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Strong Recovery of Earnings Power in Austrian Manufacturing in 2021

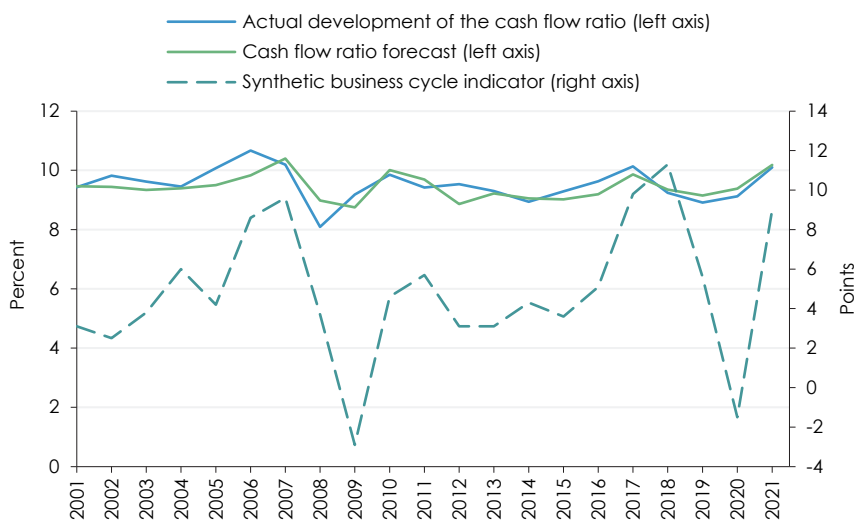
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Strong Recovery of Earnings Power in Austrian Manufacturing in 2021

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- The cash flow-to-sales ratio in manufacturing is expected to be 10.2 percent in 2021.
- The significant year-on-year increase (2020: 9.1 percent) reflects the recovery from the COVID-19 crisis.
- Earnings power recovered faster in 2021 than after the financial market and economic crisis of 2008-09.
- The equity ratio of small and medium-sized enterprises in Austria is still below average in international comparisons.
- The equity capitalisation of large domestic companies, on the other hand, is roughly in line with the international average.

Projected and actual development of the cash flow ratio in manufacturing



"In 2021, Austria's economy was characterised by the recovery from the COVID-19 crisis. The earnings power of domestic manufacturing companies increased strongly, and the cash flow ratio rose from 9.1 percent in 2020 to 10.2 percent. In 2022, however, the cash flow margin is expected to decline again."

The earning power of Austrian manufacturing increased in 2021 as part of the recovery from the COVID-19 crisis (source: WIFO-Konjunkturtest (business cycle survey), Austrian Institute for SME Research, WIFO calculations. Actual cash flow ratio: 2021 preliminary values).

Strong Recovery of Earnings Power in Austrian Manufacturing in 2021

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September 2022

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At 9.1 percent, the cash-flow-to-sales ratio in Austrian manufacturing in 2020 was well below the long-term average of 9.5 percent. According to WIFO's econometric estimations, the cash flow ratio rose to 10.2 percent in 2021. The increase reflects the recovery from the COVID-19 crisis. Preliminary results for 2022 show a decrease of the earnings power.

JEL-Codes: L22, L25, M21 • **Keywords:** Cash flow, Profitability, Equity, Austria, COVID-19

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1. Introduction

In the course of the recovery from the COVID-19 crisis, Austria's economy experienced a boom phase in 2021, which was mainly driven by the favourable performance of the manufacturing sector. The gross domestic product grew by 4.8 percent (2020 –6.7 percent), and the value added of manufacturing by 8.9 percent (real prices). For 2022, WIFO expects a further recovery and strong economic growth, although the outlook has dimmed due to uncertainties related to the Ukraine war (Glocker & Schiman, 2022).

Especially Austrian manufacturing companies benefitted from the global catch-up process in 2021, but at the same time suffered from material and supply shortages as well as substantial price increases. The slump in the global economy in spring 2020 was followed by a rapid and strong recovery in global industrial production and trade in goods, which lasted until spring 2021. After that, supply difficulties and material shortages hampered further development. They were a consequence of the strong increase in demand after the crisis, which especially benefitted manufacturing, and which is why industrial activity in 2021 was hardly dependent on the course of the COVID-19 pandemic. However, the strong recovery in the

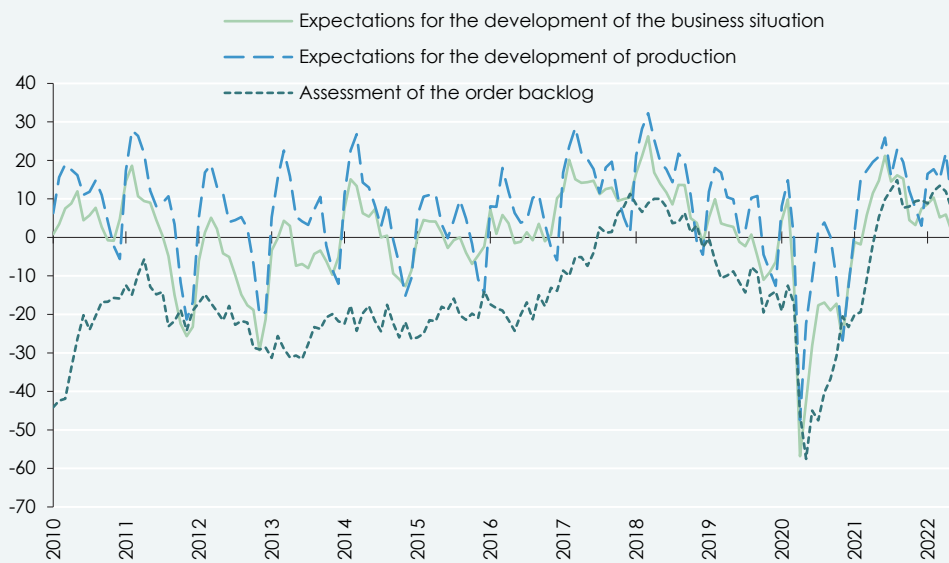
wake of the swift expansion of world trade and global industrial production increasingly led to supply bottlenecks and material shortages in Austrian goods production as well. This dampened the growth of Austrian foreign trade and investment in the second half of 2021 (Friesenbichler et al., 2022).

