



# German industry

## Growth in investment spending driven by only a few factors

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German manufacturing companies have increased their real gross capital expenditure by just above 3% p.a. during the current cyclical upswing, which started in 2010. This rate is above the average increase in total gross capital spending (2.5% p.a.) for this period.

Other capital expenditure, which largely consists of investments in intellectual property (research and development), rose by an above-average rate in a long-term comparison. Between 1995 and 2017, other capital spending was up by 74% in real terms, whereas total gross capital expenditure in the manufacturing sector rose “only” by 41%. By now, industrial companies spend almost half of their total capital expenditure on intellectual property. Investments in machinery, equipment and buildings have consequently become less important.

In 2017, the industry accounted for 51% of total other capital spending (intellectual property) in Germany. This shows that manufacturing is the most important driver of research and development and thus of technical progress.

The automotive and the pharmaceutical industries stand out from other sectors. These two sectors have raised their capital spending at a particularly strong clip, namely by +4.4% p.a. and by +2.5 p.a., respectively, in real terms since 1995 (compared to an average of 1.6% p.a. for manufacturing as a whole). The share of the two sectors in the total gross capital expenditure of the manufacturing sector rose from 22.5% in 1995 to 38.4% in 2016.

Due to buoyant investment activity, net fixed assets in the automotive and pharmaceutical sectors have increased by 79% and 43.5%, respectively, between 1995 and 2016 (in real terms). In contrast, the capital stock in the manufacturing sector as a whole was up only by 2.4% during this period.

The capital stock in energy-intensive industries has been shrinking for years now – a trend that gives cause for concern. Net fixed assets in the building materials industry fell by almost 39% between 2000 and 2016. The paper industry saw a decline by c. 31%. In the metal production and processing and in the chemicals industries, the capital stock declined by 16.1% and 12.4%, respectively. Much of this negative development is caused by German energy policy.

The German manufacturing industry is faced with long-term challenges, such as demographic developments and digitalisation. Nevertheless, we believe that it is sufficiently adaptable to remain competitive on a global scale. Germany is often regarded as an attractive investment location at the international level. However, this attractiveness is not a given; it depends to a significant extent on government policies. Government policy, in turn, should be based on facts and clear-headed debate and not on ideology or continuous political or media outrage.

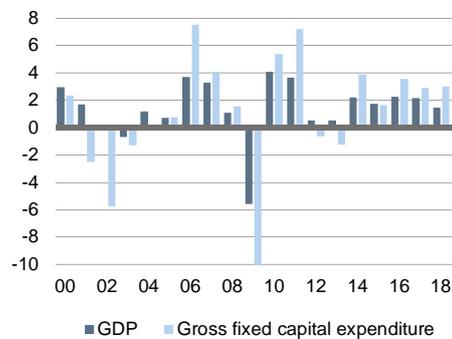


## German industry: Growth in investment spending driven by only a few factors

Investment spending grows faster than GDP in recent years

1

Real GDP and real gross fixed capital expenditure in Germany, % yoy



Sources: Federal Statistical Office, Deutsche Bank Research

### German capital expenditure is growing at an above-average rate

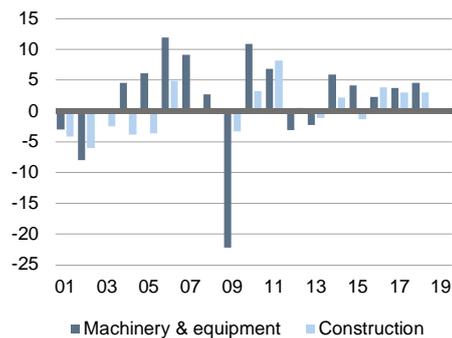
German cyclical activity is currently slowing down. Nevertheless, preliminary figures suggest that GDP growth remained above potential for the fifth time in a row in 2018, at 1.5% in real terms (the Bundesbank estimates that the potential growth rate is c.1 ¼% p.a.). In fact, GDP has increased for nine years in a row now. Since 2019 is likely to be another growth year (our forecast is for 1%), the upturn will probably become the longest in German history since the 1950s and 1960s. It is of course important to mention that this came on the heels of a drop in German GDP by 5.6% in real terms in 2009, which was the biggest decline since the Second World War. In addition, the upswing has benefited from a very expansionary monetary policy during the past ten years.

The question whether corporate and government capital spending has been insufficient was a hotly debated topic in recent years. A look at the national accounts shows that gross capital spending<sup>1</sup> grew 2.5 p.a. on average between 2010 and 2018 and thus outpaced GDP growth (+1.8% p.a.). In price-adjusted terms, investment in machinery and equipment was up by 2.7% on average, construction investment by 2.2% and other capital investment by 3% p.a.

Investment growth relatively stable of late

2

Real investment spending in Germany, % yoy



Sources: Federal Statistical Office, Deutsche Bank Research

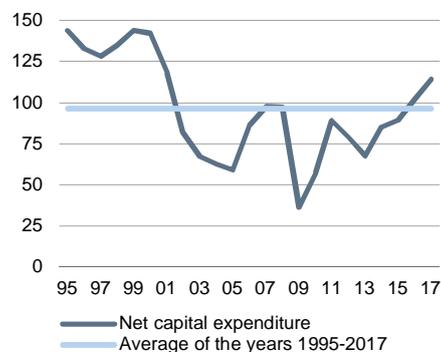
### Is investment activity “insufficient”?

It is impossible to answer the question of whether capital spending is indeed insufficient without using a reference scenario, which is necessarily based on a normative framework. A look at net capital spending (gross capital spending minus depreciations) will give us more insight into the issue. While net capital expenditure rose for the fourth time in a row in 2017 (figures for 2018 are not yet available), it was below the long-term average between 2010 and 2015. The investment ratio (i.e. the share of investment spending in aggregate GDP) was also below the long-term average between 2010 and 2017. This applies to both aggregate gross capital spending and to investment in machinery and equipment (see Chart 4).

