to the change of the growth prospects and the investment requirements.

At the same time, the economic convergence experiences of the past almost five years also underline that economies with higher internal savings achieved a convergence path covering several decades with greater probability, while the large-scale reliance on external funds – especially, if such are directed to non-productive utilisation – may increase the volatility of the convergence path. In this latter case, the role of the regulatory authorities may become more important for reaching a more stable convergence path.

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5.2. Regional characteristics of growth

The economic processes and developments observed at the macro level may mask significant heterogeneity in regard to data either on the spatial distribution of economic growth or the distribution of growth across social groups and categories of businesses. Inequalities in these dimensions may even erode the very dynamics of the growth path in the long run. **Although the territory of Hungary is relatively small its economic performance and development show significant regional disparities.** The processes leading to the economic crisis that broke out in 2008 and the ensuing period of balance adjustments have had different impacts on the different regions. **The territorial distribution of economic activity is not only a consequence of processes in the national economy.** Macro-level economic performance is affected by the spatial structure of the economy and, in general, the given country's social-economic and technical spatial structure as well, accelerating, or even impeding growth, for example through the distribution of the transport network or the settlement network, or through territorial coordination of investment projects and other interventions. The following presents a review of the most important territorial characteristics and factors of growth trends (particularly that of GDP) and to some extent those of employment, with a special focus on the processes observed during the past decade. Due to the delayed availability of regional data, we cannot assess the territorial aspects of the latest macro-growth which has been increasingly dynamic since 2013.[73]

5.2.1. Economic spatial structure and different regional development paths

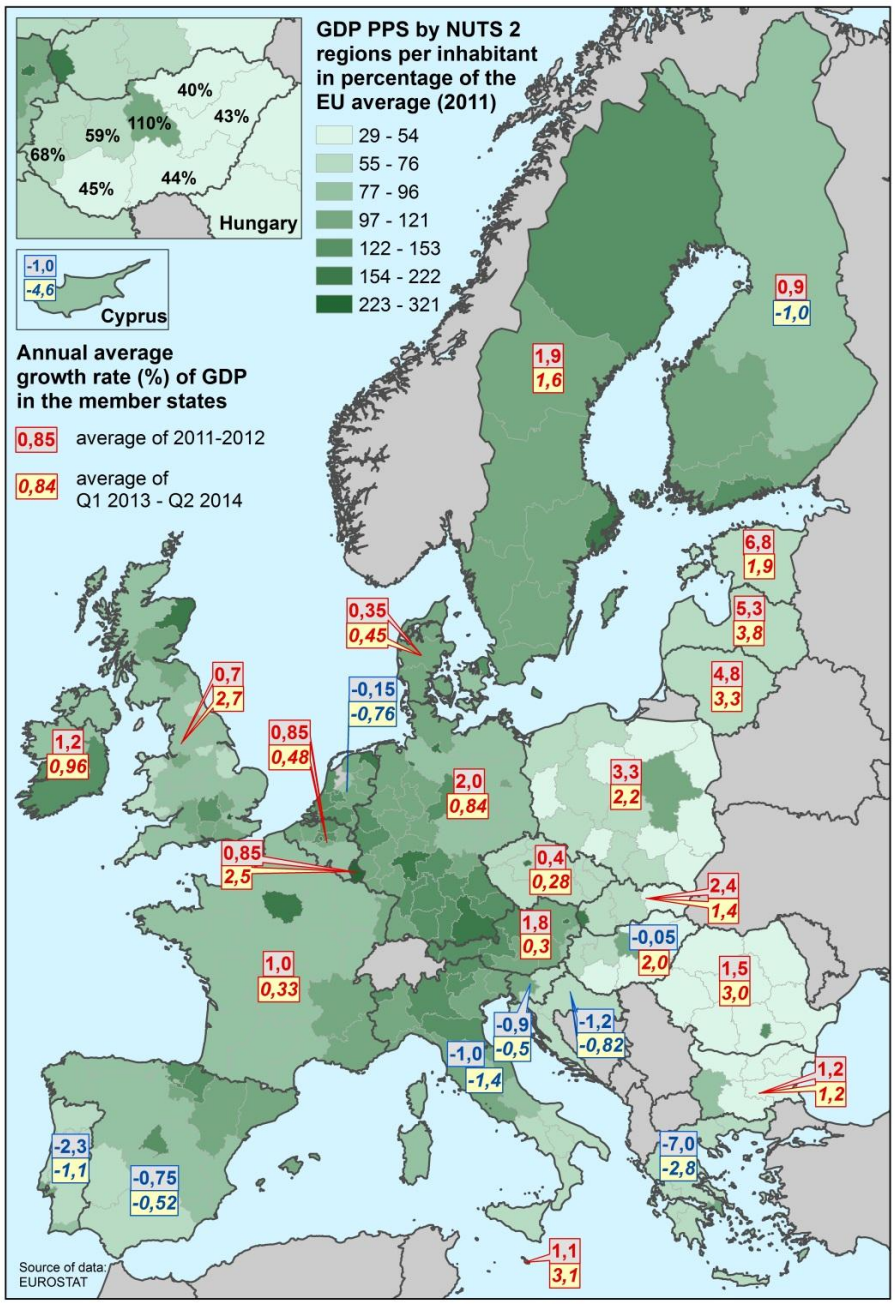
The period since Hungary's EU accession in 2004 commenced with a peculiar – though similar to those of most of the former socialist countries and historically determined – **economic spatial structure heritage** that has undergone an only modest rearrangement during the past 10 years. **The role of foreign direct investment had been growing increasingly dominant in territorial development** as well – through a shift to a market economy, market liberalisation and then Hungary's EU integration – **focusing primarily on Budapest and its vicinity, along with the Western Transdanubian and the Central Transdanubian regions**. Indeed, in terms of urban size, commercial projects tended to increasingly give preference to sites in larger towns and cities. The role of the dominant regions of agriculture whose economic weight kept decreasing (primarily in the Great Plain), diminished somewhat at the same time, while the crisis of 1990s which hit most of the so-called "socialist industrial districts" is still causing problems in economic development, primarily in the former heavy industry regions of Borsod-Abaúj-Zemplén, Nógrád and Baranya counties.

