

MITTELSTANDSMONITOR 2009

GERMAN ECONOMY IN A RECESSION –
SEVERE DOWNTURN ALSO IN SME SECTOR

Annual report on cyclical and structural issues relating to
small and medium-sized enterprises – Executive summary

Published by

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Frankfurt am Main, March 2009

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Summary

Chapter 1: The Economic Situation of Small and Medium-sized Enterprises

SMEs in a recession, but large companies hit even worse

In light of the financial crisis which has increased the global economic slump, the average business climate of small and medium-sized enterprises has deteriorated in 2008 - on average as well as particularly rapidly and extremely during the course of the year. For the year as a whole, the climate indicator listed only slightly above its historic mean after reaching a new all-time high in 2007. Similar drops had so far only been registered in the years 1992 and 2001, which were followed by a year of recession or a multiannual phase of economic stagnation respectively. The downswing in climate was even more apparent during the course of the year, however. Especially from the middle of the year onwards the climate worsened at a rate and to an extent that had never been seen since the start of the indicator series. By the final quarter of 2008 the business climate already reached a level indicating a recession: While the evaluation of the current situation was comparable to the long-term mean, business expectations severely deteriorated to a new all-time low. To the present day, the expectations indicator has never remained so far behind the current situation indicator – despite a drastic downwards adjustment of the current state evaluation as reference value for forming expectations. This is a strong indication of how deep and fundamental the recession fears are that small and medium-sized enterprises attach to the financial crisis and the global economic downturn.

The way SMEs regard their order and sales situation also confirms the economic slump which occurred in 2008 and which - amid the extreme pessimistic sales expectations - will turn into a recession this year. Alike the business climate, the differences between West- and East Germany were hereby insignificant. Throughout the five main economic sectors, negative business climate values and pessimistic sales expectations could be observed. The most stable industry at the turn of the year was the building and construction sector which led in the intra-industrial comparison of SMEs for the first time since 1999. Service providers even reported a slightly better economic situation than the wholesale and retail trade as well as the manufacturing sector. However, at the end of 2008, even they regarded their prospects for 2009 as pessimistically as the other two sectors of trade, yet not quite as bleak as the small and medium-sized manufacturing sector. After the historic climate drop in the last year, the long-standing market leader fell to the bottom of all economic sectors. Like no other industry the manufacturing sector suffers from the worldwide recession which mutually intensifies itself as a result of the simultaneous weakness of all globally relevant industrial and emerging nations. There is merely one segment which is currently hit even worse than the industrialist

small and medium-sized manufacturers: The internationally operating big industry. The business climate of these big industrial enterprises has deteriorated much more rapidly and drastically than the one of SMEs. This has led to a situation where the latter group makes more favourable economic assessments during the course of the year, thereby changing the order of the indicator. As in 2006 and 2007 the yearly average of business climate assessments hardly showed any noticeable differences between enterprise size groups. Yet, in the final quarter of 2008, SMEs rated their business climate not quite as bad as big enterprises, with a difference of about seven points. The last time the margin was so high was at the end of the recession-year 1993. Big enterprises viewed their current dealings and especially their prospects for the first half of 2009 a lot more negatively than the already very pessimistic small and medium-sized businesses.

In light of the negative growth in earnings as well as the continuously very weak sales and profit expectations, the willingness of SMEs to invest has decreased for the first time since five years of continuous increase. At the end of 2008, about 44 % of SMEs indicated investment plans in the first half-year of 2009. However, with a minus of about six percentage points the decline still remained relatively small. This may suggest that even in a recession most SMEs are unwilling to let their production facilities become obsolete but rather aim at making their enterprise panic-proof by investing in substitutes and rationalization. Pointing in the same direction are the employment trend and the employment plans. Similar to the intended investments, the decrease in employment plans were far less severe than those of the general expectation indicators. It seems that many firms are anxious to maintain scarcely available specialists in order to be prepared for the next boom.

As a result of the simultaneous downturn of virtually all foreign trade partner countries and the financial crisis which has yet to be overcome, a strong recession – with a distinctly increasing underutilisation of production capacities during the course of the year – is unavoidable in Germany in 2009. Current prognoses estimate that the real GDP will decline by about 4 % this year. However, the downturn would be even more severe without the stimulating effect of fiscal measures on the economy. All institutes participating in the MittelstandsMonitor expect the real growth to hit a new all-time low since the introduction of the German federal national accounts system in 1950, which will also be reflected in a very negative business climate for small and medium-sized enterprises in 2009.

