4.9 Return on Sales and Profit Situation in the Manufacturing Industry

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4.9.1 Objective

The development of the return on sales is an important indicator for the economic performance of an industry. As it represents the proportion of profit generated from sales, it is a key decision-making parameter for investors and credit institutions, especially when it comes to providing debt capital. The average return on sales of an industry also plays an important role for politics, e.g., for the allocation of subsidies. However, structural data from official statistics on the return of sales is available only after a considerable amount of time. For example, the annual cost structure survey in the German manufacturing industry is published by the German Federal Statistical Office one and a half years after the end of a reporting year. Due to this temporal lag, it is difficult to draw conclusions about the current economic situation. The ifo indicators on the return on sales and the profit situation close this gap by providing up-to-date information for the manufacturing industry. The ifo Business Survey in the manufacturing industry surveys the participating companies twice a year on this topic. The aggregated results of the qualitative question about the profit situation show the development of the earnings situation of an industry (Ebnet 2015). Moreover, the quantitative information provided by the question on return on sales allows for even more precise estimates.

4.9.2 Survey Questions

The questions on the return on sales and profit situation are asked in the ifo Business Survey in the manufacturing industry in May and September every year. The first question concerns the net profit or net loss after taxes as a share of the net sales. In contrast to most questions in the ifo Business Survey, this is a quantitative question. This means that the survey participants are asked for concrete numerical information on their return on sales. The question also relates to the whole company and not – as usual – only to the relevant product area of the company. Furthermore, it differs from other questions in terms of the time scope because it changes between the two survey months: In May, the respondents are asked for an ex-post assessment of the previous year and in September ex-ante for the current year.

Moreover, the current profit situation is surveyed by qualitative questions: The survey participants indicate trends for their current profit situation and ex-post for the development compared to the situation approximately six months in the past. This is compared either in May: to autumn of the previous year, or in September: to spring of the current year. The exact wording of the questions - for example in 2022 - is as follows:

The **return on sales** of our company (profit or loss after taxes in % of the net sales) was 2021/ is forecasted for 2022[10]

a) in case of **profit**:

- up to 1%

- more than 1 to 2%

- more than 2 to 3%

- more than 3 to 4%

- more than 4% and that is approx. _____%

b) in case of **loss**:

- 0 to -1%

- less than -1 to -2%

- less than -2 to -3%

- less than -3 to -4%

- less than -4% and that is approx. _____%

Profit situation (as measured by the operating result from ordinary business activities):

a) We **currently** assess the **profit situation** of our company as

- well

- satisfactory

- bad

b) Our **profit situation** compared to **autumn 2021/first quarter 2022** has

- improved

- not altered

- worsened

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[10] or in the financial year which falls mainly in 2021/2022.

In May, ex-post information is requested, which is usually determined using the companies' provisional annual accounts. In September, however, an ex-ante estimate of the return on sales of the current year is examined. This suggests that May's figures tend to be more precise than September's. A comparison of the results shows that returns on sales are usually higher in May than in September, because ex-ante the survey participants tend to estimate their return on sales lower - in accordance with the principle of commercial caution (Seitz and Wohlrabe 2021).

4.9.3 Calculation of the Results

4.9.3.1 Return on Sales

The return on sales is calculated based on a multi-stage procedure. Before the analysis, the micro data has to be prepared. It is necessary to combine the response options "in case of profit" and "in case of loss", which are recorded separately in the micro data set. Furthermore, the response options are designed differently: For losses as well as profits, the first four response options are margins, whereas the last one asks for an approximated numerical value. In the micro data set, all options are combined into one variable.

Subsequently, the actual distribution of the panel, which is divided by economic branches and size classes, is examined. The relative distribution of the size classes within a branch is then corrected according to the target value. Since this adjustment also affects the distribution between the economic branches, the next step is to analyze the corrected actual distribution by branch and adjust it according to its importance. The distribution of the turnover published by the Federal Statistical Office is usually used as a benchmark for the target distribution. However, other variables such as gross value added or the number of employed persons can also be used. Because the branches differ considerably in some cases, it is difficult to generalize. Thus, an individual solution is preferable. The differentiation according to size classes and economic sectors is important since the achieved returns on sales can vary considerably depending on size class and economic sector.

After the weighting procedure, the answers are adjusted for outliers. Typically, between two and six answers are excluded at the top and bottom end of the scale. It is important to ensure that the cleanup is performed in parallel, i.e., that the same number of responses is deleted at both extremes. Finally, the return on sales is condensed as a weighted arithmetic average. Normally, the return on sales is separately broken down by economic sector and size class. It is also quantitatively and categorically analyzed. Furthermore, it is calculated in relation to the profit situation and to the fact that companies made profits or losses.

