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Investment Ebb and Flow in the Hungarian Economy

SUMMARY: This study is intended to demonstrate that the downturn in fixed capital formation and investment surpassed the decline in GDP; among the OECD countries Hungary witnessed the 9th largest shortfall of the investment rate compared to pre-crisis levels. The growth rate of Hungarian working capital outflows surpassed that of FDI inflows. The service fee payment of PPP investment contributed to the budget deficit by around 0.5 per cent of GDP per annum. The structure of whole-economy fixed investment underwent a considerable transformation: manufacturing saw a spectacular expansion, while the share of public administration and water supply grew to a lesser degree. The contribution of real estate, electricity and gas supply, education and transportation decreased markedly. The structural changes in public sector investment are reflected in the output of fixed capital formation, which increased by 2.1 in the central budget and by 12.3 per cent at local governments. The total amount of investment grants doubled in the period between 2009 and 2013. In the sector of non-financial corporations, the ratio of grants to GDP rose to 1.3 per cent in 2011, 1.4 per cent in 2012, and 1.9 per cent in 2013 compared to 1.2 and 1.1 per cent in 2009 and 2010, respectively. Besides net EU transfers, the expansion of grants was also an important contributor to the upswing in investment activity in 2013–2014.

KEYWORDS: whole-economy fixed investment, public sector investment, investment grants, foreign direct investment, EU transfers
JEL CODES: E22, E27, F21, G01, H54

PURPOSE AND METHOD OF THE ANALYSIS

The State Audit Office (SAO) pays special attention to monitoring whether the evolution of the public debt ratio is in line with the provisions of the Fundamental Law and the Stability Act. As a token of its contribution to "good governance" as set forth in its strategy, SAO wishes to control the manner in which the state shapes the competitiveness factors that influence developments in GDP, i.e. the denominator of the public debt ratio. The objective of the project entitled "Aspects and focus areas for the audit of government measures influencing economic competitiveness in public sector audits" is to examine the areas and ways in which SAO audits can facilitate more effective and more efficient government measures aimed at improving economic competitiveness. For this purpose, it is important to explore and analyse the main factors that affect economic competitiveness focusing, in particular, on the instruments available to the state to shape these factors. The set of instruments for government measures aimed at competitiveness must be evaluated.

In the context of this far-reaching project, for the purposes of audits on government measures to stimulate investment, this study is intended to offer general aspects for analysis and results that may help identify the areas on which public sector audits could and should be focused. To this end, the paper summarises the results of the following four avenues of analysis:

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- trends in fixed capital formation and investment against the backdrop of the crisis;
- evolution of the structure of whole-economy fixed investment;
- evolution of the structure of public sector investment and its institutional framework; and
- level and structure of investment grants.

The analysis of these topics covers the period between 2008 and 2013. During the analysis of certain topics, the review period is extended in order to present the prevailing trends and their developments. In other cases, when the analysis of the 2008–2013 period is not supported by comparable statistical data, the review period is limited to a shorter time horizon.

This approach to assisting public sector audits is consistent with the direction of research and analysis focused on the impact assessment of the financial and economic crisis of 2008–2009 in the area of capital accumulation and investment. This is an increasingly prevalent approach both in the international and Hungarian literature, given that the marked financial repercussions of the crisis resulted in a particularly steep slowdown in investment activity.

A wide variety of analyses produced by experts from international organisations, financial institutions and the European Union pointed out that the crisis hit business investment far more severely than GDP, and the growth rate of investment projects has remained below pre-crisis levels to date. According to the OECD, this can be attributed to weak demand, the low level of capacity utilisation, financial restrictions in several countries and increased uncertainty (OECD, 2014). The European Commission reported that investment rebounded stronger in the US than in the euro area, which may reflect cyclical factors relevant to the economic outlook, structural features and funding conditions (European Commission, 2014). In the United States, the contribution of the capital factor to potential growth sank to the level of the EU-15 (Member States before the enlargement in 2004), but well exceeded this level from 2012 during the recovery. Between 2012 and 2018 it is envisaged to nearly double the contribution observed in the EU-15 (Halmai, 2014).

Only a few studies have so far provided a comprehensive analysis of the convergence of Hungarian investment trends in the context of the economic policy of the government (e.g. convergence programmes). In the framework of a risk analysis of the budget bill for 2012, the study by *Báger – Galbács – Pulay* (2012) was the first to point out that the risk of sluggish economic growth is not only a consequence of declining export dynamics and household consumption, but it also reflects the insufficient growth of investment. Relying on an econometric method that draws on the results of trend analysis and uses, among other things, Monte Carlo simulations, the authors demonstrated that, based on muted investment activity, the government's GDP projections often proved to be overly optimistic. *Martonosi* (2013) examined developments in investment activity in international comparison before and during the crisis, focusing primarily on countries in the CEE region. In this regard, a study by *Giday* (2015), published simultaneously with this article, provides a noteworthy, multifaceted comparison between changes in the investment rates of the Visegrád countries.

TRENDS IN FIXED CAPITAL FORMATION AND INVESTMENT AGAINST THE BACKDROP OF THE CRISIS

Changes in fixed capital formation and investment

In the review period of 2007–2013, gross fixed capital formation declined by a total of 17.2 per cent, surpassing the 3.3 per cent de-

cline in GDP volume. Thus the assets invested in economic development could contribute to economic growth only in 2008 and 2013. In between, during the years of the crisis, the contraction in fixed capital formation put a downward pressure on GDP growth on the user side *(Table 1)*. 2009 saw a sharp turnaround: fixed capital formation decreased by 8.2 per cent followed by a 9.5 per cent decline in 2010, translating into a 16.9 per cent decline in fixed capital formation in the span of two years compared to a 5.8 per cent contraction in GDP volume.[1]

As shown on *Chart 1*, investment accounts for the vast majority, about 90 per cent of fixed capital formation, while the rest is composed of intangible assets and assets acquired through financial lease. The parallel trajectory of the two indicators shifts in 2010: due to a steeper decline in the components other than investment, the level of fixed capital formation decreased more markedly than the volume of investment.

The short analysis of the developments in gross fixed capital formation and investment reveals that development activity in the national economy diminished after 2008. The main reason for the downturn was the post-crisis turnaround, the sheer magnitude of which posed a severe risk to economic development. These repercussions of the crisis manifested themselves in the deterioration of demand factors, the drying up of development resources, slack productive capacity and heightened political and economic uncertainty – obviously, not only in the Hungarian national economy but also on an international scale. The volume of investment fell short of pre-crisis levels even as late as 2013 in most OECD countries *(see Chart 2)*.

Based on Chart 2, in 26 OECD countries the 2013 investment rate – investment as a percentage of GDP – fell short of the average value of the 1996–2007 period. In Hungary, the lag is 4.7 percentage points, the 9th highest value after such crisis-stricken countries as Ireland, Portugal, Greece and Spain. By comparison, the lag amounted to 3.3 percentage points in the US, 3.2 percentage points in the United Kingdom, 3.1 percentage points in Italy, and 2.2 percentage points so far in Germany. It is also noteworthy that in eight OECD countries – for example, in Canada, Norway and Australia – the 2013 investment rate surpassed the average country rates recorded in the pre-crisis period.

Table 1

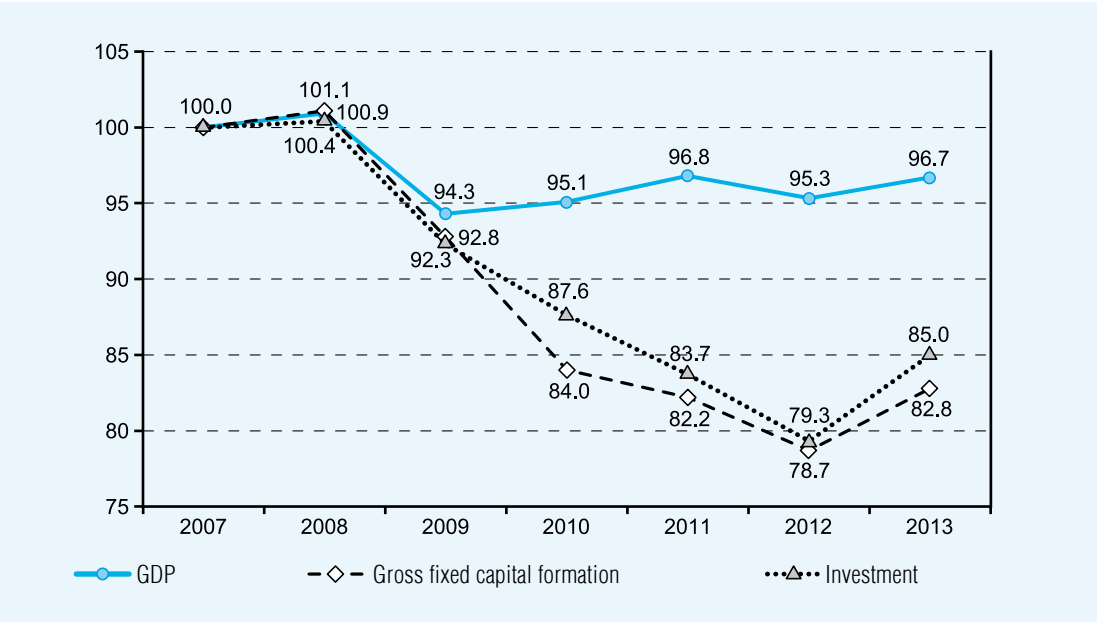
CHANGES IN THE VOLUME OF GDP, GROSS FIXED CAPITAL FORMATION AND INVESTMENT

	GDP (previous year=100.0)	Gross fixed capital formation (previous year=100.0)	Contribution of gross fixed capital formation to GDP growth	Investment (previous year=100.0)
2008	100.9	101.1	0.8	100.4
2009	93.5	91.8	–2.4	91.9
2010	100.8	90.5	–1.8	94.9
2011	101.8	97.8	–1.1	95.5
2012	98.5	95.8	–0.7	94.8
2013	101.5	105.2	1.0	107.2

