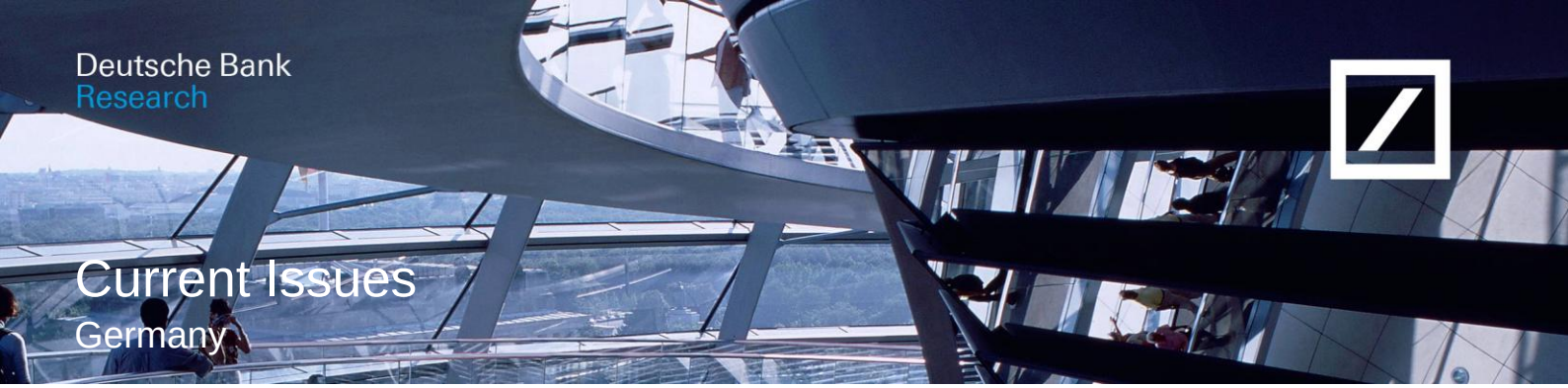

Capital investment in Germany at sectoral level

Service providers continue to expand while industry contracts slightly

January 9, 2015

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Germany's service sectors have shown themselves to be keener to invest than industry in recent years. The net fixed assets held by the service sectors grew by almost 28% in real terms between 1995 and 2012, although their growth rate has slowed over time. By contrast, the capital stock in the industrial sectors has shrunk by 1.6% in real terms. While, on the one hand, politicians in Germany have been expressing regret or even voicing criticism over the country's current lack of capital spending, on the other they have recently introduced measures (such as their policies on pensions and labour markets) that are hampering investment in Germany rather than stimulating it; this approach is inconsistent.

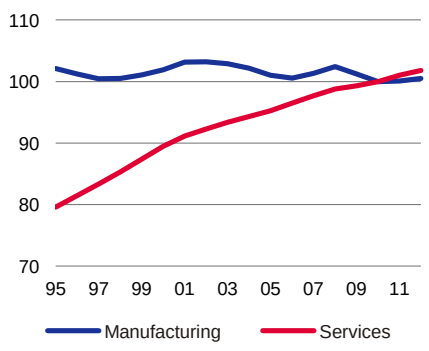
Within industry itself, the automotive and pharmaceutical sectors in particular have boosted their capital expenditure in Germany. By contrast, the textile & clothing, wood-processing and food sectors have seen their net fixed assets decrease sharply in real terms. All energy-intensive sectors (paper, building materials, chemicals, metal production) reduced their capital stock between 1995 and 2012 – substantially in some cases. Given the uncertainty surrounding the direction of long-term energy policy in Germany, there are very few signs that these industries will overcome their reluctance to invest any time soon.

Among the service sectors, providers of business services and logistics raised their capital spending in Germany considerably. The trends within the information and communications sector were highly divergent, with strong growth among IT and information service providers but decreases in tele-communications.

If (anticipated) economic and, especially, political conditions in Germany (and Europe) were better, the private sector would invest more. This provides an indirect answer to the question of whether companies are investing too little in Germany. The political class should therefore interpret private companies' reluctance to invest as a wake-up call.

Services are expanding capital stock in real terms while industry flatlines 1

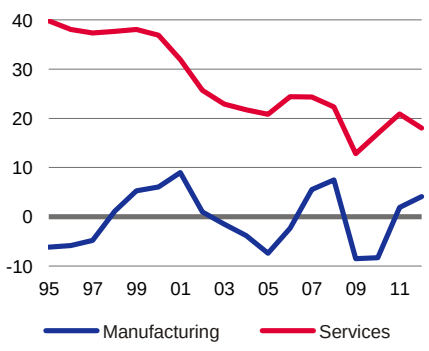
Real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

Services have been much keener to invest than industry 2

Nominal net capital expenditure as a percentage of nominal gross capital expenditure in Germany

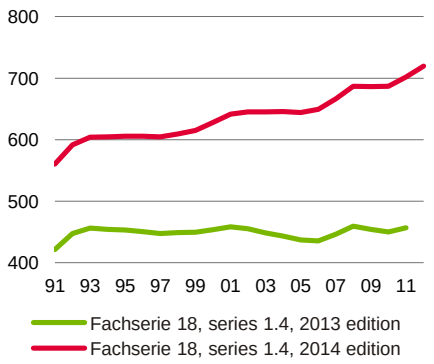


Source: German Federal Statistical Office

Capital investment in Germany at sectoral level

Industry's net fixed assets increase after revision of the national accounts 3

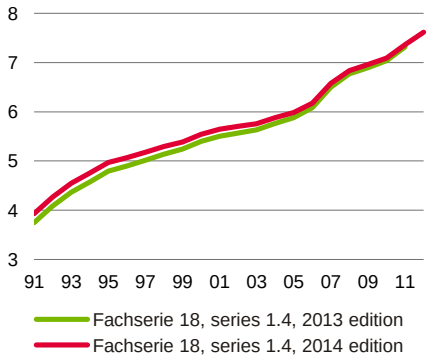
Net fixed assets at replacement cost in German manufacturing sectors (EUR billion)



Source: German Federal Statistical Office

Inclusion of R&D spending in services is hardly noticeable 4

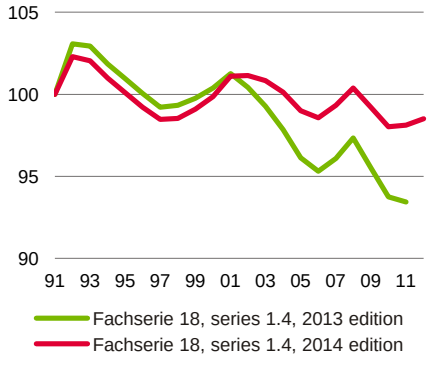
Net fixed assets at replacement cost in German services sectors (EUR trillion)



Source: German Federal Statistical Office

Smaller decline in industry's net fixed assets after statistical revision 5

Real net fixed assets in German industry; 1991=100



Source: German Federal Statistical Office

1. Introduction: capital investment in Germany has recently come under the spotlight

Is there an investment shortfall in Germany? And, if so, how big is it? And does it mainly affect public or private-sector investment? These and similar questions have been hotly debated in recent months. Governments in many countries as well as a number of domestic and international institutions (such as the International Monetary Fund [IMF] and the German Institute for Economic Research [DIW]) have accused the German state of investing too little and argue that too little is being invested in Germany.

Deutsche Bank Research has also weighed into this debate.[1] Two key findings of our analysis are that a considerable shortage of capital investment has indeed accumulated in the public sector (education and infrastructure), whereas in the private sector – given the prevailing economic and political conditions – there is no sign of any such 'investment gap'.

The following study analyses capital spending in individual sectors[2] across Germany. We therefore examine the question of which private-sector segments have traditionally invested heavily and which have invested little. In doing so, we focus on major industrial and service sectors. We analyse two key indicators in this report. The first of these is nominal net capital expenditure, which is the difference between gross capital expenditure and depreciation. The second key indicator that we discuss in our survey is net fixed assets, which are analysed in both real and nominal terms. Changes in the level of net capital expenditure (a flow variable) determine the changes in net fixed assets (a stock variable) over time. Nominal net fixed assets (measured at replacement cost) are also affected by changes in the prices of capital goods held in inventories. Net fixed assets reported in real terms do not, of course, reflect these price effects and are therefore the best indicator of changes in the capital stock over time.

The question of whether too little or perhaps even too much is being invested in a particular country can only ever be properly answered if we consider its existing economic, political and social framework. We therefore conclude this report by exploring the reasons why some sectors have invested more and some less in Germany in recent years. We place this analysis within the context of the current capital investment climate in Germany.

Spending on research and development has counted as part of capital investment since national accounts were revised

Before we get into the real detail of our data analysis, it is worth explaining how Germany's national accounts were revised in the summer of 2014 because this change has had a significant impact on the amount of net fixed assets reported by individual sectors. Since Germany's national accounts were revised (including on a retrospective basis), spending on research and development (R&D) has counted as part of capital investment. The capitalisation of these expenses thus increases the fixed assets held by companies and sectors. If we then compare the national accounts statistics on nominal net fixed assets from 2013 (which are based on data up to 2011) with the latest statistics from 2014 (which are based on data up to 2012), we immediately notice that the increase caused by the revision of the national accounts is much higher in manufacturing (also referred to below as 'industry') than in service sectors: the net fixed assets held by German industry in 2011 were revised upwards by EUR 245 billion or

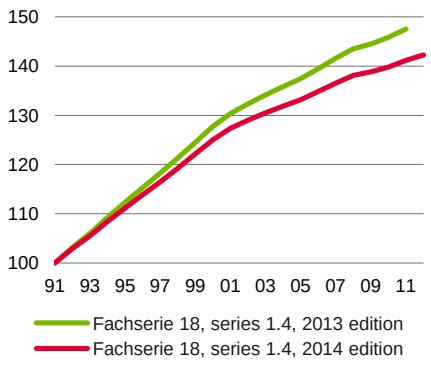
[1] See Gräf, Bernhard and Oliver Rakau (2014). Is Germany facing an investment gap? Likely only in the public sector! In: Focus Germany. Ice bucket challenge and structural investment gap.

[2] The sectors analysed in this report are generally referred to in the accompanying charts by their NACE codes. A list of these NACE codes can be found in appendix 1 on page 17.

