Results and financial situation of firms in 2014

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Introduction

Each year, in the December issue of the Economic Review, the National Bank describes the developments reflected in the annual accounts of non-financial corporations. By the autumn, the Central Balance Sheet Office already has a representative sample of annual accounts for the previous year. The conclusions based on that sample can therefore be fairly reliably extrapolated to the population as a whole.

This article is in four parts. The first part briefly describes the method used and the population studied. The second part presents an extrapolation of the main items in the operating account for the 2014 financial year, focusing mainly on value added, staff costs, depreciation and the operating result. The extrapolations are presented according to company size and according to the main branches of activity. The third part assesses the financial position of companies in terms of profitability and financial structure. This analysis is based on the theory of the interpretation of annual accounts, and provides both a macro- and mesoeconomic view (with globalised figures) and a microeconomic picture (medians and other distribution measures). The analysis is supplemented by an examination of the financial leverage effect and the ability to repay interest charges ('times interest earned').

Finally, the fourth part looks at developments concerning the payment terms of customers and suppliers, ascertained on the basis of the annual accounts. That is followed by an examination of the link between these ratios and the risk of default.

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1. Method and description of the population

1.1 Method

The Central Balance Sheet Office has collected the accounts of non-financial corporations since the late 1970s. To that end, firms are required to file their annual accounts in a standardised form no later than seven months after the end of the financial year. The data are then checked and corrected if necessary in order to meet the required quality standards, following which an initial analysis is possible from September onwards.

However, it is always the case that the annual accounts for the latest year considered – in this case 2014 – are not yet all available. That is because a significant number of accounts are filed late or fail the arithmetical and logical checks conducted by the Central Balance Sheet Office. That is why the data for 2014 are estimated on the basis of a constant sample. The sample comprises firms which have filed annual accounts covering a 12-month financial year for both 2013 and 2014. The method consists in extrapolating the 2014 results according to developments observed in the sample, which are presumed to be representative of trends affecting the population as a whole. As verified in previous editions of this article, that assumption is broadly correct: in the great majority of cases, the extrapolations give a good indication of the direction and scale of the real movements.

This year's sample was drawn on 10 September 2015. It comprises 254 721 sets of annual accounts, or 73.5 %

of the total number filed for the 2013 financial year. In terms of value added its representativeness is much higher, at 87 %. The sample has become significantly more representative over the past ten years: in 2005, it only represented 52.6 % of the number of companies, and 82.4 % of value added. This improvement is due mainly to the technical progress achieved at the Central Balance Sheet Office (electronic filing, datawarehouse, etc.) and to the introduction of surcharges in the event of late filing of the annual accounts (see the previous edition of this article in the December 2014 Economic Review).

1.2 Description of the population studied

The population studied corresponds to all non-financial corporations as defined by the Central Balance Sheet Office. However, the "head office activities" branch (NACE-BEL 70 100) is excluded from this population because it comprises companies which generally provide internal banking or cash management services for corporate groups, and are therefore comparable to financial corporations.

Annex 1 itemises the NACE-BEL codes for the branches of activity covered. The sectoral groupings are based on the NACE-BEL 2008 nomenclature. However, for presentation and interpretation purposes, the structure used here differs slightly from the official structure of the nomenclature.

The article also distinguishes between companies according to their size. This distinction is based on the kind of annual accounts format used. Under the Company Code, small non-listed companies have the option of filing their annual accounts in the abridged format, while large firms and small listed companies must use the full format.

The Company Code defines a small company as one which has not exceeded more than one of the following limits in the last two financial years:
- annual average number of employees: 50;
- turnover (excluding VAT): € 7 300 000;
- balance sheet total: € 3 650 000;

unless the number of employees exceeds an average of 100 units per annum [1].

(1) If the financial year covers either more or less than 12 months, the turnover criterion is calculated on a pro rata basis. If the enterprise is affiliated to one or more companies, the criterion for the annual average workforce is calculated by adding up the average annual number of workers employed by all the enterprises concerned, and the turnover and balance sheet total criteria are calculated on a consolidated basis. For more details, see the advisory opinion CNC 2010-5 of the Belgian Accounting Standards Commission (www.cnc-cbn.be).