Source: own calculation and editing based on HCSO data

Chart 1

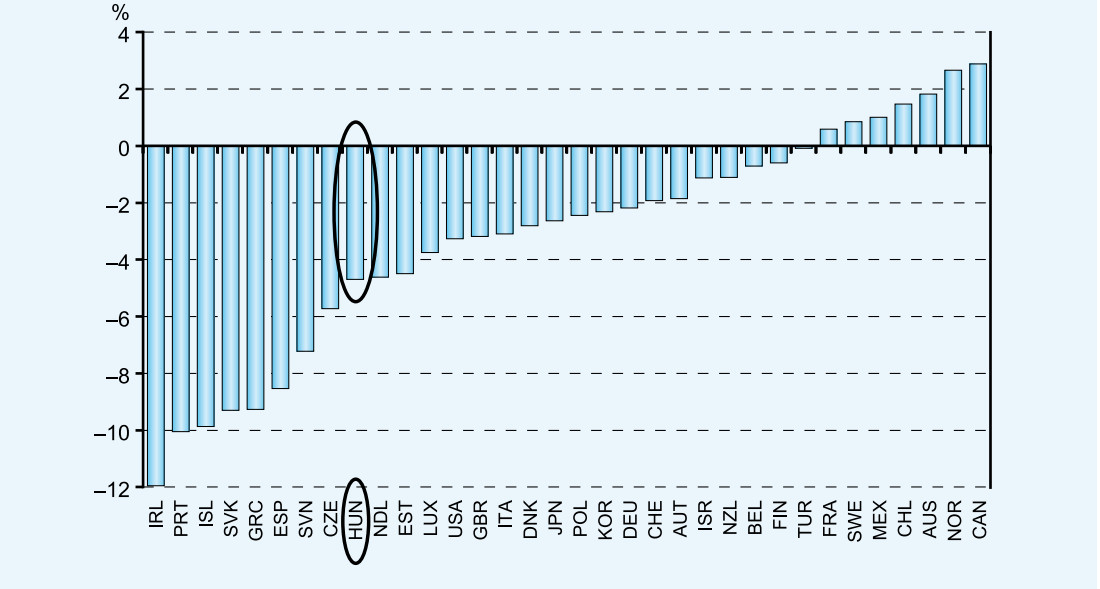
CHANGES IN THE VOLUME OF GDP, GROSS FIXED CAPITAL FORMATION AND INVESTMENT COMPARED TO 2007



Source: own calculation and editing based on HCSO data

Chart 2

INVESTMENT AS A PERCENTAGE OF GDP IN 2013 VS. 1996–2007 AVERAGE



Source: OECD, 2014

Two special factors affecting investment

In respect of the evolution of the Hungarian investment rate, two special factors should be considered: the role of PPP investment and EU grants.[2]

Public-private partnership (PPP) investment had a significant weight in development in the period preceding 2010; the total capital value of PPP contracts amounted to HUF 797.0 billion, 3.0 per cent of 2008 GDP *(see Table 2)*. It should be noted that 7.4 per cent of this investment amount (HUF 59.0 billion) was budgetary capital investment, while the bulk of it, 92.6 per cent (HUF 438.0 billion) went toward private (entrepreneurial) investment, representing the contribution to public sector and business investment.

Table 2 reveals that the larger projects listed in the table accounted for 83.7 per cent of the total PPP investment amount, of which motorways represented 72.4 per cent. Outstanding with an impressive share of 29 per cent is the M6 motorway construction (Szekszárd–Bóly).

As the implementation of development programmes in the form of PPP projects was discontinued from 2010, this conceptual shift reduced the investment rate by around 0.5 per cent annually in the years following 2010.

As regards the previously implemented PPP projects it should be pointed out that the service fee payments related to PPP projects (repayment of contract principal and the annual fee of services provided by the projects) amounted to approximately HUF 142 billion (0.5 per cent of annual GDP) in each of the last three years; in other words, these projects contributed to the budget deficit with this amount.

Another important change in conditions affecting the growth rate of whole-economy

Table 2

VALUE AND SERVICE FEES OF PPP INVESTMENT

	Capital value 2004–2010	Service fee payment			
		2010	2011	2012	2013
Total	**797.0**	**115.8**	**141.7**	**147.7**	**141.9**
Of which larger projects:					
M6 Motorway (Szekszárd–Bóly)	230.8	14.7	28.1	29.8	30.1
M6 Motorway (Dunaújváros–Szekszárd)	118.5	4.5	14.0	13.3	17.3
M5 Motorway (Kiskunfélegyháza–Szeged)	89.0	35.1	36.1	38.6	37.3
M6 Motorway (Érdi tető–Dunaújváros)	98.7	16.7	17.2	18.0	19.3
M5 Motorway (Szeged: Hungarian–Serbian border)	39.8	–	–	–	–
Total motorways	576.8	71.0	95.4	99.7	104.0
Palace of Arts	31.3	9.8	10.3	9.9	7.5
Prison construction (Tiszalök, Szombathely)	16.8	4.9	5.7	5.2	10.4
Construction of universities, colleges and student hostels	42.5	–	7.8	8.8	8.9
Total projects	667.4	85.7	119.2	123.6	130.8

Source: own calculation based on HCSO data

fixed investment was the absorption of 2007–2013 European Union grants. The tangible impact of this opportunity was perceivable only from the second half of 2008 *(Chart 3)*.

According to balance of payments data compiled on the basis of the accrual accounting method[3], Hungary received EU assistance in the amount of EUR 21.1 billion in the 7-year review period, of which EUR 13.3 billion was used in the private sector, while EUR 7.7 billion went toward general government. Based on this transfer amount, EU assistance totalled to HUF 5,908.0 billion, comprising HUF 2,156.0 billion for general government and HUF 3,752.0 for the private sector.[4] In the private sector, households[5] received mainly agricultural grants, while most of the assistance granted to non-financial corporations went toward development. Similarly, EU transfers for the general government served, to a large degree, development purposes, primarily in the area of infrastructure including, in particular, motorway construction and transportation networks (railway, Metro Line M4).

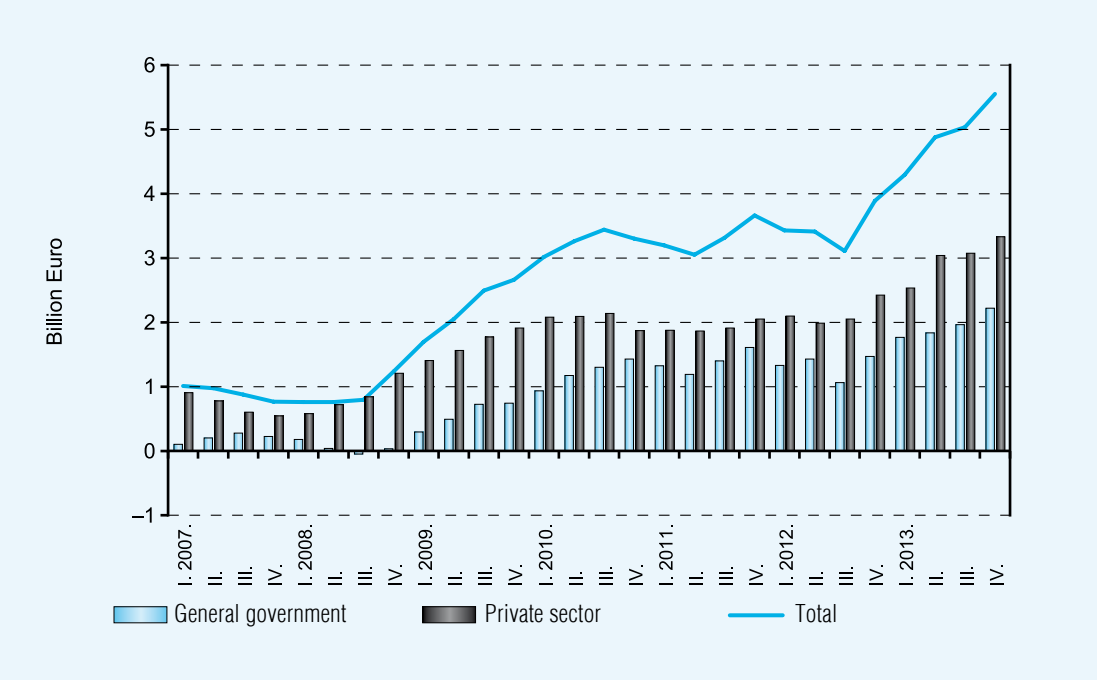
However, the investment stimulating effect of EU transfers emerged only gradually, at a slower-than-expected rate *(see Table 3)*.