Capital investment in Germany at sectoral level

Revision of national accounts has made only a slight relative difference in services 6

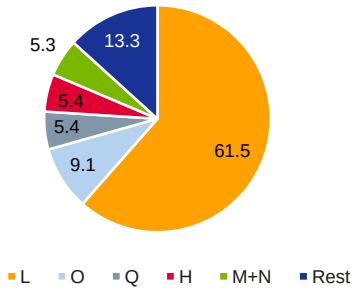
Real net fixed assets in German services; 1991=100



Source: German Federal Statistical Office

Real-estate activities well ahead of the rest 7

Service sectors'* share of nominal net fixed assets in 2012 (%)

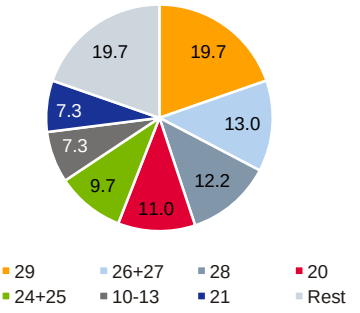


* Based on NACE codes; see list in appendix 1

Source: German Federal Statistical Office

Automotive, electrical and mechanical engineering predominate 8

Manufacturing sectors'* share of nominal net fixed assets in 2012 (%)



* Based on NACE codes; see list in appendix 1

Source: German Federal Statistical Office

almost 54% (!). Although the revision-related growth in the net fixed assets held by service sectors was still an impressive EUR 45 billion, this amounted to a rise of only 0.6% in relative terms. Compared with service providers, industry invests considerably more in R&D than it does in equipment and buildings. If we analyse the levels of real net fixed assets both before and after the national accounts were revised, we also notice that the relative revision-related difference is greater in industry than it is in services.

Although we only use the new figures in the following survey, it is important to take the national accounts revision into consideration when comparing this report with previous studies on capital investment in Germany.

2. Services account for lion's share of net fixed assets

Before we examine Germany's capital investment trends at sectoral level in recent years, we will first give a brief overview of the absolute amounts of net fixed assets, which can be seen as the result of previous capital spending. Nominal net fixed assets in Germany totalled just over EUR 9 trillion at the end of 2012. Almost 85% of this amount was attributable to service sectors (including public services). Within services, by far the largest share of fixed assets was accounted for by real-estate activities (2012: 61.5%). This large percentage can be explained by the fact that this sector includes the value of a substantial proportion of the land and buildings in Germany. Other service sectors that are very important include public administration, defence and social security (share of 9.1%) as well as healthcare and welfare (5.4%). Of the mainly private-sector services, transportation & storage and providers of business services were among the most important, each accounting for more than 5% of total net fixed assets.

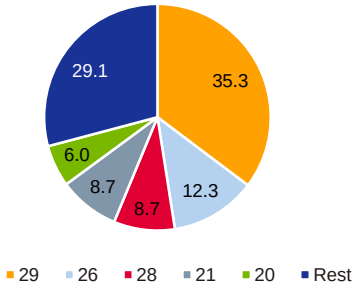
Industry accounted for only around 8% of total net fixed assets in Germany in 2012.[3] The automotive industry, electrical engineering and mechanical engineering were the three largest industrial sectors and together accounted for some 45% of the capital stock. They were followed by chemicals (share of 11%) and the metal industry (9.7%). It is remarkable that industry accounts for only 8% of total net fixed assets in Germany if one considers that its share of gross value added is roughly 22%. This indicates that productivity in manufacturing industry is on average higher than that in the service sectors.

Net fixed assets comprise equipment and other plant as well as buildings. Since Germany's national accounts were revised, equipment and other plant has included capitalised R&D spending. The industrial and service sectors differ substantially in terms of the relative importance of the two components of net fixed assets. Whereas almost 82% of the net fixed assets held by industry in 2012 consisted of plant and equipment and a mere 18% or so related to buildings, the situation pertaining to services was almost totally the opposite, with 88% of net fixed assets here attributable to buildings and only 12% representing equipment and other plant. It was only to be expected that equipment (such as machinery) and intellectual property (such as R&D spending) would be of greater relative importance in industry than in services. What was surprising, however, was the size of this difference. This demonstrates just how crucial industry remains for innovation in Germany. According to figures published by Stifterverband für die Deutsche Wissenschaft, manufacturing accounted for almost 87% of total R&D spending across the entire German economy in 2013.

[3] Agriculture, forestry, mining, energy supply, water supply, waste disposal, and construction together accounted for roughly 7.5% of net fixed assets in 2012. However, we will not be examining these sectors any further in this report.

Automotive industry way out in front 9

Individual sectors'* share of total R&D spending in Germany in 2012 (%)

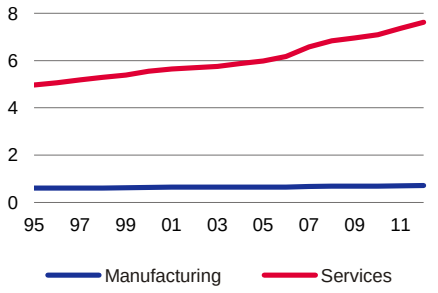


* Based on NACE codes; see list in appendix 1

Source: Stifterverband für die Deutsche Wissenschaft

Services have significantly more net fixed assets than industry 10

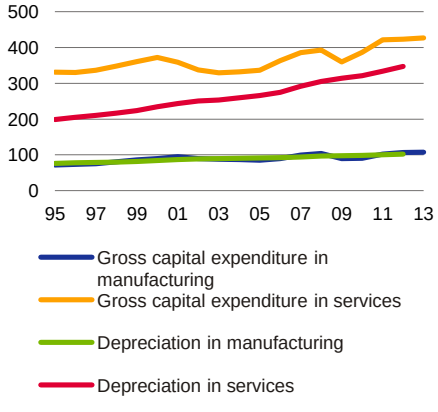
Nominal net fixed assets in Germany (EUR trillion)



Source: German Federal Statistical Office

Depreciation becoming increasingly important in services 11

Nominal gross capital expenditure and nominal depreciation in Germany (EUR billion)



Source: German Federal Statistical Office

3. Capital investment at sectoral level

In this chapter we trace the sectoral trends observed in real terms in net capital expenditure and net fixed assets since 1995. We have chosen this baseline year because the effects of the post-reunification boom and the fallout from the subsequent recession in Germany had both largely dissipated by 1995. We will start by examining the differences between industry and services. We will then consider the developments and trends in selected industrial sectors before concluding with an analysis of individual service sectors.

3.1 Services much keener to invest than industry

The first thing we notice is that the net fixed assets held by the service sectors have risen sharply in real terms, growing by 27.9% between 1995 and 2012. These assets have increased every single year since 1995 – even during the recession of 2008/09 – although their growth rate has slowed over time. By contrast, net fixed assets in the manufacturing sector have declined slightly by 1.6% in real terms over the same period (see chart on first page). Real net fixed assets held by industrial sectors decreased in the same number of years as they increased between 1995 and 2012. Because net fixed assets during the aforementioned period also contracted in those sectors that are not being analysed any further in this report (see footnote 3), the 21.5% growth in total price-adjusted net fixed assets in Germany between 1995 and 2012 can be solely attributed to services. A truly astonishing fact which should serve as a wake-up call for all concerned is that German industry, which is currently receiving international plaudits for its strong innovation and competitiveness, has not only failed to expand its own capital stock in its home country over the long term but has actually slightly reduced it. An even more astonishing fact is that the gross value added by the manufacturing sector in real terms – despite its subdued levels of capital spending – has risen slightly more sharply than that in the service sectors (up by 34.7% against 31.8%); this is a further indicator of industry's high productivity.

The wide gap between industry and services in terms of their investment behaviour is illustrated by the nominal figures as well. Nominal net fixed assets in the manufacturing sector grew by just under 19% between 1995 and 2012, whereas they increased by more than 53% in the services sector.

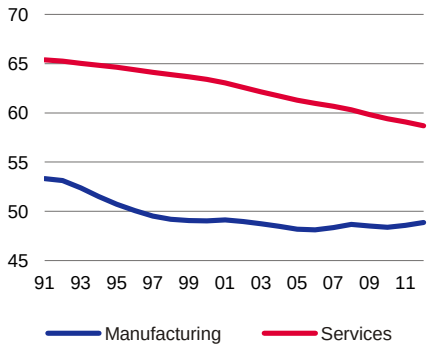
Capital stock used by services is more modern

There are also significant differences between the manufacturing sectors and the service sectors in terms of their 'modernity ratio', which is defined as nominal net fixed assets as a percentage of nominal gross fixed assets. This ratio for industry in 2012 was just under 49%, which was 10 percentage points lower than the corresponding figure for services. It should be noted, however, that industry's modernity ratio has tended to stabilise in recent years. This means that gross and net fixed assets have grown at roughly the same rate in nominal terms; or, expressed slightly differently, gross capital expenditure and depreciation have more or less balanced each other out. In the service sectors, on the other hand, the modernity ratio has fallen throughout the period under review – albeit at a consistently high level. The capital stock used by services is, on the whole, more modern than that found in industry. What's more, gross capital expenditure in services has expanded rapidly in recent years. An automatic consequence is that depreciation has become more important in relative terms and is gradually closing the gap on the gross capital expenditure in the service sectors (see chart 11).

Capital investment in Germany at sectoral level

Modernity ratio for services is falling while industry has stabilised recently 12

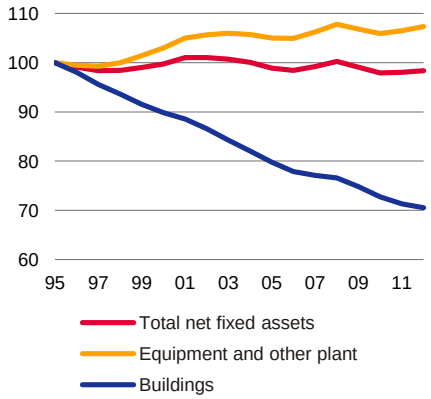
Nominal net fixed assets as a percentage of nominal gross fixed assets in Germany



Source: German Federal Statistical Office

Industry's capital spending on buildings has fallen constantly 13

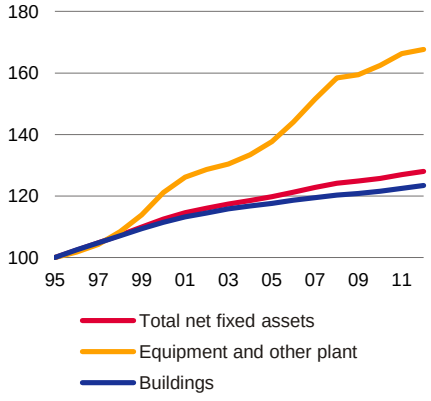
Real net fixed assets in German manufacturing; 1995=100



Source: German Federal Statistical Office

Service providers are increasing spending on capital equipment 14

Real net fixed assets in German services; 1995=100



Source: German Federal Statistical Office

The different trajectories followed by industry and services over time can also be illustrated by a graphic that shows nominal net capital expenditure (gross capital expenditure minus depreciation) as a percentage of nominal gross capital expenditure (see chart on first page). In manufacturing this ratio was negative in nine of the years between 1995 and 2012. This means that industrial companies' capital spending on new plant and equipment in these years was lower than their depreciation charges. This ratio was positive in the other nine years. By contrast, the ratio of net capital expenditure to gross capital expenditure for services was positive throughout this period – albeit on a downward trajectory. This means that although the capital stock used for services increased, its growth rate slowed over time.

