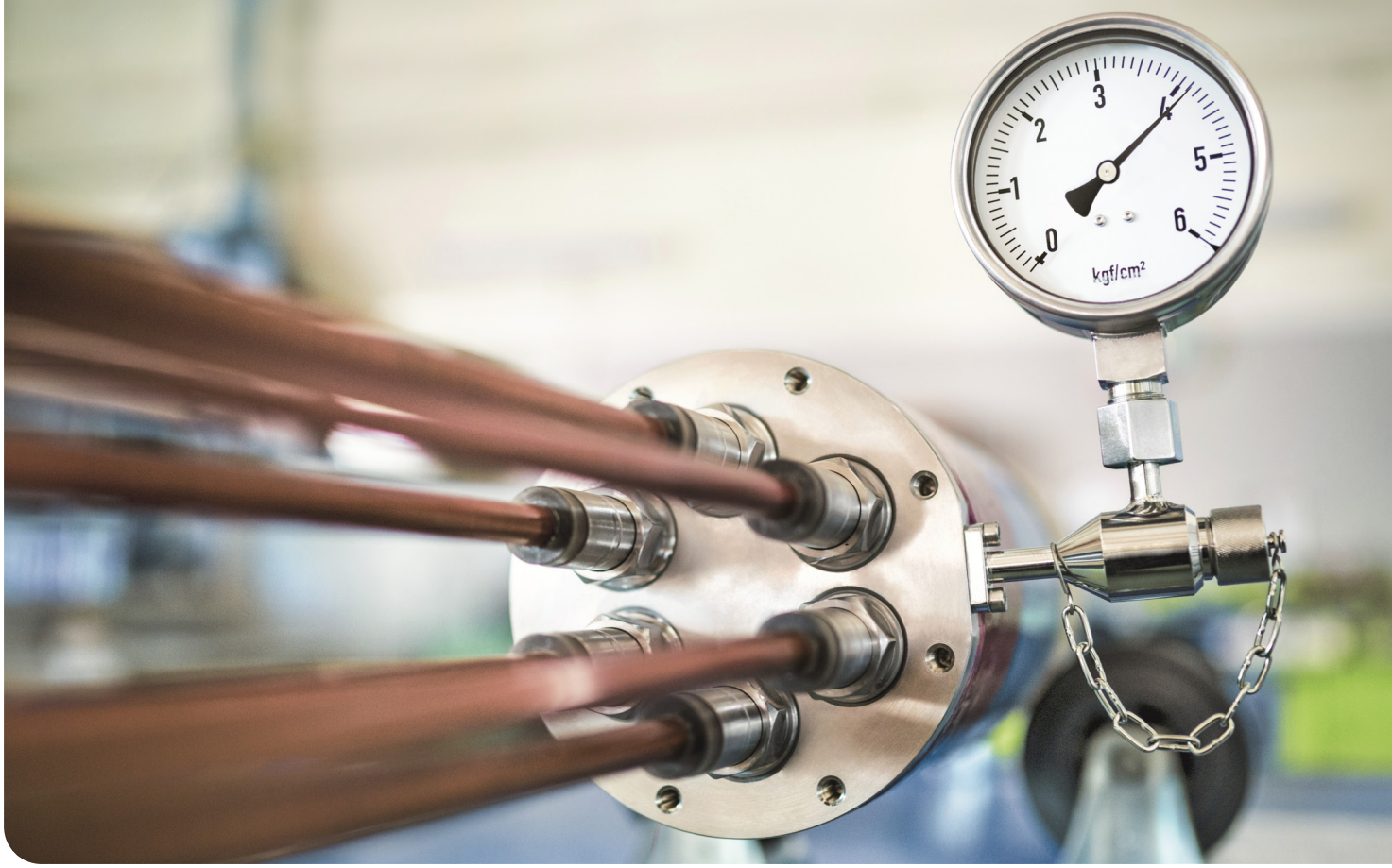

KfW Research

KfW SME Panel 2022

SMEs have largely digested the pandemic but the war in Ukraine and the energy crisis are clouding the business outlook

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SMEs have largely digested the pandemic but the war in Ukraine and the energy crisis are clouding the business outlook

SMEs barely have time to catch their breath. No sooner did the burdens from the pandemic begin to fade into the background than the war in Ukraine started to cause trouble. The energy crisis has clearly soured the mood and energy prices are currently the heaviest burden. These are the findings of the KfW SME Panel 2022, which paints a detailed picture of the present situation as well as the development of small and medium-sized enterprises during the past year.

It reveals that in spite of all coronavirus worries, 2021 was a very good year for SMEs. Seemingly unimpressed by the COVID-19 pandemic, turnovers and employment swung back to pre-crisis levels. The massive declines in the first year of the crisis were followed by a significant recovery. At the start of 2022, businesses confronted the current crisis on a solid foundation.

As an employment engine with a 32.3 million-strong workforce, the SME sector was running smoothly again. What is more, the importance of SMEs for overall employment reached a record high of 71.9%. The turnover losses they suffered during the first year of the pandemic are now largely history, after a EUR 242 billion increase. The segments that were disproportionately affected in the first year of the crisis in particular showed a strong recovery. Only micro-businesses continued to lose some employment and turnover. They appear not to have fully digested the burdens of the pandemic. At the same time, SMEs consolidated their upward trend in online turnovers (+8%) and continuously expanded digital sales channels.

Turnover increases generated good profits for enterprises, and profitability remains very good despite the impacts of the crisis. Nonetheless, medium-term turnover expectations are dimming slightly. In particular, concerns over the Ukraine war and its consequences – energy costs, inflation and supply chain disruptions – are drawing worry lines on the faces of many entrepreneurs. To be sure, the majority of SMEs still believe they are capable of shouldering the burden from higher energy costs on the level of early September 2022 in the long term as well. But it will take some time for price increases on the energy markets to flow through to supply contracts because some have long-term fixed prices. That means full costs have not yet fully filtered through to SMEs. Even so, the coronavirus pandemic currently appears to present a relatively low burden for SMEs.

The early burdens from the coronavirus crisis on companies' capital structure decreased noticeably in 2021. The equity ratio recovered surprisingly quickly and noticeably, almost returning to the pre-crisis level (median equity ratio 31.4%). Micro-businesses in particular are driving the aggregate development and catching up very quickly, having more than recovered the coronavirus-induced losses. As the war and its adverse impacts continue, however, the situation prevailing in September 2022 projects an outlook for SMEs' equity ratio that is significantly more dismal than before.

With the high adaptation pressure of the first year of the pandemic now gone, significantly fewer SMEs are now investing but with higher project volumes. As a consequence, average project size is growing and investment volume is increasing (+6%).

This increase in investment expenditure might be short-lived. Whereas fewer investments were still being cancelled because of the crisis in 2021, there is nothing left of them now. The extreme uncertainty of the energy crisis will presumably lead to massive cancellations of investment plans in 2022. Never before – not even in the coronavirus year 2020 – did SMEs make similarly drastic crisis-induced changes to investment plans during the year. An estimated EUR 59 billion in investments failed to materialise.

Credit finance for investments took a small leap in 2021 (+13%). SMEs increasingly focused on short-term financings and, on average, larger loan volumes (+28%). Nonetheless, fewer SMEs used debt to finance their investment projects (-11%). Promotional funds also continued to be in demand in the second year of the pandemic. Micro-businesses generally relied heavily on debt capital. A historically high rate of loan negotiations ended successfully in 2021. At the same time, most companies' equity reserves appeared to remain intact. Tighter financing conditions are on the horizon for 2022. Bank loans are becoming more expensive and banks more cautious in their lending as a result of monetary tightening (interest rate turnaround).

The economic environment is currently more challenging than it has been in a long time. Economic activity is at the mercy of a number of risk factors. Chief among them is the enormous uncertainty about the further course and accompanying effects of Russia's war of aggression against Ukraine and the resulting energy crisis. This is coupled by worries over a renewed COVID autumn, generally muted growth prospects, persistently high inflation, rising interest rates and ongoing supply bottlenecks. All of these constitute major uncertainties and heavy stress factors for businesses, individuals and society as a whole.

It is therefore all the more encouraging that the German economy is proving its resilience despite these difficult conditions. According to data from the Federal Statistical Office[1], GDP grew – adjusted for price, seasonal and calendar variations – by +0.1% in the second quarter of 2022 on the previous quarter, thus even returning to the pre-crisis level of late 2019. The outlook, on the other hand, is dimmer and the winter half-year is likely to see negative quarterly growth rates. GDP will presumably fall in 2023 overall, and a gas shortage with an ensuing recession would accelerate the decline.

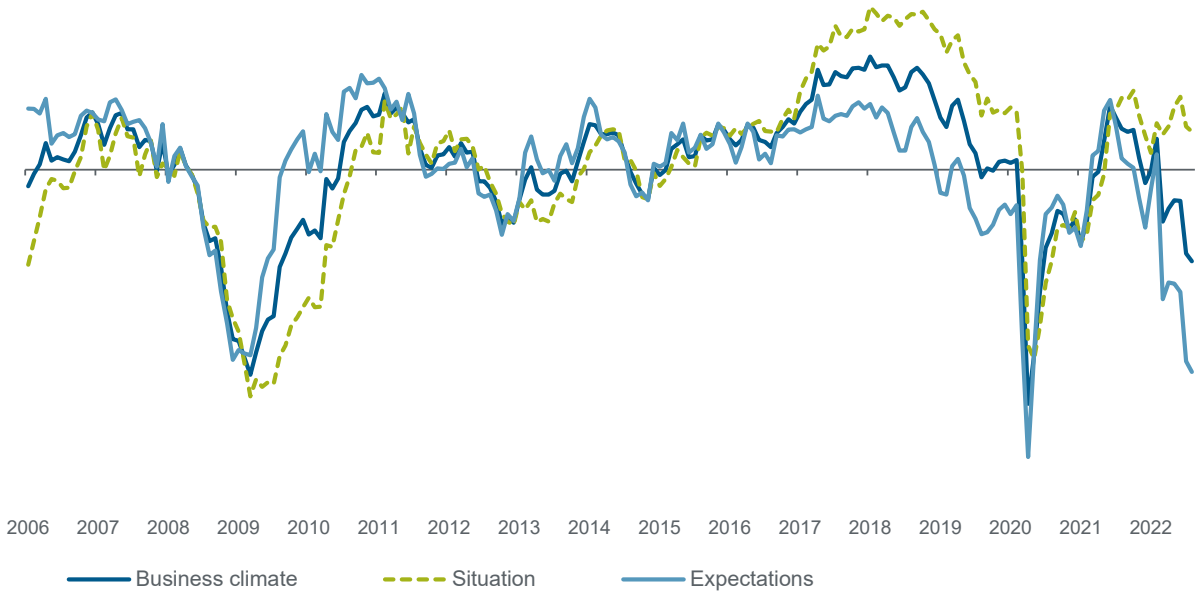
The report presented here on the situation of SMEs is based on the primary survey of the KfW SME Panel 2022, as well as on most recent findings of a representative supplementary survey of September 2022 (concerning, among other things, current issues around the Ukraine war, the pandemic impact[2] and current business developments), and therefore provides a comprehensive and up-to-date overall picture.

The war in Ukraine spells trouble for SMEs, leaving them little time to catch their breath

Even as the burdens from the pandemic are easing (see following section), the economic situation has worsened as a consequence of Russia's war of aggression against Ukraine. The escalation of the conflict has led to enormous uncertainty and drawn worry lines on the faces of many entrepreneurs.[3] The impact of the war in combination with directly and indirectly perceiveable consequences of sanctions (such as loss of export markets, energy price increases, rising inflation, supply chain disruptions and production losses) is afflicting many businesses. It is hard to predict what will happen next.

The ongoing pressure is leaving an imprint. After a brief phase of stabilisation, SME business confidence nosedived again at the start of the summer quarter (Figure 1). The KfW-ifo SME Barometer demonstrates a broad deterioration in business sentiment in companies of all sizes and in all sectors. Looming losses in consumer purchasing power as a result of massive increases in energy costs, worries over possible gas rationing and supply chain problems are unsettling businesses. The uncertainty about energy supply, in particular, remains extremely high. The only times when SMEs' expectations were this pessimistic were before the periods that marked by far the two deepest recessions in Germany's history: the global financial crisis in the winter of 2008/2009 and after the outbreak of the coronavirus pandemic in the first half of 2020.

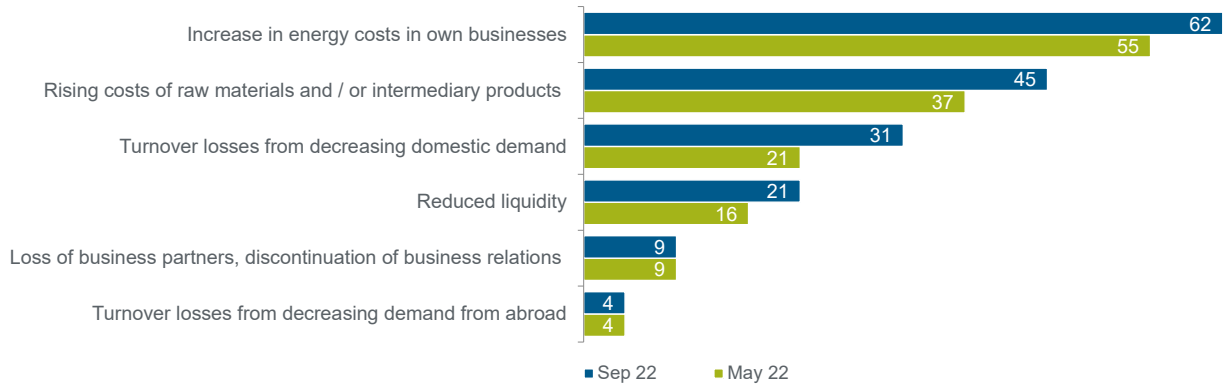
Figure 1: KfW ifo Business Climate Index



Source: KfW Research, ifo Institute

Figure 2: Impact of the effects of the war and sanctions on SMEs

Shares in all businesses in per cent



Source: Supplementary surveys to the KfW SME Panel of May 2022 and September 2022 (conducted in the first week of each month).

Energy prices are the number one uncertainty

Of all the effects of the war or sanctions that have been imposed against the Russian Federation, higher energy costs are the most prominent and they are also being felt by SMEs (Figure 2). In September 2022, 62% of SMEs described this as a burden for their business. That share had already reached 55% in May 2022.

Rising costs of raw materials and intermediary products were mentioned by 45% of businesses (+8 percentage points on May). A growing share of SMEs – 31% – mentioned that they were clearly feeling the impact of turnover losses from decreasing domestic demand (+10 percentage points on May). The currently high inflation likely plays a crucial role here. Pressure on companies' liquidity is also rising as a consequence of the war (from 16 to 21%). But the strongest pressure is coming from the sharp increases in energy prices.

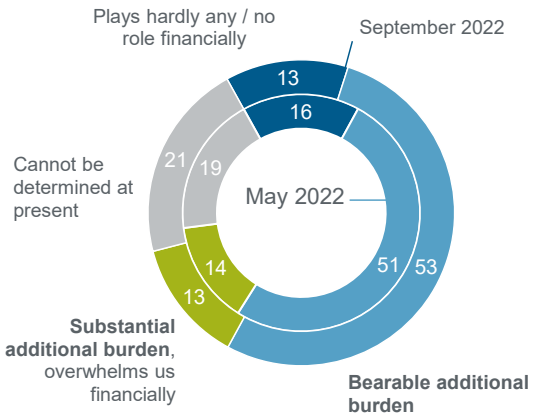
The majority of SMEs still believe they are capable of shouldering the high energy costs

The further development of energy prices is currently almost unpredictable. However, it is likely that energy costs will remain at least on the current high level for an extended period of time. Already in May 2022, the majority of SMEs already stated that they would be able to absorb and sustain the burdens from higher energy costs in the long run, and this assessment has hardly changed since spring despite the price increases (Figure 3).

A large portion of small and medium-sized enterprises claim to be able to shoulder the high energy costs on the current level of early September 2022 for an extended period. Thus, at the time of the survey, energy costs continued to be an additional burden for around half of all SMEs (53%) but one that they believe to be able to absorb – even in the long term. Energy costs hardly play a role for approx. 13% of all SMEs, for which the question of sustainability has not yet arisen. Thus, a total of 66% of all SMEs regard their current energy costs as an additional burden but one that they see as either bearable or (to a far lesser degree) overwhelming. This overall assessment is also reflected in the individual SME subsectors, which are not graphically illustrated here.[4]

Figure 3: Capacity to absorb the cost of energy

In per cent



Note: The specific question in the survey was: 'To what extent would energy costs on the current level be sustainable for your business in the long term? If energy costs were to remain this high in the long run, then…'

Source: Supplementary surveys to the KfW SME Panel of May 2022 and September 2022 (conducted in the first week of each month).

For another approx. 13% of all SMEs, the currently high energy costs present a significant additional burden that would overwhelm their financial capacity if they were to remain on the level of September 2022 in the long run or continue rising. The pressure is particularly high for energy-intensive manufacturing SMEs, so it primarily affects a subsegment of SMEs whose importance for employment, turnover and investment across the overall economy is significantly

higher than their mere share in the number of enterprises.[5] Accordingly, if a large number of these enterprises in particular were to run into financial distress, the consequences would be disproportionately high.

The fact that 21% of businesses currently cannot determine whether they can bear the possible additional burden of increased energy costs in the long term shows that there is great uncertainty around the issue of energy costs as well as on where the economy as a whole is headed.

The rather low share of energy in SMEs' costs thus far is crucial to their ability to absorb higher costs

A major reason that many SMEs believe they can manage the increased energy costs in the long run is that energy costs so far have played only a moderate role for the SME sector in Germany as a whole.[6] Thus, in the year 2021, before the outbreak of the war in Ukraine and the energy crisis, energy costs made up less than 10% of total costs in more than three fourths of SMEs and even less than 5% in more than half of them. These are the most recent findings of the KfW SME Panel 2022 (Figure 4).

