

ANALYSIS OF THE MECHANICAL ENGINEERING SECTOR

Central Balance Sheet Studies

March 2015



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Foreword

This analysis is based on data obtained from *Informação Empresarial Simplificada* – IES (Simplified Corporate Information) and held in the Central Balance Sheet Database of Banco de Portugal. Through IES, enterprises are able to meet their obligation to report their annual accounts simultaneously to the Ministries of Finance and Justice, Banco de Portugal and INE - Portugal (National Statistical Institute).

IES is usually reported within six and a half months of the financial year-end, which, for most enterprises resident in Portugal, corresponds to July 15th of the year following the reference year. This analysis uses IES data from 2013, the latest data at the time of publication.

Data reported by enterprises through IES are subject to quality control by Banco de Portugal mainly to ensure that the accounting information for the economic year is coherent and complete and that the main aggregates are consistent throughout the years.

In addition to information obtained through IES, this publication features complementary data on the financial debt of enterprises in Portugal available in other databases of the Statistics Department of Banco de Portugal, namely *Central de Responsabilidades de Crédito* (Central Credit Register - CCR).

Summary

The *Mechanical engineering sector*, which comprises 'Basic metals', 'Metal and electrical products' and 'Transport equipment', included approximately 9,300 enterprises in 2013, accounting for around one quarter of the number of enterprises, turnover and number of employees of *Manufacturing*.

Compared with the non-financial corporations (NFCs) aggregate in Portugal, the sector held around 2% of the total number of enterprises and 6% of turnover and the number of employees. In comparison with 2009, the weight of the sector increased in terms of turnover (0.8 p.p.), remained unchanged for the number of employees and the number of enterprises slightly declined (0.2 p.p.).

In 2013, on average, the enterprises of the *Mechanical engineering sector* generated 2.6 times more turnover and 2.5 more employment than the average enterprise in Portugal.

The sector was mainly comprised of microenterprises (73%). However, large enterprises, which account for only 1% of the total, were responsible for the largest share of turnover (53%).

The *Mechanical engineering sector* is particularly relevant in Viana do Castelo, Aveiro and Setúbal, accounting for 29%, 23% and 21% respectively of total turnover generated in those districts in 2013.

The sector has a high external market exposure. In 2013 approximately 60% of turnover was generated abroad. Nevertheless, the positive contribution from exports (1 p.p.) was not enough to offset a contraction in the domestic market, with a 2% decrease in *Mechanical engineering sector* turnover in 2013.

Despite a fall in turnover, earnings before interest, taxes, depreciation and amortisation (EBITDA) grew by 5% in 2013, with some improvement in this indicator for 56% of enterprises. Also, the share of enterprises with negative EBITDA dropped by more than 3 p.p. (to 26%). As regards return on equity, over the past three years, the *Mechanical engineering sector*

compared favourably with *Manufacturing* and the NFC aggregate. In 2013 the sector's return on equity was 5%, compared with 4% in *Manufacturing* and 3% in the NFC sector. The analysis of individual data shows that around 75% of the sector's enterprises posted positive returns and for half of the enterprises return on equity was over 4%.

The sector's financial position compares favourably with that of the NFC aggregate in Portugal. Indeed, in 2013 the *Mechanical engineering sector* had a higher capital ratio (40%, compared with 30% for NFCs), a smaller share of enterprises with negative equity (20% and 29% respectively) and lower financial pressure (14% and 30% respectively).

In individual terms, trade credits were the main source of third-party equity for the sector (34% of liabilities). However, in net terms, the sector did not obtain funding through its trade credits, and financed its customers more than it obtained financing from its suppliers. The second greatest source of financing was bank loans, which accounted for 26% of the sector's liabilities.

Data available for 2014 compiled by the Central Credit Register of Banco de Portugal shows that credit granted to the *Mechanical engineering sector* by the resident financial sector rose by 1.8% from 2013, comparing favourably with *Manufacturing* (0.6% decline) and total non-financial corporations (5.6% decrease). The non-performing ratio in the *Mechanical engineering sector* was below that of total NFCs and *Manufacturing* in the whole period under review. In 2014 the sector's non-performing ratio was 11%, compared with 12% in *Manufacturing* and 15% in NFCs.

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SECTORAL ANALYSIS OF THE MECHANICAL ENGINEERING SECTOR

1. Introduction
2. Structure and dynamics
3. Economic and financial analysis

Box 1 | Bank loans

1. Introduction

The study *Analysis of the Mechanical engineering sector* assesses the economic and financial position of non-financial corporations (NFCs)¹ in the metallurgy and metal mechanics sector (hereinafter referred to as *Mechanical engineering sector*), based on information compiled by the Central Balance Sheet Database of Banco de Portugal.²

For the purpose of this analysis, the sector was broken down into the following economic activity segments, which were obtained by aggregating Divisions of the Portuguese Classification of Economic Activities - Revision 3 (CAE-Rev. 3):

- **Basic metals:** Division 24 - Manufacture of basic metals;
- **Metal and electrical products:** Divisions 25 - Manufacture of fabricated metal products, except machinery and equipment; 27 - Manufacture of electrical equipment; and 28 - Manufacture of machinery and equipment;
- **Transport equipment:** Divisions 29 - Manufacture of motor vehicles, trailers and semi-trailers and parts and accessories for motor vehicles; and 30 - Manufacture of other transport equipment.

The analysis chiefly focuses on the 2009-13 period, on the basis of IES data, while 2014 is also analysed where additional information is available, specifically regarding financing by bank loans.

The study characterises the *Mechanical engineering sector* by analysing the dispersion of individual results of its enterprises,³ for a set of selected indicators.

For this purpose, results are shown on the distribution of data from the sector's enterprises, allowing for an alternative analysis to that provided by the synthetic indicator on the sector's average, and providing measures unbiased by extreme values. Furthermore, the analysis covers contributions from the various

economic activity segments and size classes in order to determine the sector's aggregate results.

The study begins with a characterisation of the *Mechanical engineering sector*, evaluating the sector's structure, in terms of economic activity, size, geographical location and maturity of its enterprises. Data on market concentration and business dynamics is also presented. Afterwards, it reviews recent developments in turnover to determine to what extent these are reflected in profitability for the sector's enterprises. This involves breaking down the effects that influence profitability into operating and financial components of corporate business, while providing some information on the sector's solvency capacity.

The Annex provides a summary table of the main indicators and a methodological summary of the main concepts used throughout the study. The statistical series under analysis can also be found on Banco de Portugal's website (in Excel format).

This publication also shows a comparison of results for the *Mechanical engineering sector, Manufacturing* (Section C of CAE-Rev. 3) and the NFC aggregate in Portugal. For further details on results for the NFC sector, see *Central Balance Sheet Study No 18 – Sectoral analysis of non-financial corporations in Portugal, 2009-2014*, of November 2014.

2. Structure and dynamics

2.1. Structure

In 2013 the *Mechanical engineering sector* comprised around 9,300 enterprises, accounting for approximately one quarter of the number of enterprises, turnover and the number of employees in *Manufacturing* (Table 1).

Compared with total NFCs, the *Mechanical engineering sector* accounted for 2% of the number of enterprises, 6% of turnover and 6% of the number of employees. Compared with 2009, the share in terms of turnover increased (0.8 p.p.), the share in terms of employment remained stable while that of enterprises decreased somewhat (0.2 p.p.).

Breaking down the *Mechanical engineering sector* into economic activity segments, 'Metal

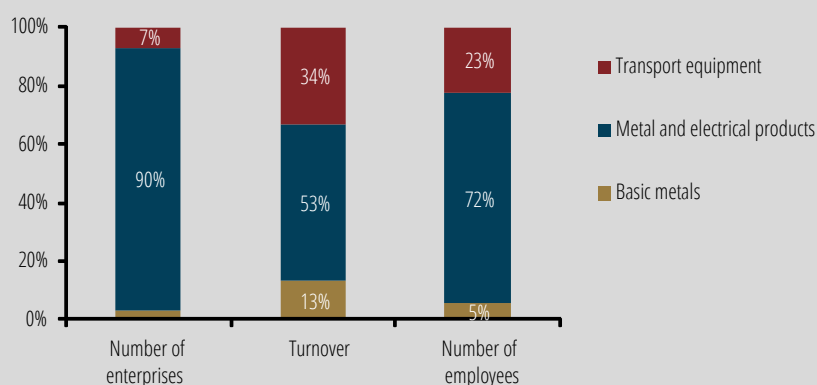
and electrical products' stands out across all indicators, accounting for 90% of the number of enterprises, 72% of the number of employees and 53% of turnover in the sector in 2013 (Chart 1). The importance of the other two economic activity segments is much greater in terms of turnover and number of employees than in terms of number of enterprises.

By **size class**,⁴ the *Mechanical engineering sector* is very similar to *Manufacturing*, except as regards the share of employees in large enterprises, which is higher in the *Mechanical engineering sector* (31% and 23% respectively) (Table 2). Compared with the NFC aggregate, microenterprises in the *Mechanical engineering sector* are less relevant across all indicators when compared to larger enterprises.

Table 1 • Share of the Mechanical engineering sector in NFCs and Manufacturing (2013)

	Number of enterprises	Turnover	Number of employees
Share of the Mechanical engineering sector in total NFCs	2.4%	6.4%	6.0%
Share of the Mechanical engineering sector in Manufacturing	23.0%	24.9%	25.0%

Chart 1 • Structures | By economic activity segment (2013)



Crossing size with economic activity shows that large enterprises stand out in terms of 'Transport equipment' and 'Basic metals' (76% and 62% respectively of these segments' turnover). In turn, small and medium-sized enterprises are more relevant in the 'Metal and electrical products' segment (54% of its turnover) (Chart 2).