EU assistance rose to EUR 3.9 billion in 2012 and EUR 5.6 billion in 2013 compared to net EU transfers of EUR 0.8 billion in 2007. As regards the years in between, EU assistance increased slightly in 2008, significantly in 2009 and gradually until 2013, when a steep rise was observed once again in EU transfers.

With respect to the impact of EU transfers on development it is important to note that, according to SAO and National Development Agency (hereinafter: NDA) calculations, by the end of 2013 only 61.2 per cent of the

Chart 3

NET EU TRANSFERS BY SECTOR (QUARTERLY VALUES), EUR BILLIONS



Source: MNB, 2014

Table 3

ANNUAL NET EU TRANSFERS BY SECTOR, EUR BILLIONS

	2007	2008	2009	2010	2011	2012	2013	Összesen
General government	0.2	0.0	0.7	1.4	1.6	1.5	2.2	7.7
Private sector	0.5	1.2	1.9	1.9	2.1	2.4	3.3	13.3
Total	0.8	1.2	2.7	3.3	3.7	3.9	5.6	21.1

Source: own editing based on MNB data

2007–2013 grant allocation under the National Strategic Reference Framework[6] (hereinafter: NSRF), and 76.7 per cent of the assistance available under the New Hungary Rural Development Programme was actually paid out. A higher payment ratio would obviously have had a more positive effect on investment.

Developments in foreign direct investment

The evolving investment situation was exacerbated further by the fact that the growth stimulating effect of foreign direct investment slowed significantly as a result of the crisis, with no perceivable upturn until 2012–2013 *(Table 4, Chart 4)*.

In analysing foreign direct investment inflows (FDI[7] inflows), we cannot disregard the fact that capital in transit has an impact on their evolution. Presumably, this is because – due to the specificities of the Hungarian tax regime – some companies extend intercompany loans to their Hungarian subsidiaries for tax optimisation purposes, which is then transferred abroad. The National Bank of Hungary (MNB) calls this phenomenon capital in transit, and has presented the relevant data in its balance of payments statistics since 2008.[8]

Capital in transit present in Hungary (FDI in Hungary) rose to EUR 4.3 billion in 2011, EUR 8.2 billion in 2012, and EUR 8.8 billion in 2013, compared to EUR 1.1 billion in 2008. A similar increase was observed in FDI abroad, which amounted to EUR –8.8 billion in 2012 and EUR –9.3 billion in 2013.

Both Table 4 and Chart 4 indicate the net FDI inflows increased rapidly until 2006, before slowing significantly in the years to follow – especially after the outbreak of the crisis. These trends are consistent with those observed in EU countries and neighbouring countries. Net FDI inflows rose to EUR 9.3 billion between 2003 and 2006, stagnated in 2007, increased to EUR 12–14 billion between 2008 and 2011, and it was only in 2012–2013 that net FDI inflows soared to EUR 16 billion and above. It is also important to note that net FDI inflows lagged perceivably behind gross FDI inflows due to the more rapid increase in Hungarian FDI outflows: while the latter tripled between 2007 and 2013, net FDI inflows saw a mere 1.7-fold increase during the same period.

As regards developments in the factors shaping foreign direct capital inflows, in terms of the effect on developments it is worth noting that since 2006 reinvested earnings and intercompany loans have acquired extra weight in the Hungarian national economy relative to fresh, equity-type working capital, a factor reflecting the capacity to attract capital *(see Table 5)*. This is especially conspicuous in 2012 and 2013, when the cumulated equity capital investment transactions of foreign companies turned substantially negative. This

Table 4

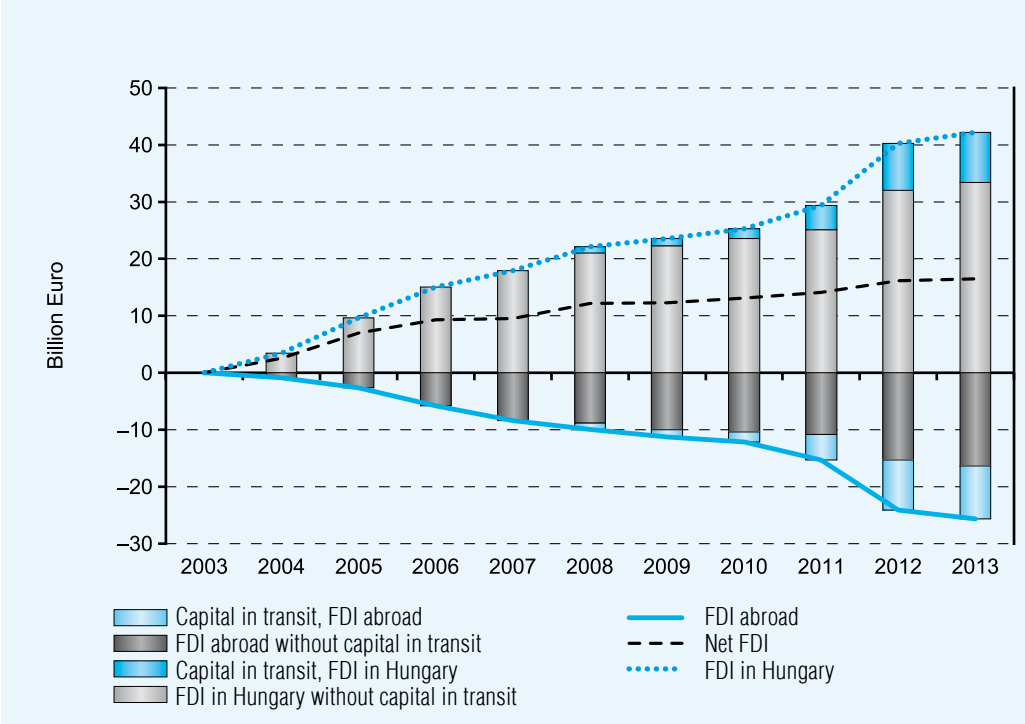
NET FOREIGN DIRECT INVESTMENT INFLOWS AND THEIR FACTORS (CUMULATED TRANSACTIONS), EUR BILLIONS

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
FDI in Hungary	3.4	9.6	15.1	17.9	22.1	23.6	25.3	29.4	40.2	42.2
FDI abroad	–0.9	–2.6	–5.8	–8.4	–9.9	–11.3	–12.2	–15.3	–24.1	–25.7
Capital in transit, FDI in Hungary	0.0	0.0	0.0	0.0	1.1	1.3	1.7	4.3	8.2	8.8
Capital in transit, FDI abroad	0.0	0.0	0.0	0.0	–1.1	–1.3	–1.8	–4.5	–8.8	–9.3
FDI in Hungary without capital in transit	3.4	9.6	15.1	17.9	21.0	22.3	23.6	25.1	32.0	33.4
FDI abroad without capital in transit	–0.9	–2.6	–5.8	–8.4	–8.9	–10.0	–10.4	–10.8	–15.3	–16.4
Net FDI	2.5	7.0	9.3	9.5	12.2	12.3	13.1	14.1	16.1	16.5

Source: : own editing based on MNB data

Chart 4

FACTORS OF NET FDI INFLOWS (CUMULATED TRANSACTIONS), EUR BILLIONS



Source: MNB, 2014

Table 5

FINANCING FACTORS OF NET FDI INFLOWS (CUMULATED TRANSACTIONS), EUR BILLIONS

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Net FDI	0.0	2.5	7.0	9.3	9.5	12.2	12.3	13.1	14.1	16.1	16.5
Of which: Equity capital	0.0	0.7	2.8	2.1	1.0	2.1	–0.3	2.0	4.8	–2.7	–1.4
Reinvested earnings	0.0	1.8	3.7	4.3	6.0	7.6	7.3	7.0	8.3	8.8	9.9
Inter-company loans	0.0	0.1	0.5	2.9	2.5	2.5	5.3	4.1	1.0	10.0	8.0

Source: own editing based on MNB data

equity capital was replaced by inter-company loans from the parent company.

Among the main reasons for the change in financing structure the following should be mentioned:

- tax optimisation considerations, given that the interest paid on loans can be deducted from pre-tax profit, whereas dividend payments can only be deducted from profit after tax, and
- owners can predict and have better control over the interest paid on a loan compared to the annual profitability of the company.