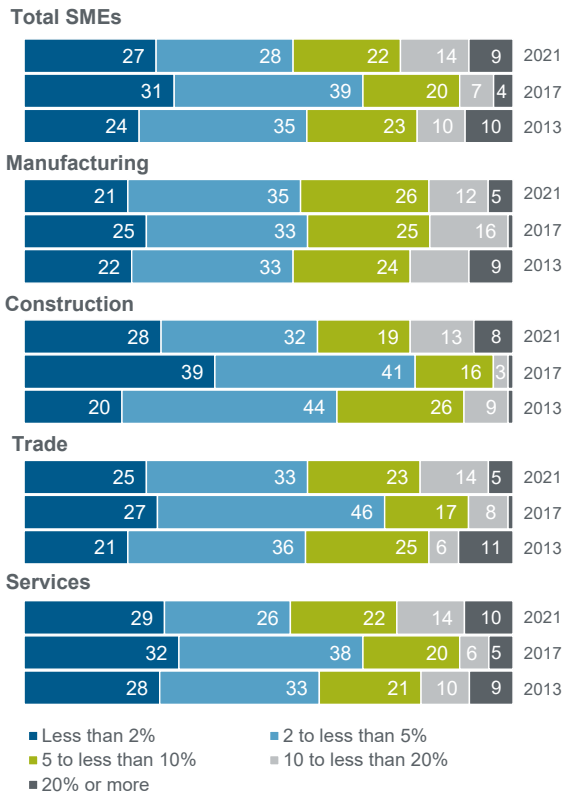
Therefore, shortly before the outbreak of the war in Ukraine, energy costs as a proportion of the overall costs incurred by SMEs were higher than a few years ago. In 2017, energy still represented less than 10% of costs incurred by around 90% of SMEs and less than 5% of costs in approx. 70% of companies.

Energy costs also rose in absolute terms between 2017 and 2021. Whereas in 2017 around 56% of SMEs still had to pay up to EUR 5,000 annually for energy, that figure dropped to just 40% in the year 2021 (Figure 5). During the same period, the share of enterprises paying more than EUR 20,000 for energy annually rose from 23 to 30%. As a result, the median also rose noticeably – from around EUR 4,000 in 2017 to now EUR 9,000 in 2021. But that means energy costs were still moderate during the period preceding the energy crisis.

The current debate revolves closely around the development of gas prices, as deep cuts to gas supplies from Russia as a result of the war in Ukraine and the associated western sanctions have sent gas prices soaring. Despite the widespread debate, current data obtained by KfW Research shows that SMEs' direct dependence on natural gas is generally moderate.[7] Natural gas plays a major role primarily as a source of energy for heating business premises and offices.

Figure 4: Share of energy costs in SMEs' total costs by sector

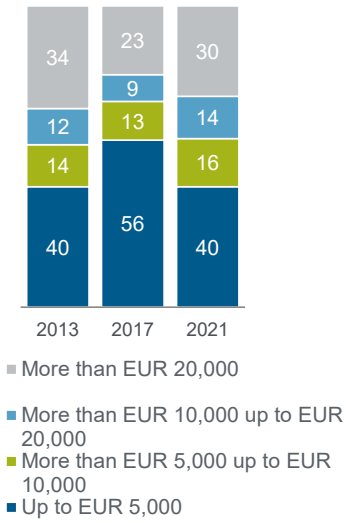
Shares of enterprises in per cent



Source: KfW SME Panel 2022 and supplementary surveys to the KfW SME Panel 2013 and 2017.

Figure 5: Energy costs in the SME sector

Shares of enterprises per class in per cent



Source: KfW SME Panel 2022 and supplementary surveys to the KfW SME Panel 2013 and 2017.

But the price tsunami is yet to start rolling

Nevertheless, the findings on the sustainability of energy costs should also be seen in light of the fact that price increases in energy markets flow through with a delay because some supply agreements have long-term fixed prices, not just between energy utilities and their suppliers but also between energy utilities and customers. That means the steep price increases that are currently taking place in the energy markets have not yet flowed through to SMEs in full. This applies to both natural gas and electricity prices. It is only in the course of the coming months, when bills start coming in and existing energy supply agreements and fixed-price arrangements expire that the sharply increased prices for natural gas and electricity will broadly start to flow through to businesses. Manufacturing companies, on the other hand, already feel the strong gas price increases in global markets directly. The gas prices for this group of offtakers are currently very close to the level of import prices. Energy-related procurement price increases will be added and passed on to businesses by the suppliers.

Passing the costs on to customers will also help businesses shoulder the added burden

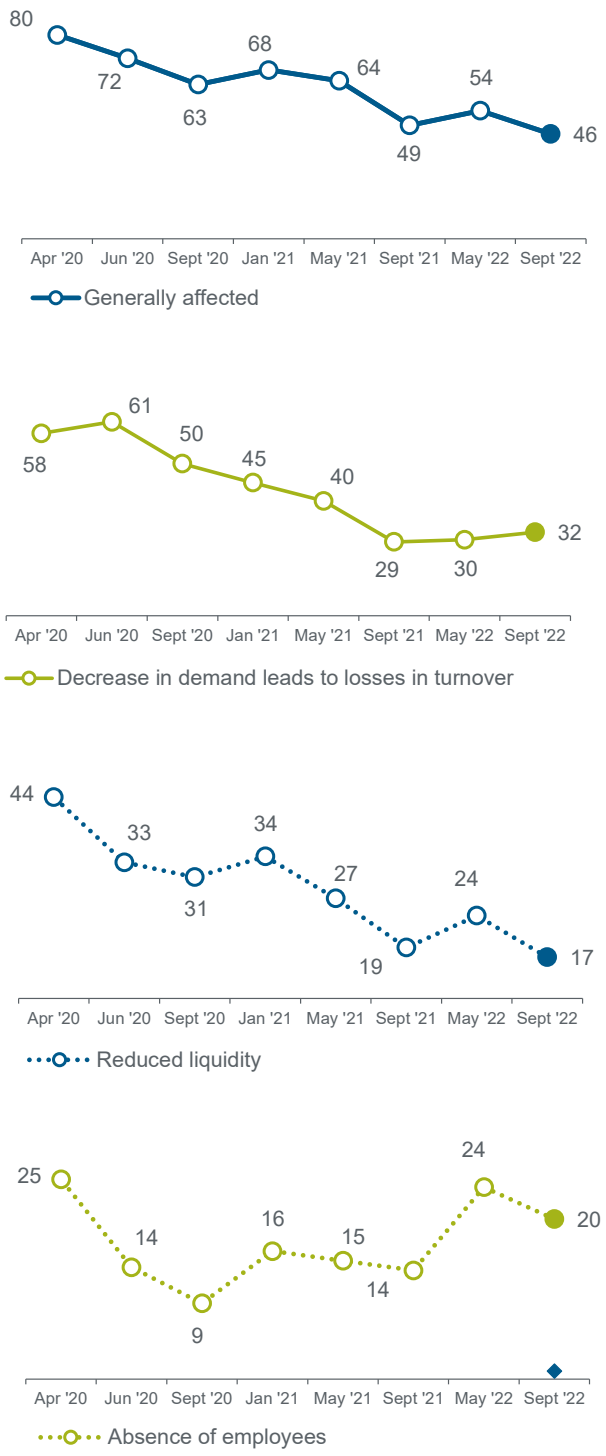
There is some evidence that many businesses believe they can manage the current price level because they have been able or are planning to pass the costs on to their customers. Most recently, the survey of May 2022 demonstrated that the increased energy costs have prompted many businesses to adjust their prices. By the end of 2022, an estimated 66% of SMEs will have passed at least some of the energy price increases on to their customers. Businesses that feel no particular pressure or are able to easily absorb the added pressure equally have reported increasing their prices, and perhaps precisely for that reason.

A ray of light: The pandemic's burdens on SMEs are currently rather low

At least on one front, there are signs of continuing improvement. Thanks to their adaptability and the government's economic policy measures, businesses have so far got through the COVID-19 pandemic with few bruises. For the moment at least, its impacts appear to have been digested (Figure 6), although obviously we also have to wait and see what happens this coming autumn and winter. The much feared wave of insolvencies has not yet materialised either.[8]

Figure 6: Impact of the pandemic on SMEs

Percentage of enterprises

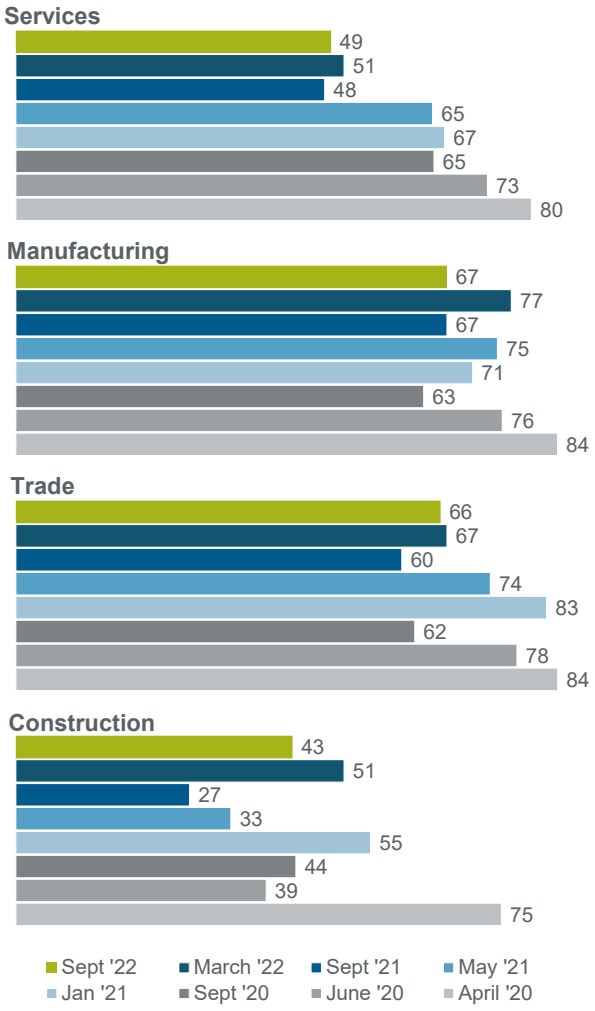


Sources: 1st to 8th supplementary coronavirus survey to the KfW SME Panel, as at September 2022.

In September 2022, only 46% of all SMEs were generally affected by the impacts of the coronavirus crisis or the associated containment measures (access regulations, mandatory testing, contact and travel bans, quarantine requirements, mandated business closures, general distancing requirements and closures of child daycare centres and schools). Impacts are currently weakening across all SME segments (Figure 7).

Figure 7: Coronavirus impact by sector

Share of enterprises in per cent



Sources: 1st to 8th supplementary coronavirus survey to the KfW SME Panel, as at September 2022.

Most recently (in March 2022), businesses have been affected mostly by staff shortages.[9] Besides absences due to illness and quarantining of staff, these also include staff shortages due to closures of schools or child daycare centres. With the subsidence of the Omicron wave, this burden is now diminishing as well (-4 percentage points to 17%).

Companies recently experienced a somewhat more difficult liquidity situation again, but it, too, is showing signs of easing. Liquidity includes monetary funds such as cash, bank deposits and cheques, which serve primarily to make payments in day-to-day operations. Enterprises can run into payment difficulties when they no longer have sufficient liquidity to meet ongoing obligations. In September the share of SMEs reporting a pandemic-induced decline in liquidity fell by 7 percentage points to 17%. That was the lowest level since the outbreak of the pandemic.

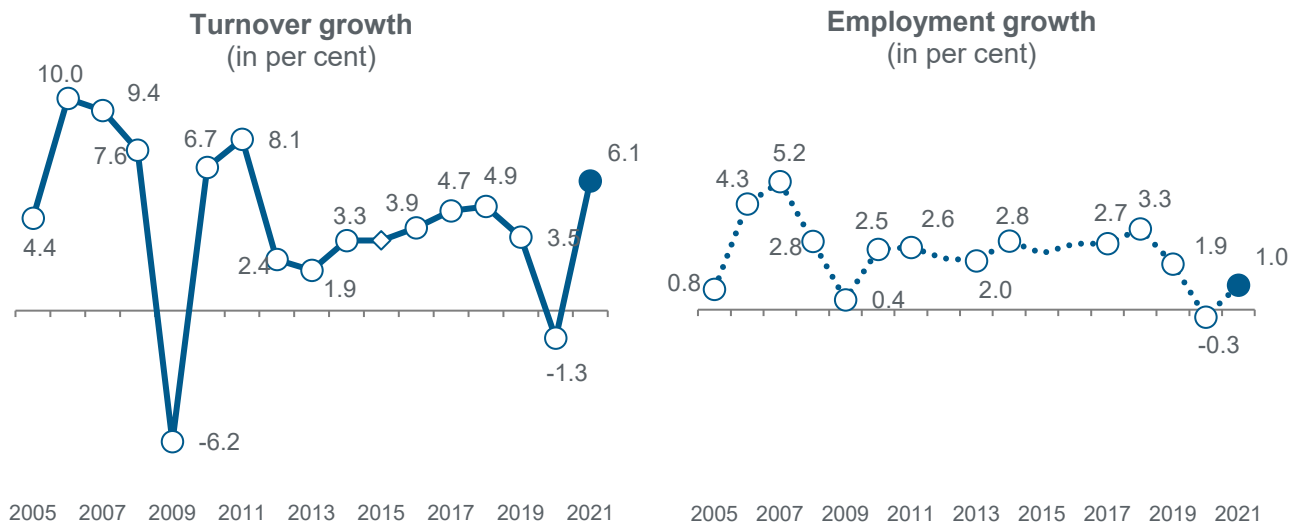
It can be assumed that SMEs generally continue to have a comfortable liquidity buffer. At the beginning of September 2022, pandemic-induced payment difficulties either played a rather minor role, or their impact weakened again (not graphically illustrated here). This applies to all categories observed, including difficulties in paying leasing instalments (1%) suppliers (1%) loans (2%) office rents (2%) and salaries (4%). At the same time, only around 1% of businesses still reported that they had closed down their business for good.

SME turnover grew sharply in 2021

The steep turnover losses of the first year of the pandemic are now history. The coronavirus crisis and associated restrictions had dealt a very serious blow to SMEs in 2020. Business closures, contact bans, hygiene requirements and travel restrictions had the intended effect. At the end of the year, SMEs' turnover losses totalled EUR 277 billion (-6%). The losses resulting from the first lockdown in the months of spring were too great and the catching-up process initiated by the gradual lifting of restrictions ultimately did little to change this. For a vast number of companies, especially those that rely on close contact to customers, almost the whole year was anything but business as usual. But despite the deep losses, businesses got through the first year of the crisis with few bruises[10], especially considering that they had previously voiced much more pessimistic expectations.

The recovery is now equally strong and remarkable. The development of turnovers makes this very clear. Total turnovers of SMEs rose by more than +EUR 242 billion or 6% last year (all of 2021: EUR 4,580 billion, 2020: EUR 4,349 billion).

Figure 8: Annual turnover and employment growth in the SME sector



Source: KfW SME Panel.

The bottom line is that this growth in turnover moved SMEs close to the pre-crisis level (2019: EUR 4,615 billion). What has probably been pivotal for this turnaround was that almost none of the tough restrictions from the first year of the crisis were still in place, so that the pandemic burdens on businesses decreased substantially.

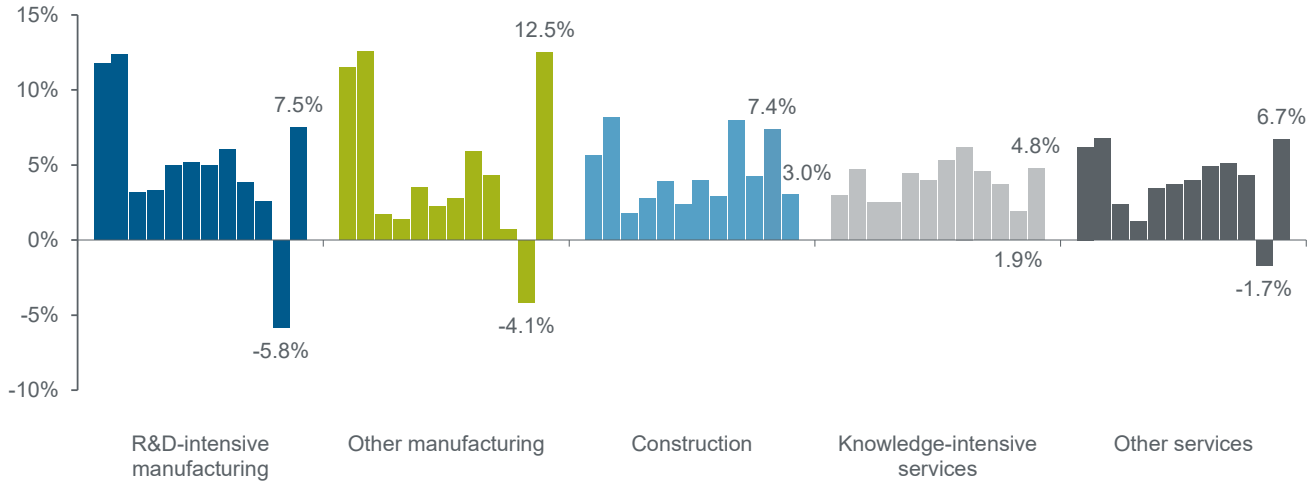
Strong turnover growth in all areas

Last year, small and medium-sized enterprises grew again at almost the same pace as in the years before the crisis, with most segments even exceeding it – some by a wide margin. Across the SME sector, turnover grew at an average rate of 6.1%, which was not just the strongest growth of the past eleven years (Figure 8). It also exceeded the long-term average by far (2005–2020: 4.3%).

It can therefore be described as a very good year rather than a crisis year.

What is particularly pleasing is that the segments that were disproportionately affected in the first year of the crisis have recovered especially well (Figure 9). Thus, a very large portion of the aggregate turnover losses recorded in 2020 was in the segment of other services (-EUR 161 billion), a segment that was heavily impacted by pandemic restrictions. These include, for example, stationary retail, personal services, catering and hospitality, broad sections of the tourism industry, nursing care, training and education as well as arts, culture and sports. Businesses in this segment experienced average turnover increases of +6.7% in 2021. Their aggregate turnover growth amounted to EUR 107 billion.

Figure 9: Turnover growth in SMEs by sector (2010–2021)



Source: KfW SME Panel

Increases in the remaining SME sectors were also high – including both subsegments of manufacturing with +7.5% in R&D-intensive manufacturing[11] and +12.5% in other manufacturing[12], as well as knowledge-intensive service providers[13] (+4.8%) and construction (+3%). The latter was able to report impressive gains even the first crisis year as a result of the persistent boom in housing construction.

The distinction based on size class also attests to a very positive development across the whole of the SME sector (Figure 10). SMEs of all size classes recorded turnover growth. The most prominent are large enterprises with 50 and more employees, whose turnover grew by +7.2% on average. This segment gained a total of EUR 29 billion. In the first year of the pandemic, turnover losses still amounted to a massive – and significantly disproportionate – EUR 244 billion.