The overall consequence is that territorial inequalities have been growing steadily within Hungary since the mid-1990s, creating severe differences in the levels of development between the capital city and the rest of the country as well as between the eastern and the western part of the country, including a general lag in the development of territories without major cities or towns. **This process of differentiation continued without interruption even after Hungary's accession to the European Union**, up to as late as 2010. From that year the economic weight of Budapest within Hungary started to decrease, even if only to a slight degree. On the other hand, Pest county, comprising the agglomeration of the capital city, has been gradually falling back since 2008 not only in absolute terms, but also in the ranking order of the counties, despite the fact that up to 2007 it seemed to be on the way to becoming a dynamic region linked to Budapest. During the pre-crisis years the intensive residential construction boom in the Budapest agglomeration resulting in a strong suburbanisation that was partly a result of the growth in the provision of foreign currency loans and consequently the resulting tensions are particularly strong in this region.

At the same time, it was primarily the highly developed Western and Central Transdanubian regions that were hit hardest by the economic downturn in 2009. Nonetheless, the three most developed regions – Central Hungary, Western Transdanubia and Central Transdanubia – with 24 per cent of Hungary's total population, still generated two-thirds of Hungary's GDP, and some 89 per cent of foreign direct investments that can be geographically localised was operating in businesses having their registered offices in these regions.

[73] (The CSO and EUROSTAT have published territorial GDP data up to 2012 and 2011, respectively).

5-3 Chart: Per-capita gross domestic product of the regions in 2011, and the member states' growth dynamics[74]



