



Analysis of the mechanical engineering sector 2011-16

5 April 2017

Banco de Portugal updates today the [Central Balance Sheet Study | 20 – Analysis of the mechanical engineering sector](#) with information on the economic and financial situation of enterprises in the mechanical engineering sector¹ between 2011 and 2016. This study was first published in 2015, with information for the 2009-14 period.

Results are broken down by size class – microenterprises, small and medium-sized enterprises (SMEs) and large enterprises – and economic activity segment ('basic metals', 'metal and electrical products' and 'transport equipment'), and are compared with results of manufacturing and total enterprises.

Structure and dynamics

In 2015, 72 per cent of enterprises in the mechanical engineering sector were microenterprises. Large enterprises had the highest turnover and SMEs the highest number of employees

In 2015 the mechanical engineering sector accounted for 2 per cent of enterprises in Portugal (9,700 enterprises), 7 per cent of turnover and 6 per cent of the number of employees. The sector accounted for around one fourth of the manufacturing aggregate, regardless of the variable considered. The weight of the mechanical engineering sector in total enterprises and manufacturing remained unchanged from 2011.

The number of active enterprises in the mechanical engineering sector remained virtually unchanged in 2015 compared with the previous year (increasing by 0.1 per cent, similarly to manufacturing and

below the 1 per cent increase in total enterprises) (Chart 1). Following three years of birth/death ratios below 1, in 2015, 1.03 new enterprises were created for every enterprise ceasing activity in the mechanical engineering sector (compared to 1.04 in manufacturing and 1.17 in total enterprises).

'Metal and electrical products' was the largest segment in the sector, accounting for 90 per cent of enterprises, 53 per cent of turnover and 72 per cent of the sector's employees. 'Transport equipment' (7 per cent of enterprises) represented 36 per cent of turnover and 23 per cent of employees. 'Basic metals' accounted for 3 per cent of enterprises, 11 per cent of turnover and 5 per cent of the sector's employees (Chart 2).

Most of the sector's enterprises were microenterprises (72 per cent, compared to 71 per cent in manufacturing and 89 per cent in total enterprises) (Chart 3). Large enterprises (1 per cent) accounted for the highest share of turnover (53 per cent), similarly to manufacturing (50 per cent). SMEs had the highest share of employees (57 per cent), below manufacturing (64 per cent), but above the share observed for total enterprises (45 per cent).

Aveiro accounted for 20 per cent of turnover in the mechanical engineering sector, followed by the districts of Setúbal (18 per cent) and Porto (15 per cent). However, this sector played a more important role in Bragança and Viana do Castelo, where it accounted for 35 and 33 per cent of turnover of enterprises with their head offices in these districts respectively.

Chart 1 • Demographic indicators

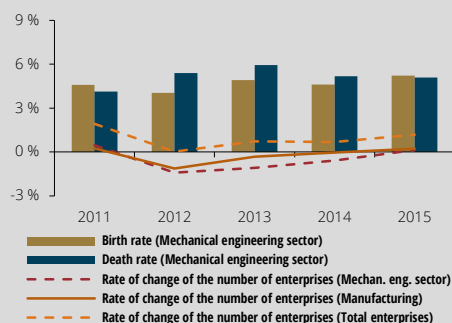
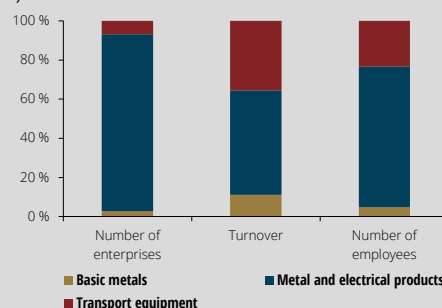


Chart 2 • Structure | By economic activity segment (2015)



Activity and profitability

In 2015 exports accounted for 62 per cent of the sector's turnover, i.e. 8 p.p. more than in 2011

Turnover in the mechanical engineering sector increased by 5 per cent in 2015 compared with the previous year. This increase was 3 p.p. higher than in manufacturing and total enterprises, exceeding these aggregates for the second consecutive year.

