



KfW Research

KfW SME Panel 2017

»» Germany's SMEs continue to break records – sectoral transformation poses new challenges

Annual analysis of the structure and development of SMEs in Germany

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Germany's SMEs continue to break records – sectoral transformation poses new challenges

Abstract

As employers, small and medium-sized enterprises are more important than ever. They alone were responsible for the aggregate employment growth of 2016. The rise in employment is reaching all regions of Germany. Turnover is booming as well – flanked by very optimistic prospects. Profits of SMEs in Germany are good. The German SME sector is generally in top shape.

The KfW SME Panel 2017 also shows that service industries are dominating economic activity more and more. Their investments have reached an all-time high. They are the main drivers of the strong employment growth and generate three fourths of turnover. The sectoral shift away from manufacturing towards more services, however, is slowing down overall productivity growth rates in the SME sector.

SMEs' international business is making a small positive contribution to growth. But SMEs overall are losing ground internationally. The share of international turnover is still declining. This is due to the persistent sales weakness outside Europe. But Europe is a counterweight. The improved environment there is driving turnover.

SMEs' willingness to invest is generally stagnating as caution still predominates. Especially in manufacturing, only one in two enterprises invested. But investment volume is growing, driven by capacity expansion. SMEs' net investment is positive. Large enterprises, however, are not contributing to the expansion of capital stock.

It is mainly large SMEs that are taking advantage of the favourable financing environment. They are significantly increasing the ticket size of their loans. This is the driver that is increasing SMEs' overall demand for credit. Their strong desire for financial independence and concern over unfavourable financing conditions, however, are causing many smaller SMEs to steer clear of loan negotiations. Yet the credit supply gap is small. SMEs' own denials are on the rise. They are using bank loans slightly more often as sources of finance. Overall, SMEs continue to rely heavily on their own resources to fund their investments. Their equity ratio now exceeds the 30 per cent mark.

Outlook for 2017

The signs remain promising. Growth momentum will continue to pick up. Business prospects are at an all-time high. Europe and the global business cycle are on the rebound. New record employment numbers are foreseeable. The signs of a stronger investment push – especially on the home front – are visible. Domestic demand remains the driver of economic momentum. This is benefiting domestically focused SMEs above all.

SMEs are more important as employers than ever before

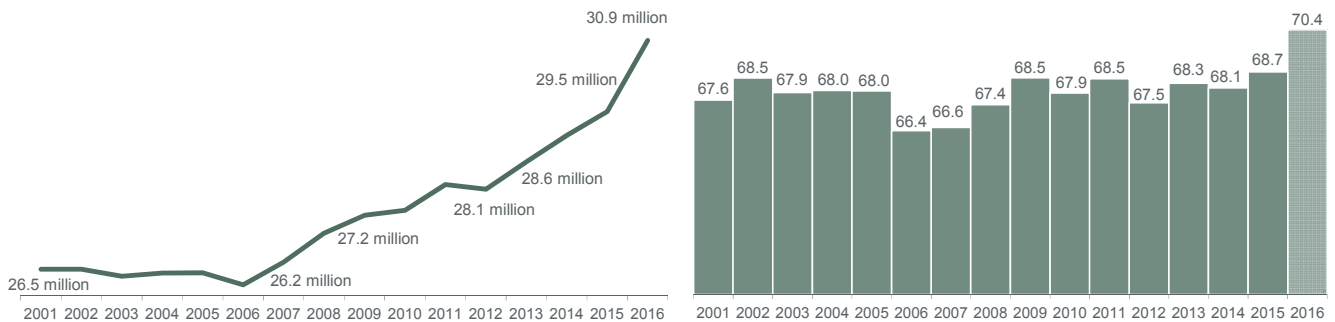
The number of workers employed by SMEs increased strongly again in 2016 (Figure 1, left): With 30.9 million employees, small and medium-sized enterprises broke the employment record they set in the previous year. The increase of 1.46 million employees (4.6 %) last year was exceptionally high. In other words: in 2016 SMEs again employed more workers in Germany than ever before.

Employment has also been growing across the overall economy for ten years now (+2.2 % in 2016). On average for the year, nearly 44 million persons were employed in Germany, an increase of around 935,000 persons.¹ Large enterprises and the public sector cut jobs again from the previous year (reduction by 432,000 workers), while employment continued to grow in SMEs. This stronger dynamic means SMEs are becoming increasingly important for the labour market (Figure 1, right). Their share in aggregate employment surpassed the 70 per cent mark for the first time and is currently 70.4 % (up 1.6 percentage points from 2015). Small and medium-sized enterprises are at the heart of the employment boom of the past years in Germany.

The high level of employment is also reflected in the number of full-time jobs. The development of full-time equivalent employees (FTE employees²) shows that momentum picked up in 2016. With an average growth rate of 2.7 %, it was 0.4 percentage points higher than in the previous year (Figure 2).

Figure 1: Employment in SMEs on a record high

Persons employed in the SME sector (left) / share of SME sector in aggregate employment in Germany in per cent (right)



Source: KfW SME Panel 2002–2017.

Businesses of all size classes and industries exhibited positive employment growth.

There is currently nothing to indicate a weakening of the labour market situation in Germany (June 2017: 44.2 million persons employed³). Based on the level already achieved, however, lower growth rates are realistic in the future. At the end of 2017, the number of persons employed in SMEs will slightly exceed 31 million.

Since 2010, the number of workers has grown by 2.4 million to now 9.9 million (+32%). In other words, with a share of nearly three fourths, the growth of employment in SMEs since then has been essentially driven by SMEs providing knowledge-intensive services.

There are many different causes for the shift towards services. First, businesses' outsourcing or contracting of previously internal services to third-party companies play a role (e.g. IT maintenance, data storage, personnel recruitment, legal affairs and taxation). These decisions are based on considerations relating to costs, specialisation and division of tasks. Second, structural developments have created an increased demand for services for some time now (driven by factors such as demographic change and the growing share of smaller households, for example).

Figure 2: Annual employment and turnover growth rate



Source: KfW SME Panel 2006–2017.

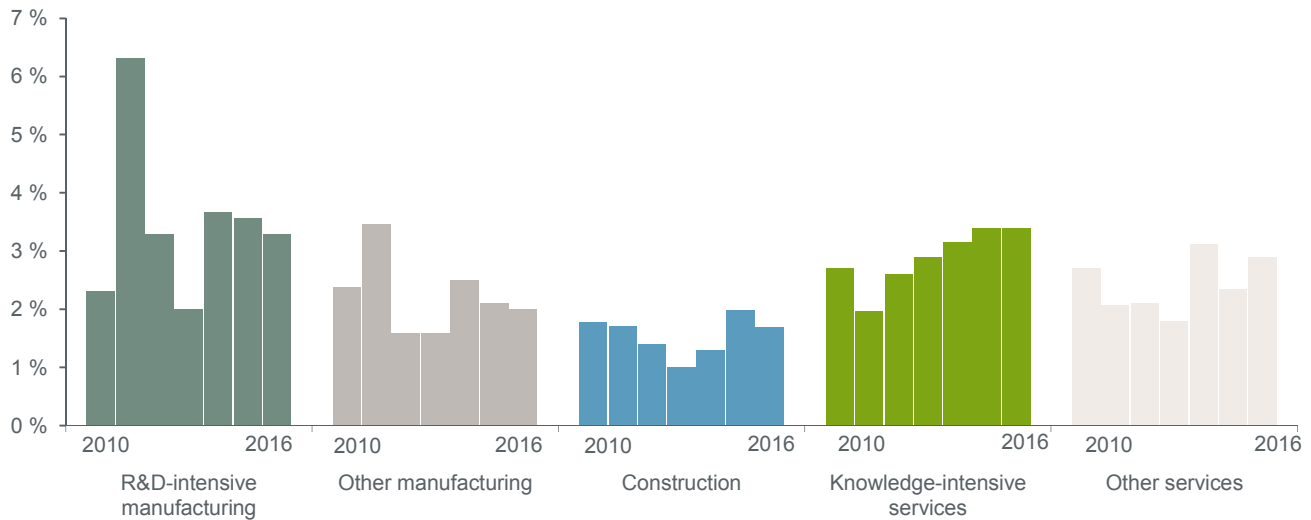
Sectoral transformation is also changing SMEs, with services driving the upswing

Sectoral structural transformation is also making a clear imprint on SMEs. Knowledge-intensive services⁴ achieved highest employment growth of all sectors in 2016 (Figure 3). Here the number of FTEs grew by an average 3.4%. Employment in this segment in particular has been growing strongly for a long time.

This structural shift is not only reflected in employment but clearly visible in the SME sector on a long-term basis. Whereas in 2005 there were some 1.1 million SMEs providing knowledge-intensive services (31% of all SMEs), that figure rose to 1.4 million already in 2016 (38%). More than 2.8 million service providers are currently active in the SME sector – 77% of all SMEs in Germany.

Taken together, all businesses active in service industries currently employ 18.4 million workers (excluding trade / almost 23 million workers including trade). At the turn of the millennium it was 'only' 12.7 million. Thus, more than 59% of all jobs were in the SME service sector in 2016 (or 74% including trade) – 10% more than in 2001. For comparison: The number of jobs in manufacturing SMEs has hardly changed since then (some 5 million workers).

Figure 3: Annual employment growth in SMEs by sector since 2010



Source: KfW SME Panel 2011–2017.

R&D intensive manufacturing⁵ has also grown strongly, with FTE numbers rising by an average 3.3%. With average growth of 1.7%, the construction industry remains on a moderately expansionary course. This is more than justified given the strong expanding residential construction underway.

First survey by federal state shows employment growth everywhere

SMEs in all regions of Germany increased their workforces between 2012 and 2016. An analysis conducted by federal state for the first time confirms this (Figure 4). SMEs in Rhineland-Palatinate recorded the highest growth rates, followed by SMEs in Hesse, Schleswig-Holstein and Lower Saxony. The number of employees (on FTE basis) in these federal states grew by an average of around 3% and more. The employment growth of the past years has thus reached all size classes, sectors and regions of the country.

SMEs have also begun to adopt more flexible working arrangements

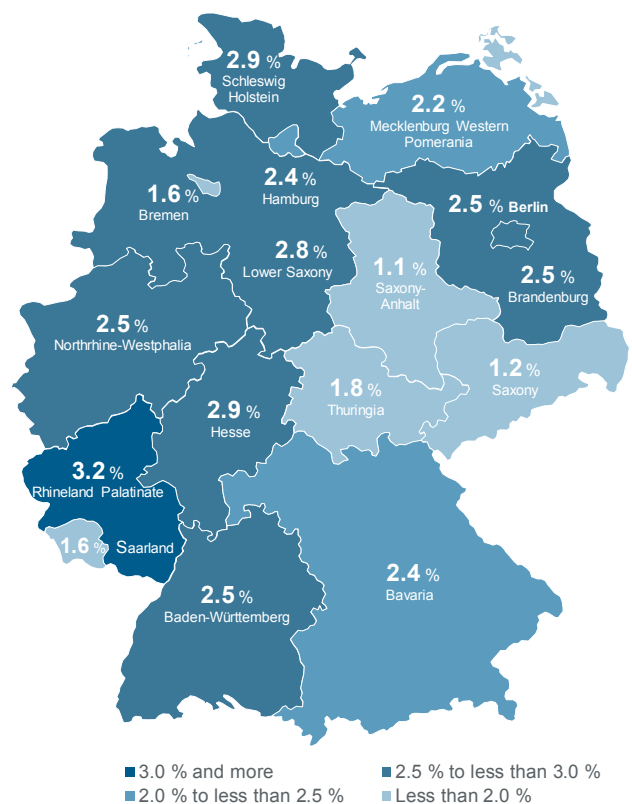
Last year’s employment growth was carried by an expansion of part-time employment. It increased by 5% in 2016 – more than five times as much as full-time employment (+0.9%). Part-time employment increased by 45% in the past ten years (2006–2016). Full-time employment increased by 13%.

SMEs are thus following the trend. Part-time employment has been on the rise in general across Germany for some time now – the average number of hours worked has decreased while employment increased (13% since 1992, Figure 5). Among other reasons, this development may reflect the rise in the social importance of more flexible employment

arrangements across businesses as a whole and employees’ stronger desire for a balance between work and family life.

Figure 4: Employment growth by federal state

Annual FTE employment growth by federal state (average 2012–2016) in per cent

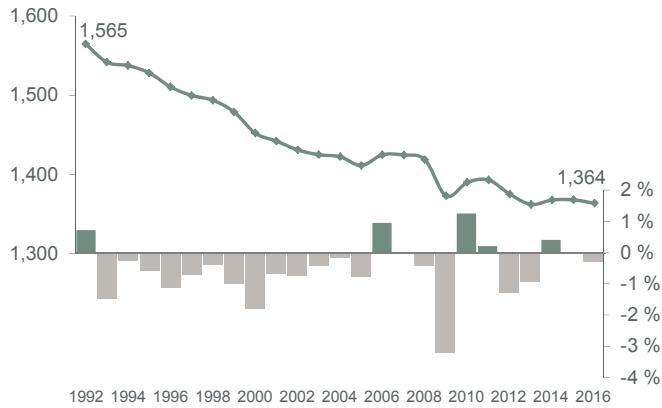


Note: Representative regional survey based on waves 11–15 of the KfW SME Panel.