The economic development is reflected in the assessments of manufacturers (Figure 1) and in the confidence indicators for the entire EU, Germany and Austria (Figure 2).

The costs relevant for manufacturers developed unfavourably in 2021 (Table 1): the real effective exchange rate increased slightly (+0.2 percent year-on-year) and the interest rate for business loans rose slightly to 1.4 percent (2020: 1.1 percent) but remained at a very low level. Industrial raw materials became drastically more expensive in 2021 (+41.8 percent), after prices had already risen in 2020 and 2019 (+3.1 percent and +5.0 percent, respectively). In contrast, unit labour costs were down in 2021 (–3.4 percent year-on-year). The framework conditions for the earnings situation were thus mixed: more favourable unit labour costs contrasted with higher credit financing costs and significantly higher commodity prices.

Figure 1: **Assessment of the economic situation of manufacturing companies**

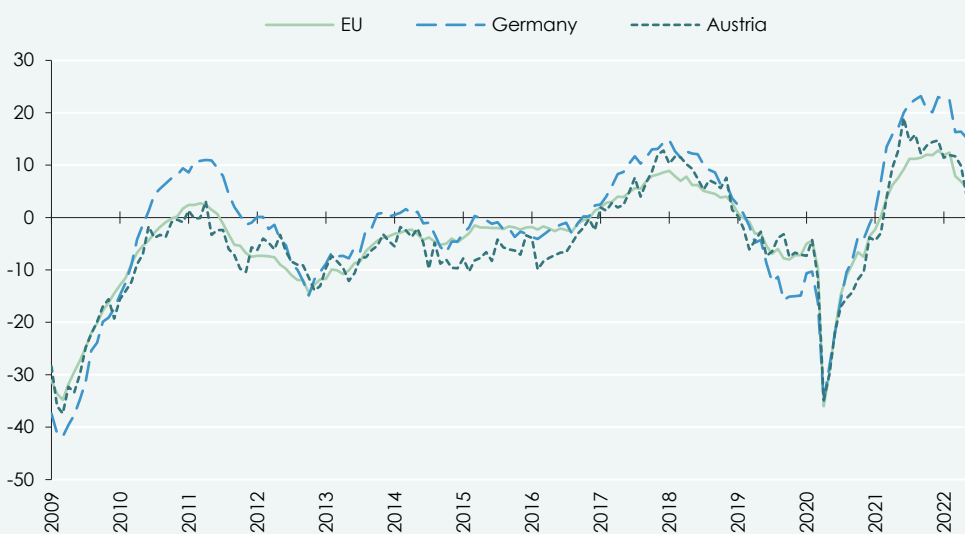
Balances of positive and negative assessments as a percentage of total responses



Source: WIFO-Konjunkturtest (business cycle survey).

Figure 2: **Economic Sentiment Indicators for the EU, Germany and Austria**

Arithmetic mean of the balances from the assessments of production, order books and inventories, seasonally adjusted



Source: Joint Harmonised EU Programme of Business and Consumer Surveys.

No early indicators are available for the development of the earnings situation in manufacturing, and balance sheet data are only available with a delay. The subsequent cash flow ratio for 2021 is therefore a "projection" and compared with indicators based on preliminary data. The estimate is based on the balance sheet database of the Austrian Institute for SME Research, which is very suitable for evaluating balance sheet data of

Austrian companies. Based on the preliminary and estimated data for 2021, a further estimate is also made for 2022.

Earnings power is measured in this paper as the ratio of cash-flow-to-sales revenue (henceforth "sales"). An increase in the cash flow ratio therefore does not necessarily indicate an increase in earnings but can also be based on a decrease in sales.

Table 1: **Development of cost in manufacturing**

	Industrial commodity prices, euro basis		Unit labour costs		Interest rate for non- financial corporate loans	Real-effective exchange rate index	
	2010 = 100	Percentage changes from previous year	2015 = 100	Percentage changes from previous year	Percent	First quarter 1999 = 100	Percentage changes from previous year
2005	69.5	+ 14.5	92.5	- 1.4	3.8	97.4	- 1.2
2006	92.9	+ 31.1	89.0	- 3.8	4.1	96.7	- 0.7
2007	96.8	+ 5.9	87.0	- 2.3	4.9	97.2	+ 0.5
2008	88.4	- 2.5	90.0	+ 3.5	5.4	97.3	+ 0.2
2009	68.2	- 21.5	102.1	+ 13.4	4.2	97.8	+ 0.5
2010	99.9	+ 53.5	95.1	- 6.8	3.6	94.8	- 3.1
2011	108.7	+ 8.7	93.5	- 1.7	3.8	95.3	+ 0.5
2012	99.1	- 8.9	96.6	+ 3.3	3.3	93.8	- 1.6
2013	93.3	- 5.8	98.6	+ 2.1	3.1	95.6	+ 1.9
2014	88.7	- 5.0	98.8	+ 0.2	2.8	97.1	+ 1.5
2015	83.6	- 5.8	100.0	+ 1.2	2.3	94.3	- 2.9
2016	81.7	- 2.2	98.9	- 1.1	2.2	95.6	+ 1.4
2017	97.3	+ 19.1	98.4	- 0.6	2.2	96.5	+ 0.9
2018	98.0	+ 0.7	100.1	+ 1.8	2.1	98.1	+ 1.7
2019	102.9	+ 5.0	103.5	+ 3.3	1.9	97.0	- 1.1
2020	106.1	+ 3.1	109.7	+ 6.0	1.1	98.8	+ 1.8
2021	150.5	+ 41.8	106.0	- 3.4	1.4	99.0	+ 0.2

Source: WDS – WIFO Data System, Macrobond; OeNB.