Turnover growth was broadly based across all size classes and varied from 2 per cent in microenterprises to 6 per cent in SMEs. Turnover rose by 10 per cent in 'transport equipment' and 5 per cent in 'metal and electrical products' (3 p.p. contributions to the change in the sector in both cases). Turnover in 'basic metals' declined by 6 per cent (negative contribution of 1 p.p.).

In 2015, 62 per cent of the sector's turnover was related to exports, a share 8 p.p. higher than in 2011. The external and internal markets contributed 3 and 2 p.p. respectively to the developments in the sector's turnover in 2015 (Chart 4). The contribution from the external market was positive over the whole period under review and in 2014 and 2015 was higher than the ones recorded in 2012 and 2013.

The differential between the export component of turnover and the import content of purchases and supplies and external services amounted to 21 per cent of the sector's turnover in 2015 (15 per cent in manufacturing and 1 per cent in total enterprises). That year, around one out of every five enterprises in the mechanical engineering sector was part of the export sector² (15 per cent in manufacturing and 6 per cent in total enterprises). Enterprises in the mechanical engineering sector that were part of

the export sector accounted for 83 per cent of turnover and 69 per cent of employees in this industry, i.e. higher shares than those recorded in manufacturing (73 and 56 per cent respectively) and in total enterprises (37 and 24 per cent respectively).

EBITDA increased by 28 per cent in 2015

EBITDA in the mechanical engineering sector increased by 28 per cent between 2014 and 2015 (37 per cent in manufacturing and 25 per cent in total enterprises), due to the contributions from SMEs and large enterprises (13 p.p. in each case) and 'metal and electrical products' (23 p.p.). In 2015, 56 per cent of the sector's enterprises recorded positive changes in EBITDA vis-à-vis 2014, i.e. 12 p.p. more than the share of enterprises with positive changes in EBITDA in 2011, in comparison with 2010 (55 and 54 per cent in manufacturing and total enterprises respectively in 2015) (Chart 5). EBITDA was negative for 22 per cent of enterprises, i.e. lower than the share observed in 2011 (28 per cent) and that the ones recorded by manufacturing and total enterprises in 2015 (26 and 33 per cent respectively).

Profitability increased in 2015. 'Transport equipment' recorded the highest profitability

Return on equity in the mechanical engineering sector stood at 9 per cent in 2015 (4 p.p. increase from 2014), above the one recorded by total enterprises (7 per cent), but below manufacturing (10 per cent). Between 2011 and 2015, the sector's profitability was always higher than that of total enterprises; it was lower than that of manufacturing only in 2015 (Chart 6). 'Transport equipment' registered the highest profitability (13 per cent),

Chart 3 • Structure | By size class (2015)

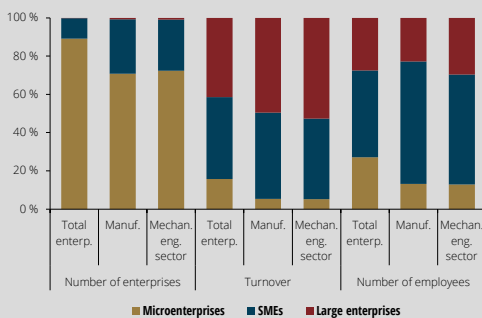


Chart 4 • Turnover | Contributions from the external and internal markets (p.p.) to the annual growth rate (per cent)