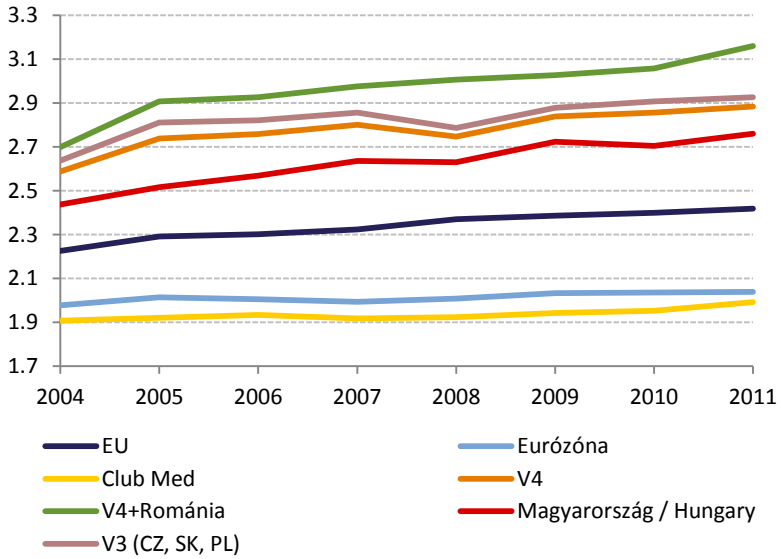
Source: Eurostat

The internal territorial inequalities are particularly large in Hungary in comparison to the average of the EU-28 countries and especially in the light of Hungary's small size. The domestic inequalities do not seem, however, to be so great in comparison to the internal inequalities observed in the Visegrád countries that have seen a similar course of development, and particularly in comparison to the internal inequalities in Romania (Chart 5–3 and Chart 5–4).[75] Increases in regional inequalities in economic development within countries were a typical phenomenon in the countries of the former Eastern Bloc in the wake of their conversion into market economies and their integration with the European Union.

[74] GDP data in a territorial breakdown are available for the EU countries up to 2011.

[75] The results of comparisons between the internal inequalities of the various countries may only be used with reservations, owing to the differences in the statistical divisions and the different sizes of the countries concerned.

Chart 5-4: Territorial concentration of GDP within the countries on the basis of their range, 2011



Note: Ratio of the per-capita GDP in the most advanced NUTS2 level region to the least advanced one in the given country, their unweighted average in the various groups of countries. Overseas regions and the states comprising a single region, are not taken into account.

Source: Eurostat

While Hungary's economy has been slowly catching up since EU accession (up to 2011 the Hungarian per-capita GDP improved four percentage points relative to the EU average, reaching 67 per cent of that average**), looking at the regions in Hungary, it is clear that the national indicator is the combined result of different growth paths in the various regions of the country.** Of Hungary's seven regions, Central Hungary improved its position dynamically, Western Transdanubia made a modest improvement, while the other five regions dropped 7–8 positions in the ranking order of specific gross domestic output of the EU regions (Table 5-1).In comparison to the EU-28 average, each of the regions of Hungary delivered its poorest performance in 2007.

Table 5-1: Positions of the Hungarian regions in the order of the 274 regions of the EU28, in terms of per-capita gross domestic product (2011)

Region	2004		2011	
	GDP per capita, PPS EU28 = 100	Rank	GDP per capita, PPS EU28 = 100	Rank
Central Hungary	101	124	110	79
Western Transdanubia	65	225	68	218
Central Transdanubia	60	233	59	241
South Transdanubia	45	251	45	259
South Great Plane	44	252	44	260
Northern Great Plane	41	256	43	263
Northern Hungary	41	257	40	265