Source: KfW SME Atlas 2018 (forthcoming).

Figure 5: Trend towards shorter working hours across Germany

Annual hours worked per employee – in absolute terms (left / line) and annual variation (right / bar)



Source: national accounts.

SMEs are training 90 per cent of apprentices and trainees⁶

Around 90 % of all trainees and apprentices (some 1.2 million), completed their training in SMEs. Some 440,000 businesses – 11.7 per cent of SMEs – offer training. That share increases with the size of the enterprise. While 76 % of large SMEs with 50 and more employees offer training, only 5 % of micro-businesses with fewer than five employees do the same. The latter often are not sufficiently resourced, licensed or specialised to provide meaningful training on their own.

On a macroeconomic level, vocational training in Germany hit a record low in 2016. The number of new vocational training contracts (511,000) dropped to the lowest level ever. The number of trainees and apprentices in Germany totalled 1.32 million at the end of 2016.⁷

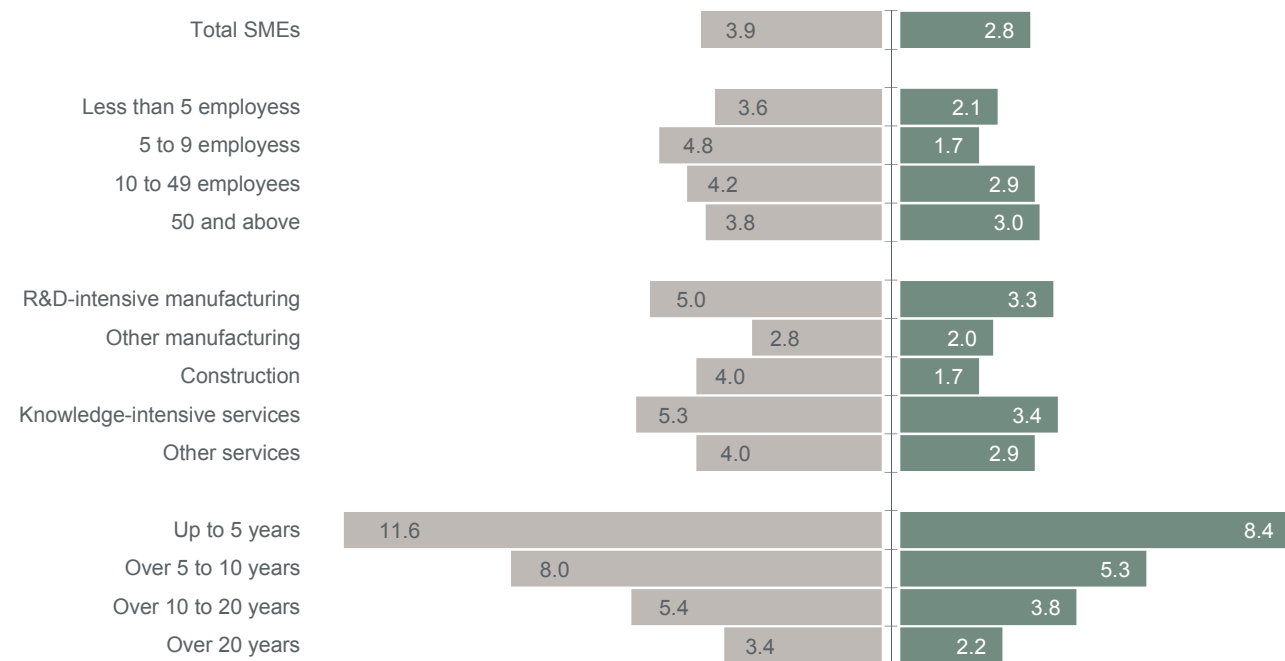
Highest turnover growth in five years

SMEs' turnover increased in 2016 as well. The pace of growth accelerated to 3.9 % year-on-year (+0.6 percentage points on 2015, Figure 2 and Figure 6). With turnover increasing at the highest rate in five years, SMEs last year recorded stronger growth than the aggregate economy (nominal GDP growth in 2016: 3.3 %).

Service enterprises have great economic significance. Focused heavily on the domestic market, service providers contributed some EUR 3,200 billion (72 %) to the approx. EUR 4,500 billion in total SME turnover – with 94 % generated within Germany. SMEs of the more internationalised manufacturing sector contributed around EUR 924 billion to overall turnover (21 %) – of which 70 % was generated within Germany. Construction and other enterprises accounted for the rest.

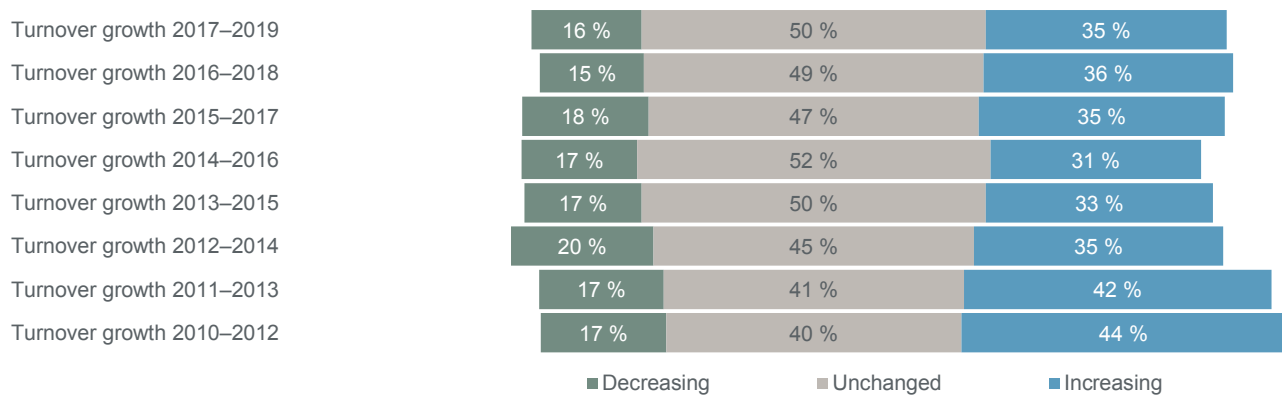
Figure 6: Turnover (left) and employment growth (right) in SMEs by segment

Growth rates in per cent



Source: KfW SME Panel 2017.

Figure 7: Turnover expectations in the SME sector



Source: KfW SME Panel 2010–2017.

Outlook for 2019 is very positive

Enterprises will continue on a growth path in the near future as well. Growth expectations up to 2019 indicate this (Figure 7).

Significantly more SMEs expect turnover to rise (35 %) than to fall (16 %). All sub-segments of the SME sector have this positive outlook (see Volume of tables for selected segments). Based on these assessments by the enterprises themselves, which have proven to be reliable predictors of actual developments in the past, similar growth momentum of around 4 % in the SME sector can be expected in the short term.

International business stagnated in 2016

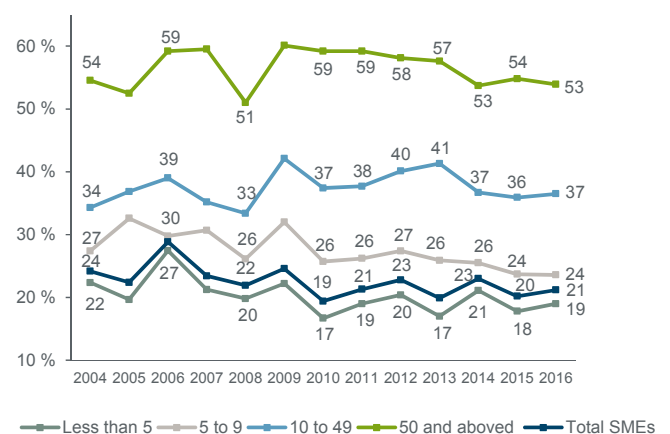
International turnover hardly contributed at all to the growth achieved in 2016. Cross-border turnover totalled EUR 547 billion, a mere EUR 1 billion more than the year before (2015: EUR 546 billion). That means stagnation.

Overall, 21 % of SMEs achieved international turnover (Figure 8). That was some 700,000 enterprises, a minor increase of one percentage point on the previous year (2015: 20 %). On average, the share of international business in companies with foreign operations amounted to 27.4 % of their total turnover (+0.7 percentage points compared with 2015).

Defying all geopolitical tension, large enterprises in particular (with 50 and more employees) were able to maintain their high presence in international markets – with international business contributing EUR 347 billion (plus EUR 2 billion), nearly 30 % of overall turnover. This group of enterprises alone accounts for 63 % of all SMEs’ international turnover. It is a significant mainstay of SMEs’ international competitiveness and of Germany’s competitiveness in general (29 % of Germany’s total exports).

Figure 8: Share of enterprises with international business

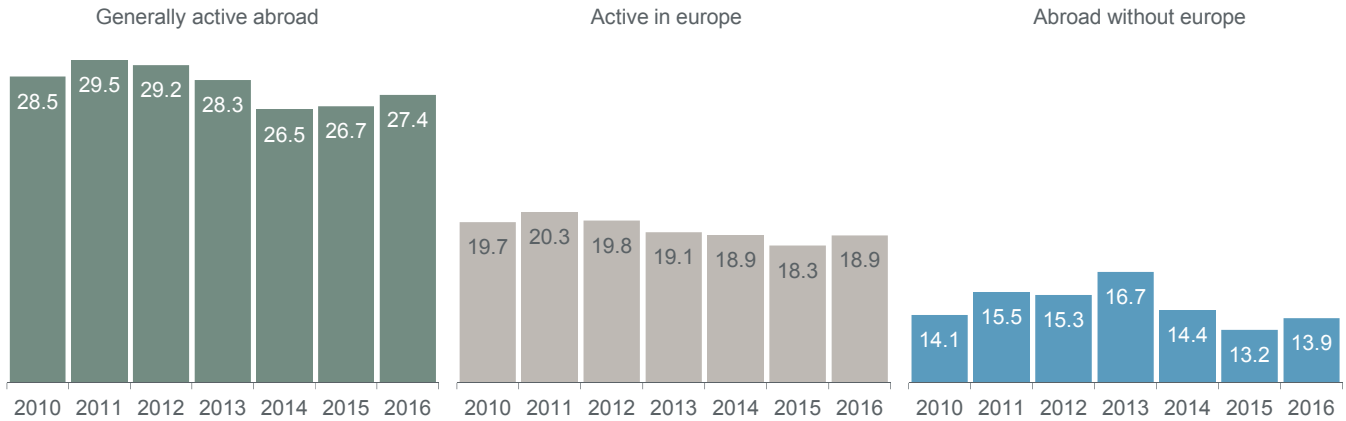
Size classes by number of full-time equivalent employees, in per cent



Source: KfW SME Panel 2005–2017.

Figure 9: Share of foreign turnover in overall turnover (total and by region)

In per cent; enterprises with international business only



Note: The values shown refer exclusively to those enterprises that generated international turnover in the corresponding regions. The individual figures for 'Europe' and 'Rest of world' therefore do not add up to 'Total international business'.

Source: KfW SME Panel 2011–2017.

SMEs are losing ground in internationalisation ...

The measurable growth of international turnover was unable to keep pace with Germany’s strong total export activity in 2016. Total exports reached a volume of EUR 1,207 billion in 2016, after 1,196 billion in the previous year (+1.2%)⁸. SMEs’ contribution to growth was, hence, around one tenth. On balance, however, the share of SMEs in total exports is continuing to decline. It is currently 45% (2015: 46% / 2012: 53%).

Historic highs currently appear to be out of reach for SMEs. In the years 2011/2012, for example, they generated approx. EUR 600 billion in turnover outside Germany. At the time, the international share of SMEs’ total turnover was roughly 15%, and that share has gradually dropped to 12% today.

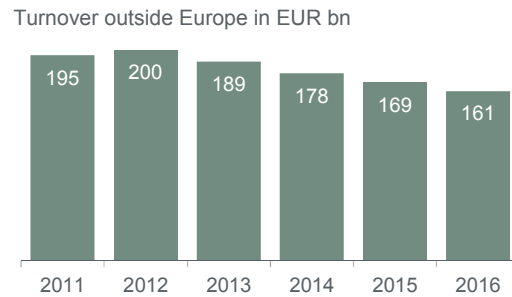
... mainly because they have progressively lost world market share

Small and medium-sized enterprises continue to report weak sales on markets outside Europe. SMEs lost around EUR 8 billion in turnover in markets outside Europe year-on-year (Figure 10).

The last decline was 5%, as in the previous year, so SMEs’ turnover outside Europe in 2016 was down to just EUR 161 billion (2015: EUR 169 billion). That was the fourth consecutive decline. Around 8.2% of SMEs

are currently active outside Europe – where they average 13.9% of their total turnover.