Another important change from the perspective of project financing is the fact that the FDI flow into the banking system after the crisis played a more important role in the increase in net FDI inflows than the funding received directly from abroad. As another new phenomenon, besides FDI corporations can also access substantial external funds through direct foreign borrowing. For instance, the large-scale development projects of Mercedes in Hungary were financed, to a large degree, by foreign (non-inter-company) loans.

From a funding perspective, yet another new feature shaping net FDI inflows is the fact that capital injections by banks to offset the losses incurred raised the value of foreign investments, whereas state acquisitions (MOL, E.On) reduced the level of foreign direct investment inflows. Once net FDI inflows are adjusted for the effect of these two factors, we find that although net FDI inflows declined in the first years following the onset of the crisis, they have been on the rise since 2010, averaging EUR 0.5–1 billion annually.

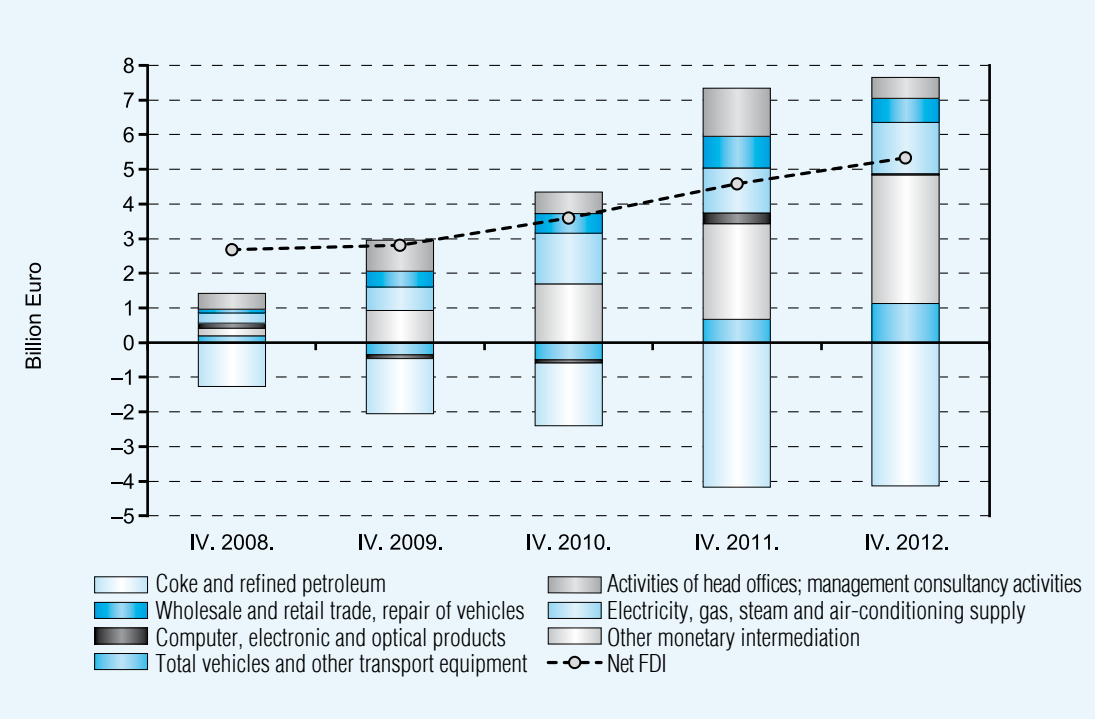
As a last step in the development-focused analysis of FDI inflows, we need to turn our attention to the sectoral breakdown of this process *(see Chart 5)*.

The most important features of the structural changes between 2008 and 2012 were the following:

- starting from 2008, other monetary intermediation saw a marked rise in FDI (amounting to EUR 3.7 billion), a large part of which was used to buffer bank losses;
- the automotive industry also attracted substantial FDI (EUR 1.1 billion), although besides fresh FDI, foreign borrowing played an important role in the financing of the largest project (Mercedes, Kecskemét);
- FDI also rose in trade and in the energy sector throughout the review period; the impressive capacity of these sectors to attract capital is demonstrated by a growth of EUR 0.7 billion and EUR 1.5 billion, respectively;
- in 2011–2012 a substantial net FDI inflow (EUR 0.6 billion) was registered in the sector of head offices and management consultancy; while

Chart 5

BREAKDOWN OF NET FDI BY SECTOR (CUMULATED TRANSACTIONS FROM 2008 IN KEY SECTORS), EUR BILLIONS



Source: MNB, 2014

- net FDI inflow fell in the coke and refined petroleum sector[9] (owing to capital outflows affecting the sector), and in the manufacturing of computer, electronic and optical products, where the downsizing of capacities in 2011–2012 (such as Nokia's exit) dampened the export performance and competitiveness of the electronics sector.

CHANGES IN THE STRUCTURE OF INVESTMENT PROJECTS

Below we present the performance national economy structure of whole-economy fixed investment by national economy division and section as a first step, by material/technical category as a second step, by region as a third step and finally, by sectoral composition.

Structure by sector and section

The aggregate share of the three main investment sectors – manufacturing, transportation and storage and real estate activity – exceeded 50 per cent every year in the period of 2007–2013, and after 2007 (61.3 per cent) it reached a similarly high share (60.9 per cent) in 2012 in the sectoral composition of investment *(see Table 6)*. As regards the area of real estate activities, from 2009 the dip in the investment rate can be mainly attributed to a steep decline in residential construction.

Focusing on 2013, a more detailed exami-

Table 6

SHARE OF THE THREE MAIN INDUSTRIES IN INVESTMENT (%)

	2007	2008	2009	2010	2011	2012	2013
Manufacturing	24.7	20.3	18.8	21.7	28.2	31.3	30.6
Transportation and storage	16.2	15.7	18.6	17.1	13.8	14.2	15.3
Real estate activities	20.4	20.3	21.0	18.3	15.3	15.4	12.7
Total	**61.3**	**56.3**	**58.4**	**57.1**	**57.3**	**60.9**	**58.6**

Source: own editing based on HCSO data

nation of the sectoral structure of investment broken down by the 19 economic sections clearly demonstrates the investment turnaround by showing that 13 sections saw an increase in volume in this period. In line with the water treatment and sewage development projects, the most dynamic increase in investment was observed in water supply; sewerage, waste management and remediation activities (60.8 per cent), public administration and defence; compulsory social security (38.0 per cent), and professional, scientific and technical activities (29.9 per cent).

Among the national economy sections representing the biggest weight in terms of investment, the volume of transportation and storage increased by 15.6 per cent compared to 2012 as a result of vehicle purchases, railroad construction, railroad upgrades and road construction. Exceeding the high base resulting from investment projects implemented in the manufacturing sector between 2010 and 2011 (investment rose by 24.2 per cent in 2011), investment increased by an additional 4.9 per cent in both 2012 and 2013. These dynamic developments primarily occurred in vehicle manufacturing and related supplier industries (rubber and plastic, machinery and equipment manufacturing).

In 2013, 6 of the 19 sections saw a downward shift in investment activity, which was especially pronounced in real estate (11.4 per cent), information and communication (9.2 per cent) and electricity, gas, steam and air conditioning supply (8.5 per cent).

As a result of differentiated sectoral growth, the sectoral structure of investment has also changed (at 2013 prices); however, in 2013 the distribution remained largely unchanged relative to 2010–2012 *(see Table 7, Chart 6)*.

Below we present the changes in structural proportions divided into three groups, formed on the basis of the magnitude of the change. These are the following:

- group 1: the +/– change in share is 1 percentage point or above;
- group 2: the +/– change in share is in the range of 0.5–0.9 percentage point; and
- group 3: the +/– change in share is in the range of 0–0.4 percentage point.

In the review period, among the most dynamically changing 7 sections, the share of manufacturing increased by 8.9 per cent to 30.6 per cent compared to 21.7 per cent in 2010. This is followed by the sector of public administration and defence; compulsory social security with a 2.1 percentage point increase in share, and by water supply; sewerage, waste management and remediation activities with a 1.1 percentage point growth.