Net capital expenditure on the rise

3

Net capital expenditure of all economic sectors in Germany, EUR bn



Sources: Federal Statistical Office, Deutsche Bank Research

Despite the long-term, slight decline in the investment ratio, we believe that private-sector companies in particular spread their capital spending over time and across regions in such a way that they achieve the best possible outcome for their business. And even though listed corporations may tend to focus on their quarterly results (and thus on short-term profit maximisation instead of on long-term investment plans), this pattern still appears plausible.

Nevertheless, there is broad-based consensus about the fact that public-sector capital expenditure should have been higher during the past two decades. In many areas, the demand for and the use of public-sector infrastructure, such as transport, research and development, education and educational institutions, has risen more strongly than the supply (just think of the increase in road traffic or in the number of students at German universities).<sup>2</sup>

### Current momentum in capital expenditure is roughly in line with the long-term average, but lower than in former upswings

Both investment in machinery and equipment and other capital spending have been growing at roughly the long-term rate during the current cycle. Investment

<sup>1</sup> Gross capital spending includes investment in machinery and equipment (machinery, equipment, vehicles), construction investment (residential and commercial construction) and other capital spending (above all research and development, software and databases, copyrights).

<sup>2</sup> See Gräf, Bernhard and Oliver Rakau (2014). Is Germany facing an investment gap? Likely only in the public sector! Deutsche Bank Research. Focus Germany. Frankfurt am Main.

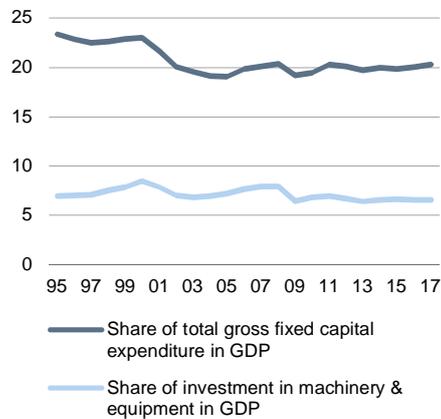


## German industry: Growth in investment spending driven by only a few factors

Investment ratio relatively stable in recent years

4

Share of investment spending in GDP in Germany (investment ratio), %

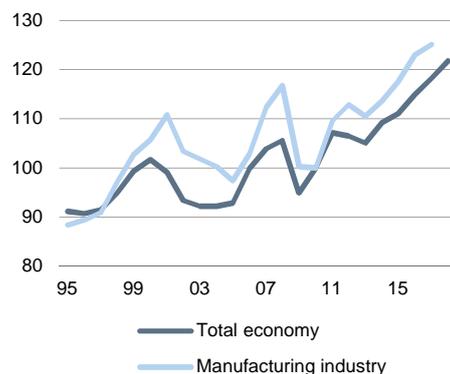


Sources: Federal Statistical Office, Deutsche Bank Research

Dynamic investment activity in the manufacturing industry

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Real gross fixed capital expenditure in DE, 2010=100

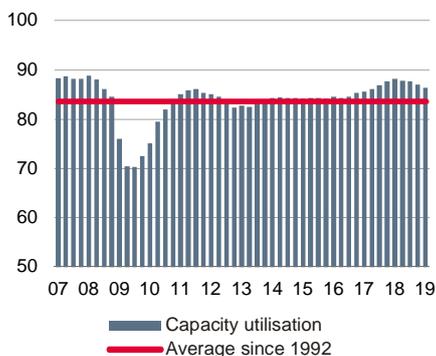


Sources: Federal Statistical Office, Deutsche Bank Research

Capacity utilisation declines slightly

6

Capacity utilisation in the manufacturing industry in Germany, %



Source: ifo Institute

in machinery and equipment, for example, rose by an average 2.7% p.a. between 1995 and 2018, i.e. the same rate as between 2010 and 2018. Still, investment in machinery and equipment has increased at much stronger rates during other phases since the German unification. In fact, it was up by 6.3% p.a. between 1994 and 2000 or even 6.8% p.a. between 2003 and 2008. The result of the comparison obviously depends to a large extent on the period which is chosen for this purpose.

Other capital spending has been expanding by 3.2% p.a. on average since 1995, i.e. somewhat more strongly than since 2010. Only in construction investment is the long-term rate of change (1995–2018: -0.3% p.a.) significantly different from that registered during the current cycle. This is due to the fact that construction spending declined for a long time after the unification-triggered boom at the beginning of the 1990s. The adjustment in the construction industry took more than ten years and continued right up to the second half of the past decade. As a comparison: German GDP growth has averaged 1.4% p.a. in real terms since 1995.

### Capital spending growth to remain moderate in the short term

We expect capital expenditure to rise by an average of almost 3% p.a. in price-adjusted terms between 2018 and 2020. A stronger rate of growth appears improbable in view of the economic and political uncertainties (Brexit, persistent trade conflicts) and the mature stage of the economic cycle. In addition, companies have obviously learned from former crises. They had considerably increased their capital spending shortly before the “new economy” bubble burst and again in the run-up to the great economic and financial crisis of 2008/09. In both cases, they suffered from overcapacities afterwards. Companies are considerably more cautious now and invest at a slower pace than in earlier upswings. All in all, gross capital expenditure growth will probably still outpace GDP growth, which we expect to come in at an average 1.3% p.a. during the three years mentioned above.

### Manufacturing: Steady capital spending growth in recent years

We will now focus on capital expenditure by the German manufacturing sector. First, we will take a look at recent cyclical developments. Afterwards, we will analyse several structural aspects of capital spending activity in the manufacturing sector as a whole and in individual sub-sectors. These aspects are important for the economy as a whole, and there is, in fact, a need for policy measures.