Figure 10: Sales outside Europe are shrinking

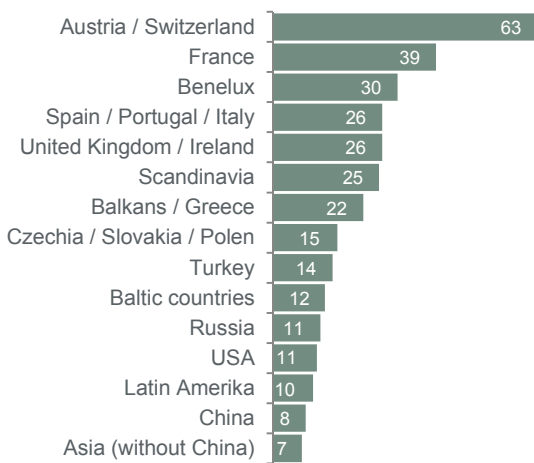


Source: KfW SME Panel 2012–2017.

Achieving lower sales on the ‘global market’ than in Europe, however, is normal. SMEs generally tend to be rather less active on geographically more distant markets, but in turn have a much stronger presence in European markets (Figure 11). This is primarily due to the geographic proximity and similarity of customer preferences, language and business procedures, the strong integration of goods and factor markets, and the common currency of most European countries. At the same time, the general barriers to international business – knowledge of the sales market, additional corporate risk, management and production capacity, capital input – are more formidable the farther away the sales market is from the home market.⁹

Figure 11: SMEs do little business outside Europe

Share of businesses with international turnover in the region in per cent, figures for 2015



Source: KfW SME Panel 2016; Abel-Koch (2017).

Europe, the counterweight: increasingly important and recovering steadily

SMEs' turnover in Europe has grown successively, keeping their overall international business on track (Figure 12). Turnover in Europe grew by EUR 7 billion, or 2%, to EUR 373 billion in 2016. The steadily improving environment in many European economies is showing visible effects. Besides, more SMEs were again active in European markets (share of SMEs doing business in Europe up 1 percentage point to 20%), generating a higher average contribution to turnover from this business as well (share in total turnover +0.6 percentage points to 18.9%).

Outlook for international business: Europe remains a bright spot

SMEs' international business can be expected to grow this year. As KfW Research has recently surveyed, SMEs expect their international turnover to grow by 8% by the year 2019.¹⁰ This is in line with the steady upswing of the euro area business cycle (GDP growth forecast for 2017: +2.2%), especially as political risks have fallen significantly since the recent elections in Germany's neighbouring states.¹¹ International business could thus gain further momentum in the short term. This is suggested by the most recent data on Germany's total exports. Up to the end of July 2017, the value of exported goods grew by 8% year-on-year.¹²

Figure 12: Importance of European turnover in the SME sector

Source: KfW SME Panel 2012–2017.

SMEs' profitability remains on a high level

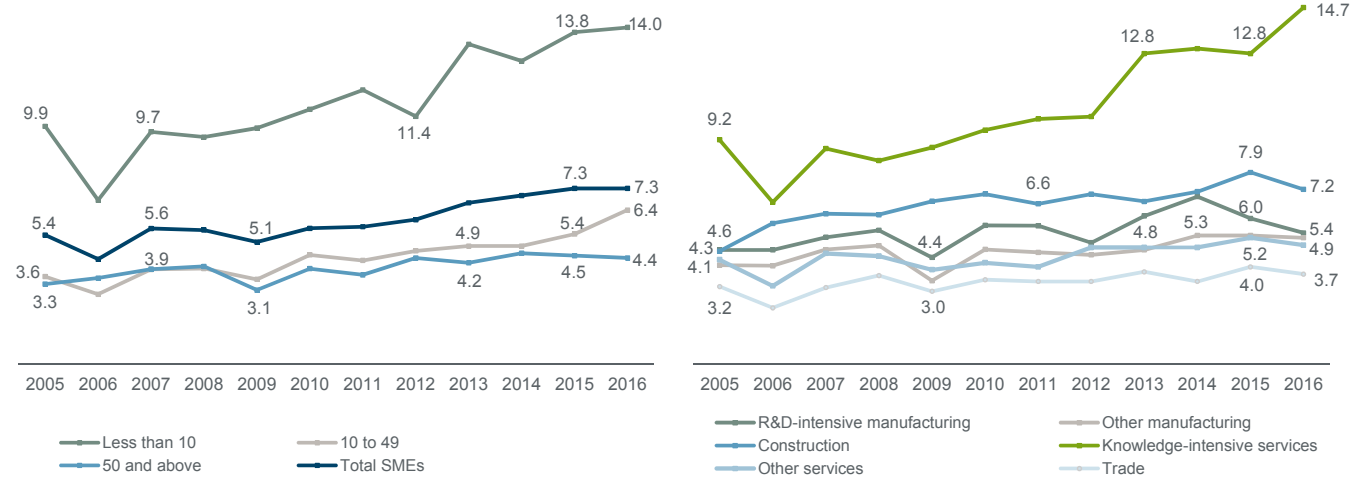
The moderately stronger turnover growth did not succeed in improving SMEs' profitability (Figure 13). As in the previous year, SMEs' average profit margin¹³ was a good 7.3%. It is true that in 2016 they were unable to achieve an increase for the first time in six years. Nevertheless, SMEs' profit margin improved by more than one third in the past eleven years (+36% or +1.9 percentage points). Around 59% of SMEs still have comparatively high profitability (in excess of 10%). In 2006, just under 43% of SMEs achieved that rate.

A high and stable profit margin is important not least because, along with the borrower's equity ratio, it is a key assessment criterion for lenders' loan decisions. Accordingly, this parameter plays a significant role in determining access to investment loans for SMEs.

As a result of solid turnover and turnover growth, only few enterprises suffered losses. A mere 10% of SMEs reported a negative equity ratio in 2016. Although this signifies a mild two percentage-point increase (2015: 8%), it still remains on a good level. For comparison: in 2009 the proportion of SMEs generating negative profit margins was still 16%.

Figure 13: SME profit margins by size class (left) and industry (right)

Size classes by number of full-time equivalent employees, in per cent



Source: KfW SME Panel 2006–2017.

Profits of larger SMEs are not keeping pace with turnover growth

Medium-sized SMEs in particular (10 to 49 employees) have significantly improved their profitability, with profit margins rising by roughly one fifth to currently 6.4 %. SMEs in this size class have never been this profitable. The same applies to small SMEs (with fewer than 10 employees). They, too, achieved a historic high of 14 % in 2016. By contrast, large SMEs with 50 and more employees generated lower profit margins for the second consecutive year despite strong turnover growth, even though the reduction of 0.1 percentage points turned out moderate once again.

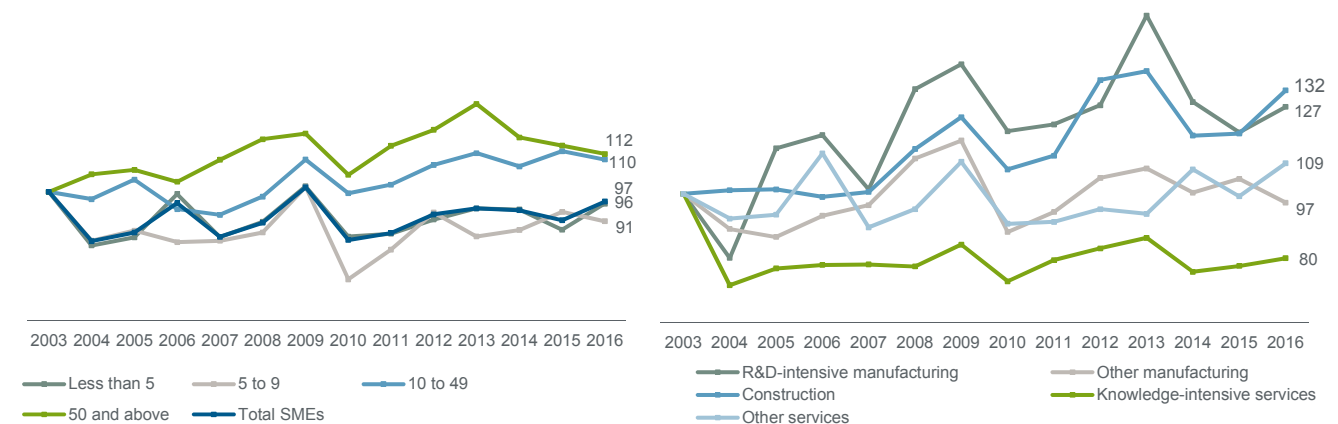
Highest productivity level in eight years

Labour productivity surged in 2016 (Figure 14)¹⁴. Turnover per full-time equivalent employee rose significantly by 6.4 %. It reached 97 index points on average (2015: 91 / base year 2003=100), a level last seen eight years ago. Turnover per FTE employee rose by EUR 8,000 to now EUR 127,000.

Aggregate productivity gains were achieved entirely by micro-enterprises in 2016 (+8 to 96 index points). This group has lifted SMEs' aggregate labour productivity from their slump. By comparison, large SMEs with 50 and more employees have lost productivity for the third consecutive year (-2 to 112 index points). The structural 'productivity gap' between small and large SMEs¹⁵ is therefore decreasing noticeably. It is currently 29 % (2015: 37 %).

Figure 14: SME productivity by size class (left) and sector (right)

Size classes by number of full-time equivalent employees



Notes: The figure shows indexed values (2003=100) of labour productivity (turnover per full-time equivalent employee), missing data on turnover and employees were imputed.

Source: KfW SME Panel 2004–2017.

Sectoral transformation is also limiting aggregate economic productivity growth

Looking beyond the most recent, welcome development, the persistently low labour productivity across the entire SME sector is also an expression of a sectoral transformation towards a higher proportion of services. Productivity differences currently result from economies of scale (Figure 15), even if smaller enterprises are becoming more productive. Thus, the average labour productivity of the smallest SMEs during the period 2003–2016 was a low EUR 89,000 per FTE employee. SMEs providing knowledge-intensive services also achieved only a moderate level of EUR 105,000 per FTE employee. Half the SMEs of these two segments just managed to achieve a maximum labour productivity of around EUR 70,000.

But key figures of service providers characterise the overall development in the SME sector because of the high number of these enterprises. Three fourths of all SMEs are service providers and almost nine in ten are micro-businesses. The more the sectoral transformation shifts in favour of the service sector, the more closely aggregate productivity is coupled with the growth of small service providers. By contrast, significantly more productive segments make up a very small proportion of all SMEs. Only 1 % of all SMEs are R&D-intensive manufacturers. Fewer than 0.3 % of all SMEs achieve a turnover of EUR 50 million.

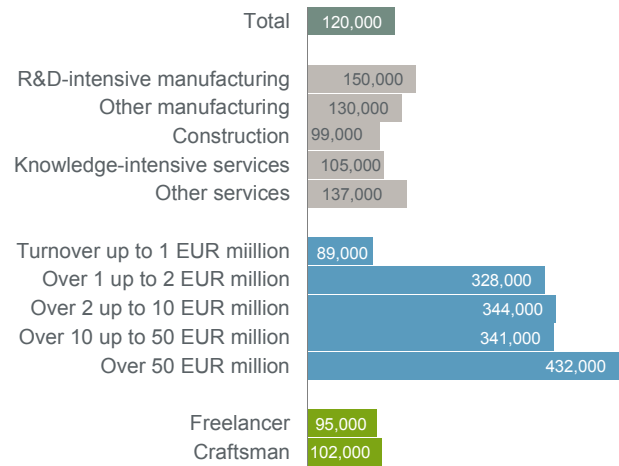
Investments: very little movement in 2016

The willingness of SMEs to initiate investment projects hovered stubbornly on a nearly unchanged level of 42.4 % (2015: 42.5 %). Enterprises remain cautious. Since the year 2009 (44 %), a sideways movement has basically taken place with a slight downward trend. In

total, around 1.5 million SMEs made investments last year.