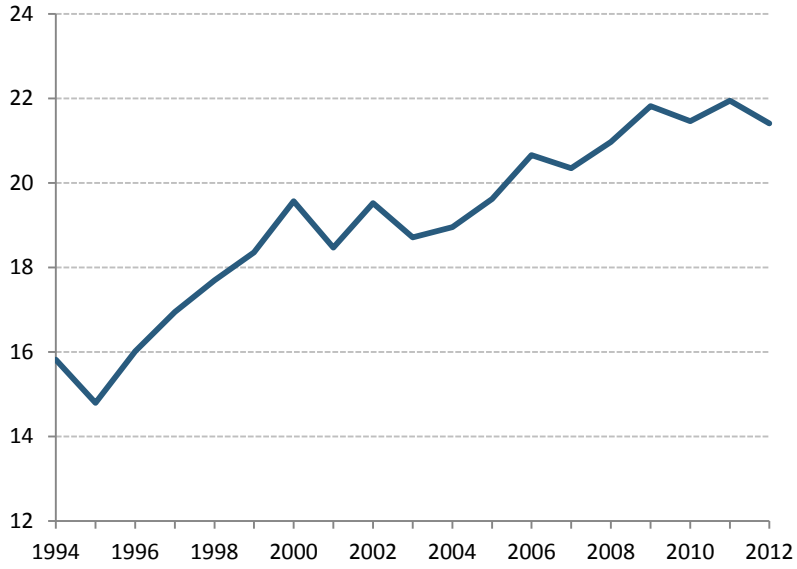
Source: Eurostat

The domestic regional development policy and the EU funds, to which Hungary has had increasing access since accession, **have not induced much improvement in the way of reducing the inequalities in economic growth in the various regions**; at least no significant results could be observed up to 2010. Although the criterion of regional convergence appeared in the strategies and programmes applying to the utilisation of funds, and regionally defined programmes (regional operational programmes) were launched, in the case of a substantial part of the funds available for development it was the businesses and organisations of the more advanced regions that were able to access to a greater extent the funds that were allocated predominantly through application schemes. **The territorially defined regional operational programmes** – although they have accomplished significant results for instance in the development of settlements and, in general, in the quick absorption of funds – were not, for the most part, efficiently adjusted to the different conditions and resources of the different regions (which should have been one of their main advantages); accordingly, they remained standardised and typically **failed to foster efficient development projects, which could generate significant economic growth in the regions concerned**. All of this was accompanied by a relatively low proportion of the funds dedicated within the structural funds to economic development within the Hungarian operational programmes. Transportation – primarily: expressway – development projects implemented for the most part with EU funding since accession have also failed to bring about the expected spectacular economic benefits in the rural regions. For example, the disadvantaged regions that have become accessible through the extended M3 and M6 motorways (Baranya, Borsod-Abaúj-Zemplén and Hajdú-Bihar counties) are not showing signs of growing economic dynamics, indeed, the Budapest-centred large infrastructure development projects may indeed have, in many cases, enhanced the agglomerational advantages of the region of Budapest over the rest of the country.

5.2.2. The trend of regional polarisation may come to an end