Between 2010 and 2017, real gross capital spending by the manufacturing sector rose by 3.2% p.a. on average. This rate is above the average increase in gross capital spending (+2.4% p.a.) for this period. In 2018, gross capital expenditure by the industrial sector probably continued to increase. While quarterly data on capital spending activity in manufacturing (or, indeed, in other sectors) are not available yet, gross capital expenditure in the economy as a whole was up 2.9% year-on-year in price-adjusted terms during the first three quarters of 2018. The ifo Investment Survey of August 2018 indicates that industrial companies made a major contribution to this overall development and increased their investment in 2018.<sup>3</sup> In addition, capacity utilisation was roughly 4pp above the long-term average in 2018 as a whole.

<sup>3</sup> See Weichselberger, Annette (2018). Deutsche Industrie: Für 2018 spürbarer Investitionsanstieg geplant. In: ifo Schnelldienst 16/2018. München.

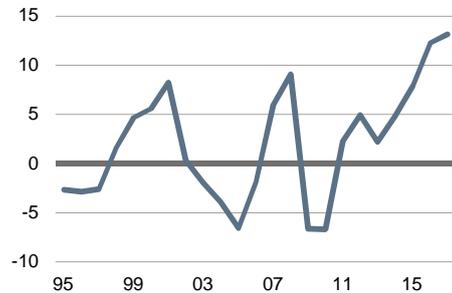


## German industry: Growth in investment spending driven by only a few factors

Positive net capital expenditure in industry since 2011

7

Nominal net capital expenditure in manufacturing industry in Germany, EUR bn



Source: Federal Statistical Office

### Net capital spending in the industry rose strongly in both 2016 and 2017

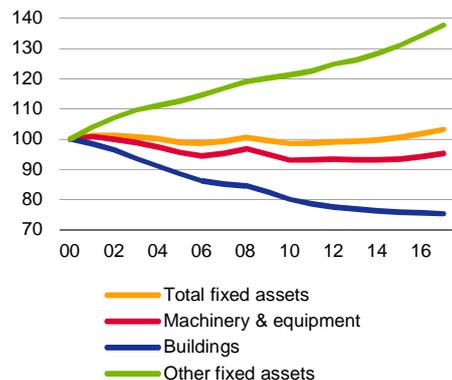
It is certainly a positive aspect that nominal net capital expenditure (i.e. gross capital spending minus depreciations) by the manufacturing sector was higher in both 2016 (at EUR 12.2 bn) and 2017 (EUR 13.1 bn) than in any other year since the beginning of the 1990s. Net capital spending by the industry has risen every year since 2011, which means that gross capital expenditure exceeded depreciations. This is remarkable because, between 1994 and 2010, net industrial capital spending was positive only in ten out of 17 years.

Due to the positive trend in net capital spending, real net fixed assets in the industry have increased in real terms during the last few years; in 2017, they were almost 5% higher than in 2010, and the rise probably continued in 2018. Real net fixed assets are equivalent to past capital spending minus the loss in the value over time (depreciation) and inflation.

Shares in industrial capital stock are shifting

8

Real net fixed assets in manufacturing industry in Germany, 2000=100



Source: Federal Statistical Office

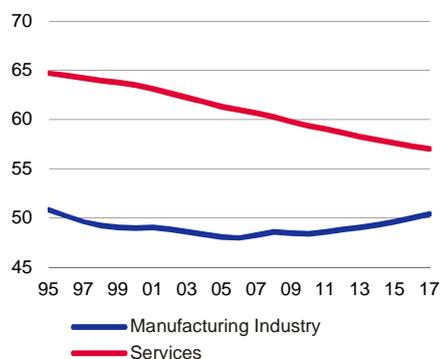
### Modernity ratio in the German industry has slightly improved

The modernity ratio in manufacturing has improved due to the uptrend in net capital expenditure in the last few years. The modernity ratio is defined as nominal net fixed assets as a percentage of nominal gross fixed assets and tells us which percentage of fixed assets has not yet been fully written off at a certain point in time. In 2017, the modernity ratio in the German industry was 50.4%, i.e. 2pp higher than in 2010. In fact, this was the highest ratio since 1995. Still, the modernity ratio in the industry is below the average for the services sector (2017: 57%). To some extent, this is due to the fact that many services sectors developed later in time than traditional industries and have therefore begun later to create their capital stock. At the same time, the modernity ratio in the services sector has been declining steadily for years now, as depreciations, as a percentage of gross fixed assets, tend to increase as a sector matures.

Modernity ratio for services is falling, industry last on the rise

9

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



Sources: Federal Statistical Office, Deutsche Bank Research

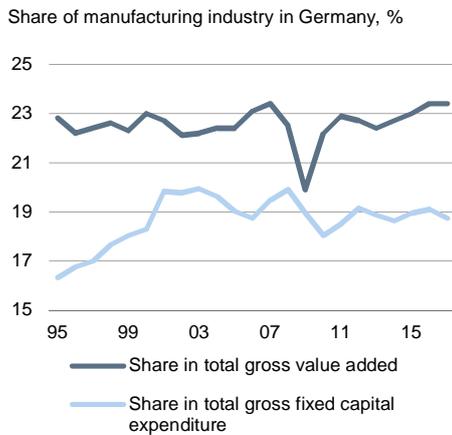
### Industry the most important pillar of research and development spending

Manufacturing makes a significant contribution to overall capital spending in Germany. In fact, its share in total gross capital spending has amounted to somewhere between 18% and just above 19% since 2010 (2017: 18.8%). However, this percentage is below the share of the industry in total gross value added, which was 23.4% in 2017. While the industry's share in overall capital spending may appear surprisingly small at first sight, we should keep in mind that the industry is an important client for a wide range of services sectors, which invest in their turn in order to meet the industry's demands. Moreover, several links of the (former) industrial value chain have been outsourced over the last few decades (for example logistics, IT, research and development, scientific and technical services). This has led to a statistical shift in capital spending, from the manufacturing to the services sector. For example, the transport and storage sectors as well as corporate service providers were behind 17.5% of total gross capital spending in 2017 (up from 13.8% in 1995).