Figure 15: Absolute labour productivity levels by segment (average 2003–2016)

In EUR per full-time equivalent employee



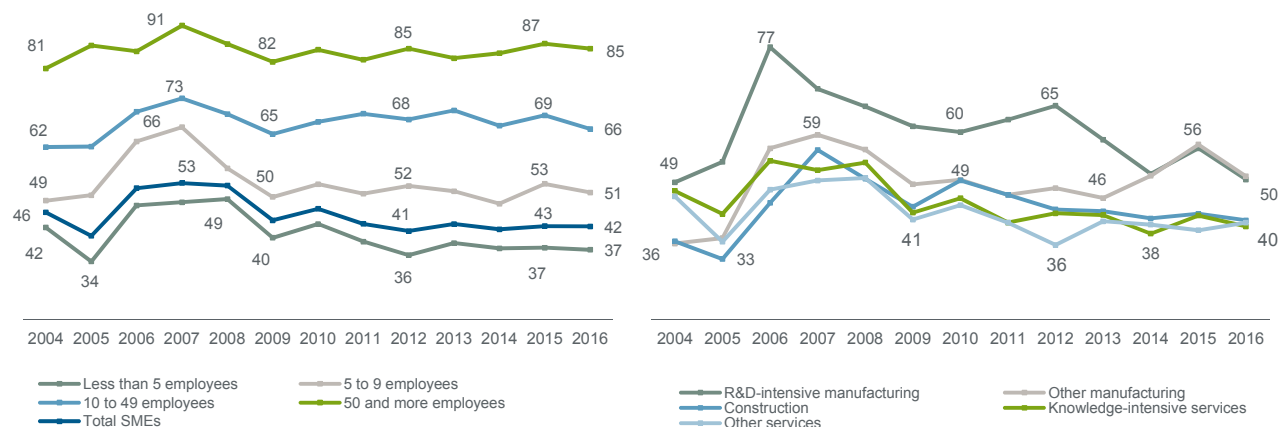
Source: KfW SME Panel 2004–2017.

Stagnating or slightly decreasing investor shares can be found in all size classes. While the decline among micro-businesses (SMEs with fewer than five employees) is very moderate at 0.5 percentage points, it was more significant among mid-sized businesses (10-49 employees) at over three percentage points year-on-year. The investor gap, i.e. the difference in investment propensity between micro-enterprises and large SMEs, is still a very high 48 percentage points.

In both sub-segments of the manufacturing sector – R&D-intensive manufacturing and other manufacturing – just half of all SMEs invested in 2016 (investor

Figure 16: Share of SMEs with investments by size class (left) and industry (right)

Size classes by number of full-time equivalent employees, in per cent

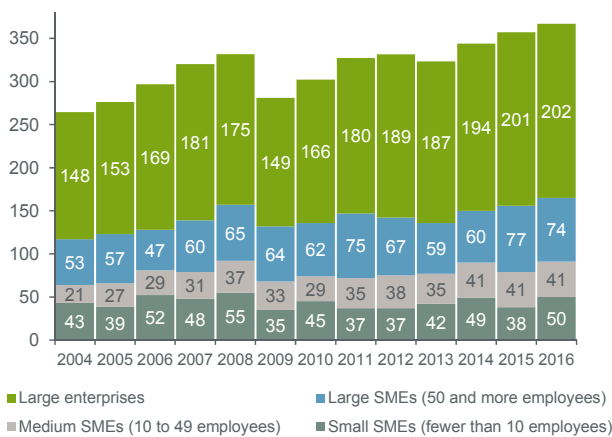


Source: KfW SME Panel 2005–2017.

shares 50 % each). That was the lowest number of industrial SMEs in the last ten years (see Volume of tables for detailed results over time). The investor shares are gradually converging with the low investor shares of the other industries (Figure 16). Last year's rise in investment propensity in manufacturing was only a brief intermezzo; the increase has been completely wiped out. This can weaken the international competitiveness of SMEs in the long term.

Figure 17: New investment in the corporate sector in Germany

EUR in billions; size class by number of full-time equivalent employees



Note: The extrapolation by employment size class of SMEs does not include companies of the remaining sectors. Consequently, the individual data on new investment undertaken by the SME size classes do not add up to the total sum of new investment (gross fixed capital formation) shown in the text.

Sources: KfW SME Panel 2005–2017; national accounts.

Led by services, new investment rises for the third consecutive year

Investment in new plant, equipment and buildings (gross fixed capital formation and new investments) increased to EUR 169 billion in 2016, a higher level than expected. This represents an increase of EUR 8 billion or 5% on the previous year, marking the third consecutive rise. Compared with the year 2013 – the most recent slump in investment – new investment was up by EUR 25 billion. At the same time, investments in second-hand goods fell by EUR 3 billion to EUR 35 billion (-8%). In the aggregate, total investment expenditure by SMEs in 2016 increased by EUR 5 billion (2.5%) to EUR 204 billion (2015: EUR 199 billion).

Services are becoming an increasingly prominent component of investment volume. Never before have SMEs from service industries invested more than in 2016. Enterprises offering knowledge-intensive services, in particular, invested an all-time high of

EUR 56 billion. Service industries accounted for 53% of total investment (around EUR 108 billion) or 54% of new investment (EUR 91 billion).

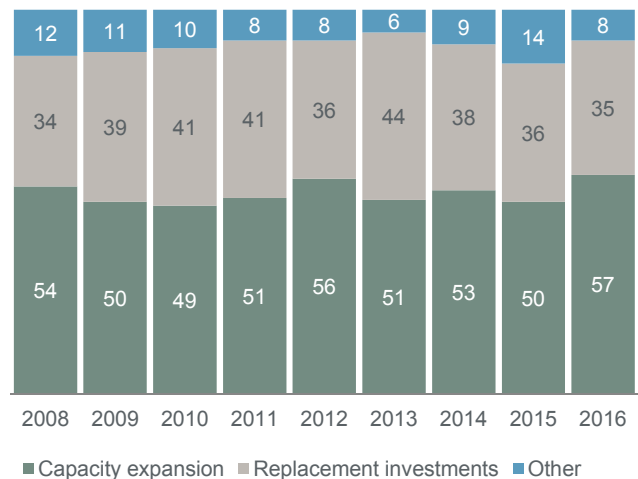
However, the increase in investment has not had a noticeable impact across the SME sector. In a year-on-year comparison, projects were of roughly the same scope – unlike credit demand, for example. On average, SMEs invested around EUR 132,000 in each project (+EUR 1,000 on the previous year). Half the investment projects had a volume of less than EUR 25,000 (mean value). Investment intensity (investment volume per FTE employee) also increased only marginally by EUR 100 to currently EUR 7,900.

Venture into capacity expansion drives new investment

Growth in new investment volume was driven by capacity expansions in 2016. The share of expansion investments increased by seven percentage points on the previous period to 57% (Figure 18). Capacity expansion is a positive signal. Utilisation of existing capacity may be nearing its peak and firms are also confident that the cyclical upswing will continue.

Figure 18: Types of investment in the SME sector

Percentage of investment volume



Note: The category 'Other' comprises, among others, innovation, rationalisation, renovation, restructuring and repairs.

Source: KfW SME Panel 2009–2017.

The link is clear: When a business invests in capacity expansion, its total investment, which averages EUR 212,000, is many times higher than in the case of pure replacement investments (Figure 19). SMEs that make replacement investments exclusively invest an average of EUR 66,000.

Figure 19: Average investment volume in 2016 by type of investment

EUR

	Expansion YES	Expansion NO
Replacement investments YES	212,000	66,000
Replacement investments NO	149,000	---

Source: KfW SME Panel 2017.

No growth in large enterprises = higher importance of SMEs

Large enterprises in Germany remain cautious. The increase in total gross fixed capital formation by all enterprises in Germany¹⁶ (plus EUR 9 billion to EUR 371 billion¹⁷) was almost completely the result of the higher new investment volume of SMEs. Large enterprises for their part were almost unchanged on the previous year's level of EUR 202 billion. SMEs thus increased their share in total gross fixed capital formation in the enterprise sector to 46 % (2015: 44 %).

It is true that SMEs posted a higher loss in value of their capital stock (depreciation) last year. But they were able to offset this one-to-one by increasing new investments. Net investments¹⁸ were in positive territory in again in 2016, at EUR 44 billion. That does

not apply to large enterprises, however. As their net investment was negative, their assets eroded yet again. From a macroeconomic perspective, it is primarily the investments made by SMEs that are preventing the loss in value of capital stock from depreciation.

Reluctance to invest also has demographic causes

The 'demographic gap' in investment behaviour remains high (Figure 20). In 2016, the share of business owners over the age of 60 who invested in their business was a mere 33 %, but 56 % for those under 40. The willingness to invest drops as business owners get older. From a relatively old business owner's point of view, many investments have an excessively long payback period (the same view has been evidenced for process innovations¹⁹). Besides, as they grow old, owners are more inclined to avoid entering into long-term financial obligations.

The average age of SME business owners is rising fast overall (Figure 21). This general demographic trend has been faster than in Germany on the whole.²⁰ In 2016, 39 % of all business owners were aged 55 or older (2002: 20 %), whereas 26 % of business owners were under the age of 45 (2002: 48 %). The average age of a business owner is currently around 51 years (2002: 45 years). This ageing of business owners tends to block investments²¹ (for details on investor behaviour by age of business owner see the **Volume of tables relating to the KfW SME Panel 2017**).²²

Table 1: Investment volume, depreciation and net investment in the corporate sector

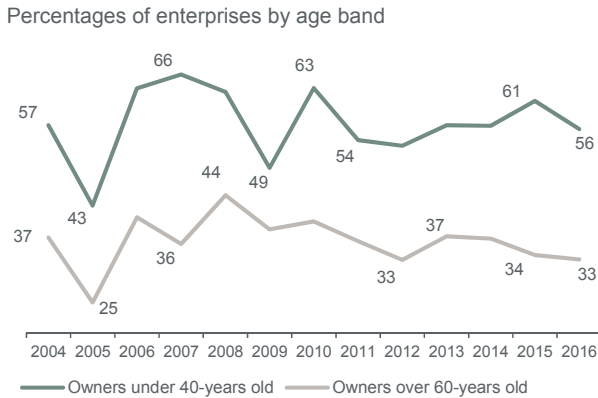
– in EUR bn –

	2010	2011	2012	2013	2014	2015	2016
SMEs (enterprises with up to EUR 500 million annual turnover)							
Gross fixed capital formation	143	156	145	144	158	161	169
Depreciations	106	110	125	112	110	117	125
Net investment	37	46	20	32	48	44	44
<i>Investment coverage (in per cent)</i>	134	142	116	129	144	137	135
Large enterprises (annual turnover of more than EUR 500 million)							
Gross fixed capital formation	166	180	189	187	192	201	202
Depreciations	191	206	189	206	213	213	219
Net investment	-25	-26	0	-19	-21	-12	-17
<i>Investment coverage (in per cent)</i>	87	88	100	91	90	94	92

Note: Taking into account the major revision of national accounts and the associated modification to the concept of investment since the 2015 reporting year. The revision cannot be applied to the investment and depreciation volumes of SMEs. Investment coverage describes the ratio of investment volume to depreciation. See endnotes 17 and 18 for further information.

Sources: KfW SME Panel 2011–2017; national accounts.

Figure 20: Investor share by age of business owner



Source: KfW SME Panel 2005–2017.

The shortage of future entrepreneurs and the imminent generational transition are exacerbating the situation further. The number of entrepreneurs starting a business has been on the decline for years, dropping from 1.5 million in 2001 to now just 672,000.²³ Only around one fourth of these business founders use existing structures. Takeover entrepreneurs accounted for 9% and co-founder entrepreneurs represented 14% of start-ups in 2016 (totalling around 154,000). This is in sharp contrast with the many SMEs planning to transfer or sell their business to a successor in the short or medium term (some 500,000 to 600,000 in the coming years).²⁴ This disparity is slowing investments. Owners of SMEs contemplating retirement are often uncertain whether their potential successor will expect an investment to be as profitable in the future as they do, so they factor it into the purchase price accordingly.

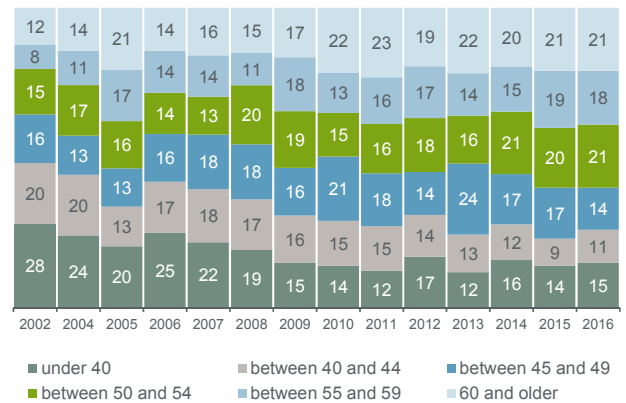
Outlook for 2017: (Domestic) growth and greater willingness to innovate will be the driving forces of an upturn in momentum

SME investments should pick up momentum in 2017. KfW Research currently estimates that corporate investment will grow by 4–5% this year. This gives hope that new investments by SMEs will increase by an additional EUR 8 billion.

The representative additional survey to the KfW SME Panel conducted in September 2017 supports the positive outlook (see explanatory box at the end of this report). It found that in the current year 24% of all SMEs will increase their investment on the previous year, while 22% of SMEs will cut back investment. The balance is once again positive.

