

Werner Hölzl

Moderate Recovery of the Cash-Flow Margin Projected for 2010

Cash Flow and Equity in Austrian Manufacturing

In 2009, the cash-flow-to-sales ratio in the Austrian manufacturing reached 10.0 percent, a value slightly below that of 2008 and significantly below the long-term average of 11.9 percent. In 2010, real value added in manufacturing rose by 6.9 percent. This initial recovery after the deep slump in 2009 (–14.3 percent) appears to have had an effect on the sector's earning power. According to the estimates of a dynamic, panel-econometric model for 22 industries in manufacturing, the cash-flow-to-sales ratio rose in 2010 to 11.6 percent. The 2009 equity ratio value of 37.7 percent corresponded with the average of the European countries under comparison.

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At the end of 2008 and during 2009 Austrian manufacturing was affected by the global economic crisis. In 2010, the economy showed clear signs of recovery. The real value added in manufacturing increased by 6.9 percent compared to 2009. Hourly labour productivity improved by 5 percent.

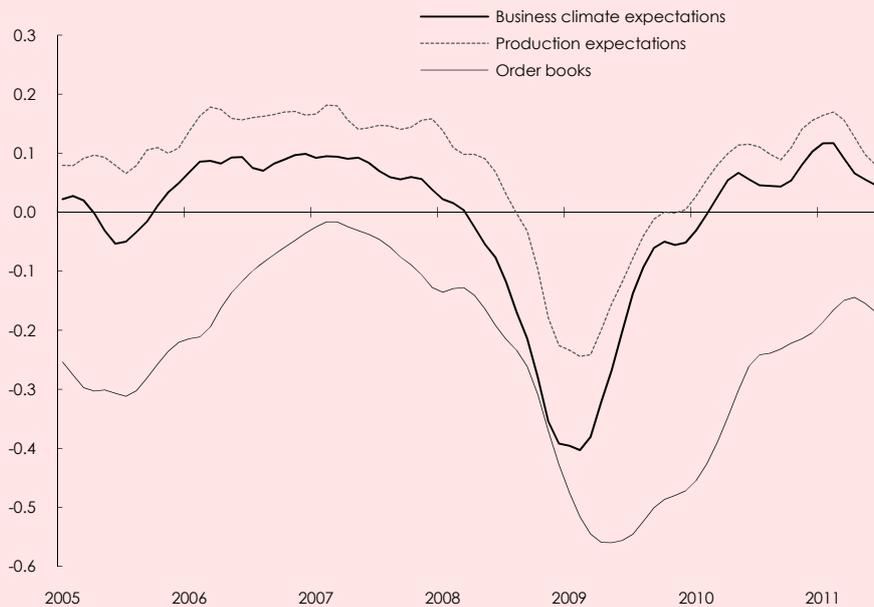
In mid-2008, the WIFO Business Cycle Survey for the first time showed a deterioration of the economic indicators for the Austrian manufacturing sector, which became considerably more pronounced by mid-2009 (Figure 1). In 2010, manufacturing developed dynamically as a result of the recovery of the world economy. Production expectations and the assessment of the business climate in the next six months quickly improved, reaching pre-crisis levels. Realised order books also increased significantly in 2010. In 2011, we expect the economy to reach a plateau. The business cycle confidence indicator of the European Commission depicts a similar picture for 2010 (Figure 2) with respect to the EU 15 in general and Germany in particular. German firms hold a more optimistic view of 2011 than Austrian firms.

The rebound is also reflected in the results of the WIFO Investment Survey. In 2010, Austrian manufacturers cut their gross fixed investments nominally by 13.6 percent, compared to the drop of 20 percent in 2009, which was the largest decline recorded since the survey was introduced in 1963 (Falk – Kunnert – Schwarz, 2011). In 2011, however, firms say they would like to invest much more than in the previous year (nominally +21.9 percent). Manufacturing in 2011 is therefore expected to exceed the crisis-affected 2010 level by 8.5 percent in real terms.

In the wake of the improved world economy in 2010, commodity prices increased significantly (+53.5 percent), more than compensating for the 21.5 percent price decline in 2009. The European Central Bank responded to the 2009 financial market crisis by considerably reducing interest rates and maintained this course in 2010, so that interest terms for company loans remained favourable (2.4 percent). At the same time, however, banks increased risk spreads within the expected scope. The real-effective exchange rate index declined by 2.7 percent compared to the previous year, unit labour costs decreased by 5.5 percent. This appears to have improved the profits of companies in 2010.

