Survey and Study Paper on the Hungarian Investment Environment

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CONTENT

Executive summary

The aim of this study is to investigate the reasons for weak investment activity of the Hungarian corporate sector in the last decade, with special regard to the recent years. Chapter 1 gives a general overview of the Hungarian investment performance since 2005 compared to the neighbouring countries, broken down by sectors, asset types and industries. Chapter 2 focuses on the investment activity of the corporate sector by using microeconomic data that provide the possibility to have a more detailed picture about the share of firms of different size and of different ownership. Chapter 3 tries to identify the relation between national competitiveness indices and private investment performance by using the institutional indicators of the World Economic Forum. Chapter 4 evaluates the results of the survey that was conducted in the framework of this work among 400 firms representing all industries in Hungary. Respondent companies identified the main bottlenecks to investment incentives in four fields: institutional barriers, access to labour, access to capital and knowledge and technology. Chapter 5 processes the result of deep interviews made with 40 managers from different industries along the same structure of thematic blocks that were surveyed by the questionnaires.

Investment activity has been rather weak in the recent decade in Hungary. Although, after many years of fall, the volume of gross fixed capital formation has reached the level of 2005 in 2014 and slightly surpassed it in 2015, this achievement has been a far cry from the performance of neighbouring countries. In 2016, however, investment performance in Hungary will presumably fall back to the level of 2014.

The situation is even worse when private and public investments are separated. *Private* investment volume was in 2015 below the level of 2005 by more than 10 percent, while in Poland exceeded it by 70% and in the Czech Republic by 35%. In Slovakia the development of private investments has been almost as bad as in Hungary in the reference period. The difference between the two countries is that the housing investments, which are included in private investments, did much better in Slovakia than in Hungary where the purchasing power of the households has dramatically fallen after the crisis.

At the same time, *public* investments have raced in the V4 countries, except for Poland. In 2014 and 2015, in the last years of the 2007-13 programming period of the EU, public investments grew at an enormous pace in these 3 countries. However, since public investments financed mainly by EU fund have not much to do with the internal investment incentives, they do not represent an indicator of overall investment dynamism.

One of the remarkable findings of the study is that while there is obviously a very close relationship between EU transfers and public investments, private and public investments relate negatively to each other. There is no clear answer to the question about the reason of this negative correlation between private and public investments but a certain crowding out effect cannot be excluded.

The detailed examination of investment activity proves that corporate sector investments tend to *grow along with company size*. Between 2008 and 2015 investment activity ratios were 83-88% for large enterprises, 78-80% for medium enterprises and 67-70% for small enterprises during the reference period. Large companies play a decisive role in investments: about 45-

50% of overall investments are connected to large firms (in manufacturing 58-77%) while the other half is implemented by medium, small and micro firms. A much higher percentage of exporting companies have made real investments than non-exporting ones. As regards ownership structure, it can be stated that about 40 percent of investments have been implemented by foreign-majority owned firms. Thus, from the detailed study of corporate investments the picture emerges that the overwhelming role of large companies – it should be noted that large companies are dominantly, albeit not exclusively, foreign-owned. There are several successful domestic-majority owned large (and, to a much lesser extent, medium) firms which implemented significant investments in recent years. This fact is proved by the concentration index. The concentration index in manufacturing is rather high and particularly high in the rapidly growing branches: partly connected to automotive production and partly to the chemical industry. The top 10 companies – mainly foreign owned enterprises – represent 70-95% of overall investments in these branches,. But in other industries domestic owned large companies are remarkably well-represented in the 10 main investors.

It is difficult to find a clear relationship between the weak private investment performance and the weak and worsening indicators of Hungary in the Global Competitiveness Index of the World Economic Forum. The correlation analysis could detect a strong correlation with private investments only in the case of very few competitiveness indicator. This weak statistical correlation between most of soft competitiveness indicators and actual private investments can be explained by the fact that competitiveness indicators are rather *stable* over the period investigated, meanwhile the ratio of private investments are strongly *fluctuating* in different years, mainly by the significant impact of "large-scale investments" mentioned before. Hence, actual private investments are largely influenced by some big investments of some large firms.

A survey of 400 companies was conducted to explore the latent motivations behind private investments. The survey was representative for the value added structure of the Hungarian economy. The main driver of investments in the past 3 years was the increase of domestic demand. This could be a surprise but one must consider that 35% of total value added is contributed by the retail trade and their investments and future growth are mainly driven by domestic demand rather than amortisation and introduction of new technologies. These results are in harmony with the quarterly manufacturing sentiment survey of Kopint-Tárki that indicates that the importance of domestic demand as a barrier of production has been weakening since 2013.

As opposed to investments in the recent past, future investments are rather driven by asset amortisation and the introduction of new technologies. The increase of domestic demand is just the third most important factor as it is the hardest to predict. The variation here is higher among the companies, which could be explained by the varied strategies of firms. Companies do not really differ by size but by industries. Services, retail trade and construction are relying more on domestic demand while manufacturing investments are rather relying on amortisation and new technology investments.

The assessment of the Hungarian private investment climate by the companies reflects the problems of labour market. According to the survey responses, labour costs are considered high while there is a significant skill mismatch between the educational system and the skill demand of the firms. This results in a severe structural labour shortage.

The deep interviews have cleared up several aspects of weak investment incentives of the corporate sector. The interviews have conveyed a general negative sentiment of firm managers towards the institutional environment in Hungary.

Bureaucratic and administrative barriers are larger in Hungary than in the neighboring countries what makes the life of firms more difficult and leads to more wasted time and efforts. This phenomenon cannot be blamed as a major obstacle to investments but it is clearly an essential disadvantage in cost competitiveness.

The *EU grant* funds were a significant additional source of investments for some of the companies surveyed. Many investment would not have been implemented (or only on a much smaller scale) without the EU funds. However, many criticisms have been formulated concerning the institutional framework surrounding tenders: expected tenders are not published in due time, announced tenders are often canceled or requirements are changed a few days before the deadline, project management and contracting authority are constantly changing. Many companies said they will not enter the competition for funds because the preparation of applications takes a long time while the result is uncertain. It is easier to use own financial resources, especially since by have access to credit is at a low interest rate nowadays.

Concerning public procurements, EU funding and corruption, firm managers stated that projects entailing EU support for corporate investments have been evaluated basically fairly (although, sometimes there are "strange firms" in the list of winners). Several firms eligible for support, mainly in manufacturing, have implemented significant investments, technological upgrades and created enhanced export capacities with the help of EU financing.

A widely held view, not just among the firms operating in markets where the public sector is a major buyer, but also among firms outside these sectors, is that the EU-funded public investments via public procurement can be best described as „directed procurements"; i.e. the winner(s) is (are) designated in advance. For example, an overwhelming majority of respondents professed the view that most public procurement contracts involving construction works have been awarded to a particular circle preferred by the political elite. This circle seemingly changes over time depending on changes in political relations. Beside the possibility of overpricing at public construction works due to the lack of competition, this perceived primacy of political aspects over actual performance has raised doubts not only in those entrepreneurs who have been directly involved in these cases but also in other groups of entrepreneurs. The respondents discerned a strong demotivating and demoralizing effect of the apparent underprioritization of performance, talent and efforts against political connections among entrepreneurs who are working on the free market (international or national) in stiff competition but whose profitability will never come even close to what the politically determined entrepreneurs achieve.

Predictability and trust are the key elements of the normal operation and prerequisites of making long term investment decisions of businesses. In this aspect, "tailor-made" legislation that is designed to benefit certain groups (very) near to the government has far-reaching negative effects on business confidence. Our study highlights several cases of such tailor-made legislation that transformed the ownership structure of different branches.

Not only the results of micro-level firm data processing (Chapter 2) but also the interviews and other analysis demonstrated that the discrimination against "large" companies limits the

overall investment incentives in Hungarian context. The principle of particular support for SMEs, applied all over the world, is based on the idea that the big companies are strong enough to cope without support. Moreover, support for SMEs is necessary in order to mitigate the domination and overweight of big business and to maintain diversity and heterogeneity of the enterprise sector. In Hungary, however, the majority of domestic owned "large enterprises" is also relatively weak and small as compared to large firms in more developed countries and especially compared to multinational companies. Thus, they also need support, particularly because this group of companies is the engine of investments in Hungary.

All managers, without any exception, reported that the lack of labor (not only skilled but also unskilled workers) is now not just an obstacle to investments, but also makes it difficult to increase, in certain cases even to maintain, the level of production. In certain cases, potential customers must be rejected due to lack of adequate labor. This situation has led to a definite increase of wages.

Access to credit is, at present, not an effective limit to investments. Banks are intensively searching for potential borrowers with good track record. Interest rates are low; companies with good track record can borrow at an interest rate of about 3 percent.

1. Investments in the European Union and in Hungary in the light of macro statistical data

In this chapter the development of fixed capital formation in Hungary will be analysed between 2005 and 2015 in comparison with the European Union as a whole in general and with Hungary's regional competitors in particular. After defining investments, we give an overview of the evolution of investments in the EU and in the individual member states most relevant for Hungary. The analysis will include industrial level analysis.

According to the System of National Accounts (SNA):

Gross capital formation = gross fixed capital formation +/- changes in inventories and acquisitions - disposals of valuables

Economic analysis tends to focus on **gross fixed capital formation** because, it can be measured the most reliably, and because that is what reflects the actual intention of economic agents to invest. By definition fixed assets are tangible or intangible assets produced as outputs from processes of production that are themselves used repeatedly, or continuously, in processes of production for more than one year (OECD). Practically fixed assets can be:

- building (including dwellings),
- machinery and equipment, including transport equipment,
- land, other cultivated biological resources
- intangible assets (eg.: software and other intellectual property assets).

Investments will be assessed by examining the evolution of both volumes and ratios. These two approaches are quite different. Measures in volumes indicate the change in investment activities (usually compared to the previous year) while investment ratios show the annual performance of the economy in terms of gross (fixed) capital formation to GDP. The latter reflects the role of investments in the economy (or in particular sectors/industries).

1.1. Share of investments in GDP

The investment rate, that is, gross fixed capital formation as a percentage of GDP, was around 21% on average between 2007 and 2015 in the European Union. Within total investments, only 15% belongs to the general government on average and 85% is linked to the corporations and households[1]. The evolution of GDP-ratio clearly shows the lasting detrimental impact of the global crisis: the overall ratio did not really recover from the hit in 2009. While corporate investments regained a part of the loss, in terms of the investment-GDP ratio, after 2009, the ratio of household investments and – at a lesser degree – government investments continued to slowly decrease during the recent years.

In comparison, the overall investment rate tends to reach higher levels in Hungary – the post-crisis years (2010-2012), however, were different, since the crisis-cum-austerity in Hungary had a more drastic impact on investments than in the EU as a whole. During the reference period, *business investments* had a consistently higher GDP-ratio in Hungary than in the EU28, even in the worst years of the recession, while *government investments* only dipped under the EU average only during 2008-2009.

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[1] Mainly housing investments in the case of households.

Figure 1.1.

Breakdown of investments in the EU by sector (% of GDP)

Source: Eurostat
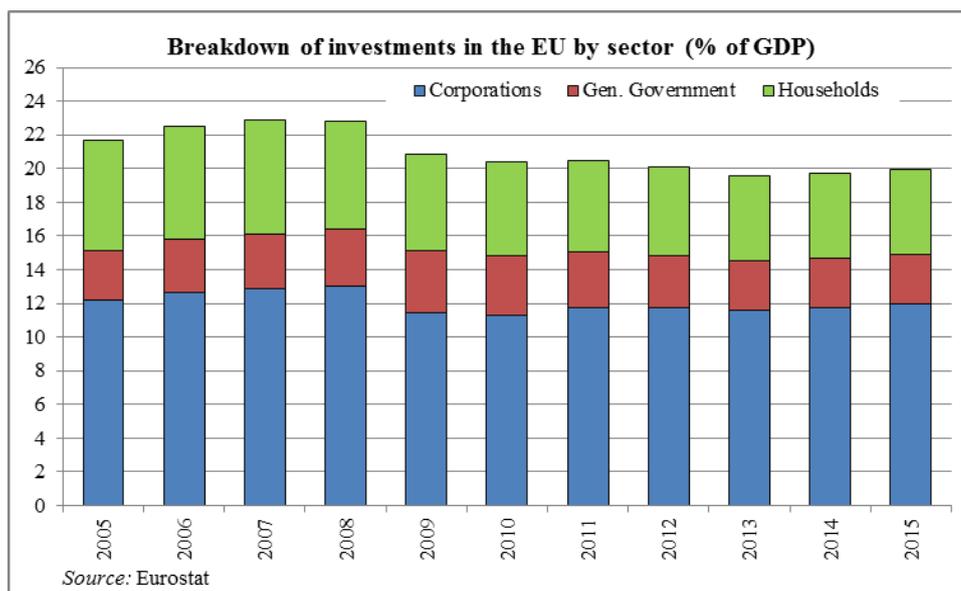
The GDP-ratio of *household investments*, on the other hand, fell short of the EU28 level without interruption during 2005-2015, and the negative gap became substantial from 2011. The sectoral breakdown numbers suggests that households were hit the hardest by the crisis in Hungary.

Figure 1.2.

Breakdown of investments in Hungary by sector (% of GDP)

Source: Eurostat
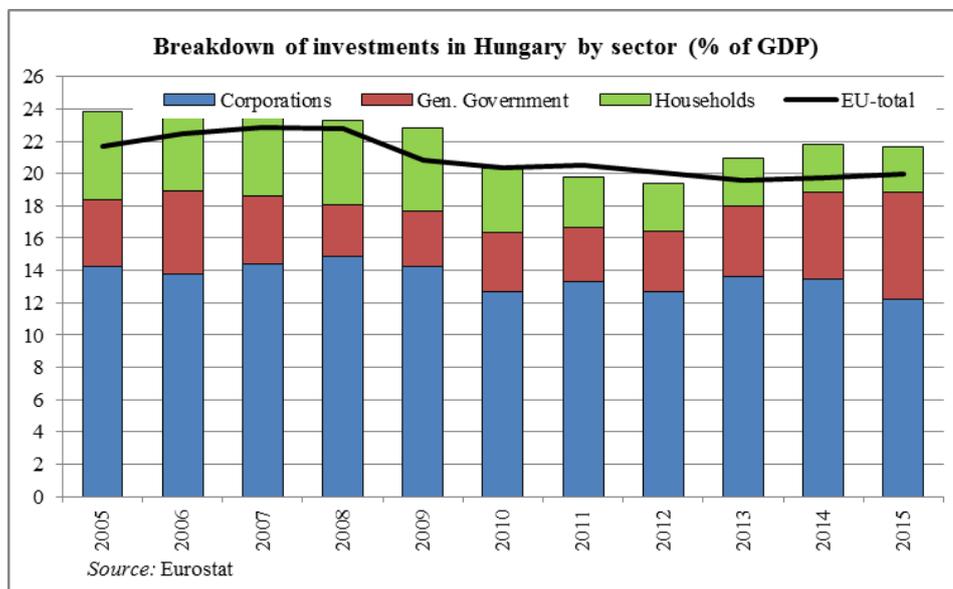
Turning to the volume growth numbers, the crisis apparently hit private investments in the EU severely, while many countries tried to cushion the crisis effect by raising the level of public investments. In 2015 the level of private gross fixed capital formation did not even reach the level of 2005. After a stillborn recovery in 2010-2011, the actual recovery started – at an EU average level – only in 2014.

In Hungary the degree of the initial plunge of private investments during the crisis was not much different from that in the EU, but the decline did not stop after the first two years – the

first rebound took place as late as in 2013. By 2015, the cumulative growth record of Hungarian private investments was significantly worse than the EU growth performance, even though the latter itself was far from reassuring.

Figure 1.3.

Source: Ameco
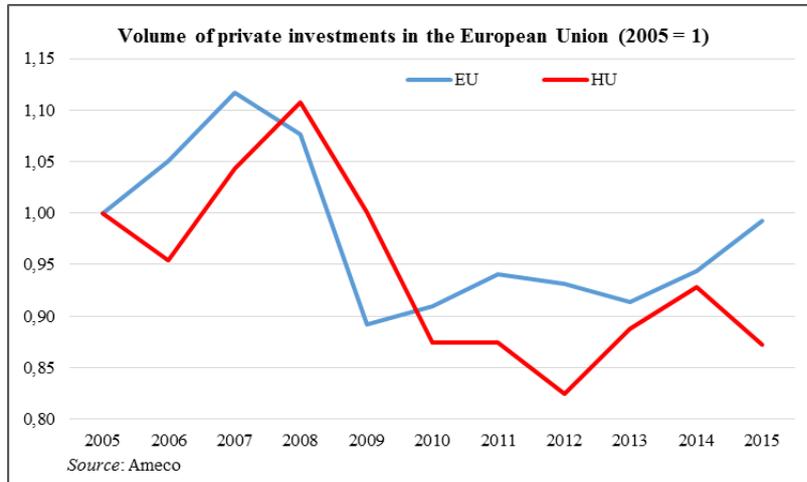
Behind the EU-level average, the paths of fall and subsequent recovery diverged considerably in other member states too, not just Hungary. In 2015 private investments were above their 2005 level in 14 member states. Among them one may find some of the new member states (Poland, Malta, Romania… etc.) supported by EU funds. The group of member states where the private investments are below the 2005 level includes Bulgaria, Hungary, Estonia, Latvia and Slovenia, despite the EU funds. The correlation between economic growth and private investments only partly explains this phenomena as Baltic member states had outstanding GDP growth in the past years and the export performance of the EEA region is very good. The relatively poor growth record of private investments in the EU as a whole is clearly due to household investments – as previously mentioned, corporate investments seemingly outperformed household and government investments during the post-crisis period.

Figure 1.4.

Source: Eurostat, Ameco database
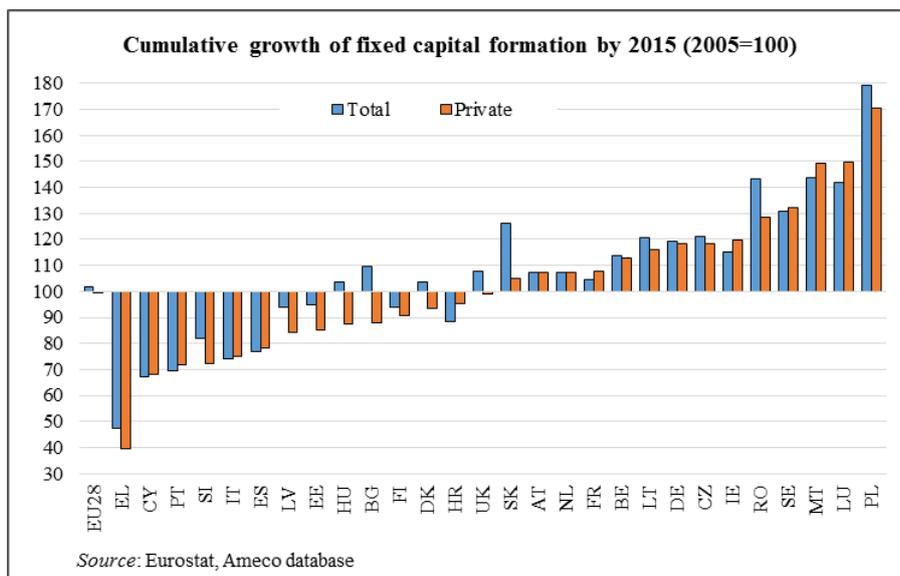
Just as in the EU as a whole, also in about a two-third of the member states achieved positive cumulative growth of *overall* fixed capital formation between 2005 and 2015 – among them, almost two-third of the Eastern European new member states. In about the same number of countries – although not exactly the same group of countries – overall investments did somewhat better than business investments in terms of cumulative growth between 2005 and 2015. In a number of cases, the difference is striking (e.g. Hungary, Bulgaria, Slovakia and Romania). It should be noted that the growth rate of public investments tend to be much more hectic than private investments. Therefore, the tendentially higher cumulative growth rates in public investments may be due to the spending spree in 2015 from the EU funds that remained to be spent in the net recipient countries under the aegis of the previous programming period.

Figure 1.5.

Source: Eurostat
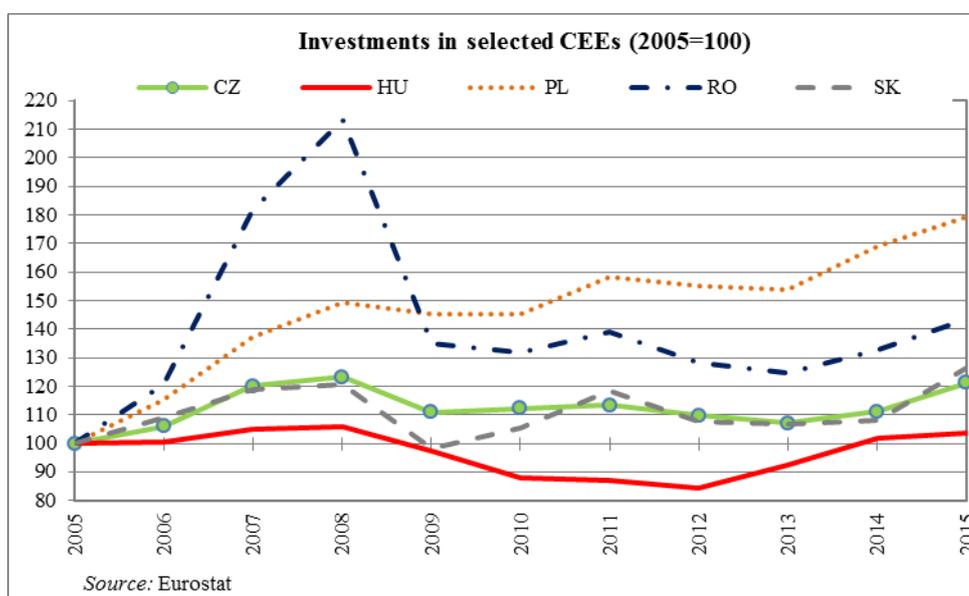
While the growth trajectory of overall investments tends to remain close to the trajectory of overall growth, the extreme swings in government investments can, in some cases, divert total investment growth from the gravitational pull of private investments. As can be seen in the charts below, this happened in Hungary in 2014-15, when total investment mildly rose despite consistently (and strongly) negative growth of private investments, thanks to the EU-fuelled public investment tsunami. Also, total investments grew at a much higher rate Slovakia and in the Czech Republic in 2015 than private investments – presumably a result of EU funds again – and also in Poland in 2011 when, after a long cyclical upturn, government investment peaked. It is worth noting that, apart from the year 2015, the fluctuation of public investments was not intense enough to make a real difference in the Czech Republic, hence overall investments followed quite closely the trajectory of private investments.

Figure 1.6.

Investments by sector in the Czech Republic (2005 = 100)
Source: Eurostat

Investments by sector in Hungary (2005 = 100)
Source: Eurostat

Investments by sector in Poland (2005 = 100)
Source: Eurostat

Investments by sector in Slovakia (2005 = 100)
Source: Eurostat
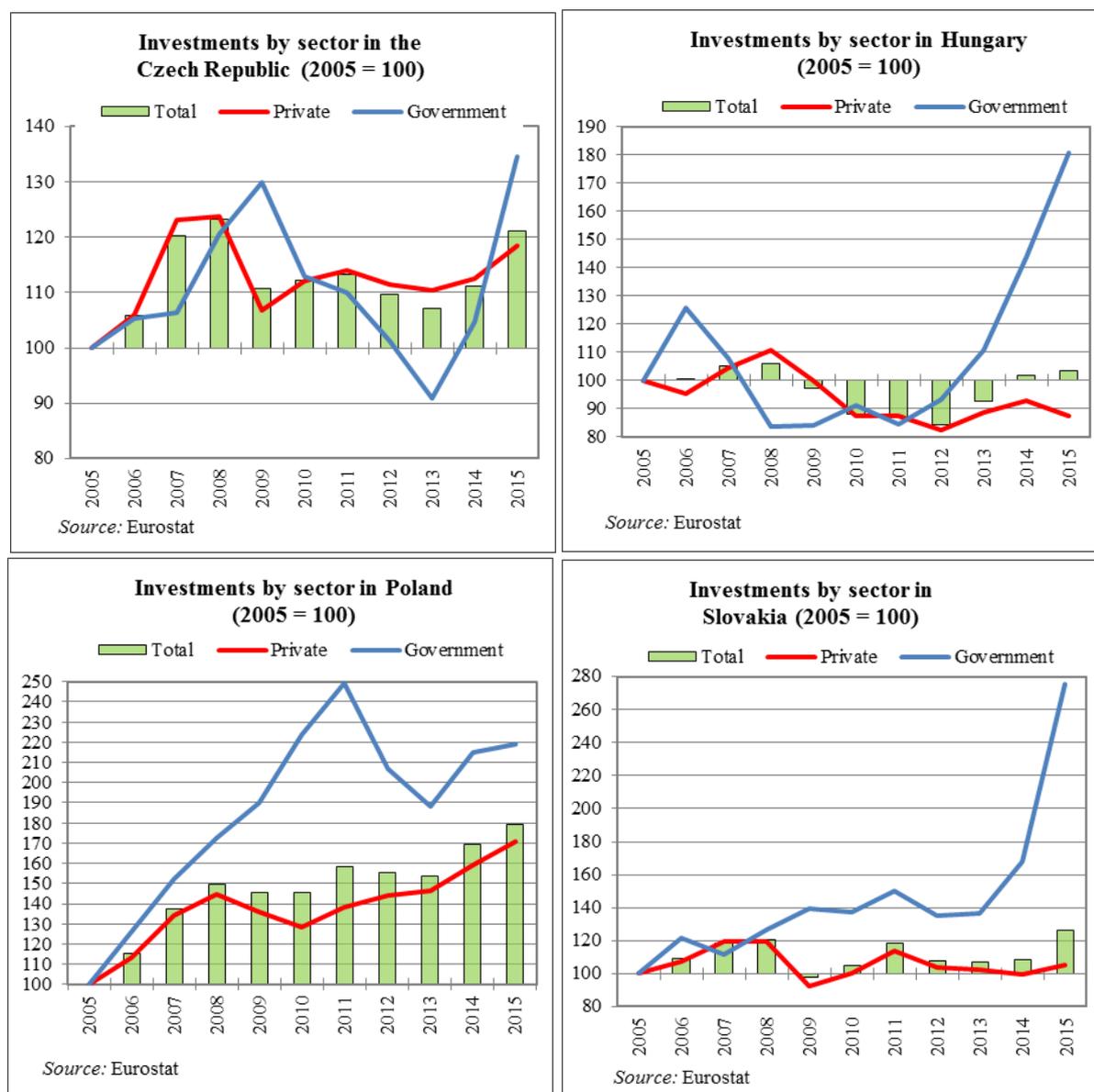
Helped by government investments, most of the Visegrad countries and Romania managed to achieve substantial growth of overall investments between 2005 and 2015. Poland is the most impressive case, partly due to the fact that Polish investments remained resilient even during the crisis years, unlike in the Romania or the other Visegrad countries. Romania suffered the heaviest loss during the crisis, but Hungary suffered the most protracted contraction – and stagnated for years afterwards. At the end, Hungarian investments remained at a very low level, despite the explosion of EU-funded public investments during 2013-15.