Capital spending on equipment and other plant is stronger than investment in buildings

If we analyse the two components of net fixed assets, we can see that the manufacturing sector's net capital spending on buildings has fallen constantly in recent years. Real net fixed assets in the form of buildings across German industry as a whole decreased by almost 30% between 1995 and 2012. Not one industrial sector increased the real value of its building stock during this period! By contrast, industry's real net fixed assets consisting of equipment and other plant (including R&D) grew by more than 7%.

Although spending by the service sectors rose in both segments between 1995 and 2012, here too capital expenditure on equipment and other plant grew much more strongly than investment in buildings. Real net fixed assets relating to equipment and other plant used in the service sectors jumped by almost 68% between 1995 and 2012, whereas real net fixed assets in the form of buildings advanced by 'only' around 28%.

Our analysis of this divergent trend reveals that both the industrial and service sectors are investing more in things such as machinery, software and intellectual property than they are in bricks and mortar.

If we break down the total capital stock's modernity ratio into equipment and other plant, on the one hand, and buildings on the other, we can see that the buildings used in the service sectors exhibit the highest modernity ratio – albeit on a downward trajectory. The modernity ratios for equipment and other plant in both the industrial and service sectors have remained fairly consistent, although the latter have attained a higher level overall. The lowest modernity ratio relates to buildings in the manufacturing sector, although this figure has edged up slightly in recent years. We can therefore conclude that although industry's net fixed assets in the form of buildings have been declining, the modernity ratio for the remaining buildings has risen again lately.

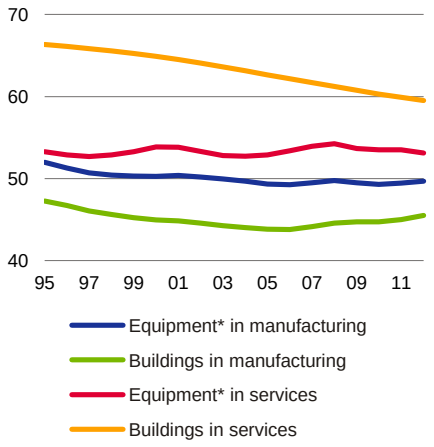
3.2 Only a few industrial sectors have increased their net fixed assets

The following section analyses individual sectors of German manufacturing industry. Of the 19 industrial sectors explored here, nine increased their net capital expenditure and their real net fixed assets between 1995 and 2012, while the capital stock in twelve manufacturing sectors fell in real terms (please also refer to the charts in appendix 2). By far the strongest growth was achieved by the automotive industry (52%). It was followed some way behind by the pharmaceutical industry (up by 26.9% between 1995 and 2012), the production of data processing equipment, electronic devices and optical instruments (up 11.1%), the production of rubber and plastic goods (up 4.5%) and mechanical engineering (up 2.5%). Domestic output in all these sectors rose during the

Capital investment in Germany at sectoral level

Industry's building stock has lowest modernity ratio 15

Nominal net fixed assets as a percentage of nominal gross fixed assets in Germany

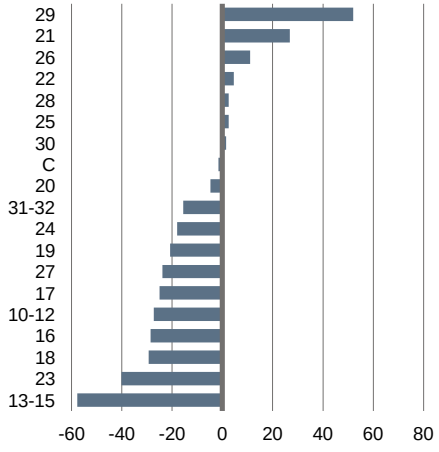


* Equipment and other plant

Source: German Federal Statistical Office

Auto and pharmaceutical sectors increase capital stock in Germany 16

Percentage change in industrial sectors'* real net fixed assets (between 1995 and 2012)



* Based on NACE codes; see list in appendix 1

Source: German Federal Statistical Office

period under review.[4] Viewed over the long term they are therefore research-intensive growth industries that all – except rubber and plastics – had export ratios in excess of 60% in 2013 (average for German manufacturing as a whole: 48.2%).

The higher levels of capital spending in the automotive and pharmaceutical sectors have a noticeable impact on the total levels for industry as a whole. Chart 17 compares net capital expenditure as a percentage of gross capital expenditure in the manufacturing sector as a whole with the corresponding figure for manufacturing industry excluding the automotive and pharmaceutical sectors. This clearly illustrates how these two sectors significantly raise the average for industry as a whole. With their figures stripped out, the ratio of net capital expenditure to gross capital expenditure is positive in only five (instead of nine) out of 18 years.

The importance of these two sectors is also illustrated by the levels of nominal net fixed assets over time. As mentioned earlier, these assets across manufacturing industry as a whole grew by just under 19% between 1995 and 2012. If we strip out the assets of the automotive and pharmaceutical sectors, this growth is reduced to only around 6%. The pharmaceutical sector is the only industrial sector whose nominal net capital expenditure was positive throughout the period under review, which means that this sector's investment always exceeded its depreciation charges. Only in three out of 18 years was net capital expenditure in the automotive industry negative, the most recent year being 2009 during the recession.

Some industrial sectors have reduced their capital stock considerably

As mentioned above, the real net fixed assets of most industrial sectors have contracted in recent years. The largest reduction in domestic capital expenditure has occurred in the textile and clothing industry (which includes the manufacture of leather goods and shoes), where real net fixed assets decreased by almost 58% between 1995 and 2012. Other industrial sectors whose real net fixed assets have fallen over the long term include building materials (down by 40.1% between 1995 and 2012), wood processing (down 28.6%), printing (down 27.7%), food (down 27.3%, which includes beverage production and tobacco processing) and paper (down 25.1%).

The aforementioned sectors – in contrast to the industrial sectors whose net fixed assets have increased – have below-average export ratios and are less R&D intensive. Nonetheless, there are some industrial sectors that exhibit above-average export ratios and high R&D spending but whose real net fixed assets decreased between 1995 and 2012. This is the case with the chemical industry (down 4.8%) and the manufacture of electrical equipment (down 23.8%), both of which form part of Germany's industrial core.

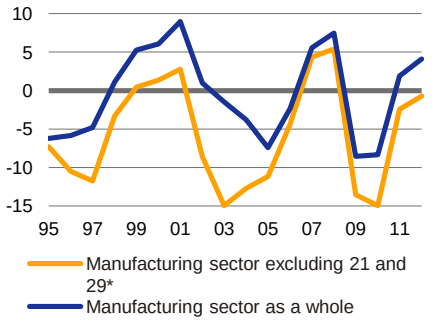
Nominal net capital expenditure in the food sector and in the textile and clothing industry was negative in every single year between 1995 and 2012, which means that depreciation always exceeded gross capital investment. Net capital expenditure in the building-materials industry was positive only once during this period, namely in 1995. Net capital spending was positive in only two years in the printing industry and only three times in metal production and processing. Nominal net capital expenditure in the export-driven and R&D-intensive chemical industry has been negative every single year from 2003 onwards.

[4] See chart overview in appendix 2.

Capital investment in Germany at sectoral level

Automotive and pharmaceutical sectors bump up the average 17

Nominal net capital expenditure as a percentage of nominal gross capital expenditure in Germany

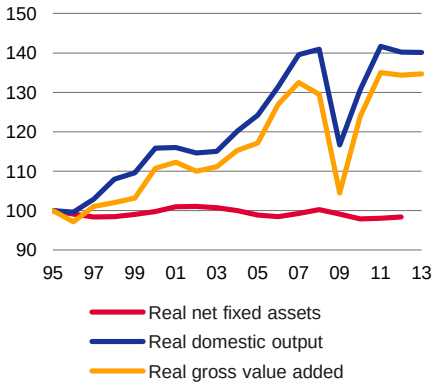


* 21 and 29 are the NACE codes for the pharmaceutical and automotive sectors

Source: German Federal Statistical Office

Output and gross value added rise while capital stock remains fairly stable 18

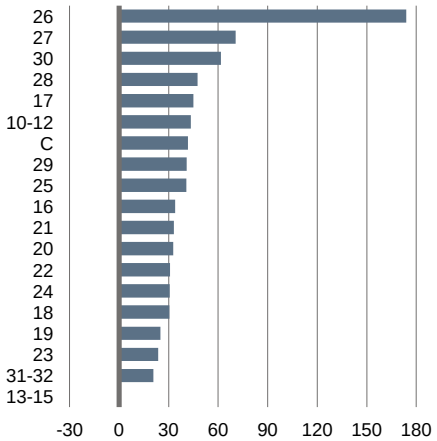
Manufacturing in Germany; 1995=100



Source: German Federal Statistical Office

Output has risen faster than net fixed assets 19

Difference between change in output and change in net fixed assets* in Germany (%age points)



* Output and net fixed assets both shown in real terms; comparison period 1995 to 2012; labelling of the vertical axis based on NACE codes

Source: German Federal Statistical Office

Industrial building stock is depreciating

As mentioned earlier, net fixed assets in the form of buildings declined in all industrial sectors between 1995 and 2012. This was true even of those sectors whose total net fixed assets increased sharply. Net fixed assets consisting of buildings contracted by more than 4% in the pharmaceutical industry and by almost 15% in the automotive sector. Only in the metal production and processing industry did the net fixed assets relating to buildings decrease more quickly than the corresponding assets in the form of equipment and other plant. In the building materials sector the net fixed assets in these two segments declined at roughly the same rate. The general conclusion to be drawn here is that the industrial building stock has depreciated especially quickly in recent years. The fact that parts of the value chain have shifted from industry to the service sector is likely to have contributed to this trend. However, it is impossible to quantify this effect precisely based on the statistics alone.