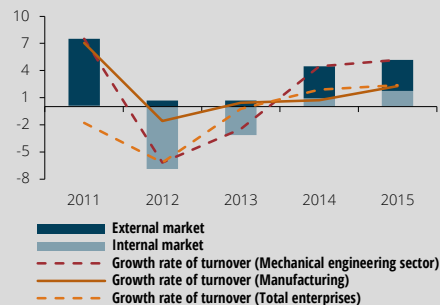


Chart 5 • Share of enterprises with EBITDA growth

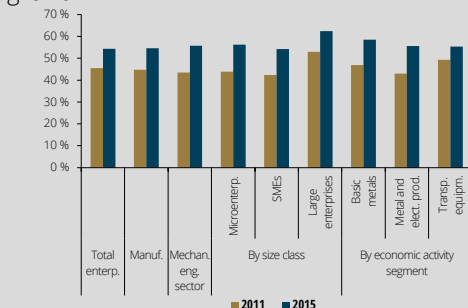
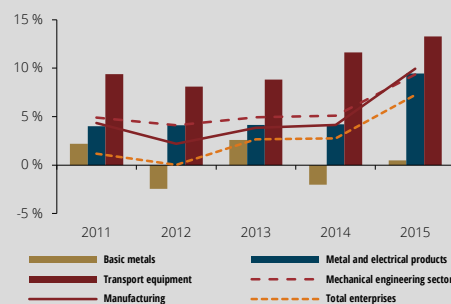


Chart 6 • Return on equity



followed by 'metal and electrical products' (9 per cent). The profitability of 'basic metals' was marginally positive.

The sector's operating margin (EBITDA / revenue) amounted to 8 per cent in 2015, i.e. below the value for manufacturing and total enterprises (10 per cent in both cases). In turn, the net margin (net income / revenue) stood at 3 per cent, below manufacturing (4 per cent), but similar to the one of total enterprises (Chart 7). 'Metal and electrical products' showed the highest (operating and net) margins (10 and 4 per cent respectively, higher than the 7 and 3 per cent margins in 'transport equipment' and the 5 and 0.2 per cent margins in 'basic metals').

Financial situation

The capital ratio was higher than the ones of total enterprises and manufacturing. Liabilities declined by 3 per cent in 2015

In 2015 the capital ratio in the mechanical engineering sector was of 43 per cent, i.e. higher than those of manufacturing (41 per cent) and total enterprises (32 per cent). Compared to 2011 the capital ratio increased by 7 p.p. in the mechanical engineering sector, a higher change than what was observed in manufacturing (5 p.p.) and total enterprises (2 p.p.) (Chart 8). However, in 2015 half of the sector's enterprises showed a capital ratio below 32 per cent, a threshold that was nevertheless higher than the one recorded for the same share of enterprises in manufacturing and total enterprises (29 and 27 per cent respectively). The average capital ratio was higher in larger enterprises: 51 per cent in large enterprises, 41 per

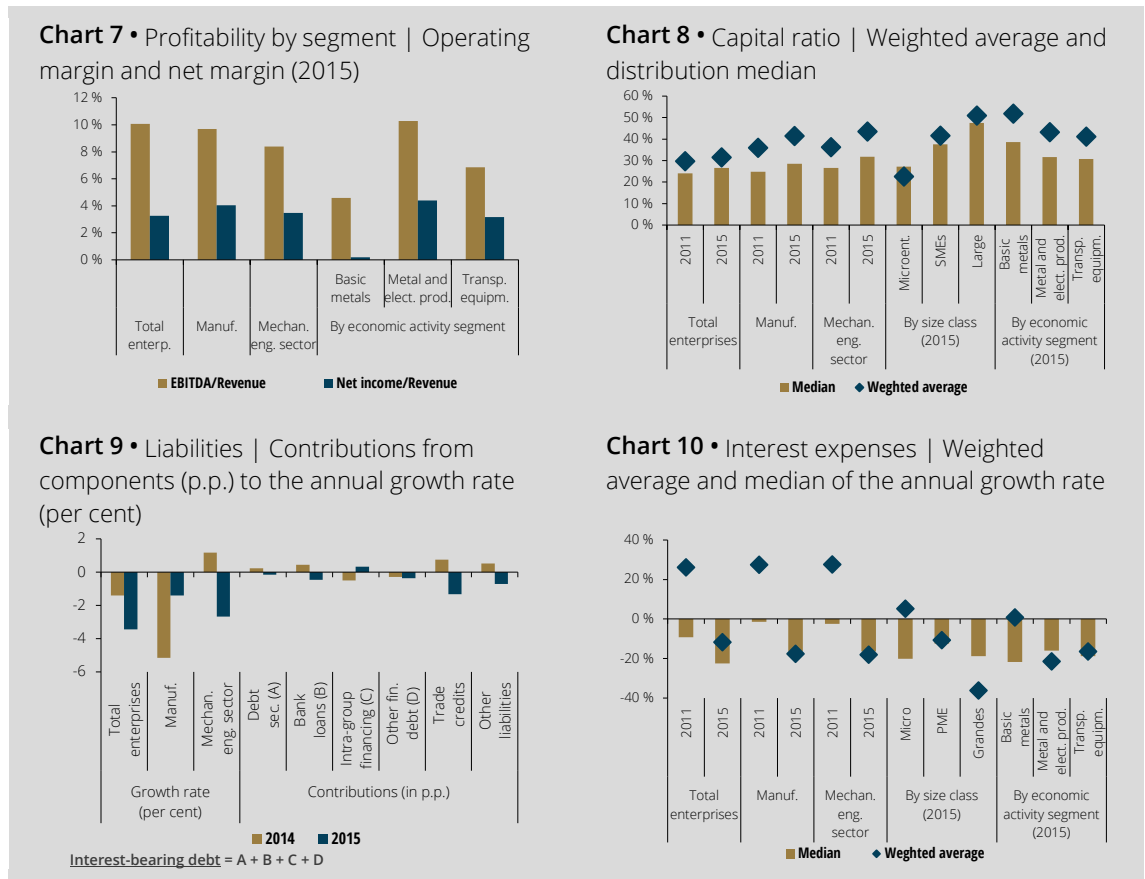
cent in SMEs and 23 per cent in microenterprises. By activity segment, 'basic metals' recorded higher average and median values (52 and 39 per cent respectively) (43 and 32 per cent in 'metal and electrical products' respectively; 41 and 31 per cent respectively in 'transport equipment').