Beside the traditional macroeconomic factors affecting investments (interest rates, opportunity costs, demand, amortisation, returns etc.) the incremental capital output ratio (*ICOR*) also has an effect on investment decisions. ICOR measures the efficiency of the capital used, that is, the productivity of capital used during the production. In the chart below, we plotted the inverse of ICOR, that is, the marginal productivity of capital.

The figure below shows that in Hungary, marginal capital productivity was negative (that is, below 1) even before the crisis. This means that one unit of additional capital input (investment) yielded less than one unit of output. This situation changed after 2012. This does not necessarily mean that Hungarian investments were unproductive – but it certainly suggests lower returns. The distribution of asset types (dwellings, buildings, infrastructure, equipment etc.), the rate of amortisation, technological development, general economic conditions and other factors also determine the marginal capital-output ratio. It should be kept in mind, however, that statistically measured low marginal capital productivity can be misleading if the output change is disappointing not due to the low productive capacity of the new capital stock but due to demand constraints, as it actually happened during the crisis and – at least in Hungary – also in the preceding and the subsequent years.

Figure 1.7.

Source: Ameco
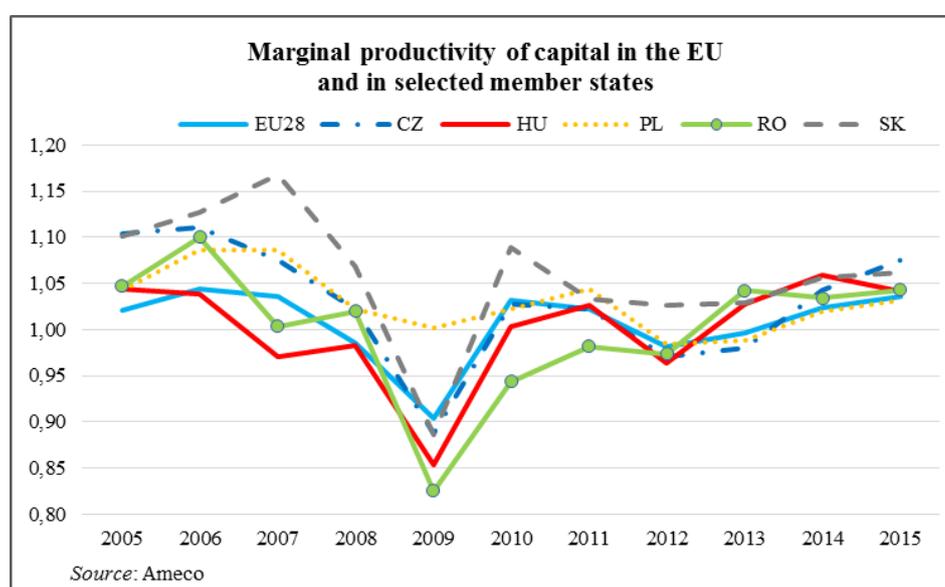
Another measurement to check the effectiveness of investments is the simple capital-output ratio (*COR*). It represents the amount of capital input required for one unit of output:

As can be seen from the chart below, more capital is needed to produce one unit output in the Czech Republic in the EU than in the other Visegrad countries and Romania. In Hungary the capital-output ratio is well above the Polish or EU level, but higher than the rest of the regional competitors. Explaining the differences in capital productivity is not a straightforward task – the measured productivity depends on numerous factors, like the composition of the capital stock by types of assets, the more or less capital intensive technologies used, the differences in the efficience of the use of the capital assets, the relative prices of capital assets and other inputs, etc. Wealthier economies tend to use more capital intensive technologies, and possess a more valuable stock of wealth assets not directly related to production.

Figure 1.8.

Net capital-to-GDP ratio in the EU and selected member states

Source: Ameco
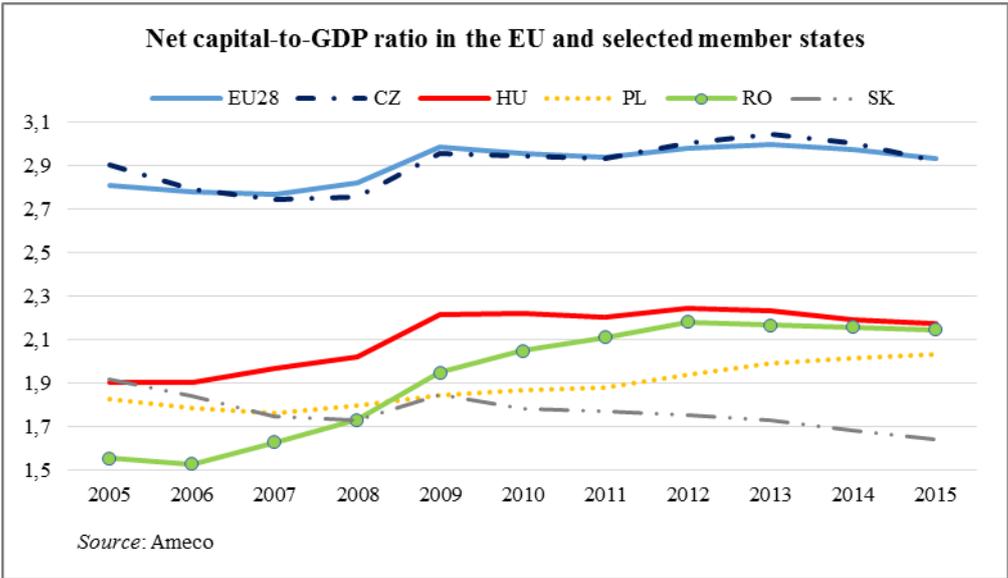
1.2. Breakdown by asset

Investments in machinery and equipment were surpassed by investments in buildings and constructions in every member state between 2005 and 2015, although in two countries (Czech Republic, Slovakia) the difference was negligible. It is striking that the ten countries with the highest share of machinery within overall investments are, without exception, new member states; Hungary is the fifth in the row. Clearly the countries that try to catch up with the more developed old member states tend to have a stronger focus on technology development. Furthermore, these countries seem to be in a less mature phase of technology development, because the share of investments in intellectual property products is palpably lower than in the more developed countries. On that front, Hungary has a relatively high ratio, surpassed only by Slovenia and the Czech Republic and Malta among the new member states.

Figure 1.9.

Breakdown of investments by asset types (average of 2005-2015, %)

Source: Eurostat
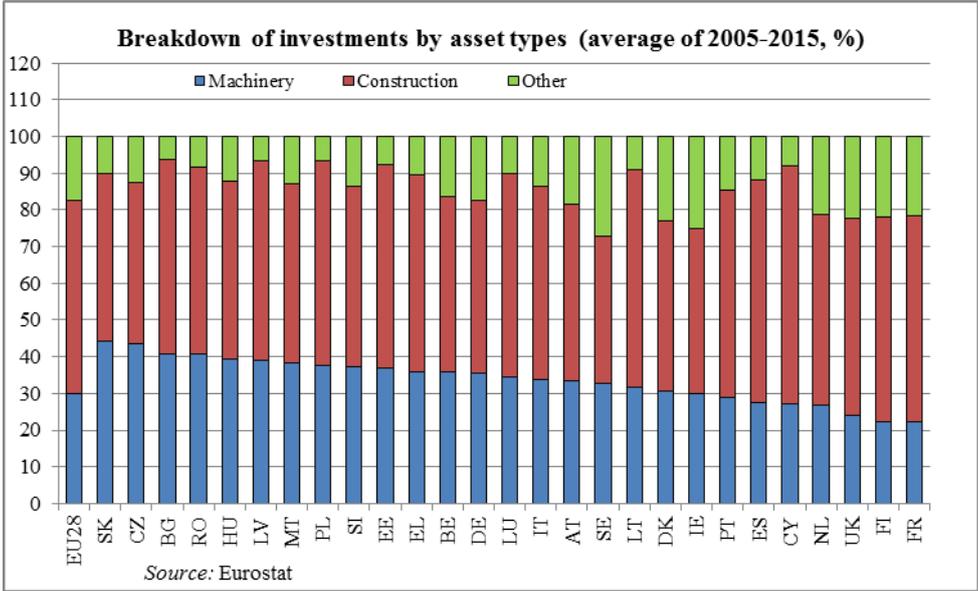
While the share of machinery investments was lower everywhere than construction investments, the cumulative growth rates were higher in the case of machinery investments in every member states from 2005 to 2015. The number of countries that experienced a fall of machinery investments was 6 only, as opposed of the 17 in the case of construction investments. Investments in intellectual property grew at the higher pace, from a relatively low base. In terms of the cumulative rate of machinery investment growth, Hungary was within the upper third of the member states, but it was in the lowest third (with a harsh cumulative fall) regarding construction investments.

Figure1.10.

Figure1.11.

Source: Eurostat
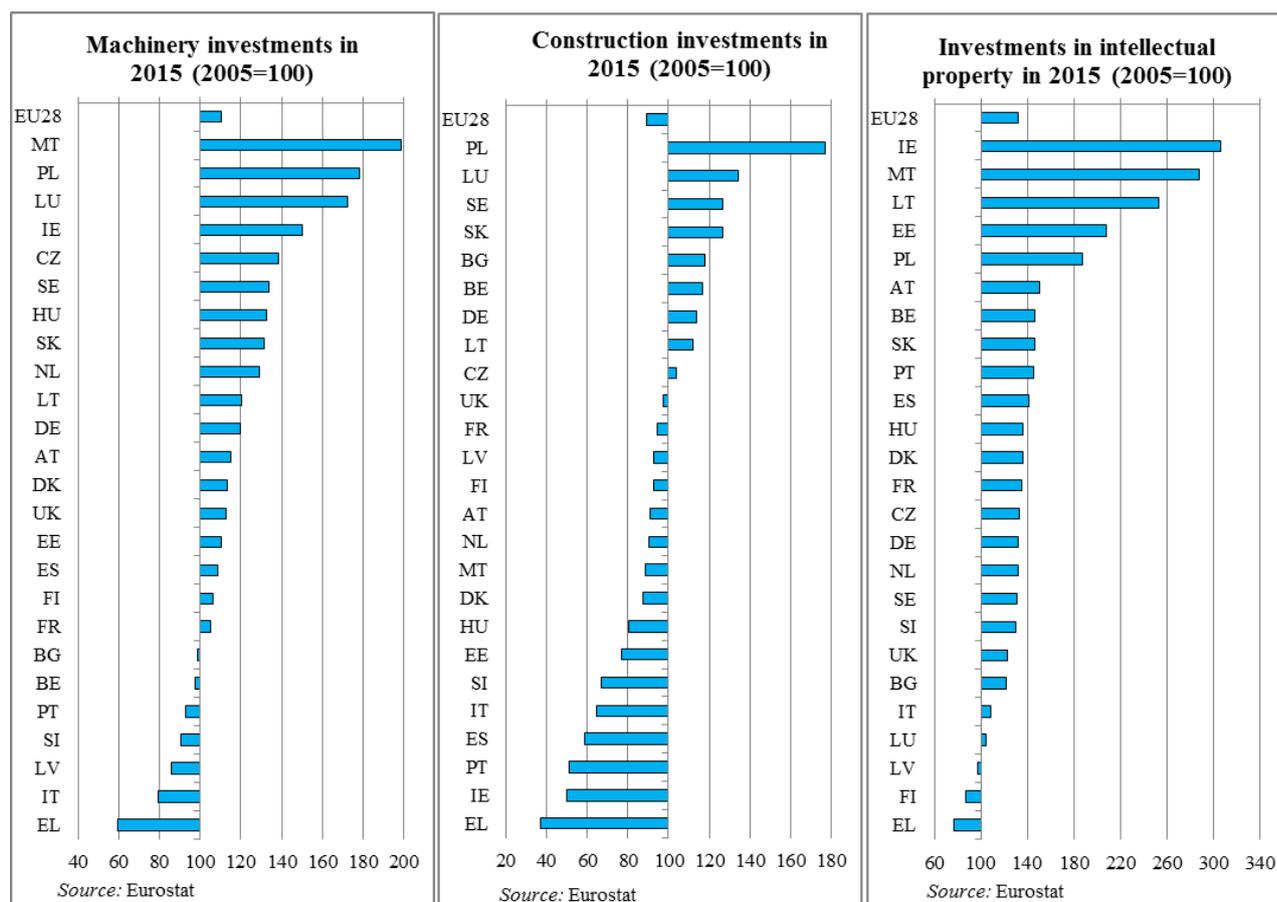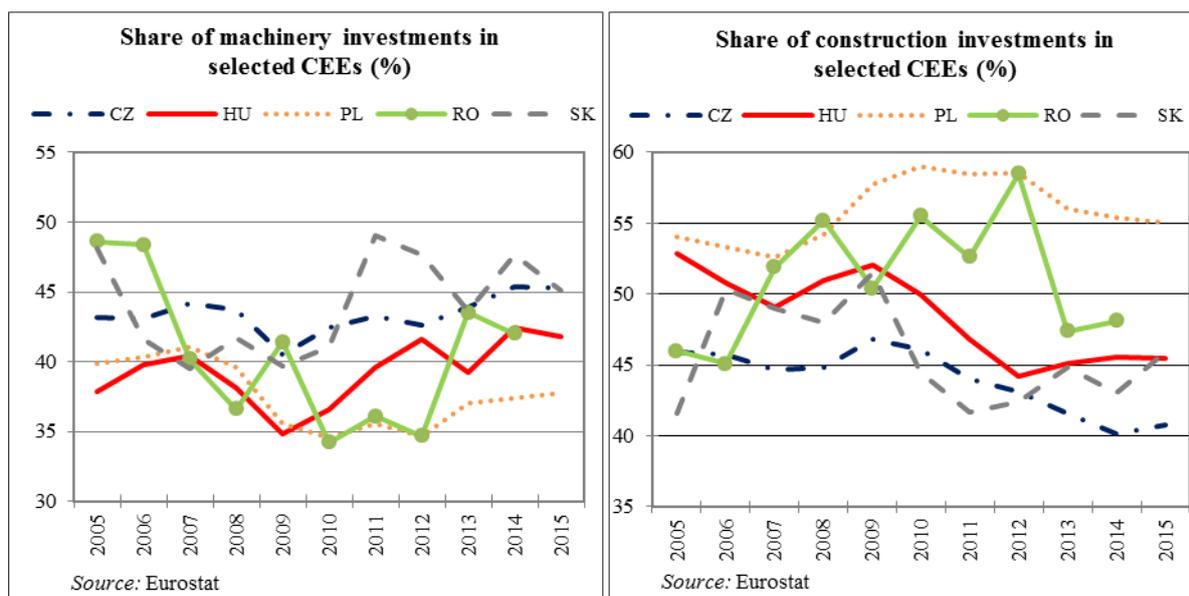
Among the regional competitors of Hungary, Poland is outstanding with its consistently low share of machinery investments and high share of construct ion investments. In Romania, the situation was not much different until 2013 which saw a sudden decrease in the difference between the respective shares of machinery and construction investments. In the other three countries, the share of machinery investments tended to rise (and construction investments sank) after the crisis, although the degree, the suddenness and the duration of this shift was far from uniform. As we have seen, Hungary has a better position among the EU as a whole regarding the share of machinery investments than the share of construction investments; the charts above show that this is not exactly the case *among Hungary's regional competitors*. Actually, the share of Hungarian machinery investments was substandard during much of the reference period (especially the first half) if compared to the other Visegrad countries and Romania, and this is also true regarding the growth of machinery investments.

Figure 1.12.

Source: Eurostat

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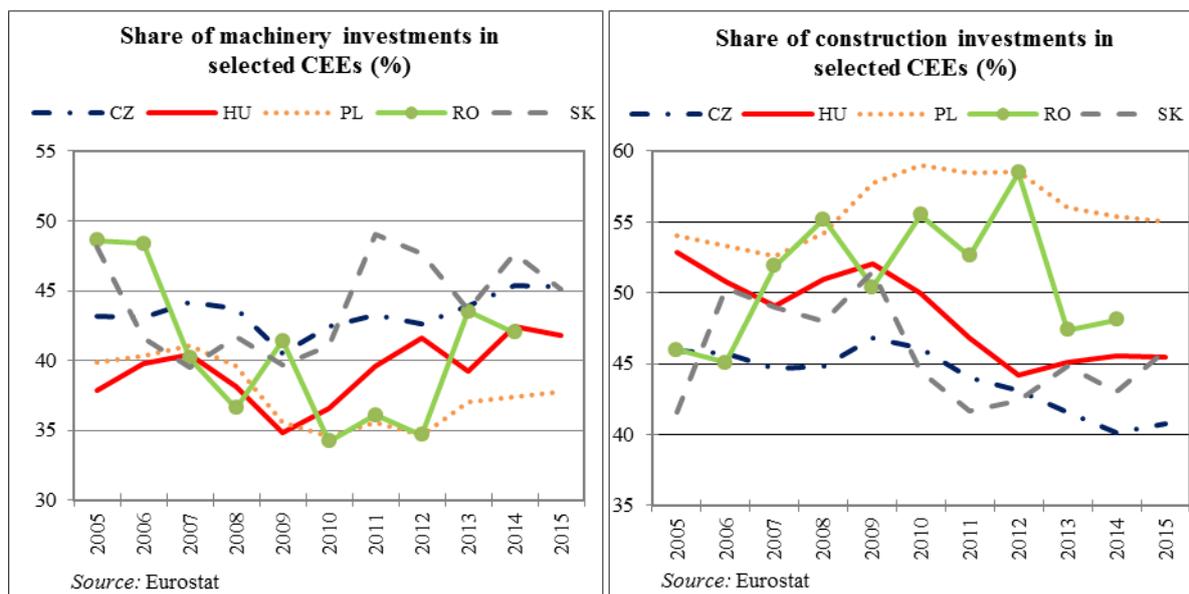
Figure 1.13.
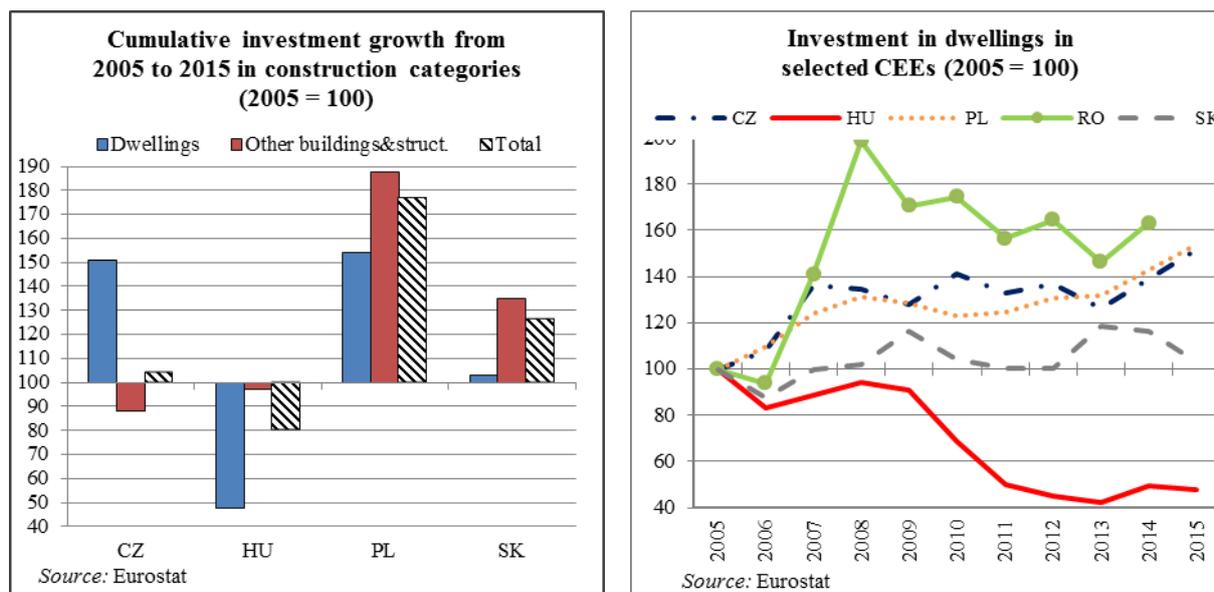
While machinery investments were hit severely by the crisis in 2009 in every regional competitors of Hungary, Romania was a special case, with a particularly precipitous fall during the crisis. Poland is noteworthy because machinery investments – which are less central for overall investments than in other countries of the region, as we have seen – recovered very fast. At the same time, construction investments continued to rise, the crisis notwithstanding. The other selected countries, on the whole, *did not do much better than Hungary regarding machinery investments*, thanks to the eventual jump of Hungarian investments in 2014, after years of languishing. While construction investments failed to take off in Slovakia and the Czech Republic, for Hungarian construction investments the years of languishing are apparently not over yet – after a moderate upturn in 2014-15, insufficient by far to eliminate the effect of the previous protracted disaster, investments are plummeting again in 2016.

Figure 1.14.
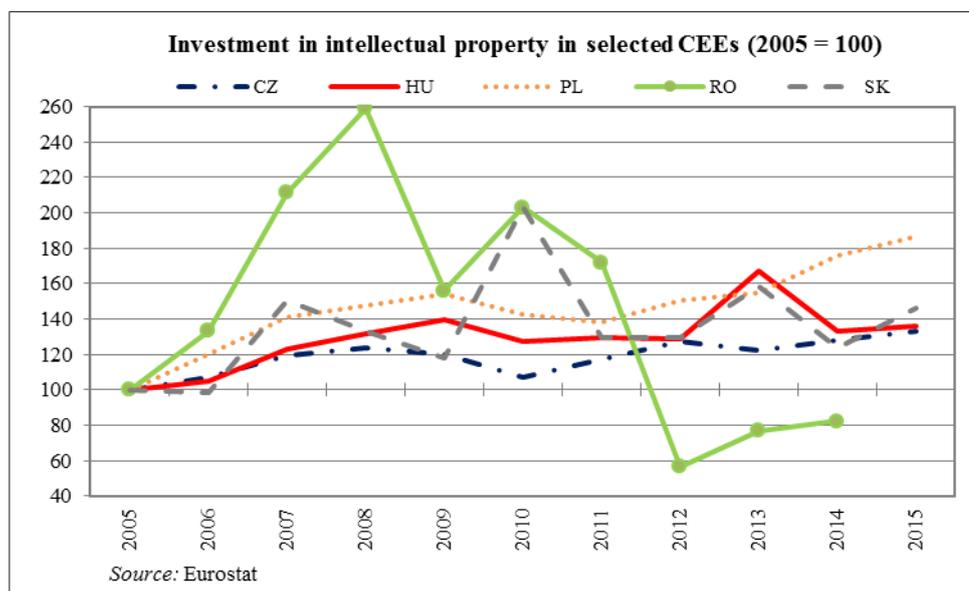
In fact, the strong negative growth of construction investments in Hungary was not uniform: while investments in non-dwelling buildings and structures basically stagnated, investments in *dwellings* underwent a sharp fall after the outbreak of the crisis, followed by a long depression. (It should be noted that housing investments were stagnating at best even before the crisis in Hungary.) The other selected countries – except of Slovakia – boasted strong growth in dwelling investments before the crisis and – as households were less severely hit by the debt crisis – did not implode in the wake of the crisis, at least not in the Visegrad countries. Also, investments in other structures grew significantly in Poland and Slovakia, while the decline in the Czech Republic was offset by a strong rise in dwelling investments.

To sum up, investment growth during the reference period was subpar in Hungary in comparison with the regional competitors, although it slightly surpassed the EU average. This subpar performance was – in terms of the asset breakdown – primarily due to a catastrophic fall in dwelling investments that was accompanied by a sub-median growth record (in regional comparison) regarding non-dwelling construction investments and a near-average growth (again, regional comparison) of machinery investments. Considering that the moderate growth in investments into intellectual property products is largely in accordance to the regional average, Hungarian investments *in terms of technological development* did not necessarily fall significantly below technology-relevant investments in the other member states within the region.

1.3. Breakdown by industry

As mentioned earlier, about two-third of the member states achieved a higher level of overall fixed capital formation in 2015 than in 2005. A minority of the member states – among them, all of the troubled Southern European countries (Greece, Cyprus, Portugal, Spain, Italy) – experienced a contraction of fixed investments during the same period. Looking at the breakdown by major industry sectors – broadly defined agriculture, industry, construction, services – some of the member states experienced large differences between the cumulative growth rates of the particular economic branches. Finnish investments evolved most evenly, with less than 20 percentage point difference between the sectors with the highest and lowest cumulative growth rates, while in the case of Bulgaria, the respective gap reached 180 percentage points, primarily due to the enormous growth of agricultural investments. About one-third of the member states were marred by the very steep decline in investment activity in the construction sector – *Hungary is one of them*. While the majority of member states posted positive growth in services and in the industrial sector, the investments in the agricultural and the construction sectors were often volatile with spectacularly high rates of volume increases or decreases. Hungary underperformed regarding service investments (stagnation), while, at least in European comparison, achieved reasonably good growth rates in industry and agriculture. It should be noted that there is no direct data from the Eurostat about the volume change of investments in the service sector *as a whole*, only regarding specific service branches; hence the cumulative volume indices of service investments presented in the chart above should be seen as rough estimates rather than definitive data.

Figure 1.15.