Figure 21: Age of SME owners

Percentages of enterprises by age band



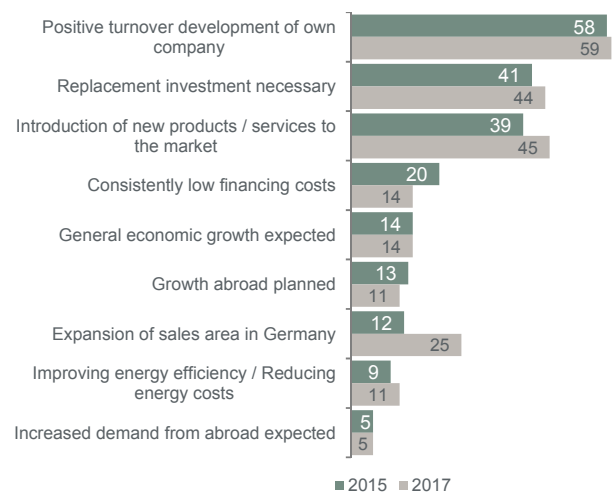
Note: The count includes only those enterprises that were newly entered in the dataset in the respective survey year. Regular survey participants are excluded because the owners' age increased by definition. No data are available for the year 2003.

Source: KfW SME Panel 2003–2017.

It is particularly the strong domestic demand that encourages SMEs to invest. For 59% of SMEs that are investing more in 2017, the positive development of their turnover is the main reason (Figure 22), while one in four base their decision on the growth of their sales region in Germany (Figure 25). This share has doubled in the past two years.

Figure 22: Main reasons for increasing investment

In per cent; only enterprises with expansion plans compared the previous year



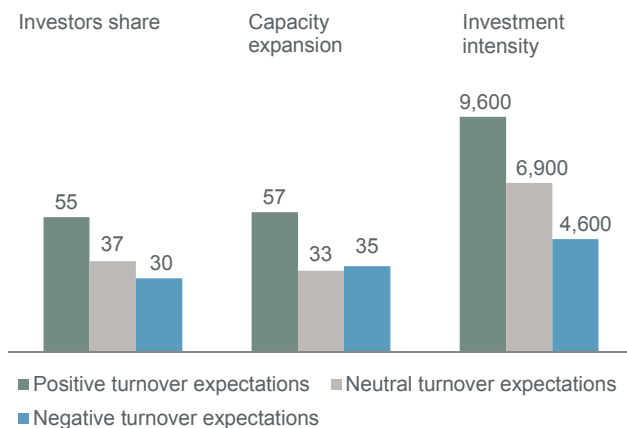
Note: Multiple answers were possible (the three most important causes).

Source: KfW SME Panel 2017 (additional survey September 2017).

The need for replacement investments is growing (44 %). This may indicate an emerging catching-up process, i.e. enterprises are now beginning to make necessary investments they put off in the past. Investments related to the introduction of new products and services were even mentioned slightly more often (45 %). Given that the share of innovators in SMEs has recently dropped further, that is a very positive sign. SMEs' very optimistic turnover expectations play a part in increasing their willingness to innovate. Confidence in future growth generally promotes enterprises' readiness to invest. Buoyed by this confidence, SMEs invest both more often and higher amounts per FTE employee. More expansion investments are made as well (Figure 23). Investment in new products and processes, in particular, benefits from a favourable sales outlook. Only then is such investment worthwhile from a business perspective, and that currently seems to be the case.

Figure 23: Turnover expectations and investment behaviour

Percentage of investors, percentage of capacity expansions; amount invested per FTE employee in EUR

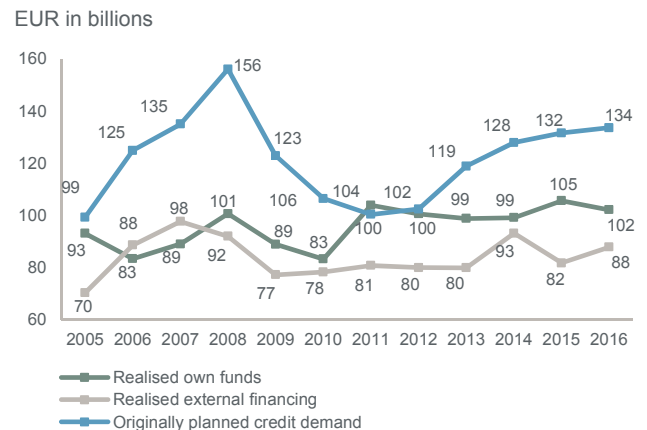


Source: KfW SME Panel 2017.

Demand for credit remains high

SMEs' demand for investment loans rose in 2016 as well – by EUR 2 billion to EUR 134 billion (+1.5 % on the previous year). The momentum appears to be levelling off gradually (Figure 24). Nevertheless, credit demand initially reported by SMEs has grown by more than EUR 34 billion (34 %) since 2011.

Figure 24: Initial credit demand and realised financing volume



Note: Volumes extrapolated from the number of employees. Extrapolations include other sectors. It must be taken into account that the originally planned credit requirements are almost never fully realised. Plan revisions due to changed business strategies must be taken into account above all. SMEs' actual demand for credit is therefore lower. Details on the analytical treatment in the context of the KfW SME Panel can be found in Reize (2011).

Source: KfW SME Panel 2006–2017.

Large loan volumes are sought after

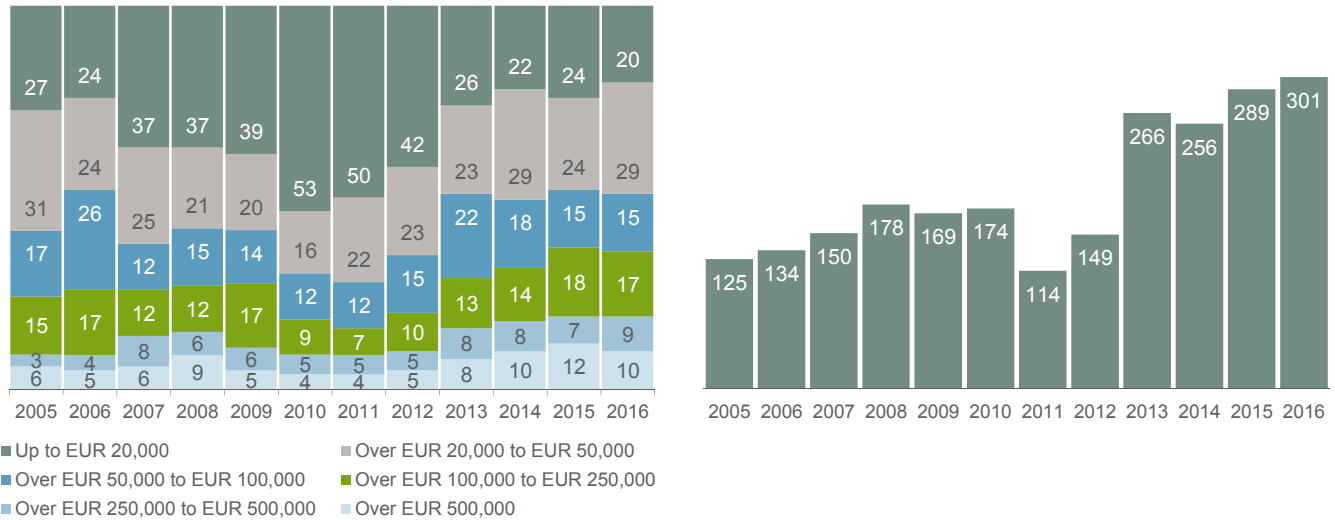
The favourable financing environment is increasing ticket sizes further. Demand for large-volume loans has grown once again. Average credit demand grew by 4 % in 2016 to around EUR 301,000 (Figure 25, right). Never before has average credit demand on this level been registered. By contrast, demand for very small loan volumes (up to EUR 20,000) has dropped to a historic low (Figure 25, left). Half of all SMEs requiring credit apply for not more than EUR 60,000 (mean value).

Large SMEs are making the most of the financing environment and increasing their ticket size

Large SMEs are the ones currently making the most of the financing environment. They have contributed the most to the increase in average credit demand since 2012, expanding their demand for large loan volumes much more strongly than SMEs of other size classes (Figure 26, left). As a consequence, the average ticket size has grown significantly (Figure 26, right). Smaller SMEs have requested higher amounts as well, but to a lesser degree.

Figure 25: SMEs' credit demand

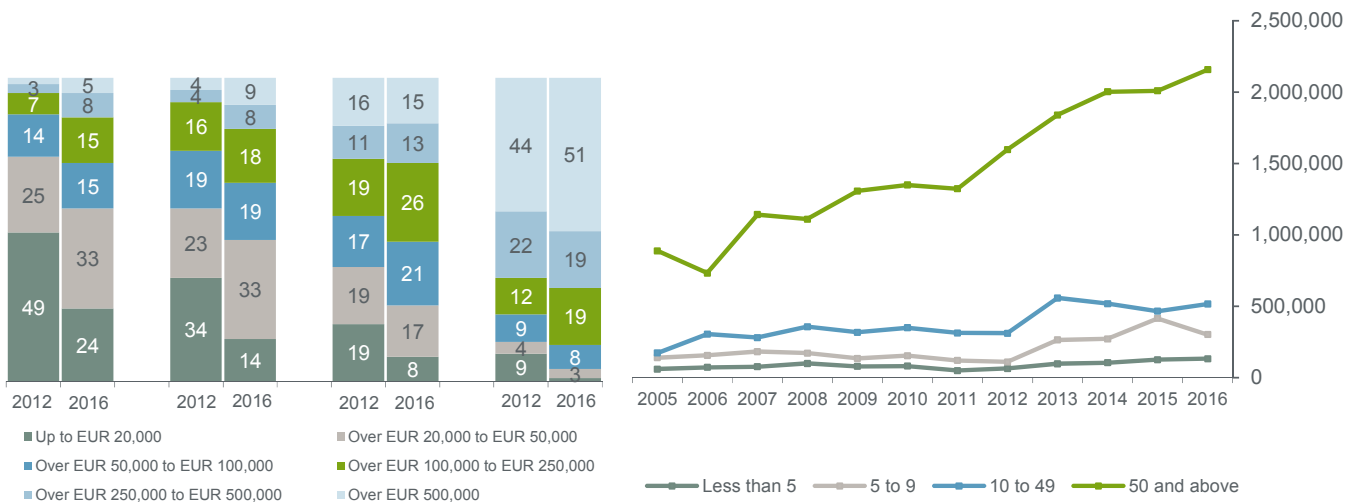
Left: SMEs with relevant credit demand in per cent; right: average credit demand in EUR thousands



Source: KfW SME Panel 2006–2017.

Figure 26: Variations in credit demand by size classes between 2012 and 2016

Left: SMEs with relevant credit demand in per cent; right: average credit demand in EUR thousands



Source: KfW SME Panel 2006–2017.

Large SMEs are also much more likely to apply for large loan amounts of at least EUR 1 million. In 2016, 14% reported credit demand on this level, whereas in 2012 it was still 11%. For micro-businesses that share is far below 1%. Overall, very large loan volumes still make up a high proportion of total credit demand. Loans in this volume alone accounted for EUR 77 billion or 58% of total credit demand in 2016. The average amount of large-volume loans was EUR 2.7 million. This small segment (only 6% of all SMEs with credit demand, or around 29,000 enterprises) dominates SMEs' total credit demand.

Enterprises are reluctant to engage in loan negotiations

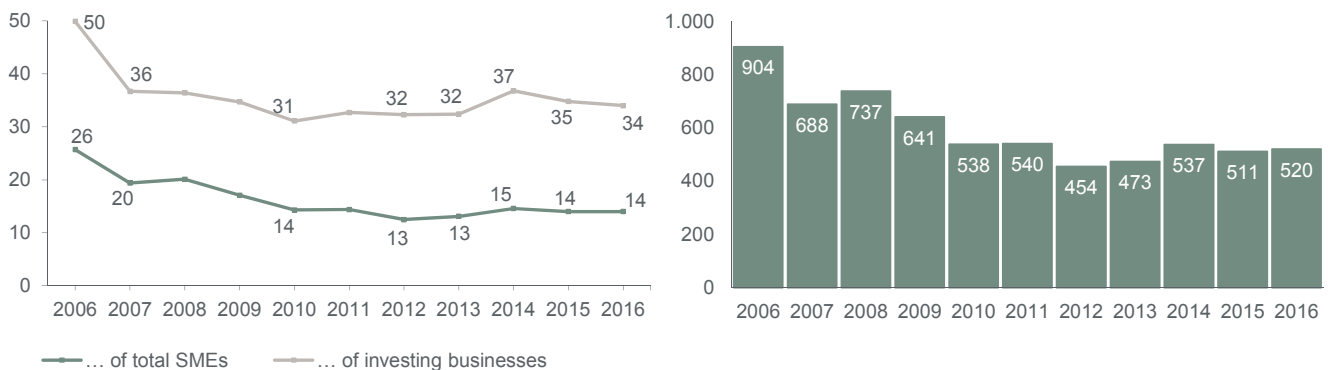
In 2016, around 520,000 SMEs conducted negotiations with banks and savings banks on investment loans. That was around 34% of all investors (-1 percentage point) and 14% of all SMEs (Figure 27). The trend indicates levels similar to those of the years 2010–2013, when demand was suppressed. During that period an average of around 500,000 enterprises, or 32% of investors, applied for loans from credit institutions.