Chapter 2: Business Turnover – Current Trends in the Start-up and Liquidation Activity

Since the year 2005 the number of start-ups in Germany is diminishing. Preliminary calculations on the basis of the IfM Start-up Statistic and the KfW Start-up Monitor indicate an even lower intensity of start-ups (Number of start-ups per 10.000 employable persons) for 2008.

The regressive trend of recent years is strongly correlated with the very good economic situation experienced till halfway through 2008. Along with it came a growing number of dependent employment relationships and a reduction of unemployment, which, looked at separately, reduced the number of start ups induced by the push-effect of unemployment. The improved employment and career opportunities for dependent employees contributed to the decision of several potential founders to not become self-employed but rather pursue the status of an employee. Even though the strong economic situation and the high demand for goods and services encouraged people interested in start-ups to put their plan into practice, this economic pull-effect was inferior to the dampening effect of the past few years.

Since mid-2008 the economy finds itself in an increasing downward trend. At the turn of the year the crisis also reached the labour market. The diminishing start-up intensity in the year 2008 as a whole does not suggest any trend reversal at the moment, and thus no reduced start-up activity. A differentiation between start-ups on a regular and a sideline basis made in the KfW Start-up Monitor indicates, however, that the push- and pull-factors in the year 2008 affected potential founders in different ways. The number of start-ups on a sideline basis dwindled further, whereas the number of start-ups on a regular basis stabilised itself in East- as well as West Germany. Particularly founders with substantial, long-term projects realised their intended start-up in 2008. Yet, the number of start-ups escaping unemployment and using promotional programs of the Federal Employment Office decreased again.

With exception of the industrial sector, all main branches showed a regressive trend of start-ups; particularly affected were the trade, building and construction businesses, as well as the East German service sector. In the small, but economically very important industries of technology-intensive manufacturing and technology-oriented services, the start-up intensity remained rather robust. Especially start-ups in the category of high-quality technology, which often function as technology supplier for the whole manufacturing industry, have profited from the export driven upturn in recent years. By contrast, the number of start-ups in advanced technology branches – sectors like Hardware, for instance – continued their decline of previous years in 2007.

Another aspect that is closely connected with the economic situation is the number of enterprises shutting down. Like the liquidation rate, the rate of insolvency has been decreasing regularly in the past few years of economic boom. For the year 2008 as a whole, no reversal of this trend can be seen. The number of liquidations has further decreased and the amount

of insolvencies has yet to show any noticeable increase. Thus, in the yearly average of 2008, the effect of the economic downturn on the shutdowns of enterprises is yet to be seen.

In the years up to 2007, the number of liquidations usually turned out to be lower than the number of start-ups. However, both values have about the same order of magnitude and the balance of start-ups and liquidations has been regressive for a few years. These numbers show that the majority of newly introduced enterprises merely replace pre-existing ones. The IfM Bonn estimates that the surplus in start-ups in the year 2008 will turn out to be negative for the first time since many years.

In the year 2009, the financial and economic crisis will presumably have noticeable effects on start-ups. Especially start-ups by previously unemployed people are to be expected. Moreover, the number of liquidations as well as the amount of insolvencies is likely to rise.

Chapter 3: Microfinancing Business Start-ups

According to EU definitions the term microfinancing relates to commercial funding with a volume of up to 25.000 EUR. On the basis of the KfW Start-up Monitor, which provides representative data for business start-ups in Germany, chapter 3 examines the market for microfinancings which can be ascribed to domestic business start-ups. The microfinancing market induced by business start-ups definitely has economic relevance for Germany. For example, in the year 2007 approximately 200.000 business founders have borrowed less than 25.000 EUR of (external) financing resources. This corresponds to an overall budget of close to 1 bn. EUR. The total volume of the German microfinancing market, which includes small and medium-sized enterprises next to small-scale financings for start-ups, equals about 6 bn. EUR, distributed over approximately 670.000 financed enterprises.

The empirical results show that founders often encounter increased obstacles or high costs (of capital) when trying to acquire funds from external investors. Due to their “new start”, founders have particular difficulties proving the quality of their intended business project as well as their personal reliability as a contractual partner to their (potential) financiers (problem of asymmetric information). Financing problems as a result of asymmetric information reveal themselves in the empirical results when looking at the fact that, e.g. about three fourths of all founders (have to) finance their intended project by exclusively drawing on their own resources. Since the identity of capital provider and seeker are identical, no attrition losses due to information differences occur hereby.