This difference across size classes is also noticeable when looking at employment and turnover generated by the sector's average enterprise, and it becomes clear that, in 2013, these figures largely exceeded those of the average enterprise in Portugal. Indeed, on average, the sector's enterprises generated 2.6 times more turnover and had 2.5 times

more employees than the average enterprise in Portugal. Special mention should be made to 'Transport equipment', whose turnover was, on average, 12.7 times higher and had 8.1 times more employees than the average enterprise in Portugal (Table 3).

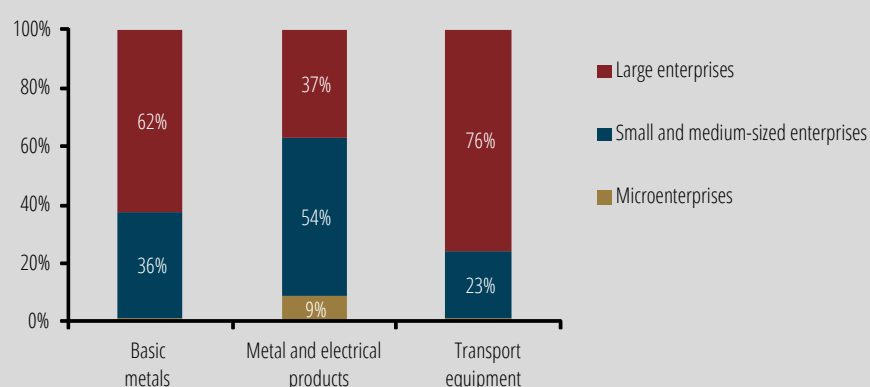
In turn, the average enterprise in the 'Basic metals' segment generated 11.5 times more turnover and employed 4.5 times more individuals than the average non-financial corporation. 'Metal and electrical products' was closest to average NFC values, but always exceeded them (1.6 times higher in terms of turnover and twice as many employees).

Table 2 • Structures | By size class (2013)

Indicator	Size	NFCs	Manufacturing	Mechanical engineering sector
Number of enterprises	Microenterprises	89.4%	71.4%	73.2%
	SMEs	10.3%	27.8%	25.9%
	Large enterprises	0.2%	0.7%	1.0%
Turnover	Microenterprises	15.3%	5.2%	5.3%
	SMEs	41.6%	42.7%	41.4%
	Large enterprises	43.2%	52.1%	53.3%
Number of employees	Microenterprises	28.0%	13.8%	13.4%
	SMEs	45.1%	63.4%	55.5%
	Large enterprises	26.9%	22.8%	31.1%

Note: Shaded cells identify the most important size classes in each sector/indicator.

Chart 2 • Sectoral composition of size classes | Turnover (2013)



Concerning the **geographical location**⁵ of enterprises' head offices, and similarly to the NFC aggregate, the *Mechanical engineering sector* is highly concentrated in coastal areas.

In 2013 the Porto, Aveiro and Lisbon districts comprised 19%, 17% and 15% respectively of the total number of *Mechanical engineering sector* enterprises in Portugal (compared with 18%, 6% and 28% respectively in NFCs).

With regard to turnover, Aveiro (20%) and Setúbal (18%) stand out, where this sector's relevance is greater than that of *Manufacturing* (+7 p.p. and +9 p.p. respectively) (Figure 1).

By economic activity segment, Aveiro is always amongst the three districts with the highest share of turnover (24% in 'Metal and electrical

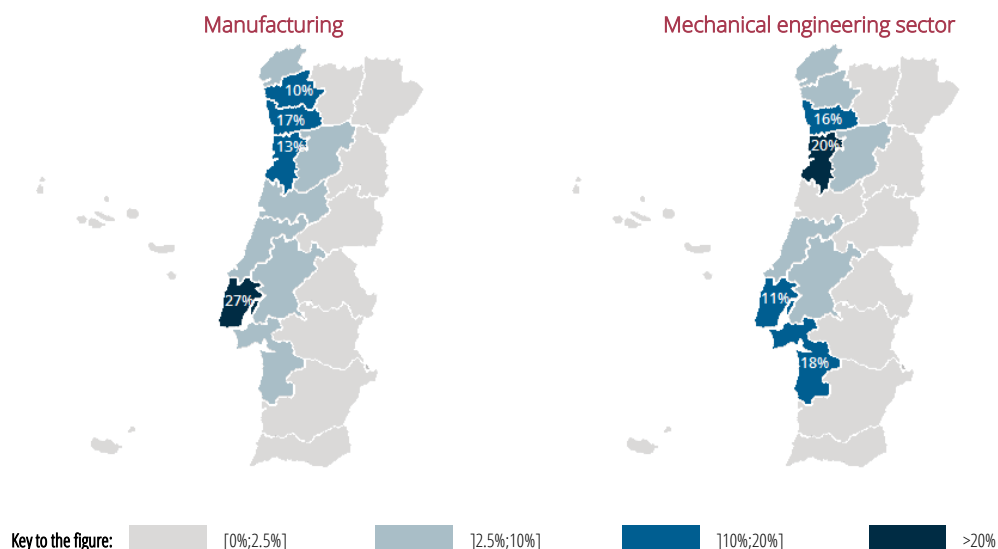
products', 17% in 'Transport equipment' and 15% in 'Basic metals'). Setúbal stands out in terms of 'Basic metals' (33%) and 'Transport equipment' (35%), while Porto is more relevant as regards 'Basic metals' (30%) and 'Metal and electrical products' (19%).

The analysis of the share of the *Mechanical engineering sector* in the company landscape of each district shows that this sector is particularly important to Viana do Castelo, Aveiro and Setúbal, where, in 2013, it accounted for 29%, 23% and 21% respectively of total turnover. The relevance of this activity is also noticeable taking into the account the share of employees in these districts: 21% in Aveiro, 16% in Viana do Castelo and 11% in Setúbal.

Table 3 • Average turnover and average number of employees (2013) | NFCs=1

	Manufacturing	Mechanical engineering sector	By economic activity segment		
			Basic metals	Metal and electrical products	Transport equipment
Average number of employees	2.29	2.49	4.50	1.99	8.12
Average turnover	2.44	2.64	11.50	1.57	12.72

Figure 1 • Geographical location by district | Share of each district in the sector (turnover - 2013)



With regard to **enterprise maturity**,⁶ older enterprises stand out in the *Mechanical engineering sector*. In 2013 approximately 62% of the *Mechanical engineering sector's* turnover was generated by enterprises established for more than 20 years (compared with 52% in NFCs). In turn, enterprises established for less than five years were responsible for a share below 4% (8% in NFCs) (Chart 3).

Turning to economic activity segments, the predominance of enterprises established for more than 20 years is clear when looking at turnover generated in 'Transport equipment' (72%). Maturity classes are more balanced in 'Basic metals', with enterprises established for five to ten years accounting for the highest share of turnover (38%, compared with 37% of enterprises established for more than 20 years).

2.2. Concentration

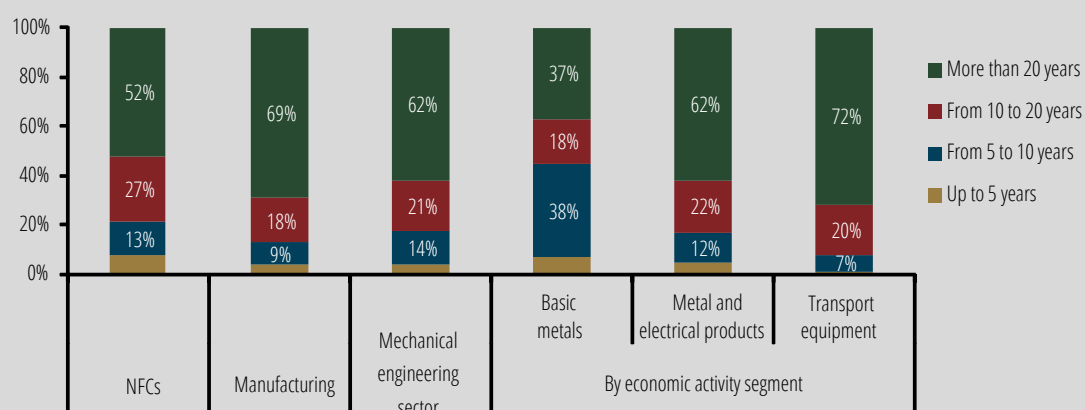
In 2013, 10% of enterprises in the *Mechanical engineering sector*, those with the greatest share in terms of turnover, were responsible for 88% of the sector's turnover, in line with the NFC aggregate (89%). Narrowing the share of the largest enterprises even further, 1% of enterprises accounted for 58% of the sector's turnover, i.e. below that seen in NFCs (64%).

With regard to the economic activity segments in the sector, the degree of concentration of turnover in 'Transport equipment' was higher than in the NFC aggregate, with 10% of enterprises accounting for 92% of this variable (1% accounted for 52%). In the remaining segments, concentration was lower than for NFCs as a whole (Table 4).

Table 4 • Distribution of turnover (2013)

	NFCs	Manufacturing	Mechanical engineering sector	By economic activity segment		
				Basic metals	Metal and electrical products	Transport equipment
Percentage of turnover held by 10% of enterprises	89%	89%	88%	86%	81%	92%
Percentage of turnover held by 1% of enterprises	64%	60%	58%	40%	48%	52%

Chart 3 • Structures | By maturity class (turnover – 2013)



2.3. Dynamics

The number of enterprises operating in the *Mechanical engineering sector* grew by 1% in 2013, less than in the NFC aggregate (2%) (Chart 4). This lower growth in the number of enterprises in the *Mechanical engineering sector* compared with NFCs was seen across the entire period under review, which led to a decrease in this sector's share in the NFC aggregate from 2009. However, in 2013, and given the time period under review, the death rate was, for the first time, lower than the birth rate in the *Mechanical engineering sector*.

The ratio of the number of enterprises created and the number of enterprises that ceased activities in the *Mechanical engineering sector*

increased from 0.62 in 2012 to 1.12 in 2013 (Chart 5). This was due to an increase in the birth rate (1 p.p.) and a decrease in the death rate (4 p.p.) over the past year.