The sectors witnessing the largest decline in share include real estate activities (–5.6 percentage points), electricity, gas, steam and air conditioning supply (–2.6 percentage points), education (–1.8 percentage points), and transportation and storage (–1.8 percent-

Table 7

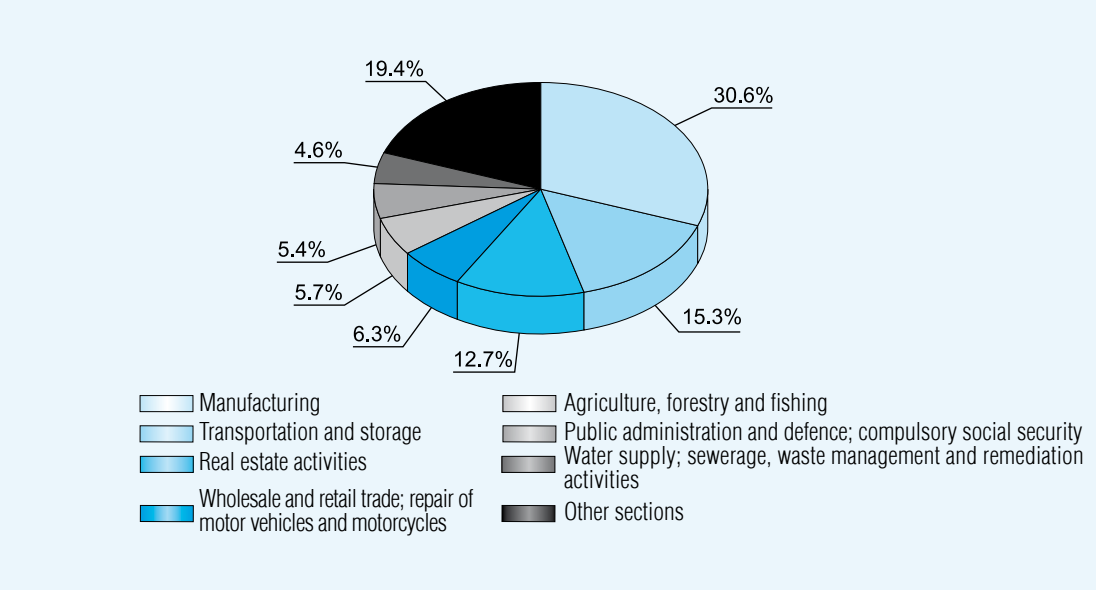
VOLUME CHANGES, DISTRIBUTION AND CHANGES IN DISTRIBUTION IN WHOLE-ECONOMY FIXED INVESTMENT OUTPUT (%)

Whole economy	Volume index (Previous year=100.0)		Distribution				Change in distribution			
	2012	2013	2010	2011	2012	2013	2011–2010	2012–2011	2013–2012	2013–2010
Total sections	94.8	107.2	100.0	100.0	100.0	100.0	–	–	–	–
Manufacturing	104.9	104.9	21.7	28.2	31.3	30.6	6.5	3.1	–0.7	8.9
Public administration and defence; compulsory social security	113	138	3.4	3.5	4.2	5.4	0.2	0.7	1.2	2.1
Water supply; sewerage, waste management and remediation activities	89.4	160.8	3.5	3.2	3.1	4.6	–0.3	–0.2	1.5	1.1
Agriculture, forestry and fishing	98.1	109.3	4.8	5.4	5.6	5.7	0.6	0.2	0.1	0.9
Administrative and support service activities	99.3	128	1.9	2.0	2.1	2.5	0.1	0.1	0.4	0.6
Professional, scientific and technical activities	91.1	129.9	1.4	1.6	1.5	1.8	0.2	–0.1	0.3	0.4
Wholesale and retail trade; repair of motor vehicles and motorcycles	97.5	105.4	6.2	6.2	6.4	6.3	0.0	0.2	–0.1	0.1
Mining and quarrying	76.1	96.2	0.3	0.5	0.4	0.3	0.1	–0.1	0.0	0.0
Accommodation and food service activities	93.6	105.6	0.9	0.8	0.8	0.8	–0.1	0.0	0.0	0.0
Human health and social work activities	60	105.8	1.7	2.5	1.6	1.5	0.8	–0.9	0.0	–0.1
Arts, entertainment and recreation	76	117.2	1.2	1.2	1.0	1.1	0.0	–0.2	0.1	–0.1
Other services	60.2	95.9	0.7	0.7	0.4	0.4	0.0	–0.2	0.0	–0.2
Construction	90.7	117.2	2.0	1.6	1.6	1.7	–0.3	–0.1	0.1	–0.3
Information and communication	110.9	90.8	3.6	3.2	3.8	3.2	–0.4	0.6	–0.6	–0.4
Financial and insurance activities	62.7	96.4	1.8	1.5	1.0	0.9	0.3	–0.5	–0.1	–0.9
Transportation and storage	97.6	115.6	17.1	13.8	14.2	15.3	–3.3	0.4	1.1	–1.8
Education	62.1	101.7	3.8	3.2	2.1	2.0	–0.6	–1.1	–0.1	–1.8
Electricity, gas, steam and air conditioning supply	61.4	91.5	5.7	5.5	3.6	3.1	–0.2	–1.9	–0.5	–2.6
Real estate activities	94.9	88.6	18.3	15.3	15.4	12.7	–3.0	0.1	–2.7	–5.6

Source: own calculation and editing based on HCSO data

Chart 6

WHOLE-ECONOMY FIXED INVESTMENT BY SECTION, 2013 (%)



Source: HCSO

age points). Of these four sections, the downward shift in investment was observed every year in the case of electricity, gas, steam and air conditioning supply, and education. The share of transportation and storage decreased by 3.3 percentage points in 2011, but a 1.5 percentage point growth in share in 2012 and particularly in 2013 moderated this decline to a –1.8 percentage point change for the entire review period.

3 sections saw a medium-size change in share (0.5–0.9 percentage points): agriculture, forestry and fishing; financial and insurance activities; and administrative and support service activities. Of these sections, administrative and support service activities and agriculture, forestry and fishing increased their share in the structure of investments.

As regards the sections registering a minor change in share, professional, scientific and technical activities, as well as wholesale and retail trade; repair of motor vehicles and motorcycles increased their weight. In 2013, the share of construction in investment fell 0.3 percentage points short of its 2.0 percentage point share in 2010, despite a 0.1 percentage point increase in its share in 2013 compared to 2012.

Investment by material/technical category

Looking at developments in the share of construction, machines, equipment and vehicles in the context of the decline in investment activity, in contrast with the mixed picture observed in previous years, in the period after 2009 a clear trend emerged *(see Table 8)*.

In 2013 construction investment was down 27.8 per cent compared to 2008. This steep decline reflected a continuous contraction in residential construction, business property developments, as well as projects related to the construction and upgrade of motorways. 2013 was the first year when the volume of

Table 8

WHOLE-ECONOMY FIXED INVESTMENT BY MATERIAL/TECHNICAL CATEGORY

	Buildings and other structures	Machinery, equipment, vehicles	Buildings and other structures	Machinery, equipment, vehicles
	Distribution, per cent		Same period of the previous year=100.0	
2009	58.0	40.0	95.8	86.0
2010	58.3	40.3	92.5	98.5
2011	53.1	45.3	86.1	108.8
2012	51.4	47.0	89.4	101.8
2013	51.5	47.0	105.9	108.5

Source: own editing based on HCSO data

construction investment was up 5.9 per cent compared to the previous year.

The marked downturn in machinery investment began in 2009 (14.0 per cent), which continued by a 1.5 per cent decline in 2010. From 2011, however, machinery investment rose for three consecutive years and in 2013 it surpassed the output registered in 2008 by 1.7 per cent. Machinery investment in the manufacturing sector and the purchases of commercial vehicles postponed from previous years played a key role in the upswing. The 8.5 per cent growth in machinery investment recorded in 2013 resulted primarily from large-scale commercial vehicle and vehicle equipment purchases from abroad.

Owing to its output, in the period of 2009–2013 the share of construction investment dropped to 51.5 per cent from 58.0 per cent. By contrast, the share of machinery investment rose to 47.0 in 2013, compared to 40.0 per cent in 2009.

The opposing trends in construction and machinery investment could be viewed, even in the negative overall investment environment, as a relatively positive development from the perspective of productivity and competitiveness. However, this only holds true if we assume that the available real estate portfolio facilitates an improvement in capacity utilisation.

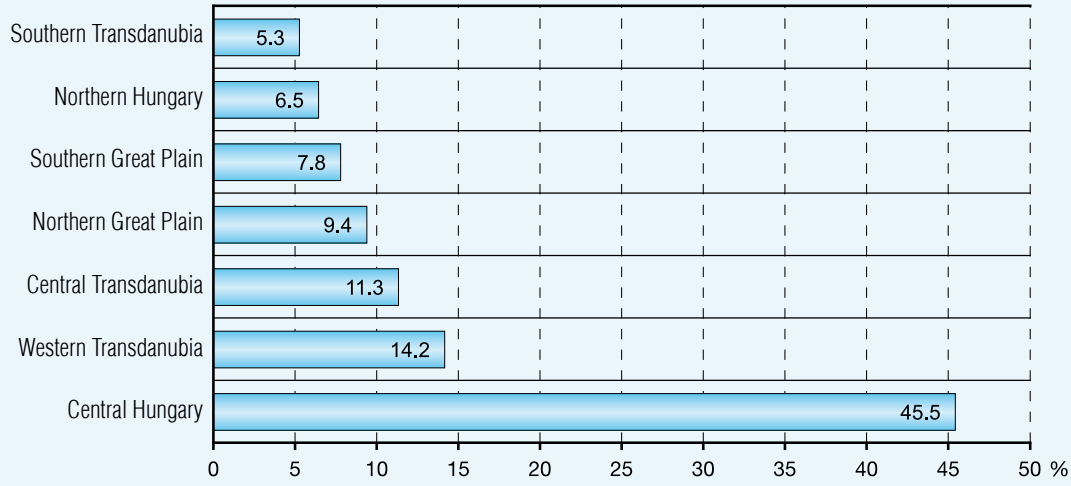
Investment by region

As opposed to the material/technical composition of whole-economy fixed investment output, the regional distribution of investment output in 2013 *(see Chart 7)* is largely the same as in previous years. Enterprises with over 5 employees, budgetary institutions and non-profit organisations had the highest share in investment in Central Hungary (45.5 per cent). Taken together, Central Hungary and the Transdanubia regions accounted for 76.3 per cent of investment. Within this, however, the share of Western Transdanubia in investment decreased despite the major vehicle industry projects implemented in Győr-Moson-Sopron county, while investment activity surged in Central Transdanubia, thanks primarily to the vehicle manufacturing project in Komárom-Esztergom county.