The process of differentiation among regions that has continued practically unbroken since Hungary's EU accession – though it was brought to a halt once, between 2000 and 2003 – **seems to be grinding to a stop again in the wake of the 2008-2009 economic crisis, indeed, a process of levelling among regions was also observed in certain years** (Chart 5-5)According to the territorial GDP and investment statistics released for the period up to 2012, **the decrease in territorial inequalities has not so much been driven by dynamic convergence of the lagging regions** (although there are some signs of such a process as well, such as first an increase in investments in Bács-Kiskun county, followed by a similar trend in the Jász-Nagykun-Szolnok county of the Northern Great Plain) **as by a deceleration in the growth of the most advanced regions.** This is because it was the most advanced counties that were hardest hit temporarily by the economic crisis which affected each county to different extents, i.e. the regions with the highest proportions of foreign direct investment, whose output was most heavily exposed to the quickly responding external demand as well as to retail consumption and investment demand driven largely by currency loans.

Chart 5-5: Developments in the territorial inequality of GDP at the county level, on the basis of the Hoover index



Note: The index measures the territorial distribution of GDP relative to the territorial distribution of the population. Its value range: 1-100 (1 = no territorial difference).
Source: MNB calculations based on CSO data

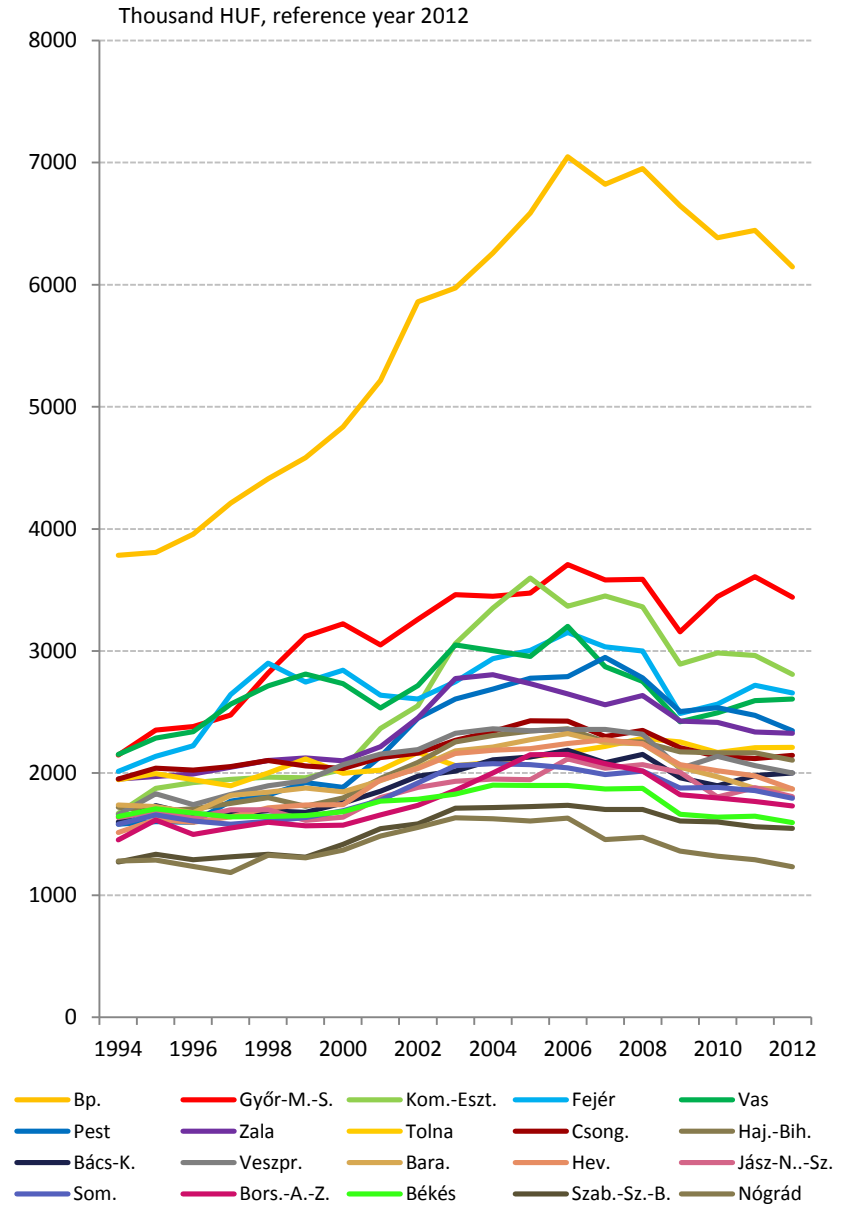
The territorial distribution of **investments**, which stagnated in 2006 and 2007 in Hungary as a whole and then contracted by about a fifth[76] between 2008 and 2012, showed a peculiar restructuring and also reflected certain features indicating the potential for regional equalisation. Budapest, which underwent a massive downturn, was overtaken in 2012 by both Győr-Moson-Sopron county and Vas county, while Komárom-Esztergom county also came close to Budapest in terms of the per-capita figure. Jász-Nagykun-Szolnok came in far ahead of Fejér county, which was still in third place in 2008, along with Tolna and Heves counties, the winners in terms of investments 3-4 years before.[77]