Domestic output and gross value added have outperformed net fixed assets

The industrial sectors exhibit a positive correlation between net fixed assets and domestic output over time. Although the correlation between the changes in their net fixed assets and the changes in their gross value added is also positive, this correlation is less close owing to a few outliers.[5]

Real domestic output and real gross value added have outperformed real net fixed assets in almost all industrial sectors. The textile and clothing industry is the only exception in comparisons between output and net fixed assets: domestic production in this sector fell marginally more sharply than net fixed assets between 1995 and 2012, although the two relevant time series run almost parallel to each other (see chart in appendix). The difference between the increase in output and the change in the level of net fixed assets is particularly large in the electrical engineering industry. In comparisons between gross value added and net fixed assets there is also one sector whose capital stock has "outperformed" the value added: Real gross value added in the coking and oil refining sector fell more sharply than net fixed assets. The increase in real net fixed assets in the automotive industry was only marginally lower than the increase in domestic value added. The high momentum in real net fixed assets in the automotive industry might be attributable to above-average levels of R&D spending in Germany.

Raising productivity or simply running down the capital stock?

The fact that domestic output in virtually all industrial sectors outperformed net fixed assets between 1995 and 2012 could plausibly be interpreted in one of two ways. One could, on the one hand, argue that productivity in the manufacturing sector has risen steadily in recent years, which has given rise to this gap. On the other hand, one could equally conclude from the data that capital investment in equipment and buildings has not kept pace with the stronger growth in output and, consequently, that the capital stock has over a number of years been over-used or has even been run down.

The answer to the question of which of these two interpretations is more correct will no doubt vary from one sector to another. The empirical data alone cannot

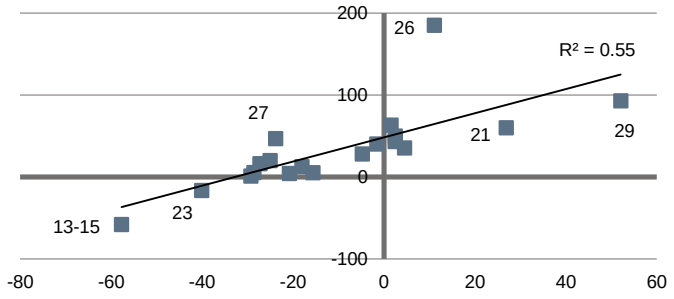
[5] For example, the real gross value added in the production of data processing equipment, electronic devices and optical instruments (NACE code 26) and in other vehicle manufacturing (30) jumped by 337% and 189% respectively between 1995 and 2012. Excluding these two outliers would roughly double the coefficient of determination (R^2) in chart 21.

Capital investment in Germany at sectoral level

unequivocally resolve the matter one way or the other. Nonetheless, it is possible to distinguish between three types of industrial sector. The first group comprises those sectors whose output and net fixed assets have increased and where the differences in growth rates are relatively small and can plausibly be explained by productivity improvements. These industries include the automotive sector, mechanical engineering, other vehicle manufacturing, pharmaceuticals and the production of rubber and plastic goods. Rising demand and output in these industries have been accompanied by stronger investment in the capital stock and R&D. These sectors can be seen in the upper-right quadrant of chart 20. The particularly large difference in the case of the production of data processing equipment, electronic devices and optical instruments could be explained by the above-average pace of technological progress in this sector.

Domestic output and capital stock closely correlated 20

X-axis: percentage change in real net fixed assets in industrial sectors*
Y-axis: percentage change in real domestic output in industrial sectors*

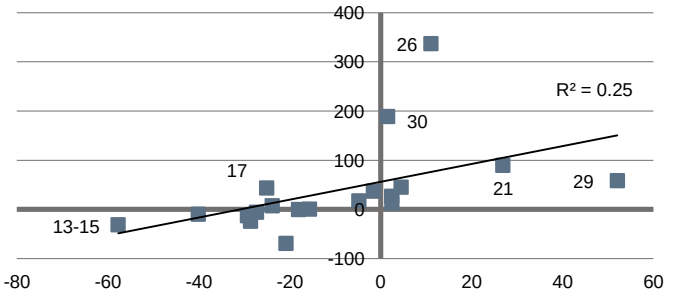


* Change between 1995 and 2012 in each case; data labelling based on NACE codes

Sources: German Federal Statistical Office and Deutsche Bank Research

Only a few outliers 21

X-axis: percentage change in real net fixed assets in industrial sectors*
Y-axis: percentage change in real gross value added in industrial sectors*



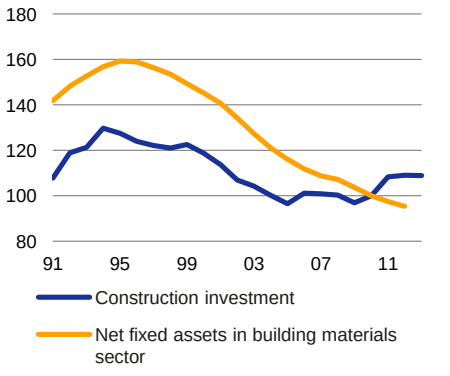
* Change between 1995 and 2012 in each case; data labelling based on NACE codes

Sources: German Federal Statistical Office and Deutsche Bank Research

The second group of sectors comprises the textile and clothing industry and the building materials industry, which have seen both their capital expenditure and real net fixed assets as well as their domestic output decline in recent years. Although these decreases are similar in terms of their scale, the reasons for this trend differed. The key factor in the textile and clothing industry has been ongoing plant closures in Germany and the relocation of production facilities to countries that have lower labour costs. In the building materials industry, on the other hand, the main reason is likely to be that this sector has pursued a cautious capital spending strategy in response to the persistently low levels of construction activity for years in the wake of Germany's reunification boom. It will be particularly interesting to see whether capital expenditure in this sector starts to grow soon, because construction investment has recovered in recent years whereas net fixed assets in the building materials industry have continued to contract.

Construction investment affects fixed assets in building materials sector 22

Real constr. investment and real net fixed assets in buliding materials sector, Germany; 2010=100



Source: German Federal Statistical Office

A slightly more difficult question to address is, last but not least, the situation in those industrial sectors where investment in the capital stock has been reduced since 1995 despite rising demand and output. These industries include metal production and processing, chemicals, paper, food and other sectors which can be seen in the upper-left quadrant of chart 20. Here, again, some of the difference can no doubt be explained by productivity improvements. Nonetheless, this raises the question of why these sectors on average have cut their capital spending despite growing output and whether this trend of divergence between output, on the one hand, and investment or net fixed assets, on the other, is sustainable in the long term. Can the aforementioned sectors continue to raise their output without increasing their real net capital expenditure? We will be

addressing these questions in chapter 4, where we also explore potential reasons for the divergent trends described here.

3.3 Almost all service sectors have increased their net fixed assets

We conclude this chapter by looking at the investment behaviour and changes in net fixed assets of individual service sectors over time. The general picture here is much more homogeneous than in industry because almost all service sectors reported positive net capital expenditure and increased their real net fixed assets on average between 1995 and 2012.

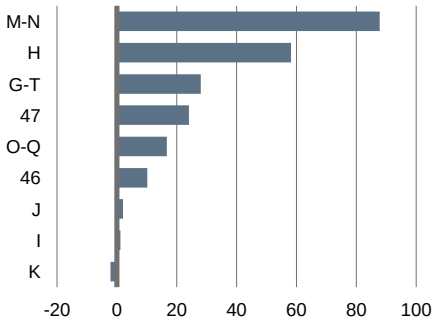
Providers of business services expand their capital stock the most

Among the generic groups of service sectors, providers of business services generated particularly strong growth, with net fixed assets increasing by almost 88% in real terms between 1995 and 2012. This sector achieved above-average annual growth rates up to and including 2008. In subsequent years, however, it was hit by the recession of 2008/09 as net fixed assets in this sector fell in three out of the four years between 2009 and 2012. Individual segments within the business services sector proved to be especially keen to invest. These included architects and engineering firms, technical, physical and chemical surveys (where net fixed assets grew by 188% between 1995 and 2012), temporary employment agencies (up 160%) and the renting/leasing of mobile assets such as car rental (up 125%). One likely reason for this strong growth is that the services rendered by these sectors have been outsourced by industry in recent years and that industry has made its own value creation processes leaner and more flexible (increase in temporary employment and the leasing/rental of vehicles and equipment as and when required).

Capital investment in the transportation and storage sector has also been buoyant. Nominal net capital expenditure in this sector was positive throughout the period under review. Net fixed assets rose by around 58% in real terms between 1995 and 2012. One reason for this trend was that the vehicle fleets used in sectors such as aviation and shipping increased substantially on the back of strong transportation growth. In addition, industry's outsourcing of services (such as transportation) is once again likely to have been a contributory factor.

Almost all service sectors have increased their capital stock 23

Percentage change in service sectors'* real net fixed assets (between 1995 and 2012)

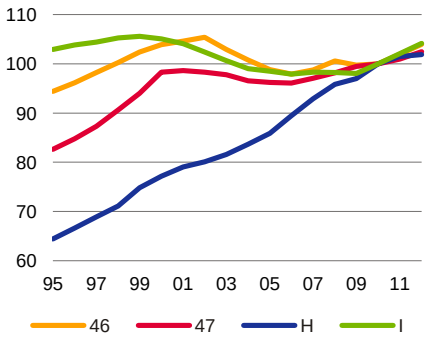


* Based on NACE codes

Source: German Federal Statistical Office

Especially strong growth in transportation and storage 24

Real net fixed assets in German retail, wholesale, transportation and hospitality*; 2010=100



* Based on NACE codes

Source: German Federal Statistical Office

Expansion of retail networks has had an impact; information and communications sector has grown only slightly on average

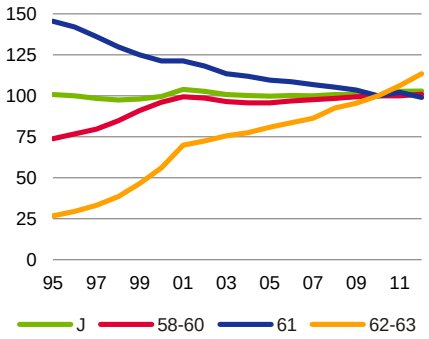
Growth in real net fixed assets in the retail sector was much lower (24% between 1995 and 2012). The main reason for this trend was the level of capital spending on buildings, with real net fixed assets in this area increasing by some 44% – which is an indication of the expansion of retail networks in recent years as a result of the stiff competition. Total net fixed assets in the wholesale sector grew by 'only' 10.5%. The process of consolidation taking place in vehicle dealerships (which include vehicle maintenance and repairs) was reflected in the fact that net fixed assets increased by only 1.5%. While net fixed assets consisting of equipment and other plant grew, the capital stock in the form of buildings contracted (i.e. fewer but better-equipped vehicle dealerships).