The liabilities of the mechanical engineering sector declined by 3 per cent in 2015 compared to 2014, in line with the changes recorded by manufacturing (-1 per cent) and total enterprises (-3 per cent) (Chart 9). With the exception of intra-group financing, all other components declined in 2015; trade credits made a -1.3 p.p. contribution to the evolution of the sector's liabilities. Intra-group financing increased by 4 per cent, making a 0.3 p.p. contribution to the increase in the sector's liabilities.

Interest-bearing debt accounted for 42 per cent of the liabilities of the mechanical engineering sector in 2015, a share lower than the ones observed for manufacturing and total enterprises (51 and 58 per cent respectively). The weight of bank loans was nevertheless similar (26 per cent of the sector's liabilities, ranging between 15 per cent in 'transport equipment' and 30 per cent in 'basic metals' and 'metal and electrical products').

Financial pressure was lower than in total enterprises and manufacturing

In 2015 the reduction in interest expenses by enterprises in the mechanical engineering sector was on average of 18 per cent, similar to the change observed in manufacturing and higher than in total enterprises (12 per cent) (Chart 10). Interest declined on average by 36 per cent in large



enterprises and 11 per cent in the sector's SMEs. Half of the large enterprises in the mechanical engineering sector recorded a reduction in interest of more than 19 per cent.

Interest expenses declined on average by 21 per cent in 'metal and electrical products' and 16 per cent in 'transport equipment' and rose by 1 per cent in 'basic metals'. However, half of the enterprises of this segment recorded reductions in interest expenses equal to or higher than 22 per cent.