Volume of investments in the main branches in 2015 (2005=100)

Source: Eurostat
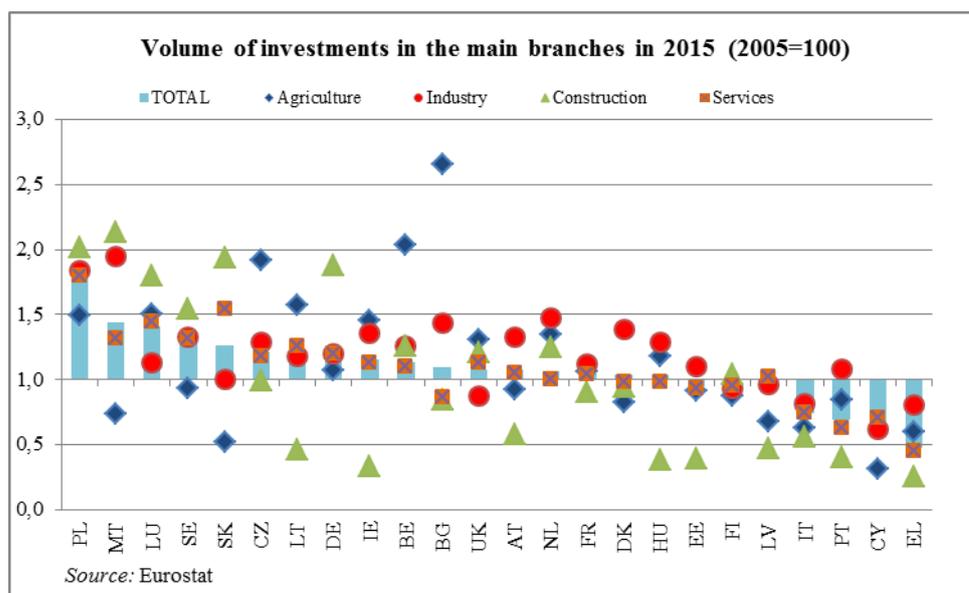
The *share* of the major industry sectors in investments shows the overwhelming dominance of the services sector, which is not very surprising, considering the predominance of this sector in the output in the economically developed countries. Bulgaria is the only member state where the total share of investments in agriculture, industry and construction together exceeded 50%, and this is not an indicator of the prowess of Bulgarian industry but a sign of economic underdevelopment. In a similar vein, industrial investments tend to have a larger share in the new member states, with the exception of tourism-dominated Cyprus. Not surprisingly, the Eastern European member states, are – with one exception – with the highest weight of manufacturing investments; Hungary is the fifth in the row.

Figure 1.16.

Share of main economic branches in investments in 2015 (%)

Source: Eurostat
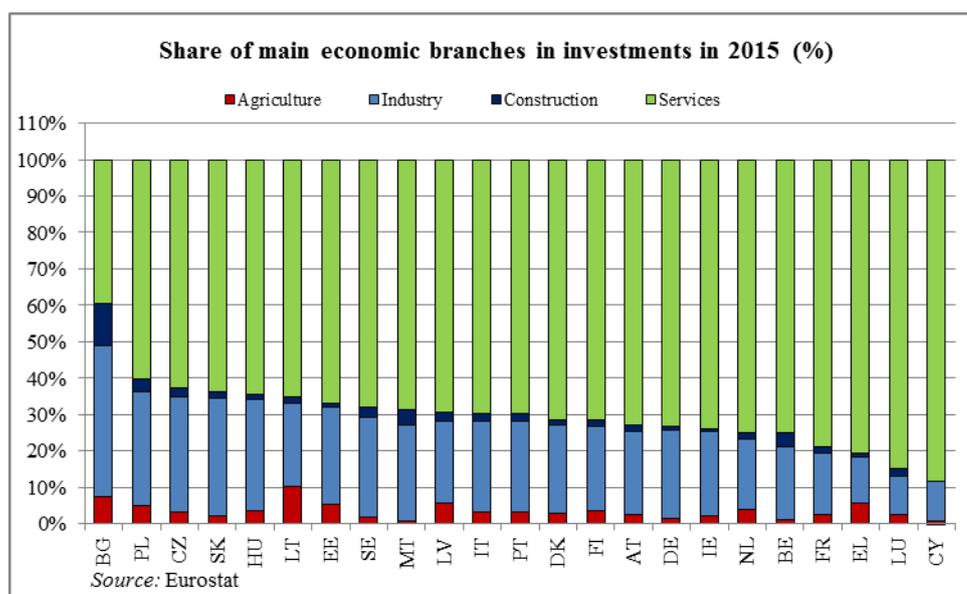
Even so, the evolution of manufacturing investments provides cues for the development of the productive capacities in a particular national economy, and it is useful to take closer look at the case of the regional competitors of Hungary. Unlike overall investments, manufacturing investments were not exactly substandard in regional comparison in Hungary. Due to a relatively strong growth performance in 2011-2013, the cumulative growth rate in Hungary was only second to the Polish growth rate. Clearly, the weak growth performance in overall Hungarian investments was not due to manufacturing investments (rather a result of stagnating investments in services and plummeting investments in construction sector). The hit during the crisis was less severe in Hungary than in the other selected countries, and the subsequent recovery was relatively buoyant. By contrast, manufacturing investments have never really recovered in Slovakia.

As can be seen from the charts below, a crucial part of the strong performance of Hungarian manufacturing investments was the rocketing automotive investments following the crisis. There was also an upturn – largely auto industry related – in the rubber and plastic industry in the past couple of years. This is slightly problematic since the auto industry – at least in its present (carbon-based) form – is largely an outgoing industry, and the heavy investments implemented in the recent years may backfire later. (Or, according to a more upbeat scenario, they may pave the way for new, electric transport-related investments.)

Figure 1.17.

Source: Eurostat

Source: Eurostat
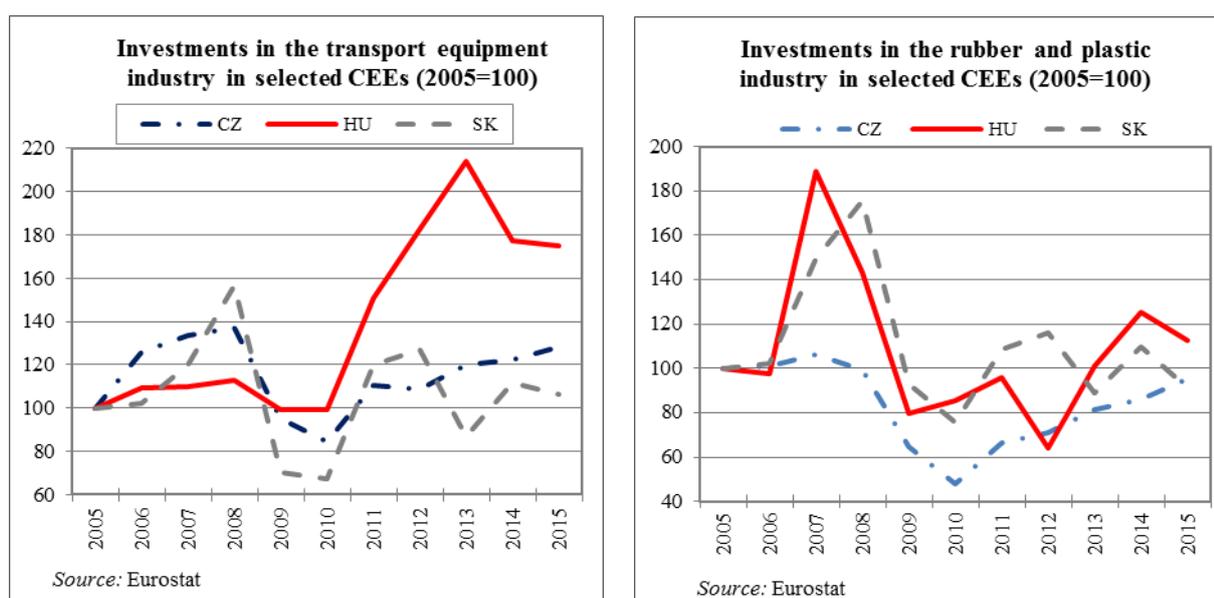
By contrast, a traditional Hungarian stalwart, the food industry, saw a stagnation of investments during much of the reference period, and it is not much of a consolation that two regional competitors did even worse. Also, the level of investments in the pharmaceutical industry, traditionally well developed in Hungary in regional comparison, remained below its 2005 level during the whole subsequent decade, which is disappointing. In this regard, the investment record was better in the Czech Republic and especially in Slovakia. These differences in the growth rates of pharmaceutical investment, however, are negligible compared to the fact that the (euro) level and the relative share of pharmaceutical investments in total manufacturing investments is still overwhelmingly higher in Hungary than in the two other countries.

Figure 1.18.
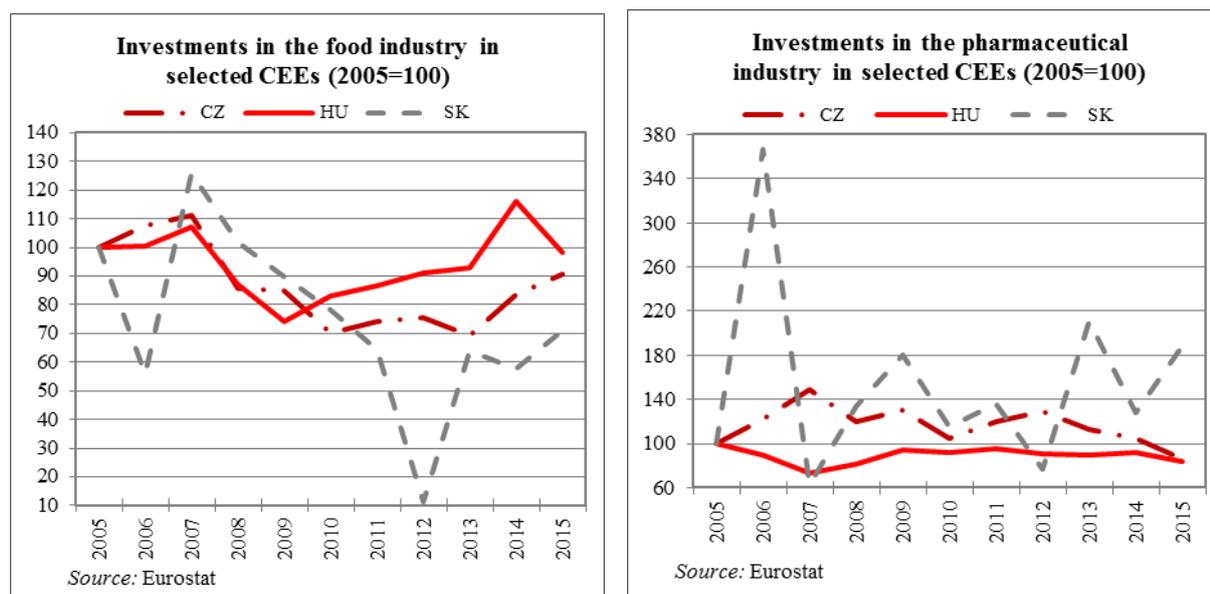
By contrast, the investments in the service sector grew spectacularly in Poland and substantially in Slovakia, failed to take off in Romania and the Czech Republic, and failed even to recover from the crisis hit in Hungary. If not for the investments in the area of public administration, defence, education, health and social services – which here, for the sake of convenience, was used as a proxy for the *public investment sector* – the growth record in Hungary would be even more anaemic. Among the Visegrad countries, Hungary was the only one that registered a fall of private investments during the reference period. (It is worth noting once more that the volume growth rates for investments in the overall service sector – and in the "private services" sector – are imprecise estimates, rather than definitive data.).

Figure 1.19.
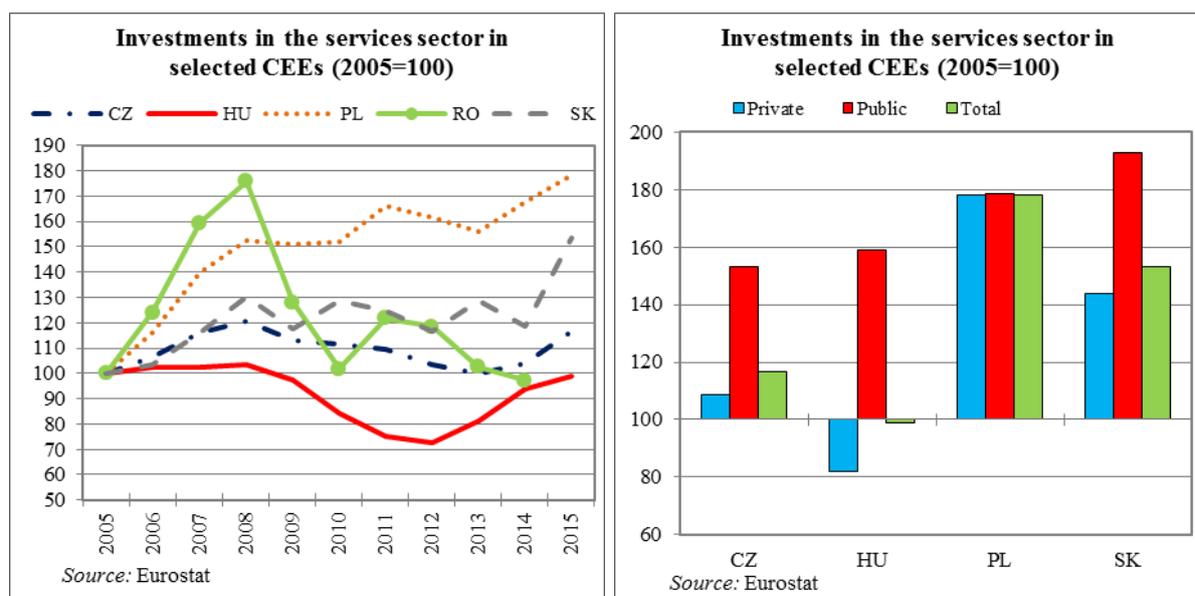
As to why private service investments underperform in Hungary, the chart below shows that *real estate investments* are the primary culprit – this category has the largest weight within private investments. But on top of the plunge in real estate investments – which is the

18

opposite of what is seen in the other Visegrad countries – investments in the trade and in the information-communication sector fell substantially as well.

Figure 1.20.
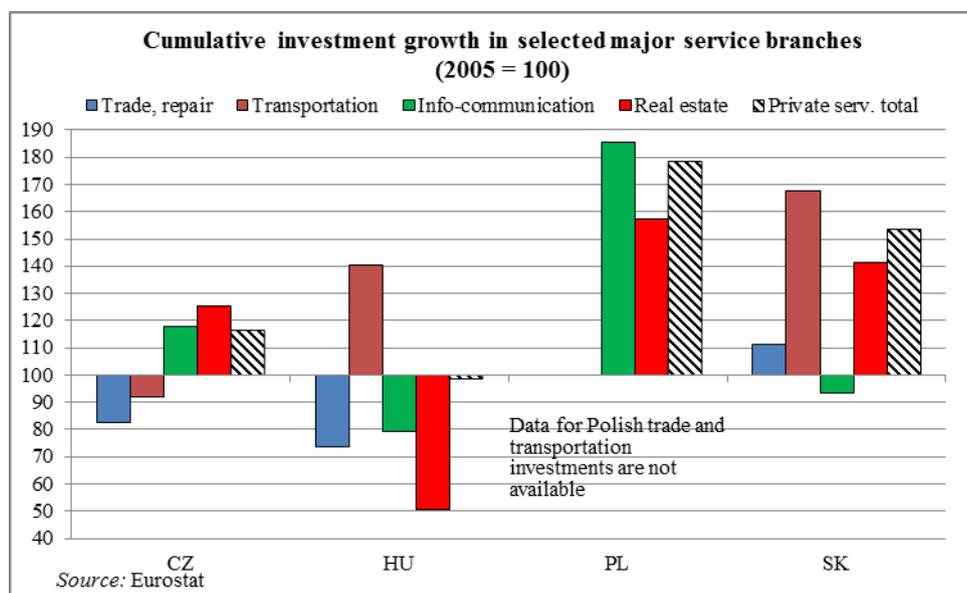
(Transport investments, fueled by the inflow of EU funds, were the only exception worth mentioning in the overall negative picture.) All three service branches are primarily dependent on domestic demand, which was extremely subdued in Hungary during almost the whole reference period. Besides, the trade and the communication sector was burdened by sector-specific taxes (and, in the case of the retail sector, by selective supervisory fees) that discouraged firms from investing.

On the whole, the subpar investment growth – in terms of breakdown by industry – was mostly due to a precipitous fall of investments in the construction sector and a substantial fall in private investments. On the other hand, the growth record in manufacturing investments, while far from stellar, was not particularly bad either in comparison with the whole EU or compared to the Eastern European new member states. Of course, the aggregate data may be one-sided – the investment performance may be more polarized within the Hungarian manufacturing sector, for example, than in other countries of the region. The clearly underperforming economic branches were mostly kept down by the very subdued domestic demand and, in certain instances, by the detrimental regulatory and tax environment.

1.4. The relationship between investments and EU-transfers between 2011 and 2016 Q2

In this section we present a brief analysis of the relationship between investment activity and the flow of transfers from EU-funds to Hungary in the period 2011-2016. At the time of writing, data on investments are available until Q3 2016 (source: Hungarian Central Statistical Office, CSO), but figures on EU-transfers (source: National Bank of Hungary, NBH) have been published only until Q2 2016. The latter statistics are presented by the NBH on an accrual (rather than cash-flow) basis, so, in principle, they can be compared with data on gross capital formation published by the CSO.

For the purposes of our comparison we use smoothed quarterly data on both investments (i.e., gross fixed capital formation, GFCF) and EU-transfers in percent of GDP. The method of smoothing is taking the average of the observations for the last quarter and the previous three quarters of the relevant variable relative to the average GDP of the last and previous three quarters. This type of moving average filters out short-term fluctuations in the quarterly data, it does not require seasonal adjustment, and the resulting time series can be considered as an indicator of the underlying developments characterising the variable considered.

We split total GFCF into that of government and the private sector. (The private sector includes both the business and the household sector, as separate data on GFCF of the two subsectors are not available on a quarterly basis.) As for EU-transfers, we review total transfers and capital transfers (designed for financing investment expenditures) separately; both are split into those received by the government and the private sector, respectively.

First we review the relationship between total GFCF on the one hand, and total and capital transfers, respectively, on the other. Next, we observe the relationships characterising the government and private sector separately. Finally we inquire whether there are any cross-relationships between developments in the government and private sector, and draw some conclusions.

As indicated above, all of the variables are expressed in percent of GDP, and four-quarter moving averages of the variables are applied for the analysis. It may be objected that this smoothing technique filters out the sharp increase in both investments and EU-transfers in 2015, flowed by a severe fall in both variables in 2016. However, by using the unadjusted data, the events of 2015-2016 would have an excessively strong influence on our findings, while our goal is to assess overall developments characterising the period 2001 Q1 - 2016 Q2.

1.4.1. EU-transfers and investments: total economy, government and private sector

Figure 1.21. shows the relationship between total investments and EU transfers (differentiating total from capital transfers) from two angles. The upper chart displays the movement of the variables between early 2011 and mid-2016, in order to indicate their relationship over time. The lower chart excludes the time dimension, and simply shows the relation between levels of the variables over the period observed.

The upper pane shows a modest association between investments and EU-transfers, the relationship getting close in 2013 (a significant rise in both) and at the end of the period (a sharp decline in both). Total and capital transfers from the EU move rather closely together;

their difference, on average was 2.2 percentage points of GDP, which increased to 3 pp. in 2014, but declined later on.

The lower pane shows that the association between total investments on the one hand, and EU transfers on the other, does not depend on the choice between total or capital transfers from the EU, as the R2 is close to 0.6 in both cases. It is worth noting that the lower pane displays a simple association between investments and EU-transfers, and variables on the horizontal/vertical axis do not imply any causal relationship. Looking at the actual line of causation, the results of the regression suggest that, on average, a 1 percentage point rise/fall in total (capital-) EU-transfers is associated with 0.73 (0,83) increase/fall in total GFCF over the period considered in our analysis.

Figure 1.21. The relationship between total investments, total transfers and capital transfers from the EU (in percent of GDP; 2011-2016, four-quarter moving average)

Left pane: the movement of the variables over time; right pane: the relationship between the level of investments and EU-transfers
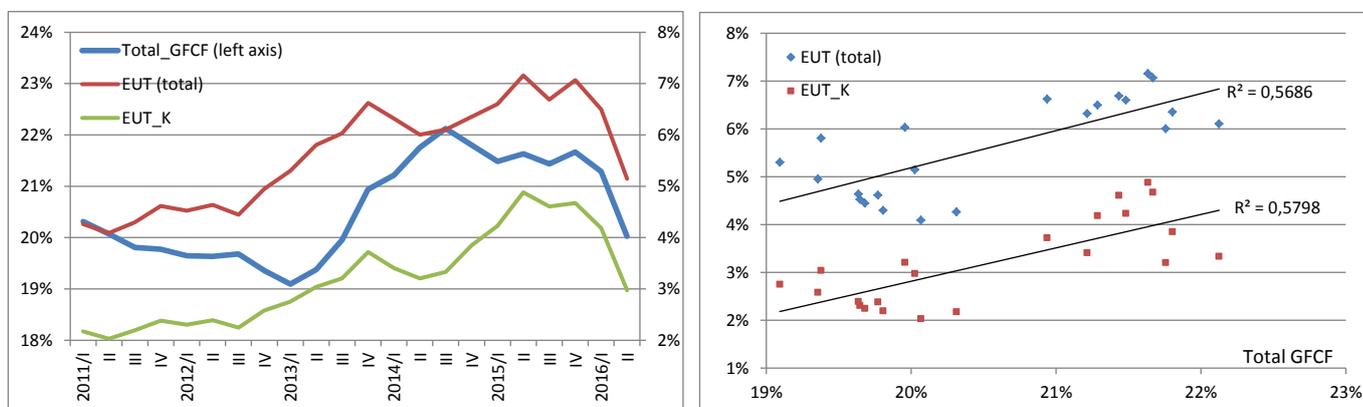
Notations: Total_GFCF: total gross capital formation; EUT (total): Total EU-transfers; EUT_K: EU capital transfers

Figure 1.22. shows the same type of data and relationships as Figure 1; the only difference is that the figure focuses on developments in the *government sector*. The left chart shows the co-movement of flows from the EU-funds seized by the government sector and investments is this sector. There is only one period in which a difference occurs: in 2004. Otherwise, the series are closely related, and the correspondence between the decline in available EU-funds and the fall in public investments at the end of the period can clearly be observed. The right pane reinforces the finding of a close correspondence (R2 = 0.8), and suggests that the distinction between total and capital transfers to the public sector, respectively, is not really important regarding their relationship with government investments. (The results of the regression suggest that 1% percentage point increase in total EU-transfers to the government is accompanied by 1.3 pp increase in government investment; the results for capital transfers to the government are almost the same.)

Figure 1.22. The relationship between government investments, total transfers and capital transfers to the government sector from the EU (in percent of GDP; 2011-2016, four quarter moving average)

Left pane: the movement of the variables over time; right pane: the relationship between the level of investments and EU-transfers
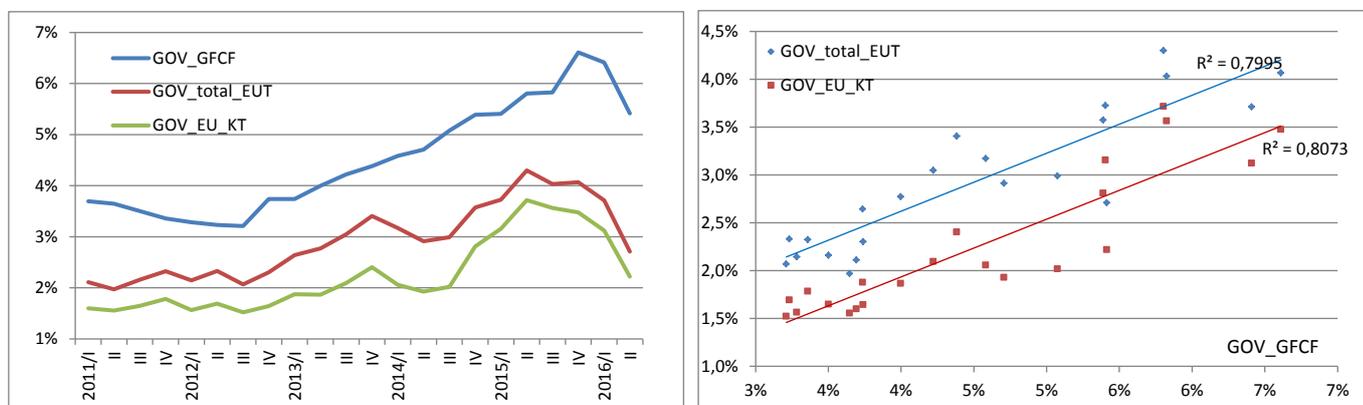
Notations: GOV_GFCF: government GFCF; GOV_total_EUT: government total EU-transfer; GOV_EU_KT: government EU-capital transfer

Finally, we consider the relationships discussed above, focusing at the private sector (see Figure 1.23.).

Figure 1.23. The relationship between private investments, total transfers and capital transfers to the private sector from the EU (in percent of GDP; 2011-2016, four quarter moving average)

Left pane: the movement of the variables over time; right pane: the relationship between the level of investments and EU-transfers
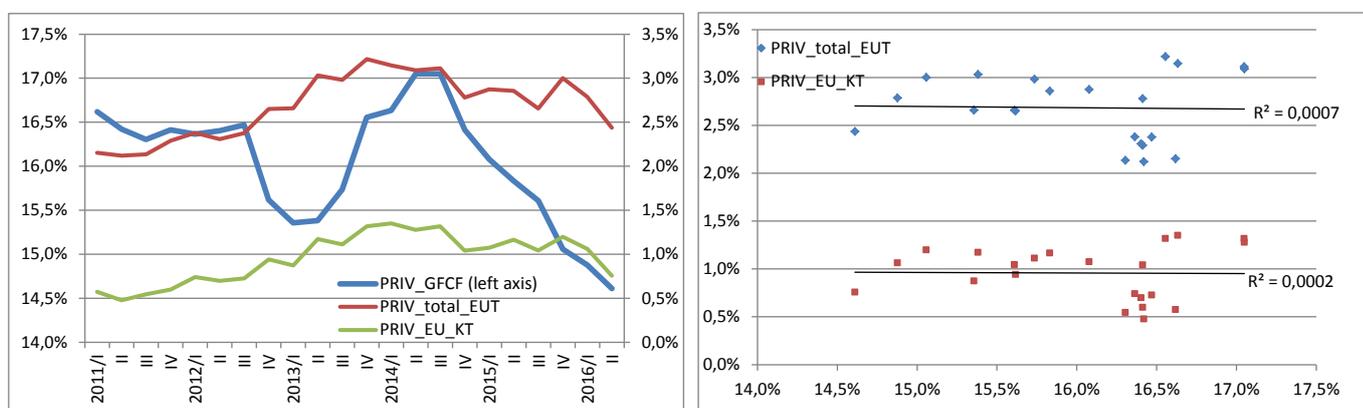
Notations: PRIV_GFCF: private GFCF; PRIV_total_EUT; total transfers to the private sector; PRIV_EU_KT: EU-capital transfer to the private sector

Both the left and the right chart of Figure 1.23. clearly indicate that, in sharp contrast with the government sector, there is no relationship whatsoever between EU-transfers to the private sector and investments in this sector. In the following section we review the main differences between the two sectors and the possible relationships.