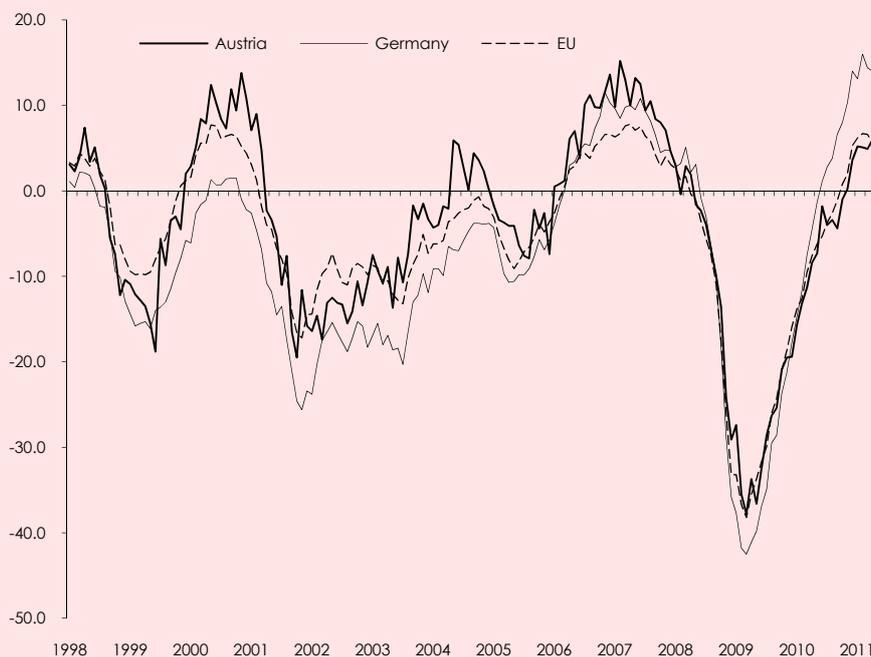
Figure 1: Assessment of the economic situation of companies in the manufacturing sector

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



Source: WIFO Business Cycle Survey.

Figure 2: Industrial confidence indicators (seasonally adjusted)



Source: European Commission, DG Economic and Financial Affairs, Business and Consumer Surveys, http://ec.europa.eu/economy_finance/db_indicators/surveys/time_series/index_en.htm.

Unfortunately, there are no early profitability indicators. For this reason, the development of the cash-flow ratio has to be projected. The projection is based on data from the BACH database ("Bank for Accounts of Companies Harmonized"), which provides harmonised data for the evaluation of aggregated balance sheet data of European countries at the country level. Although the data are harmonised, they are comparable only with some reservations. The Austrian data are provided by the

Austrian National Bank (Balance Statistics by the Austrian National Bank), supplemented by information for smaller enterprises from the balance sheet data compiled by the Austrian Institute for SME Research.

Table 1: Development of cost in manufacturing

	Industrial commodity prices, euro basis		Unit labour costs		Interest rate for company loans in percent	Real-effective exchange rate index	
	1990 = 100	Change from previous year in percent	2000 = 100	Change from previous year in percent		First quarter 1999 = 100	Change from previous year in percent
1990	100.0	.	96.7	+ 1.4	.		
1991	91.4	- 8.6	101.6	+ 5.0	.		
1992	82.4	- 9.8	107.9	+ 6.2	.		
1993	74.9	- 9.2	115.9	+ 7.4	.	104.5	
1994	85.7	+ 14.5	114.7	- 1.1	.	104.4	- 0.1
1995	90.8	+ 5.9	113.9	- 0.6	.	107.5	+ 3.0
1996	84.5	- 6.9	110.7	- 2.8	6.6	103.9	- 3.4
1997	96.0	+ 13.6	104.5	- 5.6	6.1	99.2	- 4.6
1998	83.5	- 13.1	105.0	+ 0.5	5.7	99.5	+ 0.3
1999	85.0	+ 1.9	103.7	- 1.2	4.8	98.1	- 1.4
2000	105.8	+ 24.4	100.0	- 3.6	6.3	94.1	- 4.1
2001	98.7	- 6.7	101.1	+ 1.1	6.3	93.9	- 0.2
2002	91.2	- 7.6	102.3	+ 1.2	5.2	94.4	+ 0.5
2003	88.6	- 2.9	103.3	+ 0.9	4.2	97.5	+ 3.3
2004	100.7	+ 13.6	101.5	- 1.7	3.6	98.5	+ 1.0
2005	115.3	+ 14.5	100.8	+ 0.0	3.5	97.5	- 1.0
2006	151.2	+ 31.1	97.3	- 3.4	4.1	97.0	- 0.5
2007	160.1	+ 5.9	95.0	- 2.3	5.1	97.7	+ 0.7
2008	156.1	- 2.5	96.1	+ 1.1	5.5	98.3	+ 0.6
2009	122.6	- 21.5	109.1	+ 13.5	2.8	98.7	+ 0.4
2010	188.1	+ 53.5	103.1	- 5.5	2.4	96.1	- 2.7

Source: WIFO, OeNB, HWWA.