4.9.3.2 Profit Situation

As the questions on the current profit situation and its development in the last six months are qualitative, the standard aggregation and weighting methodology of the ifo Business Survey

(Section 2.2) can be used. The results show the balance between the shares of the positive and negative answer categories.

4.9.4 Return on Sales and Profit Situation between 2008 and 2021

For an analysis of the results, the period from 2008 to 2021 is considered, as this allows two crises to be compared: the financial crisis and the Covid-19 pandemic. The following sectors of the German industry are analyzed in more detail: manufacturing of chemicals and chemical products, manufacturing of electrical equipment, manufacturing of machinery and equipment, and manufacturing of motor vehicles.

4.9.4.1 Return on Sales

Table 4.8 shows the descriptive statistics for the ex-post and ex-ante questions about return on sales for the years 2019 to 2021. The minimum, maximum, mean, standard deviation, and most frequent value (mode) are listed for each point of time. It can be seen that the minimum and maximum values of the return on sales have grown apart since the 2020 pandemic. In the surveys of May 2019, September 2019, and May 2020, the range was around 65 to 80. Afterwards, these values ranged from 95 to 160. The mean value decreased substantially from September 2020, increased sharply in May 2021, and exzceeded the pre-crisis level in September 2021. The standard deviation had a significantly higher level in the last four surveys. Furthermore, a difference can be observed between the ex-ante and ex-post values. This could be due to the cautious estimation carried out in advance (ex-ante) in accordance with the principle of commercial caution. In May, the preliminary financial statements could be used, and as a result these data could be more precise. The most frequently mentioned value was 4% until September 2020. When looking ex-ante at 2020, the most frequently cited figure was only 1%. This shows the big impact of the Covid-19 crisis.

Table 4.8: Net return on sales: descriptive statistics

Survey date	Min	Max	Mean	Standard deviation	Mode
May 2019: 2018 ex-post	-40	30	3,5	4,8	4
Sep 2019: 2019 ex-ante	-30	35	2,9	4,5	4
May 2020: 2019 ex-post	-50	30	3,0	5,6	4
Sep 2020: 2020 ex-ante	-70	25	0,9	6,4	1
May 2021: 2020 ex-post	-99	51	2,4	8,2	4
Sep 2021: 2021 ex-ante	-60	100	3,1	6,1	4

Figure 4.25: Weighted return on sales

Source: ifo Business Survey.   © ifo Institute
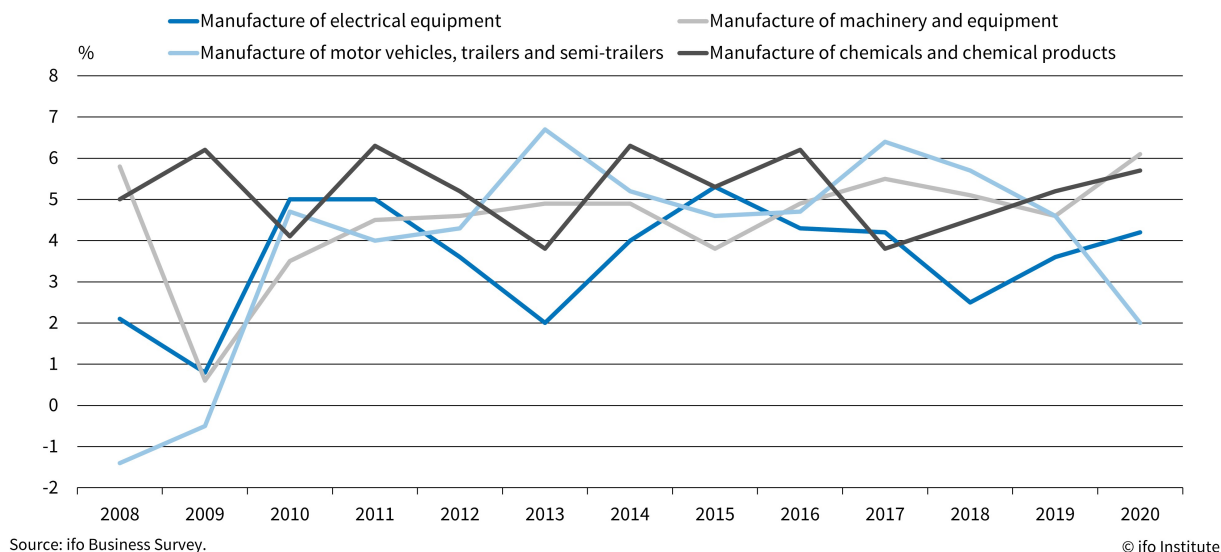
4.9.4.2 Profit Situation