Data and definitions

The cash flow ratio is an indicator of a company's capacity to **finance investment, pay off debt and taxes or distribute profits** out of its sales revenue. It mirrors the **self-financing capacity** of a company. Equity capitalisation is important beyond the pure liability element, above all with a view to its effect on confidence with clients and suppliers regarding a company's future liquidity, as well as its autonomy in carrying out risky financial operations.

The **cash flow** corresponds to the surplus of revenues over expenditure generated within a period through its own business operations. In contrast to **external financing** (via equity, loans, or subsidies) or financing via asset transformation (asset sales, depletion of inventories, etc.), it is another form of internal financing. **Self-financing** in the broader sense consists of three components: retained earnings (self-financing in the narrow sense), and the "earned" counter value of **depreciation and of financial reserves** for potential liabilities vis-à-vis third parties (Schäfer, 2006; Gabler Wirtschaftslexikon, 2013).

The cash-flow-to-sales ratio (**cash flow ratio**) is measured by the share of cash flow in sales revenues. For this purpose, cash flow is defined as follows:

Result from ordinary business operations

- + depreciation of fixed assets
- + depreciation of financial assets and securities of current assets
- [± allocation to or liquidation of reserves]
- [± allocation to or liquidation of social capital]
- = cash flow

The balance sheet database of the Austrian Institute for SME Research

The present report relies on the balance sheet database of the Austrian Institute for SME Research, which consists of a pool of over 100,000 annual financial statements of Austrian firms. The industry classification mainly follows NACE 2008. This statistical classification offers the advantages of a high level of detail and the possibility of international comparison. Through the analysis of balance (asset and capital structure) and return-and-loss-sheets (performance, costs, and results structure), it is possible to compute a number of performance indicators (Voithofer & Hölzl, 2018).

Adjusted cash flow

The definition of earning power used in the following is the "adjusted cash flow", which is a measure of operational effectiveness. The cash flow is calculated as the sum of the results of ordinary operations and depreciations. Size is "corrected" by considering an imputed entrepreneur's remuneration, which should make the key figures comparable between companies of different legal forms: in contrast to incorporated companies, business partnerships and individual enterprises do not report a deductible salary for the participation of the entrepreneur as an expenditure. For business partnerships and individual enterprises, the minimum salary of managers exercising comparable functions is used as proxy for a calculatory entrepreneurial salary.

For the calculation of the median, the arithmetic mean and the standard deviation, the weighted and unweighted cash flow ratios are used.

¹ Due to the 2014 Accounting Amendment Act, extraordinary income and expenses are no longer reported separately in the balance sheet data, starting with the 2016 financial year. These are allocated to other income and other expenses in the balance sheet database of the Austrian Institute for SME Research. To allow year-to-year comparisons, this change is applied to the entire dataset – that is, also to previous reporting years. Comparability with earlier results is therefore impaired.

2. Projection of the cash-flow-to-sales ratio of manufacturing at industry level

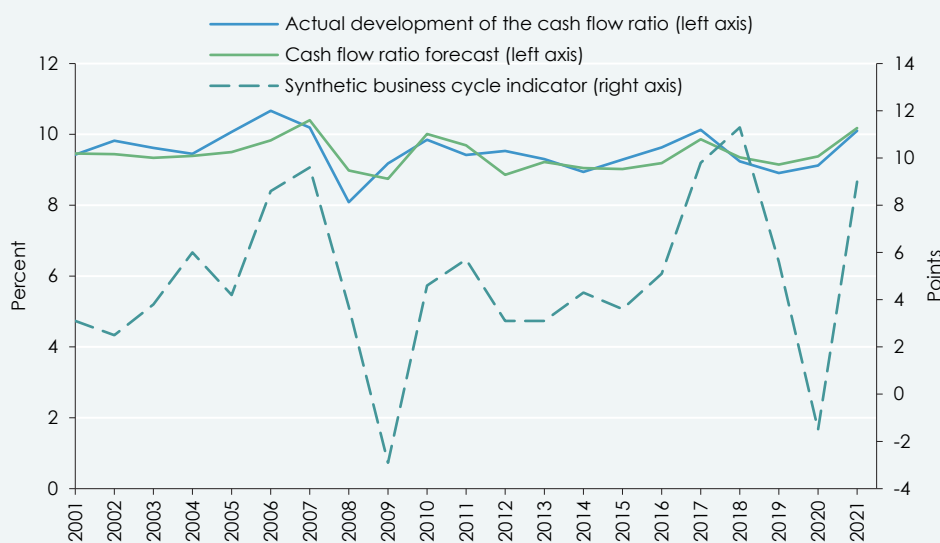
Since 2014, WIFO's annual reporting on the earnings power of manufacturing has been based on indicators from the Austrian Institute for SME Research's balance sheet database. A comparison of the results with the contributions in the WIFO-Monatsberichte (monthly reports) before 2014 is therefore not possible (Hölzl et al., 2014). Due to the changeover from NACE Rev. 1.1 to NACE Rev. 2, the sales-weighted projection is also based on relatively short time series, as the key figures used are only available from the year 2000. In the data set, the values for the manufacture of tobacco products (NACE 12), coke and refined petroleum products (NACE 19) and other transport

equipment (NACE 30) are not available or only weakly populated, so that only 21 of the 24 industries can be considered for the econometric estimates. The estimate for the year 2021 is based on data from the period 2000 to 2020.

The WIFO estimate and the balance sheet data differ in the sales weighting: the former uses sales data at the industry level (NACE Rev. 2 two-digit) taken from the Structural Business Statistics Survey by Statistics Austria. The weighting of the sample is based on sales as reported in the balance sheets (Figure 3).

Preliminary data for 2021 show an increase in the average cash-flow-to-sales ratio of Austrian manufacturing companies to 10.2 percent. This reflects a strong recovery after the COVID-19 crisis.