However, the largest turnover growth in absolute terms was achieved by medium-sized businesses with 10 to 49 employees, where turnover grew by + EUR 184 billion, or +6.4% on average. Although average turnover growth here was not quite on the level of large SMEs because the segment includes significantly more businesses (268,000 vs. approx. 73,000), this carries significantly more weight in absolute terms. The recovery clearly also took place on a disproportionately high level: This segment alone accounted for 76% of total turnover growth in the SME sector last year – although it represented 'only' 29% of total turnover.

One drop of bitterness remains: micro-businesses recorded lower turnover

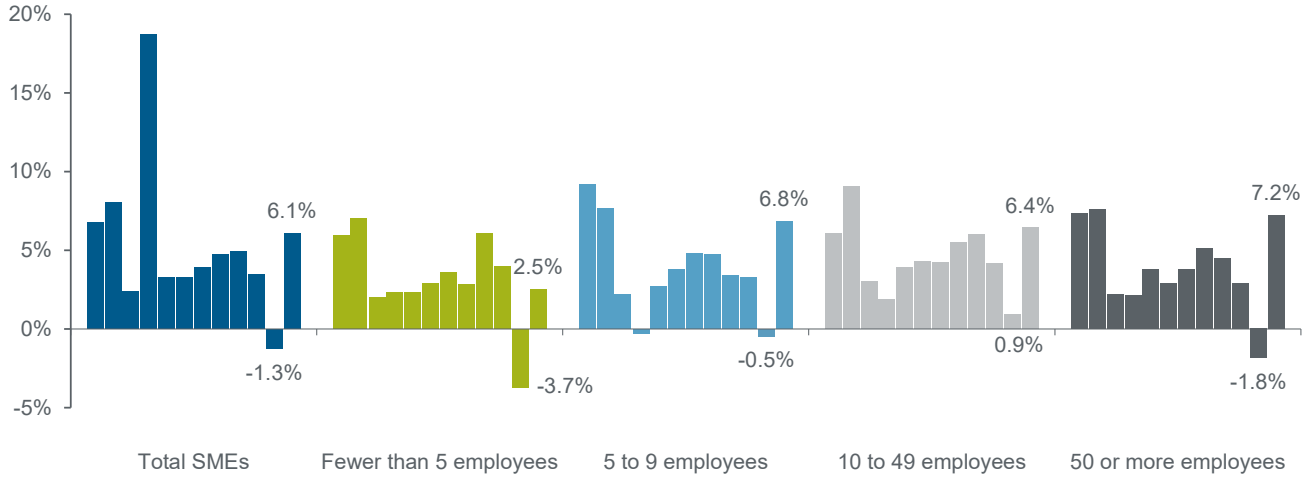
Amid the overall growth, micro-businesses experienced relatively low turnover growth compared with other segments and the previous year. Growth averaged +2.5% per business. That is decent, to be sure, but below the long-term average (+4% average annual turnover growth in 2005–2020) and not entirely sufficient to make up for the relatively high losses they sustained in the first year of the pandemic, when turnovers were down 3.7% on average. This is especially true as a number of micro-businesses suffered very high absolute losses in turnover in 2021. Thus, despite overall positive growth on average, this segment still experienced some loss in turnover volume compared with the year 2020. However, it is still a moderate -EUR 12 billion (after -EUR 46 billion in 2020).

SMEs are consolidating their upward trend in online turnovers and continuously expanding digital sales channels

For many SMEs, digital sales channels represent a steadily growing building block to generate turnover. What is more, rapid adjustments to business models and, above all, strong growth in digital sales of products and services often proved to be a lifesaver in the first year of the crisis. In particular, businesses likely prevented or offset greater turnover losses (resulting from restrictions on retail, sales forces or similar) by moving sales to digital channels or adding or expanding such channels.

Figure 10: Turnover growth in the SME sector by size class (2010–2021)

Size classes by number of full-time equivalent employees



Source: KfW SME Panel.

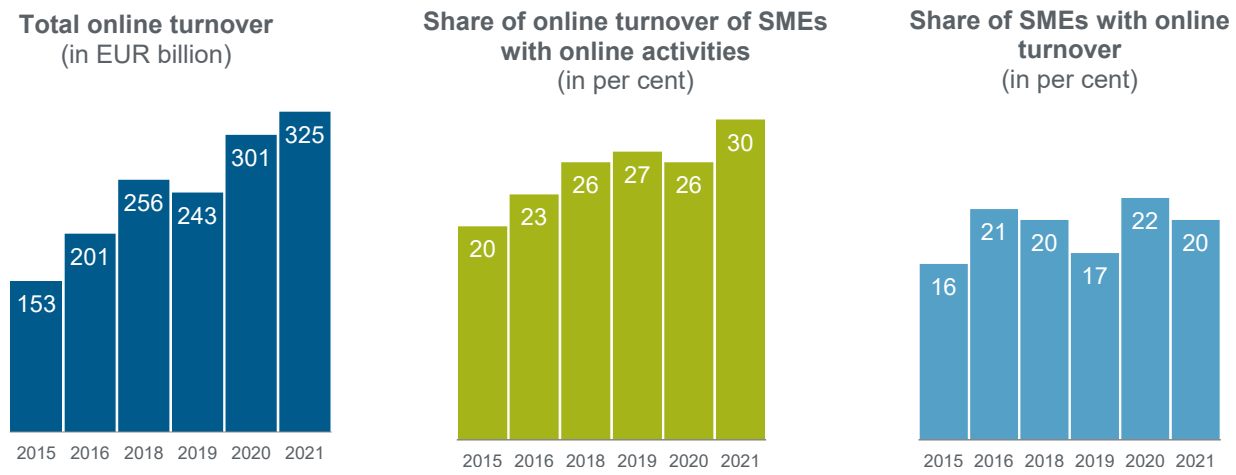
Once they have embarked on this promising path, it is important that SMEs pursue it consistently. Businesses did this successfully in 2021, generating EUR 325 billion in proceeds via e-commerce[14]. This includes digital market places, online shops, procurement platforms and automated data exchange between businesses, for example. It accounted for another increase of 8% or EUR 24 billion in the digital sale of products and services (2020: EUR 301 billion). This means that as in the previous year, SMEs generated around 7% of their overall turnover online and more than doubled their total turnover from these channels within the past six years (2015: EUR 153 billion).

Unlike in the previous year, the growth in volume was not brought about by an actual increase in the number of SMEs undertaking e-commerce activities. On the contrary, that figure actually dropped by 84,000 companies to 769,000 SMEs, and the share of SMEs generating turnover online fell by 2 percentage points to 20% (Figure 11, right). This underscores once again the fact that in many cases, rapid adjustments were made in 2020 that may now no longer be required.

Rather, businesses that were already active online expanded their relevant turnover (Figure 11, middle). The contribution of e-commerce to an enterprise's total turnover was 30% in 2021 – provided the company generated online sales at all. Micro-businesses even generated more than half their turnover through digital channels (52%), while in large SMEs e-commerce contributed around 21% to total turnover. In services it was around 33% and manufacturing SMEs roughly 14%.

Another indication that the 'digital pathway' is becoming mainstream in the sales activities of many SMEs is that the number of businesses generating most of their turnover online is currently growing (most means more than 50%). In the past two years, their share of the total SME sector grew by 1.5% to now 6.4%. Digital sales channels can also be expected to continue gaining importance in the SME sector in the future. This will happen if only because the generations of up-and-coming entrepreneurs are building their business models more often and increasingly on e-commerce. These processes appear to be irreversible.

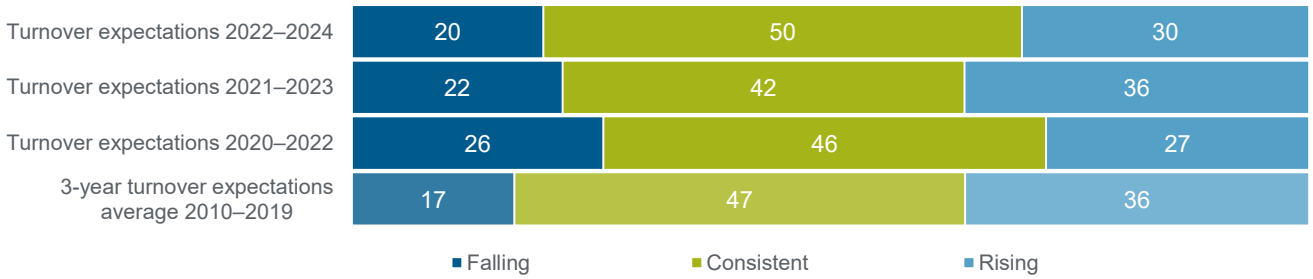
Figure 11: SMEs' online turnover



Source: KfW SME Panel.

Figure 12: SMEs' medium-term turnover expectations up to 2024

In per cent



Source: KfW SME Panel.

Expectations for the near future are more subdued but still positive

Businesses' expectations for the medium-term future are deteriorating as their uncertainty increases. The current situation – measured by businesses' expectations in the spring of 2022 – is anything but bleak, to be sure, but a downturn is on the horizon (Figure 12). The consequences of the war – which are impossible to reliably predict – are affecting many enterprises. The loss of export markets, uncertainty over the further development of energy prices, rising inflation and consumer restraint, supply chain disruptions and production losses are causing SMEs to become less optimistic.

Turnover expectations voiced by SMEs for the coming years (2022 to 2024) therefore paint a slightly subdued picture. Only 30% of SMEs expect their turnover to grow in the medium term – a drop of 6 percentage points year on year. But that is still slightly above the pre-pandemic level.

At the same time, the proportion of enterprises expecting turnover in the next three years (2022–2024) to be below the level of 2021 has dropped (20% or -2 percentage points). The share of these SMEs is thus continuing to move towards a normal level. Before the pandemic, the long-term average of SMEs with pessimistic expectations was 17%. At 10 points, the balance of positive minus negative turnover expectations in the spring of 2022 was noticeably smaller than in the past (2004–2019: 19%). But it is still a significant improvement on 2020, the first year of the pandemic, when the balance plunged to one percentage point.

The slightly more muted outlook can also impact on future investment activity. Confidence is the key factor determining whether businesses undertake or withhold investments. Fundamental investment appetite, the volume of funds invested and investment goals are crucially dependent on entrepreneurs' business expectations.[15]

By comparison, large SMEs have a very positive view of the future. The balance of positive minus negative turnover expectations here is +52 percentage points (Figure 13). Despite the current high uncertainty, 61% of these enterprises expect their turnover to grow in the years 2022–2024. For micro-businesses the balance is many times lower: only +6 points. The differences between sectors are much less pronounced. In R&D-intensive manufacturing (+26), other manufacturing (+14) and SMEs providing knowledge-intensive services (+14), expectations are also higher than average. In the construction sector, which is traditionally a segment with negative expectations, there is almost no difference in the number of business expecting turnover growth and turnover contraction (balance: +1 point).

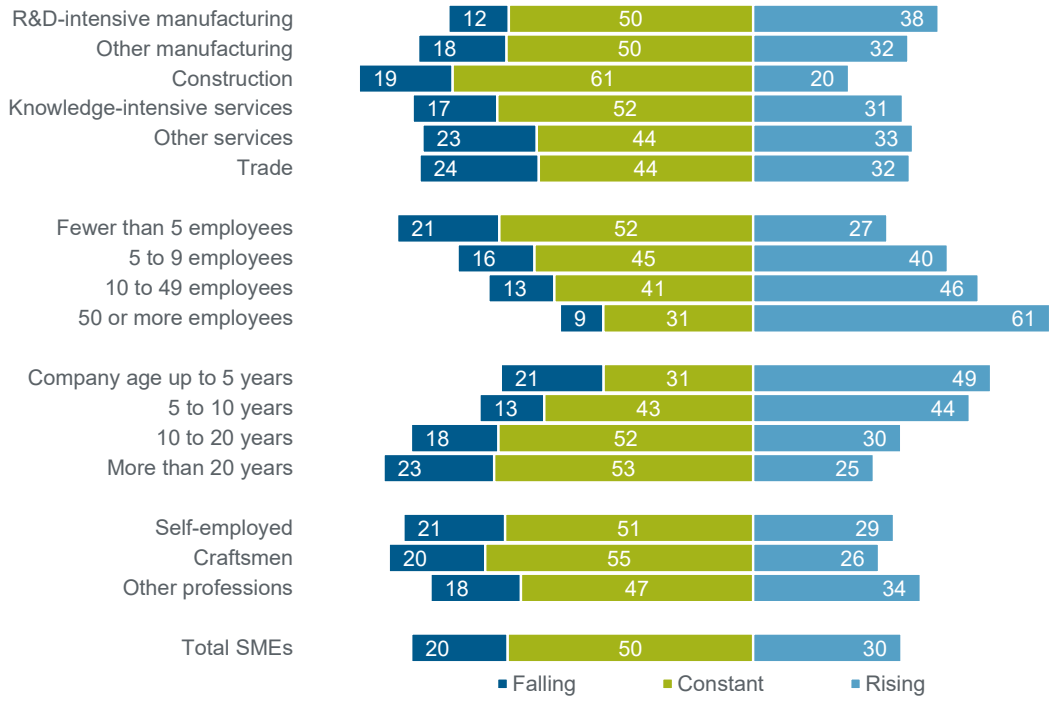
High turnover growth generates very good profitability for SMEs

The great leaps in turnover generated last year in defiance of all crisis effects made SMEs very profitable again. As was the case in the first year of the pandemic, their profit situation was generally outstanding. There was no pandemic-induced dip in company profits. The average profit margin[16] in the SME sector grew again marginally from 7.3 to now 7.4% (Figure 14). Only in the pre-crisis year was the profit margin a marginally higher 7.5%.

Particularly in the first year of the pandemic, the large number of economic stabilisation and support measures aimed at (partly) offsetting pandemic-induced turnover losses and reducing pressure from fixed costs is likely to have played a significant role. In addition, many businesses were also successful in adapting their cost structure to reduced turnover. These adjustments to cost structures – and the public support programmes, some of which continued in the past year – are likely to have benefited many businesses in the year 2021.

Figure 13: Medium-term turnover expectations up to 2024 by segment

In per cent



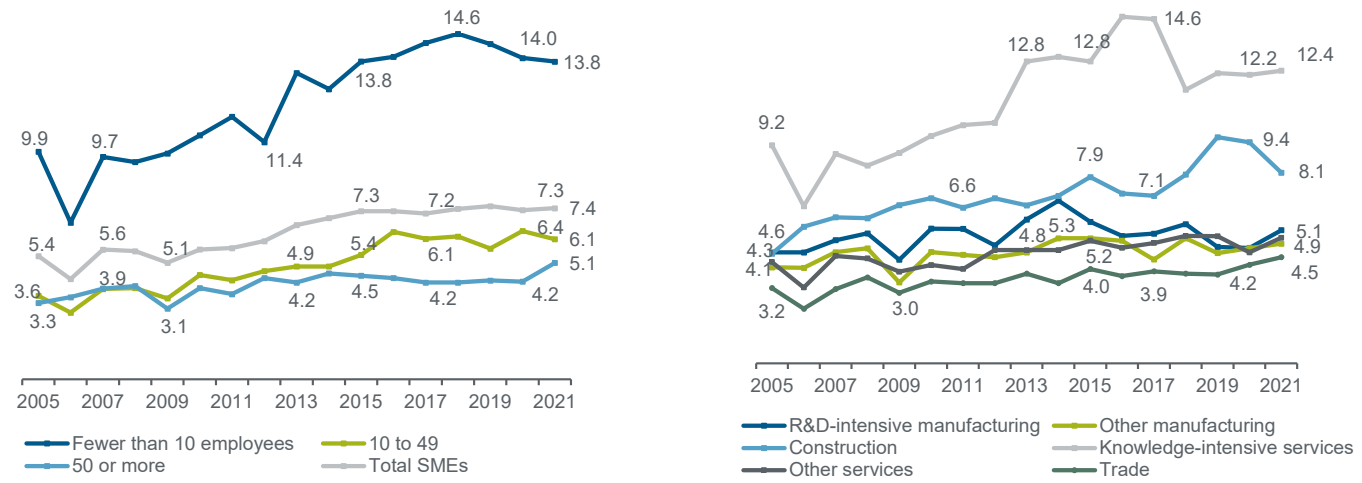
Source: KfW SME Panel.

This positive news is once again underscored by the fact that significantly fewer businesses slipped into the red in 2021. The proportion of businesses with a negative profit margin fell to 8% (-4 percentage points from 12% in 2020). This is much lower than the levels seen in the past. In the crisis year 2009, for example, 16% of SMEs were still suffering losses and in 2006 it was even 21%.

Moreover, more businesses were highly profitable last year than ever before. The share of businesses with a relatively high profit margin of 10% and more rose to an all-time high of 63% (+4 percentage points on the previous year). That was 20 percentage points more than in 2006 (43%).

Figure 14: SME profit margins by size class (left) and industry (right)

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



Source: KfW SME Panel.

Profit margins of SMEs are generally very steady. In the past, that has helped many SMEs build up buffers to absorb at least part of the crisis-induced turnover losses without slipping into the red. Even in times of crisis, there have hardly been any stronger movements in SMEs' profit margin. To be sure, turnovers of small and medium-sized enterprises did contract by 6.2% in 2009 but their profit margin fell only minimally from 5.6 to 5.1%, and the share of SMEs that incurred losses actually decreased (2008: 15%, 2009: 13%). The first year of the pandemic also exhibited a similar trend (from 7.5 to 7.3%).

Retailers and wholesalers continued to do well in the second year of the pandemic, growing their profit margin

SME retailers and wholesalers can look back on what has been a positive year overall across all subsegments. The managed to raise their profit margin already in 2020 (+0.4 percentage points). It grew by a similar rate in 2021 as well, increasing by +0.3 percentage points. The resulting profit margin of 4.5% represents a new record high for SME retailers and wholesalers. Never before have their business operations been more profitable.

Besides the support measures described above, another factor that played a role was the fact that the crisis did not adversely impact on retailers and wholesalers in equal measure (for example food retailers, drugstores and online shops). According to the Federal Statistical Office, retail turnover increased by a nominal +3.1% in 2021 (after 5.4% already in 2020). This positive development is now also reflected in the profit margin of SME retailers and wholesalers.