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

	$\log P_{t-1}$	I_{it}	I_{it-1}
<i>Cash-flow-to-sales ratio</i>			
β	0.51	0.14	- 0.06
z-Wert	6.85**	3.63**	- 0.44
NT = 198			
R^2	0.71		
	$\log BE_{t-1}$	I_{it}	I_{it-1}
<i>Result from ordinary business operations</i>			
β	0.46	0.23	- 0.05
z-Wert	5.63**	3.58**	- 0.65
NT = 198			
R^2	0.62		

The bias correction of the estimate follows Bruno (2003), Bun – Kiviet (2003) as well as Kiviet (1995). The calculation of the standard deviation of the estimators is carried out through bootstrapping (1,000 replications). Fixed sectoral effects are not shown. $\log II_{t-1}$. . . sector-specific cash-flow ratio (logarithmised, deferred by one period), I_t . . . synthetic sectoral economic indicator, $\log BE_{t-1}$. . . sector-specific earnings (logarithmised, deferred by one period), ** . . . significant at a 1 percent level, * . . . significant at a 5 percent level.

The data on the cash-flow-to-sales ratio are available in the breakdown by industries according to the Statistical Classification of Economic Activities in the European Community (NACE rev. 2). Following the reorganisation of NACE rev 1.1 to NACE rev. 2, the projection is based on short time series, as key figures were only calculated back to the year 2000. As no data are available for the tobacco industry, as well as the manufacture of coke and refined petroleum products, only 22 of the 24

Estimates for the year 2010 show an improvement of the cash-flow-to-sales ratio of Austrian manufacturers to 11.6 percent (2009: 10.0 percent).

industries could be included. The econometric estimate for the year 2010 is based on data for the period from 2000 to 2009.

Data and definitions

The cash-flow ratio is an indicator of a company's capacity to *finance investment or distribute profits* out of revenues from its sales. It mirrors the self-financing capacity of a company. Of similar interest is a *comparison of firms' equity* ratio. The latter is of importance 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 high-risk financial operations.

The *cash flow* of a company corresponds to the surplus of revenues over expenditure generated within a period through its own business operations. In contrast to *external financing* (via new equity, debt or subsidies) or asset transformation (asset sales, depletion of inventories etc.) as another form of internal financing, *self-financing in the broader sense* consists of three components: retained *earnings* (self-financing in the narrow sense), the "earned" counter value of *depreciation* and of *financial reserves* for potential *liabilities vis-à-vis* third parties (Schäfer, 1998).

The cash-flow-to-sales 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
 + normal 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 equity ratio as a measure of financial independence vis-à-vis third parties is obtained as the share of equity capital in the balance sheet total. The equity capital includes both the equity on the balance sheet and financial reserves before tax. The balance sheet total is composed of fixed capital, current capital and accruals/deferrals.

As data on depreciations were not available for all industries for 2009, depreciations for 2009 were extrapolated at the industry level. Based on this evaluation, depreciations developed more steadily than the result from ordinary business operations and errors in estimations can therefore be expected to be minimal.

The BACH Database

The BACH database (Bank for Accounts of Companies Harmonized) has been issued since 1987 by the European Commission (DG ECFIN) in co-operation with the European Committee of Central Balance Sheet Offices, in order to facilitate international comparisons between the EU member countries, Japan and the USA. At present, aggregated data on corporate annual financial statements are available in the following breakdown:

- 9 countries: Austria, Belgium, Spain, France, Germany, Italy, the Netherlands, Portugal, Poland,
- 87 industries according to NACE rev. 2 (2-digit), of which 24 are in manufacturing,
- 3 size brackets: companies with annual sales of under € 10 million, between € 10 and 50 million and over € 50 million.

In 2008, the aggregated cash-flow ratio declined significantly to 10.2 percent (2007: 13.3 percent), and in 2009 it remained nearly constant at 10.0 percent. The global economic crisis was therefore already palpable in 2008. The year 2009 did not see an additional slump, perhaps because so many companies were able to maintain their results almost in parallel with the decline in sales. One factor here could be that for some companies the fiscal year does not correspond with the calendar year.

After high values in 2006 and 2007, the weighted average of the 22 analysed industries fell to 10.2 percent in 2008, which was significantly below the average of the 2000-2009 period. For 2010 the estimate of the dynamic panel-econometric model (see box "A panel-econometric model for the projection of the cash-flow ratio")

predicts a significantly higher cash-flow ratio at 11.6 percent (+15.2 percent compared to 2009). This clear increase reflects the massive recovery of the economy in 2010. The projection for the result from ordinary business operations also predicts a significant increase compared to 2009 (+19.4 percent; Table 3).