In the less developed Great Plain regions and Northern Hungary, the share of investment in 2013 was a mere 23.7 per cent. With-

Chart 7

INVESTMENT OUTPUT OF ENTERPRISES WITH OVER 5 EMPLOYEES, BUDGETARY INSTITUTIONS AND NON-PROFIT ORGANISATIONS BY REGION, 2013 (%)



Source: HCSO

in the Southern Great Plain region, 42.6 per cent of investment projects were implemented in Bács-Kiskun county, the location of a major vehicle industry project.

Investment by sector

We examine the distribution of whole-economy fixed investment in relation to the private sector and the budget. The private sector includes categories 1, 2 and 7 of the code defining the legal form of corporations (Hungarian abbreviation: GFO) for companies with at least 50 employees. The central budget includes category 3 of the GFO classification.

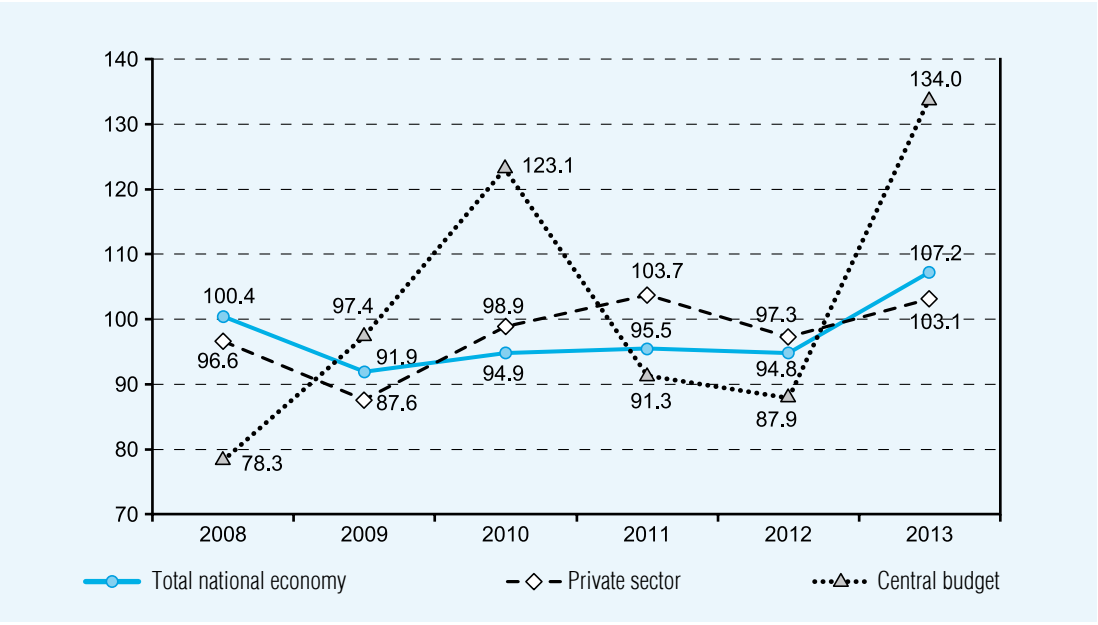
In the period between 2008 and 2013, the steepest fall (12.4 per cent) recorded for private sector investment was in 2009, when the crisis forced not only large corporations but also small and medium-sized enterprises to restrain investment activity *(see Charts 8 and 9)*.

Investment started to rise, for the first time, in 2011 (by 3.7 per cent), reflecting investments by large manufacturing (automotive) corporations. It is important to note, however, that the investment activity of medium-sized enterprises fell even further in the same year. In 2012, even large corporations restrained investment, bringing down the volume of private sector investment by 2.7 per cent. In 2013, following a decline in the first quarter, there was an upward shift in investment (3.1 per cent).

Investment in the sector of budgetary institutions increased only in 2005, 2006, 2010 and 2013 during the longer period (2003–2013). The growth in 2010 reflected increased investment activity due to publicly financed investment projects related to flood control and rescue operations in the wake of the red-

Chart 8

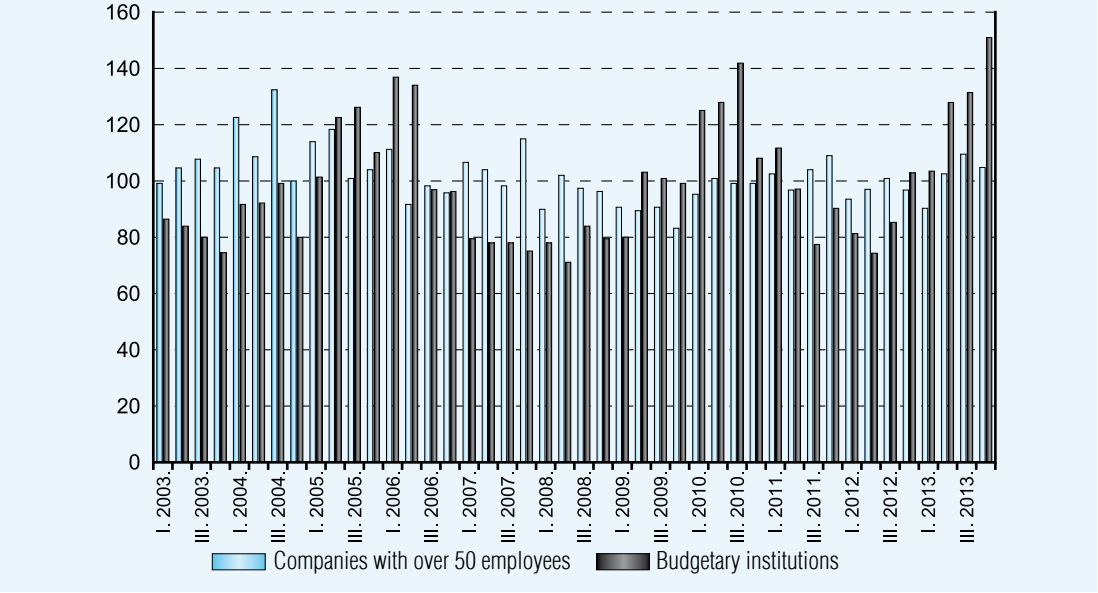
INVESTMENT VOLUME INDICES IN THE PRIVATE SECTOR AND THE CENTRAL BUDGET; VOLUME INDEX, SAME PERIOD OF THE PREVIOUS YEAR = 100.0



Source: own editing based on HCSO data

Chart 9

INVESTMENT VOLUME INDICES OF COMPANIES WITH AT LEAST 50 EMPLOYEES AND BUDGETARY INSTITUTIONS (SAME PERIOD OF THE PREVIOUS YEAR = 100.0)



Source: HCSO

sludge catastrophe. In 2013, against the low base recorded for 2012, the outstanding (34 per cent) growth of budgetary investment volume was associated with the implementation of development projects related to flood prevention.

Of the two sectors under review, private sector investment accounted for 50 per cent of whole-economy fixed investments in 2008, compared to 52.6 per cent in 2013. The share of budgetary institutions' investment increased to a larger degree, to 15.5 per cent from the 10.3 per cent recorded in 2008.