It is slightly surprising to see that the information and communications sector, which is generally regarded as being a growth industry, only expanded its net fixed assets by just over 2% in real terms between 1995 and 2012. However, the segments within this sector followed highly divergent trajectories. IT and information service providers, for example, reported positive net capital expenditure across the board, which enabled them to boost their net fixed

Capital investment in Germany at sectoral level

Highly divergent trajectories 25

Real net fixed assets in German information and communications*; 2010=100

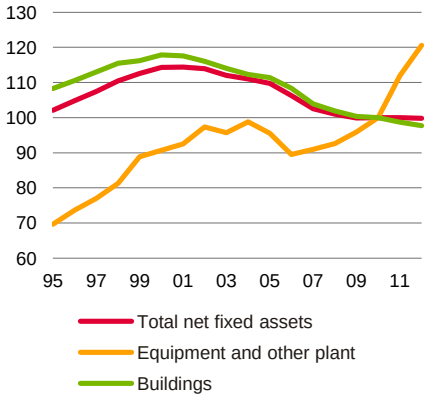


* Based on NACE codes

Source: German Federal Statistical Office

Buildings are becoming less important 26

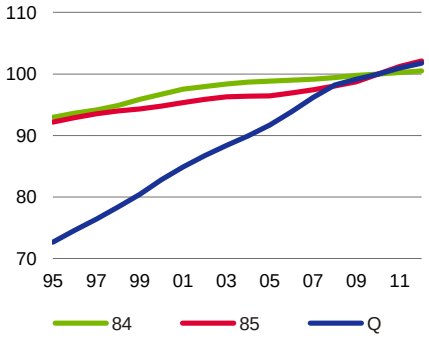
Real net fixed assets in German financial and insurance services; 2010=100



Source: German Federal Statistical Office

Healthcare and welfare have achieved above-average growth 27

Real net fixed assets in German public services*; 2010=100



* Based on NACE codes

Source: German Federal Statistical Office

assets by 326% (!). Audiovisual media and radio also generated significant growth (59%). On the other hand, net fixed assets in telecommunications fell by 32% in real terms during the period under review. This sector undertook substantial capital investment in the immediate aftermath of German reunification, such as laying a cable network in eastern Germany. In the mid-1990s, however, its gross capital expenditure fell to much lower levels while depreciation remained high. Consequently, its capital stock contracted in real terms. One factor that may have been relevant here is that this sector sold a few buildings during the period under review, because the decline in net capital expenditure was solely attributable to buildings.

Financial and insurance service providers have been reluctant to invest

Financial and insurance service providers showed themselves on average to be reluctant to invest in the period 1995 to 2012. Their net fixed assets decreased by more than 2% in real terms over this time. If we look at the segments within these sectors, insurers and pension funds performed much worse (down by 21.6%) than financial services providers, which expanded their capital stock by almost 11%. One noticeable trend in the case of financial and insurance service providers is that they slashed their capital spending on buildings while substantially raising their investment in equipment and other plant. Whereas net fixed assets consisting of buildings shrank by 9.8% in real terms between 1995 and 2012, assets in the form of equipment and other plant grew by more than 73%. This demonstrates that office buildings and branches are losing importance in this sector while IT infrastructure, for example, is becoming more relevant.

Public services saw their net fixed assets grow by almost 17% in real terms during the period under review. Healthcare and welfare reported above-average growth of 40.1%. This reflects demographic trends and technological advances in medicine (more older people who are being looked after in care homes as well as better facilities in hospitals and care homes). Much smaller increases in net fixed assets were seen in education and teaching (up by 10.8%) and in public administration, defence and social security (up 8.1%).

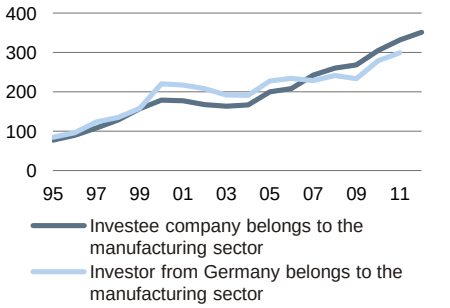
Close correlation between gross value added and net fixed assets

The changes in real net fixed assets and real gross value added in the service sectors are closely correlated – or, at least, they are if the relevant calculations are only made at the level of the generic groups. Chart 28 shows how IT and information service providers in particular as well as telecommunications protrude out of the scatter diagram. IT and information service providers massively increased both their capital stock and their gross valued added during the period under review. Telecommunications raised its gross valued added significantly despite the fact that its net fixed assets declined.

Capital investment in Germany at sectoral level

Foreign direct investment is rising 29

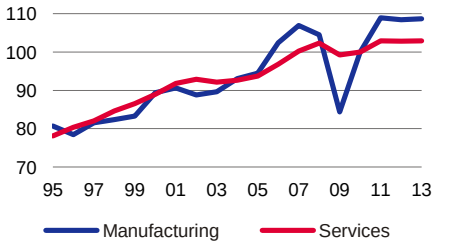
Stock of foreign direct investment by German companies (EUR billion)



Source: Deutsche Bundesbank

Industry's growth has been more cyclical but, overall, stronger 30

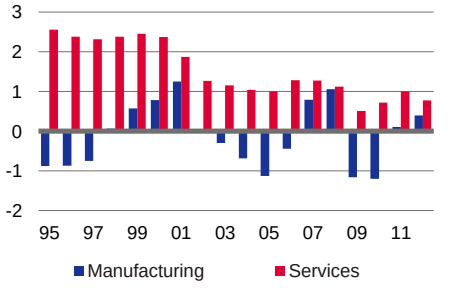
Real gross value added in Germany; 2010 = 100



Source: German Federal Statistical Office

Industry is much more cyclical 31

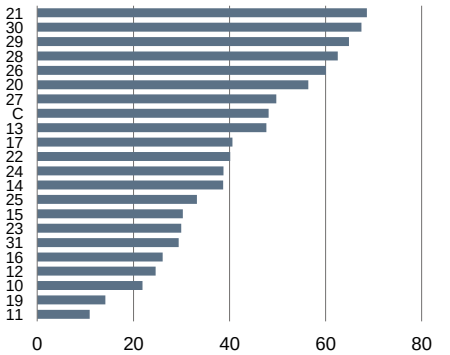
Percentage year-on-year change in real net fixed assets in Germany



Source: German Federal Statistical Office

Export ratios differ substantially 32

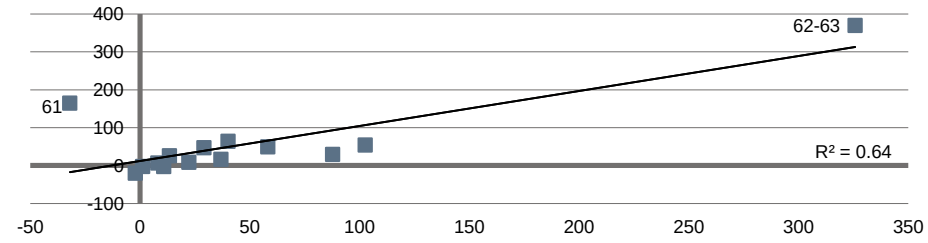
Foreign revenue as a percentage of total revenue by sector (NACE codes) in Germany in 2013



Source: German Federal Statistical Office

IT and information service providers as well as telecommunications stand out 28

X-axis: percentage change in real net fixed assets in service sectors*
Y-axis: percentage change in real gross value added in service sectors*



* Change between 1995 and 2012 in each case; data labelling based on NACE codes

Sources: German Federal Statistical Office, Deutsche Bank Research

4. Growth potential, regional focus, and the economic and political framework all impact on capital expenditure

In this chapter we examine possible reasons for the differences in selected sectors' capital spending behaviour. The reasons outlined below are likely to help explain why service sectors invest more than manufacturing industries.

— Many service sectors are young compared with traditional industrial sectors and often generate above-average growth; consequently, they have increased their capital stock at a later stage. This ultimately demonstrates the structural shift taking place in a relatively mature economy.

— Services are generally more strongly focused on the German market and customers in Germany than industry, which has sharply increased its export ratio over the long term. Even many providers of business services probably render most of their services in Germany. Service sectors therefore invest primarily in Germany as well. And because international competition in services is less intensive than in industry, the offshoring of services is a less relevant factor. By contrast, German industry has expanded its involvement abroad in recent years, as shown by its rising levels of foreign direct investment. This capital spending is often a substitute for investment in the home country.

— Business cycle fluctuations cause much greater volatility in industry than in services; this was demonstrated particularly clearly by the recession of 2008/09. The sharper falls in manufacturing business activity, which are usually accompanied by underutilised production capacities, are likely to make industrial companies more cautious than service providers about investing in new equipment and buildings after a crisis.

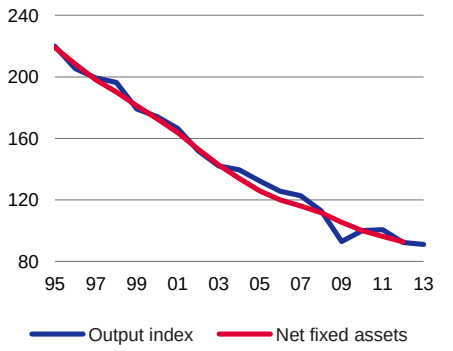
— Services are more labour intensive than industrial operations. In order to produce one unit of gross value added, services on average need just over one third more workers than manufacturing does. This high labour intensity is reflected in the fact that buildings account for an above-average proportion of net fixed assets in the service sectors; or, to put it in graphic terms: more people need more space.

— And, finally, a statistical effect may also help to explain the differences in investment behaviour between industry and services, namely the previously mentioned fact that service-related parts of the value chain – such as logistics – have shifted from manufacturing to the service sector. However, it is impossible to quantify this statistical effect precisely.

Capital investment in Germany at sectoral level

Textiles and clothing: output and capital stock fall in tandem 33

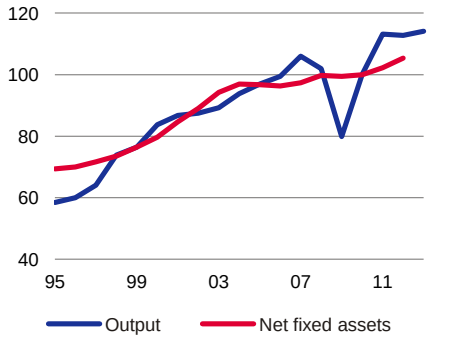
Real output and real net fixed assets in the German textile and clothing industry; 2010=100



Source: German Federal Statistical Office

Domestic output has grown faster than the capital stock over the long term 34

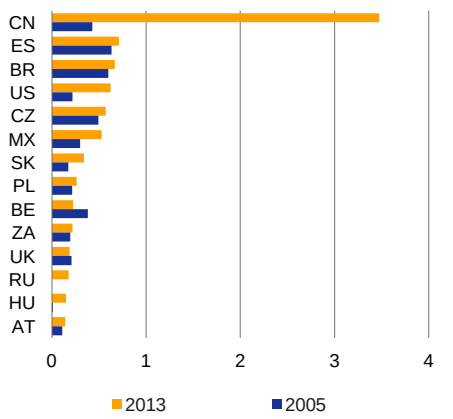
Real output and real net fixed assets in the German automotive industry; 2010=100



Source: German Federal Statistical Office

China by far the most important manufacturing location 35

Millions of cars produced by German OEMs* outside Germany



* Original equipment manufacturers

Source: German Association of the Automotive Industry (VDA)

Mature industries invest less

Many of the examples outlined in chapter 3 show that local growth potential has a major impact on a sector's capital spending in Germany. This correlation is illustrated in the service sector, for example, by retailers, wholesalers and dealerships, while in industrial sectors it is demonstrated by food, wood processing and building materials, where demand and output were relatively weak during the period under review. If there are only limited growth opportunities in the form of exports because, for example, the pertinent transportation costs are too high or domestic wage levels make it uncompetitive to produce in Germany, it is understandable that the sectors concerned are reluctant to invest. Many service industries have no means of exporting at all, which means that their capital investment in Germany is aimed solely at meeting domestic demand; if there is little or no growth in this demand, capital spending is constrained.