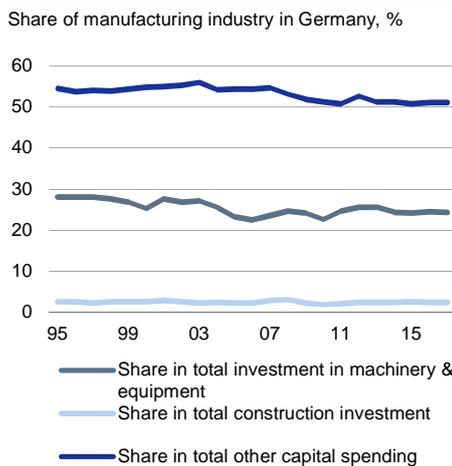
## German industry: Growth in investment spending driven by only a few factors

Industry: Share in gross value added larger than share in investm. spending **10**



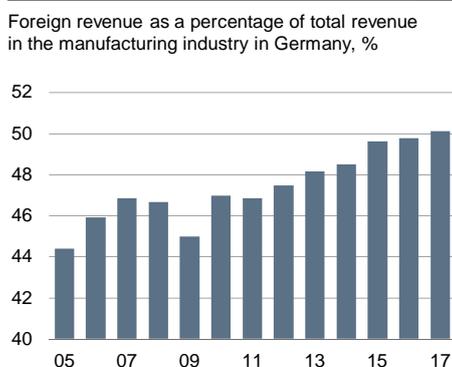
Sources: Federal Statistical Office, Deutsche Bank Research

Industry has a high share in other capital spending (R&D) **11**



Sources: Federal Statistical Office, Deutsche Bank Research

Export ratio now over 50% **12**



Sources: Foreign Statistical Office, Deutsche Bank Research

### Industry focuses on R&D, software etc. – construction investment plays only a minor role

It is useful to take a closer look at the different types of investment in order to gauge the importance of industrial spending. Manufacturing recently made up for 24.4% of total investment in machinery and equipment, which is slightly above its contribution to gross value added. In contrast, industrial construction investment only plays a marginal role (share of 2.4% in 2017). What makes manufacturing important for the economy as a whole becomes evident from the sector's share in other capital expenditure, which amounted to more than 51% in 2017, i.e. double its share in gross value added. As we mentioned above, the lion's share of "other capital spending" is used for intellectual property and similar assets. This shows that manufacturing is the most important driver of research and development and thus of technical progress in Germany. In addition, the sector is an important employer of qualified labour. The immense importance of the industry for Germany as a research location is confirmed by figures by Stifterverband für die Deutsche Wissenschaft, according to which manufacturing companies accounted for more than 86% of the total internal and external R&D spending in Germany in 2016 (latest available figures).

### German industry: Anything but "old economy" – digitalisation requires higher capital spending

The export ratio in the industry is high and has been trending further upwards for years now. This means that German companies' products are highly sought after on the world markets. Germany is anything but an "old economy" hub. In addition, companies are increasing their "industry 4.0"-related capital spending in order to create network connections among staff, machinery and components or intermediate products and to optimise, flexibilise and automate the production process. At the same time, products are adapted and made fit for the digital era (e.g. intelligent, interconnected machinery and equipment, plants and vehicles).<sup>4</sup>

Digitalisation along the value chain (often called "industry 4.0") will require significant capital spending over the next few years. We expect that this will lift the potential growth rate. However, not all companies will benefit to the same extent from the opportunities of digitalisation; in fact, some of them may be forced to drop out of the market. This "creative destruction" is likely to improve the general competitiveness of Germany as an industrial location. In addition, we believe that digital technologies will help to mitigate the burden of the demographic development in the coming years (shrinking pool of labour). Nevertheless, Germany is currently lagging behind the US, and increasingly also China, with respect to numerous digital technologies and applications (such as artificial intelligence, digital platform economics).<sup>5</sup>

Overall, the share of other capital spending in total gross capital spending by the manufacturing sector looks set to rise further in the coming years, not least due to digitalisation. It has already risen from just below 38% in 1995 to 49% in 2017. In contrast, investment in machinery and equipment made up "only" 45% of total manufacturing capital expenditure in 2017 (1995: just above 53%), and construction investment only accounted for 6% (1995: 9%).

Other capital spending is considerably less important at the level of the economy as a whole. Its share in total capital spending amounted to just below 19% in 2017, which is still a significant increase from 1995 (11.5%).

<sup>4</sup> See Auer, Josef (2018). Industry 4.0 – Digitalisation to mitigate demographic pressure. Deutsche Bank Research. Germany Monitor. Frankfurt am Main.

<sup>5</sup> See Körner, Kevin et al. (2018). Digital economics: How AI and robotics are changing our work and our lives. Deutsche Bank Research. EU Monitor. Frankfurt am Main.