Figure 3: Projected and actual development of the cash flow ratio in manufacturing



Source: WIFO-Konjunkturtest (business cycle survey), Austrian Institute for SME Research, WIFO calculations. Actual cash flow ratio: 2021 preliminary values.

The sales-weighted aggregated results of the panel econometric estimates (see box "The panel econometric model for the cash flow forecast") for 2021 indicate an increase in the cash-flow-to-sales ratio. The WIFO estimate shows a value of 10.2 percent for 2021, while the ratio according to the preliminary data of the Austrian Institute for SME Research is 10.1 percent. The overall picture thus reliably suggests an increase in earning

power in 2021. Both calculations result in a value that is significantly above the average of 9.5 percent for the years 2008-2021 (Table 3). For 2021, the WIFO estimates are shown instead of the preliminary values of the Austrian Institute for SME Research, as the sample of the Austrian Institute for SME Research is still incomplete, and the data is subject to further revision or adjustment steps (Figure 3).

The panel econometric model for estimating cash flow ratios

The forecast of cash flow development at the industry level uses a panel econometric approach. By looking at industry data together, a relatively reliable econometric estimate of the cash flow ratio can be obtained despite rather short time series. The estimated specification follows the industrial economics literature and assumes that the earning power and thus also the self-financing power of companies exhibit persistent differences over time (Mueller & Cubbin, 2005; Aiginger & Pfaffermayr, 1997). Moreover, as the manufacturing industries are characterised by entry barriers and sunk investments, an equalisation of earning power across industries will be slower (Hölzl et al., 2014). Unfortunately, no industry-specific structural data are available to explain the cash flow ratio. The characteristics of the industry structure are taken into account by considering fixed industry effects. The econometric model also includes the cash flow ratio lagged by one period to reflect the partial adjustment to external shocks.

The central explanatory variable is a synthetic business cycle indicator at the industry level. ($I_{i,t}$, $I_{i,t-1}$) based on the subjective assessment of the companies from the WIFO-Konjunkturtest (business cycle survey). The indicator is calculated from the annual average values of the balances of optimistic and pessimistic statements (in relation to all answers) on the assessment of the current order backlog (AB), the business situation in the next six months (GL) as well as the production development in the next three months (PR) according to the following formula (based on Oppenländer, 1995):

$$I = [(AB + 2) (GL + 2) (PR + 2)]^{1/3} - 2$$

whereby the individual indicators are included as percentages in the calculation of the business cycle indicator. On the one hand, the balance series correlate with the development of the cash-flow-to-sales ratio and the rate of change in the manufacturing. On the other hand, they also reflect unobservable structural changes. This indicator should have sufficient lead time for forecasting. Correcting the values by 2 ensures that the values in the square brackets are always positive.

Formally, the econometric forecasting model is specified as follows:

$$\log \pi_{i,t} = \beta_1 \log \pi_{i,t-1} + \beta_2 I_{i,t} + \beta_3 I_{i,t-1}^2 + \beta_4 \log SD(\pi_{i,t-1}) + \gamma S_{i,t} + \mu_t + \varepsilon_{i,t}$$

$$\varepsilon_{i,t} \sim N(0, \sigma^2)$$

In addition to the lagged cash-flow-to-sales ratio $\pi_{i,t-1}$ the synthetic business cycle indicator $I_{i,t}$ and its lagged term $I_{i,t-1}$ the lagged by one period logarithmic standard deviation of the cash-flow-to-sales ratio $\log SD(\pi_{i,t-1})$ are included in the forecast model. The term $S_{i,t}$ considers individual statistical distortions of the cash flow ratio and μ_t time effects. The error term is depicted by $\varepsilon_{i,t}$.

The estimate of the dynamic panel model relies on an approach that corrects for possible distortions resulting from small sample size (Kiviet, 1995; Bun & Kiviet, 2003; Bruno, 2005). The projection of the average cash flow ratio for total manufacturing is obtained as the weighted average of the industry-specific projections, with the turnover shares of the individual industries used as weights. The turnover weights are assumed to be deterministic and continued for the years 2020 and 2021 using the current value of the year 2019. The data basis for this is the Structural Business Statistics Survey of Statistics Austria.

The estimation results for the period 2000 to 2021 are shown in Table 2. The COVID-19 pandemic occurred abruptly. Since the present estimate also considers preliminary data for 2021, the path dependencies of earning power decreased compared to estimates without considering data for 2021. The results should also be interpreted with caution because the COVID-19 crisis weakened the correlation between earning power and entrepreneurial assessments of the economic situation as a predictor variable. While the synthetic business cycle indicator slumped, economic policy measures such as the COVID-19 Short-Time Work scheme stabilised the cash flow ratio.

The explanatory variables are insignificant due to the correction for the small sample size. In the basic specification of the model, however, they are significant. The significant parameter of the one-period-lagged cash flow ratio implies that exogenous effects on the development of returns have a lagged effect over several periods, even though the persistence of the cash flow ratio is relatively small. In general, the estimated model displays a sufficient explanatory power (Figure 3), but should, however, not be over-interpreted, as it is largely determined by fixed sector effects.

This dynamic model is used in spite of the statistically insignificant coefficients for the estimation of earning power, because the out-of-sample forecast quality proved to be sufficient, and a dynamic model is better suited for estimates over time than static models. As a robustness check, estimation models with fixed industry effects are additionally implemented. The coefficients estimated here are statistically significant. Alternative projections based on estimates using the fixed effects model provide similar results as the dynamic model.

Table 2: Estimated coefficients for the projection of the cash-flow-to-sales ratio

	$\log \pi_{i,t-1}$	$I_{i,t}$	$I_{i,t-1}$	$\log SD(\pi_{i,t-1})$
Coefficient	0.33	0.03	- 0.07	0.08
z-value	7.02***	0.06	- 0.14	0.13

Source: WIFO calculations. Number of observations: 396. π . . . cash flow ratio, I . . . economic sentiment indicator, SD . . . standard deviation within the industry, i . . . industry, t . . . period, *** . . . significant at a 1 percent level.