On the other hand, the Western and Central Transdanubian counties (Győr-Moson-Sopron, Vas, Komárom-Esztergom and Fejér), which rely predominantly on foreign direct investment, are not only in a favourable position, but they are more vulnerable at the same time, owing to their dependence on a small number of large enterprises in many cases, as has been reflected by their significant contraction in the wake of the loss of the output of certain factories during the crisis.

[76] At comparative prices.

[77] No territorial data are available on investments which have been expanding increasingly dynamically since 2013 Q2.

Chart 5-6: Growth path of the counties and Budapest according to the per-capita GDP figures

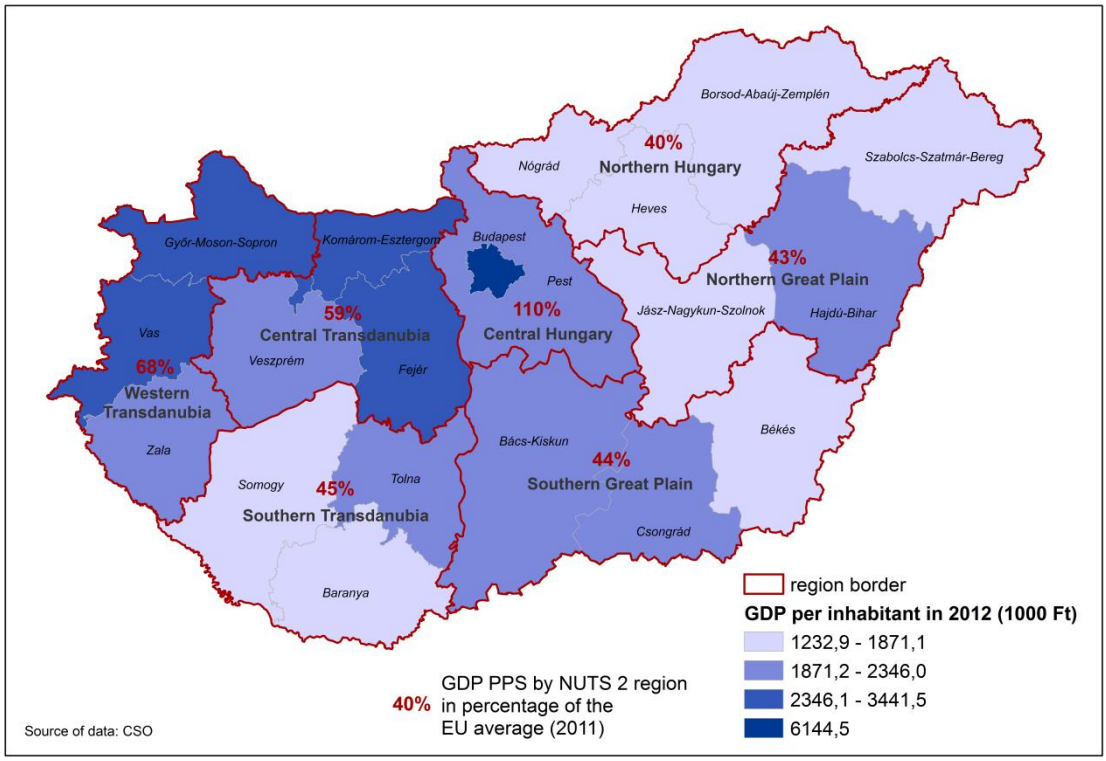


Source: CSO

A look at the **spatial structure of growth** and potential growth **reveals that the dynamic zone comprising the north-western part of Hungary and the capital city may be extending as a sort of a centre of growth towards the south-east**, through the town of Kecskemét towards the town of Szeged and Csongrád county. This is also indicated by the way, by the relatively promising investment figures of Csongrád county since 2008. This north-west – south-east axis is supplemented by the town of Debrecen with Hajdú county, in the form of an "island".

It is primarily the relative inactivity of the economic resources of north-eastern part of the country and South Transdanubia that may impede the growth of the national economy as a whole. Nógrád county with its low level of urbanisation continues to be negatively affected by a trend of concentration in large towns and by its cumbersome heavy industrial heritage. This county continues to fall increasingly behind all of the other counties of Hungary in terms of per-capita GDP despite its proximity to the capital city of the country (Chart 5-6 and Chart 5-7). At the same time, the spectacular improvement of the county's employment figures during the past few years reflects not only the impacts of public employment, but also the increasing exploitation of the proximity of Budapest as well. In terms of the regions with raw material-based heavy industry, only the region of Tatabánya and Komárom-Esztergom county have generally been able to achieve dynamic growth after putting the crisis behind them, thanks to the increasing importance of their geographical position (motorway M1, Vienna – Budapest axis) and the influx of foreign direct investment.

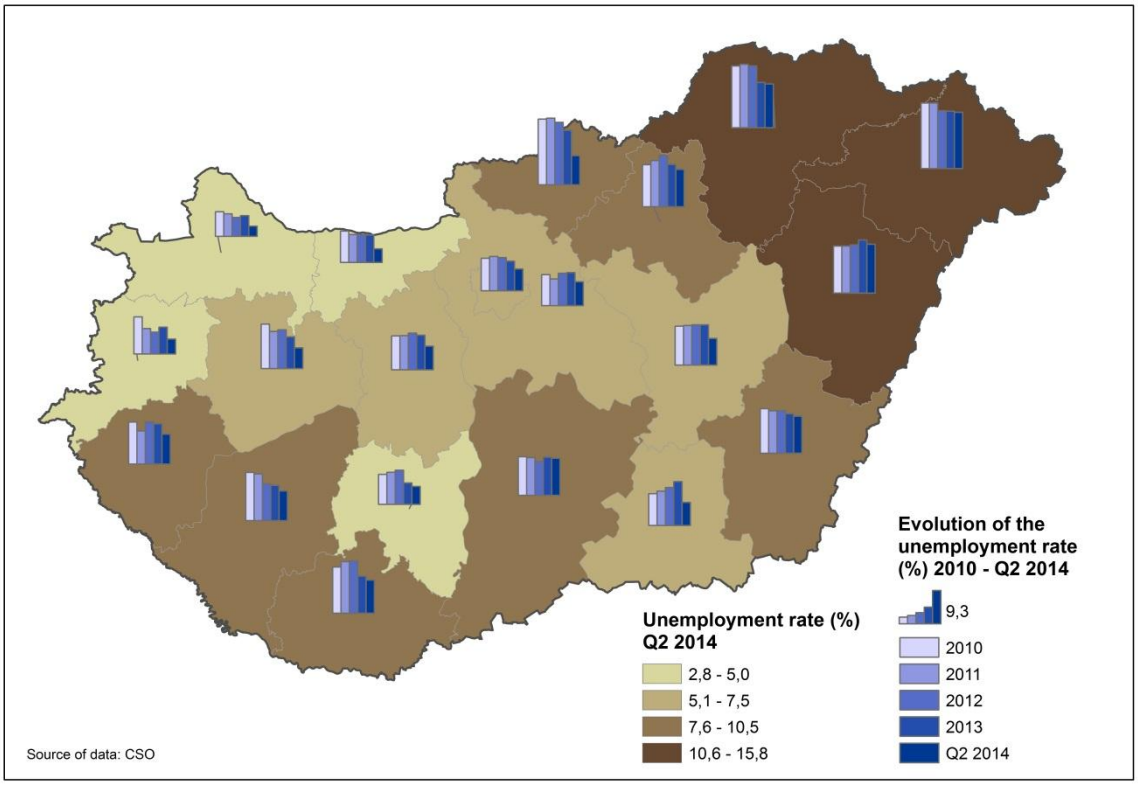
Chart 5-7: Per-capita GDP in the counties and its ratio relative to the EU average in the NUTS2 regions in terms of purchasing power parity