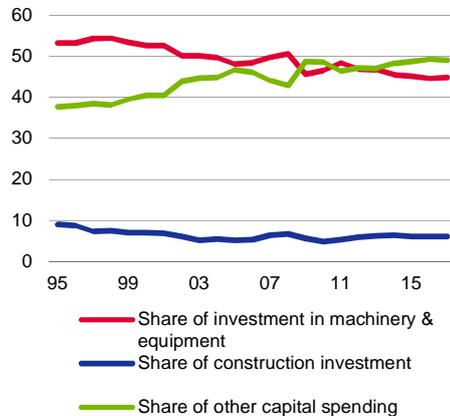


## German industry: Growth in investment spending driven by only a few factors

### Industry invests mainly in intellectual property

13

Share of investment types in total gross fixed capital expenditure in manufact. ind. in DE, %



Sources: Federal Statistical Office, Deutsche Bank Research

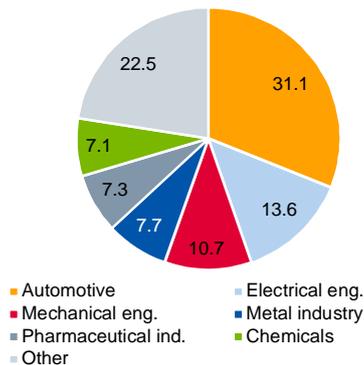
### Capital goods and pharmaceuticals producers are particularly willing to invest

It is not particularly surprising that traditional German export sectors have an above-average share in total gross capital spending in the manufacturing sector. The automotive industry takes first place, with a share of just above 31% in 2016 (latest available figures). Electrical engineering (13.6%), mechanical engineering (10.7%), the metals industry (7.7%), the pharmaceuticals industry (7.3%) and the chemicals industry (7.1%) are following at a distance. Taken together, these six sectors account for 77.5% of total industrial capital spending. And their share in other capital spending (intellectual property) even amounts to 87% for the industrial sector or almost 45% for the economy as a whole. Apart from the metals industry, all of these six sectors register an above-average export ratio. Their export success, which is often criticised at the international, and sometimes the national, level (trade balance surplus), is obviously to a significant extent due to considerable investment in modern machinery and equipment as well as in research and development. It is certainly not due to specific German industrial policies, which systematically protect domestic companies from international competition.

### Capital goods producers predominate

14

Share of sectors in gross fixed capital expenditure of the manufacturing industry in DE, 2016, %



Sources: Federal Statistical Office, Deutsche Bank Research

### Automotive and pharmaceutical industries: Gross capital spending is growing strongly ...

Gross capital spending by the automotive industry (+4.4% p.a. in real terms since 1995) and the pharmaceutical industry (+2.5% p.a.) has expanded particularly rapidly during the past two decades. Mechanical engineering (+2% p.a.) was the only other major industrial sector where capital expenditure growth was above the average for manufacturing as a whole (+1.6% p.a.). As a result, the share of the automotive and pharmaceuticals industries in total gross capital spending by the manufacturing industry rose from 22.5% in 1995 to 38.4% in 2016. Their share in other capital spending is even higher, at 49%, and rising.

### ... and net capital spending is only rarely negative

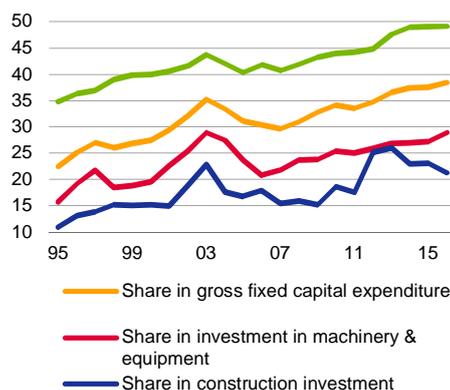
Another striking factor is that the automotive and pharmaceutical industries have spent more on new machinery, plants and intellectual property in most years since 1995 than they have written off. Net capital spending in the automotive sector was marginally negative only in 1995, 2006 and 2009. And in the pharmaceuticals industry, depreciations exceeded gross capital spending only in one year, namely 2011. Both sectors obviously tend to invest regardless of cyclical developments. In numerous years, for example between 2011 and 2014, the contributions from the automotive and pharmaceuticals sectors were the only thing which kept net capital spending by the manufacturing sector in the black.

Due to this buoyant investment activity, real net fixed assets in the automotive and pharmaceuticals industries have risen at a considerably faster pace than the average in manufacturing over the last few years. In fact, between 1995 and 2016, they have increased by 79% in the automotive sector and by 43.5% in the pharmaceuticals sector (manufacturing as a whole: 2.4%).

### Automotive and pharma industry have become more important

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Share of automotive and pharma industry in capital spending of the manufact. ind. in DE, %



Sources: Federal Statistical Office, Deutsche Bank Research

### High share of long-term investment in the automotive and pharmaceutical industries

In addition, the share of the automotive and pharmaceutical industries in total gross capital spending by the manufacturing sector considerably exceeds their contribution to gross value added. This is due to the fact that these two sectors

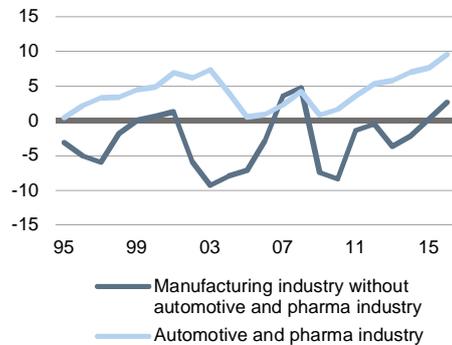


## German industry: Growth in investment spending driven by only a few factors

Positive net capital expenditure in the automotive and pharma industry

16

Nominal net capital expenditure in DE, EUR bn



Sources: Federal Statistical Office, Deutsche Bank Research

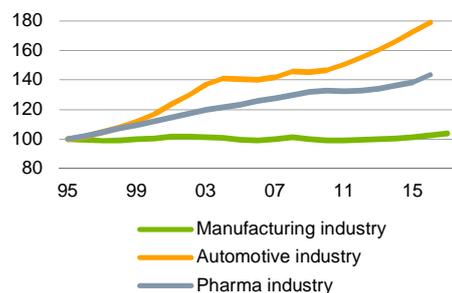
are more capital-intensive (as measured by nominal gross fixed assets per employee) than the average for the manufacturing sector as a whole. Moreover, both sectors seem to be more willing than others to invest in product areas for which there is not yet a large market. The particularly high share of R&D spending points in this direction, too. For example, the automotive sector is currently working on alternative propulsion technologies and spending considerable amounts on autonomous and connected driving.<sup>6</sup> In both cases, the potential sales markets are still small. For example, battery electric vehicles currently account for less than 2% of total car sales world-wide. The pharmaceuticals industry is regularly investing in new drugs. On average, the development process, from basic research to a marketable drug, takes considerably more than ten years. In addition, research may often not be successful or not lead to a marketable drug. These examples show that R&D investments in these two sectors focus on the long term, which makes them particularly risky. Nevertheless, they are indispensable for business success.