The increased number of enterprises in the *Mechanical engineering sector* was due to the 'Basic metals' and 'Metal and electrical products' segments, where the number of enterprises expanded, reversing the trend observed over the past few years. In 2013 for each enterprise that ceased its activities, 1.42 new enterprises were created in 'Basic metals' and 1.15 enterprises in 'Metal and electrical products'. By contrast, in the 'Transport equipment' segment, with a birth/death ratio of 0.89, the number of operating enterprises fell.

Chart 4 • Demographic indicators (2009 to 2013)

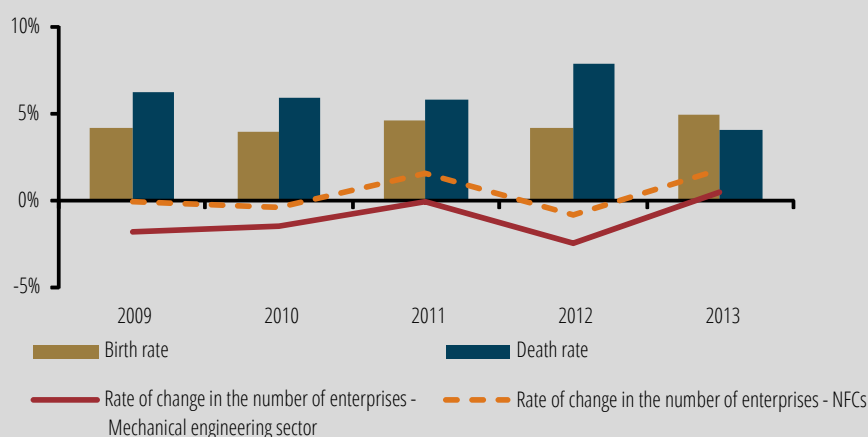
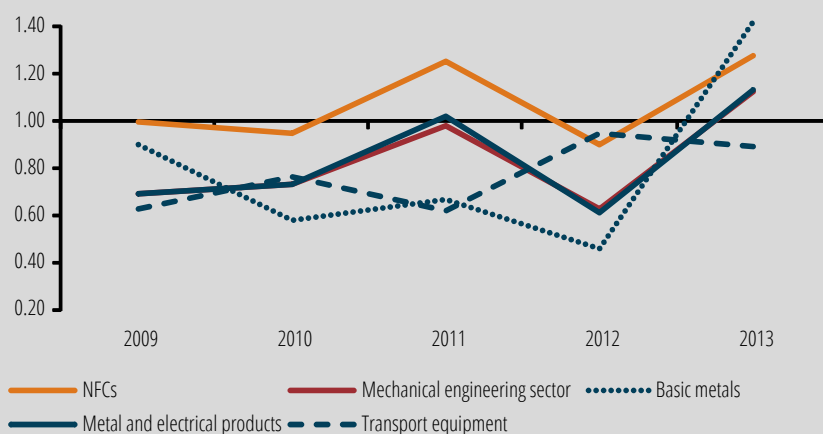


Chart 5 • Birth/death ratio (2009 to 2013)



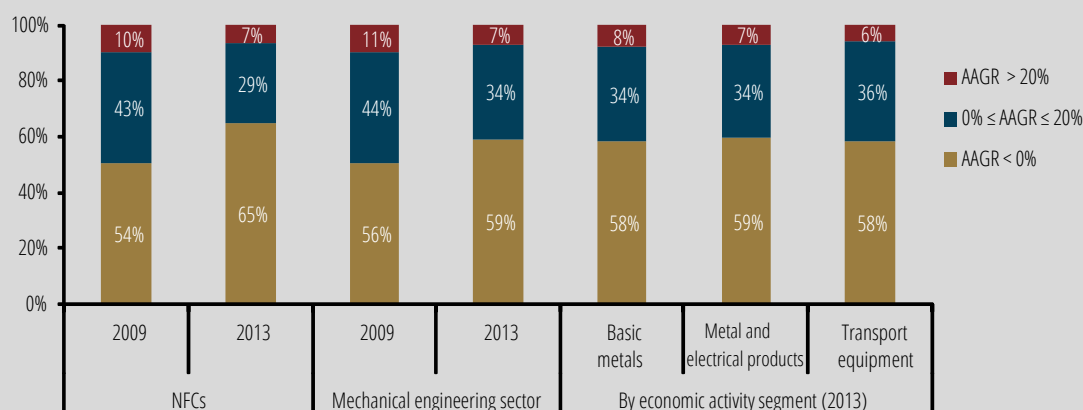
In 2013 approximately 7% of *Mechanical engineering sector* enterprises became high-growth enterprises⁷ (HGEs), with average annualised growth in turnover greater than 20% per annum, over a three-year period. By contrast, the share of HGEs was 8% in *Manufacturing* and 7% in the NFC aggregate.

In the *Mechanical engineering sector*, the share of HGEs in 'Basic metals' (13%) compared favourably with that in 'Metal and electrical products' (7%) and 'Transport equipment' (6%). Compared with 2012, the share of HGEs declined across all economic activity segments, with 'Basic metals' falling the most (4 p.p.), followed by 'Transport equipment'

(3 p.p.) and 'Metal and electrical products' (1 p.p.).

This shows that the share of enterprises able to reach high average annualised growth has been increasingly lower. Another indicator that shows this effect is the growing share of enterprises with negative average annual growth rates in turnover (also over a three-year period). In 2013, 59% of *Mechanical engineering sector* enterprises fitted this scenario, comparing with 56% in 2009. Nevertheless, the increase in the sector under review was lower than that seen in the NFC aggregate over the same period (Chart 6).

Chart 6 • Potential universe of high-growth enterprises | Average annual growth rate (over a three-year period)



3. Economic and financial analysis

3.1. Economic environment

In 2013 the Portuguese GDP declined by 1.4% in real terms, following a 3.3% fall in 2012. Excluding exports (which grew by 6.4%), the remaining components made a negative contribution to GDP developments (Table 5).

Private consumption contracted by 1.4% (following a 5.2% decline in 2012), amid a further adjustment in household debt and spending. Public consumption declined by 1.9% (4.3% in 2012), mainly reflecting a reduction in employee expenses. Gross fixed capital formation decreased by 6.3% (15% in 2012), similarly to all institutional sectors.

Imports reversed the trend seen in the previous two years (-5.8% in 2011 and -6.6% in 2012), growing by 3.6% in 2013.

Despite a fall in annual terms, economic activity recovered from the second quarter of 2013 onwards. A recovery in domestic demand made a sizeable contribution to this, in line with improved consumer and corporate confidence and the maintenance of a significant contribution from exports.

Compared with 2014, projections published by Banco de Portugal point to a slight increase in GDP (0.9%). Excluding exports, the main GDP components grew more than in the same period of the previous year.⁸

Table 5 • GDP and main expenditure components | Real year-on-year rate of change

	2009	2010	2011	2012	2013	2014 (p)
GDP	-3.0%	1.9%	-1.8%	-3.3%	-1.4%	0.9%
Private consumption	-2.3%	2.4%	-3.6%	-5.2%	-1.4%	2.2%
Public consumption	2.6%	-1.3%	-3.8%	-4.3%	-1.9%	-0.5%
Gross fixed capital formation	-7.6%	-0.9%	-12.5%	-15.0%	-6.3%	2.2%
Exports	-10.2%	9.5%	7.0%	3.1%	6.4%	2.6%
Imports	-9.9%	7.8%	-5.8%	-6.6%	3.6%	6.3%

Sources: INE - Portugal and Banco de Portugal.

Note: (p) – projected. For each aggregate, this table shows the projection corresponding to the most likely value, conditional on the set of assumptions considered in the December 2014 issue of Banco de Portugal's *Economic Bulletin*.

3.2. Activity and profitability

3.2.1. Turnover

Turnover in the *Mechanical engineering sector* decreased by 2% in 2013, following a 7% fall in 2012. In both periods, the sector compared negatively with the NFC aggregate, thus contrasting with that seen in 2010 and 2011, when turnover in the *Mechanical engineering sector* grew considerably more than in NFCs (Chart 7).

By size class, large enterprises stood out, making the largest contribution (-3 p.p.) to a decline in turnover in 2013, while SMEs made a positive contribution of 1 p.p.

By economic activity segment, although the fall in turnover was widespread, the greatest contributions to this decline in the *Mechanical engineering sector* were made by 'Transport equipment' (1.1 p.p.) and 'Basic metals' (0.7 p.p.).

The analysis of individual data for 2013 shows that turnover increased for 43% of *Mechanical engineering sector* enterprises compared with

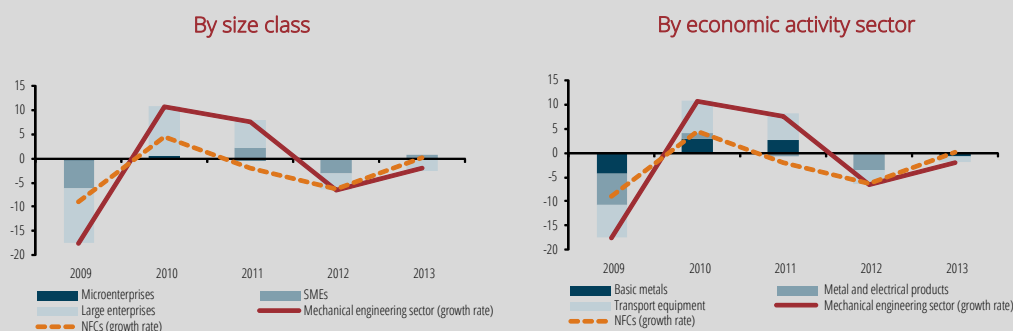
2012, accounting for a 12 p.p. improvement from the previous year. These figures compare favourably with those in the NFC aggregate (34% in 2013, accounting for an increase of more than 7 p.p. from 2012).