Offshoring of production owing to labour costs has caused capital stock in Germany to shrink

The textile and clothing industry is an example of how high labour costs in Germany have helped drive domestic production facilities abroad. Labour costs are an especially important locational factor in the clothing industry, which is why the manufacturing base in Germany has dwindled over the years. This trend has been supported by the liberalisation of global trade in textiles and clothing and by the low cost of setting up a clothing factory. The net result is that this sector's domestic output and net fixed assets have fallen to the same extent. It has (so far) not been possible to offset this trend by focusing more heavily on higher-value and research-intensive products (technical textiles), although domestic output in these segments is generally on the increase because labour costs are less important. Other sectors have also been cutting their German production capacities in recent years. Two cases in point are the furniture industry and the manufacture of electronic household appliances; the latter form part of the electrical equipment sector, which – as shown in chapter 3 – reduced its net fixed assets between 1995 and 2012.

The offshoring of production facilities primarily owing to labour costs – and, as a consequence, falling capital expenditure in Germany – is a virtually unstoppable process, especially in the case of basic products that incur a certain level of labour costs. Other countries' attempts to prevent such processes from occurring have often resulted in permanent subsidies being paid to individual industries.

On the other hand, many industrial sectors have managed – despite their high labour costs – to expand their domestic production and supply foreign growth markets from Germany. Continuous capital investment to raise the productivity of existing manufacturing capacities has always been crucial to this process. Examples of this trend are the automotive, pharmaceutical and mechanical engineering industries. The availability of skilled labour in Germany and well-established relationships with suppliers, equipment providers and research organisations are evidently compelling reasons for these research-intensive sectors to invest in Germany as well.

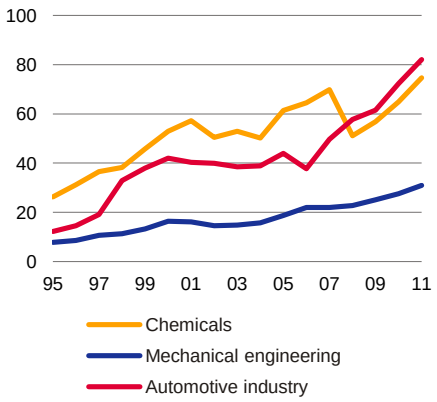
Investment follows growth

If it is correct to say that a sector's capital spending in Germany is partly determined by the local growth potential available, then it is clearly the case that industries will increase their investment wherever greater growth opportunities exist. In such cases, companies do not invest abroad – rather than in Germany

Capital investment in Germany at sectoral level

Capital spending outside Germany is rising 36

Stock of German foreign direct investment* by sector (EUR billion)



* Relates to the sector to which the foreign investee company belongs

Source: Deutsche Bundesbank

– primarily in order to benefit from lower labour costs. One of the main reasons for establishing production facilities abroad is instead that it is then easier to enter new markets. This trend is often reinforced if access to such markets is impeded by tariffs and non-tariff trade barriers or local-content restrictions, in other words if supplying these markets from Germany is not the best option. If, in addition to the local market potential available, other locational factors (such as labour costs and taxation) are also attractive, this naturally makes it an easier decision to invest abroad.

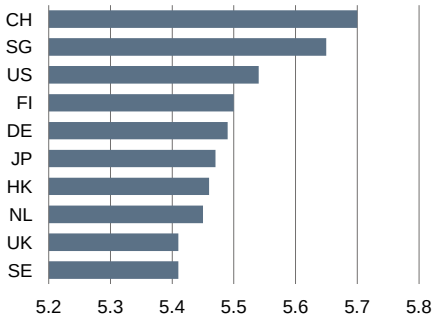
Germany's automotive industry is the most obvious example of this kind of trend, having expanded its manufacturing capacity in many countries around the world in recent years. A case in point is China – now the world's largest car market – which is mainly supplied from local production facilities. Capacity in the United States has also been beefed up over the last few years.[6] There are, of course, other sectors such as electrical engineering and chemicals in which multinational industrial companies operate abroad in order to improve their ability to reap the benefits of local growth. The mechanical engineering sector could also strengthen its manufacturing base outside Germany in future.[7] It is not easy in any of these cases to say whether such capital expenditure abroad acts as an addition to or a substitute for investment in Germany. As we saw in chapter 3, empirical evidence does not provide any clear answers to this either. This is because some industrial sectors have raised their capital spending both in Germany and abroad (the automotive industry and mechanical engineering), whereas in other sectors their real net fixed assets in Germany have contracted (despite increasing domestic output) while their stock of foreign direct investment has grown (chemicals).

Total package of locational factors is key for industry in particular

Capital spending decisions are still ultimately determined not just by a country's general and sector-specific growth potential but also by its traditional economic, political and – in some cases – social framework. The social framework covers aspects such as widespread public acceptance of large-scale projects or certain technologies, a case in point being that the European Union (EU) lags behind the United States in the field of biotechnology because some sections of the general public and the political class disapprove of this technology. As far as industrial sectors with particularly strong international exposure are concerned, Germany is competing for inward investment against other countries in terms of the business climate that it offers. By contrast, capital spending decisions relating to personal services and many business services are determined by the home-country location. Unlike in industry, the question here is not so much whether a company should invest in Germany or another country but rather whether it invests in Germany or whether it does not invest at all because of the inadequate framework.[8]

Germany is well positioned 37

Global Competitiveness Index for 2014-2015



Source: World Economic Forum

The most important locational factors include the level of taxation and levies paid by companies; the availability of skilled labour and suitably qualified workers; labour costs and the flexibility of labour markets; the R&D environment and the education system; the size of the local market and the local population's purchasing power; the exchange rate regime; the level of bureaucracy and legal

[6] See Heymann, Eric (2014). The future of Germany as an automaking location. Deutsche Bank Research. Current Issues. Frankfurt am Main.

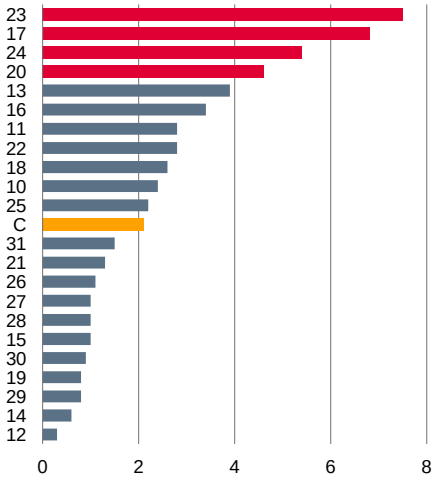
[7] See Auer, Josef (2014). New growth opportunities for Germany's engineering sector. Technology leadership and outward investment. Deutsche Bank Research. Current Issues. Frankfurt am Main.

[8] German companies from the service sector do, of course, also invest abroad. However, such capital investment is not usually competing against the company's domestic operations. Any shopping centre, bank branch or legal practice opened in France, for example, will be intended to meet local demand.

Capital investment in Germany at sectoral level

Building materials and paper industries are particularly energy intensive 38

Energy costs as a percentage of gross production value by sector* in Germany in 2012

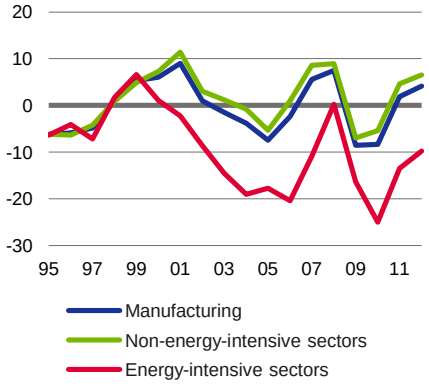


* Based on NACE codes; proportional energy costs are much higher in some sub-groups

Source: German Federal Statistical Office

Energy-intensive industries invest less 39

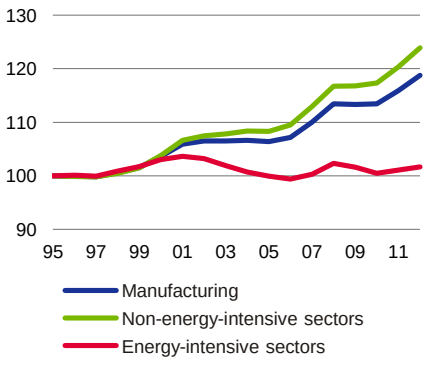
Nominal net capital expenditure as a percentage of nominal gross capital expenditure in Germany



Source: German Federal Statistical Office

Capital stock in energy-intensive sectors has remained more or less flat 40

Nominal net fixed assets in German industry; 1995=100



Source: German Federal Statistical Office

certainty; the condition of infrastructure; energy costs and security of supply; access to credit, raw materials and business premises; environmental legislation; the degree of openness to foreign trade; and other factors besides. The importance of these locational factors varies from one sector to another.

Positive locational factors versus negative expectations

Internationally recognised league tables ranking the attractiveness of business locations – such as that compiled by the Word Economic Forum (WEF) – conclude that Germany offers a good overall package. Germany is often one of the top-ranked countries; in the WEF's latest Global Competitiveness Index, for example, it comes in fifth place. Although Germany actually fares well on many of the aforementioned criteria, it is currently rated very poorly by domestic companies on other factors, as a survey conducted by the Association of German Chambers of Industry and Commerce (DIHK) reveals.[9] If there is then also an expectation that many macroeconomic conditions are more likely to deteriorate than improve in future (this expectation is likely to predominate at present given the growing criticism of many of the German government's decisions) and if, in addition, the potential for growth in Germany and the EU over the long term is reckoned to be minimal, this can make companies highly reluctant to invest. Germany might well find itself in this situation. Spending on capital equipment in real terms remains well below where it was prior to the recession of 2008/09 and is likely to grow only sluggishly in 2015. This reluctance to invest should be interpreted not as a sign that companies in Germany are investing too little in general but, rather, as an indication that they are basing their capital spending decisions on current and – especially – anticipated economic conditions. If these conditions are not right, then not even government subsidy programmes can force companies to invest – or, at any rate, not in a commercially viable and sustainable way.