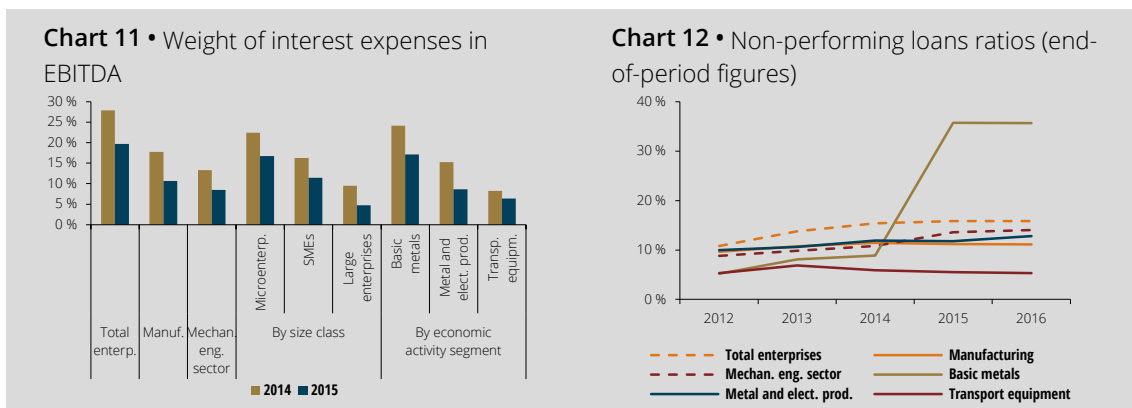
Jointly with the increase in EBITDA, the reduction in interest expenses led to a fall in financial pressure compared to 2014 (5 p.p.), with interest expenses consuming 8 per cent of the sector's EBITDA in 2015 (Chart 11). This share was lower than the ones observed in manufacturing (11 per cent) and total enterprises (20 per cent), a situation which occurred over the whole period under review. The decline in financial pressure was broadly based across all size classes and activity segments, although financial pressure was higher in microenterprises and 'basic metals' (17 per cent in both cases).

According to information from Banco de Portugal's Central Credit Register, following the decline seen in 2015, loans granted to the mechanical engineering sector by the resident financial sector increased by 5.2 per cent from the end of 2015 to the end of 2016, countering the decline observed in manufacturing and total enterprises (by 0.9 and 5.3 per cent respectively). At the end of 2016, 14.1 per cent of loans granted to the sector were

non-performing (11.1 per cent in manufacturing and 15.9 per cent in total enterprises) (Chart 12).

The 'basic metals' segment had the highest non-performing loans ratio since the end of the first half of 2015, which was associated with the revitalisation processes of several of the segment's enterprises of the segment. At the end of 2016, 35.7 per cent of loans granted to 'basic metals' were non-performing (12.8 per cent in 'metal and electrical products' and 5.4 per cent in 'transport equipment').

Around one third of the liabilities of enterprises in the mechanical engineering sector was associated with trade credit, a higher share than the ones registered for manufacturing (27 per cent) and total enterprises (16 per cent). This type of financing was more relevant for 'basic metals' and 'transport equipment' (around 40 per cent of the respective liabilities). However, the negative differential between accounts payable and accounts receivable (corresponding to 5 per cent of the sector's turnover in 2015) showed that this sector did not obtain net trade credit financing. With the exception of 'transport equipment', this was broadly based across the different size classes and activity segments. Differentials were more negative in microenterprises (-12 per cent) and 'metal and electrical products' (-9 per cent). In 'transport equipment', the differential was positive to an amount equivalent to 2 per cent of turnover.



¹ For the purposes of this analysis, the mechanical engineering sector includes CAE-Rev.3 Divisions 24 ('basic metals'), 25, 27 and 28 ('metal and electrical products'), 29 and 30 ('transport equipment'), economic activities that are part of manufacturing (Section C of CAE-Rev.3).

² The definition of export sector is detailed in [Central Balance Sheet Study | 22 – Analysis of enterprises in the export sector in Portugal](#), June 2015.

Additional information available at:

[Statistical domain of Central Balance Sheet Database statistics in BPstat | Statistics online](#)

[Supplement to the Statistical Bulletin 2/2013 on statistics on non-financial corporations of the Central Balance Sheet Database](#)

[Central Balance Sheet Study No 26 on non-financial corporations](#)

[Central Balance Sheet Study No 20 on the mechanical engineering sector](#)