By economic activity segment, 'Metal and electrical products' had the highest share of enterprises with increased turnover (43%) in 2013. The most substantial improvement in this indicator was seen in 'Transport equipment', with a 16 p.p. increase from 2012.

The *Mechanical engineering sector* is characterised by a high degree of openness to the external market. In 2013 approximately 60% of its turnover came from the external market, corresponding to a 2 p.p. increase from 2012. Over the same period, the share of imports in total purchase of goods and services rose by 1 p.p. (to 50%).

The external market's contribution to turnover developments was positive in 2013 (1 p.p.), for the fourth consecutive year, thus reducing the internal market's negative contribution (3 p.p.) (Chart 8).

Chart 7 • Turnover | Annual growth rate (%) and contributions (p.p.)



With regard to the balance of goods and services transactions with the external market, the *Mechanical engineering sector* remained in positive territory over the entire time horizon under review, similarly to *Manufacturing*. In 2013 this indicator reached 21% of turnover in the *Mechanical engineering sector*, considerably exceeding that seen in *Manufacturing* (10%) and NFCs (0.3%) (Chart 9).

The balance of transactions with the external market in the *Mechanical engineering sector* is higher for the largest size classes. In 2013, it

reached 8% in microenterprises, 19% in SMEs and 24% in large enterprises.

All economic activity segments in the *Mechanical engineering sector* posted positive balances with the external market. In 2013 these figures stood at 23% in 'Metal and electrical products', 21% in 'Transport equipment' and 11% in 'Basic metals'. Compared with 2012, the latter segment diverged somewhat from other segments, with an 8 p.p. decline in the balance of transactions with the external market.

Chart 8 • Turnover in the Mechanical engineering sector | Contributions of the external and internal markets (p.p.) to the annual growth rate (%)

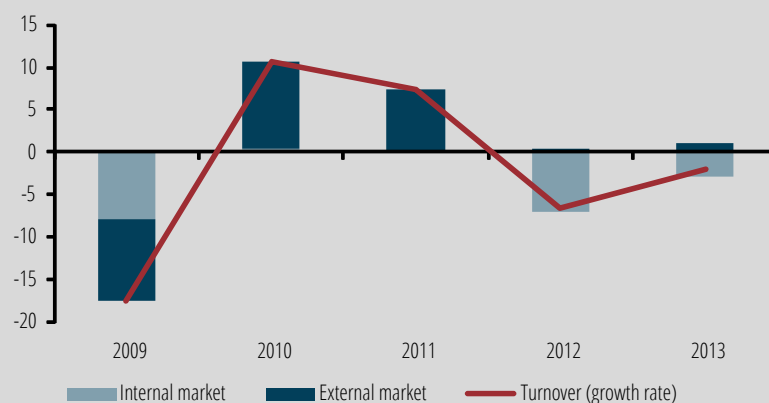
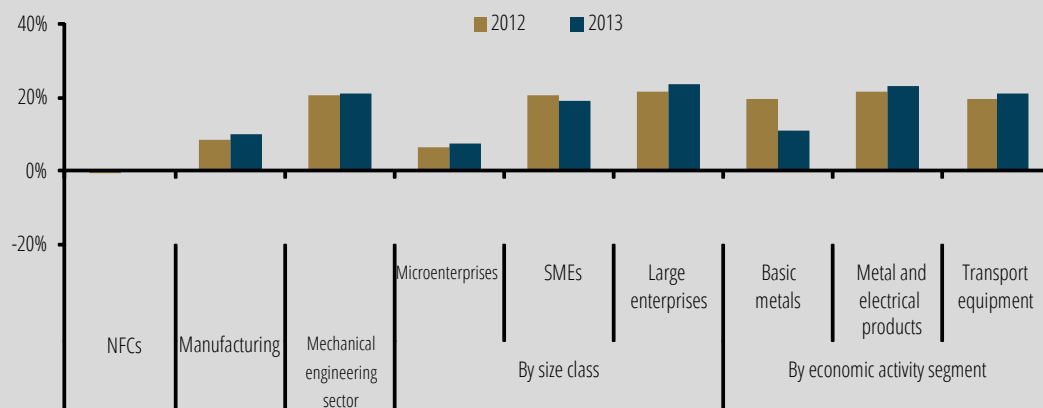


Chart 9 • Balance of goods and services transactions with the external market | As a % of turnover (2012 and 2013)



3.2.2. Operating expenses⁹

In line with the NFC aggregate, operating expenses in the *Mechanical engineering sector* declined by 1% in 2013 (compared with an increase below 1% in *Manufacturing*). The most substantial reduction was in the Cost of Goods Sold and Materials Consumed (CoGS), which fell by 2% (compared with a 1% increase in NFCs). By contrast, supplies and external services (SES) and employee expenses grew by 2% and 1% respectively (compared with a 3% and 2% decline respectively in NFCs).

In 2013 CoGS accounted for 66% of the expenditure structure in the *Mechanical engineering sector* (compared with 59% in NFCs). SES accounted for 18% (26% in NFCs) and employee expenses were responsible for 16% of the sector's expenses (15% in NFCs) (Chart 10). The operating expenditure structure in the sector under review was in line with *Manufacturing*.

CoGS accounted for the largest share of operating expenses across all economic activity segments. The share of this item in 2013 ranged from 56% in 'Metal and electrical products' to 79% in 'Basic metals'. In turn, SES and employee expenses stood out in the

'Metal and electrical products' segment (22% in both components).

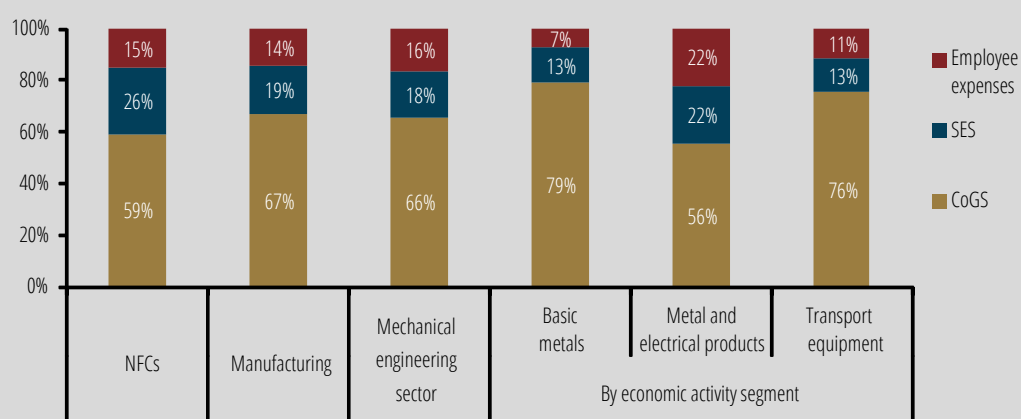
3.2.3. EBITDA¹⁰

Developments in the *Mechanical engineering sector* in 2013 resulted in 5% growth in EBITDA. In turn, over the same period, EBITDA rose by 12% in NFCs.

Although, on average, EBITDA growth in the sector under review is below that of the NFC aggregate, individual data shows that the share of enterprises with positive developments in this indicator is higher in the *Mechanical engineering sector*. Indeed, EBITDA grew in 56% of enterprises in this sector in 2013, compared with 53% in NFCs. Compared with 2012, this indicator rose by 11 p.p. in the *Mechanical engineering sector* and over 8 p.p. in NFCs (Table 6).

This increase was widespread across all size classes and economic activity segments, most notably large enterprises and 'Basic metals', with 20 p.p. increases (to 62% and 60% respectively).

Chart 10 • Operating expenses | Structure (2013)



Furthermore, the share of enterprises in the *Mechanical engineering sector* with negative EBITDA declined by more than 3 p.p. from 2012, to 26%, in 2013 (compared with a 3 p.p. decline, to 36%, in the NFC aggregate) (Table 7).

With regard to size classes, 30% of the enterprises in the sector under review had a

negative EBITDA, as opposed to 13% in SMEs, and 11% in large enterprises.

By economic activity segment, 'Basic metals' had the largest share of enterprises with negative EBITDA (32%, compared with 28% in 'Transport equipment' and 25% in 'Metal and electrical products').

Table 6 • EBITDA | Share of enterprises with EBITDA growth

Year	NFCs	Mechanical engineering sector	By size class			By economic activity segment		
			Micro	SMEs	Large	Basic metals	Metal and electrical products	Transport equipment
2012	45%	45%	45%	44%	42%	40%	45%	45%
2013	53%	56%	56%	55%	62%	60%	56%	58%

Table 7 • EBITDA | Share of enterprises with negative EBITDA

Year	NFCs	Mechanical engineering sector	By size class			By economic activity segment		
			Micro	SMEs	Large	Basic metals	Metal and electrical products	Transport equipment
2012	39%	29%	34%	18%	12%	36%	29%	31%
2013	36%	26%	30%	13%	11%	32%	25%	28%

3.2.4. Return on equity

Return on equity¹¹ in the *Mechanical engineering sector* stood at 5% in 2013, which corresponds to a 1 p.p. increase from 2012 (Chart 11). By contrast, in 2013 this indicator stood at 4% in *Manufacturing* (+1 p.p. from 2012) and 3% in NFCs (+3 p.p. from 2012).

By size class, return on equity tends to be higher in larger enterprises. In 2013 return on equity in large enterprises was 6% (corresponding to a 2 p.p. decline from 2012), compared with 4% in SMEs and -5% in

microenterprises (corresponding to 3 p.p. and 9 p.p. increases from 2012, respectively).

By economic activity segment, the highest return on equity was posted by 'Transport equipment', with approximately 9% (+1 p.p. from 2012). In turn, return on equity in 'Metal and electrical products' and 'Basic metals', respectively, stood at 4% (similarly to the previous year) and 2% (5 p.p. increase from 2012).