Energy-intensive industrial sectors in Germany are less willing to invest

The specific example of energy policy illustrates how just one of many locational factors can have a major impact on sectors' capital spending decisions. A report that we published at the end of 2013 showed that energy-intensive industries invest much less than non-energy-intensive sectors.[10] We consider paper (NACE code 17), chemicals (20), building materials (23), and metal production and processing (24) to be energy-intensive industries. Energy costs as a percentage of gross production value in these sectors are more than twice as high as the industrial average.[11] Our theory is that many companies from these sectors are – or in the past have already been – reluctant to invest in Germany owing to the country's above-average energy prices, the expectation of a further rise in energy prices and the uncertainty surrounding the German so-called 'Energiewende'; this also applies to many companies that benefit from exemptions (such as a reduced renewable-energy levy) because they cannot be certain that they will be permanently entitled to these exemptions. The official figures confirm our theory:

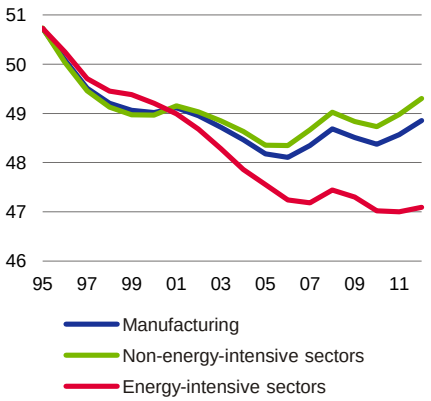
— Nominal net capital expenditure in the energy-intensive sectors was positive in only four out of 18 years between 1995 and 2012, whereas in the non-energy-intensive industries it was positive in eleven out of 18 years.

[9] See DIHK (2014). Germany as an Industrial Location: Cracks in the Foundations. DIHK survey among industrial companies and industry-related service providers 2014. Berlin.
[10] See Heymann, Eric and Hannah Berscheid (2013). Carbon Leakage: A barely perceptible process. Deutsche Bank Research. Current Issues. Frankfurt am Main.
[11] There are individual sub-groups in other industrial sectors as well that meet this criterion.

Capital investment in Germany at sectoral level

Energy-intensive sectors have below-average modernity ratios 41

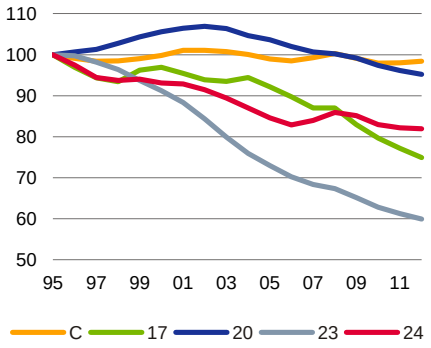
Nominal net fixed assets as a percentage of nominal gross fixed assets in Germany



Source: German Federal Statistical Office

Real net fixed assets have declined in energy-intensive sectors 42

Real net fixed assets in individual German industrial sectors*; 1995=100

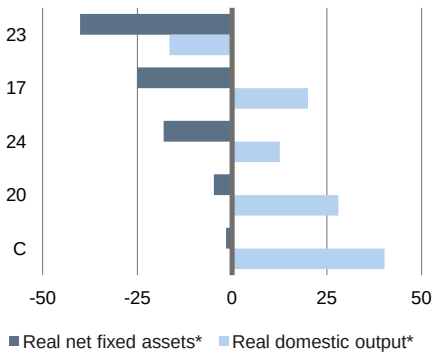


* Based on NACE codes

Source: German Federal Statistical Office

Is the capital stock being run down? 43

Percentage change between 1995 and 2012



* Based on NACE codes

Source: German Federal Statistical Office

— The energy-intensive sectors' nominal capital stock, which includes capitalised R&D spending and price rises, was only 1.6% higher in 2012 than it had been in 1995. The corresponding increase in the non-energy-intensive industries was almost 24%.

— In 2012 the modernity ratio in the energy-intensive sectors was 47.1%, which was 7.2% lower than in 1995. The modernity ratio in the non-energy-intensive industries came to 49.3%, which was a decrease of only 2.8%.

— Real net fixed assets across all energy-intensive sectors declined between 1995 and 2012. The sharpest fall occurred in building materials (down by 40.1%), followed by paper (down 25.1%) and metal production and processing (down 18.1%). The corresponding decrease in the chemical industry was a fairly modest 4.8%, but only because real net fixed assets in this sector had grown until the beginning of the last decade. Real net fixed assets in the non-energy-intensive industries are likely to have increased.

The impact of energy policy cannot, of course, be cited as the sole cause of the trends outlined here. We have already mentioned the German construction industry's persistently low levels of activity over many years, which depressed capital spending in the building materials sector. Structural overcapacity in the metal production and processing industry across Europe is likely to have affected this sector's investment in Germany. In chapter 3.1 we also highlighted the strongly positive influence that the automotive and pharmaceutical industries have exerted on the levels of capital expenditure across the manufacturing sector, and this factor should be taken into account when we are differentiating between energy-intensive and non-energy-intensive industries.

Nonetheless, it has become clear that an adverse trend or uncertainty around one locational factor can be absolutely fatal for capital investment in Germany. A particular cause for concern is the fact that most of the aforementioned sectors have expanded their output compared with 1995 – as the building materials sector has also tended to do recently. Such divergent trends in investment and output are likely to impair innovation in these industries over the medium to long term. Major German chemical companies have explicitly cited energy policy in the United States as the main reason for their decision to increase capital spending in that country. Germany's pursuit of unilateral policies on energy and climate change could encourage investment leakage and carbon leakage. A further problem is that lack of investment in energy-intensive sectors indirectly impacts on downstream industries in Germany. There are very few signs that energy-intensive companies in Germany will overcome their reluctance to invest any time soon given the huge uncertainty surrounding the direction of this country's long-term energy policy.

5. Outlook: government policy measures taken recently are curbing companies' propensity to invest in Germany

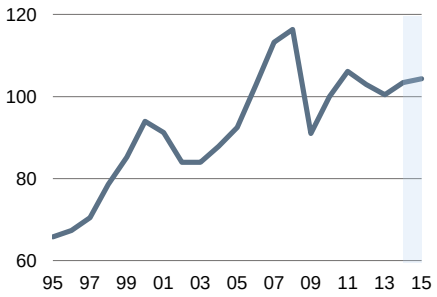
Whether or not the private sector chooses to invest is determined by its expectations as to the future development of various factors. Many of these factors are influenced by government policy, which – depending on how it is framed – will either encourage or hamper investment in Germany. While politicians have on the one hand been expressing regret or even voicing criticism over the lack of capital spending in both Germany and Europe, the government has in recent months introduced many policies that are hampering investment in Germany rather than stimulating it; this approach is inconsistent. Economic research institutes and trade associations have rightly taken a negative view of these initiatives.

These bodies are especially critical of measures affecting policies on labour markets, pensions and energy. A case in point is the most recent report

Capital investment in Germany at sectoral level

Spending on capital equipment is not yet back to its pre-crisis levels 44

Real spending on capital equipment in Germany; 2010 = 100



Sources: German Federal Statistical Office, Deutsche Bank Research

published by the German Council of Economic Experts[12], which criticises (planned) restrictions on the use of temporary employment and contract work because companies need a certain amount of flexibility if they are to invest. The German government's pension reforms – which allow certain workers to draw their full state pension from the age of 63 and grant additional pension entitlements to those who have previously taken parental leave – are described as a retrograde step given the nature of demographic trends. What's more, the Council of Economic Experts reckons that Germany's plans to switch to renewable energy sources constitute the sort of project normally organised by a planned economy and that all the incentives offered in order to achieve this goal basically amount to subsidies.[13] It calls for this energy transition to be more firmly integrated into international attempts to combat climate change. And as far as the alleged investment shortfall in the private sector is concerned, the Council of Economic Experts recommends that the German government should concentrate primarily on ensuring that the right conditions for capital spending are in place rather than trying to engineer investment outcomes.[14]

In actual fact, many of the measures recently introduced have had a negative impact on private companies' willingness to invest in Germany. They are driving up labour costs and will exacerbate the shortage of skilled workers in the medium term.[15] Politicians are currently focusing too much on redistributing wealth rather than on creating it. Our short-term outlook for spending on capital equipment over the next few years remains highly cautious. Services and, in particular, industrial sectors are likely to continue their subdued levels of capital expenditure. Politicians will eventually need to recognise that Germany has to compete against other countries in order to attract investment and that, if anything, this competition is likely to intensify in future. This does not, of course, mean that Germany has to embark on a 'race to the bottom' on things such as pay levels and environmental standards. Rather, it is a question of enhancing the country's strengths and mitigating – or at least not exacerbating – its weaknesses. The question of whether private companies are investing too much or too little in Germany can ultimately be answered indirectly: if (anticipated) economic and, especially, political conditions in Germany (and Europe) were better, the private sector would invest more. The political class should therefore mainly interpret the companies' current reluctance to invest as a wake-up call.

Eric Heymann (+49 69 910-31730, eric.heymann@db.com)

[12] See German Council of Economic Experts (2014). Mehr Vertrauen in Marktprozesse. Jahresgutachten 14/15. Wiesbaden.
[13] German Council of Economic Experts (2014). Loc. cit. page 23.
[14] German Council of Economic Experts (2014). Loc. cit. page 15.
[15] See Auer, Josef et al. (2014). German industry. Output growth to remain shy of 1% in 2015. Deutsche Bank Research. Current Issues. Frankfurt am Main.