The most profitable industries on average across all companies in 2021 were the manufacture of chemicals and chemical products (NACE 20), the manufacture of pharmaceutical products and pharmaceutical

preparations (NACE 21) and the manufacture of beverages (NACE 11). The lowest cash-flow-to-sales ratios were again observed in the manufacture of wearing apparel (NACE 14), the repair and installation

of machinery and equipment (NACE 33) and the manufacture of food products (NACE 10).

In most industries, the cash flow ratio in 2021 was above the long-term average, especially in the manufacture of wood and of products of wood and cork, except furniture (NACE 16), in the manufacture of textiles

(NACE 13), in the manufacture of beverages (NACE 11) and in the manufacture of other non-metallic mineral products (NACE 23). Yet, the ratio was below the 2008-2021 average especially in the manufacture of machinery and equipment n.e.c. (NACE 28), the repair and installation of machinery and equipment (NACE 33) and the manufacture of leather and related products (NACE 15).

Table 3: **Cash-flow-to-sales ratios in Austria by industry**

	2015	2016	2017	2018	2019	2020	2021 ¹	2021 ²	Ø 2008-2021
Cash flow as a percentage of sales									
Manufacture of food products	5.6	6.6	6.3	7.7	6.8	6.8	6.5	7.1	6.4
Manufacture of beverages	9.9	12.0	13.5	13.4	12.0	11.6	5.4	12.7	10.9
Manufacture of textiles	4.2	9.2	5.6	5.6	7.8	9.5	8.0	8.5	6.0
Manufacture of wearing apparel	5.0	5.0	2.7	2.7	5.8	7.3	6.6	6.8	5.7
Manufacture of leather and related products	10.6	10.2	9.9	8.9	6.6	6.4	8.0	8.7	9.6
Manufacture of wood and of products of wood and cork, except furniture	7.9	9.1	9.8	9.9	10.7	13.9	9.3	10.7	8.0
Manufacture of paper and paper products	12.6	12.7	10.9	12.3	12.3	11.9	12.0	12.5	11.2
Printing and reproduction of recorded media	9.9	8.6	8.7	8.4	9.2	9.6	10.0	9.7	8.7
Manufacture of chemicals and chemical products	16.6	8.2	17.0	15.4	13.4	14.6	8.8	14.6	13.2
Manufacture of basic pharmaceutical products and pharmaceutical preparations	13.7	12.3	16.0	13.2	12.6	12.7	0.0	14.4	14.0
Manufacture of rubber and plastics products	9.1	8.6	9.4	7.7	8.2	9.8	10.9	10.2	8.8
Manufacture of other non-metallic mineral products	9.7	11.3	10.7	10.7	10.7	12.1	10.0	11.7	10.1
Manufacture of basic metals	8.9	9.0	10.7	7.8	8.1	7.8	8.8	9.6	9.0
Manufacture of fabricated metal products, except machinery and equipment	10.1	11.2	9.9	10.3	9.2	9.2	9.6	10.4	9.8
Manufacture of computer, electronic and optical products	13.9	13.5	11.1	10.3	11.1	10.2	9.9	11.8	10.7
Manufacture of electrical equipment	9.7	9.6	9.7	4.7	7.3	7.0	9.6	9.1	8.7
Manufacture of machinery and equipment n.e.c.	9.9	9.8	8.5	8.4	7.6	7.1	7.8	9.4	9.1
Manufacture of motor vehicles, trailers and semi-trailers	3.5	10.0	9.9	9.1	6.6	7.1	6.2	9.4	7.8
Manufacture of furniture	5.2	7.6	8.4	6.6	7.4	8.4	9.5	7.5	6.6
Other manufacturing	10.1	10.9	10.0	10.7	11.0	8.3	8.0	10.5	9.3
Repair and installation of machinery and equipment	6.2	6.3	7.0	4.2	6.3	5.7	7.8	6.9	6.7
Industries considered in the projection, average	9.2	9.6	9.8	8.9	9.1	9.4	8.2	10.1	9.1
Manufacture of goods total, volume weighted average	9.8	10.3	10.6	9.8	9.7	9.1	10.1	10.2	9.6

Source: Austrian Institute for SME Research, WIFO calculations. – ¹ Preliminary data. – ² Projection.

The different earnings development of the individual sectors is included in the estimate of the synthetic business cycle indicator via the information provided by the companies. The heterogeneous effects of the change in the framework conditions can be depicted to a limited extent. Therefore, the estimation results for the individual sectors should be interpreted with greater caution than the sales-weighted, aggregated estimate (Table 3).

In addition to the model described above for the WIFO estimate of the cash-flow-to-sales ratio in 2021, two further estimation models were implemented to provide an outlook for 2022. The first estimation model incorporates the preliminary values for 2021. The second model is based on the estimated values for 2021. In the aggregate,

the ratios determined in this way differ only slightly, but at the sector level larger deviations are apparent, which in turn can influence the aggregate estimate for 2022. The ratio for 2022 is estimated with a model that updates the standard deviation at the sector level as well as the turnover weighting.

The estimated results indicate a decline in earnings power for 2022 but should be interpreted with great caution as they are based on provisional values or on estimates of industry values for 2021, which themselves are subject to the usual uncertainty of forecasts. Moreover, the underlying business cycle indicator is only available for part of 2022. As above, the synthetic business cycle indicator includes the companies' assessments of the business situation, production and order books of the individual sectors in the

Initial estimates for 2022 point to a decline in earning power.

calculation. As before, the heterogeneous effects of changes in the framework

conditions can only be mapped to a limited extent.

The cash flow ratio varies more between the service industries than in manufacturing. These variations may be due to differences in economies of scale and the intensity of competition.

3. The rate of returns of selected service industries

The cash flow ratio reported for selected service industries (Table 4)¹ differs from that of manufacturing: For many service companies, the significance of self-financing power differs compared to manufacturing due to the business model. For example, sales and asset sales are high in retail trade, and cash surpluses are determined less by capitalisation than by willingness to pay and by the intensity of competition or market concentration (Friesenbichler, 2009).