This pattern (a sector accounts for a relatively large share in gross capital spending compared to its share in industrial value added) is also visible in electrical engineering sub-sectors (DV appliances, electronic and optical appliances) and other vehicle construction (e.g. planes, ships).

Auto and pharmaceutical sectors increase capital stock

17

Real net fixed assets in Germany, 1995=100



Source: Federal Statistical Office

### Capital stock in energy-intensive sectors continues to shrink

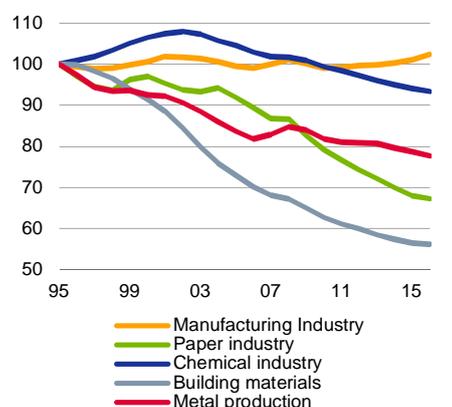
The capital stock in energy-intensive industries has been shrinking for years now – a trend that gives cause for concern. Energy-intensive industries include paper (NACE code 17), chemicals (20), building materials (23) and metal production and processing (24). Energy costs as a percentage of gross production value in these sectors are at least more than twice as high as the industrial average.

In fact, net fixed assets in the building materials industry fell by almost 39% between 2000 and 2016. The paper industry saw a decline by c. 31% during this period. In metals production and processing (-16.1%) and the chemicals industry (-12.4%), the capital stock shrinkage was less pronounced, but still significant. What is particularly alarming is that the capital stock in these sectors includes not only machinery, equipment and buildings, but also capitalised R&D spending.

Real net fixed assets decline in energy-intensive sectors

18

Real net fixed assets in Germany, 1995=100



Source: Federal Statistical Office

The decline in real net fixed assets in energy-intensive sectors has several reasons. The building materials industry has obviously suffered from depressed construction activity in Germany in the first few years of the past decade. In fact, output in this sector was lower in 2016 than in 2000. All other energy-intensive sectors, however, increased their domestic production between 2000 and 2016, despite the decline in capital stock. This also applies to metals production and processing, which has been suffering from structural overcapacities at the global level for years now. As output has increased, the decline in net fixed assets is certainly not due to lower demand.

### Investment leakage is taking place

We believe that energy-intensive investors are reluctant to invest in Germany because the uncertainty about German energy and climate policy remains. While many companies from the sectors listed above benefit from exemptions, for example under the Renewable Energy Act or under the EU emissions trading scheme, they cannot be sure of how long these exemptions will remain in place.

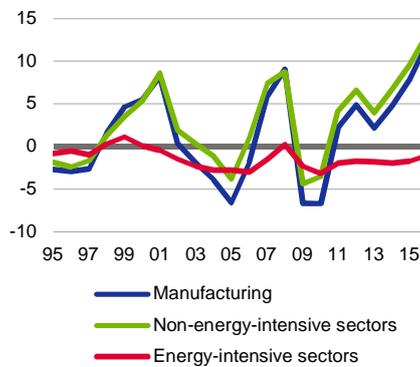
<sup>6</sup> See Heymann, Eric and Janina Meister (2017). The digital car. More revenue, more competition, more cooperation. Deutsche Bank Research. Germany Monitor. Frankfurt am Main.



## German industry: Growth in investment spending driven by only a few factors

### Energy-intensive industries invest less 19

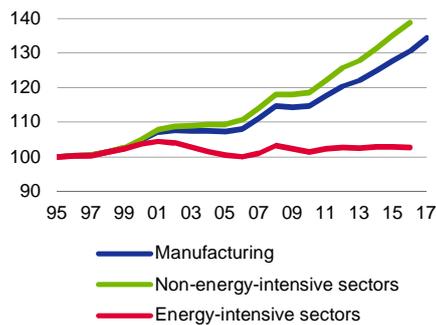
Nominal net capital expenditure in DE, EUR bn



Sources: Federal Statistical Office, Deutsche Bank Research

### Capital stock in energy-intensive sectors has remained more or less flat 20

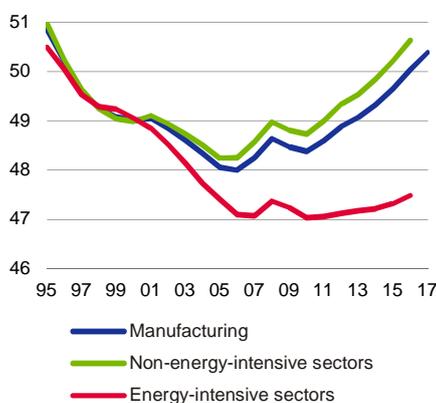
Nominal net fixed assets in Germany, 1995=100



Sources: Federal Statistical Office, Deutsche Bank Research

### Energy-intensive sectors have below-average modernity ratios 21

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



Sources: Federal Statistical Office, Deutsche Bank Research

Plants in energy-intensive sectors often have a useful life of several decades, which explains why these uncertainties dampen investment activity in Germany. At the same time, companies from these sectors have made sometimes considerable investments abroad in the last few years, in some cases explicitly because energy costs were lower abroad. Investment leakage, i.e. a shift abroad in investment activity, is evidently taking place. Still, it is not the only reason why capital spending by energy-intensive industries is low.