1.4.2. Relationships between developments in the government and the private sector

The three figures below demonstrate interrelationships between the variables discussed in the foregoing, unaddressed so far. Figure 4 shows that government investments are strongly positively related to both total and capital transfers from EU funds, but private investments are unrelated (or negatively related) to these transfers.

Figure 1.24. The relationship between total EU-transfers (left pane) and capital transfers (right pane) and government vs. private investment (in percent of GFDP)
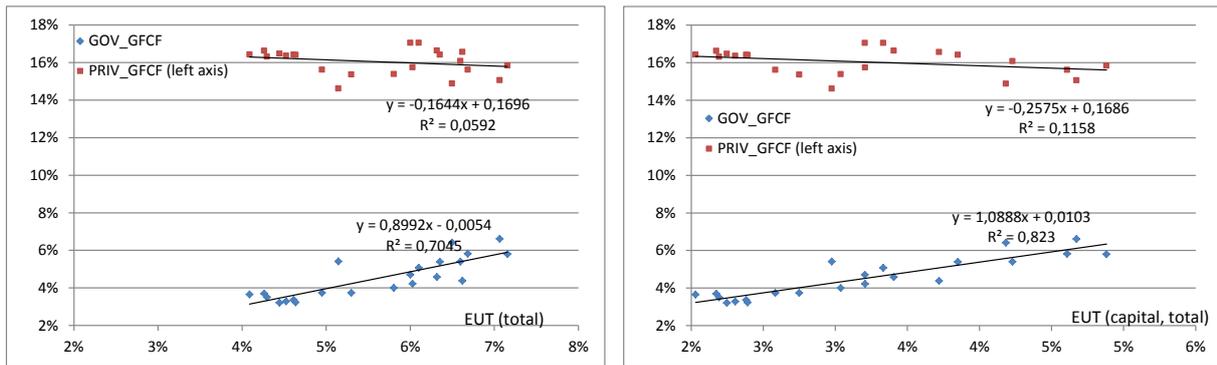
Figure 1.25. shows that total GFCF was mainly affected by changes in government GFCF. Private GFCF had a minor effect; the decline in the latter began in 2014.

Figure 1.25. The relationship between total, government and private investments (in percent of GFDP)
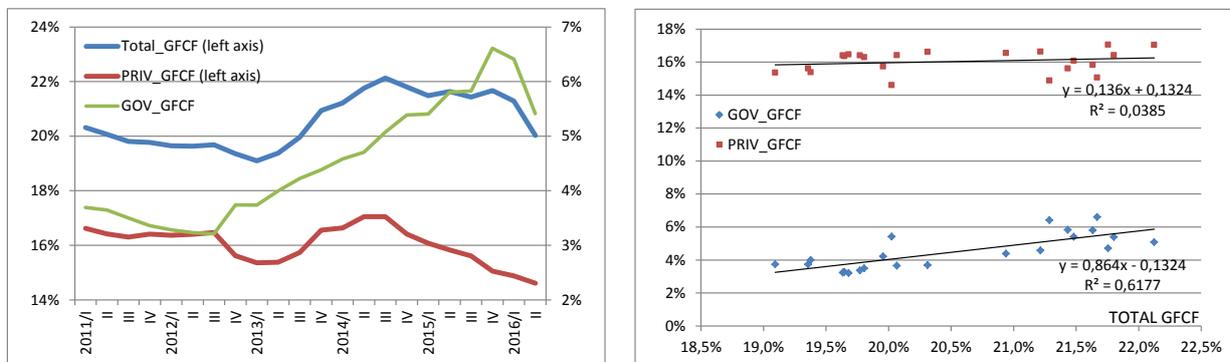
Finally, Figure 1.26. shows that there was a negative relationship between private and public investments during the period analysed.

Figure 1.26. The relationship between government and private investments
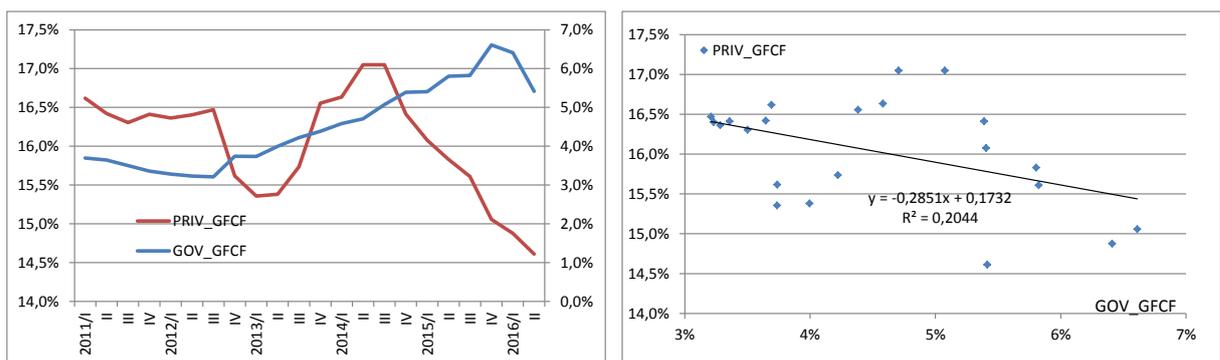
In conclusion, the correlation matrix between the variables discussed in the foregoing is shown in Table 1.

Table 1.1. Correlation matrix: Gross capital formation; total transfers and capital transfers from EU-funds: total economy, the government and the private sector

	Total_GFCF	GOV_GFCF	PRIV_GFCF	Total_EUT	GOV_total_EUT	PRIV_total_EUT	Total_EU_KT	GOV_EU_KT	PRIV_EU_KT
Total_GFCF	1,00								
GOV_GFCF	0,79	1,00							
PRIV_GFCF	0,20	-0,45	1,00						
Total_EUT	0,75	0,84	-0,24	1,00					
GOV_total_EUT	0,76	0,89	-0,32	0,96	1,00				
PRIV_total_EUT	0,57	0,54	-0,03	0,84	0,67	1,00			
Total_EU_KT	0,76	0,91	-0,34	0,96	1,00	0,67	1,00		
GOV_EU_KT	0,70	0,90	-0,42	0,86	0,96	0,45	0,96	1,00	
PRIV_EU_KT	0,64	0,59	-0,01	0,87	0,72	0,99	0,72	0,51	1,00

Notations: see the charts above

Our findings can be summarised as follows.
1. There is a positive relationship between EU-transfers and investments.
2. Since total transfers and capital transfers from EU-funds are very closely (positively) associated with each other, the distinction between the two types of transfers is irrelevant regarding the relationship between EU-transfer and investments.
3. There is a very close positive relationship between EU-transfers and government investments.
4. There is no relationship whatsoever between EU-transfers to the private sector and private investments.
5. There is negative relationship between total (and capital) EU-transfers to the whole economy on the one hand, and private investments, on the other. The negative relationship is the strongest between capital transfers to the government and investments in the private sector.
6. There is a considerable negative association (R =-0,45) between private and government investments. While there is no straightforward explanation for the negative relationship, the following possibilities have to be considered:
    - crowding out;
    - the government increases/decreases its investments in face of changes in private investments (anti-cyclical policy: most unlikely, since in the period observed overall fiscal policy was expressly procyclical);
    - pure coincidence (again, very unlikely).

Further research is necessary to clarify whether the flows from EU-funds (which clearly boosted government investments) did actually have a negative impact on private investments, and if so, what could have been the channels through which private investments may have been affected.

The bottom line of our analysis is that public investments have been positively influenced by EU-transfers, but the effect of these transfers on private investments is, to say the least, rather ambiguous.

2. Investment activity of the business sector, according to company data

In addition to the analysis of macro data, important in-depth insights regarding the investment activity of private firms can be gleaned by examining of micro level data about the business sector. Company data makes possible to look at the evolution of investment activity of various segments of firms – by size, ownership structure and other dimensions – separately, to obtain a deeper understanding of the determinants of company-level investment decisions.

The CSO primarily uses its own surveys to produce the macro-level investment data and relies on corporate tax declarations only as auxiliary data sources.[2] This chapter, on the other hand, is entirely based on the anonymized dataset based on the tax declaration of the firms that use double-entry accounting. Our aim is to glean aspects of business investment that are not included in the publicly available investment statistics.

It should be noted that the micro level investment numbers – aggregated from the tax declarations – are different from the macro level statistical investment data. This is due to – among other factors – the fact that the micro level investment data refers to a different concept of investments. The CSO data aims at capturing the real investment activity (outlays) during the given year, as flow data, whether that activity is connected to investment projects finished that year or not.

The firm-level investment data, on the other hand, show the magnitude of investments that were finished and whose output – that is, the newly acquired capital asset – was capitalized (i.e. introduced into the company balance sheet as fixed capital asset) during the year in question. This *total capitalized value* will appear as stock data in the balance sheet of the given year even if the bulk of the related investment outlays were spent in the preceding years. includes the investment outlays connected to the investment project in question even if they were spent during the previous years; At the same time, the outlays spent on an unfinished investments during the reference year will not appear in this type of investment figure, irrespective of what proportion of the related investment costs were spent during the reference year. There is another item in the company balance sheets – unfinished investments – but this item also does not show the investment outlays spent on unfinished projects specifically in the reference year but the total related outlays cumulatively spent in any preceding year.

We deal with this latter indicator – unfinished investments – only shortly and at an aggregated level. (See chart 2.1.) Apart from this, the subsequent analysis will focus on *finished* investments (the magnitude of capitalized fixed assets). Therefore, hereinafter in this chapter, *under the term „investment" or „investment activity" in a given year we mean the total value of investment projects that were finished (and capitalized) in that year*.

Another difference between the statistical and firm-level data is that for individual firms, a purchase of a capital asset that has already been once used/capitalized by another firm or person is an investment, while in a macroeconomic sense it is not.

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2 *Stadat tables* (https://www.ksh.hu/engstadat: see 3.3. „Investment" and 6.3.3. „General economic indicators") and the *Dissemination database*: see „General economic indicators" – Business units and nonprofit organisations, investments – Investment,
(http://statinfo.ksh.hu/Statinfo/themeSelector.jsp?page=2&szst=QB)

We defined several segments within the population of double-entry bookkeeping companies according to company size, the share of foreign ownership, the share of exports and also according to their sector of activity (NACE Rev. 2, section-level classification[3]). We looked at the structural patterns and changes between 2008 – the last year preceding the outbreak of the acute crisis – and 2015[4]. We examined the *frequency* and the *value* of investment projects, their distribution between the various categories of firms.

Figure 2.1.

Number of investing companies as a percantage of all companies

Legend:
- Companies having uninished investments at the end of the year
- Companies that capitalized new fixed assets during the year
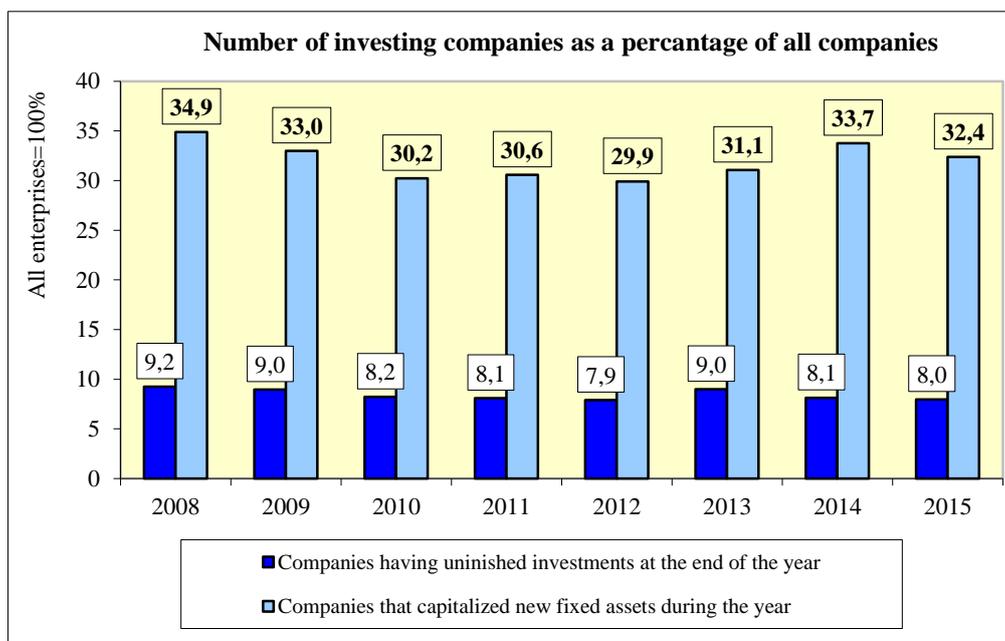
The crisis and the associated lack of demand brought about a fall in investment activity that is shown in the *frequency* data: while in 2008 34.9% of enterprises reported any investment, this ratio decreased to 30.2% in 2010 and to 29.9% in 2012. (See Figure 2.1.) The subsequent recovery in 2013-14 came to a halt in 2015, with a decrease of the said ratio from 33.7% to 32.4%. This is roughly in line with the macro-level statistical data. A more interesting aspect of the aggregate micro-level frequency data is that the share of enterprises that reported *ongoing (unfinished) investment projects* in their year-end report remained below 10% during the whole period. The low occurrence of unfinished investments suggests that the smaller enterprises – the bulk of the enterprise sector – tend to engage only in small-scale investment projects that can be completed within a year; they shy away from investments that would take more than one year to implement.

The relative weight of enterprises that report investment activity tends to *grow along with company size*. The respective activity ratios are 83-88% for large enterprises, 78-80% for medium enterprises and 67-70% for small enterprises during the reference period. The respective ratio for micro-enterprises is even lower, 36-42% (see Figure 2.2.). But the *firms without any employees* are the group that pulls down the average rate of investment activity (that was shown in chart 2.1.) most severely: among them, only a small minority, about 12%

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3   The Hungarian identical version of Nace Rev. 2 is „TEÁOR'08". Hereinafter we will refer to the Hungarian acronym.

4   Another reason of choosing the year 2008 as a starting point is the limited comparability between the the data concerning the pre-2008 period and the data concerning the years afterwards, due to a change of the TEÁOR nomenclature in 2008.

at average, reported investment during the years between 2008 and 2015. It is also worth noting that while the investment activity rate of small and micro enterprises fell the most severely from 2008-09 to 2010-12, they also recovered the most spectacularly by 2014: the average rate of activity of both small and micro enterprises was higher in 2014-15 than in 2008-2009, unlike in the case of medium and large enterprises. This is, however is hardly the indicator of overall health of this segment of enterprises, rather the result of the EU-funded support projects that specifically targeted the smaller enterprises..

Figure 2.2.
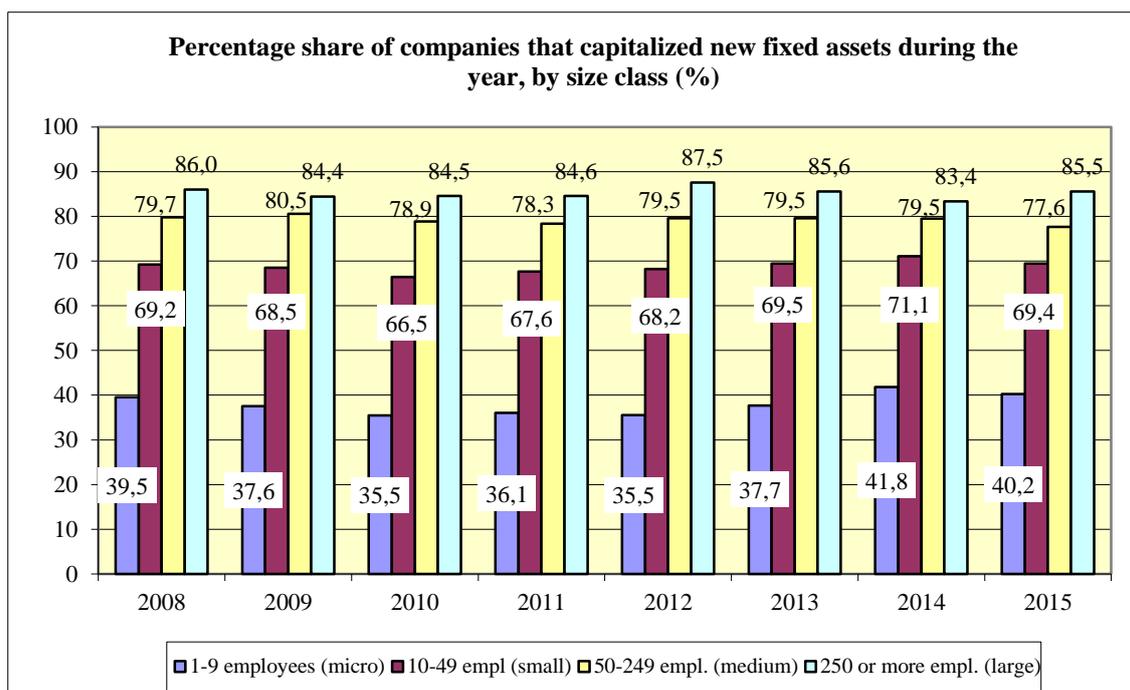
The breakdown by *basic ownership category* (domestic vs. foreign majority ownership) does not reveal major differences in investment activity, although some difference exists: the rate of domestic-owned firms finishing investments was somewhat higher in every year than in the case of foreign-dominated firms. (Table 2.1.) The difference, however, remained modest: it fluctuated between 1.4 and 4.4 percentage points between 2008 and 2015.

Table 2.1.: The proportion of firms capitalizing new capital assets, breakdown by ownership categories, %

Ownership	2008	2009	2010	2011	2012	2013	2014	2015
Domestic majority ownership	35.7	33.8	31.1	31.3	30.9	32.1	35.0	33.5
Foreign majority ownership	31.3	31.3	28.6	28.9	29.5	29.2	30.5	30.2

Sales destination, on the other hand, is definitely relevant. The investment activity is apparently much higher among exporters (firms whose sales revenues come, at least in part, from external markets) than among non-exporters: about two-third of the former reported capitalization of new assets, while among the latter, the respective proportion was less than one-third between 2008 and 2015. (Table 2.2.) This means that export is one of the main determinants of investment decision, for several reasons. First, exporters tend to be a priori

„better" than non-exporters, able to provide products/services that attract demand abroad, or achieving cost effectiveness that enables them to compete internationally. Second, competing in the international markets makes constant development, technological renewal – that is, investments – necessary. Failing to invest means losing position in – or eventually being eliminated from – harsh global competition.

Table 2.2. Proportion of firms capitalizing new capital assets among export and non-exporter enterprises %

Sales destination	2008	2009	2010	2011	2012	2013	2014	2015
Non-exporter	32,3	30,4	27,5	27,8	27,0	28,0	30,7	29,2
Exporter	65,8	64,1	62,1	63,1	63,2	64,4	66,1	64,7

Combining the classification criteria cited above – size, ownership, sales destination – and adding a fourth dimension – economic industry – highlights the very high level of investment activity between *exporting large manufacturing firms*, either domestic or foreign dominated: in 2015, the proportion of firms capitalizing new assets was 91%.

Turning from the frequency data to the *value share* data, manufacturing and transportation-storage displayed high propensity to invest. These two economic industries are the leaders in terms of the cumulative value of real investments during 2008-2015, and also in most of the individual years. (See Figure 2.3. that shows the industries in which the total value sum of finished investments during the reference period surpassed HUF 500 billion.)

Figure 2.3.

The share of the top 12 industries within overall capitalized real investments between 2008-2015 (%)
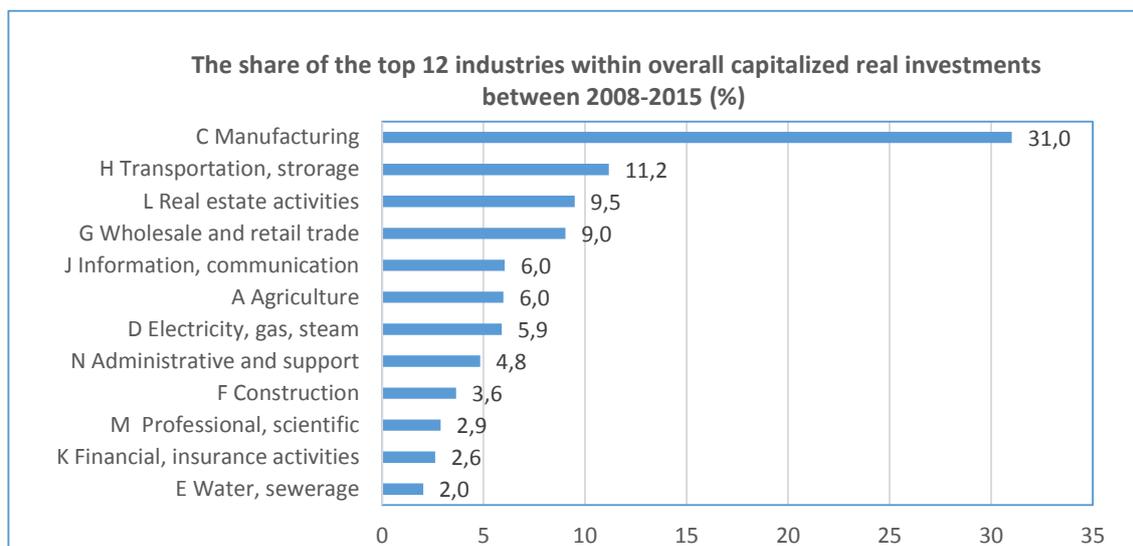
Manufacturing occupied the leading position in every single year during the reference period, with its share fluctuating between 23-41%. As for the other industries, transportation-storage, real estate activities, wholesale and retail trade, and information-communication made into the TOP 5 of the reference period as a whole. (See chart 2.3.) (There is some difference between the micro data above and the statistical data on this count: the CSO data suggests a less prominent share of info-communication and a more prominent share of the water and sewerage sector.) The share of investing companies in transportation-storage bottomed out in 2012, but recovered spectacularly in 2014-15, primarily due to the EU-funded megaprojects. The real estate sector went through an uninterrupted decline of its relative occurrence of

investment activity from 13.5% in 2008 to merely 6.7% in 2014, which was a result of combined recession in the housing and commercial property segments. 2015 saw a slight recovery of real estate investments, which is likely to continue in the subsequent years.

Table 2.3.: Share of industries within the combined value of capitalized investments in the top ten industries, %

(listed in a decreasing order of average share in 2008-15)

Industries (with TEÁOR codes)*	2008	2009	2010	2011	2012	2013	2014	2015	*2008-2015*
C Manufacturing	23,7	24,1	28,8	27,5	35,9	41,2	33,2	31,6	31,0
H Transportation, storage	11,0	11,6	8,6	11,0	7,9	8,0	15,6	13,5	11,2
L Real estate activities	13,5	12,3	11,2	9,1	8,6	7,6	6,7	8,3	9,5
G Wholesale&retail trade	10,2	9,7	9,6	9,3	9,1	8,3	7,7	9,0	9,0
J Information, communication	5,2	3,8	6,3	5,2	7,4	7,4	8,0	4,6	6,0
A Agriculture	5,1	6,9	5,5	5,8	6,5	5,7	6,4	5,9	6,0
D Electricity, gas and steam	5,3	6,4	8,7	11,9	5,6	4,2	2,8	4,6	5,9
N Administrative and support service	6,4	5,5	3,0	3,9	4,0	3,8	7,0	4,1	4,8
F Construction	4,8	4,3	5,1	3,0	3,0	2,3	3,1	3,9	3,6
M Professional, scientific activities.	2,1	3,0	2,6	2,7	2,9	2,7	2,5	4,4	2,9
Listed industries total	87,4	87,7	89,4	89,4	90,9	91,3	93,2	89,9	90,0

*The table does not include the following industries: financial activities; water supply-sewerage-waste management; accommodation and food service; mining; human health and social work; arts&entertainment; education; other service activities; households; extraterritorial organizations.

The yearly shares of the individual industries within the overall value of reported finished investments fluctuated strongly in several industries during the reference period. This is not just because of the changes in the overall economic environment, but also due to the impact of individual large-scale investment projects. This effect can be especially strong in smaller economies, such as in the Hungarian economy. In 2012-2013, for example, the spectacular rise in the share of manufacturing investments was a result of the fact that a few large investments (at Mercedes-Benz, Audi) were capitalized and became operational. Yet, as can be seen from Table 2.3, the outstanding share of manufacturing in real investments is not just a result of the temporary impact of automotive investments – in fact, the share of manufacturing was tendentially rising even before these megaprojects.

Within manufacturing, road transport equipment (motor vehicles) commanded an outstanding share of average 31% at average in 2008-2015. (See Figure 2.4.) Automotive investments are trailed – with a sizeable lag – by manufacture of fabricated metals, manufacturing of food products, rubber and plastic industry, and the chemical industry. Considering, however, that much of the activity of metal industry and the rubber industry is linked to the automotive sector, it can be stated that the automotive production chain as a whole is responsible for at least 45% of manufacturing investments.

Figure 2.4.

The share of manufacturing branches within total manufacturing investments between 2008-2015 (%)

Branch	Value
29 Motor vehicles, trailers, semi-trailers	31,0
25 Fabricated metal products	8,2
10 Food products	7,9
22 Rubber and plastics products	7,5
20 Chemicals and chemical products	6,7
26 Computer, electronic and optical pr.	5,1
28 Machinery and equipment	5,0
21 Pharmaceuticals	4,3
19 Coke, refined petroleum products	3,6
24 Basic metals	2,8
23 Other non-metallic mineral products	2,7
27 Electrical equipment	2,7
11 Beverages	2,1
32 Other manufacturing	1,9
17 Paper and paper products	1,9
33 Repair&installation of machinery	1,3
18 Printing and reproduction of recorded	1,3
16 Wood&products of wood, except furn.	1,1
30 Other transport equipment	0,8
31 Furniture	0,7
13 Textiles	0,6
12 Tobacco products	0,4
14 Apparel	0,3
15 Leather&related products	0,3

Firm size is clearly a major determinant of investment activity: the largest chunk of overall investments (new asset capitalizations) belonged to large enterprises in every year within the reference period (see Figure 2.5.). The share of large enterprises was the lowest in 2009 (35%) and rose continually afterwards until the peak in 2013 – clearly they were less affected by the protracted stagnation than the smaller firms. Large enterprises reported *more than 50% of total business investments* in 2013 and 2014. The leading role of large enterprises was primarily due to manufacturing investments: in 2013, as much as 77% of manufacturing investments belonged to large enterprises. Within manufacturing, large enterprises are particularly prominent in the automotive sector: *98%* of automotive investments belonged to large enterprises in the „gung ho" year of 2013. Not surprisingly, the degree of concentration of output largely determined the concentration of investments as well.