The rates of return also differ greatly between industries (Table 4). In 2020 (latest available data), the sales-weighted cash flow ratio was particularly high in rental and leasing activities (NACE 77), scientific research and development (NACE 72) and legal and accounting activities (NACE 69). In 2020, the lowest sales-weighted cash flow ratios were again found in wholesale and retail trade and repair of motor vehicles and motorcycles (NACE 45), employment activities (NACE 78) and construction of buildings (NACE 41).

A comparison of the weighted with the unweighted sample indicates different structures within the industries according to size classes. In most of the service industries shown in Table 4, the unweighted cash-flow-to-sales ratio is higher than the weighted

ratio, meaning that smaller companies tend to be more profitable than large companies. This is usually determined by the competitive situation. For example, niche strategies can enable a higher rate of return, i.e. companies adapt their range of services to the specific needs of the potential demanders of a market niche (Gabler Wirtschaftslexikon, 2013). In this way, the market niche is used intensively and competitive pressure is reduced. Significantly higher return rates of smaller enterprises were again observed in 2020 in electricity, gas, steam and air conditioning supply (NACE 35), where the unweighted cash-flow-to-sales ratio was more than twice as high as the sales-weighted value. In contrast, there appear to be economies of scale in scientific research and development (NACE 72; Table 4).

The range of variation in the average rate of return within the sectors over time also varies greatly. This can partly be explained by the high proportion of sunk costs (Hözl et al., 2014). The coefficient of variation (share of the standard deviation in the mean value of the sales-weighted cash flow ratio between 2000 and 2020) was by far the highest in publishing activities (NACE 58), while it was the lowest in specialised construction activities (NACE 43; Table 4).

4. The development of earning power in the sectors heavily affected by the COVID-19 crisis

The COVID-19 crisis hit different sectors differently. For example, regulatory closures affected the business activities of the accommodation and food service sector much more than those of capital goods producers, which continued to operate despite the COVID-19 pandemic. In some sectors, there was a breakdown in the value chain and delivery delays. Economic uncertainty increased dramatically as a result of the pandemic. Extensive government measures were taken to dampen the impact of the COVID-19 crisis on businesses and to maintain production potential. Thus, in 2020 and 2021, not only the business situation but also the COVID-19 support measures affected profitability. The take-up of support was particularly high in the most heavily affected sectors. Results of special surveys conducted

as part of the WIFO-Konjunkturtest (business cycle survey) suggest that the government measures were targeted, achieved the intended effects and that there was no systematic misallocation (Hözl & Meyer, 2021).

The development of the profitability of the industries strongly affected by the COVID-19 crisis (Oesterreichische Nationalbank, 2020) was again heterogeneous in 2021 (Table 5). After declines in the previous year, almost all industries affected by COVID-19 measures were able to increase their profitability during the boom in 2021. The profitability of travel agency, tour operator and other reservation service and related activities (NACE 79), accommodation (NACE 55) and food and beverage service activities (NACE 56) recovered particularly strongly.

In addition to the business situation, the government's COVID-19 support measures affected profitability in 2020 and 2021.

¹ The selection of the sectors and the period is based on the availability and plausibility of the data.

Table 4: Cash flow ratio in selected service industries

	Sales weighted					Unweighted				
	2020	Ø 2000-2020	Ø 2000-2020	Ø 2000-2020	2020	Ø 2000-2020	Ø 2000-2020	Ø 2000-2020	Ø 2000-2020	
	Cash flow as a percentage of sales	ν	Cash flow as a percentage of sales	Cash flow as a percentage of sales	Cash flow as a percentage of sales	ν	Cash flow as a percentage of sales	Cash flow as a percentage of sales		
Electricity, gas, steam and air conditioning supply	21.3	16.9	26.2	20.4	16.9	43.5	25.4	30.1	24.8	25.4
Waste collection, treatment and disposal activities	10.6	11.1	11.0	10.4	11.1	12.3	13.2	10.6	13.3	13.2
Construction of buildings	5.3	4.9	13.4	4.6	4.9	6.5	6.2	10.9	5.8	6.2
Civil engineering	7.3	4.9	22.9	4.0	4.9	11.1	8.8	16.3	7.7	8.8
Specialised construction activities	7.9	6.7	8.2	6.3	6.7	8.4	7.6	9.4	7.2	7.6
Wholesale and retail trade and repair of motor vehicles and motorcycles	3.0	2.9	11.8	2.9	2.9	6.0	5.0	17.4	4.3	5.0
Wholesale trade, except of motor vehicles and motorcycles	5.9	4.6	11.6	4.5	4.6	7.7	6.6	13.7	6.0	6.6
Retail trade, except of motor vehicles	5.7	4.9	10.8	4.9	4.9	7.7	6.2	15.3	5.8	6.2
Accommodation	19.9	14.7	15.2	13.9	14.7	21.9	15.6	27.5	14.9	15.6
Food and beverage service activities	13.7	9.3	15.3	8.2	9.3	15.0	9.4	35.5	9.5	9.4
Publishing activities	12.6	8.5	60.1	4.0	8.5	13.0	9.8	28.1	7.8	9.8
Motion picture, video and television programme production, sound recording and music publishing activities	8.1	12.8	31.2	11.2	12.8	19.2	15.2	28.8	14.3	15.2
Telecommunications	18.9	20.9	28.0	19.1	20.9	21.2	18.5	13.5	18.5	18.5
Computer programming, consultancy and related activities	10.5	9.3	18.1	8.1	9.3	15.1	13.9	13.4	12.2	13.9
Information service activities	11.1	11.4	14.3	12.0	11.4	15.7	15.0	15.8	13.7	15.0
Legal and accounting activities	22.5	18.7	20.9	15.0	18.7	21.8	20.8	13.4	18.6	20.8
Activities of head offices, management consultancy activities	13.5	12.8	21.3	10.9	12.8	23.3	21.0	14.8	18.3	21.0
Architectural and engineering activities, technical testing and analysis	13.0	12.2	13.1	11.5	12.2	16.1	16.0	12.1	14.8	16.0
Scientific research and development	25.0	11.7	45.5	9.0	11.7	14.8	12.8	21.1	12.3	12.8
Advertising and market research	8.3	8.8	12.7	8.9	8.8	12.8	11.5	15.0	10.4	11.5
Other professional, scientific and technical activities	19.7	15.3	34.3	12.5	15.3	18.7	15.3	13.6	14.5	15.3
Rental and leasing activities	25.6	27.2	12.3	30.4	27.2	25.5	26.5	7.4	26.8	26.5
Employment activities	3.4	3.1	26.1	2.8	3.1	5.5	5.7	23.1	5.4	5.7