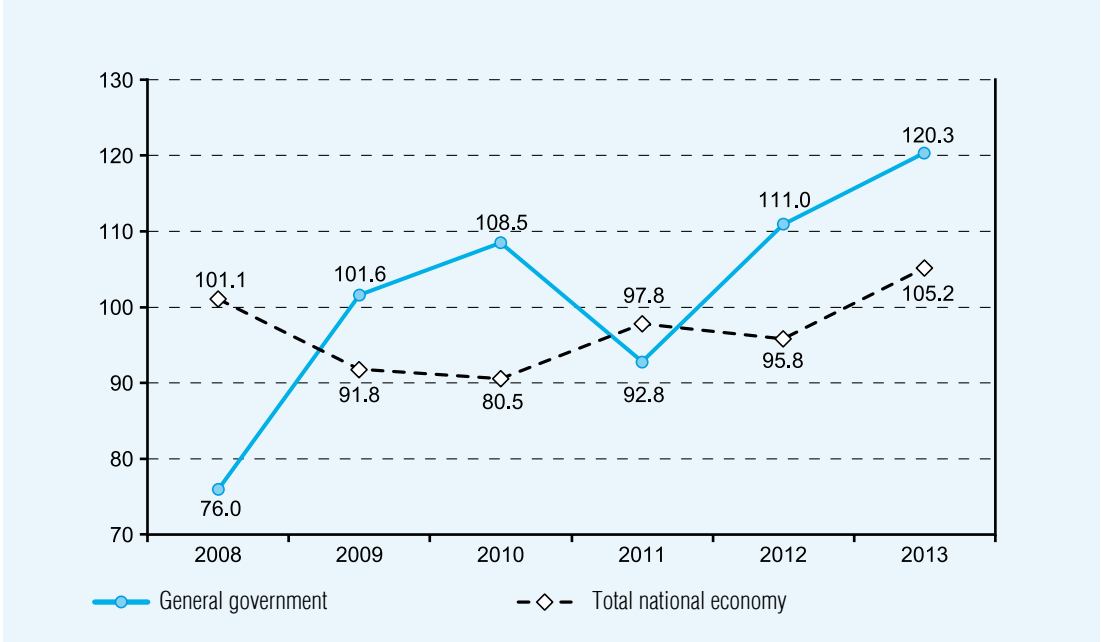
STRUCTURE OF PUBLIC SECTOR INVESTMENT AND ITS INSTITUTIONAL FRAMEWORK

Within whole-economy fixed investment, following the analysis of the proportions of investments by the private sector and budgetary institutions, we now proceed to examine developments in the three sub-sectors of the general government: the central budget, social security funds and local governments. In consideration of the statistical data available, this review involves the use of the gross fixed capital formation indicator, which also includes investment. Besides the indicators of the investment statistics, this indicator includes information about other components of gross fixed capital formation, such as financial lease and intangible assets. This indicator was developed in 2014 by the Hungarian Central Statistical Office (HCSO) according to ESA95, at current prices, in the framework of the national account statistics.

In this regard it is important to note that the gross fixed capital formation indicator was affected significantly by the conversion to the ESA2010 settlement system from the ESA95

Chart 10

VOLUME INDICES OF GROSS FIXED CAPITAL FORMATION IN THE GENERAL GOVERNMENT SECTOR 2008–2013, PREVIOUS YEAR = 100.0



Source: own editing based on HCSO data

system as of 1 October 2014. One of the most noteworthy changes is the recognition of research and development as capital formation, which is to be classified under the heading of produced assets rather than current expenses; i.e. it is recognised as fixed capital formation instead of intermediate consumption. Besides fixed capital formation, this will have a major impact on whole-economy output and intermediate consumption (increasing the former and reducing the latter).

Firstly, we compare the dynamics of gross fixed capital formation in general government to that of whole-economy capital formation *(see Chart 10)*.

The fixed capital formation of the general government was on a decline in the three years preceding the crisis: the decline amounted to 25.6 per cent in 2003, 18.1 per cent in 2007 and 24.0 per cent in 2008. The decline in the volume indices of capital formation reached this magnitude in the years when the reduction of the budget deficit was on the agenda. Except for 2011, the capital formation of the general government increased consistently from 2009 onwards, especially in 2013, which saw the completion of a number of infrastructural development projects. As a result of these changes, in the period of 2007–2013, the volume of fixed capital formation by the general government was up 3.8 per cent, compared to a 17.2 decline in fixed capital formation at the level of the national economy.

Table 9 presents the fixed capital formation of the general government broken down by sub-sector. During the review period, the output of capital formation in the central budget declined by a sharp 29.7 per cent in 2010, and increased in all other years of the period. In two years, 2011 and 2012, local government capital formation declined (by 16.7 per cent and 25.7 per cent, respectively). As regards the social security segment, after a spectacular growth in 2009 (32.3 per cent), fixed capital formation fell significantly in all other years except in 2012, which saw only a slight decline. As a net result of these changes, the output of fixed capital formation rose by 2.1 in the central budget and by 12.3 per cent at local governments, while a 45.1 per cent fall was registered in the review period in the social security segment.

In evaluating the changes, we can draw the following conclusions:

- Capital formation in the three sub-sectors went through volatile changes in individual years. For instance, capital formation by the central budget was down nearly 30.0 per cent in 2010, but rose by more than 70.0 per cent in 2012. The capital formation of social security funds improved by 32.0 per cent in 2009 compared to a 35.9 per cent fall in 2011;
- quarter-on-quarter changes in capital formation output were even more hectic than annual changes;
- as regards the impact of the crisis we can establish that the Hungarian fiscal policy – under pressure to reduce the budget deficit – "triggered" the crisis unfolding in 2009 as early as 2007–2008 in terms of the impact on fixed capital formation, and this led to the emergence of such an extremely low base that could not be reduced further even in 2009.

In view of the intensity of the changes affecting fixed capital formation trends in the sub-sectors of the general government, it is doubtful that the absorption of development funds has been purposeful, efficient and concentrated in recent years. This could be established and explored in the framework of a public sector audit, by way of on-site inspections at the affected budgetary institutions aimed at analysing structural changes in the sub-sectors.

Another important feature of the fixed capital formation process in the general

Table 9

GROSS FIXED CAPITAL FORMATION BY SUB-SECTOR AT CURRENT PRICES – ACCORDING TO ESA95, HUF MILLIONS, PREVIOUS QUARTER, QUARTER = 100.0

Quarter, year	Total	Central budget	Local government	Social security	Index			
					Total	Central budget	Local government	Social security
2008Q1	108,149	50,528	57,482	139	31.3	23.9	42.3	24.2
2008Q2	186,744	112,890	72,569	1,285	172.7	223.4	126.2	924.5
2008Q3	174,644	92,701	81,605	338	93.5	82.1	112.5	26.3
2008Q4	300,396	169,441	130,210	745	172.0	182.8	159.6	220.4
Total	***769,932***	***425,560***	***341,865***	***2,507***	***71.5***	***62.8***	***86.0***	***134.9***
2009Q1	99,032	49,518	47,558	1,956	33.0	29.2	36.5	262.6
2009Q2	186,221	119,166	66,385	670	188.0	240.7	139.6	34.3
2009Q3	204,547	116,543	87,566	438	109.8	97.8	131.9	65.4
2009Q4	316,159	146,778	169,129	252	154.6	125.9	193.1	57.5
Total	***805,958***	***432,004***	***370,638***	***3,316***	***104.7***	***101.5***	***108.4***	***132.3***
2010Q1	118,681	36,654	80,310	1,717	37.5	25.0	47.5	681.3
2010Q2	201,185	80,173	120,579	433	169.5	218.7	150.1	25.2
2010Q3	247,272	73,943	172,918	411	122.9	92.2	143.4	94.9
2010Q4	330,564	112,963	217,876	-275	133.7	152.8	126.0	-66.9
Total	***897,701***	***303,733***	***591,682***	***2,286***	***111.4***	***70.3***	***159.6***	***68.9***
2011Q1	119,721	43,636	75,344	741	36.2	38.6	34.6	-269.5
2011Q2	205,259	75,902	128,806	551	171.4	173.9	171.0	74.4
2011Q3	217,116	94,453	122,533	130	105.8	124.4	95.1	23.6
2011Q4	302,559	136,199	166,317	43	139.4	144.2	135.7	33.1
Total	***844,655***	***350,189***	***493,000***	***1,466***	***94.1***	***115.3***	***83.3***	***64.1***
2012Q1	104,159	42,022	61,753	384	34.4	30.9	37.1	893.0
2012Q2	198,223	135,956	61,631	636	190.3	323.5	99.8	165.6
2012Q3	218,634	114,278	104,279	77	110.3	84.1	169.2	12.1
2012Q4	447,271	308,455	138,451	365	204.6	269.9	132.8	474.0
Total	***968,287***	***600,711***	***366,114***	***1,462***	***114.6***	***171.5***	***74.3***	***99.7***
2013Q1	107,858	61,247	46,436	175	24.1	19.9	33.5	47.9
2013Q2	268,004	179,967	87,741	296	248.5	293.8	189.0	169.1
2013Q3	281,186	175,458	105,616	112	104.9	97.5	120.4	37.8
2013Q4	482,572	275,211	206,923	438	171.6	156.9	195.9	391.1
Total	***1,139,620***	***691,883***	***446,716***	***1,021***	***117.7***	***115.2***	***122.0***	***69.8***

Source: own editing based on HCSO data

Table 10

SHARE OF SUB-SECTORS IN THE GROSS FIXED CAPITAL FORMATION OF THE GENERAL GOVERNMENT (%)

	Central budget	Local government	Social security	Total
2008	55.3	44.4	0.3	100.0
2009	53.6	46.0	0.4	100.0
2010	33.8	65.9	0.3	100.0
2011	41.5	58.4	0.2	100.0
2012	62.0	37.8	0.2	100.0
2013	60.7	39.2	0.1	100.0