A further central problem of financing start-ups arises because founders usually require small-scale single credits. Low financing amounts represent a disadvantageous cost-benefit ratio in the eyes of an investor. This makes it more complicated for founders to acquire financing resources from providers of capital like banks or venture capital firms. The empirical results confirm that founders in Germany, who require small-scale funds of up to 25.000 EUR and thereby fall into the category of “microfinancing customers”, encounter greater difficulties when using external financing resources such as, e.g., bank credits.

Within multivariate data analyses, it also becomes apparent that the mentioned problematic issues of financing business start-ups – asymmetric information and small lot sizes – are strongly interwoven. For instance, previously unemployed founders, who frequently have to encounter increased financing difficulties as a result of asymmetric information, also have a higher-than-average funding requirement in the realm of microfinancing.

These results lead to the conclusion that support programs to improve the financing situation of business start-ups should focus on the financing restraints immanent to start-ups: on the problem of asymmetric information, as well as on the one concerning the cost-benefit ratio. Since the majority of business founders requiring external resources falls into the microfinancing segment (with a share of 86 %), programs with a focus on small-scale commitments

– and in this respect “microfinancing programs” – represent a significant aspect of start-up promotion.

Finally, this report examines in how far start-up projects of microfinancing customers differ from start-ups using greater financial means in respect to start-up survival within the first three years. Hereby the results of a descriptive analysis show that start-up projects using microcredits are abandoned disproportionately early. However, within multivariate analyses it turns out that the (external) funding requirement is not the only decisive factor with respect to the start-up survival. Proving to be relatively robust are in particular start-ups in the commercial sector, those with high human capital intensity as well as those with good prospects (no “last-resort-start-ups”). Serving as a tool to achieve an improved persistence and thereby a greater sustainability of start-ups are not only financial support programs, but also the education and preparation of the founders – irrespective of their funding requirement.

Chapter 4: The Dynamics of Small and Medium-sized Enterprises' Innovation Behaviour

The share of enterprises conducting research and development (R&D) and generating innovations in the form of new products and processes have moved in opposite directions during the last 10 years in Germany. Judging by the current trend, the percentage of enterprises with continuous R&D activities has increased moderately, while the fraction of innovators is declining. The innovative activities of small and medium-sized enterprises as a whole have developed not as well as those of big enterprises.

Such a macroeconomic examination does not reveal anything about the composition of the group of enterprises conducting R&D and innovation activities, however, nor does it about the dynamics of innovation behaviour on the enterprise level. The analyses of SMEs indicate that the composition of enterprises involved in innovative activities changes over time because the innovation behaviour of enterprises also changes during the course of their development. Thus, it can be shown that the share of enterprises conducting R&D in the R&D-intensive industries of the manufacturing industry tends to decrease with growing enterprise age. The same is valid for the percentage of enterprises that create innovations; especially when they concern products new to the market. For the whole manufacturing industry the share of SMEs creating innovations without continuously investing in R&D increases with growing enterprise age, however, i.e. the importance of technologically less significant innovations rises.

A panel study of the innovation behaviour on the enterprise level reveals that businesses often stick to their original decision concerning R&D investments in the following years. This, however, is more valid for enterprises beginning without R&D than for businesses beginning with R&D. The older an enterprise is, the less likely a belated participation in R&D activities becomes. This is further evidence that R&D activities decrease as an enterprise gets older. It also turns out that R&D activities and innovations are generally positively related. Yet, when enterprises create innovations without conducting R&D, they are less likely to invest in R&D activities in the future. It can be said therefore, that businesses which once moved in the direction of less sophisticated innovation activities, rarely feel the urge to (re-) invest in R&D.

There are various reasons why R&D activities and R&D-based innovations decrease with increased enterprise age. On the one hand there is a positive relationship between the age of an enterprise and the sector in which it is operating. While innovative older enterprises usually act in already established branches and fields of technology and further the development of products and processes in this segment, young technology companies are particularly involved in new fields of technology and in the early stages of the implementation of scientific findings for the development of new products and processes – hereby representing an important driving force behind the technological change. Consequently young innovative enterprises develop new products and basic innovations more frequently, whereas estab-

lished businesses will often refine pre-existing technologies according to specific customer needs. These innovations are usually of incremental nature and are rarely based on individual R&D but rather on knowledge assimilated over many years of production experience. On the other hand, enterprises that have successfully completed an innovation process regularly tend to reduce their R&D activities in favour of production or marketing activities in order to enhance the commercialisation of the developed technology or product. Moreover, they aim to avoid the repeated introduction of innovations as this might lead to self-inflicted new competition and to lower current incomes from earlier innovations.