This, too, shows that the favourable financing environment can provide additional incentives for large SMEs (50 and more employees) to fund investments with credit. The share of enterprises in this size class

conducting negotiations increased by four percentage

Figure 27: SMEs with loan negotiations

Links: In per cent, right: in thousands



Source: KfW SME Panel 2007–2017.

points to 39 %.

Micro-businesses (fewer than five employees), in turn, were less likely to engage in loan negotiations. The share of enterprises with negotiations fell by a further two percentage points – after dropping by three percentage points in the previous year – to currently 30 %. Not even one in three investing micro-businesses in Germany applied for a loan.

SMEs value financial independence – barriers are higher for micro-businesses

Although still reluctant to negotiate loans, two thirds of all SMEs would currently consider bank loans **in principle** to finance an investment. This is confirmed by the additional survey to the KfW SME Panel (September 2017). Nevertheless, only half of those SMEs actually apply for loans (see above).

The desire for financial independence is the most frequent reason against bank financing (Figure 28). This applies particularly to small SMEs, 44 % of which want to avoid (additional) debt. In addition, one third of small SMEs does not seek debt capital as a matter of principle (33 %).

Larger SMEs are more open to financing from banks. Their investment projects are usually more extensive and their capacity to fund them fully from their own resources is likely to be more limited. Consequently, larger enterprises have a higher need for debt capital. Our analysis confirms that. In particular, the share of larger SMEs that do not seek debt capital as a matter of principle is much lower (21 %).

Small SMEs are more often concerned about unfavourable financing conditions or excessively high requirements in loan negotiations. For 29 % of small SMEs, high collateral requirements speak against bank financing. Specifically, many small SMEs, solo entrepreneurs and self-employed persons must provide personal collateral when taking up loans (such as properties, real estate, vehicles, personal assets, life insurance). The threshold for these SMEs to apply for a bank loan at all is relatively high.

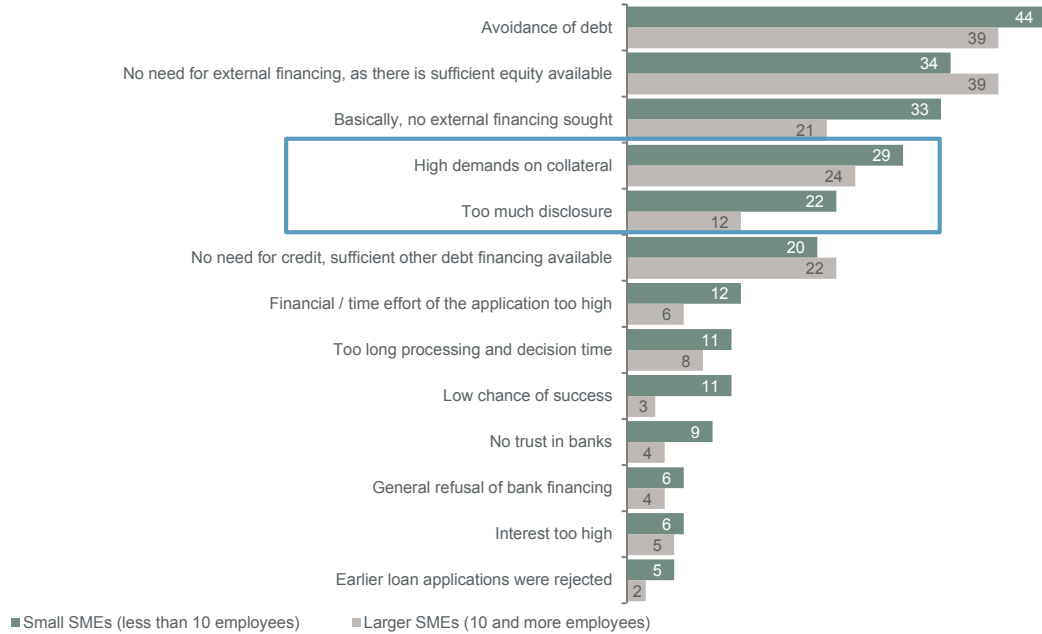
Excessively high disclosure and documentation requirements are also a major barrier for many small SMEs (22 %). Their reservations over the financial expenditure and time required in applying for a loan and excessively long processing and decision-making processes are clearly visible (12 % and 11 %). Larger SMEs are less deterred by these aspects. Of relevance here is probably the fact that as enterprises grow in size, they are more likely to have specialised employees (or entire specialised departments), for example in the areas of law, taxation and controlling.

The credit supply gap is very small

The environment for loan negotiations with banks and savings banks was favourable last year. SMEs can access credit easily and more SMEs negotiated successfully. The share of enterprises that were successful in all negotiations on investment loans rose by three percentage points to 60 % (Figure 29, left). At the same time, the proportion of enterprises that were unsuccessful in all negotiations fell by seven percentage points to a very low 13 % in 2016.

Figure 28: What arguments currently speak against bank financing?

Shares of enterprises in per cent; with respect to investment finance (September 2017)



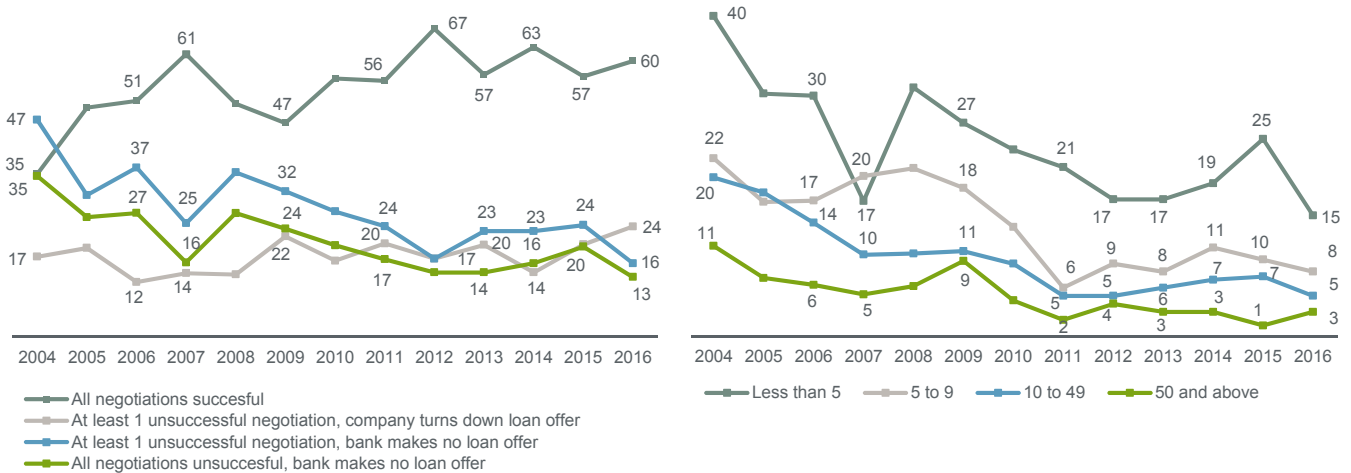
Source: KfW SME Panel 2017 (additional survey September 2017).

The situation appears to be comfortable. Only EUR 3 billion of actual credit demand could not be met for lack of offers from banks and savings banks (2015: EUR 6 billion; 2014: EUR 5 billion). This is equivalent to 4 % of actual credit demand. In the crisis year 2008, that credit supply gap was almost four times as high (Figure 30). Both small and large enterprises have recently been able to benefit.²⁵

Nevertheless, this should not hide the fact that loan negotiations clearly failed more often for small SMEs – despite relatively open access to credit – than for larger SMEs (Figure 29, right). The rate of loan denials among enterprises with fewer than five employees was 15 % in 2016, while for SMEs with 50 and more employees it was just 3 %.

Figure 29: Outcome of loan negotiations (left) and failed loan negotiations by size class (right)

Right: All negotiations failed – bank presented no offer; size classes by full-time equivalent employees in per cent



Source: KfW SME Panel 2005–2017.

Figure 30: Credit supply gap is approaching historic low

Estimated credit demand not realised because the bank did not make a loan offer as a percentage of actual credit demand



Note: The loan volumes underlying the percentages were extrapolated from the number of employees. They were calculated by subtracting the enterprise's revised credit demand from its initial borrowing demand. The resulting 'actual credit demand' is compared with the realised loan volume. The remaining difference is defined as the 'credit supply gap'.

Source: KfW SME Panel 2006–2017.

SMEs' own denials are increasing, reservations are proving to be justified

Banks have more often submitted loan offers which enterprises did not consider acceptable. SMEs' rejections of loan offers have increased yet again (+4 percentage points to 24%). That rate had already risen a year before (+6 percentage points). Never before were companies' rejections so significant.

Small and young businesses in particular often do not

have a firm relationship with credit institutions. Information differentials are high – from the lenders' perspective, the requested loan volumes are low, so processing costs are relatively high. This is exacerbated by the continuing low-interest policy which is raising the pressure on the banks' earnings. Tightening regulation is also increasing the cost of lending. Rules on risk-appropriate capital requirements are increasing the cost of lending to SMEs, which often have a lower credit rating (and therefore a higher probability of default).

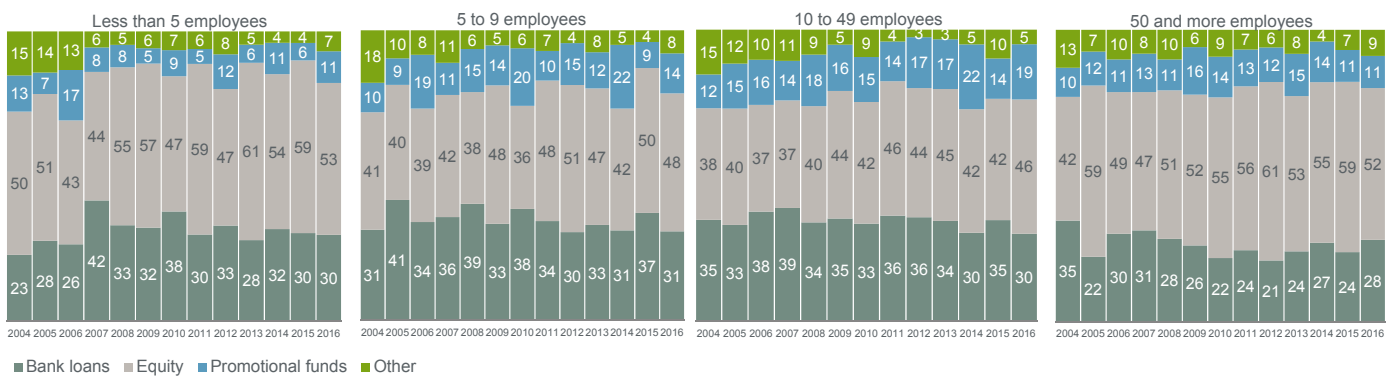
On balance, these factors increase risk premiums on interest and lead to more extensive documentation requirements, significantly more higher costs, or increased collateral requirements. In many cases, this causes the enterprise itself to reject the offer. SMEs anticipate this, as demonstrated by the additional survey to the KfW SME Panel (Figure 28). It is precisely these issues that often discourage small SMEs in particular from applying for loans from banks and savings banks in the first place.

Outlook for 2017: Demand for credit remains high

In the current year 2017, SMEs' demand for credit is likely to rise yet again. KfW Research estimates that new lending to enterprises and self-employed persons²⁶ grew noticeably by 4.8% in the second quarter year-on-year (Q1 2017 already saw 3.1% growth). The current revival is likely driven by prospects of an imminent interest rate reversal. The outlook of rising borrowing costs is motivating enterprises to make use of the currently more favourable interest rates. The average ticket size will remain high and the relevance of large-volume loans will continue.

Figure 31: SME investment finance by size class

Financing sources by number of full-time equivalent employees (percentage of investment volume)

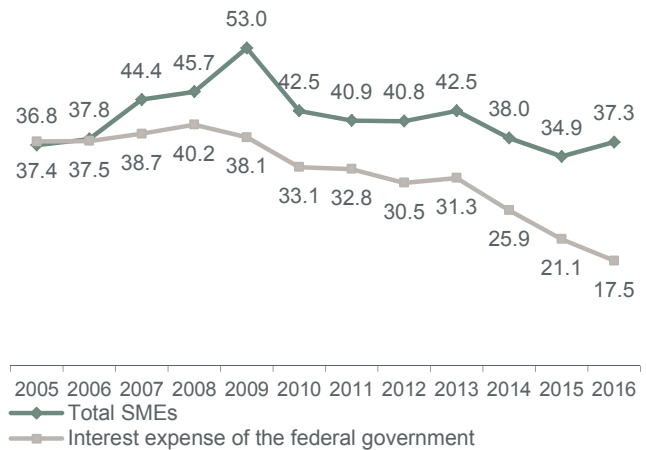
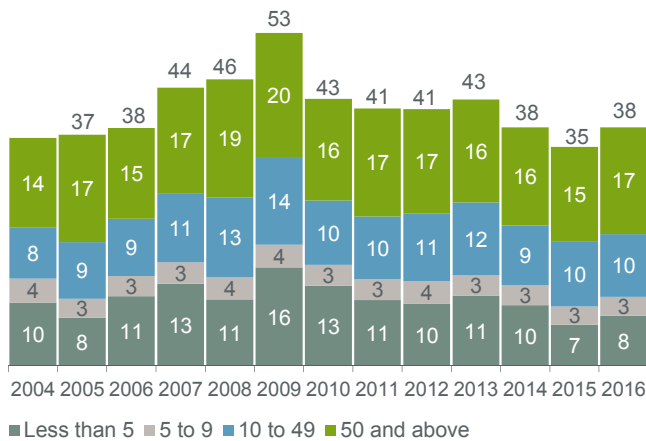


Note: The category 'Other' comprises, among others, mezzanine capital and private equity.