(2) In 1996, manufacturing industry still represented 38 % of value added and 36 % of employment.

In all other cases the company is regarded as large.

According to these criteria, companies filing full-format accounts are defined as large firms. Other companies, i.e. those using an abridged format, are regarded as SMEs.

Table 1 presents the breakdown of the number of companies, value added and personnel by branch of activity and by firm size for the last full financial year, i.e. 2013. This reveals a number of structural characteristics of the population, such as:
- Large firms represent the bulk of value added (74 % of the total) and employment (70 %), while being very much in the minority in terms of the number of companies (6 %).
- 15 % of industrial companies are large firms, compared to just 5 % of service companies. The proportion of large firms is particularly high in the chemicals industry (43 %) and the pharmaceutical industry (37 %), and in the "energy, water and waste" branch (31 %).
- The branches with the highest proportion of small or very small firms are the service branches focusing mainly on domestic demand, such as the hotels, restaurants and catering sector (99 % SMEs), the retail trade (97 %) and construction (6 %).
- While being very much in the minority in terms of the number of companies (96 % of the total), manufacturing industry is still a significant source of value added (27 %) and jobs (24 %) for the Belgian economy, even though these proportions have fallen considerably over the past 20 years [2].

2. Trend in components of the operating account

2.1 Economic climate in 2014

In 2014, GDP was up by 1 %, a growth rate well in excess of the 2013 and 2012 figures, but relatively moderate in a long-term perspective. This increase in activity was accompanied by renewed uncertainty. Thus, business confidence deteriorated sharply in the spring of 2014 before stabilising at a relatively low level in the summer, then picking up to some extent in the final months of the year.

The relatively better economic climate had a beneficial effect on business failures: over 2014 as a whole the number of bankruptcies came to 10 736, compared to 11 740 in 2013, a decline of 9 %. This downward trend applied to all branches of activity, but it was the hotels,

TABLE 1 BREAKDOWN OF THE POPULATION STUDIED BY BRANCH OF ACTIVITY
(2013 financial year)

	Number of companies		Value added (in € million)		Employment[1]	
	Large firms	SMEs	Large firms	SMEs	Large firms	SMEs
Manufacturing industry	**3 392**	**18 759**	**42 396**	**5 046**	**369 677**	**75 864**
of which:						
Agri-food industries	627	3 283	6 743	854	60 990	14 794
Textiles, clothing and footwear	222	1 270	1 160	272	17 078	4 756
Wood, paper and printing	354	3 316	2 303	652	24 978	9 274
Chemicals industry	266	355	6 698	116	39 821	1 367
Pharmaceuticals industry	55	93	5 752	27	21 344	508
Metallurgy and metalworking	552	4 092	5 072	1 347	59 197	20 092
Metal manufactures	565	1 897	8 548	627	86 399	8 473
Non-manufacturing branches	**17 496**	**306 930**	**90 959**	**40 613**	**933 820**	**491 339**
of which:						
Trade in motor vehicles	903	10 388	2 763	1 562	31 136	21 648
Wholesale trade[1]	4 453	28 447	18 003	4 338	127 137	47 577
Retail trade[1]	1 247	37 110	7 863	4 509	116 166	72 405
Transport and storage	1 594	9 773	12 114	2 524	157 069	35 953
Hotels, restaurants and catering	276	21 232	1 256	2 360	20 875	47 996
Information and communication	1 046	17 004	10 094	1 884	67 196	16 234
Real estate activities	1 966	31 768	2 517	3 084	7 311	7 964
Business services	3 003	78 098	16 588	9 586	258 411	91 923
Energy, water and waste	472	1 055	8 854	320	40 154	2 500
Construction	1 852	45 727	6 897	7 112	82 490	106 275
Total	**20 888**	**325 689**	**133 355**	**45 659**	**1 303 497**	**567 203**

Source: NBB.
(1) Average workforce in full-time equivalents.

restaurants and catering sector (–11 %), transport (–9 %) and trade (–8 %) that made the biggest contribution to that trend (see table 2). As is evident from the data for the first six months, the decline continued in 2015, but at an ever slower pace (–2 % compared to the first half of 2014).