Figure 2.5. Investments by the number of employees (firm size class) in the enterprise sector total and in manufacturing (%)

ALL ENTERPRISES

Year	0-9 (micro)	10-49 (small)	50-249 (medium)	250 or more (large)
2008	25,7	20,1	17,7	36,5
2009	26,8	18,3	19,8	35,2
2010	17,7	18,6	22,2	41,5
2011	17,0	20,6	17,8	44,6
2012	16,7	17,1	20,9	45,3
2013	14,6	14,9	16,2	54,3
2014	17,8	15,2	15,9	51,0
2015	18,0	21,4	16,9	43,7

MANUFACTURING ENTERPRISES

| Year	0-9 (micro)	10-49 (small)	50-249 (medium)	250 or more (large)
2008	4,6	12,7	20,9	61,8
2009	4,1	10,0	28,0	57,9
2010	4,2	11,4	25,6	58,8
2011	5,2	10,2	19,9	64,7
2012	4,3	8,6	21,9	65,3
2013	2,9	7,0	13,2	76,8
2014	3,4	8,3	20,1	68,2
2015	3,7	9,5	19,9	66,9

Figure 2.6. Investments by ownership structure in the enterprise sector total and in manufacturing (%)
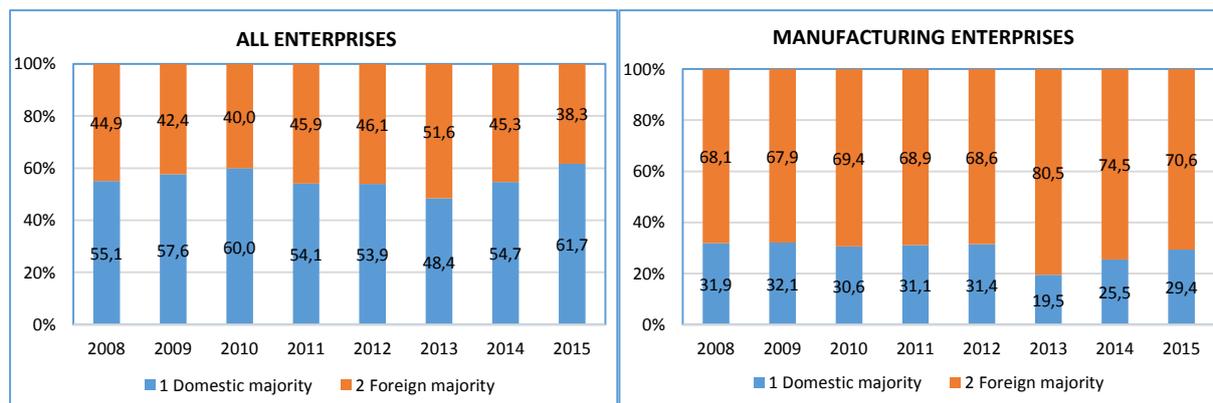
The share of *foreign-dominated firms* fluctuated between 38% and 52% during the reference period. Their share rose above 50% only for one year – 2013 – mostly due to the automotive investments (see the left-hand chart above Figure 2.6.). Within manufacturing, on the other hand, foreign-dominated firms consistently dominated the scene, with their share temporarily rising above 80% in 2013 and remaining above 70% even after the completion of the said wave of automotive investments. The slight increase in the share of domestic-owned enterprises in 2014-2015 (just as the slight relative retreat of large enterprises at the same time) may have much to do with the largely SME-centered EU-funded support schemes.

The high share of foreign-owned firms in intangible capital has been confirmed by the report of the OECD study, too[5]. Based on the OECD database on the Activity of Multinational Enterprises (AMNE) the study came to the results that in 2012 the share of multinational firms' intangible capital investments in GDP has been the highest in Hungary (6%) among 22 countries examined. Similarly high share of multinational companies' intangible capital investment in GDP can be observed in Slovakia (5.9%), in Ireland (5.3%), in Norway and in the Czech Republic (4.7%).

**Figure 2.7. Investments by sales destination in the enterprise sector total and in manufacturing (%)**
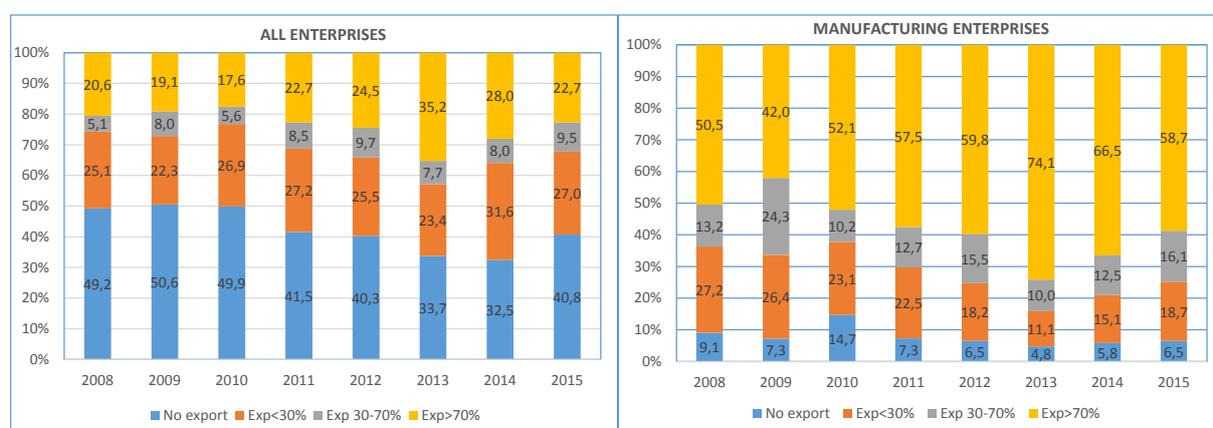
Except for the first three years of the reference period, the share of *partially or dominantly*

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[5] OECD: Bolstering business sector investment (2016). In: OECD Economic surveys: Hungary 2016. pp 59-91. Paris. See: Figure 1.10. http://www.oecd.org/hungary/economic-survey-hungary.htm

export-oriented enterprises within the overall value of capitalized newly acquired assets was clearly above 50%. The share entirely domestic oriented firms was on the decrease until the low point in 2014 (33%), with some rebound in 2015. In the case of manufacturing firms (see the right-hand chart above) the share of non-exporting enterprises was almost negligible in every year save one, 2009, which saw exporting firms putting a brake on development projects, as a reply to the perceived drastic deterioration of their sales outlook.

Figure 2.8.

Manufacturing investments by sales destination in the branches with the highest investment activity (2008-2015 average, %)
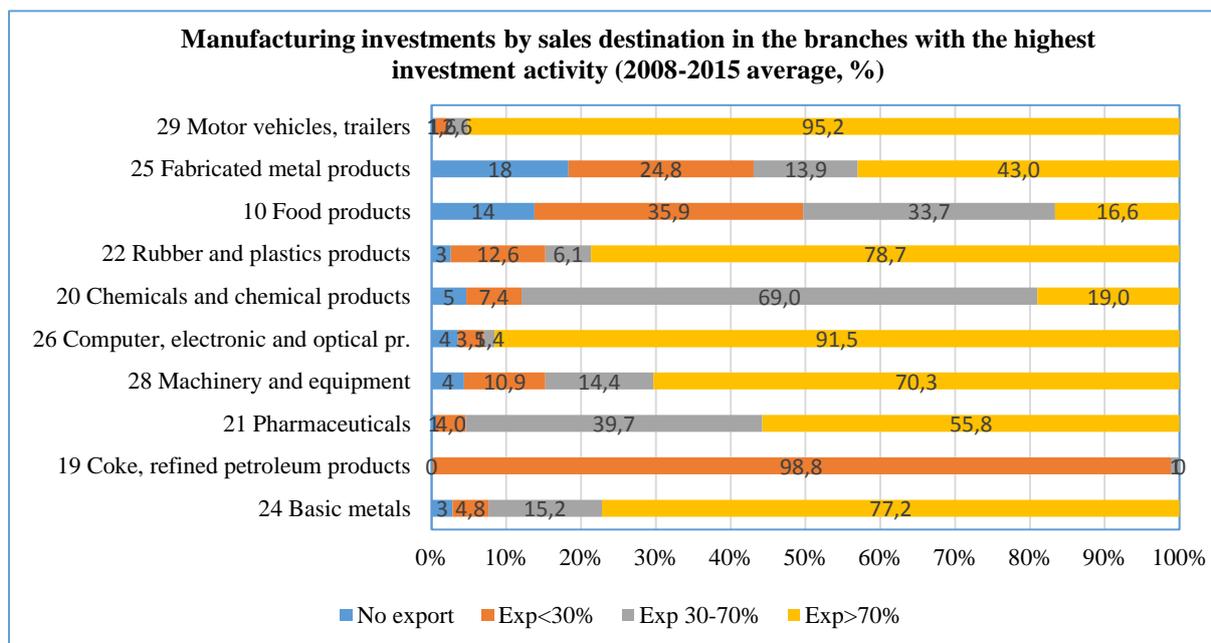
Particularly high is the share of exporting companies within capitalized investments in manufacturing: during the reference period, the lowest level (85%) was observed in 2010, while the highest level in 2013 was as high as 95%. The overwhelming majority of large-scale manufacturing investments took place at (more or less) export-oriented firms.

Out of the total finished manufacturing investments by all the 33 manufacturing branches, the average share of the top ten manufacturing branches was definitely high, 83% in 2008-2015. Out of the top ten branches, food industry and manufacturing of fabricated metals were the only ones where non-exporters had a relatively sizeable share within overall investments in 2015 (14 and 18%, respectively). In every other manufacturing branch, the share of exporters exceeded 90% in the value of finished investments. (In six branches, more than half of investments were implemented by firms that export more than 70% of their output.)

As shown by the Figure 2.8. the manufacturing investments are highly *concentrated*. In the average 2011-15, the 10 biggest investors' share has been almost 80 percent in total investments of the branch. The rate of concentration is the highest in pharmaceuticals and in 2 branches of the automotive industry. In these 3 branches, more than 90 percent of investments were implemented by the 10 biggest investors. At the end of the list, there are the food and beverages industry and the so called light industries: textile, leather, wood, i.e. industries with the lowest share in total investments (as can be seen in figure 2.4.). In these industries the share of large companies is the lowest what might be related to the low concentration of investments.

Figure 2.9.: The share of the 10 bigger investors in total investments of the branch in the average of 2011-15
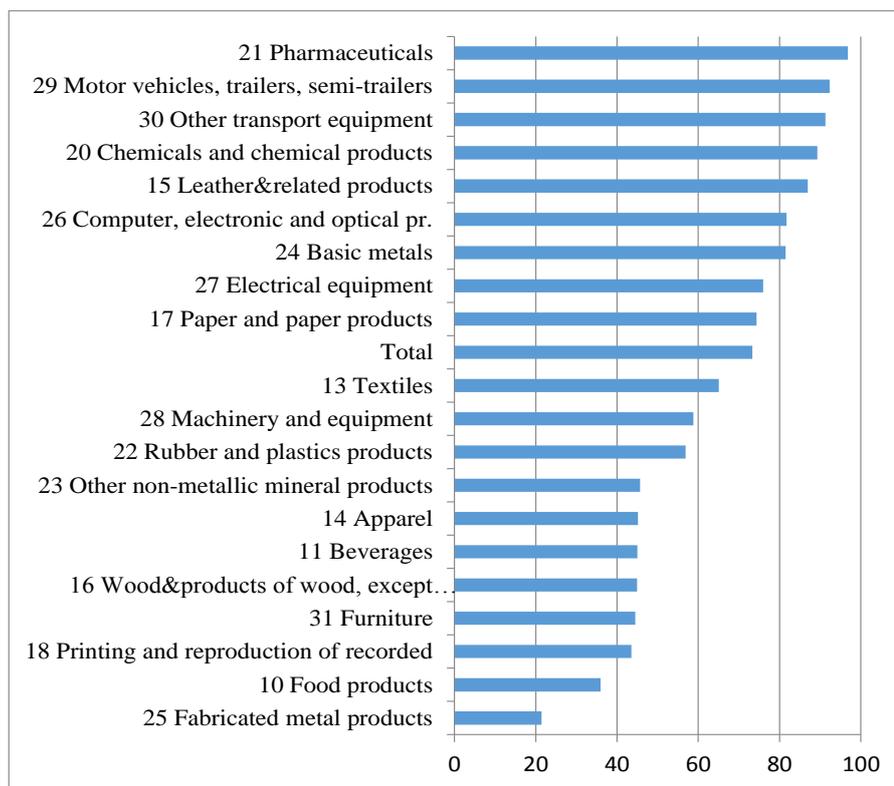
3. The relation between national competitiveness and private investments

When it comes to investment decisions there are several factors to be considered by the private investors. Beside firm specific factors these usually include business and macro dimensions as well. Uncertainty is one of the most important elements of investment decisions that should be considered by the entrepreneurs[6]. An investment is always conducted beside the highest desired risk taken by the company. In other words the level of investments also depends on uncertainty. It is hard to tell how many risks are considered before investments decisions mainly because they cannot be quantified. Thus, all uncertainties are expressed under one risk (Aharoni, 1966). Risks are usually unpredictable and cannot always be expressed in monetary terms. A risk could be not just financial loss but a gap in output as well (that is, shrinkage of productivity). Uncertainty is always subjective and it varies from investor to investor thus, it is not possible to model individual risk assessment. At the same time there are certain indictors to evaluate the average uncertainty in an economy.

Indicators of competitiveness reflect almost all "soft"[7] factors affecting the future growth of an economy. On average it is true that the lower the competitiveness, the lower the growth potential. The lower growth potential, the lower the value added and low value added in an economy reduces the average return on investments. Low performance of the economy rises the uncertainty not just in investments decisions but in the daily business life as well. Based on the definition of the World Economic Forum competitiveness is the batch institutional, economic policy and other growth-related factors that affect productivity in an economy. The following flowchart represents the assumed link between competitiveness, uncertainty, investments and growth:

Figure 3.1.: The relation between competitiveness and private investments
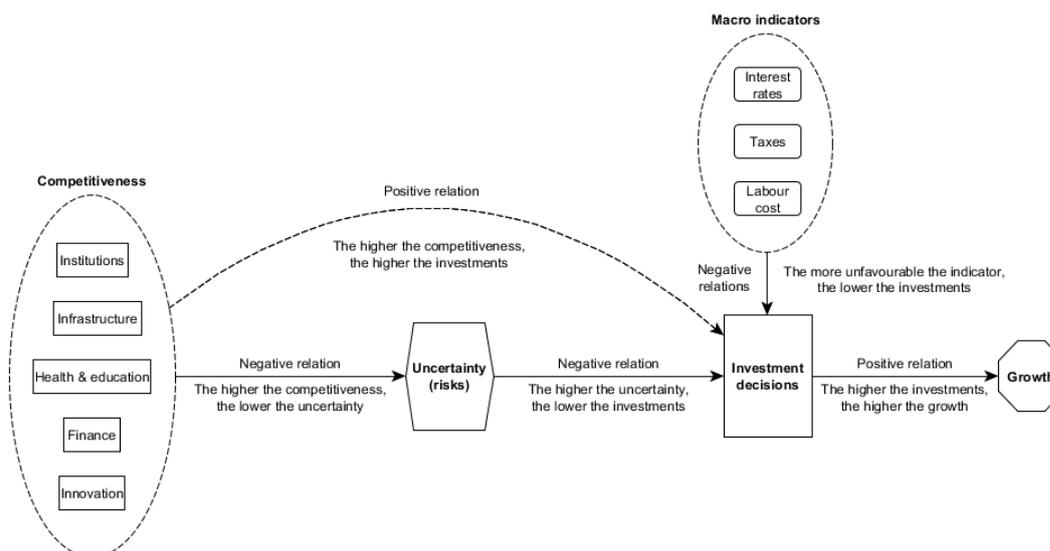
Source: Kopint-Tárki

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[6] According to *Aharoni*'s (1966) famous study on foreign investments uncertainty is the third most important factor that is considered by businessess. See Aharoni, Y. (1966): The foreign investment decision process. *In*: Buckley, P. and Ghauri, P. (ed.) (2015): International Business Strategy. Routledge.

[7] "Hard" factors like unit labour costs and real-effective exchange rates explain only a part of national competitiveness.

Soft indicators of competitiveness for almost all countries of the world are collected and aggregated by Word Economic Forum (WEF). The Global Competitiveness Index (GCI)[8] consists of 114 different indicators characterising the economy in different aspects. Besides the World Banks's Doing Business and IMD's World Competitiveness Yearbook the GCI is the most comprehensive measurement of competitiveness as it covers almost every risk that a company may face[9].

WEF indicators are measured on a 1-7 scale, where 1 is the most unfavourable and 7 is the most favourable value. Hungary's position has worsened a lot in the past years. In 2007 the overall competitiveness point was 4.4. With that Hungary was 47th most competitive nation in the world. From the V4 countries Czech Republic was the 33rd, Slovakia the 41st and Poland was the 51st. Nine years later Hungary lost 0.2 points and became the 69th in the ranking, while Czech Republic could maintain its position (4.7 points – 31st), Poland advanced to 36th place (4.6 points) and although Slovakia lost 0.1 point it's still ranked favourable (65th) than Hungary.

Out of the 12 pillars Hungary worsened in 7, there was no change in 3 and there was significant development in 2. The latters are *macroeconomic environment* and *technological readiness*. Macroeconomic environment indicator is based on hard economic data such as financial stability and economic growth. The improvement can mainly attributed to low fiscal deficit, decreasing public debt and relatively stable exchange rate. The largest worsening on average (based on annual changes) was in the *business sophistication* and *institutions* pillars. The latter one is a very unfavourable development as it happened in the first and most important pillar and the scoring of this pillar was relatively low also in 2007. Thus the score of institutions has further worsened from the unfavourable starting situation. (The items of institution pillar are shown in details in table 3.4. at the end of this Chapter.)

Figure 3.2.: Competitiveness scores in the 12 main pillars in Hungary between 2007 and 2016
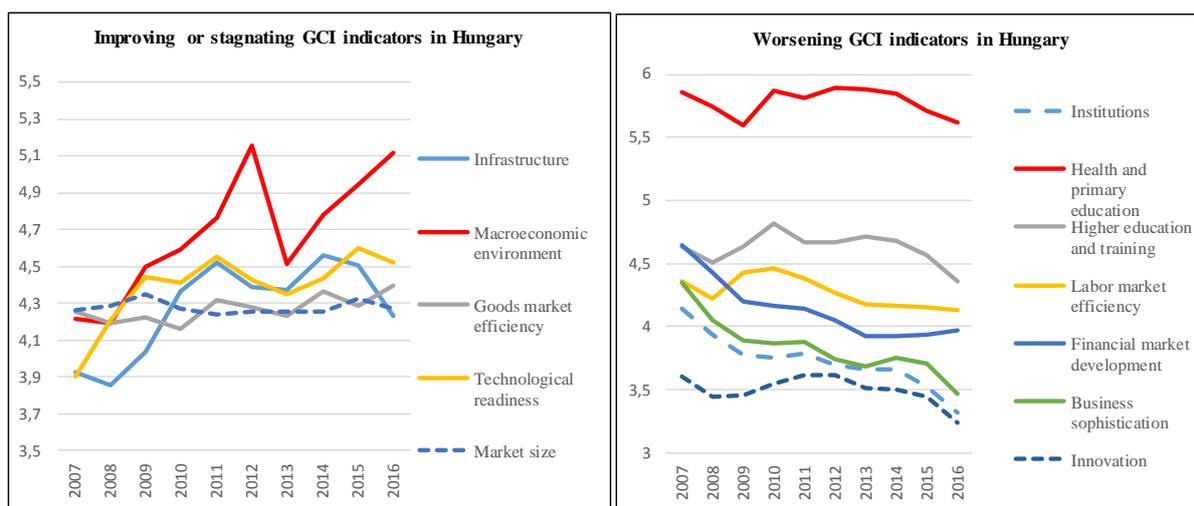
Source: WEF

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[8] See Schwab, K. (2016): The Global Competitiveness Report 2016-2017. World Economic Forum.
[9] The Doing Business index is more infrastructure based, while the IMD's indicator covers much less economies.

Table 3.1. Competitiveness indicators in Hungary that ranked above 100th

Pillar	Indicator	Score in 2016 (2007)	Rank in 2016 (out of 138)
	Institutions		
1.01.	Property rights	2.9 (5.4)	134
1.03.	Diversion of public funds	2.7 (3.8)	108
1.06.	Judicial independence	3.1 (4.4)	102
1.07.	Favouritism in decisions of government officials	1.9 (2.6)	135
1.09.	Burden of government regulation	2.6 (2.6)	123
1.10.	Efficiency of legal framework in setting disputes	2.9 (3.1)	114
1.11.	Efficiency of legal framework in challenging regulations	2.8 (3.0)	108
1.12.	Transparency of government policy making	2.7 (3.7)	136
1.17.	Ethical behaviour of firms	2.6 (3.9)	136
1.18.	Strength of auditing and reporting standards	3.9 (5.1)	110
1.19.	Efficacy of corporate boards	4.3 (4.8)	111
	Higher education and training		
5.03.	Quality of the education system	2.9 (3.6)	114
5.08.	Extend of staff training	3.4 (3.6)	115
	Goods market efficiency		
6.01.	Intensity of local competition	4.2 (5.4)	129
6.02.	Extend of market dominance	3.1 (3.8)	113
6.11.	Prevalence of non-trade barriers	3.8 (5.6)	114
	Labour market efficiency		
7.06.	Pay and productivity	3.5 (4.4)	108
	Business sophistication		
11.01.	Local supplier quantity	3.4 (4.7)	137
11.05.	Value chain breadth	3.3 (4.4)	113
	Innovation		
12.01.	Capacity for innovation	3.8 (3.7)	101
12.04.	University-industry collaboration in R&D	2.9 (3.7)	109
12.05.	Gov't procurement of advanced tech. products	2.7 (3.4)	114

Source: WEF

As one can see in the table above the worst ranked indicators of the Hungarian competitiveness are in the *institutions* pillar (see the annex). This constellation is one of the worst; as mentioned before competitiveness is a hierarchical system that means the institution pillar is the ground for all the other pillars. *Vakhal* (2012)[10] showed that there is a causal link between in the institution and other pillars and he showed the any change in that pillar will induce changes in other pillars as well. The causal link is positive, that is the direction of changes are likely to be the same.

The competitiveness position of Hungary worsened a lot in the past years and that explains (together with other macroeconomic indicators[11]) why growth prospects declined and why economic convergence to EU15 slowed significantly (*Oblath*, 2014)[12]. According to Vakhal

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[10] Vakhal, P. (2012): The development of Hungarian competitiveness on the basis of the World Economic Forum's Global Competitiveness Index: cause-and-effect relationships. *In*: Kolosi (ed.): Social Report 2012. Budapest, Tárki, pp. 115-133.

[11] Real-exchange rate, ULC

[12] Oblath, G. (2014): Transformation, dynamism and stuck of the economy. Macroeconomic convergence of Hungary to the developed regions of the EU from the beginning of 1990's until 2013. *In*: Kolosi, T. (ed.): Social Report 2014. Budapest, Tárki. pp. 21-50.

(2016)[13] the main reason for loosing that many scores is surprisingly not the worsened institution pillar but the higher education and training pillar although this is not independent from each other. Changes in the institutions (mainly from 2011) are only moderately followed by the overall competitiveness scores because thanks to the macroeconomic improvement that pillar "pulled it back". The decline in the assessment of the Hungarian education system began in 2010 and the final competitiveness score followed it almost linear. The reason behind this can be that corporations could more or less handle the changes in the institutional background but as structural labour shortage became more and more tangible the deficiencies of the Hungarian educational system came to foreground. The main hypothesis of this analysis that competitiveness influences private investment decisions. The figure out that cross-section model was formed.

As mentioned above the GCI contains more than 100 indicators from which 20 were selected as they may have direct relation to private investments. The remaining more than 80 indices are more or less overlapping with the selected ones. For example there are more than 20 institutional background indicators and out of that only a few were selected for the sake of clarity. The analysis was focusing mainly focusing on those potential barriers against investments that are hard to measure by standard statistical tools but may have crucial roles in private investment decisions. The following table gives a brief summary of the GCI indicators analysed:

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[13] Vakhal, P. (2016): Competitiveness of Hungary in 2016 based on the Global Competitiveness Report. What numbers show? Budapest, Kopint-Tarki.