Source: Austrian Institute for SME Research, WIFO calculations. ν . . . coefficient of variation in percent.

Table 5: Cash flow ratio in the sectors most affected by the COVID-19 crisis

	2019			2020			2021		
	Mean value	Median	Standard deviation	Mean value	Median	Standard deviation	Mean value	Median	Standard deviation
	Cash flow as a percentage of sales								
Manufacture of textiles	7.78	6.65	9.00	9.50	9.78	8.24	8.00	7.95	7.51
Manufacture of wearing apparel	5.77	4.53	10.61	7.33	4.49	8.94	6.62	0.79	9.14
Manufacture of leather and related products	6.62	3.43	11.17	6.38	3.12	9.34	7.97	8.80	11.57
Printing and reproduction of recorded media	9.24	7.37	11.76	9.63	7.47	8.49	9.98	9.53	7.36
Manufacture of motor vehicles, trailers and semi-trailers	6.63	5.12	6.88	7.09	5.14	9.28	6.20	5.17	7.26
Manufacture of furniture	7.37	7.04	7.09	8.41	7.25	7.34	9.50	7.54	9.22
Other manufacturing	10.99	8.14	10.63	8.28	7.44	9.23	8.02	7.87	7.74
Retail trade, except of motor vehicles and motorcycles	5.29	4.73	7.87	5.67	4.93	8.05	7.40	6.37	7.58
Accommodation	16.26	15.12	17.51	19.88	19.99	19.01	28.47	28.66	21.98
Food and beverage service activities	10.55	9.05	9.68	13.67	13.76	12.37	15.92	14.71	14.19
Other professional, scientific and technical activities	15.96	7.98	20.33	19.67	9.72	23.87	20.85	6.83	24.35
Employment activities	3.47	2.61	4.96	3.45	3.02	5.41	5.01	4.24	6.00
Travel agency, tour operator and other reservation service and related activities	3.87	1.73	6.77	0.69	1.41	16.88	20.15	15.80	27.17

Source: Austrian Institute for SME Research.

5. Appendix: The equity ratio in international comparison

Profitability recovered strongly in 2021, especially in travel agencies and tour operators as well as in accommodation and food services.

One determinant of earnings power is the equity capitalisation of companies. The equity ratio is – more so than the cash flow ratio – a structural indicator. It is determined by the company- and industry-specific capital intensity and the business risk. In an international comparison, the non-neutrality of the forms of financing also plays a role. If corporate financing via bank loans is cheaper for companies than building up equity because of the deductibility of interest payments, this

will have an impact on the financial structure of companies.

The analysis of the equity ratio is based on the BACH database (Bank for Accounts of Companies Harmonised). This has been compiled since 1987 by the European Commission (DG ECFIN) in cooperation with the European Committee of Central Balance Sheet Offices to enable comparisons between EU countries².

Table 6: International comparison of the equity ratio in manufacturing

	Large enterprises			Small and medium-sized enterprises			Medium-sized enterprises			Small enterprises		
	2019	2020	Ø 2000 until 2019-20	2019	2020	Ø 2000 until 2019-20	2019	2020	Ø 2000 until 2019-20	2019	2020	Ø 2000 until 2019-20
As a percentage of balance sheet totals												
Average values												
Austria ¹	40.1	–	39.1	39.2	–	34.1	40.4	–	36.4	37.2	–	29.1
Belgium	46.2	57.7	43.2	54.1	54.5	47.2	53.8	50.8	44.6	54.6	58.0	48.9
Germany	32.3	31.2	31.1	41.4	43.8	36.1	41.6	44.1	37.0	40.4	42.3	32.6
Spain	43.1	44.0	40.2	51.4	51.9	45.1	51.0	52.2	47.1	51.8	51.7	43.7
France	36.8	38.0	35.3	43.9	43.0	40.3	42.8	42.6	39.6	45.8	43.6	41.2
Croatia	52.1	53.5	46.5	37.0	39.7	36.4	48.6	51.3	45.6	27.2	30.8	30.1
Italy	44.4	44.1	35.3	39.5	42.8	30.6	43.0	46.3	33.9	35.7	39.0	27.2
Luxembourg	30.4	30.0	47.4	85.4	87.4	85.4	57.8	57.6	55.5	89.3	90.9	88.8
Poland	52.8	51.2	50.9	53.5	54.1	51.6	53.9	55.1	52.2	52.6	52.2	50.5
Portugal	43.5	44.8	44.3	41.7	44.1	37.2	48.7	52.3	43.0	36.8	38.0	32.9
Slovakia	38.3	41.0	47.3	40.1	39.5	38.6	41.2	40.0	42.7	38.5	38.6	34.4
Average	41.8	43.6	41.9	47.9	50.1	43.9	47.5	49.2	43.4	46.3	48.5	41.8
Median values												
Austria ¹	39.8	–	37.8	33.5	–	26.5	36.7	–	31.0	32.3	–	24.9
Belgium	42.4	44.2	38.1	40.2	42.2	35.3	42.3	43.6	39.6	40.0	42.1	35.0
Germany	38.2	39.1	33.5	37.8	40.4	31.1	40.9	42.8	34.7	35.4	38.2	28.6
Spain	47.4	45.0	44.1	43.1	42.6	30.6	48.8	49.6	44.4	42.7	42.2	30.0
France	42.0	42.3	38.6	46.3	43.2	40.6	42.4	41.2	38.8	47.0	43.6	41.0
Croatia	53.9	52.3	51.1	33.0	35.1	26.7	46.3	51.6	44.9	32.3	34.5	26.1
Italy	40.3	43.7	30.7	27.7	29.5	18.9	37.4	41.1	28.8	26.5	28.3	17.9
Luxembourg	46.6	54.2	49.9	47.1	51.1	36.0	56.5	64.7	45.4	28.4	49.2	22.4
Poland	53.4	54.3	51.4	55.6	55.7	53.3	53.2	54.6	51.5	56.5	56.0	53.7
Portugal	43.0	43.3	43.2	34.0	33.5	31.1	45.0	46.7	38.6	33.5	32.9	30.6
Slovakia	37.2	40.3	37.8	34.8	36.4	26.3	37.1	38.2	40.3	34.4	36.0	25.6
Average	44.0	45.9	41.5	39.4	41.0	32.4	44.2	47.4	39.8	37.2	40.3	30.5