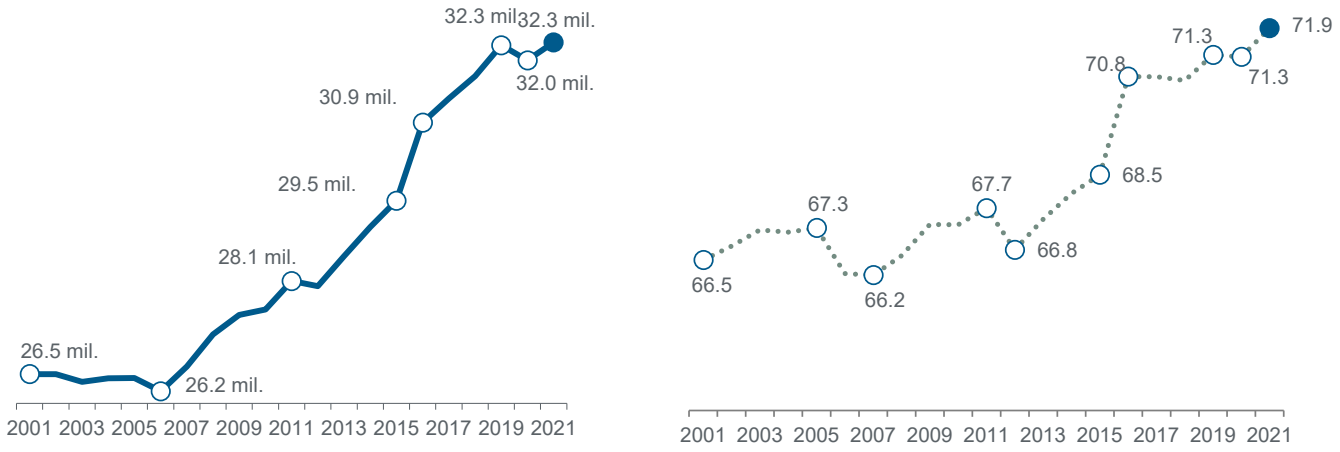
After the pandemic downturn, employment in SME sector is now back to the pre-crisis level

Seemingly unimpressed by last year's ongoing coronavirus pandemic, the employment trend in the SME sector has stabilised. What is more, after the moderate job losses of 2020, employment has now grown by around 300,000 new jobs on the pre-crisis employment level. That means a total of 32.3 million workers were employed by SMEs in 2021 – roughly the same number as before the crisis (Figure 15, left). SME employment increased by approx. 1%.

On average for the year 2021, around 44.9 million people were gainfully employed in Germany overall. That means employment across the economy as a whole was almost exactly on the same level compared with the year 2020, when the coronavirus crisis put an end to a phase of employment growth that had lasted for more than 14 years. That affected not just the overall economy but the SME sector specifically. The nearly uninterrupted employment growth in the SME sector since 2006 came to a halt. In the early stages of the pandemic, SMEs expressed extremely pessimistic employment expectations. Fortunately, these expectations did not fully materialise. Job cuts were ultimately rather moderate, not least owing to a range of policy support measures, the most prominent of which was short-time work allowance. That proved to be a stabiliser. As a result, the labour market in Germany remained relatively strong throughout the crisis.

Figure 15: Employment in SMEs

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



Source: KfW SME Panel, Destatis.

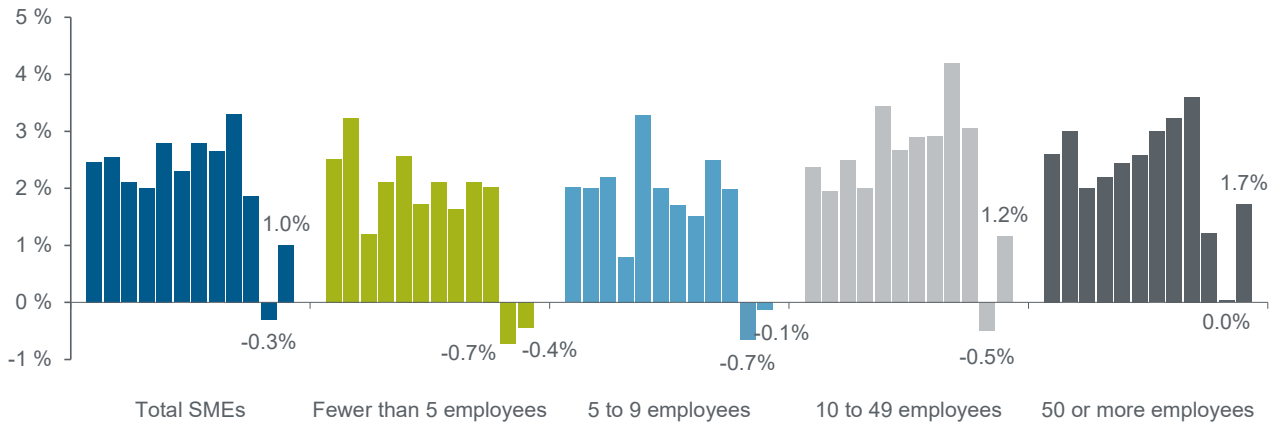
As a job engine, the SME sector stalled only for short period and is set to continue running smoothly through 2022 as well

Despite – or irrespective of – the coronavirus downturn of 2020, the employment trend of the past years was more than impressive. At aggregate economic level, around 5.9 million additional jobs were created since 2005, and around 98% of these were added by SMEs. These companies became even more important as employers in the past year because the percentage increase in the workforce was higher there than in the economy as a whole. The share of SMEs as a percentage of aggregate economic employment reached a new high of 71.9% in 2021. In 2006 that share was just 66% (Figure 15, right).

Current economic figures on the development of employment in Germany indicate that employment in the country will continue to grow. In May 2022, around 45.4 million people in Germany were gainfully employed. The prospects for a further moderate employment growth in the SME sector are also good. For the current year 2022, 13% of businesses expect rising employment, while 11% believe jobs will be cut and 76% do not anticipate any changes (businesses expressed their expectations in the period of February to June 2022).

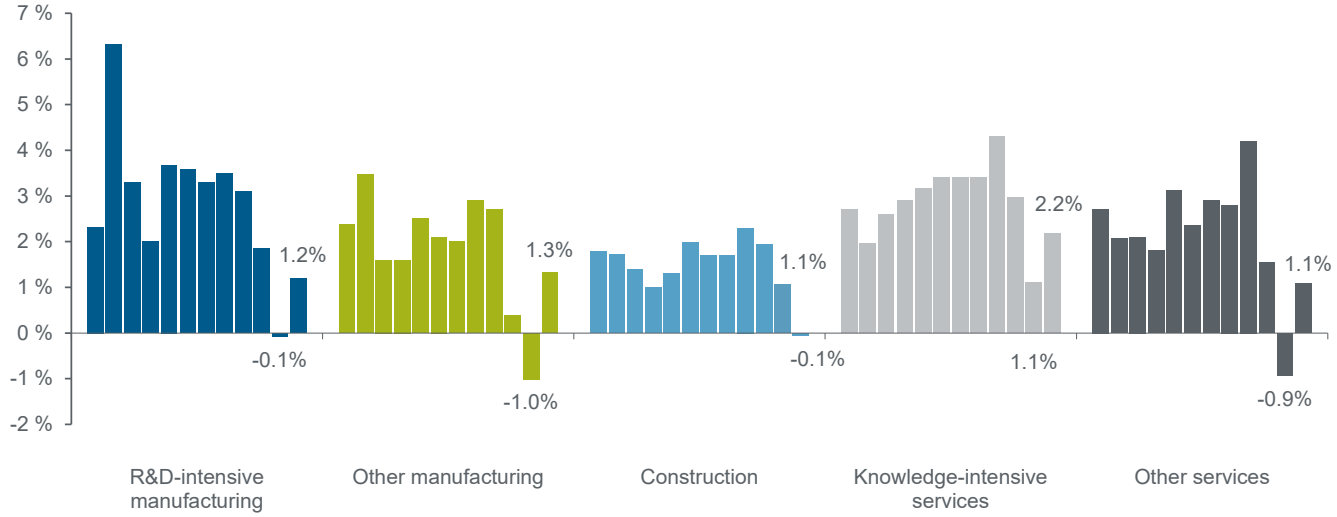
Figure 16: Annual employment growth in the SME sector by size class (2010–2021)

Size classes by number of full-time equivalent employees



Source: KfW SME Panel.

Figure 17: Annual employment growth in SMEs by sector (2010–2021)



Source: KfW SME Panel.

Large enterprises drove employment upturn in 2021, micro-businesses continued to cut jobs

Employment growth is reflected in the development of full-time jobs. Full-time job equivalents [17] (FTEs) grew at an aggregate rate of 1.0% in the year 2021. However, that rate is still well below the mean of the pre-crisis years (Figure 16). Also noteworthy is that even during the years of the economic and financial crisis, employment developed at an even more positive rate than now. This can be seen as a strong indication of how hard the coronavirus crisis has hit the business community.

Larger businesses were the cornerstone of employment growth in SMEs in 2021 (Figure 16). Here, employment growth was +1.2% (SMEs with 10 to 49 employees) and +1.7% (SMEs with 50 and more employees) across all businesses of these segments. By contrast, both micro-businesses (-0.4%) and smaller SMEs with 5 to 9 employees (-0.1%) on average also lost jobs for the second consecutive year of the pandemic. The impact of the pandemic on these businesses is even more pronounced, if with a lower negative momentum than before.

Last year, the various sectors were involved in employment growth to differing degrees (Figure 17). Knowledge-intensive services stood out most prominently. Enterprises in this segment remained on an above-average growth trajectory as well (+2.2%). They were able to grow their workforce already in the first year of the pandemic. SMEs in this segment can therefore continue to be referred to as an anchor of stability of small and medium-sized enterprises in the crisis situation. Employment also grew again in the two subsegments of the manufacturing industry – other manufacturers (+1.3%) and R&D-intensive manufacturing (+1.2%). The same applies to SMEs providing other services (+1.1%). Particularly at the beginning of the pandemic, these were hit very hard by restrictions (commerce and hospitality, for example).

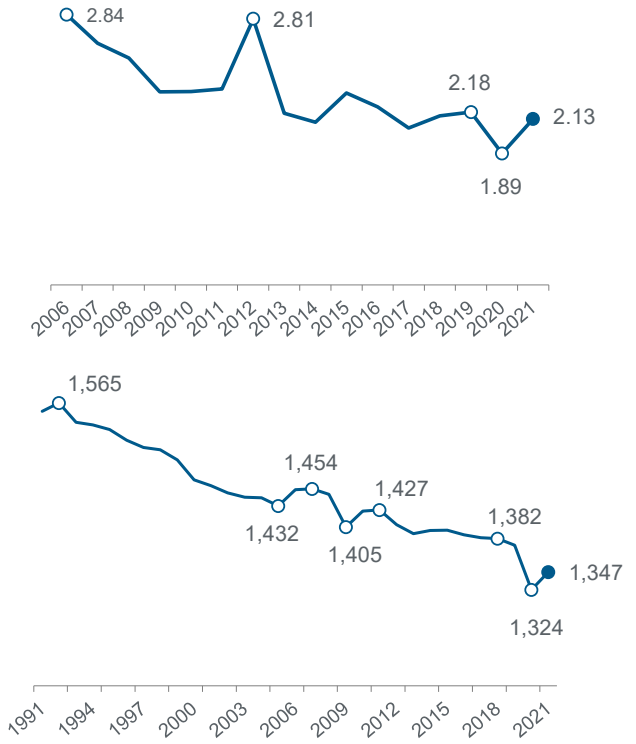
Because of their very high number, businesses of the services industries are particularly crucial to the development of aggregate employment. Services segments alone comprise 79.4% of all SMEs, which employ around 75% of all workers in the SME sector. Thus, the fact that the construction industry generated minimally negative employment growth of -0.1% in 2021 hardly makes a difference to the overall assessment.

Working hours were increased again in 2021

The expansion of full-time employment contributed substantially to the stronger employment growth in the SME sector in the past year. It increased by 3.9% (after decreasing in the year 2020). By contrast, the number of part-time employees in SMEs was reduced by -7.6%. In a more long-term perspective, part-time employment has generally grown in importance (Figure 18). Between 2006 and 2019 – the period of the last employment boom before the coronavirus crisis – the number of part-time jobs increased by 54%. The number of full-time jobs grew by a mere 18% during the same period. This development reflects a general trend in Germany. The number of hours worked is on a long-term decline (Figure 18, below) although employment is expanding at the same time. This is mainly due to the growing importance of flexible working time models, which can also be observed in small and medium-sized enterprises.

Figure 18: Significance of working time models and working hours

Above: Ratio of full-time equivalent jobs to part-time equivalent jobs in SMEs / below: Hours worked each year per worker in Germany



Source: KfW SME Panel, Destatis.

Burdens from the coronavirus crisis on companies' capital structure are decreasing noticeably: equity ratio is recovering quickly and significantly

In the first year of the coronavirus crisis, the widely feared massive depletion of the equity base of SMEs did not materialise, although the trend of steadily rising equity ratios that has been ongoing since the turn of the millennium did not continue. The focus of SMEs on building strong equity buffers has made them much more resilient against unexpected events – which

include the coronavirus crisis. That appears to have paid off. The impact of the coronavirus pandemic has caused only a moderate decline in average equity ratios[18] to 30.1%. The main reason for the decline was that many SMEs were forced to bridge liquidity bottlenecks caused by turnover and profit losses by borrowing more during the crisis. The subsequent rise in the ratio of debt to equity put pressure on companies' equity ratio. Overall, however, the depletion of companies' equity reserves ended up being much lower than expected.

After the moderate decline in 2020, companies appeared to be resuming their previous trend, as the past year was marked by a relatively strong recovery (Figure 19). Their average equity ratio increased by 1.3 percentage points to 31.4% in 2021 (2020: 30.1%) – almost the pre-crisis level (2019: 31.8%). The burdens from the coronavirus crisis on companies' capital structure have thus decreased noticeably – and more quickly than often assumed. The risk of overindebtedness across the overall SME sector remains moderate. Based on current data, a pandemic-induced steep drop in the equity base of small and medium-sized enterprises now appears very unlikely.

Equity ratio of small businesses surpasses previous record and more than makes up for pandemic losses

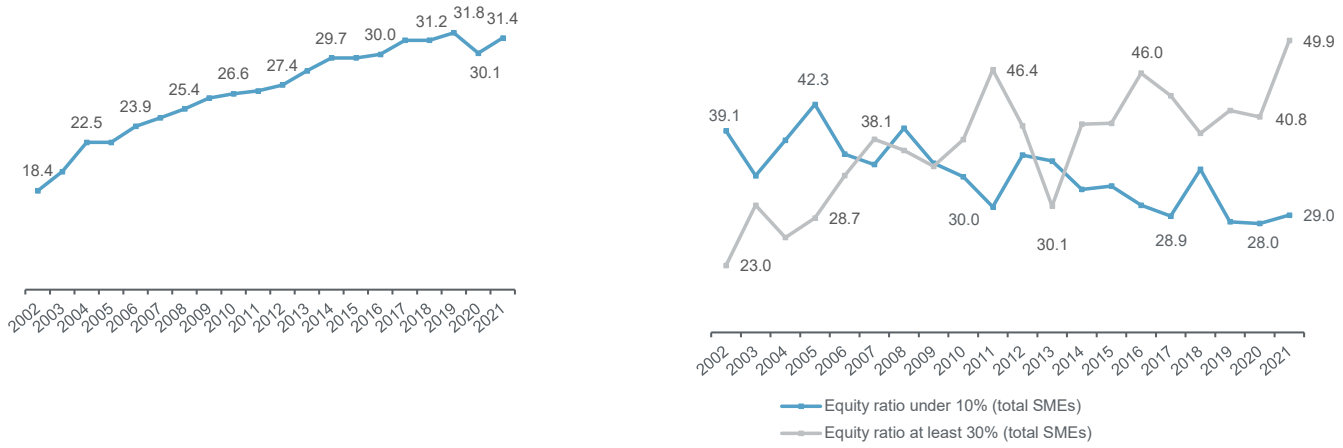
A detailed breakdown by company size class reveals that the overall recovery of average equity ratios across the SME sector is exclusively attributable to small businesses with fewer than ten employees (Figure 20, left). Their equity ratio increased by six percentage points to an average 23.7% in 2021 (2020: 17.4%), more than offsetting the pandemic-induced losses. It was the highest equity ratio recorded in this segment since the first survey under the KfW SME Panel. The current all-time high was reached in 2011 (23.5%).

After the steep drop in equity ratios of small businesses in 2020, this most recent improvement is an extremely positive development. After all, the deepest losses occurred precisely in those businesses that were less well capitalised in the first place. There is reason to assume that significantly fewer small businesses had to take up loans to bridge liquidity shortages last year. The strengthened equity buffer will likely also create few problems for these companies' credit rating and access to capital. It also lowers the risk of insolvency.

By contrast, enterprises of the two larger size classes again recorded minor declines in equity ratios. But these declines are moderate, which means they were again able to absorb the burdens from the coronavirus pandemic quite well. Consequently, the divide between the equity ratios of small and large SMEs narrowed significantly in the year 2021.

Figure 19: Basic equity ratio indicators in the SME sector

In per cent



Source: KfW SME Panel.

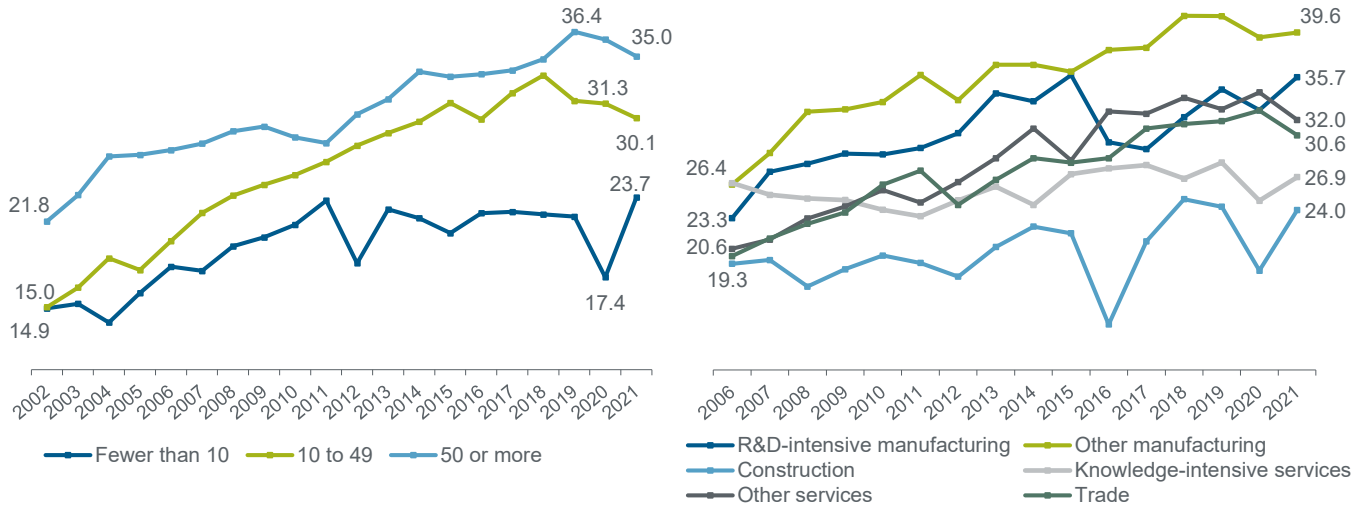
Awareness of the need to bolster equity base has generally grown among SMEs

Overall, small and medium-sized enterprises in Germany have a more than comfortable equity base despite the coronavirus crisis – particularly in light of the most recent positive developments. Around the turn of the millennium, the equity ratio still stood at around 18%. SMEs achieved massive improvements across the board since then, with the average equity ratio growing by around 12 percentage points between 2002 and 2020 despite the current burdens. More than anything, this has been aided by the retention of earnings and the investment restraint that has been observed for some time now.