All in all, this analysis illustrates the importance of technology-oriented start-ups for the competitiveness of the German economy. On the one hand, they further the technological progress with their distinct innovative efforts. On the other hand, they are the most likely group to still be conducting R&D at an advanced business age. Thus, many start-ups in the technology-oriented branches do not only lead to a structural change, but also to a self-sustaining stock of established enterprises whose innovations are based on R&D and thereby are of relatively high quality. These enterprises make an important contribution to the technological modification and to the preservation of the competitiveness of an economy. Consequently future policies regarding innovations should not only focus on technology-oriented start-ups, but also on possibilities of creating support programs for established small and medium-sized enterprises, so that they can continue using their R&D resources and maintain their level of innovation.

Chapter 5: Patent Activities of Small and Medium-sized Enterprises

The importance of innovations and the development of new technologies for the long-term competitiveness of an economy are pretty much beyond dispute. The fields of technology which are essential for this and the role that small and medium-sized enterprises (SME) play in this context remain much less clear however. For the empirical analysis of this question it is sensible to look at patent data, since they reveal the identity of the participating enterprises and allow an analysis of inter-industrial fields of technology. In light of this, the here present article begins by examining the general particularities of patent activities and -strategies of SMEs. In a second step, the innovation activities of SMEs in two chosen fields of technology will be analysed on the basis of patent data. The fields of interest are two branches which people usually associate with entirely different perceptions: The textile- and the nano-technology.

About 20 % of all registered patents in Germany originate from SMEs. This rather small percentage, compared to the turnover- or employment rate of SMEs, has two reasons: On the one hand, this is the result of the fact that only a small share of SMEs actively conducts research activities. On the other hand SMEs and big enterprises put a different emphasis on securing their intellectual property rights. As it turns out, SMEs are more likely than big enterprises to try and keep their invention a secret from others, to conceal it, instead of protecting it by having it patented. Frequently mentioned explanations for this strategy are the difficulties and high costs involved in patenting and in the enforcement of private property rights. Nevertheless, there are many SMEs that produce innovations regularly and that are leaders in their specific technology, and whose inventions are protected by patents domestically as well as abroad.

Policies concerning technology in Germany as well as in various other industrial nations have pinned their hopes on increased developments in the high-tech sector and thus have supported this branch extensively since the 1980's. An example for this is the nanotechnology, which is supported by public funds of a few 100 million EUR. The patent analysis for this sector illustrates that these impulses were accompanied by an increased patent activity, especially from SMEs. After being dominated by big enterprises at first, the share of patents by SMEs in this new research field has noticeably increased since the 1990's – particularly as a result of the driving force of newly founded technology firms. Innovations by SMEs turned out to put their main emphasis on the development of devices and sensors which were needed for the production and manufacturing of nano-scaled structures.

Yet, even enterprises of the textile industry could open up new and innovative fields of technology, e.g. technical textiles. Hereby textile structures and materials from different branches are used for different products. That's why technical textiles are utilized in various high-tech applications, among others in automobile engineering, in the building industry and in medical technology. In the sectors of textile engineering and textile chemistry, which are dominated

by big enterprises, a decrease of innovation activities can be observed since many years. However, the development of new applications for technical textiles recently led to a noticeable rise in the number of patents in the textile industry. Parallel to the absolute increase of registered patents in the technical textile industry, the share of SMEs also rose. Evidently, particularly SMEs succeed in opening new markets with innovative products and to hold onto or regain their international competitiveness.

The central message of this analysis for politicians is that new technologies can also be developed in non-high-tech sectors such as the traditional economic sectors. Lasting impulses for growth and employment do not only emanate from newly founded high tech enterprises, but also occur when already established enterprises open up new markets via innovations. In order to obtain starting points for the assistance of technological developments, it is therefore also necessary to include "old" branches in one's consideration. Especially in Germany, which has internationally competitive SMEs in numerous non-high-tech sectors of the manufacturing industry, it seems economically sensible for policies concerning technological development to head in such a direction.