A panel-econometric model for cash flow projections

The projections for cash-flow trends at the industry level use a panel-econometric approach. Despite rather short time series, the pooling of sectoral data allows a reliable econometric estimate to be made for the cash-flow ratio for 2010. The specification follows the industrial economics literature and assumes that the cash profitability and thereby also the self-financing power of companies exhibit differences persistent over time (Mueller, 1990, Aiginger – Pfaffermayr, 1997, Peneder – Pfaffermayr, 2003). Allowance is made for this assumption by introducing fixed industry-specific effects. The econometric model also includes the cash-flow ratio lagged by one period in order to illustrate the partial adjustment to external shocks.

Further explanatory variables are synthetic business cycle indicators (I_{it}, I_{it-1}) at the industry level on the basis of companies' subjective judgement of business conditions, as sampled by the WIFO Business Cycle Survey. Further industry-specific structural data for the explanation of the cash-flow ratio are not available. The synthetic business cycle indicator is derived from the annual averages of the balance between optimistic and pessimistic responses (as percent of all responses) with regard to current order books (AB), the business outlook for the next six months (GL) and the development of prices (PR) using the following formula (Oppenländer, 1996):

$$I = [(AB + 2)(GL + 2)(PR + 2)]^{1/6} - 2,$$

with the individual indicators included as percentage values in the estimate. The series of these balances of responses are closely correlated with the trend of the cash-flow-to-sales ratio and with the growth of manufacturing. However, they also mirror non-observed structural differences and different developments in production costs between industries. For projection purposes, this indicator should exhibit a sufficient lead time. The correction of values by 2 ensures that the value of the term in square brackets is always positive.

In algebraic terms, the econometric forecasting model is specified as follows:

$$\log \pi_{it} = \beta_1 \log \pi_{it-1} + \beta_2 I_{it} + \beta_3 I_{it-1} + \beta_0 + \sum_{j=1}^{22} \gamma_j S_j + \varepsilon_{it},$$

$$\varepsilon_{it} \sim N(0, \sigma^2).$$

The estimate of the dynamic panel model uses the Kiviet (1995) approach. In the present estimation, the average cash-flow ratio for the entire manufacturing sector is obtained as the weighted average of the industry-specific projections, the weights being the aggregated balance sheet total for each industry. The weights have been assumed as deterministic and continued for the year 2010 using the change rates of industry production between 2009 and 2010.

As no information on average depreciations was available for 2009, the same model was used for the projection of the results from ordinary business operations.

The estimation results for the period from 2001 to 2009 are presented in Table 2. All explanatory variables, including fixed industry effects, are significant. The significant parameter of the cash-flow ratio (which has been deferred by one period) implies that exogenous effects on the development of profits can have a delayed effect over several periods, even if with relatively minimal persistence. In general, the estimated model exhibits sufficient quality (Table 3), although the R^2 of 0.7 should not be overrated – it is largely determined by fixed industry effects.

Table 3: The cash-flow ratio in Austria by industries

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 ¹
	Cash flow as a percentage of sales										
Manufacture of food products	7.5	6.2	7.0	8.1	7.5	6.4	6.6	6.4	5.4	7.4	7.3
Manufacture of beverages	10.5	16.0	21.3	16.7	16.2	16.8	17.1	17.9	11.5	14.2	16.2
Manufacture of tobacco products	.	.	.	.	.	.	.	.	.	0.0	0.0
Manufacture of textiles	9.6	10.6	8.4	8.1	7.5	6.4	7.3	8.4	6.9	3.9	5.6
Manufacture of wearing apparel	3.4	1.9	2.8	3.6	6.3	3.1	3.6	5.4	4.5	4.1	4.2
Manufacture of leather and related products	9.9	6.3	2.4	3.6	5.5	10.8	11.5	14.8	12.7	11.4	11.1
Manufacture of wood and products of wood and cork (without furniture)	8.3	11.2	7.9	7.0	8.4	7.5	9.4	9.7	7.3	7.2	7.9
Manufacture of paper and paper products	13.0	22.3	20.0	18.2	14.7	13.3	15.7	14.9	11.7	11.0	13.6
Printing and reproduction of recorded media	15.2	10.3	8.2	9.8	10.6	9.4	14.0	14.3	11.3	12.8	12.1
Manufacture of coke and refined petroleum products	.	.	.	.	.	.	.	.	.	0.0	0.0
Manufacture of chemical products	4.8	11.3	12.2	9.6	10.5	11.0	14.4	17.3	10.7	15.7	16.6
Manufacture of pharmaceutical products	23.9	22.3	19.6	16.2	12.3	16.6	19.4	19.4	15.0	17.1	17.0
Manufacture of rubber and plastic products	10.5	10.6	11.1	10.5	11.1	11.1	9.4	10.3	9.6	9.9	11.0
Manufacture of other non-metallic mineral products	17.7	17.2	14.9	15.0	14.2	11.0	14.4	23.6	14.4	11.0	13.0
Manufacture and processing of basic metals	14.4	15.5	10.0	11.0	11.6	12.2	12.4	16.7	13.7	12.6	13.5
Manufacture of fabricated metal products	12.2	11.7	12.6	12.1	10.8	12.4	11.4	10.7	10.2	9.4	10.7
Manufacture of computer, electronic and optical products	65.8	27.7	24.1	19.0	17.5	19.1	16.8	17.7	7.1	9.5	12.3
Manufacture of electrical equipment	13.2	12.4	13.4	17.0	14.2	11.4	13.6	14.0	12.5	12.0	13.2
Manufacture of machinery and equipment	12.7	11.1	11.2	8.7	10.0	10.2	12.6	12.1	11.5	9.2	10.3
Manufacture of motor vehicles, trailers and semi-trailers	13.8	12.3	9.1	8.6	8.0	8.3	10.3	8.9	8.1	6.9	8.7
Manufacture of other transport equipment	5.9	10.9	10.8	8.0	6.7	- 0.4	15.3	13.6	6.6	15.5	13.1
Manufacture of furniture	7.7	8.6	6.1	6.6	7.1	6.3	6.0	5.2	5.6	5.2	5.8
Other manufacturing	23.9	22.5	19.8	17.6	15.2	15.8	20.2	20.3	14.0	8.9	12.5
Repairs and installation of machinery and equipment	15.6	4.9	5.0	5.3	9.7	9.2	7.6	11.7	10.6	10.0	8.6
Manufacture of goods total	14.0	13.2	12.1	11.5	10.9	11.0	12.7	13.3	10.2	10.0	11.6
Result from ordinary business operations in percentage of sales	9.4	8.6	7.1	6.7	5.9	6.6	7.4	9.7	6.8	6.7	8.0