Table 3.2.: Selected competitiveness indicators analysed as potential barriers against investments

Potential barrier against investments	CGI equivalent (pillar)	Focus	GCI score 2016 (1-7 scale, where the higher is the favourable)
Regulatory framework and administrative burdens	Business impact of rules on FDI (6.12.)	Rules and regulations on FDI	PL: 4.6 CZ: 5.3 SK: 5.2 HU: 5.1
Public administration	Burden of government regulation (1.09.)	The burdensome to comply with administrative requirements (eg.: permits)	PL: 2.7 CZ: 2.8 SK: 2.3 HU 2.6:
	Transparency of government policy making (1.12.)	The possibility of obtaining information about public spending and gov. activities.	PL: 3.6 CZ: 4.0 SK: 3.9 HU: 2.7
Public procurement	Diversion of public funds (1.03.)	Fairness and transparency of public fund diversion	PL: 3.9 CZ: 2.9 SK: 2.4 HU: 2.7
	Wastefulness of public spending (1.08.)	The efficiency of public spending	PL: 2.9 CZ: 5.0 SK: 2.8 HU: 2.6
The judicial system	Judicial independence (1.06.)	The level of influence of a third party on the judicial process	PL: 3.8 CZ: 4.4 SK: 2.8 HU: 3.1
The competition and regulatory framework	Efficiency of anti-monopoly policy (6.03.)	Economic policies ensuring fair competition	PL: 3.9 CZ: 4.0 SK: 3.5 HU: 3.7
	Intensity of local competition (6.01.)	The intensity of competition regardless it's fairness	PL: 5.3 CZ: 5.8 SK: 5.5 HU: 4.2
	Nature of competitive advantage (11.04)	How much the economy relies on knowledge rather than low labour cost	PL: 3.0 CZ: 4.0 SK: 3.3 HU: 3.7
Employment protection legislation and framework for labour contracts	Cooperation in labour-employer relations (7.01.)	The fair and equal relation between labour and employer	PL: 4.2 CZ: 4.7 SK: 4.2 HU: 4.3
	Hiring and firing practices (7.03.)	The flexibility of regulations on hiring and firing	PL: 3.5 CZ: 3.5 SK: 2.9 HU: 4.4

	Flexibility of wage determinations (7.02.)	How centralised the wage determination	PL: 5.5 CZ: 5.9 SK: 5.0 HU: 4.9
Skills, education and lifelong learning	Tertiary education enrolment (5.02.)	The ratio of total tertiary enrolment, regardless of age, to the population of the age group that officially corresponds to the tertiary education level	(Hard data) PL: 71.2% CZ: 66.0% SK: 52.9% HU: 53.2%
	Quality of education system (5.03.)	How well the education system meets with industry demand	PL: 3.6 CZ: 3.9 SK: 2.9 HU: 2.9
	Extend of staff training (5.08.)	Companies training their own employees	PL: 4.0 CZ: 4.5 SK: 3.9 HU: 3.4
Access to finance	Ease of access to loans (8.04.)	The simplicity to obtain business loans from banks	PL: 4.3 CZ: 4.4 SK: 4.7 HU: 4.6
Cooperation between academia, research and businesses	University-industry collaboration in R&D (12.04.)	The extend of university-industry R&D cooperation	PL: 3.3 CZ: 3.7 SK: 3.3 HU: 2.9
	Capacity of innovations (12.01.)	The extend of company innovations	PL: 4.1 CZ: 4.8 SK: 4.2 HU: 3.8
Financing RDI	Company spending on R&D (12.03.)	The level R&D investments of companies	PL: 3.4 CZ: 4.1 SK: 3.3 HU: 3.0
	Gov't procurement of advanced tech products (12.05.)	Governments incentives to foster innovation	PL: 2.9 CZ: 3.1 SK: 3.1 HU: 2.7

Source: WEF, Kopint-Tárki

The source of indicators in the table is the Global Executive Survey. As mentioned before "soft" indicators of competitiveness are hardly measurable, thus it needs to be surveyed in every year by WEF. The institution conducts a 20-30 minute survey[14] among company leaders all over the world[15]. The results reflect how the corporate sector sees the competitiveness of the economy and how uncertain they are in the future growth prospects. Final indices (more than 100 indicators) have high positive correlation with the relative development of the nations.

Besides the competitiveness factors the analysis was expanded by so called "hard" statistical data that may also have effect on private investments. According to neoclassical

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[14] The sample is usually structured by company size.
[15] In Hungary the survey is conducted by Kopint-Tárki for more than 10 years. Kopint-Tarki is the strategic partner of World Economic Forum.

macroeconomic theory[16] investments depend on marginal product of capital (MPK), interest rates and tax rules. Based on that consideration the list of explanatory variables was amended by *long term (10 years) government bond yields* as a proxy of loans provided by commercial banks to non-financial corporations. This solution was needed because no unified data was available about corporate loans. At the same time it was assumed that government bond yields are correlating with loan interest rates. Marginal product of capital (ICOR) was not included due to reasons explained in chapter 1. Tax rules are hard to quantify as there can be large differences across the member states depending on the type of taxes (income, payroll, wages etc.). At the same time the evaluation of taxation systems is integrated in competitiveness. Besides interest rates *unemployment* is also included in the analysis as a proxy of demand (both capital and household demand).

In the following a correlation analysis is performed to reveal the relationship between competitiveness factors (see table 3.2.) and the private investment ratios in Hungary. Due to the short length of the time series (8 years only) and the high number of variables other regression based methods could be applied uneasily[17].

Competitiveness of Hungary has been worsened a lot in the past 8 years compared to other new member states and to the initial rank of the country. World Economic Forum collects more than 100 competitiveness factors year by year. These indicators can be aggregated into so called pillars (see figure 3.2.) which is a thematic grouping of the factors. Or they can be merged by factors. WEF, besides the pillars, publish the most problematic factors annually, this can be seen in table 3.3.

The table below reveals that the most problematic competitiveness factors in the European Union's new member states in 2016 are *inefficient government bureaucracy* (mentioned 9 times out of 42), *high tax rates* (8 times) and *corruption* (5 times). All of these factors are government policy related and there are just a few barriers that are in connection with quality of labour force (work ethic, skills) or related to corporations (innovation capacity)[18].

In Hungary, policy instability is on the first place among most problematic factors of competitiveness, on the second place corruption and on the third tax regulation is scored.

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[16] See *Mankiw*, G., N. (2014): Principles of Macroeconomics. South-Western College Pub.

[17] PLS method is an application developed for such situations but it could be interpreted uneasily.

[18] It must be noted that 60% of the GCI is based on the opinion survey of corporate executives while 40% of the index is from statistical data.

Table 3.3: Competitiveness of new EU member states and the most problematic factors

Member state	Competitiveness score (rank out of 138) in 2016	Top 3 problematic factors (importance score[19])
Bulgaria	4.4 (50)	• Corruption (12.9) • Inadequately educated workforce (10.9) • Poor work ethic (9.9)
Croatia	4.1 (74)	• Inefficient government bureaucracy (20.8) • Tax rates (15.3) • Policy instability (14.2)
Cyprus	4.0 (83)	• Access to financing (24.9) • Corruption (14.7) • Inefficient government bureaucracy (13.8)
Czech Republic	4.7 (31)	• Inefficient government bureaucracy (19.7) • Tax regulations (16) • Corruption (11.3)
Estonia	4.8 (30)	• Tax rates (18.2) • Inadequately educated workforce (17.3) • Insufficient capacity to innovate (10.2)
Hungary	**4.2 (69)**	• **Policy instability (21)** • **Corruption (20.5)** • **Tax regulations (9.7)**
Latvia	4.4 (49)	• Tax rates (17.6) • Inefficient government bureaucracy (15.3) • Tax regulations (12.9)
Lithuania	4.6 (35)	• Tax rates (17.6) • Restrictive labour regulations (14.3) • Inefficient government bureaucracy (14.1)
Malta	4.5 (40)	• Inadequately educated workforce (15.4) • Inefficient government bureaucracy (14.6) • Access to financing (11.5)
Poland	4.6 (36)	• Tax regulations (20.6) • Restrictive labour regulations (14.1) • Policy instability (12.5)
Romania	4.3 (62)	• Access to financing (16.6) • Inefficient government bureaucracy (15.9) • Tax rates (14.7)
Slovakia	4.3 (65)	• Corruption (19.2) • Tax rates (17.2) • Inefficient government bureaucracy (14.8)
Slovenia	4.4 (56)	• Tax rates (18.9) • Inefficient government bureaucracy (18.9) • Restrictive labour regulations (12.3)

Source: World Economic Forum

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[19] Importance scores are calculated by weighted average of competitiveness items (out of 114) relating to the problematic factors. The higher, the more unfavourable, there is no upper bound.

A fixed effect model for the whole European Union was developed and analysed from the point of view of Hungary. As it is over the topic of the study that analysis is included in the annex only.

Correlation analysis[20] reveals the association between two variables. The indicator ranges between -1 and +1 and it quantifies the strength of dependence between the investigated variables. Due the strict assumptions[21] of Pearson correlation (which is commonly used in statistics), Spearman correlation is used, which is a non-parametric measure off association:

$$r_s = \frac{COV(rg_x, rg_y)}{\sigma_{rg_x} \sigma_{rg_y}}$$

where,

r_s: Spearman correlation coefficient

$COV(rg_x, rg_y)$: covariance of rank variables (x is the private investment ratio, y is the actual competitiveness indicator)

σ_i: standard deviations of the rank variables

The range and interpretation of Spearman correlation is the same as in case of the commonly used Pearson correlation. To decrease the variance of the variables natural logarithm was used. Due to space limits, only the correlation between the private investment ratio and the competitiveness variables is reported:

Figure 3.3.: Correlation between the selected competitiveness indicators and private investment ration in Hungary between 2007 and 2015
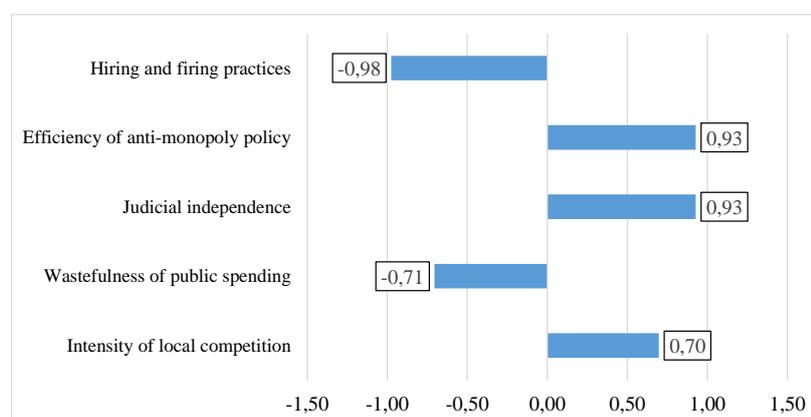
Source: WEF, Kopint-Tarki

Negative correlation means the more favourable the indicator the lower the private investments and positive means the more favourable the indicator the higher the private investments.

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[20] About the methodology see *Freedman et al.* (2007): Statistics. W. W. Norton & Company. Boston.
[21] About the assumptions see Freedman et al. (2007).

One may see on the figure 3.3. that out of 20 competitiveness indicators only 5 have at least 0.7 correlation with private investments which may be considered as strong. Indicators with lower values are rather weak, so they are neglected from the analysis further on.

This weak statistical correlation between most of soft competitiveness indicators and actual private investments can be explained by the fact that competitiveness indicators are rather *stable* over the period investigated, meanwhile the ratio of private investments are strongly *fluctuating* in different years, mainly by the significant impacts of "large investments" mentioned in Chapter 1. Hence, actual private investments are largely influenced by some big investments mainly by multinational firms and by the size of the use of EU funding in a given year.

In the following, strong indicators will be analysed in details:

Intensity of local competition: This indicator measure how strong is the domestic competition. The positive values reflects the economic theory, the higher competition incites companies for innovation in order to remain on the market. As innovation requires investments the positive correlation is not surprising. Unfortunately, the domestic competition in Hungary (according to WEF) is the worst in the region. The measurements of the government to regulate the market strongly bias competition.

Wastefulness of public spending: The negative value is a surprising result because in the panel model (see the annex) this variable has positive estimated regression coefficient. Practically this means that the more wasteful of the government spending the higher is the public investment. Due to the centralisation of the government the redistribution rate in Hungary is one of the highest in the European Union. As corruption is one of the main problem of the Hungarian competitiveness the government is considered to be wasteful according to the WEF survey. At the same time regardless of the price level of a public projects it still induces private investments. Of course the efficiency of the overpriced projects are much lower but this is reflected in the output not in the investments.

Judicial independence: One of the most important business factors of entrepreneurs is the security of private ownership and the legal background to settle arguments against another legal entity or against the government. This indicator worsened a lot in Hungary in the past year due to the – sometimes fierce – centralisation movement of the government. The relationship is very high and positive which means the more uncertain the legal rights the less private investments are formed due to the increased uncertainty.

Efficiency of anti-monopoly policy: Anti-monopoly policy is again an important factor of market economies. It ensures pure competition of the companies on the market and protect the smaller companies against the monopolistic power (dumping, cross-subsidies, predatory pricing and excessive pricing etc.) of larger firms. In Hungary this factor is again having a bad performance as it happened several times that some large companies enjoyed advantages on the Hungarian market via some governmental measurements (like the food vouchers and the Sunday-closure act etc.).

Hiring and firing practices: Flexible labour market is a fundament of the market economy. At the same time this, at the first sight surprising, result suggests that the better the labour revolutions the lower the private investments. The flexible labour regulation indicator is Hungary's best competitiveness factor. Labour regulations in Hungary are balanced and

protect both the employer and the employee. At the same time a good regulation does not necessarily support the operation of companies. The employee turnover can be very high as employees have a very flexible right to change employer (usually with short time of notice in the point of view of the company). However, due to structural labour shortage in Hungary it is hard to find new employee and the training costs are high and requires time. Thus, high employee turnover increases the uncertainty of investments decisions.

Figure 3.4. Development of Hungarian competitiveness in the institution pillar
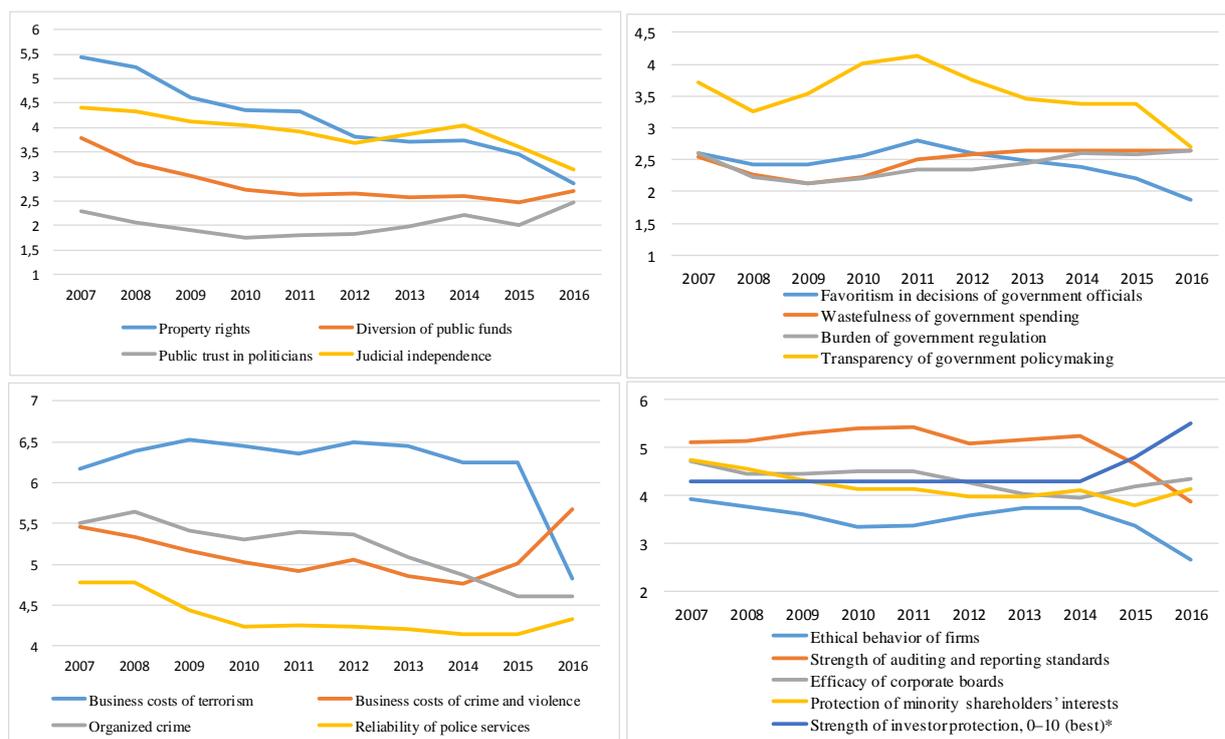
Source: WEF

4. Analysis of survey results

A representative survey was conducted among non-financial corporations in order to reveal potential barriers against private investments. The questionnaire was designed in a way that the analysis will able to identify both the positive and the negative (if any) factors affecting private investments.

The sample structure was determined by industry shares of value added (VA). This solution was chosen because the VA structure of the economy is much more stable than private investment time series, as the latter is very volatile. Industries are selected based on number of companies operating in it and the sum of VA produced. Agriculture (A) and Mining (B) industries are left out due to their very special investment characteristics. Due to low number of operating firms and their special ownership structure (mainly state-owned corporations) energy (D) and water supply (E) industries are neglected as their investment decisions are not based on market considerations.

The economy (population) is segmented to the following subsectors (VA share in the relevant population):
- manufacturing (58.6%),
- construction (5.7%),
- wholesale and retail trade (12.1%)
- other economic services:
  - transportation and storage (7.0%),
  - accommodation and food services (1.9%),
  - information and communication (5.1%),
  - real estate activities (2.1%),
  - professional, scientific and support activities (4.5%),
  - administrative and support service activities (3.1%).

The industries above cover 90% of total value added of corporate sector. All together there 462.000 operating companies in the mentioned industries. Out of that a sample frame of 400 firms was created. The sample was designed to be representative for VA structure. The method was random sampling supported by CATI (computer assisted telephone interview). The time interval of data collection was between 03.10.2016-14.10.2016. The following table presents the sample distributions:

4.1. Table: Sample structure

| Industry (n=400)	Share in VA in the relevant population	Share in sample	Weighted share in sample
Manufacturing	58,6%	56,9%	57%
Construction	5,7%	11,2%	7%
Trade	12,1%	22,6%	16%
Other services	23,6%	9,3%	20%

In the following only the main results are presented and analysed. The questionnaire and the detailed results can be found in the annex.

4.1. Reasons behind private investments

4.1.1. ...in the previous 3 years

75% of the respondent firms implemented at least one investment in the average value of 300 million forints. The sample contains some large scale investments (above 1 billion forints), but the majority of the companies invested under 500 million forints. Most companies purchased machinery and buildings, while a bit smaller share invested into motor vehicles and immaterial goods (like software). The share of those who bought lands was under 10%. The main reasons behind the investments are the following:

Figure 4.1.

The main reasons for investments in the past 3 years

Reason	Percentage
Increase of domestic demand	63,3%
Asset amortization	53,9%
Introduction of new technologies	49,4%
Increase of supply chain demand	42,8%
Product line expansion	40,5%
Export market expansion	31,1%
Other	22,4%
Increase in public demand	9,3%
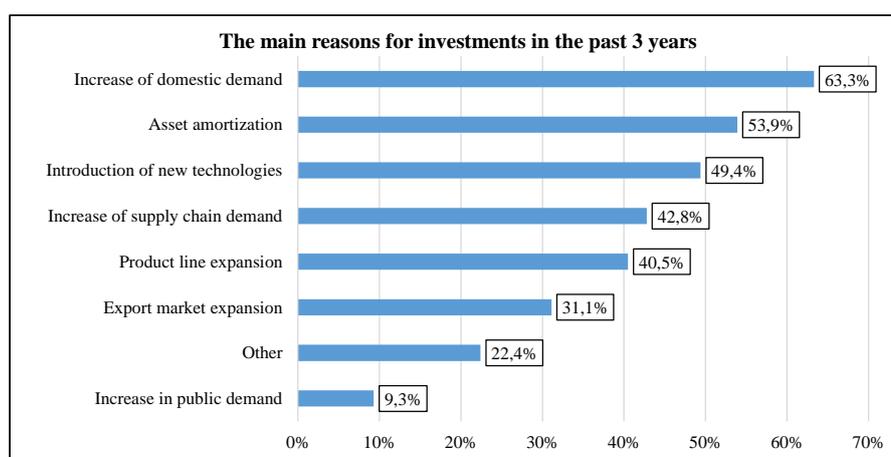
Source: Kopint-Tarki

The figure 4.1. may be surprising as the increase of domestic demand stood behind the private investments of the past three years. It might be due the industrial structure of the sample as trade and other services represent 35% of the population (36% in the sample). Services and retail trade industry rely mainly on domestic demand and the operation requires less amount of fixed assets compared to the manufacturing industry. Services and retail trade in Hungary are rarely included in the supply chain as they do not produce physical consumer goods. Therefore the increase of domestic demand is the only force that can make trade and service industries to invest. This is supported in the following table:

Table 4.2.: Domestic demand as a reason for investments by industries

The increase of domestic demand as a reason of investments in the past 3 years		
	Yes	**No**
Manufacturing	48%	52%
Construction	80%	20%
Trade	80.6%	19.4%
Other services	71.4%	26.6%

Source: Kopint-Tárki

Investment decisions in manufacturing industry in the past 3 years are dominated by domestic demand (48%), asset amortisation (46%) and new technologies (44%). As one may observe none of the three main reasons have at least 50% of the votes which means that the specific

reasons of private investments in manufacturing are many kinds and distributed over the whole spectrum of the industry.

A lot depends on the size of the companies – public demand is relevant only for the large firms (over 250 employees), while this market is relatively close in front of the smaller ones. Amortisation is also a leading reason for the medium size companies (250+) as they have more fixed assets. It is interesting that exports were important for both small and medium size companies.

These results are in line with the manufacturing business sentiment survey of Kopint-Tárki which is conducted quarterly. Larger companies (above 50 employees) used to higher stock of domestic and export orders than smaller firms in the past few years. In this year there differences were disappeared and there are no statistically significant differences between the companies.

Lack of demand was the leading barrier against production in the manufacturing industry until 2013 according to business sentiment survey of Kopint-Tárki:

Figure 4.3. Importance of demand shortage in manufacturing industry

(0-100, the lower, the more favourable)
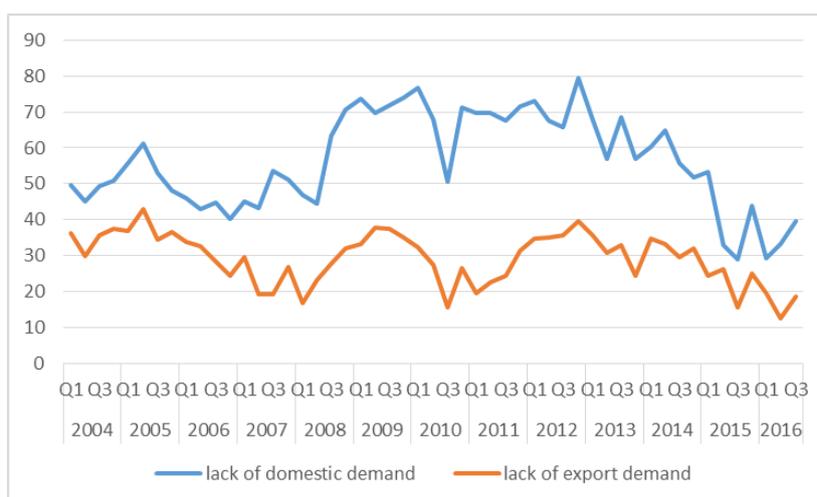
Source: Kopint-Tárki

Since 2014 the importance of domestic demand shortage has been decreasing which implies that demand became more and more important factor for the companies and that urged them to invest. Of course the lack of domestic demand is still a cardinal barrier for the firms but relatively the current situation is much better than it was in 5-6 years.

The majority of the companies financed their investments mostly from their own sources (86%), and only a small part of them (35%) got a loan from a bank. Around 50% of the companies used a hybrid form of financing, that is loan+own source. EU funds were used only in 19%, the amount of funds were mostly 50% of the total investments costs. Only 10% on average experienced any kind of problems during the investments, mostly related to financing, for example 14% found the required collateral too high.

4.1.2. ...in the consecutive 2 years

Investments decisions are surrounded with uncertainty therefore domestic demand is not the most important factor when firms decide to invest in the future. Asset amortisation and technological developments are leading reasons to invest. These kind of factors are related to competitiveness but of course are not independent from demand.

72% of the firms planned to make at least one investment in the next 2 year. The mean investment value is 227 million forints and most companies planned to invest under 250 million forints. Investment prospects for the next years are a bit worse than in the past 3 years. Around 74% is planning to invest into machinery and 44% will invest into buildings while around 35% is going to purchase motor vehicles. The reasons behind the future investments are presented on the next chart:

Figure 4.4.

The main reasons for investments in the next 2 years

Reason	%
Asset amortization	57,1%
Introduction of new technologies	54,0%
Increase of domestic demand	44,6%
Increase of supply chain demand	44,3%
Product line expansion	40,1%
Export market expansion	34,6%
Other reason	20,2%
Increase in public demand	8,0%
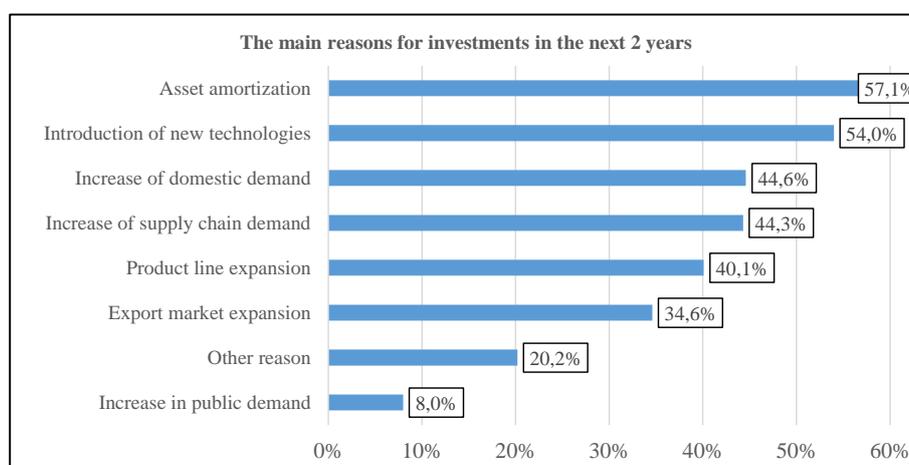
Source: Kopint-Tarki

There significant differences between the small and medium size enterprises; product line is rather relevant in case of larger companies (46.8%) compared to the smaller ones (34.1%). This situation is the same in case of supply chain demand – medium size firms are much more integrated in supply networks therefore it is not surprising that this reason is more relevant in their case (59.1% for the medium size and 35.5% for the small size ones).

Industries are also different. Product development is much more important for trade industry (51.9%) while investment plans to offset amortisation is more frequent in the construction industry (71.9%). Just as in case of the past investments the increase of domestic demand is much more relevant in all sectors except manufacturing. The main difference between the two time dimensions that domestic demand is the leading reason in the construction industry (73.3%).

The fact that there are more differences between the companies in case of the future investments is that companies' strategies are vivid across industries and firms sizes. Due to the recent developments in government policies there are lively improvements in the real estate market thus in the construction industry as well. This completely redraws the map of investment motivations in the industry. At the same time the slowdown in the machinery industry softens the importance of domestic and export demand and focuses on asset amortisation and new technologies.

Almost all companies (84%) will finance at least 50% of the costs from their own sources. The remaining half will be financed by bank loan (37%) or by EU funds (30%). One can see that there is no real financial barrier in front of the future investments. Interest rates are very low compared to the past periods and banks are not averse to give credit to companies.

According to the manufacturing business sentiment survey of Kopint-Tárki financial barriers were cardinals mainly during the financial crisis. Since then, it's role is becoming more-more weaker. Two years ago it hit record low levels (that time was the introduction of the credit programme of the Hungarian National Bank), since than there is an increasing trend but the values are still very low compared to the crisis years.