Source: KfW SME Panel 2005–2017.

Figure 32: Interest expense of SMEs and the federal government

Size classes of SMEs by full-time equivalent employees (left); all figures in EUR billions



Sources: KfW SME Panel 2005–2017, Federal Ministry of Finance.

Slightly more bank loans for investment finance, but only for large SMEs

Debt financing of investments grew slightly in 2016. This trend was aided by the still relatively comfortable borrowing conditions. The volume of bank loans SMEs used to finance investments was EUR 61 billion (+EUR 1 billion). The share of credit in the funding volume remained constant at 30%. The volume of loans was divided roughly in half between short-term loans with maturities of up to five years (14% of total investment volume or EUR 29 billion) and long-term loans (16% or EUR 32 billion).

However, major increases in debt financing did not occur and most SMEs exercised restraint. Only larger SMEs with 50 and more employees took out more bank loans and increased the share of debt capital in investment finance (Figure 31). That also led to an increase in interest expenses for this segment (Figure 32) and raised interest expenses for the SME sector overall (by 7% to EUR 37 billion). While micro-businesses kept their debt financing share steady, it was mainly medium-sized enterprises that used less debt capital to meet their investment needs (-5 and -6 percentage points year-on-year).

In 2016, SMEs again used much of the reserves they had accumulated in the past years. The volume of investment expenditure financed from their own funds

was EUR 102 billion (-3 EUR billion). The share of own resources in overall funding thus amounted to 50% (-3 percentage points). Although this is a minor decrease on the previous year, in a long-term perspective it remains the second highest rate ever measured (Figure 24 and Figure 31).

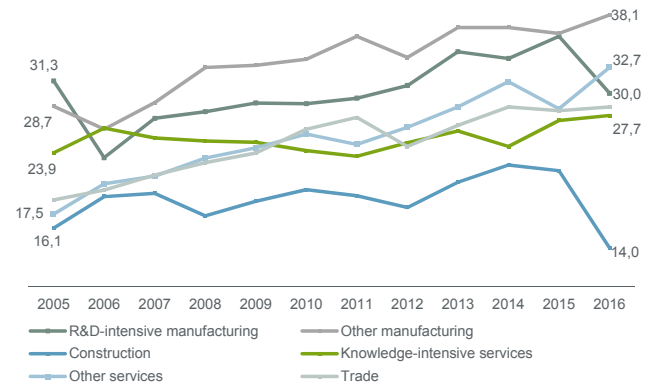
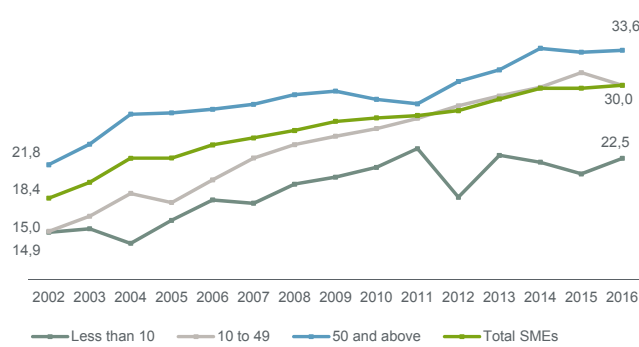
Around EUR 14 billion or 7% of the SME investment volume was financed from other sources (such as private equity or mezzanine capital). This proportion was steady from the previous year. Slightly more promotional funds were used, accounting for 13% of total investment finance (around EUR 27 billion or +EUR 5 billion on 2015). The total volume of external funds actually realised and used to finance investments (bank loans plus promotional funds) was thus around EUR 88 billion in 2016 (+EUR 6 billion)²⁷.

Capital buffer is growing slightly: equity ratio exceeds 30 per cent mark

SMEs' already very high self-financing capacity increased slightly once again (Figure 33). Last year, steady turnovers and returns allowed SMEs' average equity ratio²⁸ to rise by 0.3 percentage points to a level of 30% for the first time (2015: 29.7%). The equity ratio of micro-businesses grew strongly (22.5%) and very large SMEs were able to post yet another increase on what was already a very high level (33.6%).

Figure 33: SMEs' equity ratios by size class (left) and sector (right)

Size class by number of full-time equivalent employees; figures in per cent



Source: KfW SME Panel 2003–2017.

In the past fifteen years, SMEs were able to massively improve their equity base (2002: 18 %). The retention of earnings and continuing investment restraint have contributed to this significantly. However, the mean equity ratio has remained on a very constant – if high – level for the past three years. Further increases are likely to be only minimal in the future.

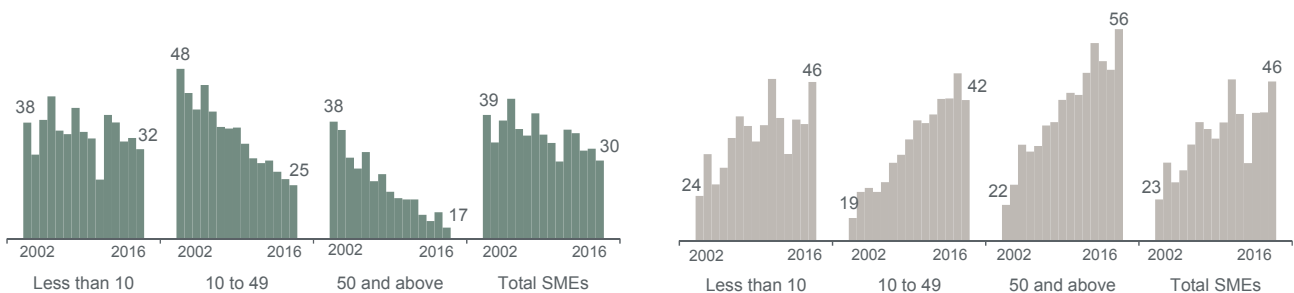
Further key figures also underscore SMEs' extraordinarily good self-financing capacity (Figure 34). Only 30 % of SMEs reported a relatively low equity ratio of less than 10% in 2016. By contrast, almost half of SMEs had a relatively high equity ratio of at least 30% – with large SMEs exhibiting a high increase here as well (+6 percentage points to 56 %). Both indicators rose to record levels. Also positive is the fact that only

10 % of SMEs have a negative equity ratio (-1 percentage points).

The equity ratio of SMEs in the construction industry, on the other hand, dropped noticeably by six percentage points to 14 % (2015: 22 %). The decline was driven by an increase in lending in this segment against the backdrop of the residential construction boom (EUR 9 billion in 2016 compared with EUR 4 billion in 2015). Only 17 % of SMEs in this segment have a relatively high equity ratio of at least 30% (2015: 36 %), while one in two SMEs had a relatively low equity ratio of less than 10% (2015: 38 %). Traditionally, construction firms have a relatively low equity base. ■

Figure 34: SMEs with a low equity base (left) and a high equity base (right) by company size

Shares of enterprises in per cent; size class by number of full-time equivalent employees



Note: A low equity base is defined as an equity ratio of less than 10%. A high equity base is defined as an equity ratio of at least 30%.

Source: KfW SME Panel 2003–2017.

The structure of SMEs in 2016

The SME sector covers all enterprises in Germany with an annual turnover of not more than EUR 500 million. According to this definition there were around 3.71 million SMEs in Germany in the year 2016. The SME sector thus accounts for 99.95 % of all enterprises in Germany.

SMEs are small ...

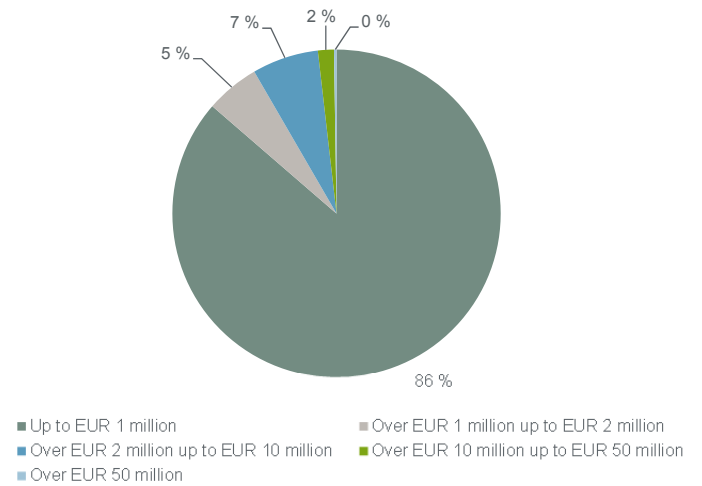
The large majority of SMEs in Germany is small (Figure 35). Eighty-six per cent of them (3.21 million) generate annual sales turnover of less than EUR 1 million. Fewer than 0.3 % (or almost 9,500) SMEs generate an annual sales turnover of more than EUR 50 million.

The fragmented nature of the SME sector is also reflected in the numbers of employees (Figure 36). Eighty-one per cent of SMEs have fewer than five employees (3.0 million). The share of SMEs with 50 and more employees is 1.9%. The SME sector has become more fragmented in the past years, mostly as a result of increasing tertiarisation.

... and service-oriented

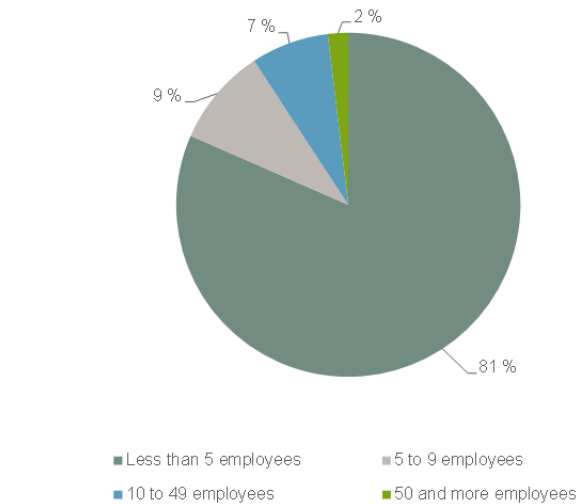
The majority of German SMEs are service enterprises (Figure 37), with 2.83 million – 76 % of all SMEs – operating in service industries, and 1.41 million of these providing knowledge-intensive services, a trend that is increasing. In 2016 around 1.0 % of all SMEs were R&D-intensive manufacturers (some 40,000 enterprises). Around three million SMEs are domiciled in the western German states (82 %), while 685,000 (18 %) are domiciled in eastern Germany.

Figure 35: SMEs by annual turnover in 2016



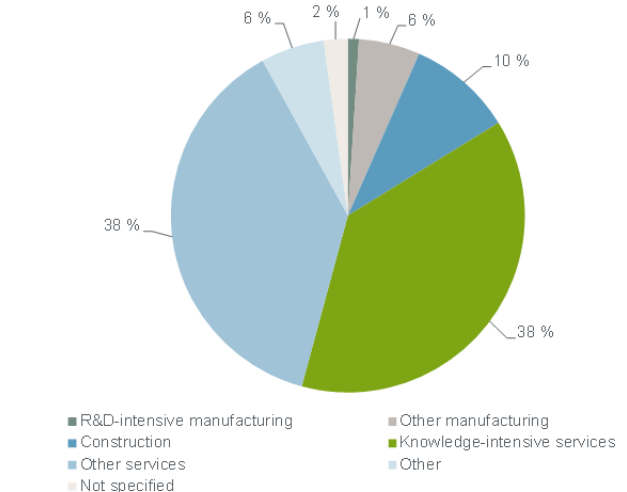
Source: KfW SME Panel 2017.

Figure 36: SMEs by number of employees in 2016



Source: KfW SME Panel 2017.

Figure 37: SMEs by industry in 2016



Source: KfW SME Panel 2017.