Figure 4.26 visualizes the balance values of the weighted company responses. The balance values for the individual sectors and for the manufacturing sector show a broadly similar pattern, with a dip in May 2009 and 2020. The dip in May 2009 resulted from the global financial crisis, while the other was caused by the pandemic. In both crises, the manufacturers of motor vehicles, trailers, and semi-trailers suffered the most. When comparing the two crises, it is noticeable that in 2009 more respondents (in balance) across all industries spoke of a poor profit situation - except for the manufacturers of motor vehicles, trailers, and semi-trailers. The widest range (from -81.5 to 45.6 balance points) was recorded by manufacturers of motor vehicles, trailers, and semi-trailers. From September 2020 to May 2021, the balance values rose consistently in all sectors. In September 2021, they decreased again across all sectors except for the manufacturers of machinery and equipment.

The development of the profit situation was very similar across the sectors (Figure 4.27). In May 2009 and May 2020, the profit situation deteriorated in many branches compared to previous results because of the prevailing economic crisis. Compared to the previous six-month period, most participants reported a worsened profit situation during the financial crisis, with the exception of the manufacturers of motor vehicles, trailers, and semi-trailers. During both crises, the manufacturers of motor vehicles, trailers, and semi-trailers spoke most frequently of a deterioration, while during the financial crisis the manufacturers of machinery and equipment and the manufacturers of electrical equipment showed the lowest balance value.

In September 2021, the earnings situation developed less positively compared to spring of the

Figure 4.26: Assessment of the profit situation

Source: ifo Business Survey.   © ifo Institute
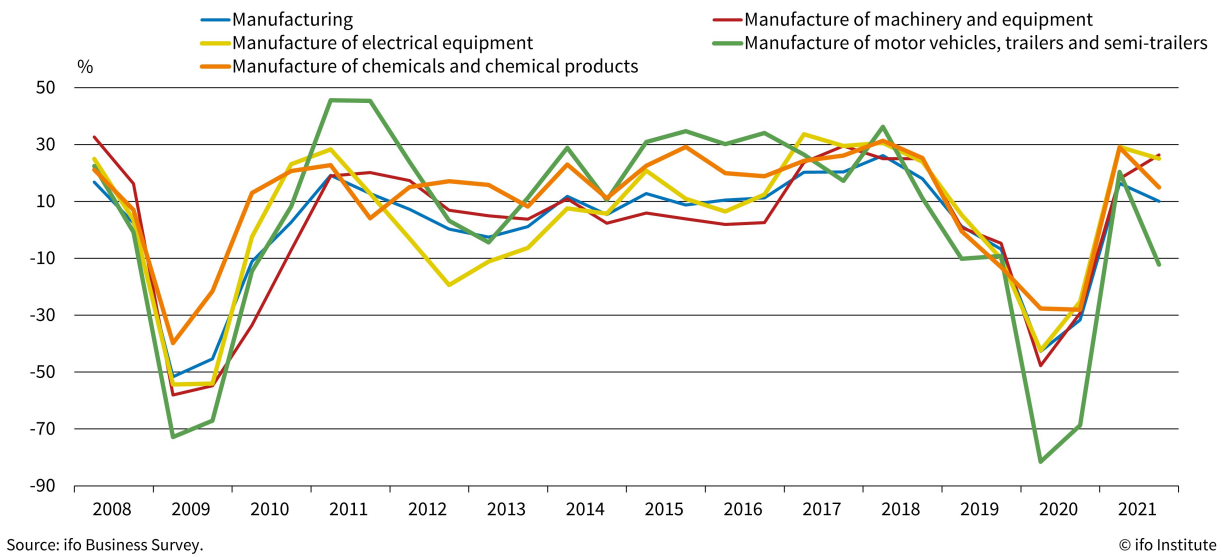
same year. For the manufacturing industry, positive and negative responses nearly balanced each other out. In the automotive sector, however, the negative responses predominated. This was also due to supply bottlenecks (Wohlrabe 2021).

Figure 4.27: Development of the profit situation

Source: ifo Business Survey.   © ifo Institute