The decline in the number of bankruptcies in 2014 contrasts with the sometimes very sharp increases in previous years. However, it should not mask the fact that the bankruptcy statistics remain at historically high levels: in the first half of 2015, the number of business failures totalled 5 555, or 38 % more than in the first half of 2007 (4 020). Furthermore, several years after the start of the financial crisis, it is likely that the most vulnerable firms have finally disappeared, automatically contributing to a decline in bankruptcies.

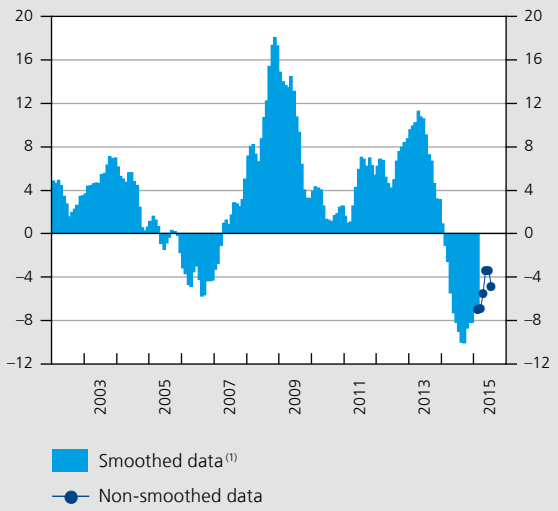
Finally, it should be noted that some recent fluctuations are due to the activity of the commercial courts. For instance, the reduction in bankruptcies in 2014 is due partly to the increase in business investigations and the speedier conclusion of cases in Brussels in 2013, which had driven up the number of bankruptcies in the Region in that year.

2.2 Global trends in the operating account

Over 2014 as a whole, the total value added created by non-financial corporations, i.e. the difference between

CHART 1 NUMBER OF BUSINESS BANKRUPTCIES IN BELGIUM

(percentage change in the number of bankruptcies compared to the corresponding month of the previous year)



Sources: FPS Economy, SMEs, Self-employed and Energy, own calculations.
(1) Data smoothed by a twelve-month centred moving average.

sales revenues and the cost of goods and services supplied by third parties, increased by 0.5 % at current prices (see table 3). Leaving aside 2009, that is the lowest growth rate in more than 15 years, and is due to the stagnation of both sales and purchases. The growth of value added has in fact been falling steeply for the past four years.

The value added that a firm creates enables it to cover its operating expenses and to record any excess as its net operating profit.

Staff costs usually make up the major part of the operating expenses. After having outpaced the growth of value added in previous years, they decreased by 0.6 % in 2014. That decline in the wage bill was due mainly to two factors: the marked fall in inflation, which was largely reflected in labour costs via the indexation mechanism, and the freezing of real pay increases imposed by the government. In addition, the number of workers declined in 2014 (–1 % in full-time equivalents).

After staff costs, the biggest operating expenses comprise item 630 in the annual accounts, namely depreciation and write-downs on tangible fixed assets, intangible fixed assets and start-up costs. In 2014, their growth slowed for the third consecutive year, dropping to 2.2 %, which is well below the average for the past ten years (3.9 %); that reflects an investment policy which has become far more conservative in recent years.

In the annual accounts, corporate investment spending can be ascertained from the ratio of new tangible fixed assets. That ratio divides acquisitions of tangible fixed assets during the year by the stock of tangible fixed assets at the end of the previous year. Whatever the yardstick applied, the ratio contracted very sharply in the wake of the 2008-2009 recession, and has since remained at levels well below those prevailing before the financial crisis (see chart 2). This downward trend has affected almost all branches of the Belgian economy.

TABLE 2 NUMBER OF BANKRUPTCIES BY BRANCH OF ACTIVITY

							1st half	
	2009	2010	2011	2012	2013	2014	2014	2015
Manufacturing industry	544	541	563	611	619	585	322	273
Construction	1 442	1 560	1 693	1 802	2 065	1 977	1 065	1 027
Trade	2 603	2 649	2 691	2 744	2 993	2 766	1 459	1 435
Hotels, restaurants and catering	1 798	1 788	1 987	2 062	2 261	2 011	1 033	1 005
Transport and communications	851	858	907	942	948	859	444	421
Business and real estate services	1 147	1 396	1 573	1 507	1 786	1 658	878	971
Other	1 035	778	810	919	1 068	880	488	423
Total	**9 420**	**9 570**	**10 224**	**10 587**	**11 740**	**10 736**	**5 689**	**5 555**

Sources: FPS Economy, SMEs, Self-employed and Energy, own calculations.