Source: BACH database (<http://www.bachesd.banque-france.fr/?lang=en>). – ¹ Estimate.

The improvement of the cash-flow ratio appears to have taken place in nearly all industries. The recovery was particularly apparent in the manufacture of computer, electronic and optical products (+2.9 percentage points), the manufacture of beverages (+2.0 percentage points), and the manufacture of other non-metallic mineral products (+2.0 percentage points)¹. Because the diverse earnings performances of the individual industries enter the estimations process via the synthetic business cycle indicator and not by different coefficients, the heterogeneity of responses can only be uncovered to a limited extent.

In 2009, the cash-flow ratio of Austrian manufacturing reached 10.0 percent, which was higher than in all countries under comparison, with the exception of the Netherlands, Belgium and Poland (Table 4). The European average was 9.1 percent (not including the Netherlands and Poland). In recent years the cash-flow ratio developed more favourably in Austria than in most countries under comparison.

On an international level, the cash-flow ratio remained fairly constant over time and only deviated minimally from the average value (variation coefficient of 11.7 percent for Austria, 14.5 percent for Spain, 14.2 percent for Germany and 10.8 percent for Poland). In Poland – the only new EU country for which data are available – the average cash-flow ratio for 2006-2009 was 10.6 percent.

In 2009, Austrian manufacturing exhibited an equity ratio of 37.7 percent. This corresponded with the average of the nine European countries under comparison (not including the Netherlands and Poland) of 37.0 percent. The average value of the 2000-2009 period also barely deviated from the average ratio (36.7 percent for Austria, 36.3 percent for the countries under comparison). In addition to the outlier Netherlands (53.2 percent), Belgium (41.1 percent), Spain (39.8 percent) and Portu-