An analysis of individual data shows that, in 2013, approximately 75% of the enterprises in

the sector under review posted positive returns and, for half of the enterprises, return on equity exceeded 4%. Furthermore, this indicator followed an upward path in 2013, compared with 2012, which indicates a global improvement in *Mechanical engineering sector's* profitability (Chart 12).

'Basic metals' are the economic activity segment with the globally less favourable situation in terms of return on equity, with all distribution quartiles standing below the remaining segments.

In turn, 'Transport equipment' stands out due to the marked positive bias in the segment's average profitability. As such, while in the remaining segments the average and median were similar, in 'Transport equipment' the difference between both metrics was above 6 p.p.

A more detailed analysis of profitability, on the basis of the operating margin (EBITDA/Revenue), and the net margin (Net income/Revenue) shows how operating income is consumed by financial costs, taxes, depreciation and amortisation.

Chart 11 • Return on equity

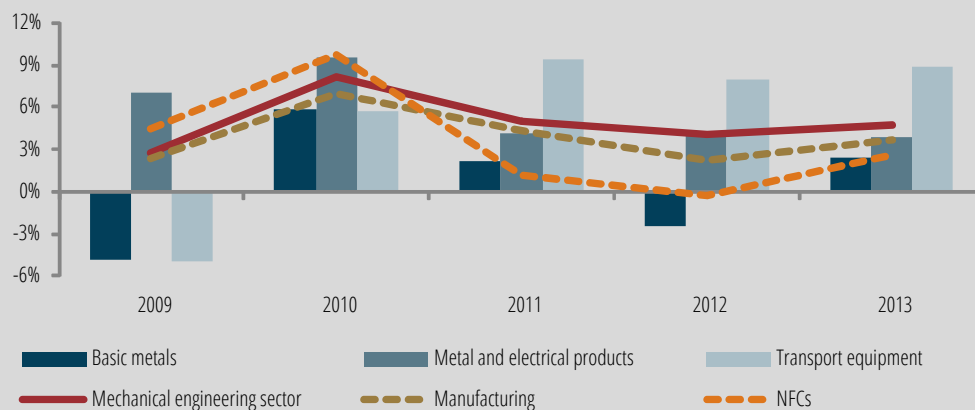
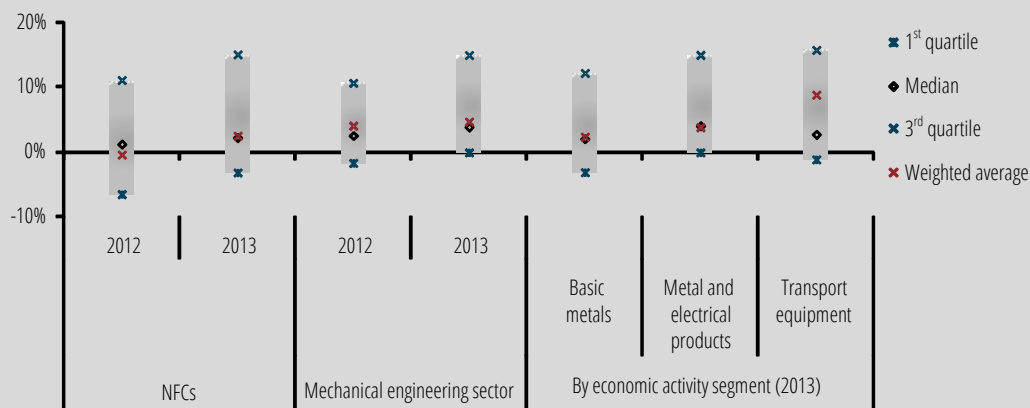


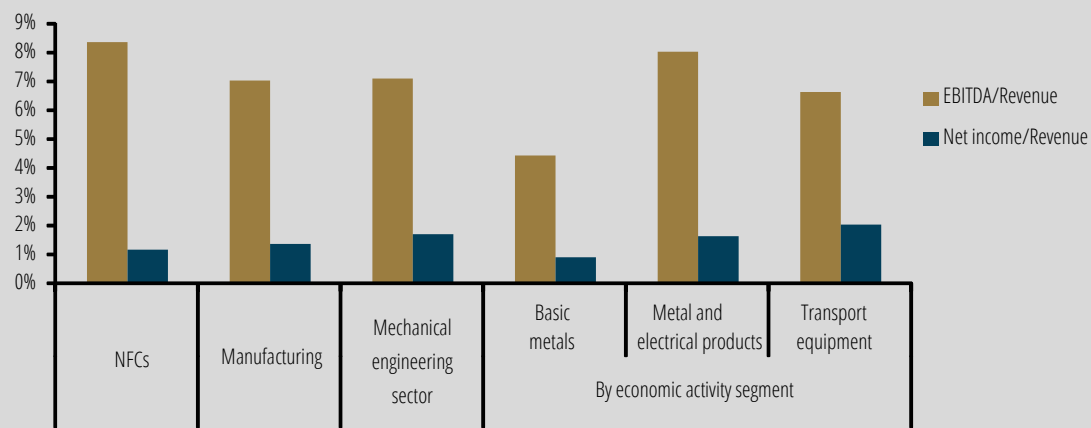
Chart 12 • Return on equity | Quartile distribution and weighted average



In 2013 the *Mechanical engineering sector's* operating margin stood at 7% (i.e. for each 100 euros in revenue, enterprises generated seven euros of EBITDA), similarly to *Manufacturing*, but 1 p.p. below the NFC aggregate. By contrast, in terms of the net margin, the *Mechanical engineering sector* (2%) compares favourably with NFCs and *Manufacturing* (both with 1%) (Chart 13).

By economic activity segment, 'Metal and electrical products' posted the highest operating margin (8%), as well as the widest differential between both margins (6 p.p.). As regards the remaining activity segments, 'Transport equipment' had the highest net margin (2%), while 'Basic metals' posted the lowest differential between margins (4 p.p.).

Chart 13 • Profitability by economic activity segment | Operating margin and net margin on revenue (2013)



3.3. Financial situation

3.3.1. Financial structure

In 2013 the *Mechanical engineering sector's* capital ratio stood at 40%, compared with 30% in total enterprises. Over the 2009-13 period, the capital ratio of the sector under review increased by 5 p.p. (2 p.p. in NFCs).

An analysis of individual data in 2013 shows that the average value of the capital ratio (40%) does not reflect the overall situation of the sector's enterprises, given that it stands considerably above the median (28%) (Chart 14).

By economic activity segment, similarly to the sector's aggregate, the average value of the capital ratio does not reflect the overall situation of most enterprises, as it stands

substantially above the median. In this context, 'Basic metals' stands out, with an average value of 48% and a median of 30%.

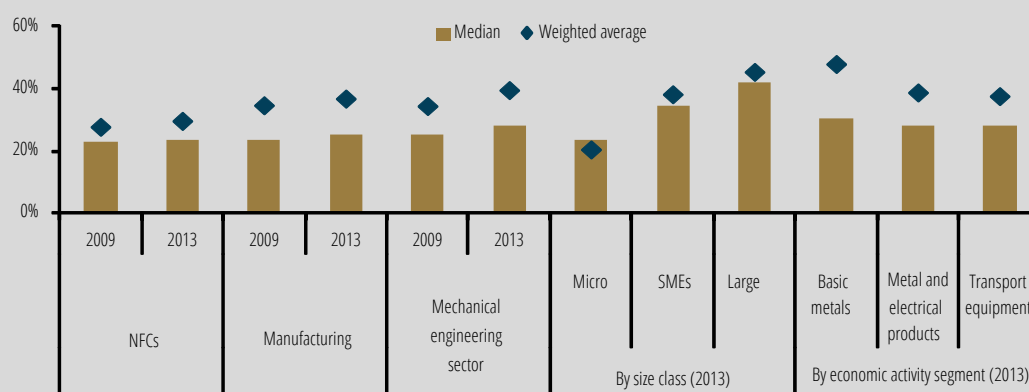
In 2013 the share of enterprises with negative equity in the *Mechanical engineering sector* (20%) was lower than that in the NFC aggregate (29%) (Table 8). In terms of developments between 2009 and 2013, the share of enterprises with negative equity increased by 3 p.p. in the sector under review, compared with a 4 p.p. increase in the NFC aggregate.

Available data shows how important leveraging is to fund the *Mechanical engineering sector*, which warrants a more detailed analysis of the features and recent developments in sources of financing.

Table 8 • Capital ratio | Share of enterprises with negative results

Year	NFCs	Manufacturing	Mechanical engineering sector	By economic activity segment		
				Basic metals	Metal and electrical products	Transport equipment
2009	25.3%	22.6%	17.8%	17.2%	17.7%	20.0%
2013	29.3%	24.5%	20.3%	22.0%	20.3%	19.2%

Chart 14 • Capital ratio | Weighted average and median of the distribution



In 2013 financial debt¹² accounted for 42% of liabilities in the *Mechanical engineering sector*, compared with 59% in NFCs and 51% in *Manufacturing* (Chart 15). Within this item, bank loans¹³ stood out (26% of liabilities), while the share of debt securities was negligible (2% of liabilities).

By economic activity segment, the share of intra-group financing in 'Transport equipment' was particularly relevant (18%), by contrast with 'Metal and electrical products' (5%) and 'Basic metals' (4%). Bank loans were the main financial debt component in 'Basic metals' and 'Metal and electrical products', accounting for 28% and 29% of liabilities respectively. In 'Transport equipment', this component (16%) was exceeded by the share associated with intra-group financing.

In turn, the share of trade credits (34%) was higher in the *Mechanical engineering sector*

than in the NFC aggregate (16%) and *Manufacturing* (26%).

By economic activity segment, trade credits were globally relevant, accounting for 39% of liabilities in 'Basic metals', 38% in 'Transport equipment' and 33% in 'Metal and electrical products'.