Banco de Portugal | info@bportugal.pt

Annex – Main indicators of the mechanical engineering sector

Chart	Series	2011	2012	2013	2014	2015	2016	
1 Demographic indicators	Mechanical engineering sector							
	Birth rate	4.6	4.0	4.9	4.6	5.2		
	Death rate	4.1	5.4	6.0	5.2	5.1		
	Rate of change of the number of enterprises	0.5	-1.4	-1.1	-0.6	0.1		
	Rate of change of the number of enterprises / Total enterprises	1.9	0.0	0.7	0.7	1.2		
	Rate of change of the number of enterprises / Manufacturing	0.2	-1.1	-0.3	0.0	0.2		
2 Structure By economic activity segment	Basic metals							
	Number of enterprises	3.1	3.0	3.0	3.0	2.9		
	Turnover	12.8	13.4	13.0	12.5	11.2		
	Number of employees	5.5	5.5	5.6	5.2	4.8		
	Metal and electrical products							
	Number of enterprises	90.2	90.1	90.0	90.2	90.2		
	Turnover	52.9	52.9	53.7	53.5	53.2		
	Number of employees	73.2	72.3	71.9	72.0	72.0		
	Transport equipment							
	Number of enterprises	6.8	6.9	6.9	6.9	6.9		
	Turnover	34.3	33.7	33.3	34.0	35.6		
	Number of employees	21.3	22.2	22.6	22.8	23.3		
3 Structure By size class	Share of microenterprises (number of enterprises)							
	Total enterprises	88.0	88.9	89.4	89.4	89.1		
	Manufacturing	69.3	70.7	71.5	71.3	70.8		
	Mechanical engineering sector	71.5	72.7	73.3	73.1	72.3		
	Share of microenterprises (turnover)							
	Total enterprises	15.4	15.5	15.6	15.7	15.8		
	Manufacturing	5.3	5.2	5.3	5.3	5.3		
	Mechanical engineering sector	5.2	5.3	5.5	5.3	5.2		
	Share of microenterprises (number of employees)							
	Total enterprises	27.5	28.1	28.1	27.8	27.2		
	Manufacturing	13.8	14.0	13.9	13.5	13.2		
	Mechanical engineering sector	14.0	14.0	13.6	13.2	12.9		
	Share of SMEs (number of enterprises)							
	Total enterprises	11.7	10.9	10.4	10.3	10.6		
	Manufacturing	30.0	28.6	27.7	28.0	28.5		
	Mechanical engineering sector	27.6	26.4	25.8	26.0	26.8		
	Share of SMEs (turnover)							
	Total enterprises	42.6	42.1	42.0	42.1	42.7		
	Manufacturing	44.4	43.3	43.0	44.6	45.2		
	Mechanical engineering sector	40.7	40.4	41.5	41.8	42.1		
	Share of SMEs (number of employees)							
	Total enterprises	46.6	46.1	45.6	45.4	45.4		
	Manufacturing	64.7	64.2	63.9	64.0	64.0		
	Mechanical engineering sector	57.1	56.6	56.2	56.3	57.4		
	Share of large enterprises (number of enterprises)							
	Total enterprises	0.3	0.2	0.2	0.2	0.3		
	Manufacturing	0.7	0.7	0.7	0.7	0.7		