In the past years, changes made to banking regulation (Basel II) at the beginning of the 2000s have made SMEs much more aware of the importance of having adequate equity. Other important motives for SMEs to raise their equity levels included the wish to remain independent, the drive to become more resilient in times of crisis, and the desire to remain flexible. Many enterprises still had enduring memories of credit restrictions during the financial crisis.[19]

Figure 20: SMEs' equity ratios by size class (left) and sector (right)

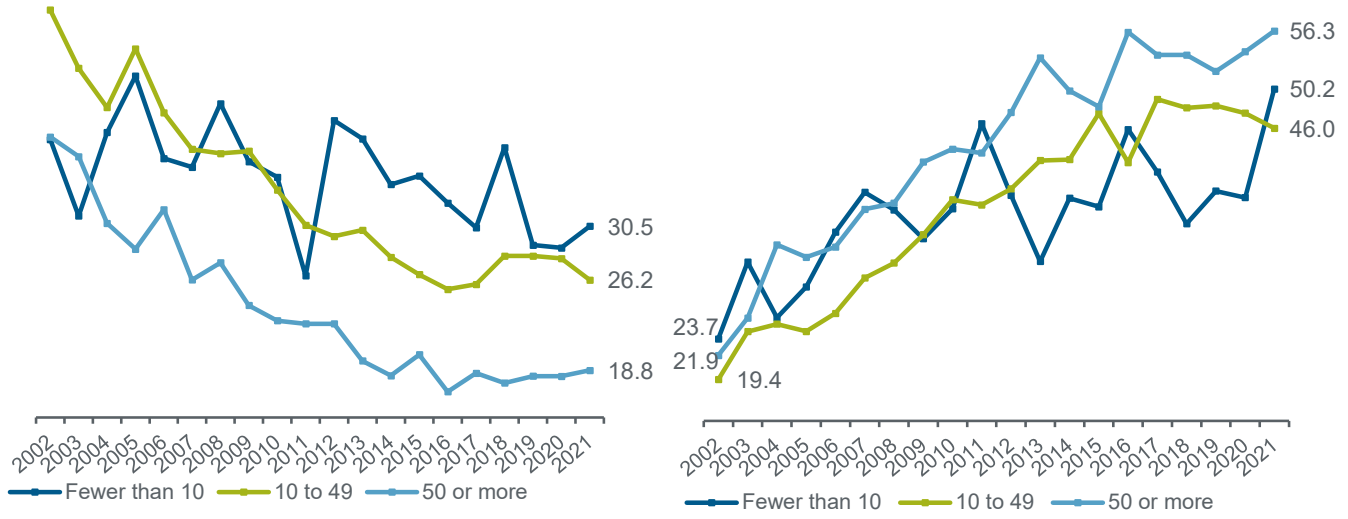
Shares of enterprises in per cent; size class by number of full-time equivalent employees



Source: KfW SME Panel.

Figure 21: Businesses with a low (left) and high equity ratio (right)

Per cent of SMEs; size class by number of full-time equivalent employees



Source: KfW SME Panel.

SMEs all around built up equity reserves and enhanced their resilience in 2021

Such motives – strengthening resilience – may also have been pivotal to the significant increase in equity reserves in 2021. Now that they have bolstered their equity ratios again, SMEs are also becoming more resilient to crises. And further indicators suggest that this also plays a role all across the SME sector (Figure 19, right). Nearly half of all SMEs (49.9%) currently have a comparatively high equity ratio of at least 30%, a strong increase of nine percentage points. This is mostly attributable to developments in the segment of small businesses, to be sure, but large SMEs with 50 and more employees have also contributed (Figure 21, right), with 56% of those businesses now exhibiting a high equity ratio of 30% and above.

A look across the sectors also corroborates the impression of a positive trend that is occurring not just in isolated cases but rather in all subsegments (Figure 20, right). Thus, both subsegments of manufacturing as well as SMEs providing knowledge-intensive services and SME construction firms show rising equity ratios. Construction firms in particular sustained significant losses in the year 2020 which they have now recovered almost completely. Businesses providing other services (and retailers as a subgroup of this segment) recorded minor decreases in their average equity ratios.

Therefore, the median equity ratio for the SME sector as a whole was a high 29.9% in the year 2021 (22.3% in 2020). By comparison, the minor rise in the share of businesses with a comparatively low equity ratio of less than ten per cent (29%) has less significance. The share of businesses with a negative equity ratio also remains very low. It stood at 5% (4% in 2020).

A short-lived upturn? Equity ratios are under pressure again in 2022

As the war and its adverse impacts continue, the outlook for SMEs' equity ratio is significantly more dismal than in the spring (Figure 22). In September 2022, around one in three businesses expected their equity ratio to decline for the year as a whole. In the spring it was just 21%. Only one in ten businesses still believe their equity ratio will increase, while a further 44% expect it to remain roughly the same. The war in Ukraine with all its consequences may be seamlessly supplanting the coronavirus crisis as the most severe burden on businesses' capital structure.

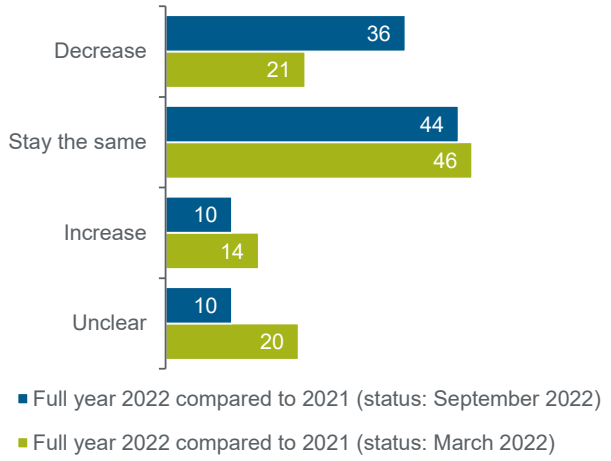
Number of investors dropped back to pre-crisis level, no lasting effect identifiable

The high pressure to adapt in order to keep businesses running in the first year of the pandemic has subsided. In order to be able to quickly respond to the profound changes in requirements, a great many small and medium-sized enterprises carried out small-scale investment projects to adapt to the crisis. These included investments directed at complying with hygiene requirements, but also investments in the field of digitalisation (e.g. renewal of IT infrastructure, creation of additional remote working capacities, use of new digital applications, digitalisation of products).

As the slowing progression of the pandemic has removed the acute pressure to take action, businesses' appetite for investment also returned just as quickly to the previous very low level (Figure 23). SMEs' readiness to tackle investment projects fell disproportionately in the past year. The share of SMEs with investment projects dropped to just 38%. That means a drop of 8 percentage points in the share of investing SMEs – a decrease by 287,000 businesses. Thus, only around 1.44 million small and medium-sized enterprises carried out investments in 2021. That is almost exactly the pre-crisis level of the year 2019 (investor rate of 39%).

Figure 22: Expected development of equity ratio in the SME sector in 2022

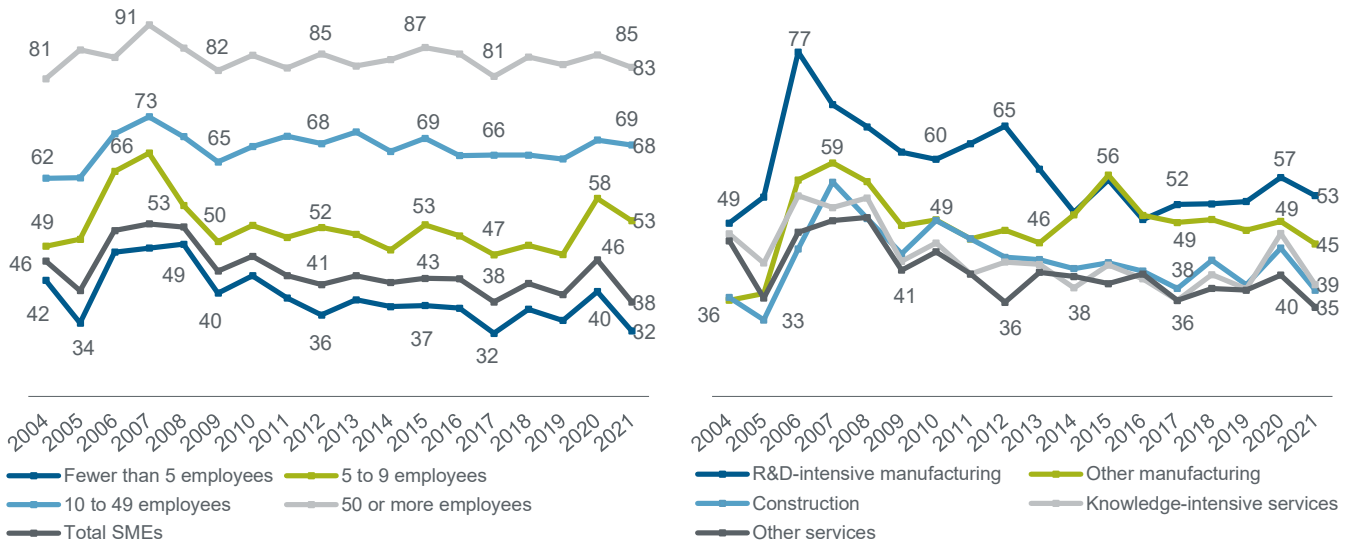
Share of enterprises in per cent



Source: 7th and 8th supplementary coronavirus surveys to the KfW SME Panel.

Figure 23: Percentages of investing SMEs by size class (left) and sector (right)

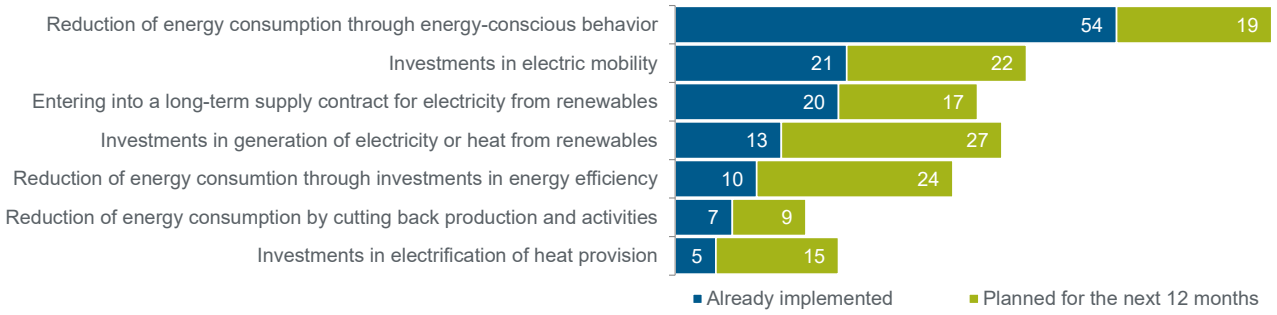
Size classes by number of full-time equivalent employees



Source: KfW SME Panel.

Figure 24: Energy-related measures adopted since the beginning of 2022 in response to the Ukraine war and current high energy prices

Percentages of total SME sector, as at May 2022.



Source: Supplementary energy cost survey to the KfW SME Panel (May 2022).

The pandemic failed to have a sustained effect on investment propensity in the SME sector. Since the year 2009 there has basically been a stubborn sideways movement (44%) with a slight downward trend – which was only broken recently by the special situation in the coronavirus year 2020. It affects all SME segments equally. In the years 2006 to 2008, more than one in every two SMEs invested in their business – a rate unmatched since then.

The countermovement to those years pervades all SME segments. The proportion of investing SMEs fell everywhere in 2021 – especially in segments that had previously experienced the strongest revival: micro-businesses with fewer than five employees and SMEs providing knowledge-intensive services dominate the landscape. In each of them, the shares of investing SMEs dropped by 8 percentage points.

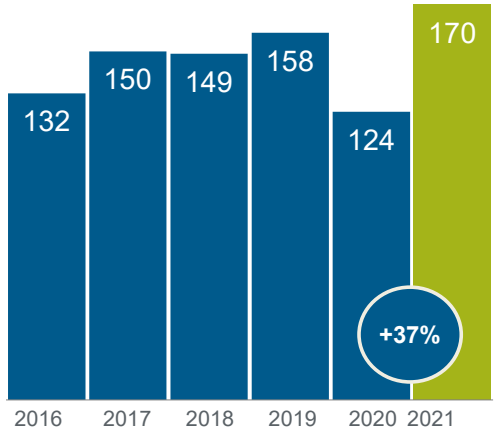
It remains to be seen what effect the war in Ukraine will have on investment appetite for the current year 2022. Already in early May 2022, a representative supplementary survey to the KfW SME Panel clearly showed that rising energy prices had prompted many SMEs to adopt measures aimed at reducing energy consumption or using renewables (Figure 24). Around 20% of enterprises invested in electric mobility in the months of January to April of this year. Around 10% of businesses each invested either in generating electricity and heat from renewables themselves or in improving the energy efficiency of their own operations.

Businesses launched more large-scale investments again in 2021: Project sizes are growing

The businesses that stopped investing in 2021 were mainly those that had primarily carried out small crisis adaptation projects in the previous year. Rather, investment activity in the SME sector was again concentrated in a 'hard core' of investors. Consequently, the relative importance of large-scale projects grew again, and so did the average project size.

Figure 25: Average investment volume per company

EUR in thousand, only investing enterprises



Source: KfW SME Panel.

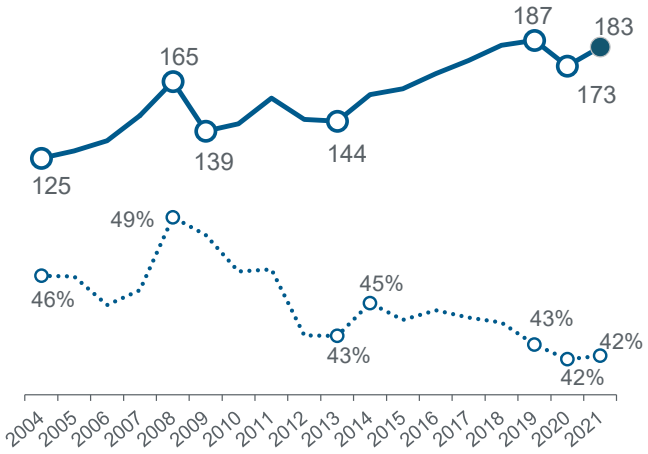
On average, SME investors used significantly higher volumes in 2021 than in the previous year (Figure 25). Among those small and medium-sized enterprises that invested, the average amount invested grew noticeably to EUR 170,000, an increase of 36% or EUR 46,000 (EUR 124,000 on average in 2020). That means average project volume was larger than ever before. This development was not driven or distorted by a few very large projects alone – as could often be observed in the past. This can be seen from the median value, which also increased relatively substantially. In 2021 half the investment projects had a volume of less than EUR 28,000 (EUR 20,000 in 2020). So, while investment projects of SMEs usually still have a measurable volume, the most recent increase in project volume is taking place across the whole business landscape. This is underscored yet again by data on investment intensity (investment volume per full-time equivalent employee). The corresponding value rose in 2021 by 6% to an average EUR 8,105 per investing business (detailed figures can be obtained from the Volume of tables).

Investments made up for nearly three quarters of the pandemic losses

In the past year, small and medium-sized enterprises' investments in new plant, equipment and buildings (gross fixed capital formation and new investment) increased by approx. EUR 10 billion, or 6% overall. New investment by SMEs thus amounted to around EUR 183 billion in 2021. SMEs also invested slightly more in second-hand goods than the year before (around EUR 31 billion or +1 EUR billion). In the aggregate, the volume of total investment in the SME sector thus also increased by EUR 11 billion or 6% to a nominal EUR 215 billion.

Figure 26: New investment by SMEs

Solid line: Volume in EUR in billions (nominal); dotted line: percentage of SMEs in total business investment



Source: KfW SME Panel, Destatis.

All subsegments of SMEs increased their investment volume (Figure 26). However, the services sector was a very strong driver of investment volume last year – and slightly more so this year. In 2021 services industries accounted for an overall share of 59% of new capital expenditure (EUR 108 billion) or 50% of total capital expenditure (EUR 124 billion). Both shares rose on the previous year (the long-term average of both shares is approx. 48%).[20]

Loosely speaking, in 2021 SMEs thus made up around three fourths of their losses from the first pandemic year. At the time, the force of the coronavirus crisis and the resulting massive uncertainty put a strong dampener on investment sentiment and ruined the investment plans of many SMEs (-EUR 14 billion, or -7%). Compared with the losses of the crisis years 2008/2009 (-EUR 26 billion, or -16%), the coronavirus crisis has thus (so far) had a relatively moderate adverse impact on new investments.