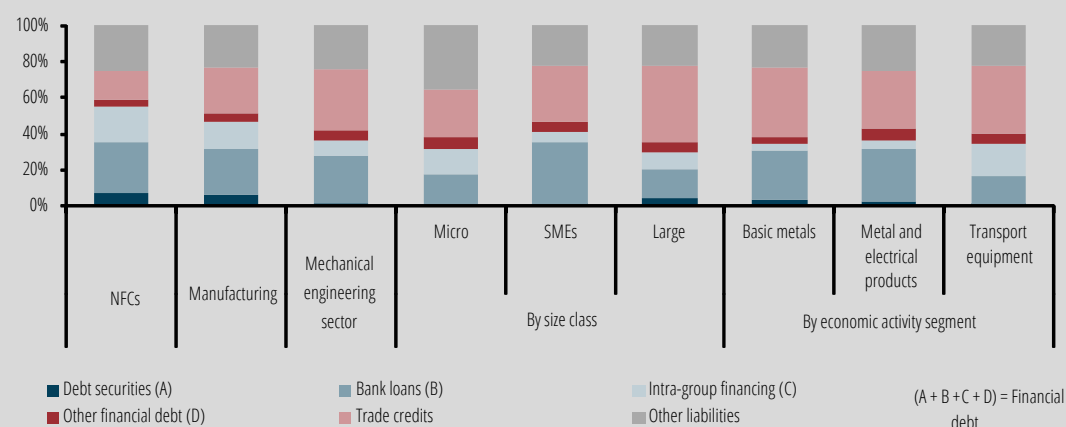
Liabilities in the *Mechanical engineering sector* increased by 3% in 2013, after an 11% decline in 2012. By contrast, the NFC aggregate saw a 3% contraction in 2013, similar to that observed in 2012.

In the *Mechanical engineering sector*, excluding bank loans, which made a negative contribution of 1 p.p. to developments in the sector's liabilities, and debt securities, which made a negligible contribution, all components made positive contributions in 2013 (Table 9).

Table 9 • Liabilities | Annual growth rate (%) and contributions from components (p.p.)

Year	NFCs (growth rate)	Mechanical engineering sector (growth rate)	Components (contributions in p.p.)					
			Securities issued	Bank loans	Intra-group financing	Other financial debt	Trade credits	Other liabilities
2012	-2.7%	-11.1%	-0.1	-3.1	-0.1	-0.7	-5.0	-2.1
2013	-2.7%	3.3%	0.0	-1.0	0.7	0.4	1.7	1.5

Chart 15 • Liabilities structure (2013)



Box 1 | Bank loans

In 2014 loans from credit institutions (CIs) accounted for 63% of financial debt and 26% of total liabilities in the *Mechanical engineering sector* (compared with 50% of financial debt in *Manufacturing* and 47% in the NFC aggregate). On the basis of the information available in Banco de Portugal's Central Credit Register,¹⁴ this box analyses the component related to loans from CIs resident in Portugal,¹⁵ focusing on the latest information for 2014.

In 2013, 74% of enterprises in the *Mechanical engineering sector* held loans with resident CIs, similarly to *Manufacturing* (72%) and more than in total NFCs (58%). This corresponds to a 2 p.p. decline compared with the share of enterprises in the *Mechanical engineering sector* with loans from resident CIs in 2013, following the same trend as that in *Manufacturing* and the NFC aggregate.

At the end of 2014 *Manufacturing* held 17% of total credit granted to NFCs by CIs resident in Portugal, 22% of which corresponded to the *Mechanical engineering sector*. As such, the sector under review accounted for nearly 4% of total credit granted by resident CIs to NFCs, which increased by 0.3 p.p. over the 2010-14 period.

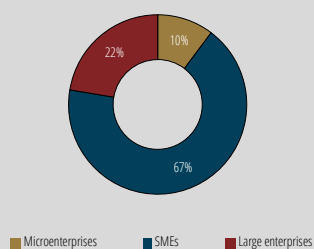
Looking at the *Mechanical engineering sector* by size class, SMEs received most of the financing from resident CIs at the end of 2014 (67%, compared with 23% in large enterprises and 10% in microenterprises) (Chart 16).

Turning to economic activity segments, 'Metal and electrical products' held the largest share (76%) of financing from resident CIs obtained by the *Mechanical engineering sector*, while the 'Transport equipment' and 'Basic metals' segments accounted for 13% and 11% respectively.

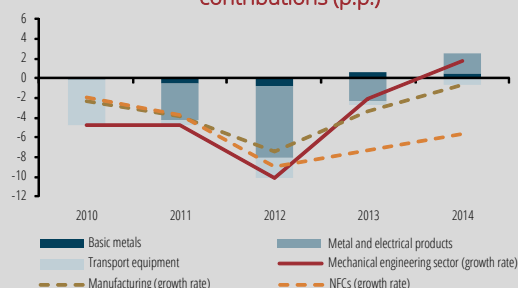
In the *Mechanical engineering sector*, the annual growth rate in this type of financing at the end of 2014 (1.8%) compared favourably with that in *Manufacturing* (-0.6%) and total enterprises (-5.6%), having reversed the negative developments seen over the 2010-13 period. The 'Metal and electrical products' and 'Basic metals' segments made a positive contribution of 2.1 p.p. and 0.4 p.p. respectively to this change, while 'Transport equipment' made a negative contribution of 0.7 p.p.

Chart 16 • Credit from resident CIs (end of period)

Structure by size class (2014)



Annual growth rates (%) and contributions (p.p.)



The non-performing loans ratio¹⁶ of the *Mechanical engineering sector* was lower than in total enterprises and *Manufacturing* over the entire period under review. In 2014 the non-performing loans ratio of the *Mechanical engineering sector* was 11%, compared with 12% in *Manufacturing* and 15% in NFCs. Over the 2010-14 period this indicator increased by 7 p.p. in the *Mechanical engineering sector*, 11 p.p. in the NFC aggregate and 6 p.p. in *Manufacturing* (Chart 17).

In the sector under review, and taking into account the size of enterprises, the smallest size classes had the highest non-performing loans ratio in the sector (24% in microenterprises, 12% in SMEs and 2% in large enterprises).

With regard to economic activity segments, 'Metal and electrical products' posted a 12% non-performing loans ratio, compared with 9% in 'Basic metals' and 6% in 'Transport equipment'.

In December 2014, 29% of enterprises in the *Mechanical engineering sector* with credit from resident CIs were defaulting on their loans. This compared with 32% and 31% in *Manufacturing* and the NFCs respectively. The share of non-performing enterprises was higher for smaller enterprises, with 31% of microenterprises and 27% of SMEs in the *Mechanical engineering sector* defaulting at the end of 2014 (compared with 8% in large enterprises) (Chart 18).

By economic activity segment, 'Transport equipment' had the highest share of non-performing enterprises (34%), followed by 'Basic metals' with around 31%, with the lowest share being recorded in the 'Metal and electrical products' segment, with around 29% of non-performing enterprises.

Chart 17 • Non-performing loans ratios (end of period)

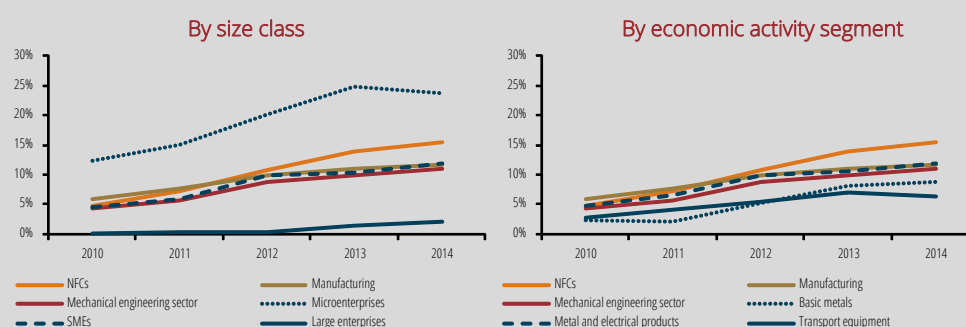
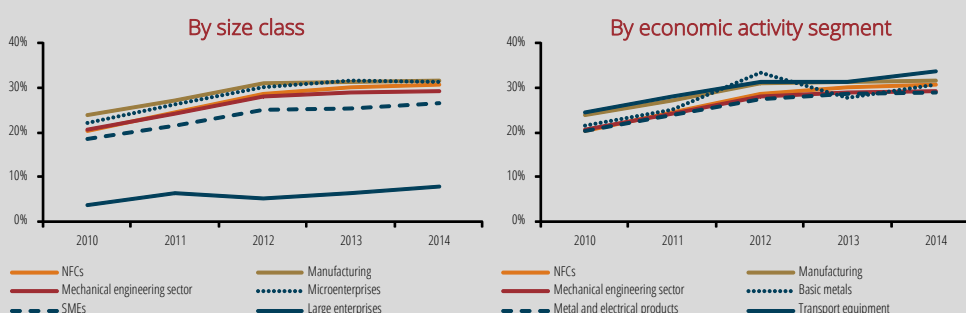


Chart 18 • Non-performing enterprises (end of period)



3.3.2. Financial costs and solvency

In line with the NFC aggregate, interest expenses in the *Mechanical engineering sector* declined by 6% in 2013, compared with 2012. This reduction was due to a fall in the interest rate, given that financial debt rose by 0.2%.

By size class, interest expenses of microenterprises and SMEs declined by 9%, while large enterprises recorded marginally positive changes. The fall in interest expenses was broadly based across all economic activity segments, particularly 'Metal and electrical products' with a 7% contraction.

An analysis of individual data shows that the fall in interest expenses exceeded the sector's

average value for most enterprises, similarly to the NFC aggregate. Indeed, the median value (-23%) was considerably below the average (-6%). Excluding SMEs, this situation was widespread across all size classes and economic activity segments (Chart 19).