Several other figures illustrate that energy-intensive industries are cautious about investing in Germany.

- Nominal net capital expenditure in the energy-intensive sectors was positive in only four out of 22 years between 1995 and 2016, whereas in the non-energy-intensive industries it was positive in 15 out of 22 years.
- The energy-intensive sectors' nominal capital stock, which includes capitalised R&D spending and price rises, was only 3% higher in 2016 than it had been in 1995. The corresponding increase in the non-energy-intensive industries was 39%.
- The modernity ratio in the energy-intensive sectors was 47.5% in 2016, which was 3pp lower than in 1995. In contrast, the modernity ratio in non-energy-intensive sectors recently came to 50.6%, i.e. roughly the same level as 1995.

One advantage of Germany as an industrial production location is its vertically integrated supply chain. However, this advantage may shrink if investment in energy-intensive industries is insufficient, as innovativeness and productivity will suffer over time. Downstream capital goods producers are dependent on highly innovative intermediate products, not least from the energy-intensive sectors; in fact, suppliers and customers often work quite closely together, right up to joint R&D efforts. From an economic policy vantage point, it may be fatal to shrug off the decline in capital spending in the energy-intensive industries.

### Energy transition a burden for non-energy-intensive sectors, too

The competitiveness of industrial companies which do not benefit from energy and climate policy exemptions suffers from high German electricity prices. In 2016, for example, 96% of all German industrial companies paid the full surcharge under the Renewable Energy Act. This share is unlikely to have declined much since, if at all. According to the DIHK (Association of German Chambers of Commerce and Industry) energy transition barometer, the energy transition is mostly thought to have a negative impact on manufacturing.

### Numerous hurdles to investment are difficult to overcome

Industrial capital spending obviously depends on economic, political and social framework conditions. A regular survey by the DIHK shows that, from the German export sector's vantage point, the lack of qualified labour is (and has been for some time now) the biggest business risk. By now, the issue has made it to the political agenda, as is evident from the adoption of the qualified labour immigration act by the government at the end of 2018. In principle, there are numerous measures that might mitigate the lack of qualified labour, such as improved vocational training, longer childcare hours, which would enable parents to work more, or the labour market integration of refugees. However, it will take some time until the effects of these measures are felt, and/or they may require additional spending first. While the qualified labour immigration act tries to resolve the issue, other government decisions which reduce labour market



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Oil price has dropped again

22

Monthly averages of grades Brent, WTI and Dubai, USD per Barrel



Source: HWWI

flexibility will have the opposite effect (such as restrictions on temporary employment contracts).<sup>7</sup>

In autumn 2018, the industry said that labour costs, economic policy framework conditions (without going into specifics) and energy and raw materials prices might pose risks to the business, too. DIHK wrote that considerably higher crude oil prices at that time and specific regulatory burdens in Germany, such as the surcharge under the Renewable Energy Act, were behind these concerns. As growth looks set to slow, cyclical developments are likely to return into the foreground as a business risk and dampen industrial investment growth.

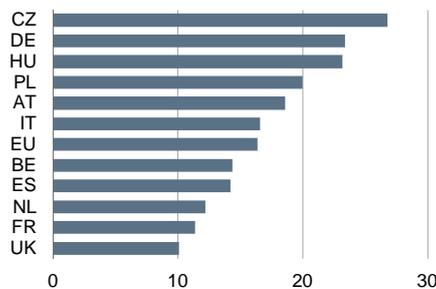
### Political appreciation of the industry changes over time

Political appreciation of the industrial sector has changed in Germany over the last few years. When the “new economy” hype peaked around the turn of the millennium, traditional manufacturing was disdainfully labelled as belonging to the “old economy”. However, after the global economic and financial crisis in 2008/09, the industrial sector gained back some ground among politicians and the public, not least abroad. After all, Germany’s internationally competitive industrial companies, many of which are SMEs, helped the country to overcome the crisis better and more quickly than many other western European countries which were not able to rely on an industrial basis. In Germany, the share of manufacturing in overall gross value added is considerably above the EU average (23% vs 16.4%). In particular, the labour market effects were relatively small in Germany, not least due to generous short-time work provisions during the crisis years. This enabled industrial companies to keep most of their regular staff on board.

High industrial share in Germany

23

Share of manufacturing industry in total gross value added, 2017, %



Source: Eurostat

Right now, however, the pendulum appears to be swinging into the opposite direction once again. The automotive sector in particular has been under fire for months now. The sector’s behaviour, not least in the diesel issue, has caused politicians and the media to scold it severely, which has led to major reputational damage. Several NGOs are fanning the flames, for motives that are not always clear and without having a legitimate democratic mandate to do so. This development may damage Germany’s standing as an industrial location, particularly if ideological considerations, a hysterical tone and political and media outrage prevail over facts and clear-headed argumentation in the necessary debate. While violations of existing rules must clearly be sanctioned, regulation should remain well balanced and pursue useful goals, and environmental policy instruments should be judged by their ecological usefulness, economic efficiency and social consequences. Unfortunately, that is not always the case.