Source: own editing based on HCSO data

government's sub-sectors is the significant change affecting the respective share of individual sub-sectors *(see Table 10)*. A feature of this change can be illustrated by the fact that the share of the central budget sub-sector in capital formation rose to 60.7 per cent from 55.3 percent in the review period, compared to a decline in the share of local governments from 44.4 per cent to 39.2 per cent. Another important feature is that the change took place in the form of changeovers. While the crisis affected only the central budget sub-sector – through a relatively small decline in share – in 2009, its impact on the sub-sector was severe in 2010–2011, while the share of the local government sub-sector increased proportionately. In 2012–2013 the respective share of the sub-sectors prevailing in 2008–2009 shifted back to their original proportions at a higher level. This can be attributed mainly to the structural measures implemented in the sub-sector of local governments and the rearrangement of local government tasks (affecting the institutions of education, healthcare, etc.). From an audit perspective, the question arises whether the increased absorption of funds by local governments in 2009–2010 was in compliance with expediency and efficiency requirements.[10]

Developments in investment grants

In respect of developments in gross fixed capital formation and investment, it is important, both from an analytical and a public sector audit perspective, to pay special attention to changes in the size of investment grants. Given that these grants have been calculated by the Hungarian Central Statistical Office according to the new, ESA2010 methodology, *Table 11* presents the evolution of investment grants in the same system. In relation to the methodology applied we wish to point out that, of all sectors of the national economy, only the general government and the rest of the world are entitled to award investment grants.

The table presents investment grant data broken down into the following categories:

- grants may be received by 5 domestic sectors (non-financial corporations, financial corporations, general government, households, and non-profit institutions serving households) and the rest of the world.
- of the domestic sectors, the government may only receive assistance from the rest of the world, and
- the general government may also grant assistance to the rest of the world.

As the table reveals, the amount of grants doubled in the review period, growing to

Table 11

INVESTMENT GRANTS, 2009–2013 (HUF MILLIONS)

		Non-financial corporations	Financial corporations	General government	Households	Non-profit institutions serving households	Total national economy	Rest of the world	Total	Total, previous year = 100.0
2009	RECEIVED	319.126	764	266.278	79.945	19.199	685.312	4.977	690.289	
	from the general government	144.973	764		70.501	17.949	234.187	4.977	239.164	
	from the rest of the world	174.153	0	266.278	9.444	1.250	451.125	0	451.125	
2010	RECEIVED	284.972	789	423.140	53.009	20.676	782.586	6.421	789.007	114.3
	from the general government	115.669	789		41.734	18.975	177.167	6.421	183.588	76.8
	from the rest of the world	169.303	0	423.140	11.275	1.701	605.419	0	605.419	134.2
2011	RECEIVED	354.095	894	518.956	87.173	29.028	990.146	17.423	1.007.569	127.7
	from the general government	201.193	894		80.356	20.139	302.582	17.423	320.005	174.3
	from the rest of the world	152.902	0	518.956	6.817	8.889	687.564	0	687.564	113.6
2012	RECEIVED	407.859	790	502.389	91.982	35.969	1.038.989	32.941	1.071.930	106.4
	from the general government	152.141	790		85.378	28.706	267.015	32.941	299.956	93.7
	from the rest of the world	255.718	0	502.389	6.604	7.263	771.974	0	771.974	112.3
2013	RECEIVED	556.080	1.427	701.982	51.780	58.825	1.370.094	19.601	1.389.695	129.6
	from the general government	194.344	1.427		42.909	36.800	275.480	19.601	295.081	98.4
	from the rest of the world	361.736	0	701.982	8.871	22.025	1.094.614	0	1.094.614	141.8

Source: own editing based on HCSO data

HUF 1,389.7 billion from HUF 690.3 billion in 2009. The annual increase, however, was uneven: compared to 2010 (14.3 per cent) and 2012 (6.4 per cent), the increment was particularly high in 2011 (27.7 per cent) and 2013 (29.6 per cent).

Looking at individual years, the sectors received a total investment grant of HUF 180–320 billion from the general government in such a way that the annual rate of change was a striking –23.2 per cent and +74.3 per cent in 2010–2011, but relatively even (–6.3 per cent and –1.6 per cent) in 2012–2013.

The amount of investment grants received from the rest of the world increased 2.4-fold between 2009–2013, from HUF 451.1 billion to HUF 1,094.6 billion. 2010 and 2013 each saw an outstanding annual rate of growth: 34.2 per cent and 41.8 per cent, respectively.

As the annual level of government investment grants extended to the rest of the world fluctuated in the range of HUF 5–33 billion, practically the total amount of grants went toward the domestic sectors comprising the national economy. The largest sums of investment grants were aimed at the sector of non-financial corporations in 2009 (in consideration of the effects of the crisis), and in the rest of the review period they went towards the general government.

From the perspective of economic growth, employment and the improvement of competitiveness, it is crucially important that the investment grants extended to the sector of non-financial corporations (business sector) increase continuously. Except for the justifiable exception of the crisis-ridden year of 2009 (HUF 319.1), this requirement was fulfilled each year, and in 2013 the total amount of grants reached HUF 556.1 billion. The continuous growth in the sector is demonstrated by the growth rates observed in 2011 (24.2 per cent) and 2012 (15.2 per cent) and, EU transfers enabled an outstanding annual growth rate of 36.3 per cent in 2013. In the business sector, the ratio of investment grants to GDP rose to 1.3 per cent in 2011, 1.4 per cent in 2012, and 1.9 per cent in 2013 compared to 1.2 and 1.1 per cent in 2009 and 2010, respectively. As regards investment grants extended to the sector by the general government and the rest of the world, grants by the general government exceeded those granted by the rest of the world on one occasion, in 2011, while in the rest of the period, assistance from the rest of the world exceeded that received from the general government, and the difference was particularly striking (due to the large EU transfer mentioned above) in 2013, when grants from the rest of the world reached HUF 361.7 billion compared to the HUF 194.3 billion assistance from the general government.

By contrast, investment grants extended by the general government to the rest of the domestic sectors – households and non-profit institutions serving households – exceeded foreign assistance by a large margin every year.

* * *

In view of the changes in investment grants, we may conclude that, similarly to EU transfers and PPP investment, the intensive investment subsidisation policy played a critical role in the fact that the Hungarian economy managed to avoid a deeper investment trough and that investment activity embarked on a path of growth in 2013. Considering that the simulating effects of grants materialise with a one-year lag on average, we may safely assume that the 30 per cent increase in grants recorded in 2013 will be an important contributor to investment performance in 2014.

This effect is reflected in the 19.5 per cent year-on-year increase in investment volume in 2014 Q1–Q3. (As mentioned above, the volume of investment increased by 7.2 per cent in 2013). Investment output was boosted by a 39.8 per cent growth in investment activ-

ity in the transportation and storage sector (compared to 15.3 per cent in 2013), manufacturing (22.5 percent), as well as public administration and defence; compulsory social security (29.2 per cent). It is a significant change that the volume of construction activity grew by 19.9 per cent (compared to 1.7 per cent in 2013). From the perspective of facilitating sustainable economic growth through the contribution of productivity and competitiveness, it is a particularly valuable change that the volume of machinery investment rose by 26.6 per cent in 2014 Q1–Q3; i.e. it tripled compared to the previous year.

Notes

[1] In respect of the GDP-effect of fixed capital formation it should be noted that accrual accounting bridges the time-lag problem in the case of short-term projects but it does so to a lesser extent in the case of protracted projects. Statistical data are not available in this regard.

[2] For more details about the macroeconomic factors affecting investment, see Báger (2014, 11–30)

[3] Transfers from the EU are recognised when they are spent and not when the funds are transferred; therefore, the absorption of EU transfers may continue by way of pre-financed projects and already submitted invoices.

[4] Exchange rate: HUF/EUR 280

[5] Sole proprietors and primary agricultural producers are also classified as households in the statistics.

[6] Grant allocation to Hungary pursuant to Article 27 of Council Regulation (EC) No 1083/2006 of 11 July 2006 for the 2007–2013 programming period.

[7] Foreign Direct Investment

[8] In this respect, it is justified to present companies operating in Hungary for tax optimisation purposes separately – as special purpose entities (SPE) – in balance of payments statistics. Since these companies pass on the loans concerned to other foreign companies, their operation does not impact Hungary's real economic processes, even though their outstanding borrowing has been in the range of 20–40 per cent of GDP in recent years. See Koroknai – Lénárt-Odorán, 2011

[9] As noted before, in the case of petroleum processing (MOL) the expansion of domestic (state) holdings also reduced the size of foreign investment.

[10] Also in consideration of the fact that in 2007–2008, the tender objectives indicated to the EU for approval included not only objectives such as large-scale infrastructure upgrades in the areas of education, healthcare, water and sewage services, but also the "beautification" of city squares and village centres.

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