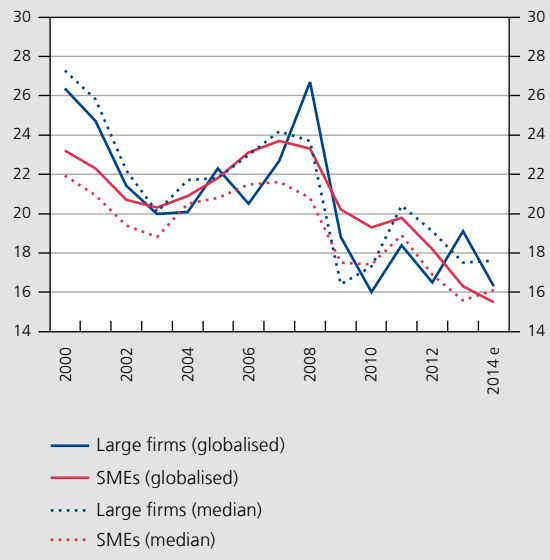
TABLE 3 TRENDS IN THE MAIN COMPONENTS OF THE OPERATING ACCOUNT
(current prices)

	Percentage changes compared to the previous year					In € million	In % of value added
	2010	2011	2012	2013	2014 e	2014 e	2014 e
Value added	**5.5**	**3.7**	**1.4**	**1.5**	**0.5**	**179 833**	**100.0**
Staff costs (–)	0.6	5.3	3.0	1.6	–0.6	102 976	57.3
Depreciation and write-downs[1] (–)	2.1	4.1	3.4	2.6	2.2	34 586	19.2
Other operating expenses (–)	3.0	4.7	2.5	–0.4	–5.2	10 414	5.8
Total operating expenses	*1.1*	*5.0*	*3.0*	*1.7*	*–0.3*	*147 976*	*82.3*
Net operating result	**28.6**	**–1.7**	**–5.7**	**0.6**	**3.9**	**31 857**	**17.7**

Source: NBB.
(1) On tangible and intangible fixed assets and start-up costs (item 630).

Total operating expenses, determined largely by staff costs and depreciation, decreased by 0.3 % in 2014, the first reduction in over 20 years. Combined with the small rise in value added, this led to a modest increase (+3.9 %) in the operating result in 2014, which was up by € 32 billion. Over the past four years, the operating result has been generally very stable, remaining below the peak level prevailing before the 2008-2009 recession (€ 36 billion).

CHART 2 RATIO OF NEW TANGIBLE FIXED ASSETS
(in %)



Source: NBB.

The analysis by size shows that it was mainly SMEs that contributed to the expansion of the operating account in 2014: during the year they recorded a 3 % increase in value added and a 5.2 % increase in the operating result, compared to –0.4 % and 3 % respectively for large firms. Overall, SMEs' results are up in almost all the branches of activity studied, and more especially in business services, the wholesale trade, real estate and construction. The situation is more variable in large firms: their growth in certain branches such as chemicals, metallurgy or the wholesale trade is offset by a contraction in the retail trade, transport, pharmacy and telecommunications.

2.3 Developments per branch of activity

Table 4 describes the movements in the operating account for each branch of activity over the past two years under review.

In 2014, in contrast to the long-term trend, the manufacturing branches performed more strongly than the non-manufacturing branches.