Nevertheless, it cannot be said that there has been an overly strong catch-up effect. Businesses may still have (had) too much of a desire to build stability and greater financial resilience.[21]

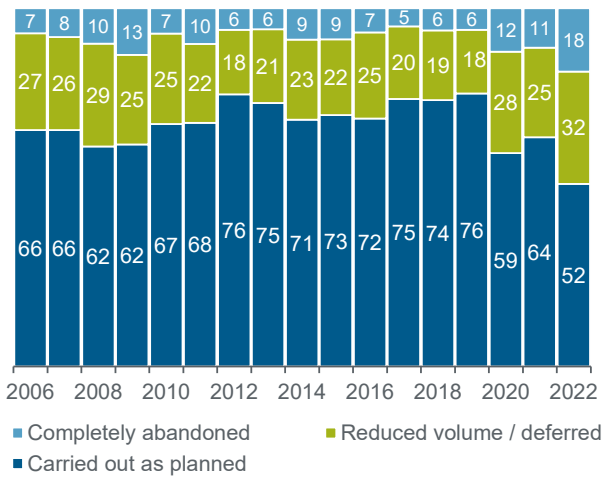
One reason: crisis-related changes to investment plans dropped slightly in 2021

The high uncertainty particularly at the beginning of the pandemic had left deep marks in the year 2020. More SMEs had abandoned, deferred or reduced investment projects they had initially planned at the start of the year than ever before (Figure 27). That was exacerbated by the (necessary) reallocation of funds to bridge liquidity bottlenecks.[22]

But the development that already became apparent in September of the previous year can now be documented with complete data for the year 2021. The extent of revisions fell in the year 2021. The share of businesses that implemented their investment projects as planned rose by +5 percentage points to 64%. At the same time, fewer enterprises that had considered investing in their business in 2021 at the start of the year scaled back or deferred those investment projects to a later date (-3 percentage points). Despite the decreasing number of businesses carrying out investment projects, investment volume ultimately grew as a result of this positive trend (combined with the higher average project size).

Figure 27: Implementation of planned investment projects in the years 2021 and 2022

Percentage of enterprises



Source: KfW SME Panel 2007–2021 in conjunction with the 6th supplementary coronavirus survey of September 2022.

Abrupt end to further recovery – extreme uncertainty of energy crisis is leading to massive cancellations of investment plans in 2022

The unhurried recovery has suffered a severe setback in the current year. Whereas the first year of the pandemic has thus far been seen as the one with the sharpest plan revisions by businesses, the current year 2022 is set to go even farther (Figure 27). Neither during the coronavirus pandemic nor in the crisis years of 2008/2009 did SMEs make similarly drastic crisis-related changes to investment plans during the year.

At the beginning of September 2022, just over half of SMEs – 52% – reported that they were implementing all investment projects as initially planned this year. That rate was even well below the level of the year 2020 (-7 percentage points compared with 2020 and -12 percentage points on 2021). Businesses reported deferring or scaling back 32% of all investment projects intended at the beginning of the year (+7 percentage points on 2021). The share of investment projects to be cancelled is even set to reach 18% – another all-time high, and by a wide margin.

For comparison: Between 2012 and 2019, on average 75% of investment projects were implemented completely.

Investment worth EUR 59 billion will presumably be lost due to adjustments this year

The figures on plan revisions are not good news for the estimated investment volume of 2022, particularly since the responses returned by SMEs in the supplementary survey of September prove to be very reliable for the year as a whole, as demonstrated by experience from previous years.

A look at the investment volume originally planned at the start of the year that was ultimately not realised because planned investment projects were either abandoned, reduced or deferred gives an approximate idea of what volume of investment is left unrealised as a result of uncertainty among businesses. That sum rose to more than EUR 60 billion in the crisis years 2008 and 2009, whereas around EUR 43 billion on average remains uninvested in a ‘normal’ year. According to the supplementary survey to the KfW SME Panel of September 2022, this volume of the plan revision for all of 2022 will presumably sit at around EUR 59 billion. That is roughly the same as in the coronavirus year (EUR 61 billion). There is no continuation of the positive development from the past year, when the revision volume was ‘only’ EUR 49 billion.[23]

On average across the past six years, it can be said that in every enterprise that revises its plans during the year, on average around EUR 120,000 in investments originally planned is ultimately not realised. Where projects are completely abandoned, an average 80% of the initially envisaged investment volume is lost each year, 67% of investment volume is reduced and 47% ends up being (partially) deferred.

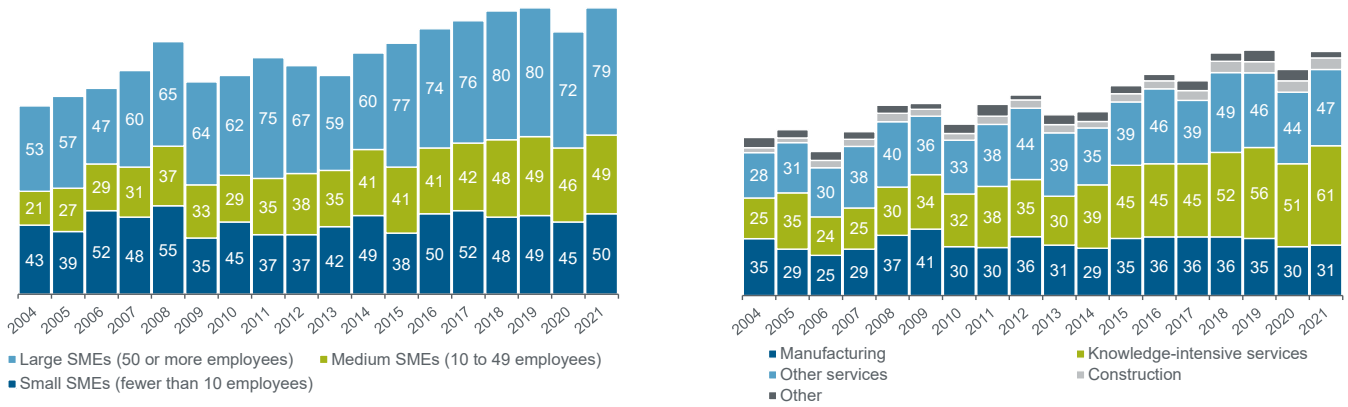
Significance of SMEs for total investment activity remains relatively low

While the consequences of the coronavirus crisis hampered the investment activity of SMEs slightly more than that of large enterprises during the first year of the pandemic, both size classes recovered roughly at the same rate in 2021. Aggregate gross fixed capital formation of the business sector[24] in Germany grew by around 5.9% on the previous year to EUR 433 billion (as at August 2022).[25] Large enterprises with an annual turnover in excess of EUR 500 million accounted for EUR 250 billion of this sum, with new investment growing by 6%, or EUR 14 billion. On that basis, the share of small and medium-sized enterprises in new investment by all businesses remained at around 42% (Figure 26).

The relative importance of SMEs for overall investment activity in the business sector had fallen continuously even without the influence of the coronavirus crisis. In 2008 the share of SMEs in total business investment volume in Germany still stood at 49%. In other words, it has lost 7 percentage points since then.[26]

Figure 28: New investment in the SME sector by segment

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

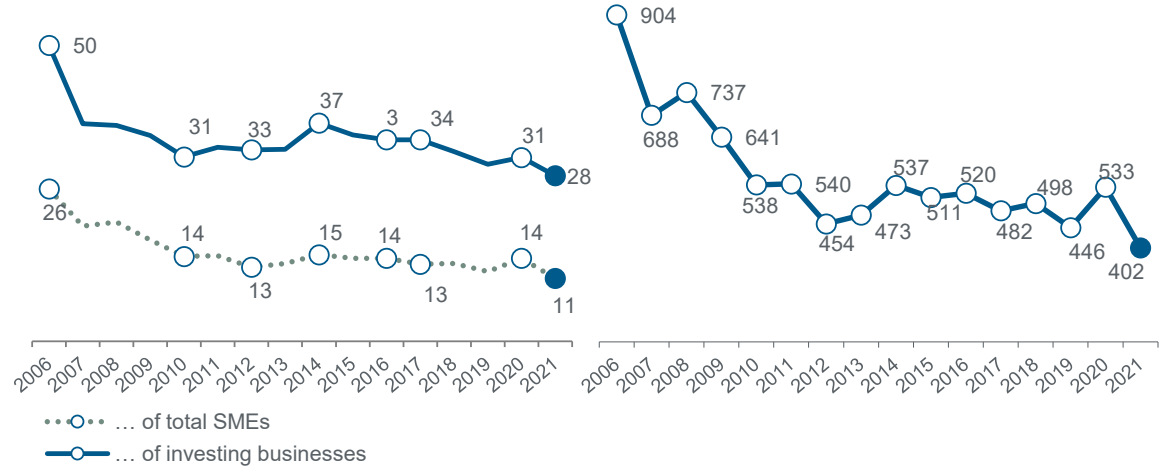


Note: The extrapolation by employment size class of SMEs does not include companies of the remaining sectors. Consequently, theindividual data on new investments undertaken by the SME size classes does not add up to the total sum of new investment (gross fixed capital formation) shown in the text.

Source: KfW SME Panel.

Figure 29: SMEs that negotiated loans with lenders

Shares in per cent (left); number of enterprises in thousand (right)



Source: KfW SME Panel.

In 2021, SMEs made around EUR 183 billion of new investments but depreciated approx. EUR 139 billion (-EUR 2 billion year on year). Their net investment thus totalled EUR 44 billion (total business sector + EUR 6 billion / 2020: + EUR 1 billion).[27] The capital investment to depreciation ratio remains on a very good level of 132%. SMEs were able to offset the loss in value of their capital stock with their investment activity last year.

Fewer businesses are interested in loan negotiations than ever before

Even though total business investment has grown in volume, companies are clearly reluctant to invest overall, and this is having a visible impact on the number of loan negotiations they have conducted (Figure 29). A total of 402,000 SMEs conducted negotiations with banks and savings banks on loans to finance all or part of their investment activities in 2021. That was just 11% of all SMEs (-3 percentage points) and 28% of those SMEs that had investment projects in the year under review (-3 percentage points). These are the lowest figures ever recorded.

Thus, the propensity of small and medium-sized enterprises to negotiate loans for investment purposes dropped to an all-time low. However, the reluctance of SMEs to engage in negotiations on investment loans has been evident for quite some time now. The levels seen during the years preceding the economic and financial crisis are far off. The long-term average since 2006 has been 15% (proportion of all investing businesses) and 34% (proportion of all businesses). In 2006, half of all investing SMEs still conducted loan negotiations. At the time, the proportion of investing SMEs was a high 52%.

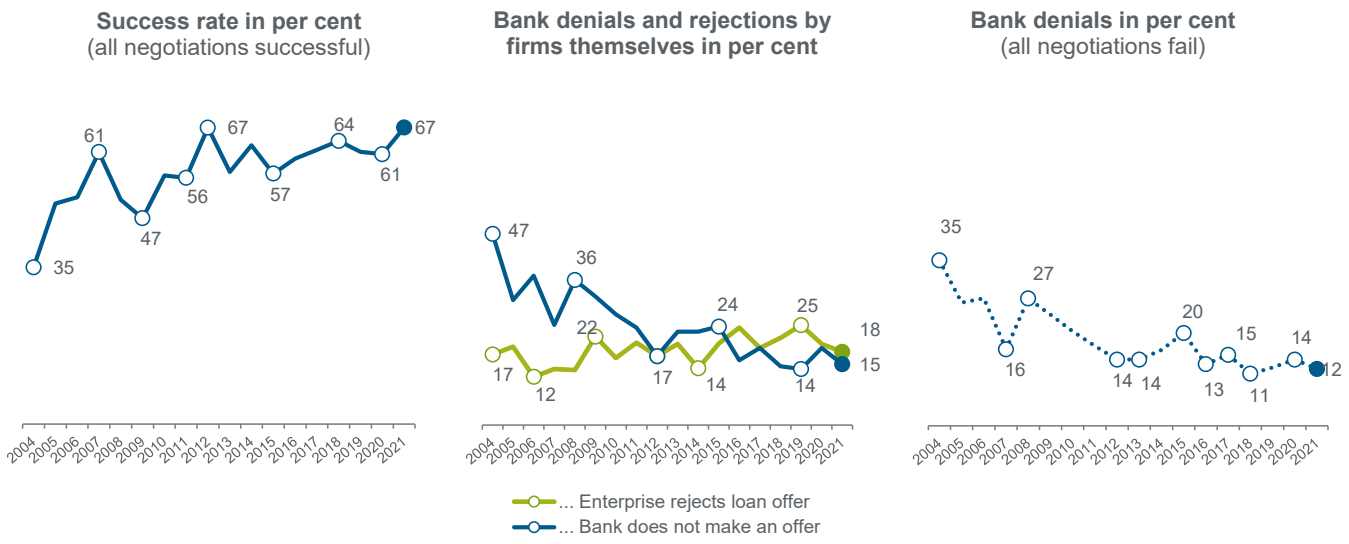
From the viewpoint of SMEs, fundamental arguments against borrowing to finance investment projects include the desire to be financially independent, concerns about the effort involved and disclosure and documentation requirements.[28]

Success rate of loan negotiations climbed to all-time high in 2021, particularly for micro-businesses

However, businesses that were in negotiations with banks and savings banks on investment loans last year negotiated more successfully than ever, with all ending successfully for 67% of SMEs that were in loan negotiations in 2021. Never before has the success rate been higher in the SME sector (Figure 30, left). The financing environment and credit access for small and medium-sized enterprises can therefore be described as comfortable. The success rate of micro-businesses with fewer than five employees in particular took a giant leap, rising by 12 percentage points to 65% (Figure 31). SMEs of the two larger size classes were also more successful in their loan negotiations than in the previous year. Smaller businesses with 5 to 9 employees were the only ones that could not maintain their high success rate (-8 percentage points).

Further indicators on the outcomes of loan negotiations confirm the positive overall picture of less restrictive credit access (Figure 30, middle).

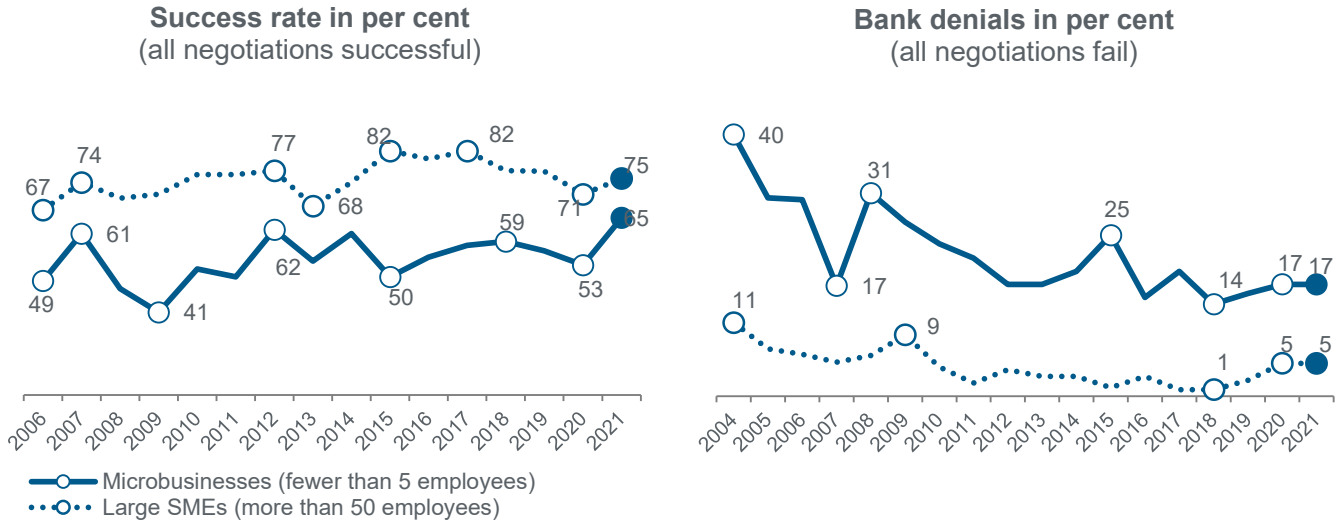
Figure 30: Indicators for the outcome of loan negotiations in the SME sector



Source: KfW SME Panel.

Figure 31: Outcome of loan negotiations of micro-businesses and large SMEs

Size classes by number of full-time equivalent employees



Source: KfW SME Panel.

Thus, failure of credit institutions to submit an offer led to failed loan negotiations less often, with the corresponding percentage falling from 19 to 15% year on year. Historically, that is a very good rate (long-term average for 2004–2020: 25%). In addition to these bank denials, the share of rejections of loan offers by interested businesses decreased at the same time (-2 percentage points to 18%). On the one hand, this could indicate that credit institutions presented SMEs with improved offers. On the other hand, it may provide a possible indication that SMEs were more often willing to also accept rather unattractive loan conditions, for example as a result of having fewer funding options or alternative financing sources.

These indicators also show that micro-businesses in particular were more successful in loan negotiations. The share of bank denials in this segment dropped from 27 18%, and the percentage of rejections by the firms themselves from 20 to 16%. For structural reasons, very small businesses in particular are often affected by difficulties in accessing capital. Owing to the asymmetrical distribution of information, lenders have great difficulty or incur relatively high expenses in assessing the overall credit worthiness or the chances of success of the projects for which these firms request debt capital. Many of them simply do not have a credit history. As these enterprises usually apply for small loan amounts, the cost of eliminating these information deficits is too high for lenders. The result may generally be a loan offer in a lower amount or on less favourable terms.

Last but not least, the general loan denial rate again reflects the improved credit access on the previous year and the higher probability of successful negotiation outcomes. The proportion of enterprises who failed in all their negotiations on investment loans was a very low 12% in 2021 (Figure 30, right). That rate was also very good compared with the historic average (19% on average for 2004–2020).

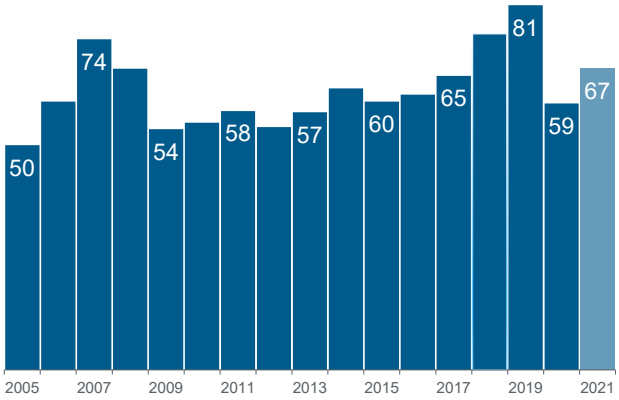
Still, borrowing for investments took a small leap in 2021

The volume of loans from banks and savings banks actually used to finance investments increased despite SMEs' low interest in negotiations (Figure 32). After two exceptional years, credit volume in 2021 was on a rather normal level. In 2019 credit volume was at an all-time high of EUR 81 billion, driven by the very favourable financing environment prevailing until then, followed by a historic downturn in 2020 (-EUR 22 billion, or -27%).