The reduction in interest expenses associated with an increase in EBITDA resulted in a 2 p.p. decrease in financial pressure on the *Mechanical engineering sector* in 2013. As such, in that year, the share of interest in EBITDA was 14%, compared with 20% in *Manufacturing* and 30% in the NFC aggregate (Chart 20).

Chart 19 • Interest expenses | Weighted average and annual growth rate median

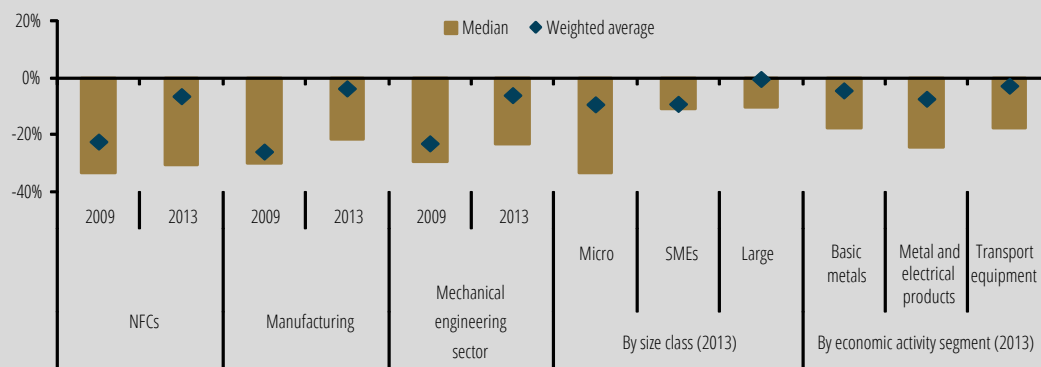
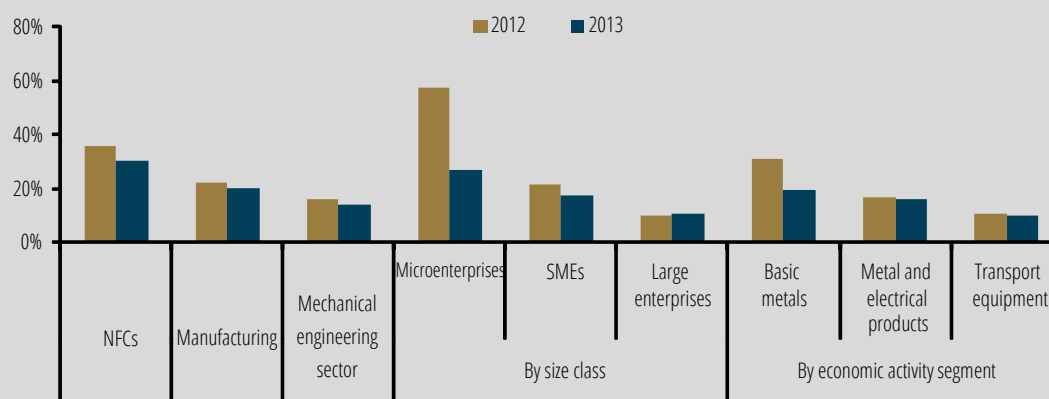


Chart 20 • Weight of interest in EBITDA | By size class and economic activity segment (2012 and 2013)



By size class, the weight of interest in EBITDA was lower in large enterprises (11%), compared with SMEs (18%) and microenterprises (27%). Compared with 2012, financial pressure fell markedly for microenterprises (30 p.p.) but increased somewhat for large enterprises.

By economic activity segment, 'Transport equipment' was under the lowest financial pressure (10%), followed by 'Metal and electrical products' (16%) and 'Basic metals' (19%). In terms of developments, compared with 2012, this indicator improved for 'Basic metals' (12 p.p.).

Although the sector's situation was relatively positive as regards the financial pressure

indicator, individual data for 2013 shows that 25% of enterprises in the *Mechanical engineering sector* did not generate enough EBITDA to pay interest resulting from their financial debt. Nevertheless, this compares favourably with the NFC aggregate (36%) (Table 10).

Furthermore, for 70% of enterprises in the *Mechanical engineering sector* interest expenses consumed less than half of EBITDA. In this indicator, large enterprises and the 'Metal and electrical products' segment stand out, with interest expenses consuming less than half of EBITDA in, respectively, 75% and 71% of enterprises.

Table 10 • Financial pressure | Distribution of enterprises by performance level in the indicator (2013)

Financial pressure (Interest/EBITDA)	NFCs	Mechanical engineering sector	By size class			By economic activity segment		
			Micro	SMEs	Large	Basic metals	Metal and electrical products	Transport equipment
Up to 0.5	59%	70%	65%	78%	75%	65%	71%	65%
From 0.5 to 1	5%	5%	4%	6%	9%	7%	5%	7%
Above 1	36%	25%	30%	16%	16%	28%	24%	28%

3.3.3. Trade credit financing

In 2013 trade credit financing accounted for the largest share of liabilities in the *Mechanical engineering sector* (34%). By contrast, trade credits accounted for 26% of liabilities in *Manufacturing* and 16% in total enterprises.

In 2013, days sales outstanding and days payable outstanding in the *Mechanical engineering sector* were 85 and 84, respectively. Both values exceeded those in *Manufacturing* (76 and 74 days respectively) and in the NFC aggregate (76 and 79 days respectively). On average, enterprises in the sector under review took one day longer to receive payments from their customers than to pay their debt to suppliers. By contrast, the

differential between days sales outstanding and days payable outstanding was +2 days in *Manufacturing* and -4 days in NFCs.

Compared with 2012, the *Mechanical engineering sector* days sales outstanding and days payable outstanding increased by 6 and 4 respectively, while both indicators declined in *Manufacturing* and NFCs (respectively, 1 day for each indicator in *Manufacturing*, and 1 and 3 days in NFCs).

Given the importance of this source of financing, it is necessary to complement this analysis with a net indicator of trade credit financing. For that purpose, an indicator that relates accounts payable and accounts receivable to turnover is analysed. A negative

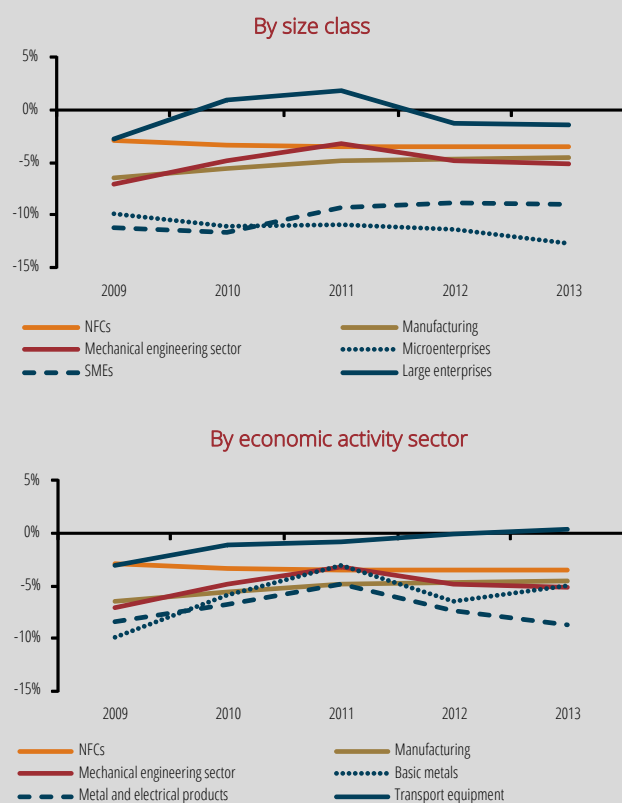
value implies that accounts receivable are higher than accounts payable, which means that overall the enterprise is financing its customers; a positive value implies that accounts payable are higher than accounts receivable and the enterprise is therefore obtaining financing through its suppliers.

In the *Mechanical engineering sector*, net trade credit financing as a percentage of turnover stood at -5% in 2013, which means that the sector under review, in net terms, had not obtained financing through trade credits, similarly to *Manufacturing* and the NFC aggregate (Chart 21).

In 2013 none of the *Mechanical engineering* sector's size classes obtained net trade credit financing, although larger enterprises posted less negative values: -1% in large enterprises, -9% in SMEs and -13% in microenterprises.

With regard to economic activity segments, 'Transport equipment' was the only segment that obtained net financing through trade credits (0.3%), with a 3 p.p. increase from 2009. 'Basic metals' had a net trade credit financing of -5%, increasing by 5 p.p. from 2009. In turn, the 'Metal and electrical products' segment had a negative balance of 9% (-0.3 p.p. decrease from 2009).