Source: BACH data (Banque de France), WIFO calculations. Only countries for which data are available from 2019. Enterprise size defined by annual turnover: large enterprises . . . over 50 million €, small and medium-sized enterprises . . . up to 50 million €, medium-sized enterprises . . . 10 to 50 million €, small enterprises . . . under 10 million €. – ¹ Values only available until 2019.

The average equity ratio of large Austrian manufacturers in 2019 (most recent data available) was 40.1 percent, roughly in line with the average of 41.8 percent in the comparator countries (Table 6). The ratio decreases with the size of the company. For

small and medium-sized tangible goods producers, it remained below the international average of 47.9 percent in 2019 at 39.2 percent.

² Currently, aggregated annual data are offered for 13 countries: Austria, Belgium, Czech Republic, Germany, Denmark, Spain, France, Croatia, Italy, Luxembourg, Poland, Portugal and Slovakia. In addition, a breakdown by 80 industries (divisions) according to NACE Rev. 2 is available (two-digit), 24 of which are in

manufacturing, and by 4 size classes (large enterprises with an annual turnover of more than 50 million €, small and medium-sized enterprises (SMEs) with a turnover of up to 50 million €, medium-sized enterprises with a turnover of 10 to 50 million € and small enterprises with an annual turnover of less than 10 million €).

These international comparisons provide rough indications and should be interpreted with caution: distortions are possible due to

differences between accounting standards, balance sheet dates, sample sizes and data sources as well as breaks in the time series³.

6. References

- Aiginger, K., & Pfaffermayr, M. (1997). Explaining Profitability Differences: From Cross-Section to Panel Research. *Journal of Economics and Social Sciences*, 117, 85-105.
- Bruno, G.S.F. (2005). Approximating the bias of the LSDV estimator for dynamic unbalanced panel data models. *Economics Letters*, 87(3), 361-366.
- Bun, M.J.G., & Kiviet, J.F. (2003). On the diminishing returns of higher-order terms in asymptotic expansions of bias. *Economics Letters*, 79(2), 145-152.
- Friesenbichler, K.S. (2009). Cash flow-Marge der österreichischen Sachgütererzeugung 2008 noch stabil. *WIFO-Monatsberichte*, 82(6), 415-424. <https://monatsberichte.wifo.ac.at/36064>.
- Friesenbichler, K.S., Hölzl, W., Peneder, M., & Wolfmayr, Y. (2022). Industrial activity defies supply bottlenecks and strong price increases. Development of goods production, foreign trade and investment in 2021. *WIFO-Monatsberichte*, 95(5), 325-339. <https://monatsberichte.wifo.ac.at/69667>.
- Gabler Wirtschaftslexikon (2013). Springer Gabler.
- Glocker, C., & Schiman, S. (2022). Wirtschaftliche Erholung verliert an Schwung. Prognose für 2022 und 2023. *WIFO Economic Outlook*, (2). <https://www.wifo.ac.at/www/pubid/69694>.
- Hölzl, W., Friesenbichler, K.S., & Hölzl, K. (2014). Slight Reduction in Cash-Flow-to-Sales Ratio. Profitability of Austrian Manufacturing in 2013. *WIFO Bulletin*, 19(12), 110-120. <https://bulletin.wifo.ac.at/50642>.
- Hölzl, W., & Meyer, B. (2021). Staatliche Hilfsmaßnahmen für Unternehmen in der COVID-19-Krise. Befragungsupdate vom Februar 2021. WIFO. <https://www.wifo.ac.at/www/pubid/66967>.
- Kiviet, J.F. (1995). On Bias, Inconsistency, and Efficiency of Various Estimators in Dynamic Panel Data Models. *Journal of Econometrics*, 68, 53-78.
- Mueller, D.C., & Cubbin, J. (2005). The dynamics of company profits. Cambridge University Press.
- Oesterreichische Nationalbank – OeNB (2020). Betroffenheit der österreichischen Unternehmen durch die COVID-19 Pandemie nach Branchen. *Konjunktur Aktuell, Sonderheft*.
- Oppenländer, K.H. (1995). *Konjunkturindikatoren – Fakten, Analysen, Verwendung*.
- Schäfer, H. (1998). *Unternehmensfinanzen*. Physica.
- Schäfer, H. (2006). *Unternehmensinvestitionen. Grundzüge in Theorie und Management*. Springer-Verlag.
- Voithofer, P., & Hölzl, K. (2018). *Bilanzkennzahlen – Praxishandbuch*. Austrian Institute for SME Research.

³ BACH User Guide, https://www.bach.banque-france.fr/index.php?page=telechargement-File&file=Summary_Userguide.pdf (retrieved 15 July 2022).