Figure 4.5.: Importance of financial barriers in manufacturing industry

(0-100, the lower, the more favourable)
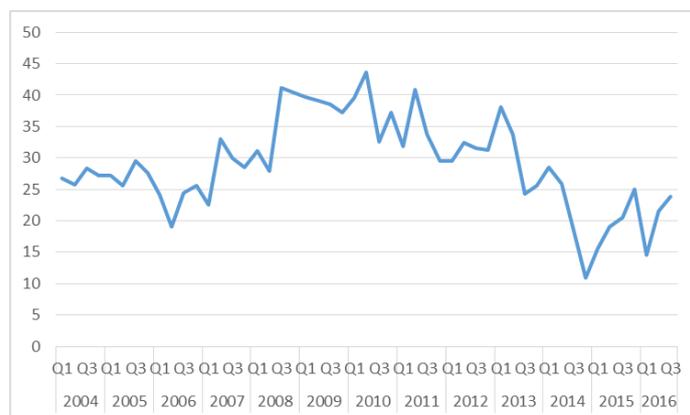
Source: Kopint-Tárki

## 4.2. Assessment of the Hungarian investment influencing factors

Companies were asked how they see the Hungarian investment environment. They were asked to evaluate different statements on a 1-5 scale depending on how much they hinder investments. 1 means that it does not hinder at all. In the following part of the study these evaluations will be analysed. The main focus will be on if there is any recognisable pattern in the data that can be matched to specific type of companies (according to size or industry etc.). The next chart summarises to results of the evaluations:

The most problematic factors of private investments according to the survey are related to labour market (Figure 4.4.). *Tax on wages* (4.07), *labour shortage* (3.93) and *labour skills* (3.68). At the same time *regulations of labour contracts* is not considered to be a problem at all (2.11). Assessment of science related questions (IV.) are concordant and this is one of the most unproblematic group. Institutions (I.) are rather problematic although the assessment is not as harmonious as it in the previous case. *Black market* (2.46) isn't really a problem (maybe due to the online registers that helped a lot in the fight against black or grey market), while *bureaucracy* (3.03) and *transparency of EU fund distributions* (3.14) are quite unfavourable.

Figure 4.6. Scoring of main barriers to investments by respondents
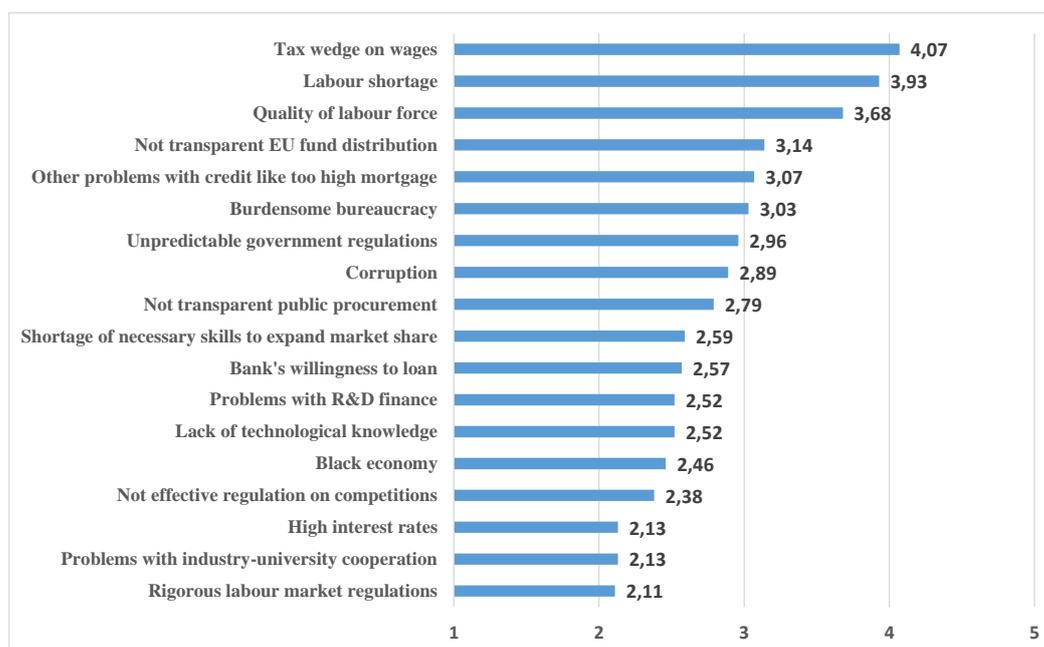
Source: Kopint-Tarki

Labour related issues are the major factors of investment barriers according to the survey. This is not a new phenomenon as labour costs, especially taxes on wages, have been historically high in Hungary and this was always a disadvantage of competitiveness. Labour shortage became very critical in the past years as it harms economic grow and it is extremely visible in certain industries (see the interviews). According to the manufacturing sentiment survey of Kopint-Tárki skilled labour shortage was a problem just for a certain type of companies in the past (mainly the knowledge based. high value added and large companies) but now it is a relevant issue for almost all companies including the small ones as well.

Figure 4.7.: Importance of skilled labour shortage in manufacturing industry
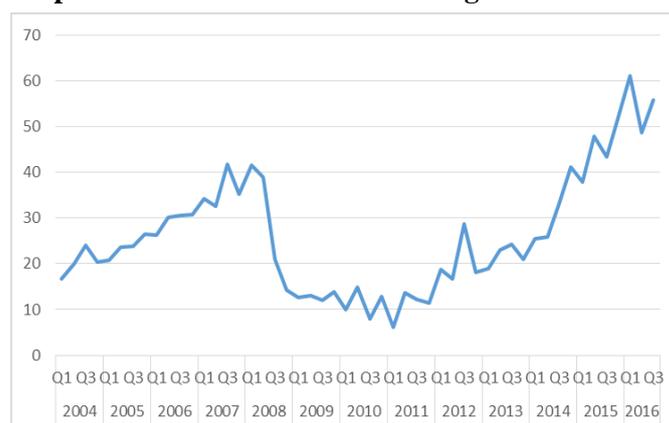
(0-100, the lower, the more favourable)

Today, skilled labour shortage is much more cardinal for manufacturing companies than demand. This survey reflects almost the same. Small and medium size companies are experiencing labour shortage; there is no difference between them[22]. At the same time it is a bit more crucial for manufacturing companies (3.85) and for construction firms (3.9) than

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[22] If the sample is split by factors (size or industry) there is no weighting.

trading (3.68) and services (3.61). Assessment of tax on wages by industries is almost the same: manufacturing (4.15), construction (3.98), trade (3.96) and services (3.62).

In the next section the assessments are analysed by firm size.

4.3. Table: Problematic factors hindering private investments by firm size

How the following statements affect private investments in Hungary? (1 – it does hinder at all, … 5 – it hinders very much)	Firm size					
	1-4	5-9	10-19	20-49	50-249	250-
	Mean					
I. Institutional background						
1.1 Unpredictability of government regulations	2.75	4.14	3.60	2.85	2.89	3.30
1.2 Burdensome or low quality bureaucracy	3.11	4.33	3.30	2.98	3.11	3.12
1.3 Public procurement transparency	3.83	4.13	4.57	2.90	2.72	2.75
1.4 Legal framework of competition	2.43	3.50	3.63	2.40	2.48	2.26
1.5 Transparency of EU fund distributions	3.75	4.00	4.56	3.16	2.97	3.38
1.6 Extension of black market	3.37	3.13	3.90	2.50	2.39	2.42
1.7 Corruption	3.40	4.33	4.63	2.96	2.77	3.04
II. Labour market						
2.1 Regulation of labour contracts	2.50	3.38	2.56	1.98	2.06	2.14
2.2 Tax on wages	4.00	4.88	4.70	3.90	3.89	4.09
2.3 Labour shortage	3.25	4.00	4.00	3.85	3.68	3.89
2.4 Labour skills	2.38	4.15	4.00	3.84	3.47	3.80
III. Financial sources						
3.1 Banks willingness to give credit	3.00	3.43	3.25	2.39	2.48	2.48
3.2 Interest rates	2.57	3.31	3.11	2.34	2.08	1.98
3.3 Other conditions of credits (collateral etc.)	3.22	4.50	3.50	2.92	2.94	2.92
IV. Knowledge and new technologies						
4.1 Knowledge of new technologies	1.86	2.83	2.90	2.59	2.51	2.54
4.2 Knowledge market extension possibilities	3.00	3.62	4.00	2.57	2.45	2.59
4.3 Financing research and development	3.13	3.62	3.30	2.54	2.34	2.62
4.4 Industry-university R&D collaborations	2.00	3.11	3.11	2.18	2.06	2.20

Source: Kopint-Tarki

One may realise that the worst assessments belong to companies employing 5-19 people. Their average score[23] is 3.75, while the 3 other size category's mean is 2.85. The most problematic factor is the labour market for type of firms – in this group there is no significant differences between the groups. Institutional background is rather a problem for small companies (under 20 employees). There is a clear difference between the corporations in the *assessment of public procurements* (again, mainly for companies under 20 employees) and *transparency of EU funds* and *corruption*. For companies employing between 5-19 *market extension* and *R&D financial possibilities* are problematic in contrary to the other groups including the 1-4 size. This suggests that while larger companies are able to deal with these issues, smaller ones are suffering from these problems. Most probably these problems are not relevant for the smallest firms.

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[23] If the factors have equal weights.

4.3. Mapping latent barriers of private investments

One may expect a certain pattern in the assessments of investment barriers. For example some factors are evaluated similarly by the firms while others tend to be assessed differently. For example those who have good opinion about the institutions tend to evaluate the financial source possibilities also favourably. In this section these links are mapped by factor analysis. Due to space limits only the results will be reported without methodological summary.

The problem factors in Table 4.3.are correlating with each other. Those items that highly correlate form a group. All together four groups can be created. The sets more or less cover the original grouping (institutions, labour market, finance and knowledge) but there are (latent) links between them as they connect to each other. Within groups ties are stronger then between group ones but as one will see these links can also be moderately strong. The next figure shows correlation network between the variables and the latent factors. Variables linked with the same latent factor (in the middle) are correlating (Figure 4.4.). The solid lines represent the highest correlation, while the dashed ones the second highest (if it's applicable)[24].

The quality of institutions is the most important investment barrier as half of the variables is linked to that. It is interesting that two – previously classified to labour group – variables are connected to institutions: *regulation of labour contracts* and *tax on wages*. In exchange labour market latent factor has two other variables: *unpredictability of government regulations* and *bureaucracy*. Changes in these variables go in hand with labour shortage and labour skills as well. *Black market*, *corruption* and *labour contracts* are also linked to financial latent factor. Besides these financial sources also covers all financial related variables and the technological *knowledge item*. The latent factor of knowledge and technology collects *labour shortage* as well. On possible explanation for that is labour shortage can be eased by technological development but it requires capital, so it is linked to financial sources too (via the knowledge item).

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[24] If the second highest correlation is below 0.2 it is not linked to anywhere.

Figure 4.8.: Latent network of investment barriers
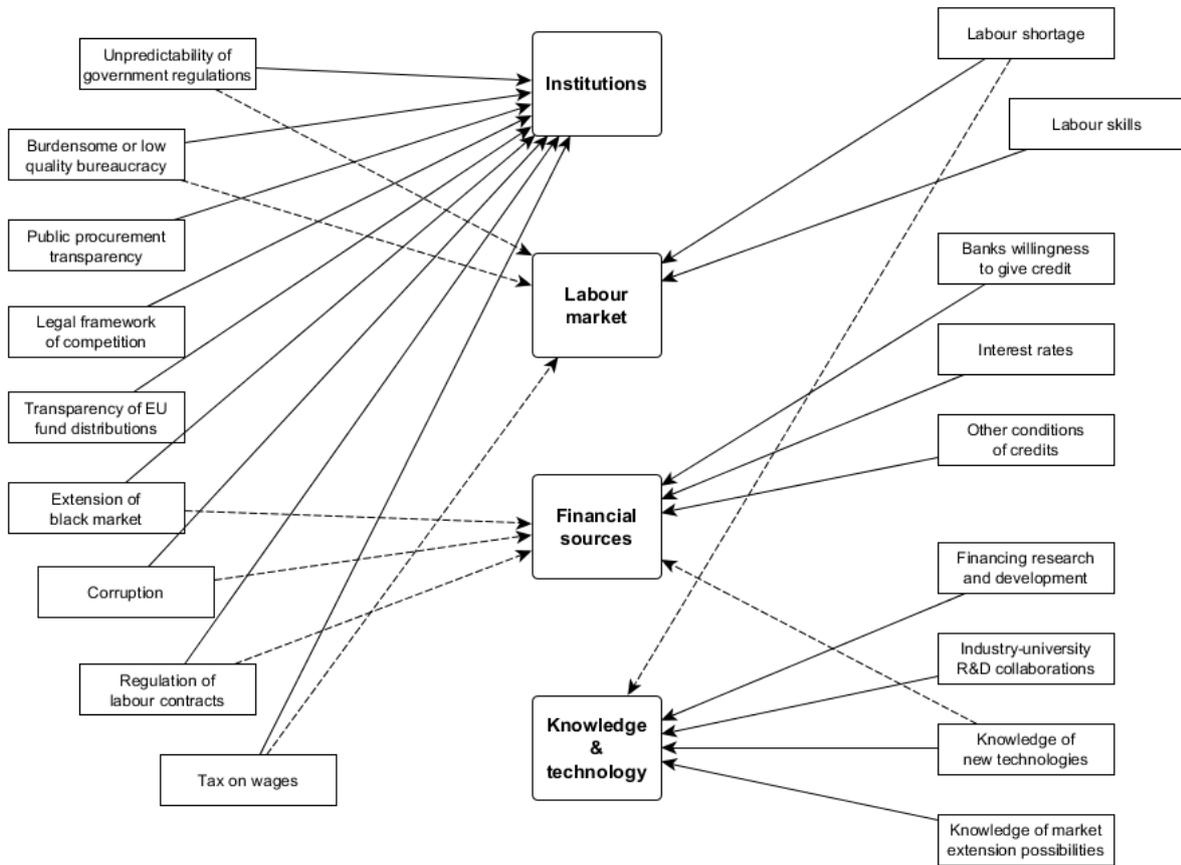
Source: Kopint-Tarki

5. Managers assessment on the framework conditions for investments in Hungary

This chapter is based on 40 interviews made with company managers from different branches with different firm size. The sample of face to face interviews were designed to follow a multi-sided approach: on the one hand corporate managers were selected who play an important role in the development of the relevant sector, with relying on a network of suppliers have a competent assessment of the major problems of the sector and have the capability to draw attention to problems in the investment background and attitude of the related subsectors. On the other hand, business organisations and social partners related to different sectors like commercial chambers, corporate umbrella organisations and associations of different professions with sectorial competence were chosen as interviewees. These institutions have a comprehensive view on the development and needs of the different sectors, have regular contacts to enterprises thus they have the capability to transmit their views as well.

In sampling of interview partners considered the point to cover as much subsectors as possible, particularly in manufacturing.

The industries covered by the interviews either with corporate managers or with the leaders of professional organizations are as follows:
- Agriculture
- Food industry
- Textile industry
- Leather industry
- Machinery industry
- Metal industry
- Chemical industry
- Engineering
- Construction industry
- Architect design
- Restaurant, catering
- Transport-logistic
- Wholesale and retail trade
- Info-communication
- Financial sector

Small, medium and large companies, as well as domestic and foreign owned firms were represented by interview partners.

5.1. Demand conditions

Between 2007 and 2012, the contraction and/or stagnation of the Hungarian economy, the continuous shrinking of the internal market caused severe difficulties for companies producing mainly or exclusively for the domestic market – that is, the great majority of domestic small and medium-sized companies. In those years, net export was the only component that consistently contributed positively to growth. While there were two years – 2009 and 2012 – when exporters suffered too, but both time the export-oriented segment of

the economy recovered relatively fast, as opposed to the protracted floundering of the domestic-oriented segment.

Yet the primary and most important condition for investments is the existence of sufficient market demand. In this regard, the domestic market-oriented SMEs were particularly disadvantaged due to the shrinkage of the internal market in most part of the last decade.

Exports, however, have induced significant investments. As we saw in chapter 2, investments of exporting manufacturing enterprises increased significantly over the past eight years. And although a significant portion of the manufacturing investments can be linked to foreign-owned companies, the domestic manufacturing enterprises, mainly the medium and large companies also implemented significant investments. These investments showed strong sectoral concentration, connected loosely or tightly to the value chain of the production of road vehicles: mechanical engineering, metalworking, computer technology and rubber industry. The domestic companies operating in these sectors expect a strengthening of their position both as supplier to multinationals and as exporters to foreign markets within the next few years. These expectations are reflected in this sector's willingness to invest in medium term.

In addition, over the last two years an internal market upturn also started and a key element of it, household consumption, is projected to continue to increase at a rapid pace. This may bring forth a significant increase in retail sales, which may be associated with new investments of domestic producers and commercial companies. Even if the "retail battle" will continue between the government and the foreign-owned retail chains (see more in section 5.2.4). The growth in household income is favorable also for the domestic service industry – while investments in this sector are typically smaller, this might be offset by the high number of service providers. Investments by public service providers' investments are still not on the horizon, due to the so called "utility price reduction" ("rezsicsökkentés") forced through by the government, which has decreased their profitability sharply and had their financing resources dry up.

In line with the expected growth of household's incomes and with the introduction of family tax benefit on the purchase of new housing (the so called CSOK –"KISS" – scheme) housing construction can definitely strengthen. The building contractors already report dramatic increase in demand for new homes that is also supported by the shortage of new apartments after dwelling construction-diving for a decade and by low interest rates. The question is whether and to what extent the existing building capacity – after years of shrinking during the building recession – will be able to meet the growing demand. At the moment, many construction firms build up orders well above their productive capacity and then scrable to find subcontractors to be able to deliver. To what degree the growing demand can boost construction output also depends on the degree to which the strong demand will hike up housing prices.

However, as regards exports, industry representatives and corporate managers familiar with the sector also take the view that the domestic small and medium-sized companies would need a lot more support for exports than what they currently receive. The large manufacturing companies (both foreign and domestic-owned firms) which export the bulk of their output possess the knowledge necessary to export; market knowledge, foreign relations and export techniques. A part of medium-sized companies have also developed international market

relations, yet they still have difficulties in selling on foreign market (especially in the case of newly developed products). This is especially true for firms struggling with financial constraints: their ability to implement investments that, although necessary to improve their market position, are recouped only in the long run, is limited. Small companies with less established brand names, references, and a narrow pool counterparties have even more difficulties.

All in all, the domestic market conditions were not favorable for corporate investments in the years before 2013; so essentially only export-oriented companies could invest. However, at present, with domestic consumption showing an increasing trend, it may open up space to an increase in domestic sales as well. A significant hurdle seems to be removed for now. But in the longer run, a determined effort to strengthen the export capacities in the SME sector, to make it less vulnerable to the fluctuations of the hectic domestic market, is absolutely crucial.

5.2. Institutional conditions of investments

5.2.1. Bureaucracy, administration

Hungarian managers of multinational companies, who are responsible for other neighbouring markets too, are of the opinion that the Hungarian bureaucracy is more complicated and less transparent than in the neighbouring countries (e.g. in the construction sector, in agriculture). This coincides with the WEF survey results and with the Doing Business ranking of the World Bank. According to the World Bank survey, Hungarian managers spend by 10-12 percent more time with meeting the bureaucratic, administrative commitments (e.g. various reports to the National Tax Office several times/month etc.) in line with regulations than the average.

In the bureaucratic ranking Hungary (place 41.) is worse positioned than Poland (24.) the Czech Republic (27.) and Slovakia (33.)[25].

Managers consider the processes of administration not being standardised sufficiently. Demarcation of competencies and responsibilities is not clear enough. In some sensitive issues political influence is strong, which makes administrators reluctant to make a decision – they rather try to pass it over, which is dragging out the process.

The one-stop-shop, which has been discussed and promised by the government for decades, has still not been implemented: the same documents must be submitted to a number of authorities, in different forms and requirements.

Other Hungarian managers of multinational firms are of the opinion that the Hungarian bureaucracy is not better and not worse than in the neighboring countries. "Hungary is where it belongs to", thus the quality of institutional environment doesn't justify the lower level of Hungarian investments.

Concerning the regulation of the *construction* industry, the rules have been relaxed to a degree in recent years; however, over-regulation still exists.

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25 http://www.doingbusiness.org/rankings

Construction company managers consider the Hungarian building regulations and planning chaotic. In Budapest, for example, the building and urban planning regulations issued by the individual districts, by the Budapest municipality and by the state (OTÉK) exist side by side, and they are not harmonized. Regulatory requirements often contradict each other. In these cases, the interpretation of the law can be the result of lengthy negotiation with local bodies that consumes a lot of energy.

An investment which requires the reclassification of a plot from agricultural area to housing area is associated with huge bureaucratic difficulties.

However, due to the introduction of the E-log, the distribution of competencies has become more transparent, and the contractor is now protected against the customer's ad hoc ideas and arbitrary modification needs during the building process.

In the chemical industry, the Hungarian regulation is more rigorous in many terms than the requirements of the European Union, which causes competitive disadvantage for the Hungarian producers. The simplification of the REACH regulation has been on the agenda since many years without any results.

By creating the "National Directorate General for Disaster Management" a mammoth organization was set up which was not seen in previous years.

It now includes the fire department, safety standards, the field of industrial safety, which introduces new licenses and procedures. The fire alarm system has existed before but three years ago the Disaster Management decided that the ordinary (MATÁV) communication lines are not safe enough. Therefore, it required to build an extra communication line to the Disaster Management, with special service provider, which gives the signal of fire. The firms obliged to this procedure have to pay the monthly fee to this provider.

It would make a big difference for many small businesses if the National Tax Authority (NAV, already part of the Ministry for National Economy) put more emphasis on its financial and tax advisory role, beside the monitoring and controlling function. In this area an improvement can be expected since the government announced in recent months that the NAV will become more client-friendly, and it will not punish immediately if an irregularity arises, but draws attention to the errors and helps the client fix them.

The quality of e-government solutions has also received positive evaluation from the managers. The level of digitalisation of administration reaches the average level of the region by now (but not that of Estonia, e.g.) and has substantially developed in recent years.

5.2.2. The use of EU funds as the source of investments

The EU grant funds provided a significant additional source of investments for some of the companies surveyed. Many investments would not have been implemented (or only on a much smaller scale) without the EU funds. However, many companies said they will not participate in the competitive tenders for the EU funds because the preparation of applications takes a long time while the result is uncertain. It is easier to use their own financial resources, especially since today they have access to credit is at a low interest rate.

According to the managers their ability to use EU funds for investments is severely limited by the fact that the calls for applications are not announced early enough, and so they cannot

prepare for the procedure in due time. It would help if the contracting authority informed the potential clients regarding what applications are expected in the coming years and on what terms. Another important point is that the projects with EU grants should be tailored to the needs and the medium- to long-term development plans of the companies. By doing so it could be avoided that firms have to react quickly to tender announcements with projects that only partially addresses the actual needs of the firms in their endeavor to move forward with their business development projects. The present situation leads to waste of resources.

Another problem is that announced tenders are often canceled, and it also frequently occurs that the bidding conditions are significantly altered just a few days before the deadline, thereby excluding a number of potential applicants from bidding. For these potential applicants the work dedicated on the preparation of the applications is a waste of time. The evaluation and decision on application have been mind-bogglingly slow. Numerous entrepreneurs reported that applications submitted more than a year ago have still not been decided upon.

The entrepreneurs face the problem that the institutional system of project management is constantly changing so the applicants have to learn the process again after each reorganization. The administration and accounting of the projects are anyway very cumbersome; the electronic interface providing the accounting and reporting is very difficult for smaller companies. They often have to employ extra people to manage the applications towards the contracting authority, which represents additional costs they may not be able to bear.

In many cases, grants will be awarded to so called "project firms" which have been created only with the aim to access to finance from the EU funds, leaving companies having long term track record with stable management and economic indicators which prove their ability to use these resources efficiently in the cold.

In the future, it might be a severe problem regarding the utilization of *repayable* grants that – as a substantial part of creditworthy companies indicated – they have access to bank credit at low interest rates, hence it makes little sense for them to enter the extremely cumbersome process to obtain grants from the EU just to save a few per cent worth of interest.

It should be noted that all relevant interviewees agreed that the typical tender requirement of employment *expansion* associated to technological innovations and investments is unrealistic. Technological advances are typically labor-saving, thus the requirement about employment enhancement is inconsistent with the purpose and natural consequences of investments. Some managers reported that in order to comply with this requirement they do not use – at least temporarily – a part of the purchased equipment in order to meet the expectation of the contracting authority. Of course, this is only possible if the "buffer" labor force is employed at a very low wage.

5.2.3. Public procurements, EU funding and corruption

Our survey has also assessed the entrepreneurial perceptions regarding transparency and corruption in public procurement.

According to our results, two types of tenders financed by EU Funds have to be separated: 1. multiplayer tenders for firms to finance their investments and innovation not related to public investments 2. public investments with public procurements.

To begin with the *first one*, projects of corporate investments with EU financing more or less independent from the direct state intervention, have been evaluated by company managers as basically evaluated in a fair way (although, sometimes there are "strange firms" in the list of winners). Several firms eligible for support, mainly in manufacturing, have implemented significant investments, technological upgrades, and created enhanced export capacities with the help of EU financing. In certain industries, managers stated that the distribution of EU-resources among firms was objective even amid political pressure. Some of the respondents refer to the phenomenon that positive appraisal of the applications needs politically embedded "lobbyists", who then take 10-20 percent of the amount of the tender under the item "quality assurance"; however, this cannot be detected in every case.

Concerning the distribution of EU financing *for public investments,* our findings based on the interviews have confirmed the results of other researches using mathematical-statistical methods (Tóth I.J.et. al. 2016)[26].

The authors of this study came to the conclusion that public procurement tenders involving EU financing have:
- lower competitive intensity;
- lower transparency;
- higher corruption risk;
- and more significant overpricing;

than projects financed by domestic resources.

The outcome of the above study reveals that Hungarian public procurement for the period of 2009-15 can be characterized by raising tendency of corruption *risk* from 22 to over 50 percent. Risk is of course not equal to fact but raising risk is an obvious indicator of revealed corruption

According to managers of construction and architecture firms, the vast majority of public procurements for large public construction investments are so-called „directed procurements"; i.e. the winner(s) is (are) designated in advance. These are typical bids with one single applicant, without competition. Should another applicant appear, the tender is withdrawn and converted into a restricted tender upon invitation.