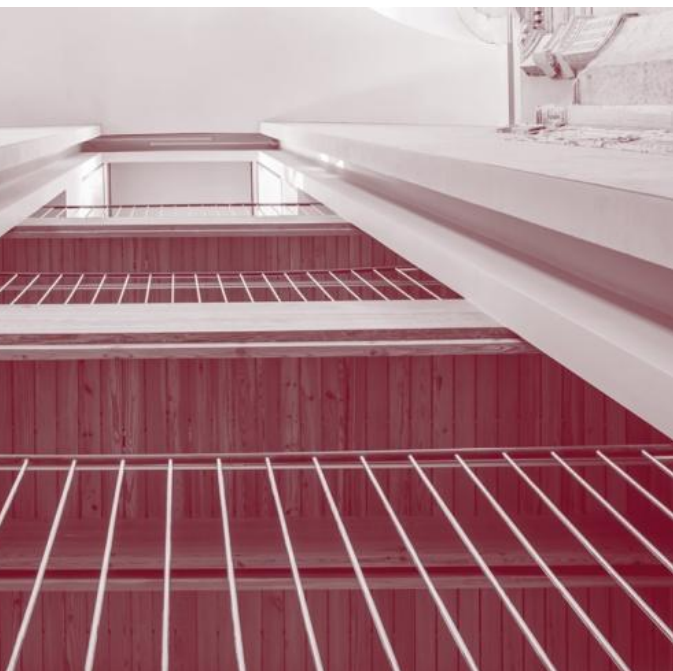
Chart 21 • Net trade credit financing | % of turnover



Notes

1. The NFC sector is one of the economy's institutional sectors. The institutional sectorisation of economic agents is carried out in accordance with the 2010 European System of National and Regional Accounts (ESA 2010), approved by Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013. ESA 2010 is a harmonised benchmark on the compilation methodology with a deadline for release of the national accounts of EU countries, including statistics under Banco de Portugal's responsibility. The series under review (2009-14) is based on the ESA 2010 delimitation. Based on this national accounts regulation, sole proprietors are included in the households' institutional sector. Hence, all data on the NFC sector throughout this document exclude sole proprietors (in Portugal these account for around two-thirds of enterprises, but only 5% of the respective turnover).
2. The Central Balance Sheet Database of Banco de Portugal is a database with economic and financial information on NFCs in Portugal. Information is based on annual accounting data reported within the scope of *Informação Empresarial Simplificada* – IES (Simplified Corporate Information) and quarterly accounting data reported by enterprises through the quarterly survey of non-financial corporations. Annual data cover nearly all NFCs and quarterly data cover around 4,000 enterprises, representing 50% of turnover in the sector. Central Balance Sheet Database statistics are published in Banco de Portugal's *Statistical Bulletin* (Chapters A and G) and in Sector Tables, both available on Banco de Portugal's website and BPstat | Statistics Online. For further details on the activities of the Central Balance Sheet Database, see *Supplements to the Statistical Bulletin* 1/2008 – *Simplified reporting: inclusion of the Simplified Corporate Information in the Statistics on Non-Financial Corporations from the Central Balance Sheet Database*, and 2/2013 – *Statistics on non-financial corporations of the Central Balance Sheet Database: Methodological notes*.
3. For the sake of simplicity, this study refers to 'enterprise' and 'corporation' interchangeably when referring to NFCs as defined in Note 1.
4. A definition of size classes used in this study is detailed in the Annex.
5. Geographical location refers to the district where the enterprise's head office is located.
6. The enterprise maturity corresponds to the age of the enterprise as at the analysis reference date. Four maturity classes are considered: up to five years; from five to (but not including) 10 years; from 10 to (but not including) 20 years; and more than 20 years.
7. As defined in *Eurostat – OECD Manual on Business Demography Statistics*, high-growth enterprises are those with average annualised growth greater than 20% per annum, over a three-year period. Turnover is used as a variable for the calculation of the rate. For further information, see *Central Balance Sheet Study* No 12 *Structure and dynamics of non-financial corporations in Portugal, 2006-2012*, November 2013.
8. For more information on economic developments in Portugal, please refer to Banco de Portugal's *Annual Report – the Portuguese economy*, as well as the *Economic Bulletin* (published on a quarterly basis). Both publications are available at www.bportugal.pt.
9. The 'operating expenses' aggregate, calculated from the sum of the cost of goods sold and materials consumed (CoGS), supplies and external services (SES) and employee expenses, roughly corresponds to the concept of 'operating expenses' of the Official Chart of Accounts (accounting standard for corporate accounts up to 2009).
10. EBITDA means earnings before interest, taxes, depreciation and amortisation.
11. Return on equity is calculated as the ratio of net income to equity and measures return on capital employed.
12. Financial debt refers to the set of remunerated financing taken by the enterprise, namely through the issuance of debt securities, debt from credit institutions and financial corporations, and intra-group financing.
13. *Box 1 | Bank loans* provides complementary information on this source of financing.
14. The Central Credit Register is a database managed by Banco de Portugal, which gathers information provided by participating entities (resident institutions) regarding credit granted. For more information, please refer to Banco de Portugal Booklet No 5, *Central de Responsabilidades de Crédito* (Portuguese version only).
15. These include banks, savings banks and mutual agricultural credit banks (generically called 'banks' in this study), as well as credit financial institutions, factoring companies, credit-purchase financing companies and financial leasing companies. Over 95% of credit granted by resident credit institutions to NFCs in 2014 came from banks.
16. The non-performing loans ratio is calculated as the share of credit overdue in total credit granted. Credit is deemed to be overdue, in the case of principal, once the maximum period of 30 days after maturity has elapsed without settlement; and, in the case of interest and other expenses, once the due date for settlement has passed.





ANNEX

Main indicators of the Mechanical engineering sector

Methodological summary

ANNEX • Main indicators of the Mechanical engineering sector (2013)

Sector characterisation		Activity		Financing			Profitability				
Turnover held by large enterprises	Turnover held by the largest enterprises (Top 10%)	Growth rates		Growth rates		Net trade credit financing (% of turnover)	Credit obtained from resident CIs (2014)				
		Turnover	EBITDA	Capital ratio	Trade credits		Bank loans	% of non-performing enterprises	Non-performing loans ratio		
NFCs	43%	89%	0%	12%	-3%	-7%	-4%	30%	31%	15%	3%
Mechanical engineering sector	53%	88%	-2%	5%	5%	-3%	-5%	14%	29%	11%	5%
Basic metals	62%	86%	-5%	54%	1%	4%	-5%	19%	31%	9%	2%
Metal and electrical products	23%	81%	-0.3%	-0.1%	3%	-0.1%	-9%	16%	29%	12%	4%
Transport equipment	76%	92%	-3%	6%	12%	-22%	0.3%	10%	34%	6%	9%
Weight of the Mechanical engineering sector											
Number of enterprises				Turnover				Number of employees			
2009		2013		2009		2013		2009		2013	
NFCs	2.6%	2.4%		5.6%		6.4%		6.1%		6.0%	

Methodological summary

Capital ratio: Ratio of equity to total assets.

EBITDA (earnings before interest, taxes, depreciation and amortisation): The new accounting standard (SNC – *Sistema de Normalização Contabilística* – Accounting Standards System) ended the concept of extraordinary expenses and revenues, and also stopped allowing unambiguous identification of financial components. Thus, the decision was taken to use; the EBITDA definition as under the Accounting Standards System, adjusting the data reported under the old standard (POC – *Plano Oficial de Contabilidade* – Official Chart of Accounts) where possible, for 2009.

Economic activity sector: The enterprises classified in Sections *K – Financial and insurance activities*; *O – Public administration and defence; Compulsory social security*, *T – Activities of households as employers; Undifferentiated goods- and services-producing activities of households for own use* and *U – Activities of extraterritorial organisations and bodies* in CAE-Rev.3, were excluded from this analysis as they do not fall within the NFC institutional sector.

Quartile distribution: In order to calculate quartiles, the enterprise values for the indicator under analysis are ranked in ascending order. The first quartile corresponds to the value of the enterprise in the position corresponding to 25% of the ordered sample (i.e. where 25% of enterprises show a lower value for that indicator and 75% a higher value). The second quartile (or median) corresponds to 50% (i.e. the indicator value for this enterprise divides the breakdown into two halves, where one half of the enterprises shows a higher value and the

other half a lower value). The third quartile corresponds to the 75% position of the ordered sample (i.e. 75% of enterprises show a lower value for that indicator, and only 25% show a higher value). The interquartile range (obtained as the difference between the third and first quartiles) provides an indication of distribution dispersion. For further details on the calculation of these statistical measures, please refer to the Central Balance Sheet Study | 6 – *New enterprise and sector tables: adjustment to the Accounting Standards System*, December 2011.

Return on equity: Ratio of net income to equity. As both items (numerator and denominator) may be positive or negative, at individual level, the indicator is only calculated in situations where equity is positive.

Size of enterprise: Enterprises were grouped into three classes: microenterprises, small and medium-sized enterprises and large enterprises. The criteria for this classification were taken from the European Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises. According to this Recommendation, microenterprises are defined as enterprises which employ fewer than ten persons and whose annual turnover and/or balance sheet total does not exceed €2 million. For the purpose of this study, small and medium-sized enterprises (SMEs) exclude microenterprises, employ fewer than 250 and more than ten persons and have an annual turnover between €2 million and €50 million and/or an annual balance sheet total between €2 million and €43 million. Large enterprises are any enterprises which are not classified above.

Abbreviations and acronyms

AAGR	annual average growth rate
CAE	Portuguese Classification of Economic Activities
CIs	credit institutions
CoGS	cost of goods sold and materials consumed
CCR	Central Credit Register (<i>Central de Responsabilidades de Crédito</i>)
EBITDA	earnings before interest, taxes, depreciation and amortisation
ESA 2010	European system of national and regional accounts 2010
GDP	gross domestic product
HGEs	high-growth enterprises
IES	<i>Informação Empresarial Simplificada</i> (Simplified Corporate Information)
INE	Instituto Nacional de Estatística (National Statistical Institute)
NFCs	non-financial corporations
POC	<i>Plano Oficial de Contabilidade</i> (Official Chart of Accounts)
p.p.	percentage points
SES	supplies and external services
SMEs	small and medium-sized enterprises (excluding microenterprises)
SNC	<i>Sistema de Normalização Contabilística</i> (Accounting Standards System)

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- 1 | Enterprise and sector tables, November 2010
- 2 | Structure and dynamics of non-financial corporations in Portugal, December 2010
- 3 | Sectoral analysis of non-financial corporations in Portugal, September 2011
- 4 | Sectoral analysis of manufacture of food products, November 2011
- 5 | Sectoral analysis of accommodation and food service activities, November 2011
- 6 | New enterprise and sector tables: adjustment to the Accounting Standards System, December 2011
- 7 | Sectoral analysis of non-financial corporations in Portugal 2010/2011, April 2012
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- 11 | Analysis of the agricultural sector, December 2012
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- 20 | Analysis of the mechanical engineering sector, March 2015