SMEs at a glance – key figures

In per cent, unless otherwise specified

	2010	2011	2012	2013	2014	2015	2016
Investments							
Total share of investors	47	43	41	43	42	43	42
Share of investors <5 full-time equivalent employees	43	39	36	39	37	37	37
Share of investors ≥ 50 full-time-equivalent employees	85	83	85	83	84	87	85
Total investment volume (EUR in billions)	177	195	191	190	202	199	204
Investment volume <5 FTE employees (EUR in billions)	55	48	50	44	53	45	46
Investment volume ≥50 FTE employees (EUR in billions)	67	80	75	69	71	84	83
Volume of investment in new machinery, equipment and buildings (EUR in billions)	143	156	145	144	158	161	169
Investment finance							
Initially planned credit requirements (EUR in billions)	106	100	102	119	128	132	134
Total debt capital realised (EUR in billions)	78	81	80	80	92	82	88
Credit supply gap (EUR in billions)	7	8	6	2	5	6	2
Net profit ratio							
Average return on sales	5.6	5.7	6.0	6.7	7.0	7.3	7.3
Average return on sales <10 FTE employees	10.6	11.4	10.3	13.3	12.6	13.8	14.0
Average return on sales ≥50 FTE employees	4.0	3.7	4.4	4.2	4.6	4.5	4.4
Proportion of SMEs with losses	13	12	11	11	12	8	10
Equity base							
Average equity ratio	26.6	26.9	27.4	28.6	29.7	29.7	30.0
Average equity ratio <10 FTE employees	21.6	23.5	18.5	22.8	22.1	20.9	22.5
Average equity ratio ≥50 FTE employees	28.6	28.1	30.4	31.6	33.8	33.4	33.6
Proportion of SMEs with negative equity ratio	6	6	12	10	10	11	10
Employment trends							
Total employment growth rate	2.5	2.6	2.1	2.0	2.8	2.3	2.7
FTE growth rate <5 FTE employees	2.5	3.2	1.2	2.1	2.6	1.7	2.1
Development of turnover							
Total turnover growth rate	6.7	8.1	2.4	1.9	3.3	3.3	3.9
Turnover growth rate <5 FTE employees	6.0	7.0	2.0	2.3	2.3	2.9	3.6

* Note: ^a Total debt capital realised means the volume of bank loans and promotional funds actually used for investment finance. ^b Mean values weighted with turnover. ^c Mean values weighted with total assets, projections only for enterprises with accounting obligations and excluding individual enterprises / sole traders. ^d Missing information on FTE employees and turnover was not imputed, calculations not including growth rates below the 1% and above the 99% quantile.

KfW SME Panel

The KfW SME Panel (KfW-Mittelstandspanel) has been conducted since 2003 as a recurring postal survey of small and medium-sized enterprises in Germany with annual turnover of up to EUR 500 million.

With data based on up to 15,000 companies a year, the KfW SME Panel is the only representative survey of the German SME sector, making it the most important source of data on issues relevant to the SME sector. Due to the fact that it is representative of all SMEs of all sizes and across all branches in Germany, the KfW SME Panel offers projections for even the smallest companies with fewer than five employees. A total of 11,043 SMEs took part in the current wave.

Analyses of long-term structural developments in the SME sector are performed on the basis of the KfW SME Panel. It gives a representative picture of the current situation and the needs and plans of SMEs in Germany. It focuses on annually recurring information on companies' performance, investment activity and financing structure. This tool is the only way of determining quantitative key figures for SMEs such as investment spending, loan demand and equity ratios.

The basic population used for the KfW SME Panel comprises all SMEs in Germany. These include private-sector companies from all sectors of the economy with annual turnover of not more than EUR 500 million. The population does not include the public sector, banks or non-profit organisations. Currently there are no official statistics providing adequate information on the number of SMEs or the number of people they employ. In order to determine the population of SMEs for 2015 and the population of employees at SMEs in 2016, the German Company Register (Unternehmensregister) and the official employment statistics (Erwerbstätigenrechnung) were used for the 2016 survey.

The KfW SME Panel sample is designed in such a way that it can generate representative, reliable data that are as precise as possible. The sample is split into four groups: type of promotion, branches, firm size as measured by the number of employees, and region. In order to draw conclusions on the basic population based on the sample, the results of the survey are weighted / extrapolated. The four main group characteristics are used to determine the extrapolation factors. These factors look at the distribution in the net sample (in line with the four group characteristics) in relation to their distribution in the population as a whole. Two extrapolation factors are determined in total: an unlinked factor for extrapolation of qualitative parameters based on the number of SMEs in Germany, and a linked factor for the extrapolation factors of quantitative parameters based on the number of employees in SMEs in Germany.

The survey is conducted by the Financial Services Division of GfK SE on behalf of KfW Bankengruppe. The project received expert advice from the Centre for European Economic Research (ZEW) in Mannheim. The main survey of the 15th wave of the KfW SME Panel was conducted in the period from 13 February 2017 to 23 June 2017.

A **Supplementary Autumn 2017 Survey to the KfW SME Panel** on current investment plans for the year 2017, borrowing aspects and energy costs was also conducted by GfK SE in the form of an online survey during the period from 11 to 22 September 2017. All enterprises that had already participated in this year's wave of the KfW SME Panel and had provided a valid email address were surveyed. Responses from a total of 2,092 enterprises were evaluated. As the supplementary survey was linked to the main database of the KfW SME Panel, its results also provided a representative picture.

Further information can be obtained at www.kfw-mittelstandspanel.en.

¹ Data on persons in employment in Germany from the employment accounts of the Federal Statistical Office.

² The employment growth rate shown here is calculated on the basis of full-time equivalent employees (FTEs). As opposed to showing the number of persons in gainful employment, this concept maps actual labour demand. FTE employees are calculated from the number of full-time employees (including business owners) plus the number of part-time employees multiplied by the factor 0.5. Apprentices are not included.

³ Cf. Destatis (2017), press release No. 259 dated 31 July 2017.

⁴ Knowledge-intensive services comprise service sub-sectors with an above-average share of university graduates in total employment, or services with a strong focus on technology. These include, for example, architecture and engineering firms, law firms, tax and management consultancies, data processing and telecommunication services. The definition is based on what is known as the NIW/ISI list of research-intensive industries and services, which in turn follows the Federal Statistical Office's 'Classification of Economic Activities (WZ 2008)'.

⁵ Research- and development-intensive (R&D intensive) manufacturing is defined as those manufacturing sub-sectors whose average research and development intensity (R&D intensity: ratio of R&D expenses to turnover) is higher than 3.5%. The definition is based on what is known as the NIW/ISI list of research-intensive industries and services, which in turn follows the Federal Statistical Office's 'Classification of Economic Activities (WZ 2008)'. Engineering, medical technology, instrumentation and control technology, vehicles, pharmaceuticals and office equipment are of particular quantitative importance.

⁶ For details see Leifels, A. and Schwartz, M. (2017), *Anzahl der Azubis weiter auf Tiefstand – Bundesländer mit großen Unterschieden (Number of trainees and apprentices remains on record low – large differences across federal states)*, Economics in Brief No. 143, KfW Research (in German).

⁷ Cf. Destatis (2017), press release No. 128 dated 12 April 2017.

⁸ Destatis, Foreign trade, as at: 14 August 2017.

⁹ For details see Brutscher, P., Raschen, M., Schwartz, M. and Zimmermann, V. (2012): *Internationalisation in German SMEs. Becoming a global player, step-by-step*. KfW Research – and Abel-Koch, J. (2017). *The world is not a village – geographic proximity to export markets is crucial to SMEs*, Focus on Economics No. 182, KfW Research

¹⁰ Abel-Koch, J. (2017). *The world is not a village – geographic proximity to export markets is crucial to SMEs*, Focus on Economics No. 182, KfW Research.

¹¹ Ehmer, P. (2017), *KfW Business Cycle Compass Euro Area September 2017: Upswing in the euro area is gathering pace*, KfW Research.

¹² Cf. Destatis (2017), press release No. 312 dated 8 September 2017

¹³ Profit margin is defined as the ratio of pre-tax profit to turnover. The figure shows the mean values of profit margin weighted against turnover.

¹⁴ In general, analyses at enterprise level very often operationalise or approximate labour productivity as turnover in relation to an employment indicator (number of employees, full-time equivalents, working hours, etc.). One reason is that the available microdata usually do not contain any robust information on enterprises' gross value added. However, data from the German Federal Statistical Office suggest that the turnover-based labour productivity measure used here empirically closely approximates the variant with gross value added – which is more convincing from a theoretical perspective. Labour productivity is measured here as indexed values (2003 = 100) of turnover per full-time equivalent employee. Missing data on turnover and employees were imputed. Adjusted and extrapolated values. For details on productivity development in SMEs see Gerstenberger, J. (2017), *Productivity of German SMEs has flatlined – time to act*, Focus on Economics No. 172, KfW Research – Schwartz, M. (2016), *KfW SME Panel 2016: SMEs are using their financial buffers – but not boosting investment*, KfW Research.

¹⁵ Measured as the difference of absolute labour productivity between large SMEs and small SMEs in relation to the value of large SMEs.

¹⁶ Gross fixed capital formation in the corporate sector comprises private sector investment in machinery and equipment plus construction (without residential construction).

¹⁷ The major revision of national accounts and the associated modification to the concept of investment has been applied since the 2015 reporting period of the

KfW SME Panel. Of particular relevance for enterprises is expenditure on research and development, which is now reclassified as gross fixed capital formation since implementation in 2014 of the European System of National and Regional Accounts of 2010 (ESA 2010). All time series of national accounts that have been revised for conceptual reasons for the period from 1991 are available. This has led to an increase in the volumes of gross fixed capital formation and depreciation across the entire economy in comparison with previously reported figures. For reasons of data collection, the revision cannot be applied to the investment and depreciation volumes of SMEs. The reported volumes thus do not change in comparison with earlier years. Instead the volumes have been modified for the entire corporate sector, the overall economy and, consequently, also for large enterprises. Due to the limitations on the collection of data pertaining to the changed investment concept, the volumes relating to SMEs tend to be underestimated and, accordingly, those of large enterprises overestimated.

¹⁸ In order to determine the absolute volumes of net investment overall in both the SME and the corporate sector in Germany, KfW SME Panel data were coupled with investment data provided by the Federal Statistical Office on the entire corporate sector. The investment and depreciation volume in the SME sector is surveyed in the context of the KfW SME Panel. Total corporate investment is calculated by adjusting gross fixed capital formation for investment by the state and in residential construction. Depreciation in the corporate sector is calculated in the same way. The underlying data were obtained from Fachserie 18, Reihe 1.4 of the Federal Statistical Office. The investment volume as well as the depreciation volume of large enterprises (with an annual turnover of more than EUR 500 million) are determined by subtracting the volumes calculated for SMEs from the corresponding values for the entire corporate sector.

¹⁹ Zimmermann, V. (2013), *Have the old still got what it takes? Differences in the innovative output of young and old entrepreneurs*, Focus on Economics No. 33, KfW Economic Research.

²⁰ Gerstenberger, J. and Schwartz, M. (2014), *Mittelstand altert im Zeitraffer*, Economics in Brief No. 63, KfW Economic Research (in German only).

²¹ Schwartz, M. and Gerstenberger, J. (2015), *Ageing in SMEs is putting a damper on investments*, Focus on Economics No. 85, KfW Economic Research – Gerstenberger, J. and Schwartz, M. (2014), *Uncertainty hampers SMEs' investment, a secure framework is necessary*, Focus on Economics No. 66, KfW Economic Research (both in German only).

²² The Volume of tables relating to the KfW SME Panel is available at: www.kfw-mittelstandspanel.de (in German only).

²³ Metzger, G. (2017), *KfW Start-up Monitor 2017: Record employment with side-effects: Fewer start-ups than ever*, KfW Research.

²⁴ Information on a planned company succession is collected only in the year of first inclusion in the dataset. This question is not posed repeatedly to the relevant enterprises in the following years. Data on planned company successions are available from the survey years 2012 to 2016. The corresponding block of questions was revised completely in the current survey year 2017.

²⁵ Even where negotiations on investment loans failed, enterprises (traditionally) present themselves as strong investors nevertheless. Banks' refusals to grant loan applications meant that an overall sum of EUR 6 billion was no longer invested. Where enterprises rejected loan offers from banks, the sum no longer invested was EUR 9 billion. For comparison: In the crisis years 2008/2009, an average EUR 26 billion was no longer invested after negotiations failed.

²⁶ Schoenwald, S. (2017), *KfW Credit Market Outlook: September 2017. Is corporate lending activity rising to new heights?* KfW Research.

²⁷ Here it must be distinguished between original demand at the beginning of the year and actual demand, which is much lower. Enterprises almost never fully realise their originally planned borrowing demand as their investment and financing plans are often modified in the course of the year (for example in response to changes in sales price developments, financing conditions or cost increases). The consequences of this normal plan revision reduce actual financing requirements. The plan revision results in the SME sector's actual credit demand. In a long-term average (2005–2016) it is around 63% of the originally planned volume, which was EUR 74 billion in 2016 (2005–2016: EUR 77 billion).

²⁸ The equity ratio is defined as the quotient of equity and the balance sheet total. The figure shows the mean values of the equity ratio weighted against the balance sheet total. The calculations apply only to enterprises required to draw up balance sheets.