Source: CSO, Eurostat

The situation in employment, which can be measured even on a territorial basis up to 2014 Q2, **reveals a particularly marked degree of differentiation** (Chart 5-8). In contrast to the high rates of employment in the central and north-western regions of Hungary, the north-eastern part of the country and the regions of Southern Transdanubia are still facing significant employment challenges. Whereas unemployment increased in all but one county between 2006 and 2010, **the turnaround in terms of employment that took place from 2011 has resulted in improvements in almost every single county. The turnaround in employment has not materially affected the overall structure of the regional inequalities, but it has brought about a profound rearrangement in the relative positions of the individual counties.** In nearly every year during the past decade, the lowest unemployment rates were measured in Győr–Moson–Sopron county, followed in 2014 by Komárom and Vas counties. The relative position of the capital city (in second place in 2006) has weakened, despite the steady decrease in unemployment year after year since 2011 (by a total of 3 percentage points), as in 2014 there were already as many as five counties with better unemployment ratios. While as a result of the crisis unemployment increased the most in Nógrád, Veszprém, Zala, Baranya, Borsod-Abaúj-Zemplén and Szabolcs-Szatmár-Bereg counties, during the recovery period the ratio decreased the most – by 10 percentage points – in Nógrád county, shifting in 2011 from the last position to around the national average. Even the most advanced counties of Vas and Veszprém saw an improvement of over 6 percentage points, while the upswing brought about no significant improvements in employment in Bács-Kiskun, Heves and Hajdú-Bihar counties. So much so, that Hajdú-Bihar county has come to feature the second worst unemployment ratio among Hungary's counties, after Szabolcs-Szatmár-Bereg county. The latter has nearly always been in the last position during the ten-year period under review, despite a modest (2.5 percentage point) improvement that has been observed since 2010 (Chart 5-8). The most prosperous regions are even often facing labour shortages. The decrease in the population may, over time, lead to shortages of workforce in an increasing number of regions and before long it may become one of the major obstacles to economic growth in Hungary.

Chart 5-8: Territorial distribution of unemployment in 2014 and changes since 2010



Source: CSO

One general trend observed in Hungary is that economic performance, primarily higher value added production and innovation, are concentrated in larger towns. In 2012, more than half of the total gross value added was generated in Budapest, while only 18 per cent of the total population lived in Budapest. At the same time, the other seven towns with populations over 100,000 accounted for 12 per cent of the gross value added (a rate close to the share of the population of these towns in the total population of Hungary), while towns with populations between 50,000 and 100,000 generated 18 per cent of the gross value added. An even higher concentration of the R&D capacities and expenditures associated with innovation is observed in Budapest and the large towns. Budapest and Győr, which have consistently been in the first two positions in terms of the economic weights of settlements,[78] were followed by the dynamically growing Szombathely in 2011, which was in tenth position in 1998 and in fifth in 2005, and then Budaörs, Debrecen and Székesfehérvár. The heaviest loss was suffered by the town of Pécs, which fell from the fourth position in 1992 to eighth in 2005, and dropped out of the group for the first 10 towns in terms of economic weight by 2011.