Appendix 1: List of NACE codes

NACE codes for particular industries

NACE code	Sector
C	Manufacturing
10	Food
11	Beverage production
12	Tobacco processing
13	Textiles
14	Clothing
15	Leather, leather goods and shoes
16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
17	Paper
18	Printing
19	Coking and oil refining
20	Chemicals
21	Pharmaceuticals
22	Rubber and plastics
23	Building materials
24	Metal production and processing
25	Metal products
26	Data processing equipment, electronic devices and optical instruments
27	Electrical equipment
28	Mechanical engineering
29	Automotive industry
30	Other vehicle manufacturing
31	Furniture
32	Other goods
G-T	Services
45	Vehicle dealerships, maintenance and repairs
46	Wholesale (excluding vehicle traders)
47	Retail (excluding vehicle dealerships)
H	Transportation and storage
I	Accommodation and food service activities
J	Information and communication
58-60	Publishing, audiovisual media and radio
61	Telecommunications
62-63	IT and information services
K	Financial and insurance services
L	Real-estate activities
M-N	Business services
O-Q	Public services, education and healthcare
84	Public administration and defence, compulsory social security
85	Education
Q	Human health and social work activities

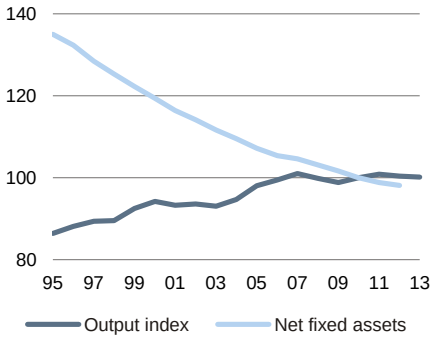
Source: German Federal Statistical Office

Capital investment in Germany at sectoral level

Appendix 2: Comparison of real output index and real net fixed assets

NACE codes 10-12 45

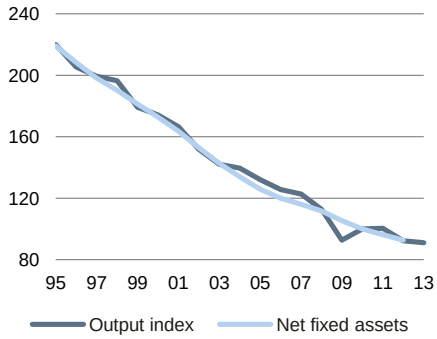
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE codes 13-15 46

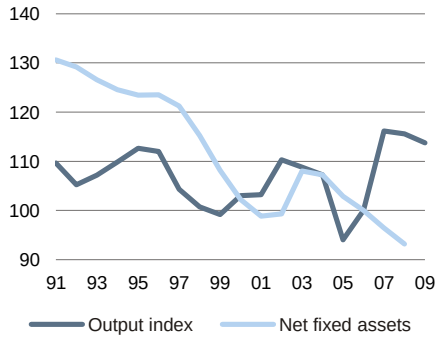
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 16 47

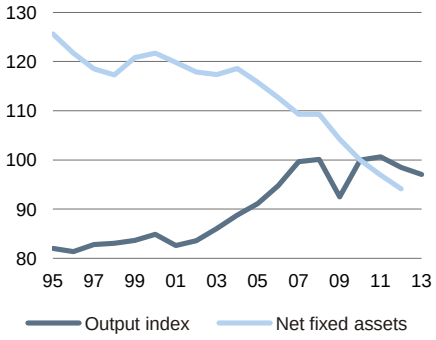
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 17 48

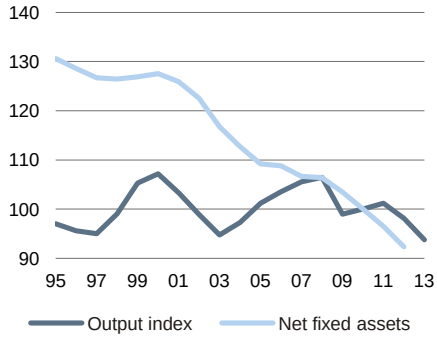
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 18 49

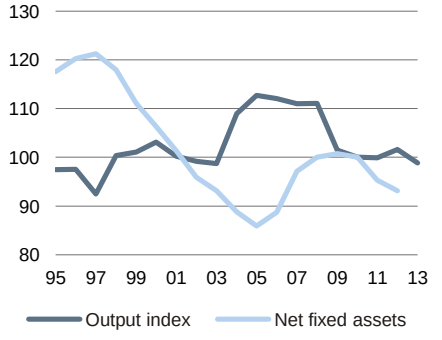
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 19 50

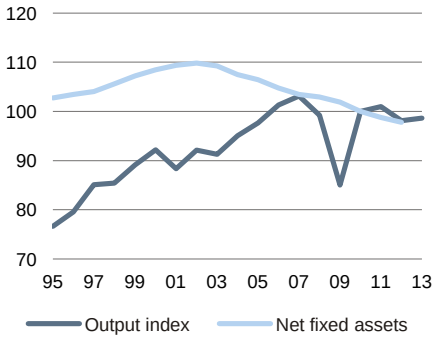
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 20 51

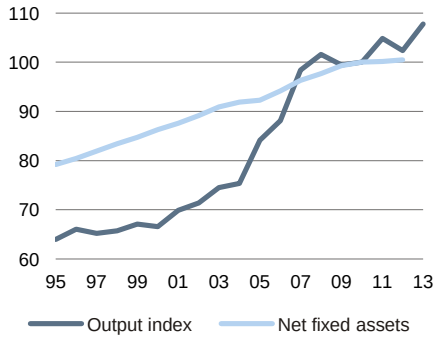
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 21 52

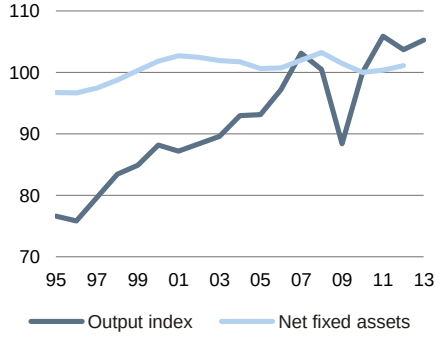
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 22 53

Real output index and real net fixed assets in Germany; 2010=100

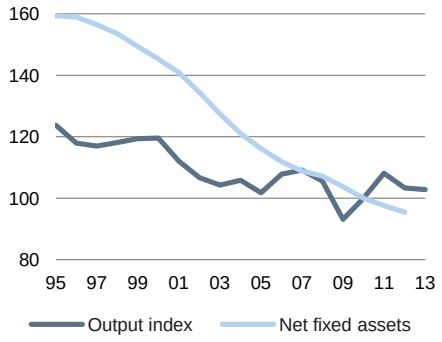


Source: German Federal Statistical Office

Capital investment in Germany at sectoral level

NACE code 23 54

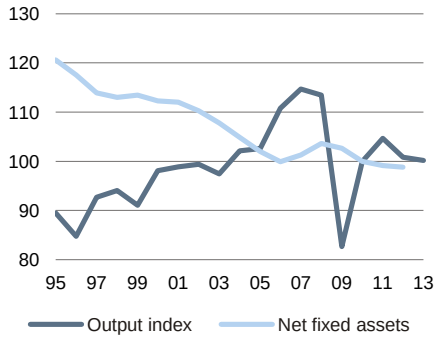
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 24 55

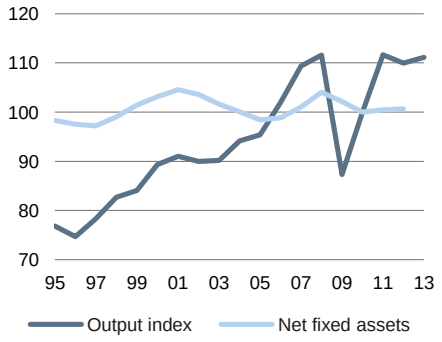
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 25 56

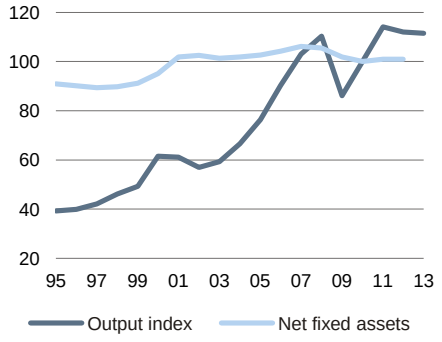
Real output index and real net fixed assets in Germany; 2010=100



Quelle: Statistisches Bundesamt

NACE code 26 57

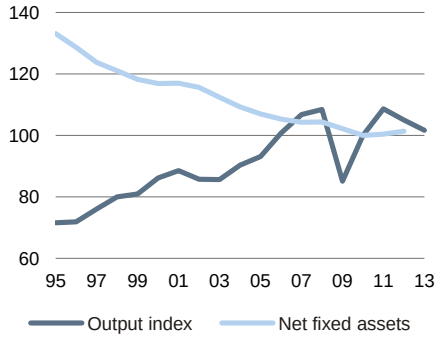
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 27 58

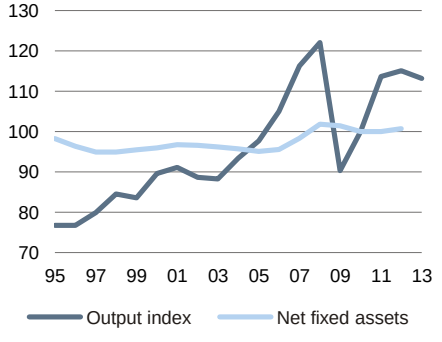
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 28 59

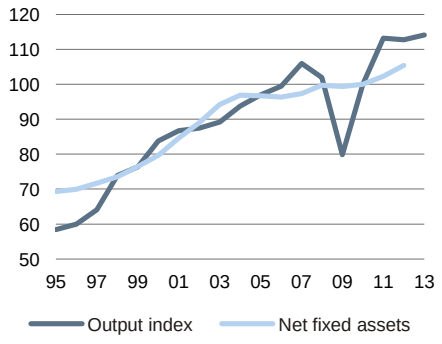
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 29 60

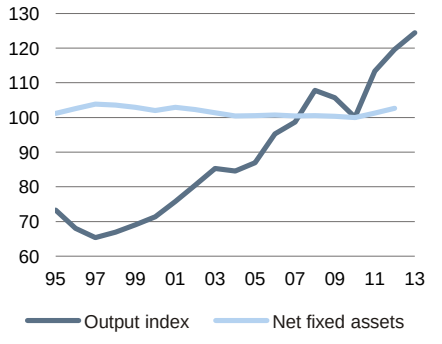
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE code 30 61

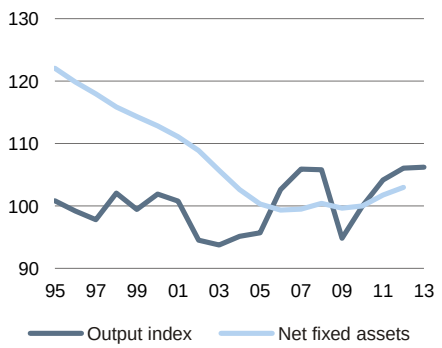
Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

NACE codes 31 and 32 62

Real output index and real net fixed assets in Germany; 2010=100



Source: German Federal Statistical Office

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