The winners of these tenders are basically large firms having good political contacts meanwhile the work is carried out by several subcontractors. The higher a firm is positioned in the hierarchy the higher is its profit. The firms at the top of the hierarchy may receive disproportionately high remuneration for their services. Construction firms, being at the bottom of the chain, are typically poorly paid. However, smaller firms do not rebel against this system because public investments have been so large in recent years that all firms including smaller ones had access to works. Formerly subcontractors were often not paid by the lead contractor but it rarely occurs nowadays.

However, it also means that most of the public procurements construction works are awarded to a particular circle preferred by the political elite. This circle seemingly changes over time, depending on changes in political relations. For example, in a not so distant past most of

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26 Tóth, I.J.- Hajdú, M. (2016): Competitive Intensity and Corruption Risks in the Hungarian Public Procurement 2009-2015. Corruption Research Center Budapest.
http://www.crcb.eu/wp-content/uploads/2016/08/crcb_2016_ijtoth_mhajdu_competitive_intensity_160820_.pdf

public construction works were won by the firm "Közgép", but after the relationship of the owner of Közgép with the prime minister deteriorated, other firms became the beneficiary of such procurements (e.g. Mészáros & Mészáros, MARKET); all belonging to the narrow circle close to the government. At the same time, Közgép has been prohibited by the contracting authority from tender participation for three years. Although, later on, the court held this decision to be invalid, Közgép has no access to public procurements any more.

Beside the possibility of overpricing at public construction works due to the lack of competition, the political designation of winners has another more far-reaching consequence. The primacy of political aspects over actual performance has raised doubts not only in those entrepreneurs who have been directly involved in these cases but also in other groups of entrepreneurs. "If the winner of the Olympic race would be marked out in advance which athletes would be willing to make huge efforts to get prepared for the games?"- said an entrepreneur.

With other words: the underpriorization of performance, talent and efforts against political connections have a strong *demotivating and demoralizing effect* at fair entrepreneurs who are working on the free market (international or national) in stiff competition but whose profitability will never even get close to to what the politically connected entrepreneurs achieve.

Motivation is of great importance in investment incentives. Development of firms needs big sacrifices from entrepreneurs: not to spend earnings to private consumption but continuously dedicate funds to accumulation, innovation and investments. There are several Hungarian firms which did that in the last decades; reinvested all the profits in the firm and became successful, but they are too few. And the wealth of these successful entrepreneurs creating large firms by their own efforts is a far cry from what could have been achieved by using political connections and participating in corrupt transactions. It wouldn't be fair to blame only the current government for this negative attitude of corporate sector managers. But the situation has significantly worsened in the last 6 years, since the prime minister announced the aim at *strengthening of the new middle class*, which targeted clearly and exclusively the enrichment of politically preferred persons (see point 5.2.4.).

Hence, the average evaluation of corruption in the survey in chapter 4 (exactly 3 in the range 1 to 5) is a result of two extremes. Public procurements are widely infected by corruption on the one hand but support given manufacturing companies aimed for the upgrade of their activity through innovation, capacity enhancement, production of prototypes, strengthening their supplier position etc. is basically distributed in a fair process on the other. (However, the "toll" on public finances, however, also occurs here in certain cases).

5.2.4. Regulation, legislation and transparency

Predictability and trust are the key elements of the normal operation and of making long term investment decisions of businesses.

Predictability and transparency of legislation are compromised by the fact that several laws are initiated not by the government but by individual MPs. In such cases impact assessment of the new bill or regulation is not necessary and the bill can be passed by the majority of MPs

within 1-2 days after its introduction, without any obligation of the government to consult with the parties affected.

In this framework, the legislation is frequently "tailor-made", which means that the aim of the new law is to better position certain groups (very) near to the government. It has far-reaching negative effects on business confidence.

The prime minister declared two basic objectives of economic policy: 1. the strengthening of the middle class in Hungary and 2. crowding out foreign-owned non-manufacturing firms, especially in four sectors.

As for the strengthening of the middle class, the objective in itself can be deemed to be right, as this group is in Hungary is too weak both in social terms[27] and in terms of the number and share of domestic enterprises[28]. The problem, however, is that the government intends to achieve this goal of economic policy not by strengthening and support of domestic companies but 1. by redistribution of existing assets and markets, and 2. by displacing foreign companies, often by means of questionable legality, which is proved by some judgments of the European Court of Justice. Thus, what this economic policy can achieve is not the creation of new value, effective and sustainable improvement of the competitiveness of domestic businesses, but only the redistribution of existing markets and existing wealth. In fact, the net effect of this economic policy is rather negative, as it often takes away markets from those entrepreneurs that could produce more effectively, would make more efforts to expand, than those who gained access to these markets through political relations.

5.2.4.1. *Transformation of ownership on certain markets*

Some major examples of redistribution of markets:

- Changing of the rules of *gambling* industry by taking away the market from the existing firms and by giving the entire business to one single businessman who has very very close links to the government (and at the same time exempting him from the obligation of using on-line cash machines which are obligatory for all businesses)

- Changing the structure of *tobacco trade*: tobacco market has been centralized and re-distributed. Former owners of tobacco shops have lost their businesses which were given to politically designated persons;

- Redistribution of *access to land:* in the framework of auctions lands were sold to new owners, dispossessing farmers who had had tenancy rights over those lands for years or decades. Land auctions have often deprived farmers of the possibility of continuing to use the land and sold it to financially strong owners with strong political background, who were not necessarily interested in agriculture. However, in agriculture long-term thinking is of particular importance; if the farmer cannot be sure that he can cultivate the land in medium or long term, he will not invest in it. Although land auctions have affected only a relatively small part of the entire state land, the

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27 Tóth, I. Gy. (2016): Középosztály(ok) Magyarországon és Európában. Midlee class(es) in Hungary and in Europe. In: Tárki Riport 2016. (Kolosi-Tóth (eds). Tárki Budapest

28 Palócz, É. (2016): A magyarországi bérfelzárkózás tartalékai és korlátai. The limits and reserves of catching up of wages in Hungary. In: Tárki Riport 2016. (Kolosi-Tóth (eds). Tárki Budapest. pp 13-31. http://www.tarki.hu/hu/publications/SR/2016/01palocz.pdf

broad perception that anybody can lose his land he/she cultivates undermined the confidence of farmers in business predictability.

- The most emblematic case was when the land used by the prestigious organic farm *of Kishantos* was sold to another owner, whose first step was spreading chemicals across the area , which destroyed the organic farm for several decades. Although Kishantos has won the case at the court at the end because the new owner didn't meet the criteria for buying the land, the damage cannot be recovered. Another such case was in Hortobágy where the pastures were taken away from local cow holder farmers and sold to people not living in the region who didn't cultivate the land.

5.2.4.2. The intention to raise Hungarian ownership in four economic branches

The Prime Minister has announced in 2011 the intention of creating Hungarian majority ownership in four branches. These are: banking, energy, telecommunications (media) and the retail sector in which the government intends to raise the proportion of Hungarian property to at least 50%. The Prime Minister commented on the situation at a press conference in Krynica, September 2016: "*There are four areas where we have to reach the majority of domestic ownership…. In three we have got it but not in the fourth. We are forced, therefore, to work on new ideas. Unfortunately, the retail trade chains were more cunning than us. A few more years and we will fulfill this goal*. "

It would go beyond the scope of this study to analyze how much it is actually important from an economic point of view to carve out and maintain a level of of domestic ownership in the banking sector, energy and retail trade. (In the media the government considers the importance of acquisition by domestic capital because of communication considerations). There is no doubt that in developed countries the foreign ownership in these sectors is much lower, but in those countries these strong domestic companies have evolved over many decades, centuries. However, the violent change of the status quo, the expulsion of foreign-owned companies by not legal (or semi-legal) means seriously undermines the predictability of economic policy and foreign investors" confidence, not only in the sectors concerned.

Battles of the war between the government and foreign retail trade networks

There is no evidence that foreign-owned retail networks unfairly overshadow domestic producers, if they have competitive offers. But the fact is proved that many food producers have been able to benefit from supplying multinational retail chains and from the formation of a stable market. There are, however, complaints about unfavorable treatment of domestic producers. On the other hand, it is not demonstrated that domestic-owned retail chains definitely prefer domestic suppliers or offer them more favorable terms than the multinationals. However, it can be stated with definite certainty that shutting out the foreign retail chains would have dramatic consequences from the point of view of competition: prices would significantly increase, the assortment would decrease and the level of service would decline considerably, as they are natural consequences of the lack of competition.

Below we list the main stages of the retail trade battle between the government and the multinational chains in nutshell:

- Stop to Malls (Pláza-stop), which does not allow the construction of commercial units over 400 m2 (formerly 300 m2), and the expansion above this limit. While on an individual basis, a ministerial permit may exempt from this restriction, this decision is not transparent and the bureaucratic procedure is lengthy and uncertain.

- Closure on Sunday which has openly aimed at taking multinational chains down a notch and at bringing an advantage of Hungarian-owned ones. It is another matter that this goal was not achieved, quite the contrary: the restriction of opening on Sundays was unfavorable for Hungarian-owned networks. The winners of this measure have clearly been the foreign-owned discount chains, which could significantly increase their turnover.

- Parking Regulations: in the FMCG trade in new unit sales area above 400 sqm, 1 parking space has to be created for every 10sqm. Therefore, in the inner districts of the city it is essentially impossible to create a new commercial unit. This rule has proved to be quite efficient. If it were not, the discount chains could have been carved a bigger slice of the Hungarian market.

- Progressive taxation of food chains by Food Security Control fee. On this particular issue the European Court ordered the Hungarian government to eliminate the measure on the grounds that it distorts competition.

- Close of loss-making stores: The multinational chains have actually become slightly profitable for the past time, but it is uncertain to what extent this can be attributed to this legislation, and to what extent a natural result of the the market upturn. The profits of multinational retail chains are burdened by the high amortization cost of the former major investments on the one hand; on the other hand, however, there is no doubt that the majority of chains isrequiring fees for franchise and brands (1-2 per cent of net sales) from the Hungarian subsidiaries.

According to the representatives of the profession, the new idea to oust foreign retail chains, mentioned by the prime minister, might be control and punishment by the Hungarian Competition Authority (GVH). If the GVH finds "fault" it might penalize the company under investigation up to 10 percent of net income excluding VAT (including the purchase value of goods sold). It can be HUF 40-50 billion in the case of multinational companies, which can obstruct even a large chain. These investigations are ongoing at multinational retail chains.

Any case, the series of public interventions which is declared to seek ways to change the market structure in favor of domestic players, has created the general uncertainty in a wide range of entrepreneurs. Not only foreign investors but also domestic ones might have come to the conclusion that the government may bring market-distorting measures in any other sector.

5.2.5. Support policies and regulations, according to company size

Not only the results of micro-level firm data processing (Chapter 2) but also the interviews and other analysis demonstrated that the discrimination of companies for being "large" in Hungarian context limits the overall investment incentives. The principle of special support for SMEs, applied all over the world, is based on the idea that the big companies are strong enough to cope without support. Moreover, support for SMEs is necessary in order to mitigate the domination and overweight of big business and to maintain diversity and heterogeneity of the enterprise sector. In Hungary, however, the majority of domestic owned "large enterprises" is also relatively weak and small as compared to large firms in more developed countries and especially compared to multinational companies. Thus, they also need support, particularly because this group of companies is the engine of investments in Hungary.

However, state aid policy is regulated in many branches with the unambiguous aim to help SMEs (like agriculture and food industry) and redistribute the bulk of financing toward micro and small companies. However, according to the unanimous opinion of the respondents (regardless of whether they represented small or large firms) robust growth of investments can be expected mainly from large firms.

In this sense, the limitation of normative EU-support to land owners less than ha 1.200 is preventing the growth of investments in agriculture because the lands over this limit are typically not well funded and thus they also could use support. The agricultural enterprises (Co.'s), which are often using the most modern technology and carrying out innovations and being able to invest, are not allowed the purchase land. This is a deterrent of investment and expansion in the sector since investments on leased land is risky.

Furthermore, in both agriculture and the food industry 80% of EU financing will be distributed among small businesses. Consequently, the players that would be capable to invest and develop on a large scale are discriminated by the regulation.

The political aspects of these regulations are understandable, but we must be aware that this restriction reduces agricultural investments.

5.2.6. Labor force and skills

All managers, without any exception, reported that the lack of labor (not only skilled by also unskilled workers) is now not only an obstacle to investments, but is also hindering the expansion of production, in certain cases even precludes maintaining the level of production. Orders must be rejected due to lack of adequate labor. This situation has led to a definite increase of wages

Smaller firms are in a disadvantageous position partly because they typically cannot offer higher salary than larger firms and partly because they cannot operate in-house professional training for students as the multinational firms do (Audi, Mercedes, Bosch, General Electric, etc.).

The lack of labor is a reason for and a consequence of shortages of investments at the same time. It would be an obvious response to the situation to replace labor by labor-saving technological investments (thus, by capital). To do so, firms often lack adequate capital but another problem is that modern machines with CAD/CAM need workers with specialized expertise, which are even harder to find than workers with lower level of skills.

Concerning unskilled labor, the **public works scheme** is a growing obstacle concerning employment of unskilled labor. The public works scheme was introduced at the time when unemployment was high, especially in the group of unskilled labor force. In the meantime, labor market situation has changed: now the corporate sector could employ much more unskilled workers than before. However, the targets for the number of public workers are fixed and the mayors who want to fulfill the targets do not allow public workers to leave this system. This creates an increasing conflict between local entrepreneurs and local municipalities in many regions that has to be solved in short term by making the public works scheme more flexible. The raise of minimum wage for unskilled labor by 15 percent and maintaining the public workers' salary almost unchanged may provide incentive for workers to go over to the ordinary labor market.

5.3. Capital and access to loan

Access to credit is at present not a limit to investments. Banks are intensely searching for potential borrowers with a good track record. Interest rates are low; companies with a good track record can borrow at an interest rate of about 3 percent.

However, several interviewee reported that they prefer to finance their investments from own resources rather than to take a loan.

Venture capital is not widespread but it is not impossible to get access to capital by these firms.

5.4. Knowledge and technology

Manufacturing industry (one third of overall investments in Hungary)

A company may invest if it has a product or service that is competitive on the market and therefore salable. In the manufacturing industry, the firm has to have foreign business connections that provide the opportunity to increase exports. The overwhelming part of Hungarian economy, however, does not have such connections. The reason for not investing and not innovating is that the majority of the companies are small and neither has the necessary knowledge, professional relationships, nor have they achieved integration into international circles, which is also indispensable. In short, not only the knowledge of production is missing but the knowledge of "sales" too: knowledge of language, market and partners. Today it is almost impossible to find such professionals in the market.

From Hungary, it is extremely difficult to enter the international business network that already has existed for decades between companies in developed countries. Improving market positions is possible only gradually, step-by-step, but this requires a great deal of effort on the part of Hungarian companies. The majority of companies are not able/willing to this. In addition, the operation of most of the Hungarian manufacturing suppliers is based on cost-plus contracting, which does not leave financial resources to acquire the missing skills. So they can only obtain these skills by additional capital expenditure that is not acknowledged by the market in the prices, since companies of developed countries (including domestic subsidiaries of foreign companies) make contracts with the suppliers that do not involve additional cost. In Western countries, existing medium-large companies evolved over many decades, often during the "Wirtschaftswunder" of the 50's 60's (or before) when these

improvements could be built into the prices because everyone was developing these competencies at that time. The Asian tigers faced the same challenges in the seventies under protected internal market conditions. Thus, Hungarian companies have hardly or rarely any chance to break into the fully liberalized market and to seriously compete with the powerful companies in areas of traditional production.

Hence, Hungarian companies would have to be oriented into new solutions, new branches which represents a change in paradigm. Large or middle sized companies are mostly capable to do that, and also start-ups, with new technologies. The majority of micro and small companies do not belong to this group. The results of interviews are in line with the study of the National Bank of Hungary which came to the conclusion that the poor investment performance of smaller companies is largely determined by the ageing of this group of firms29. Ageing of small companies has significantly worsened the aggregate investment performance in the recent 7 years; in the meanwhile, there are too few newcomers in the palette with new thoughts, new ideas, new solutions and technologies. Thus, the dynamic in the domestic corporate sector is missing and the birth rate of new companies is very low. Since the institutional conditions to creating new companies are in Hungary rather favorable, as proved by the Doing Business indicator of the World Bank, the reason for this week dynamism should be searched in the general attitude of entrepreneurs.

Concerning new technologies the Irinyi Plan of the Hungarian government has adopted the principles of the Industry 4.0 of the EU: it aims at focusing on new digital technologies and at the wider use of info-communication solutions. How it will be converted into concrete steps and measures is not quite clear.

Concerning technological development, however, it is favorable that by no means only big companies, but also many medium size companies with sophisticated products have intense ties with universities and other research centers. Unfortunately, in many industries the background research institutes have been liquidated in recent decades.

According to the general opinion, the state should give more help to would-be exporter firms in gaining access to the foreign markets (finding partners, market research, mentoring). Long ago, this was the responsibility of the ITDH that had industry specialists for the task. Now, however, its successor body, the HIPA basically limits its activity to the task of attracting foreign investors in Hungary and to investment promotion. The Hungarian National Trading House (MNKK), on its turn, has been able to deal primarily with economic diplomacy. However, Hungarian SMEs are typically not able to export to the Far East but rather into the region (EU). It is also a common view among managers that sales professionals – who possess the necessary knowledge about the foreign markets, have technical knowledge about the relevant product group, language skills, and also business relations – are just about impossible to find. Several respondents pointed out that the specialized foreign trade companies that had existed before the transition employed such highly skilled professionals.

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29 Examination of Hungarian corporate investments with micro data. In: Growth Report 2016. National Bank of Hungary pp 44-58. December 2016. Budapest-
https://www.mnb.hu/kiadvanyok/jelentesek/novekedesi-jelentes/2016-12-09-novekedesi-jelentes-2016-december

5.5. Some additional remarks

The ability and willingness of companies to invest depends on several factors. They might be objective economic criteria (e.g. the level of technology, profitability, market demand, capital or access to credit, credit conditions, etc.), semi-objective criteria (e.g. institutional environment of firms, the firms' access to institutional support for EU funding, support of research and development, cooperation with research institutions and universities for innovation) and subjective, emotional elements, opinions and trust on the part of managers regarding the economic policy environment and overall predictability.

The task of the state is to ensure the stable conditions for businesses and to create predictable framework with institutional security. If these expectations are met, businesses are willing to think in the long run, to reinvest the profits into the company and not to stick to short-term solutions.

Hence, an indispensable condition for the normal functioning and willingness of companies to invest is the trust in economic policy and in its predictability. As we have seen, business managers have many complains about the way things stand at present, about the way they serve as disincentives against new productive investments. It should be noted, however, that the factors mentioned above work against investments in different ways, they exert their effect on different time horizons, and some of these effects are easier than others.

To illustrate this point, it is worth taking another look at chart 1.20. from section 1.3. that shows the cumulative growth rate of the investments in several major service branches.

While investments in private services spectacularly underperformed in Hungary compared to the other Visegrad countries, this underperformance was far from unanimous. Apart from plummeting real estate investments, primarily driven by the collapse of demand, trade and info-communication investments did very poorly in Hungary, while investments in the transportation sector seem to flourish.

This suggests that the „retail war" and the sectoral taxes had an immediate and clearly visible effect on the willingness of the companies within the affected sectors to invest, even if it is not easy to tell apart the respective impacts of weak demand and government meddling in the case of retail trade. On the other hand, the corruption-prone public procurements are harder to capture: the EU-funded public (or quasi-fiscal) investments in the transportation sector grew dynamically. Actually, the overpricing in this area contributed to the seemingly favorable macro data, through the overestimation of the volume of actual transport investments.

While the corruption regarding EU-funded public procurements is certainly demoralizing, distorts competition and possibly damages the quality of investments in terms of the long-term economic usefulness, it has is no easily observable effect on investments in the directly affected industries. The impact is more insidious, more diffuse and affects structure and quality rather than quantity. This problem with the statistical measurability of corruption, however, is no excuse to downplay its long-term harmful effects and the urgency of alleviating the problem.

ANNEX

Fixed effect model on the competitiveness and private investments in the European Union

A fixed effect (FE)[30] model was applied in order to estimate the mean effect of competitiveness factors on private investment ratios (in % of GDP). For the sake of simplicity a log-log model was run because the interpretation is much easier. The formal model is the following:

$$\ln(y_{it}) = \ln(X_{it})\beta + \alpha_i + u_{it} \text{ for } t=1,\ldots T \text{ and } i=1,\ldots N$$

$$u_{it} \sim N(0, \sigma^2)$$

$$Corr(X_{it}, \alpha_i) \neq 0 \text{ for the FE model}$$

where,
y_{it}: private investment ratios in country i at time t
X_{it}: matrix of variables in table 3.1, unemployment and interest rates
α_i: time invariant individual effect of country i
u_{it}: error terms
β: estimated regression coefficient of explanatory variables

Due to space limits only final results are discussed. Not all variables in the table 3.1. are included in the final model as they were statistically not significant. Due to modelling reasons lag of the dependent variable had to be included[31]. The main results are summarised in the following table:

Table A.1.: Main result of final fixed effect regression

Dependent variable: private investments ratio (in % of GDP)

Model: Fixed effects with robust standard errors (HAC1), using 252 observation for 28 cross-section units (member states) and 9 years (2007-2015, due to lagged term)

Variables	Beta (t-ratio) and significance
Constant	-0.882 (-4.288) ***
Private investment ratio$_{t-1}$	0.552 (8.92) ***
Interest rates	-0.035 (3.313) ***
Wastefulness of public spending	0.169 (1.945) *
Business impact of rules on FDI	0.283 (3.712) ***
Cooperation in labour-employer relations	-0.346 (-2.002) **

LSDV R^2 = 0.847, Durbin-Watson[32] = 1.649

Significance levels: *** 1%, ** 5%, * 10%

The proposed model explains the variation in private investment ratios well, although many explanatory variables were lost due to statistical insignificancy[33]. The variables in the model

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[30] As competitiveness reflects rather country-specific factors than random volatility, random effect (*RE*) models are inadequate. For more on FE and RE models see *Wooldridge*, J., M. (2013): Introductory Econometrics: A Modern Approach (Fifth international ed.). Mason, OH, South-Western.

[31] Due to heteroskedasticity of the error term (positive autocorrelation).

[32] The critical values for DW test statistics at 1%: d_L=1.667 and d_U=1.748.

[33] One reason for this could be the multicollinarity of independent variables, that is, high correlation between covariates. Another cause could be heteroscedasticity.

confirms the neoclassical theory of investments. In the following the β-coefficients will be elaborated.

Private investments ratios$_{t-1}$ (β=0.552)

The lagged dependent variable has a positive estimated coefficient that means if previous year's private investment ratio was high then the current year's private investment ratio tend to be also high. This relationship is probably relating to the differences between growth structures of the economies and may also have historical reasons.

Interest rates (β=-0.035)

The negative relationship confirms the neoclassical theory of investments, although size of interest rate effect is quite low – due to log-log model characteristics 1% increase in interest rates is followed by 0.035% decrease in private investment ratio on average. In case of 20% private investment ratio that would mean 0.7 percentage point.

Wastefulness of public spending (β=0.169)

The positive correlation between private investments and the assessment public spending wastefulness, where the higher value is more favourable is not shocking. Although wastefulness also generates income but the marginal product of public investments are lower. The definition of a prudent government means that the spending is controlled, investments are conducted in productive sectors (education, health etc.) and carried out by productive implementers.

Business impact of rules on FDI (β=0.283)

All governments incite FDI-inflow, thus it is plausible that the better the rules of foreign direct investments, the more favourable the FDI inflow. Foreign investments tend to have higher yields and especially in new member states it increases productivity[34]. FDI inflow is registered as private investments by definition.

Cooperation in labour-employer relations (β=-0.346)

Negative correlation implies the better the labour-employer relation, the lower the private investment ratio on average. This result has institutional background as "fair" labour-employment relations is rather a welfare factor than competitive advantage. If the economy relies on low labour cost competitive advantage then it is usually parallel with questionable labour-employer relations (eg.: China). Rules of overtime, bonuses etc. are usually more favourable to the employers if the economy's competitiveness is from rather labour than knowledge (innovation).

One may conclude that the relationship between competitiveness and private investments are not linear – that lower competitiveness does not necessarily induce lower private investment ratio. If the competitive advantage of a country relies on low labour cost it will not be as much competitive as if it would have been relied on knowledge (according to the definition of World Economic Forum). At the same time FDI seeks higher return and prefers low labour costs – thus, the private investment ratios tend to be higher if the competitiveness is lower. On

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[34] Bijsterbosch, M. – M. Kolasa 2009: FDI and productivity convergence in Central and Eastern European industry-level investigation. ECB Working Paper Series No. 992. 2009. January. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1311396

the other hand if the competitive advantage is based on high value added knowledge based economy then competitiveness is higher by definition, but private investments tend to be lower as the marginal product of capital is much higher than in low productivity countries.

Narrowing the analysis to Hungary only the wastefulness of public spending variable remained in the model. It is also very talkative that the correlation between private investment ratios and the wastefulness variable is -0.67, that is, the more wasteful the government (low competitiveness score), the higher the private investment. This is totally contrary to the model. The Hungarian government conducted many questionable investments in the past few years, many of them was due to popularity reasons (like the sport arenas) and can be considered as wasteful spending. Several times projects (including the distribution of EU funds) are overpriced and the a priori estimated costs are sometimes much lower than the final budget. As public investment costs are higher – regardless the productivity of the investment – private investment ratios increase. On the other hand that questions the sustainability of government spending.

The correlation between the Hungarian business impact rules on private investment ratios is positive (0.65) and it is a compliment of the government policy of FDI absorption. In the past years several large scale projects were implemented in Hungary, especially in the automotive sector. Large scale investors may get tax discounts and may become the strategic partner of the government that mean further advantages.

Labour-employer relation has a negative correlation in the panel model run on EU member states. In contrary to that there is positive correlation if only the Hungarian data is investigated (0.59). Hungarian labour-employer relations are generally good, conflicts are rare. Laws protect both the employee and the employer, thus this competitiveness factors is not really relevant in Hungary.

The overall competitiveness assessment of Hungary has a moderate effect on the private investment ratios. Institutional deficiencies are offset by favourable FDI policy of the government that attained some large scale investments. Besides that large amount of capital is distributed in the economy (mainly from the EU funds) that also compensates anomalies in the competitiveness of institutions. That is coupled with relative good Labour Code. Although the competitiveness of education system is left out from the model due to statistical insignificancy it can be still a considerable factor for Hungary. Although there is weak correlation (0.4) the direction is positive and if the decreasing trend in the quality of the Hungarian education is considered it is going to have an effect on private investment ratios as well.