Cash-flow and equity ratio in international comparison

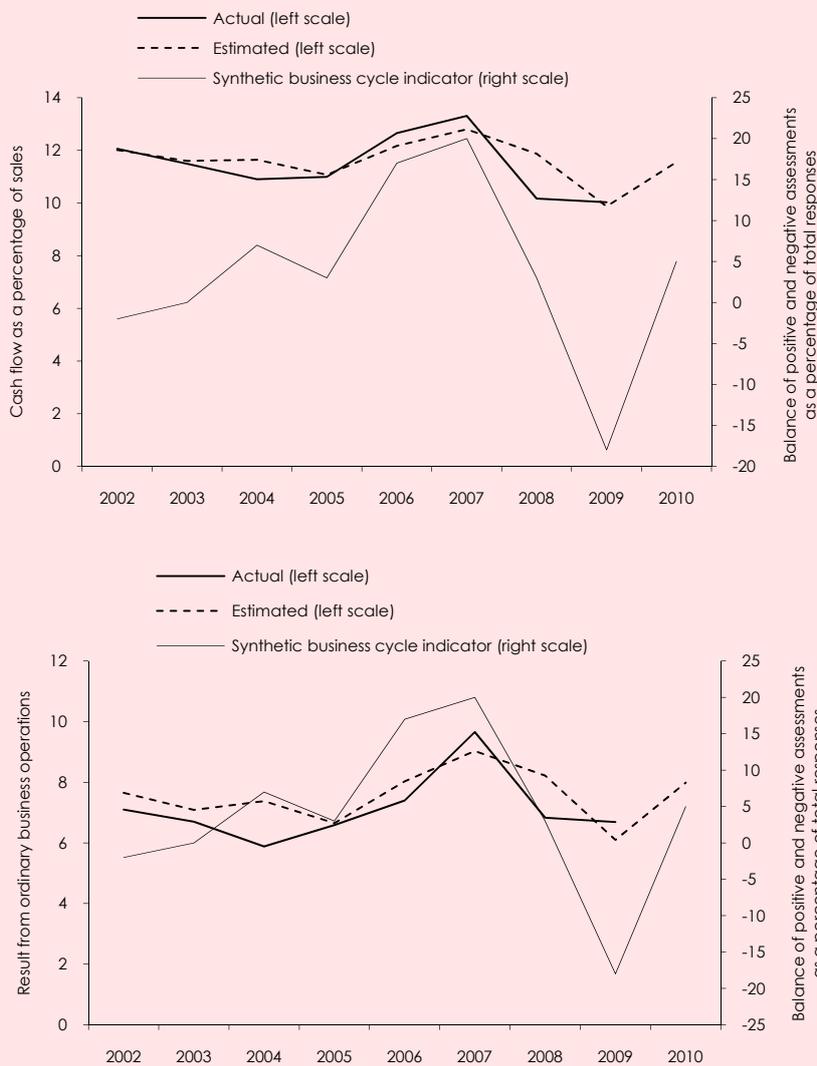
In 2009, the cash-flow ratio in Austrian manufacturing reached 10.0 percent, which was significantly above the average of the 7 EU countries, yet under the long-term average of 11.9 percent.

¹ The results of the estimates for the individual sectors are to be interpreted with greater caution than the aggregated estimate.

gal (40.3 percent) demonstrated a considerably higher equity ratio for the 2000-2009 period (Table 5).

The 2009 equity ratio of Austrian manufacturing reached 37.7 percent, corresponding with the average of the European countries under comparison (37.0 percent).

Figure 3: The cash-flow ratio and result from ordinary business operations in Austrian manufacturing



Source: BACH database (Bank for Accounts of Companies Harmonized), WIFO calculations.

The equity ratio is – more so than the cash-flow ratio – a structural indicator. It is determined by firm-specific and industry-specific capital intensity and risk. In international comparison, moreover, the non-neutrality of the modes of financing is relevant. If bank financing together with the deductibility of the interest payments is associated with a lower cost of financing than equity capital, average financial structures in a country will be affected accordingly. The characteristics of the individual industries and systems of corporate taxation are relatively stable over time. Therefore, the equity ratio fluctuates less over time than the cash-flow ratio (variation coefficient of 4.1 percent for Austria). The countries with a significantly higher variation coefficients, such as Belgium (11.5 percent) and Portugal (9.1 percent) are characterised by a trend in the development of the equity ratio: in Belgium the equity ratio of the manufacturing sector rose from 36.9 percent to 48.9 percent between 2000 and 2009, whereas in Portugal it declined from 41.7 percent to 35.1 percent.

Table 4: International comparison of cash-flow ratios in the manufacturing sector

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Ø 2000-2009	Standard deviation	Variation coefficient
Cash flow as a percentage of sales													
9 EU countries													
Austria	14.0	13.2	12.1	11.5	10.9	11.0	12.7	13.3	10.2	10.0	11.9	1.385	0.117
Belgium	9.9	8.4	9.0	9.5	10.3	10.0	11.0	10.3	9.9	12.5	10.1 ¹	1.105	0.110
Spain	9.1	8.1	8.0	8.6	9.5	9.0	8.8	8.8	6.3	6.0	8.2	1.194	0.145
France	9.4	8.3	10.0	9.0	9.3	8.7	8.4	8.8	7.6	7.8	8.7	0.729	0.084
Germany	9.2	7.2	6.6	6.7	6.5	6.9	7.6	8.0	6.6	5.5	7.1	1.008	0.142
Italy	8.6	8.4	8.3	8.2	8.3	8.1	8.2	8.3	7.1	7.3	8.1	0.488	0.060
Netherlands	-	14.5	13.1	14.0	18.5	25.6	23.0	27.6	22.1	13.1	19.0 ²	5.699	0.299
Portugal	11.5	10.4	10.7	10.6	10.9	10.6	9.1	9.1	8.0	7.9	9.9	1.271	0.129
Poland	.	.	.	.	.	.	11.2	11.6	9.0	10.5	10.6 ³	1.141	0.108
Average value	10.2	9.8	9.7	9.8	10.5	11.2	11.1	11.8	9.6	8.9			
Median	9.4	8.4	9.5	9.2	9.9	9.5	9.1	9.1	8.0	7.9			
Excluding the Netherlands and Poland													
Average value	10.2	9.1	9.2	9.2	9.4	9.2	9.4	9.5	7.9	8.1	9.1	0.662	0.073
Median	9.4	8.4	9.0	9.0	9.5	9.0	8.8	8.8	7.6	7.8	8.7	0.624	0.072