	Mechanical engineering sector	0.9	0.9	0.9	0.9	0.9		
	Share of large enterprises (turnover)							
	Total enterprises	42.0	42.4	42.3	42.2	41.5		
	Manufacturing	50.3	51.4	51.6	50.1	49.5		
	Mechanical engineering sector	54.1	54.3	53.1	52.9	52.7		
	Share of large enterprises (number of employees)							
	Total enterprises	25.8	25.8	26.3	26.8	27.5		
	Manufacturing	21.5	21.8	22.2	22.5	22.8		
	Mechanical engineering sector	28.9	29.4	30.2	30.6	29.7		
	4 Turnover Contributions from the external and internal markets (p.p.) to the annual growth rate (per cent)	Growth rate of turnover / Mechanical engineering sector	7.5	-6.2	-2.5	4.5	5.2	
		Contribution from the external market	7.4	0.7	0.7	3.5	3.4	
		Contribution from the internal market	0.1	-6.9	-3.1	0.9	1.7	
		Growth rate of turnover / Total enterprises	-1.8	-6.2	-0.2	1.9	2.4	
		Growth rate of turnover / Manufacturing	7.0	-1.6	0.4	0.7	2.3	
	5 Share of enterprises with EBITDA growth	Total enterprises	45.4	44.6	53.7	54.2	54.4	
		Manufacturing	44.7	46.1	56.0	54.5	54.6	
		Mechanical engineering sector	43.5	44.8	56.4	55.7	55.7	
		Microenterprises	43.8	45.1	55.9	54.6	56.3	
		Small and medium-sized enterprises	42.3	44.1	57.4	58.3	54.2	
		Large enterprises	52.9	42.4	67.1	57.6	62.4	
		Basic metals	46.9	40.2	60.0	62.4	58.4	
Metal and electrical products		42.9	44.9	56.0	55.2	55.6		
Transport equipment		49.3	45.2	59.9	59.7	55.3		
6 Return on equity	Total enterprises	1.2	0.0	2.7	2.7	7.2		
	Manufacturing	4.4	2.2	3.8	4.1	9.9		
	Mechanical engineering sector	4.9	4.1	4.9	5.1	9.4		
	Basic metals	2.2	-2.4	2.6	-2.0	0.5		
	Metal and electrical products	4.0	4.1	4.1	4.2	9.5		
	Transport equipment	9.4	8.1	8.8	11.6	13.3		
7 Profitability by segment Operating margin and net margin	EBITDA / Revenue							
	Total enterprises	7.9	7.6	8.4	8.3	10.1		
	Manufacturing	7.6	6.6	7.1	7.2	9.7		
	Mechanical engineering sector	6.6	6.7	7.1	6.8	8.4		
	Basic metals	4.5	2.7	4.4	3.1	4.6		
	Metal and electrical products	7.4	8.1	8.1	7.5	10.3		
	Transport equipment	6.1	6.0	6.6	7.0	6.8		
	Net income / Revenue							
	Total enterprises	0.5	0.0	1.2	1.2	3.3		
	Manufacturing	1.6	0.8	1.4	1.7	4.0		
	Mechanical engineering sector	1.5	1.4	1.7	1.8	3.5		
	Basic metals	0.7	-0.8	0.9	-0.7	0.2		
	Metal and electrical products	1.5	1.7	1.8	1.8	4.4		
	Transport equipment	1.7	1.8	2.0	2.7	3.2		