### Regulations not always balanced and useful

Stricter CO<sub>2</sub> emissions limits for new cars, which car producers – not just in Germany – will need to comply with by 2030 are a good example. At the end of 2018, the EU decided that, by 2030, CO<sub>2</sub> emissions of new cars were to be reduced by 37.5% compared to the value targeted for 2021 or roughly half the upper limit for 2017. The automotive industry complained that these limits were highly restrictive and that, as of today, nobody knew how to reach them. However, these statements were either ignored in the public discussion or dismissed as pure lobbying. Politicians and the media focused on calling for more electric vehicles. However, what they did not mention was that, up to now, electric vehicles are only able to gain a significant market share if they are

<sup>7</sup> See Heymann, Eric and Constantin Pracht (2018). Growth dampened by lack of skilled labour in industry. Deutsche Bank Research. Talking Point. Frankfurt am Main.



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subsidised. So far, customers tend to choose a traditionally fuelled car (for understandable reasons). However, the issue of customer responsibility was largely neglected.

If consumers do not massively change their behaviour, the limits for 2030 will almost certainly be missed. In addition, the question of whether CO<sub>2</sub> emissions limits for cars make ecological sense or are an economically efficient tool to protect the climate was shifted to the side as well. In fact, neither is the case. These questions are particularly relevant because they have a major impact on the areas in which the automotive industry invests. While any government regulation has to address negative externalities, this may become problematic if the provisions are not technology-neutral, but try to push research and development in a certain direction, even though the long-term success of subsidised technologies (including abroad) is uncertain.

There is no political willingness to engineer a re-orientation of German climate and energy policy

This applies to German climate and energy policy as a whole. Much of it is not technology-neutral and does not sufficiently focus on key issues, such as how to reduce carbon emissions at the lowest possible cost. If this fundamental problem is not resolved, most ecological goals of the energy transition will be missed. In fact, this failure is quite likely. In addition, it is highly probable that the costs will be excessive (subsidies), that resistance against stricter measures (which are to be expected or would be necessary) will arise and/or that the time schedule is too tight.<sup>8</sup> Right now, there is no political willingness to engineer a re-orientation of German climate and energy policy or to turn away from national paths, which may come into conflict with European solutions. It is therefore highly unlikely that energy-intensive industries will change their investment behaviour. Subsidies granted in the framework of the energy transition will obviously trigger capital spending in those sectors which benefit from them. Ideally, however, new technologies should be economically viable without government support, or else, they will not be on the market for long. Subsidising certain technologies carries risks and may be a tightrope walk; just remember the photovoltaic industry in Germany. While numerous solar cell production plants were founded, many of them went bankrupt later on as Chinese suppliers became more competitive over time. For some time now, Germany and Europe have been discussing government support for battery cell production. It is uncertain whether such an endeavour would be successful in the long run, seeing that competitors from the Far East are quite well positioned in this area, too.

### Clear-headed assessment of industry would be desirable

Industrial value creation causes negative externalities, however, it is also a key pillar of prosperity

It would be desirable if policymakers and the media took a more clear-headed view of “the industry”. Industrial value creation will always come with side effects. The use of many industrial products also causes negative externalities. Note, however, that air and water pollution have steadily declined over the last few years, and not just in Germany. At the same time, the industry is the most important driver of innovation in Germany and a key pillar of prosperity. It pays above-average wages and holds its own at the international level, (largely) without benefiting from protectionist industrial policies. Despite long-term challenges, not least from demographic change and digitalisation, we expect the German industry to be adaptable enough to be still around and viable in ten years’ time. In any case, other countries are finding it difficult to repeat Germany’s industrial success story.

<sup>8</sup> See Heymann, Eric (2016). German Energiewende: Many targets out of sight. Deutsche Bank Research. Germany Monitor. Frankfurt am Main.



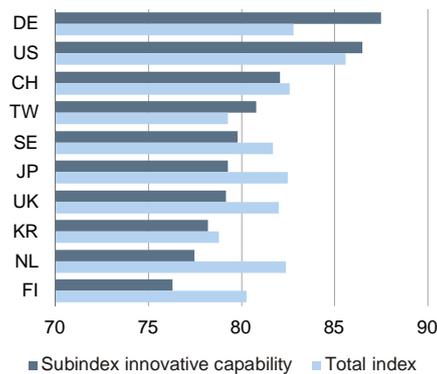
## German industry: Growth in investment spending driven by only a few factors

Competition between investment locations is expected to intensify

Germany leads in innovation capability

24

Global Competitiveness Index 2018, scores



Source: WEF

German investments abroad are part and parcel of the international division of labour and necessary for companies' success for several reasons. In fact, foreign investments may even have a favourable effect on domestic investment activity.<sup>9</sup> However, government regulation has a significant impact on investment decisions and should therefore take into account that Germany, as an investment location, competes with other countries and that this competition is likely to intensify in the future. This is explicitly not a call for protectionism, for a turnaround in German industrial policy (which has traditionally pursued a "hands-off" approach) or for a "race to the bottom" in terms of social or environmental standards. However, it is not surprising that investment is shifted abroad if the economic or social policy framework conditions for certain sectors deteriorate.

The government should increase its efforts in some areas. For example, the issue of how to protect intellectual property in the case of cross-border investment, mergers and acquisitions should be given a higher priority, particularly if the foreign companies involved in such transactions are protected or supported by their governments. In addition, labour market flexibility is very important in a high-wage country such as Germany. At the EU level, one important task is to promote free trade and counteract recent, protectionist tendencies.

Overall, Germany is internationally regarded as an attractive investment location. However, this attractiveness is not a given; it requires regular efforts by policymakers (in the areas of education, infrastructure, labour market and tax policy) and companies (in terms of innovativeness, productivity, qualified labour).

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<sup>9</sup> See, for example, Goldbach, Stefan et al. (2017). Increased investment abroad boosts domestic investment. Deutsche Bundesbank. Research Brief. 16<sup>th</sup> edition – November 2017. Frankfurt am Main.



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