Source: BACH database (Bank for Accounts of Companies Harmonized), WIFO calculations. – ¹ Average 2008-09. – ² Average 2001-2009. – ³ Average 2006-2009.

Table 5: International comparison of equity ratios in the manufacturing sector

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Ø 2000/2009	Standard deviation	Variation coefficient
Equity as a percentage of balance sheet totals													
9 EU countries													
Austria	37.7	35.8	36.2	36.0	35.1	37.2	38.5	38.7	34.2	37.7	36.7	1.490	0.041
Belgium	36.9	37.0	36.3	38.5	37.0	40.5	43.1	46.6	46.2	48.9	41.1 ¹	4.745	0.115
Spain	42.4	41.8	40.9	41.1	40.5	39.1	38.0	37.3	39.0	38.2	39.8	1.750	0.044
France	35.6	33.3	33.4	34.3	35.2	37.1	37.1	36.2	34.0	34.8	35.1	1.407	0.040
Germany	28.2	29.1	30.1	29.7	30.0	29.9	30.3	31.0	30.0	29.7	29.8	0.743	0.025
Italy	29.4	29.4	30.0	30.0	31.1	31.5	31.7	31.6	33.7	34.8	31.3	1.804	0.058
Netherlands	.	52.1	48.0	48.5	48.8	53.2	54.4	59.3	55.5	58.8	53.2 ²	4.243	0.080
Portugal	41.7	41.9	42.8	43.8	43.6	44.2	37.1	36.5	35.9	35.1	40.3	3.674	0.091
Poland	.	.	.	.	.	.	49.9	50.5	46.8	49.8	49.3 ³	1.654	0.034
Average value	36.0	37.5	37.2	37.7	37.7	39.1	40.0	40.8	39.5	40.9			
Median	36.9	36.4	36.2	37.2	36.1	38.1	38.0	37.3	35.9	37.7			
Excluding the Netherlands and Poland													
Average value	36.0	35.5	35.7	36.2	36.1	37.1	36.6	36.8	36.1	37.0	36.3	0.551	0.015
Median	36.6	34.5	34.8	35.1	35.1	37.1	37.1	36.3	34.1	34.9	35.6	1.118	0.031

Source: BACH database (Bank for Accounts of Companies Harmonized), WIFO calculations. – ¹ Average 2008-09. – ² Average 2001-2009. – ³ Average 2006-2009.

The earning power of the entire manufacturing sector remained largely stable in the countries under comparison. At the industry level, however, we observe significant heterogeneity. During the 2000-2009 period, the most profitable industries were those which manufacturing of computer, electronic and optical products (22.4 percent), pharmaceutical products (18.2 percent) and other manufacturing (17.8 percent). The industries with the lowest cash-flow margins in this period were manufacture of wearing apparel (only 3.9 percent), furniture (6.4 percent) and food products (6.9 percent). As the comparison with 7 EU countries shows, this heterogeneity has a strong sectoral-specific component. The correlation coefficient for the long-term average in Austria and the 7 countries under comparison was 0.74.

We find a similar pattern for the equity ratio (correlation coefficient of 0.73). Industries with a lower equity ratio in Austria also show a below-average equity ratio in the countries under comparison. At the industry level there are significant differences: while the equity ratio in the manufacture of other transport equipment only reached 17.0 percent in 2000-2009 and that of the repair and installation of machinery and equipment reached 19.4 percent, companies in the manufacture of computer, electronic and optical products (53.2 percent) and other manufacturing (54.0 percent) had a significantly higher equity ratio.

Heterogeneity at the industry level

Table 6: Cash-flow ratio and equity ratio by industries in Austria and 7 EU countries