5.2.3. Conclusions

The trend of increasing territorial inequalities in Hungary and in other countries of similar levels of development (primarily the Visegrád countries) has been closely linked to the process of conversion into market economies and that of economic integration to the EU. The trend of increasing territorial inequalities which has been observed nearly continuously since the 1990s – with a short-lived halt between 2000 and 2003 – continued after Hungary's EU accession, but now in the wake of the economic crisis it seems to be grinding to a halt, and indeed some equalisation processes appear to have commenced. It is not yet possible to determine whether this trend of equalisation actually marks a turnaround in regard to territorial development or is only a reflection of territorial differences in the downturn caused by the crisis. In terms of regional performance levels, since Hungary's EU accession, the process of modest convergence to the average of the European Union which has got underway recently after a longer period of stagnation, has in fact entailed Budapest first catching up faster and then catching up at a decelerating pace, along with a modest improvement

[78] Conclusions concerning changes in the economic weights of municipalities, based on an analysis carried out by György Csomós (Csomós Gy. 2013: Területi statisztika 53 pp. 529-550).

in the position of Western Transdanubia and the Northern Great Plain, while the rest of the regions have been showing stagnation or even deteriorating positions.

Regional inequalities and the economic spatial structure are no longer only – or primarily – **an issue of equity, but a basis of growth or may even be an obstacle to growth.** Hungary's monocentric territorial structure, the overly Budapest-centred transport network, the lack of transversal links or even the deficiencies of the settlement network, impede the economic development in rural regions while this structure is not even beneficial for Budapest beyond a certain point. The excessive concentration of the economy – primarily in Budapest and a handful of other regions – may result in massive losses in efficiency, e.g. as a consequence of the scarcity of available commercial sites, transport, the increasingly concentrated environmental burdens, commuting and the costs of the treatment of economically depleted rural areas. **While there are regions in Hungary that cannot significantly contribute to the generation of economic value, this is a barrier to the growth of the national economy since the potential output of the active regions is also limited in this way.** While it is necessary that all passive regions be economically activated, it is not possible to expect that all rural areas will be attractive for foreign capital and so they create an export base that is successful in the global competition. This is one of the reasons why the development of local economies with products aimed at the domestic and the regional markets (as well) is so crucial, along with facilitating the mobility of labour. It is worth therefore **placing an emphasis on stimulating the territorial bases of growth as well after the introduction of a macro-level growth policy that has brought the turn-around.**

From this point of view the strengthened economic development character of territorial development programmes in the development programmes of 2014-2020 period is of high importance. Further increase of spatial dimension in designing economic policy, and its implementation in different sectorial policies, spatial harmoinisation, the strengthening of cooperation and division of labour between cities concentrating economic activity and the rural territories, and promoting polycentric development, which has appeared as a priority in the National Development and Spatial Development Concept, with special refrence to the most underdeveloped north-eastern and south-western parts of the county. **The impact zone of the Budapest metropolitan region that is Hungary's only centre with a global role, as a functional economic region, should be expanded** by means of transport, cooperation and governance, along with sharing some of its functions with the secondary urban centres of the country. **The roles of the local and the regional levels in economic development should, however, also be expanded**, **through** vision-based strategic regional economic development, **increasing the number of pillars on which regional economies rely**, improving the environment to attract foreign direct investment as well as by strengthening the role of domestic SMEs.

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Count István Széchenyi

(21 September 1791 – 8 April 1860)

Politician, writer, economist, minister for transport in the Batthyány government whom Lajos Kossuth referred to as 'the greatest Hungarian'. His father, Count Ferenc Széchényi established the Hungarian National Museum and Library; his mother, Julianna Festetich was the daughter of Count György Festetich, the founder of Georgikon, an institution for the teaching of agricultural sciences.

With his ideas – whose message remains relevant even today – and his activities both as a writer and a politician, István Széchenyi laid the foundation for modern Hungary. He is one of the most eminent and significant figures in Hungarian politics whose name is associated with reforms in the Hungarian economy, transportation and sports. He is also known as the founder and eponym of numerous public benefit institutions, a traveller all across Europe and an explorer of England as well as the champion of economic and political development at the time. István Széchenyi recognised that Hungary needed reforms in order to rise, and considered paving the way for a Hungary set on the path of industrialisation and embourgeoisement to be his calling in life.

Published in 1830, his Credit outlined the embourgeoisement of Hungary and summarised its economic and social programme. Count Széchenyi intended this writing to make the nobility aware of the importance of the country's desperate need for a social and economic transformation. Another work of his, Stádium [Stage of Development] (1833) listed the cornerstones of his reform programme in 12 points, including the voluntary and compulsory liberation of serfs; the abrogation of avicitas (inalienable status of noble property); the right of possession for the peasantry; and the freedom of industry and commerce. This work of Széchenyi already conveyed the idea of equality before the law and the general and proportionate sharing of taxation.

After the revolution in 1848 István Széchenyi joined the Batthyány government and as minister embarked vigorously on implementing his transportation programme.

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