SMEs borrowed a total of EUR 67 billion from banks and savings banks to finance their capital expenditure – around EUR 8 billion or +13% more than in the previous year. This figure does not include any loans taken up to bridge liquidity bottlenecks. The share of loans in the funding mix for overall investment activity in the SME sector thus increased by two percentage points to 31% (Figure 37), which coincides exactly with its long-term average.

Figure 32: Volume of credit financing for SME investment

EUR in billions



Source: KfW SME Panel.

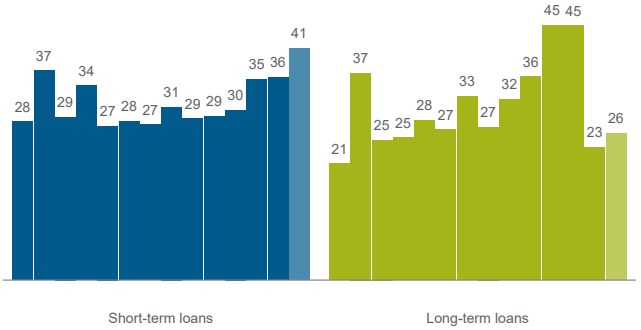
Businesses remained very reluctant to apply for long-term loans last year

Short-term and long-term loans both increased in volume (Figure 33). The fact that overall lending volume was rather moderate from a historical perspective can be attributed mainly to the continuing reluctance of SMEs to apply for investment loans with long maturities. While loans with long maturities of more than five years increased only moderately year on year (up by EUR 3 billion to EUR 26 billion in 2021), loans with short maturities of up to five years were slightly more sought-after (+EUR 5 billion to EUR 41 billion in 2021). Short-term debt finance thus appears to recently have been more important in the SME sector than ever before, while loans with longer maturities rather tend to be moving sideways on a low level.

At first glance, this result is surprising given the current interest rate turnaround. Rising interest rates will have to be expected in the long run. Specifically, however, it is a clear expression of the enormous uncertainty that continued to envelop broad sections of the business landscape in 2021 as well. Without optimism and certainty on which to base their planning, businesses tend to avoid longer-term financial obligations. The share of short-term bank loans in overall investment volume grew by 19% (long-term average for 2004–2020: 12%) while long-term bank loans remained on a rather low share of 12% (long-term average for 2004–2020: 18%).

Figure 33: Credit financing of investments by maturity

EUR in billions



Source: KfW SME Panel.

Fewer businesses used debt capital for investment projects

The fact that businesses had a low and reduced interest in even initiating negotiations on loans to finance their investment activity already became evident in 2021. Despite an increase in overall credit volume, the number of eventual borrowers in the SME sector decreased as well (Figure 34). Around 538,000 enterprises took up bank loans to finance their investment projects last year. That was a decline of around 67,000 businesses, or 11%, on 2020.

The decline in borrowing could be observed across all size classes. For example, the number of micro-businesses seeking finance dropped by 12% (-49,000), while large SMEs with 50 and more employees were down by 15% (-4,000 SMEs).

What is interesting here is that SME borrowers again opted more strongly for a mix of short-term and long-term loans. Around 235,000 SMEs took up loans with a combination of various maturities in 2021 – an 11% rise. The increase was already +64% in the previous year. That means this variant is the most popular form of finance for SMEs. Their interest in short-term bank loans and the use of current account loans or overdraft facilities as well as exclusively long-term bank loans fell by around 25% on the previous year. Around 195,000 SMEs opted for short maturities and some 107,000 SMEs for longer maturities for their investment loans.

Figure 34: SME borrowers (for investment purposes)

In thousands of businesses

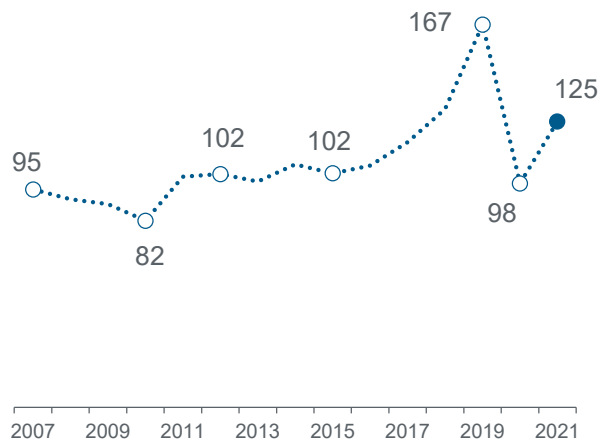
Source: KfW SME Panel.

Borrowers increased their ticket sizes, requested larger loan volumes

The number of small and medium-sized borrowers has fallen, to be sure. At the same time, the renewed increase last year in the average size of investment projects carried out caused investors' funding requirements to grow. This is reflected in the volume of loans taken up to finance those projects (Figure 35). The average volume of bank loans newly obtained to finance investments in 2021 was 28% higher than in the previous year and now amounted to EUR 125,000 (+EUR 26,000 on average per business undertaking credit-financed investments).

Figure 35: Average credit amount (for investment purposes)

In EUR thousands; per business



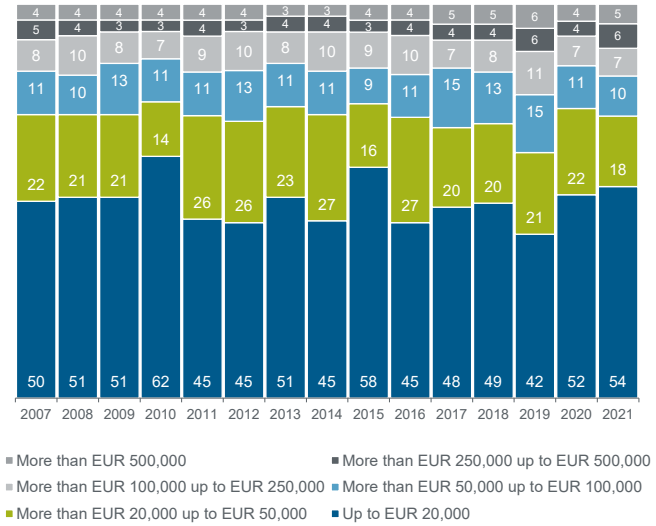
Source: KfW SME Panel.

Thus, average ticket sizes were roughly on the level of the year 2018 (EUR 130,000). The loan amounts of the past two years can rather be seen as exceptions. In particular, the low level seen in the coronavirus year 2020, which was due to businesses focusing on a large number of small-scale investment projects to adapt to the crisis, led to a massive and exceptional drop in credit volume.

However, an in-depth look at the categories of loan amounts of the year 2021 reveals that there has been no complete correction or redirection onto a normal development pathway yet (Figure 36). It remained the case that 72% of all investment loans taken up were for not more than EUR 50,000 and 82% of all investment loans were for a maximum amount of EUR 100,000. Thus, while these shares fell slightly on the previous year (from 74 and 85% respectively), they remained on a high level. The share of microloans for up to EUR 20,000 stands out in particular. It had already grown massively in 2020 (+10 percentage points to 52%) and now increased by another +2 percentage points in 2021 (54%). However, the proportion of very large loan volumes in excess of EUR 250,000 increased from 8 to 11% at the same time. This is also explained by the average increase in loan volumes.

Figure 36: Bank loan amounts applied for by SMEs

Share of enterprises with bank loans exceeding a specified volume in per cent



Note: Only SMEs with loan negotiations that actually used bank loans to finance investments.

Source: KfW SME Panel.

Micro-businesses strongly increased the share of loans in their funding mix

After the near vertical drop in the volume of bank loans in 2020 was primarily due to the behaviour of micro-businesses – above all, with drastically reduced loan volumes to fit often smaller, crisis-induced adaptation investments –, these businesses are now exhibiting stronger credit appetite. In relative terms, average ticket size grew most strongly among the group of

micro-businesses with fewer than five employees in all size classes in 2021. The average loan volume increased here by 58% to now EUR 46,000. The only time this volume was higher was in 2019 (2020: EUR 29,000 / long-term average 2007–2020: EUR 39,000).

Thus, the relevance of bank loans to finance investments has generally risen again for micro-businesses. The total volume of bank loans used grew from EUR 12 billion to EUR 17 billion. The share of bank loans in the funding mix increased by 10 percentage points to 37% (Figure 37).

By contrast, large SMEs recorded the strongest increase in absolute loan amounts. In this size segment, the average loan amount increased by EUR 180,000 on the previous year (2021: EUR 891,000). However, the total borrowing volume of these businesses remained quite steady, at EUR 21 billion (20%), as did the overall relevance of bank loans in the funding mix of this group (25%).

Financing conditions are set to tighten in 2022, and while lending is still strong, it may begin to stall

In the first half of 2022, lending to businesses was still very strong – an indication that the credit channel is still working, as revealed by the KfW Credit Market Outlook. It shows that in the first half of 2022, lending from German banks to businesses was around 20% above the previous year's level. But a gradual tightening of financing conditions is on the horizon, as conditions are becoming less favourable for businesses. Monetary tightening is making bank loans more expensive. Moreover, banks are becoming more cautious in their lending decisions. Credit constraint increased significantly for SMEs in the second quarter. Banks are likely to further tighten their lending policy in the course of the year in response to weak economic performance, volatile financial markets and the elevated risk environment.

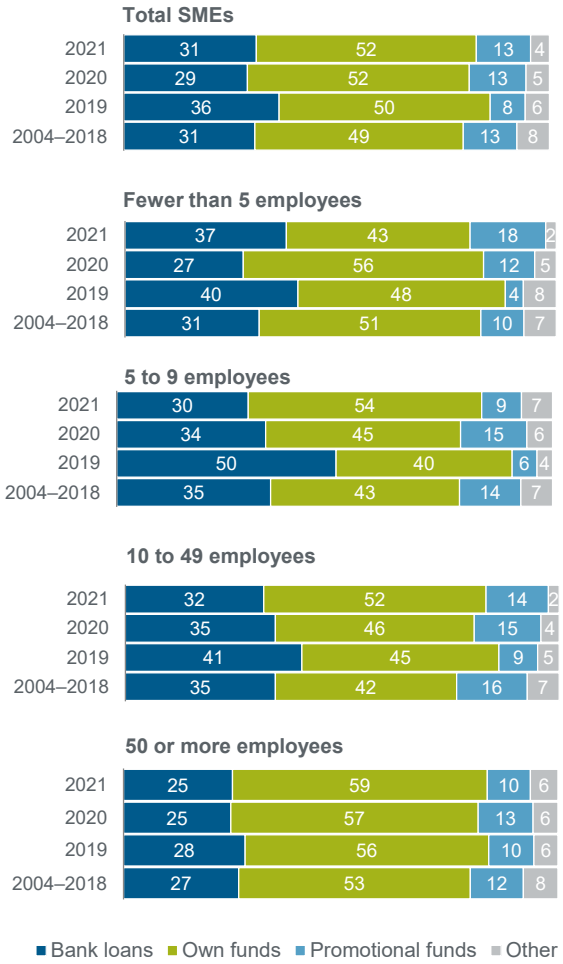
Promotional funds remained sought-after in the second pandemic year, micro-businesses generally relied heavily on borrowed funds

Public promotional funds continued to be a major component of funding for investment projects of SMEs in the second year of the pandemic as well. The share of promotional funds in overall investment volume remained on the relatively high level of 13% (Figure 37). The volume of promotional funds used by SMEs also remained steady on the previous year at EUR 27 billion.

Micro-businesses played a key role here in the year under review. The use of promotional funds in the funding mix now reached 18% (+6 percentage points) after strong growth already in the previous year. They have now reached a level that is nearly twice the long-term average (2004–2020: 10%). Along with the accompanying increase in the share of bank loans (see above), borrowed funds played a larger role in the financing of investments by micro-businesses (55%) in 2021 than ever before.

Figure 37: SME investment finance by size class

Size classes by full-time equivalent employees, shares in investment volume in per cent compared with the average of the years 2004–2018



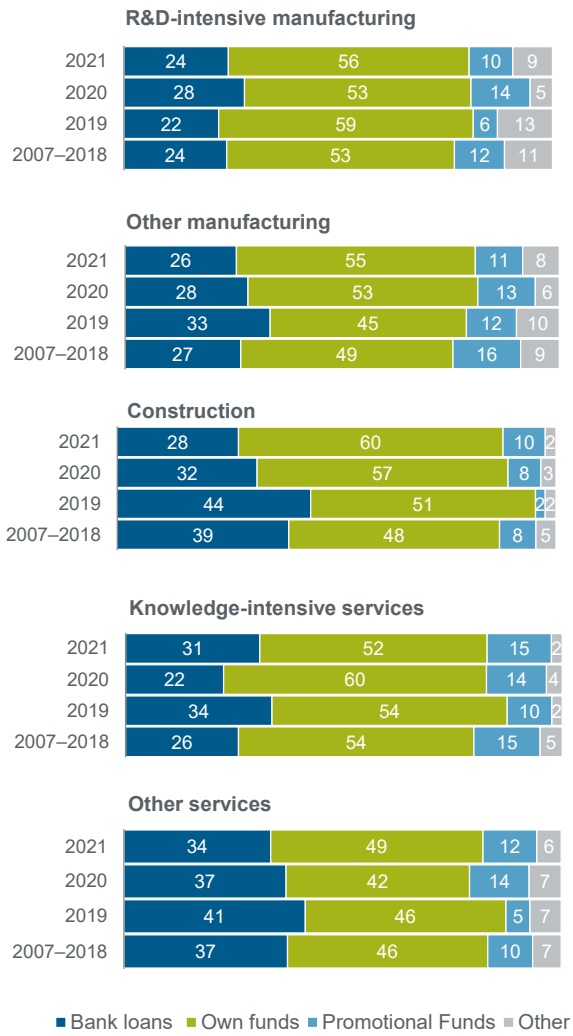
Note: The category 'Other' comprises, among others, mezzanine capital and private equity.

Source: KfW SME Panel.

In the other enterprise size classes, however, promotional funds played a lesser role. All enterprises are below or well below their long-term average as measured by their share in the use of these funds, which fell by -6 points to 9% in businesses with 5 to 9 employees, -1 point to 14% in businesses with 10 to 49 employees and -3 points to 10% in larger SMEs (Figure 37). The same can be observed for both subsegments of manufacturing (Figure 38).

Figure 38: SME investment finance by sector

Percentages of investment volume compared with the average for the years 2007–2018



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

Source: KfW SME Panel.

Other sources (e.g. private equity or mezzanine capital) were used slightly less than in previous years with EUR 9 billion, representing a share of 4% of total financing volume (-1 percentage point, or -EUR 2 billion, on 2020). Currently there is hardly any major movement, although a longer-term downward trend is visible.

Promotional funds and bank loans to finance investments amounted to a combined volume of EUR 94 billion in the year under review. That was an EUR 8 billion increase on the year 2020 resulting from the additional volume of credit alone, amid an unchanged volume of promotional funds.

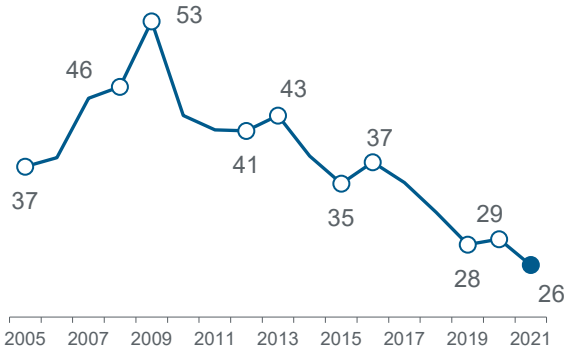
SMEs are still using good equity buffers to fund their operations

Not only did businesses use more bank loans to finance the additional investment volume in 2021; they also employed a higher volume of own resources. The proportion of SMEs' own funds in their investment volume continued on the previous year's level of 52%. However, the volume of own funds increased by EUR 5 billion to EUR 111 billion as a result of the general increase in investment expenditure. Thus, companies continued to use own resources well above the long-term average (EUR 97 billion from 2004 to 2020).

A comparison across size classes reveals an opposite trend to the use of credit. Micro-businesses used fewer own resources to fund their investments than ever before – in both relative and absolute terms. The share of own funds in the funding mix dropped by 13 percentage points to 43%. The volume fell by 5 percentage points to EUR 19 billion. This may be an indication that micro-businesses have recently tended to use their financial reserves to meet short-term liquidity needs and that they decreased as a result. But it is also conceivable that the use of own funds was deliberately reduced because accessing credit was easy (still with very favourable borrowing terms in 2021 – see also Figure 39), or because public promotional funds were more readily available. The very high success rate of micro-businesses in loan negotiations last year at least appears to suggest this.

Figure 39: Annual interest expenses for investment loans in the SME sector

EUR in billions



Source: KfW SME Panel.

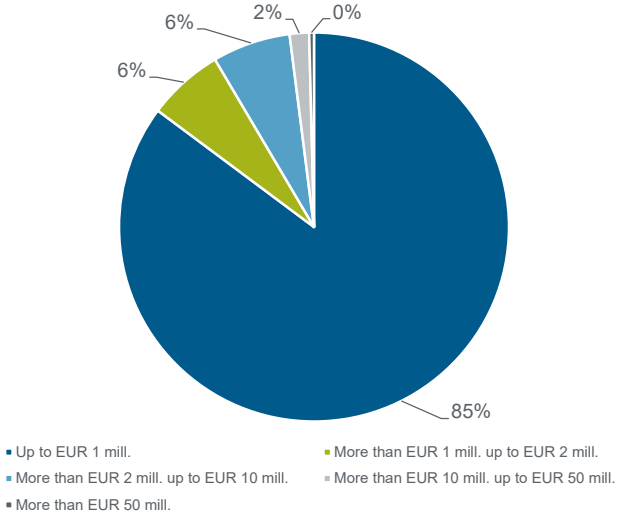
The structure of SMEs in 2021

Under the definition used here, the SME sector covers all enterprises in Germany with an annual turnover of not more than EUR 500 million. That means there were around 3.79 million SMEs in Germany in the year 2021. The SME sector thus accounts for 99.95% of all enterprises in Germany. Around 3.0 million SMEs are domiciled in the western German states (81%), while 689,000 (19%) are domiciled in eastern Germany.

SMEs are very small on average

The vast majority of SMEs in Germany is small (Figure 40). A share of 85% (3.13 million businesses) generate annual sales turnover of less than EUR 1 million. Fewer than 0.3% (or approx. 12,000) SMEs generate annual sales turnover of more than EUR 50 million.