	Cash flow as a percentage of sales		Equity as a percentage of balance sheet total	
	Austria	7 EU countries ¹	Austria	7 EU countries ¹
		Average 2000/2009		
Manufacture of food products	6.9	6.5	40.1	37.2
Manufacture of beverages	15.8	13.4	40.5	38.2
Manufacture of tobacco products	.	21.2	.	19.9
Manufacture of textiles	7.7	6.4	34.5	37.0
Manufacture of wearing apparel	3.9	6.6	38.3	39.5
Manufacture of leather and related products	8.9	7.8	34.1	31.8
Manufacture of wood and products of wood and cork (without furniture)	8.4	7.3	28.7	34.1
Manufacture of paper and paper products	15.5	12.3	44.7	43.4
Printing and reproduction of recorded media	11.6	11.0	35.5	33.8
Manufacture of coke and refined petroleum products	.	6.9	.	26.6
Manufacture of chemical products	11.8	10.4	39.2	41.3
Manufacture of pharmaceutical products	18.2	19.2	35.0	43.9
Manufacture of rubber and plastic products	10.4	9.9	34.9	36.5
Manufacture of other non-metallic mineral products	15.3	13.9	36.8	41.5
Manufacture and processing of basic metals	13.0	9.6	40.1	37.7
Manufacture of fabricated metal products	11.3	9.0	37.9	35.1
Manufacture of computer, electronic and optical products	22.4	10.2	53.2	36.9
Manufacture of electrical equipment	13.4	10.2	33.1	34.7
Manufacture of machinery and equipment	10.9	9.7	32.2	35.8
Manufacture of motor vehicles, trailers and semi-trailers	9.4	5.8	31.6	29.7
Manufacture of other transport equipment	9.3	7.6	17.0	16.0
Manufacture of furniture	6.4	6.5	30.4	35.4
Other manufacturing	17.8	10.3	54.0	41.2
Repairs and installation of machinery and equipment	9.0	7.1	19.4	27.6
Manufacture of goods	11.9	9.1	36.7	36.3

Source: BACH database (Bank for Accounts of Companies Harmonized), WIFO estimates. Cash-flow calculation excluding changes in liability and social capital. – ¹ Austria, Belgium, Spain, France, Germany, Italy, Portugal.

Moderate Recovery of the Cash-Flow Margin Projected for 2010

Cash Flow and Equity in Austrian Manufacturing – Summary

In 2010, the cash-flow-to-sales ratio of the Austrian manufacturing sector is expected to have recovered from the decline associated with the economic crisis. Compared to 2008, 2009 was marked by a moderate drop to 10.0 percent. For 2010, econometric estimates based on a panel of NACE 2-digit industry data indicate a cash-flow-to-sales ratio of approximately 11.6 percent, equivalent to an increase by 16 percent over 2009. This development can be explained by the impact that the recovery in world trade and exports had on the Austrian manufacturing sector.

Comparative international figures are only available up to 2009. They show that during the crisis the Austrian cash-flow-to-sales ratios exceeded the average of seven countries used for comparison, but also that the ratio of 2010 will be slightly below the long-term average of 11.9 percent. The average financial structure of Austrian manufacturers remained stable in 2009, with an equity ratio of 37.7 percent, which was slightly above the European average.

Both cash flow and equity vary considerably between manufacturing industries. A comparison with other countries reveals that these variations are similar across countries and can be explained by economies of scale and production technologies.

References

- Aiginger, K., Pfaffermayr, M., "Explaining Profitability Differences: From Cross-Section to Panel Research", *Zeitschrift für Wirtschafts- und Sozialwissenschaften*, 1997, 117, pp. 85-105.
- Bruno, G.S.F., "Approximating the Bias of the LSDV Estimator for Dynamic Unbalanced Panel Data Models", *Economics Letters*, 2003, (87), pp. 361-366.
- Bun, M.J.G., Kiviet, J.F., "On the Diminishing Returns of Higher Order Terms in Asymptotic Expansions of Bias", *Economics Letters*, 2003, (79), pp. 145-152.
- Falk, M., Kunnert, A., Schwarz, G., "Kräftige Belegung der Investitionen in der Sachgütererzeugung, leichte Erholung in der Bauwirtschaft. Ergebnisse des WIFO-Investitionstests vom Herbst 2010", *WIFO-Monatsberichte*, 2011, 84(1), pp. 85-98, <http://www.wifo.ac.at/www/pubid/41152>.
- Kiviet, J.F., "On Bias, Inconsistency, and Efficiency of Various Estimators in Dynamic Panel Data Models", *Journal of Econometrics*, 1995, 68, pp. 53-78.
- Mueller, D. (Eds.), *The Dynamics of Company Profits: An International Comparison*, Cambridge University Press, Cambridge, 1990.
- Oppenländer, K.H. (Eds.), *Konjunkturindikatoren – Fakten, Analysen, Verwendung*, 2. Auflage, Oldenbourg, Munich, 1996.
- Peneder, M., Pfaffermayr, M., "Mäßige Ertragsentwicklung im Jahr 2002. Cash-Flow und Eigenkapital der österreichischen Sachgütererzeugung", *WIFO-Monatsberichte*, 2003, 76(3), pp. 179-189, <http://www.wifo.ac.at/www/pubid/23658>.
- Schäfer, H., *Unternehmensfinanzen*, Physica, Heidelberg, 1998.