Chart	Series	2011	2012	2013	2014	2015	2016
8 Capital ratio Weighted average and distribution median	Capital ratio (weighted average)						
	Total enterprises	29.7	29.3	29.8	29.6	31.5	
	Manufacturing	35.9	36.4	37.2	40.3	41.4	
	Mechanical engineering sector	36.2	39.6	39.5	40.9	43.5	
	Microenterprises	16.0	16.8	16.9	20.4	22.5	
	Small and medium-sized enterprises	36.0	38.0	38.6	39.3	41.5	
	Large enterprises	41.5	47.1	46.0	47.7	50.9	
	Basic metals	45.3	47.9	47.7	49.2	51.8	
	Metal and electrical products	36.0	38.5	38.7	40.2	43.2	
	Transport equipment	32.6	38.5	37.9	39.4	41.0	
	Capital ratio (median)						
	Total enterprises	24.1	23.3	23.6	25.0	26.6	
	Manufacturing	24.7	24.8	25.4	26.8	28.5	
	Mechanical engineering sector	26.6	26.9	28.1	29.8	31.7	
	Microenterprises	22.7	22.6	23.4	25.0	27.2	
	Small and medium-sized enterprises	31.8	33.6	35.1	36.8	37.6	
	Large enterprises	40.9	42.3	43.7	43.8	47.5	
	Basic metals	31.1	31.5	30.0	32.5	38.7	
	Metal and electrical products	26.4	26.8	28.0	29.7	31.6	
	Transport equipment	26.7	27.2	28.4	30.9	30.7	
9 Liabilities Contributions from components (p.p.) to the annual growth rate (per cent)	Growth rate of liabilities / Total enterprises	1.4	-1.9	-1.8	-1.4	-3.4	
	Growth rate of liabilities / Manufacturing	0.4	-3.4	-1.8	-5.2	-1.4	
	Growth rate of liabilities / Mechanical engineering sector	-2.7	-10.2	2.9	1.2	-2.7	
	Contribution from debt securities	-0.2	-0.1	0.0	0.2	-0.2	
	Contribution from bank loans	-2.8	-2.9	-1.1	0.4	-0.5	
	Contribution from intra-group financing	0.2	-0.2	1.4	-0.5	0.3	
	Contribution from other financial debt	0.9	-0.7	0.3	-0.3	-0.4	
	Contribution from trade credits	-0.9	-4.7	1.4	0.7	-1.3	
	Contribution from other liabilities	0.1	-1.6	0.9	0.5	-0.7	
10 Interest expenses Weighted average and median of the annual growth rate	Growth rate of interest expenses (weighted average)						
	Total enterprises	26.2	4.7	-6.4	-6.3	-11.8	
	Manufacturing	27.5	4.5	-4.9	-8.6	-17.6	
	Mechanical engineering sector	27.6	-0.6	-6.6	-7.0	-18.1	
	Microenterprises	6.6	5.9	-6.7	-2.9	5.2	
	Small and medium-sized enterprises	22.2	1.1	-9.9	-3.3	-10.7	
	Large enterprises	43.5	-4.6	-1.2	-13.3	-36.2	
	Basic metals	45.2	4.0	-8.4	-11.3	0.8	
	Metal and electrical products	25.8	2.2	-7.5	-6.0	-21.4	
	Transport equipment	26.2	-10.5	-3.1	-7.7	-16.5	
	Growth rate of interest expenses (median)						
	Total enterprises	-9.3	-22.4	-31.5	-20.2	-22.5	
	Manufacturing	-1.4	-14.1	-23.3	-13.1	-16.4	
	Mechanical engineering sector	-2.4	-15.3	-24.6	-12.5	-16.5	
	Microenterprises	-16.4	-26.0	-33.5	-21.0	-20.1	
	Small and medium-sized enterprises	15.3	-1.1	-12.6	-4.5	-12.4	
	Large enterprises	34.1	-1.2	-15.4	-10.0	-18.8	
	Basic metals	15.6	-13.1	-20.6	-13.0	-21.8	
	Metal and electrical products	-3.0	-15.6	-25.0	-12.3	-16.0	
	Transport equipment	-0.9	-12.0	-19.5	-13.0	-18.8	
11 Weight of interest expenses in EBITDA	Total enterprises	30.5	35.5	30.0	27.9	19.7	
	Manufacturing	18.4	22.6	19.9	17.7	10.6	
	Mechanical engineering sector	15.3	16.2	14.3	13.3	8.5	
	Microenterprises	76.4	62.2	28.9	22.5	16.7	
	Small and medium-sized enterprises	20.6	22.1	17.5	16.3	11.4	
	Large enterprises	9.7	10.0	10.3	9.4	4.7	
	Basic metals	17.8	31.3	18.7	24.1	17.1	
	Metal and electrical products	17.1	17.3	15.8	15.2	8.7	
	Transport equipment	11.2	11.0	10.2	8.2	6.4	
12 Non-performing loans ratios (end-of-period figures)	Total enterprises	7.2	10.8	13.8	15.4	15.8	15.9
	Manufacturing	7.5	9.7	10.8	11.5	11.2	11.1
	Mechanical engineering sector	5.7	8.8	9.8	10.8	13.6	14.1
	Basic metals	2.1	5.2	8.1	8.8	35.8	35.7
	Metal and electrical products	6.5	9.9	10.6	11.9	11.8	12.8
	Transport equipment	4.0	5.3	6.9	5.9	5.5	5.4

NOTES: The aggregates 'Microenterprises', 'Small and medium-sized enterprises', 'Large enterprises', 'Basic metals', 'Metal and electrical products', and 'Transport equipment' refer to components of the mechanical engineering sector, except where indicated. Similarly, contributions shown always refer to contributions to the total of the sector under review. All figures are shown as a percentage, except where the indicator refers to contributions (p.p.). Shaded cells are not represented in the charts. Figures for Chart 12 refer to December in each period.