Figure 40: SMEs by annual turnover in 2021

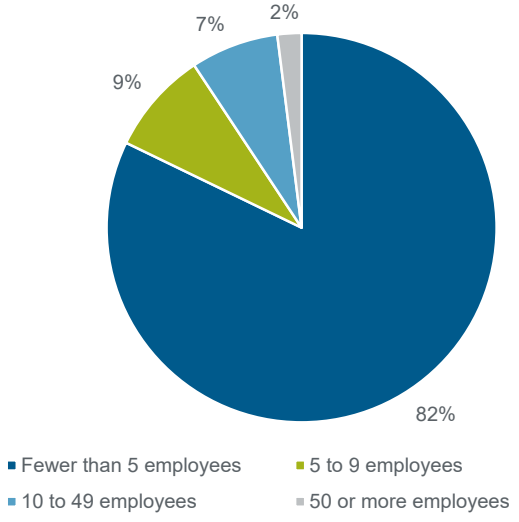


Source: KfW SME Panel 2022.

The fragmented nature of the SME sector is also reflected in employee numbers (Figure 41). Eighty-two per cent of SMEs (micro-businesses, 3 million) have fewer than five employees. That share has grown by more than four percentage points since the turn of the millennium. Nine per cent of SMEs have five to nine employees (small firms), 7% have ten to 49 employees and 2% have a workforce of 50 or more.

In 2021, the average SME size in Germany was 7.5 full-time equivalent employees (median is 2), or roughly 8.5 workers. The SME sector has become more fragmented in the past years, mostly as a result of increasing tertiarisation.

Figure 41: SMEs by number of employees in 2021

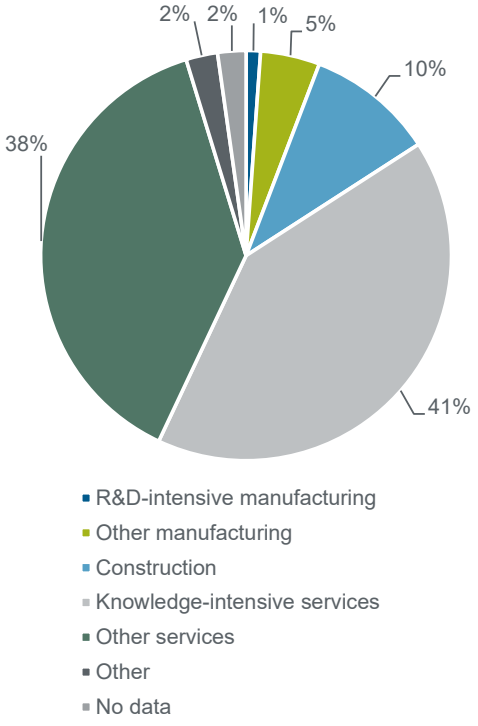


Source: KfW SME Panel 2022.

Growing focus on services

Service industries are increasingly dominating economic activity. The majority of German SMEs are service providers (Figure 42), of which 2.92 million – or 79% of all SMEs – operate in service industries, with 1.5 million of them providing knowledge-intensive services, a trend that continues to rise.

Figure 42: SMEs by industry in 2021



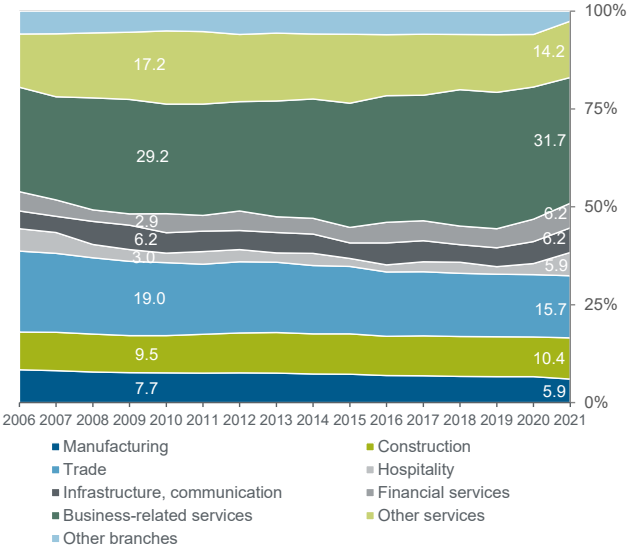
Source: KfW SME Panel 2022.

There are many different causes for the shift towards services. One of them is outsourcing or contracting of what were previously in-company services to third-party companies (for example, IT maintenance, data storage, personnel recruitment, legal affairs and tax matters). These decisions are based on considerations relating to costs, specialisation and division of tasks. Another factor is that structural developments have created an increased demand for services for some time now (driven by demographic change and the growing proportion of small households, for example). Among the knowledge-intensive services, the sub-segment of business-related services accounts for the largest and growing share (Figure 43).

In 2021, around 1.1% of all SMEs were R&D-intensive manufacturers (around 42,000 enterprises). Manufacturing generally accounts for a relatively low share of approx. 5.8% of all small and medium-sized enterprises but employs more than 16% of the entire workforce. On average, they have around 24 employees, a very high number.

Figure 43: Shifts in sectoral structure of SMEs from 2006 to 2021

Sectoral shares in per cent each year



Sources: KfW SME Panel 2007–2022.

SMEs at a glance

In per cent, unless otherwise specified

	2015	2016	2017	2018	2019	2020	2021
Investments							
Total share of investors	43	42	38	42	39	46	38
Share of investors <5 full-time equivalent employees	37	37	32	37	34	40	32
Share of investors ≥ 50 full-time-equivalent employees	87	85	81	85	83	85	83
Total investment volume (EUR in billions)	199	204	211	220	222	204	215
Investment volume <5 FTE employees (EUR in billions)	45	46	51	42	49	44	44
Investment volume ≥50 FTE employees (EUR in billions)	84	83	86	94	91	79	83
Volume of investment in new machinery, equipment and buildings (EUR in billions)	161	169	176	184	187	173	183
Investment finance							
Borrowings to finance investments (EUR billion)	60	61	65	75	81	59	67
Rate of loan denials (in per cent)	20	13	15	11	12	14	12
Net profit ratio[b]							
Average return on sales	7.3	7.3	7.2	7.4	7.5	7.3	7.4
Average return on sales <10 FTE employees	13.8	14.0	14.6	15.0	14.6	14.0	13.8
Average return on sales ≥50 FTE employees	4.5	4.4	4.2	4.2	4.3	4.2	5.1
Proportion of SMEs with losses	8	10	9	9	9	12	8
Equity base[c]							
Average equity ratio	29.7	30.0	31.2	31.2	31.8	30.1	31.4
Average equity ratio <10 FTE employees	20.9	22.5	22.6	22.4	22.2	17.4	23.7
Average equity ratio ≥50 FTE employees	33.4	33.6	33.9	34.8	37.0	36.4	35.0
Proportion of SMEs with negative equity ratio	11	10	8	8	4	4	5
Employment trends[d]							
Total employment growth rate	2.3	2.7	2.7	3.3	1.9	-0.3	1.0
FTE growth rate <5 FTE employees	1.7	2.1	1.6	2.1	2.0	-0.7	-0.4
Development of turnover[d]							
Total turnover growth rate	3.3	3.9	4.7	4.9	3.5	-1.3	6.1
Turnover growth rate <5 FTE employees	2.9	3.6	2.8	6.1	3.9	-3.7	2.5

* 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. Thus far, 20 waves have been completed.

With a database of 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. As it is representative of all SMEs of all sizes and across all industries in Germany, the KfW SME Panel offers the possibility to conduct projections for micro-businesses with fewer than five employees as well. A total of 10,796 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 about companies' performance, investment activity, financing structure and innovation and digitalisation activity. This tool offers a unique opportunity to determine quantitative key figures for SMEs such as investment spending, borrowing 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 2021 and the population of employees at SMEs in 2021, the German Company Register (Unternehmensregister) and the official employment statistics (Erwerbstätigenrechnung) were used as a basis for the 2022 survey.

The KfW SME Panel sample is designed in such a way that it can generate representative and reliable data. 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. Overall, two extrapolation factors are determined: an unlinked factor for extrapolating qualitative parameters to the number of SMEs in Germany, and a linked factor for extrapolating quantitative parameters to the number of employees in SMEs in Germany. Details can be obtained from the Volume of tables relating to the KfW SME Panel (in German).

The survey is conducted by the Financial Services Division of GfK SE on behalf of KfW Group. The project received expert advice from the Centre for European Economic Research (ZEW) in Mannheim. The main survey of the 20th wave was conducted in the period from 10 February 2022 to 17 June 2022.

Supplementary surveys as part of the KfW SME Panel

The analyses undertaken to determine the effect of the coronavirus crisis on SMEs are based on eight supplementary surveys. To this end, the Financial Services Division of GfK SE conducted a representative online survey of small and medium-sized enterprises on the current impacts of the coronavirus crisis on behalf of KfW Group (April 2020, June 2020, September 2020 as well as January 2021, May 2021 September 2021, March 2022 and most recently September 2022). All enterprises that had already participated in an earlier wave of the KfW SME Panel and had provided a valid email address were surveyed. Responses from approx. 2,100 to 3,400 enterprises were evaluated in each of the surveys (most recently approx. 2,600). As the supplementary survey was linked to the main database of the KfW SME Panel, its results provide a representative picture of the current coronavirus impact. The September 2022 survey also included questions on the impact of the war in Ukraine.

Further information can be obtained at **www.kfw-mittelstandspanel.de**.

[1] Destatis (2022), Gross domestic product: detailed economic performance results for the 2nd quarter of 2022, Press release No. 357 of 25 August 2022. https://www.destatis.de/EN/Press/2022/08/PE22_357_811.html.

[2] Details on the surveys can be obtained from the box on methodology at the end of the current article. Data from eight supplementary surveys are now available. General findings on previous supplementary coronavirus surveys can be found here: Schwartz, M., and Gerstenberger, J., (2020), SMEs are firmly in the grip of the coronavirus crisis but (still) holding on strong, Focus on Economics No. 286, KfW Research. – Schwartz, M., and Gerstenberger, J., (2020), Coronavirus crisis in Germany's SMEs: Return to full economic activity still far off, but gradual opening has eased pressure on liquidity, Focus on Economics No. 294, KfW Research. – Gerstenberger, J. and Schwartz, M. (2020), KfW SME Panel 2020: Coronavirus pandemic has dampened expectations for 2020 – SMEs entered the crisis from a strong position, KfW Research. Gerstenberger, J. and Schwartz, M. (2021), Zwar belastet die Corona-Krise den Mittelstand auch zu Jahresbeginn, allerdings bleibt die Lage trotz des Lockdowns stabil (*The coronavirus crisis is weighing on SMEs at the start of the year too, but the situation is steady despite the lockdown* – German only), Focus on Economics No. 315, KfW Research. – Gerstenberger J. (2021), Licht am Ende des Tunnels – die Lage im Mittelstand entspannt sich (*Light at the end of the tunnel – the situation in the SME sector is improving* – German only), Focus on Economics No. 333, KfW Research. – Schwartz, M. (2022), Corona-Betroffenheit im Mittelstand nimmt wieder zu: Personalausfälle häufen sich, aber finanzielle Lage intakt (*Coronavirus impact on SMEs is worsening again, but financial situation is intact* – German only), Focus on Economics No. 374, KfW Research.

[3] Abel-Koch, J. (2022), Der Ukraine-Konflikt birgt Risiken - auch für den deutschen Mittelstand (*The Ukraine conflict harbours risks - also for German SMEs* – German only), Economics in Brief No. 220, KfW Research.

[4] Schwartz, M., Abel-Koch, J. and Brüggemann, A. (2022): Hohe Energiekosten durch den Krieg in der Ukraine – in der Breite des Mittelstands (noch) tragbar (*High energy costs as a result of the war in Ukraine – (still) bearable for most SMEs* – German only), Focus on Economics No. 403, KfW Research.

[5] Schwartz, M., Abel-Koch, J. and Brüggemann, A. (2022), loc cit.

[6] For details see the results of two supplementary surveys in the KfW SME Panel on the topic of energy costs and energy efficiency: Schwartz, M. and Brüggemann, A. (2018), As energy prices fall, SMEs have lower costs – and increased efforts for energy efficiency and energy cost savings, Focus on Economics No. 223, KfW Research. --- Schwartz, M. and Braun, M. (2013), Energy costs and energy efficiency in the SME sector, Focus on Economics No. 40, KfW Research.

[7] Schwartz, M., Abel-Koch, J. and Brüggemann, A. (2022): Hohe Energiekosten durch den Krieg in der Ukraine – in der Breite des Mittelstands (noch) tragbar (*High energy costs as a result of the war in Ukraine – (still) bearable for most SMEs* – German only), Focus on Economics No. 403, KfW Research.

[8] The reverse is true. Based on data current as at mid-2022 (Federal Statistical Office, Fachserie 2, Series 5, 03/2022, as at 11 May 2022 and Fachserie 2, Series 4.1, 03/2022, as at 13 June 2022), significantly fewer business were closed during the pandemic than before. There are different reasons for this. What was decisive were the comprehensive economic policy support packages that have contributed to warding off a number of potential insolvencies and financially stabilising the business sector in general. Another factor was the temporary and partial moratorium on the requirement to file for insolvency that was brought into effect for businesses experiencing difficulties as a result of the pandemic. However, that requirement has been in force again in full since May 2021. Furthermore, many businesses made swift changes to their business models (shifting to digital sales, in particular), which proved to be a lifesaver. Consumption shifts ultimately allowed some segments to benefit from the crisis (food retailers, drugstores, online shops, delivery services, logistics services, the pharmaceutical industry and software companies). See also Schwartz, M. and Leifels, A. (2022), Geschäftsaufgaben im Mittelstand: Nachfolgermangel, Rentenalter und geringe wirtschaftliche Attraktivität entscheiden (*SME business closures: mostly due to lack of successors, retirement age and low economic activity* – German only), Focus on Economics No. 393, KfW Research.

[9] Schwartz, M. (2022), Corona-Betroffenheit im Mittelstand nimmt wieder zu: Personalausfälle häufen sich, aber finanzielle Lage intakt (*Coronavirus impact on SMEs is worsening again, but financial situation is intact* – German only), Focus on Economics No. 374, KfW Research.

[10] It should be kept in mind that the year 2020 saw not just 'crisis losers'. Shifts in consumption meant that some SME segments were also able to benefit from the crisis. The primary beneficiaries were food retailers, drugstores, online shops, delivery services, logistics services, the pharmaceutical industry as well as online services and software companies. That also contributed to limiting aggregate turnover losses.

[11] Research- and development-intensive (R&D intensive) manufacturing is defined as those manufacturing subsectors 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.

[12] The subsegment of other manufacturing (non-R&D-intensive manufacturing) is mainly represented by enterprises operating in the food industry, wood processing and the manufacture of metal products, as well as other manufacturing not further specified.

[13] Knowledge-intensive services comprise service subsectors 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)'.

[14] According to the definition of the German Federal Statistical Office, e-commerce is the buying and selling of products and services through electronic networks, especially via the internet or an EDI (electronic data interchange between computer systems of different enterprises). In order to count as e-commerce, the activity must involve ordering products or services using these electronic networks. Payment and delivery can be made using conventional means. A large portion of e-commerce consists of automated transmission and further handling of recurring and easily predictable orders as part of business processes between enterprises.

[15] Schwartz, M. (2021): Warum Unternehmen (nicht) investieren (*Why businesses are (not) investing* – German only), Focus on Economics No. 357, KfW Research. Gerstenberger, J. and Schwartz, M. (2014), Unsicherheit kostet mittelständische Investitionen: Sichere Rahmenbedingungen nötig (*Uncertainty hampers SMEs' investment, a secure framework is necessary* – German only), Focus on Economics No. 66, KfW Economic Research.

[16] 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.

[17] The employment growth rate described here was determined on the basis of full-time equivalents (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 a factor of 0.5. Apprentices are not included.

[18] The equity ratio is defined as the quotient of equity and 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.

[19] Gerstenberger J. (2018), Hohe Eigenkapitalquoten im Mittelstand: KMU schätzen ihre Unabhängigkeit (High equity ratios: SMEs value their independence – German only), Focus on Economics No. 206, KfW Research.

[20] In the past 15 years the relative importance of service enterprises for SMEs' investment activity has grown by nearly one third. This also reflects the general transformation of the business landscape towards services. There are multiple reasons for this development. One of them is that businesses have been outsourcing or contracting what were previously in-company services to third-party companies. These decisions are based on considerations relating to costs, specialisation and division of tasks. Another factor is that structural developments have created increased demand for services for some time now (driven by demographic change and the growing proportion of small households, among other factors).

[21] Schwartz, M.; Borger, K.; Brüggemann, A., Gerstenberger, J., Köhler-Geib, F. and Zimmermann, V. (2020), SMEs between financial resilience and a digital and green investment surge – a trade-off that should not be, Focus on Economics No. 306, KfW Research.

[22] For details on the impact of the coronavirus crisis on investment activity of SMEs in Germany see: Schwartz, M.; Borger, K.; Brüggemann, A., Gerstenberger, J., Köhler-Geib, F. and Zimmermann, V. (2020), SMEs between financial resilience and a digital and green investment surge – a trade-off that should not be, Focus on Economics No. 306, KfW Research.

[23] For more details on this, see Schwartz, M. (2021): Warum Unternehmen (nicht) investieren (*Why businesses are (not) investing* – German only), Focus on Economics No. 357, KfW Research.

[24] Gross fixed capital formation in the business sector comprises private sector investment in machinery and equipment plus construction (without residential construction).

[25] Aggregate business investment in Germany has already been on a downward trend for quite some time now. In the 1990s, businesses on average still invested 13.9% of gross domestic product (GDP) in equipment, industrial buildings and other facilities. The investment ratio in the 2000s then fell to 12.6% before dropping to an average 12.2% in the 2010s. The peak that preceded the financial crisis (2008: 13.1%) was never matched again despite an uninterrupted ten-year growth phase from the year 2010. See Schwartz, M.; Borger, K.; Brüggemann, A., Gerstenberger, J., Köhler-Geib, F. and Zimmermann, V. (2020), SMEs between financial resilience and a digital and green investment surge – a trade-off that should not be, Focus on Economics No. 306, KfW Research.

[26] 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 business 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.

[27] In order to determine the absolute volumes of net investment overall in both the SME and overall business sector in Germany, KfW SME Panel data were coupled with investment data provided by the Federal Statistical Office on the entire business sector. The investment and depreciation volume in the SME sector is surveyed in the context of the KfW SME Panel. Total business investment is calculated by adjusting gross fixed capital formation for investment by the state and in residential construction. Depreciation in the business 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 business sector.

[28] Schwartz, M. (2017), KfW SME Panel 2017: Germany's SMEs continue to break records– sectoral transformation poses new challenges, KfW Research.