The main reason for the relatively favourable position of the manufacturing branches was the decline in costs: apart from the reduction in labour costs, industry benefited from the fall in commodity prices (see chart 3). Energy commodities displayed the most pronounced movements; in particular, the price of Brent crude slumped by 50 % in

TABLE 4 VALUE ADDED AND OPERATING RESULT PER BRANCH OF ACTIVITY

(percentage changes compared to the previous year)

	Value added		Net operating result		*p.m. Branch's share in % of total value added in 2014 e*
	2013	2014 e	2013	2014 e	
Manufacturing industry	**1.4**	**4.2**	**3.9**	**16.6**	***27.5***
of which:					
Agri-food industries	4.6	3.8	15.8	4.5	4.4
Textiles, clothing and footwear	–1.3	10.4	2.7	57.5	0.9
Wood, paper and printing	–2.8	2.5	–21.9	26.5	1.7
Chemicals industry	1.2	7.2	0.6	41.3	4.1
Pharmaceuticals industry	12.1	0.7	42.5	–32.9	3.2
Metallurgy and metalworking	1.1	4.4	233.2	167.3	3.7
Metal manufactures	–2.1	4.3	–6.0	6.6	5.3
Non-manufacturing branches	***1.6***	***–0.9***	***–0.4***	***–2.6***	***72.5***
of which:					
Trade in motor vehicles	–1.1	7.2	–5.6	28.4	2.6
Wholesale trade[1]	–0.5	1.5	–7.8	19.5	12.6
Retail trade[1]	1.6	–0.3	–1.6	–9.3	6.6
Transport and storage	–0.2	–14.0	–16.3	–84.9	7.0
Hotels, restaurants and catering	3.8	3.6	17.3	36.6	2.1
Information and communication	–2.5	1.3	–23.5	–9.5	6.7
Real estate activities	2.6	3.6	3.8	3.0	3.2
Business services	4.6	3.4	11.9	–4.1	15.0
Energy, water and waste	–3.1	–6.1	–29.9	2.9	4.8
Construction	0.8	–1.5	3.2	–11.8	7.7
Total	**1.5**	**0.5**	**0.6**	**2.1**	***100.0***

Source: NBB.
(1) Excluding trade in motor vehicles.

2014. The anaemic global demand also depressed the prices of industrial and food commodities. Manufacturing industry itself recorded modest expansion, as is evident from the sales figures (+0.6 % in 2014) and from the industrial output indices calculated by FPS Economy: while the movements varied between branches, the overall index of manufacturing output was up from 106.1 in December 2013 to 107.6 in December 2014. The branches where lower costs had the most impact were metallurgy, basic chemicals and metal manufactures.

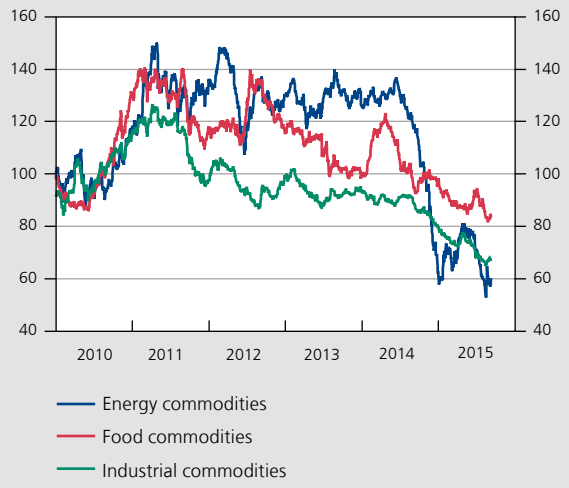
The pharmaceuticals industry is one of the few manufacturing branches to have recorded a fall in its operating result in 2014 (–32.6 %). That is very largely due to the increased write-down of R&D costs and licences associated with new drugs.

In the non-manufacturing branches, developments varied widely and were sometimes very dependent on situations specific to certain large firms. The most positive variations were seen in the wholesale trade (mainly owing to the branch's close links with industry) and in trade in vehicles and ancillary equipment, which benefited in particular from the fall in commodity prices in the tyre sector. Conversely, the retail trade and telecommunications suffered further erosion of their margins against the backdrop of continuing fierce competition.

The decline in the results in construction is due mainly to the completion of major projects or specific property deals and to the reduction in public investment in the light of fiscal consolidation. Finally, the "transport and storage"

CHART 3 COMMODITY PRICES

(indices 2010 = 100, daily data in US dollars)



Source: HWWI.

branch was greatly affected by specific events, namely the reorganisation of one operator and a very substantial reduction in the value of inventories in a company specialising in the storage of petroleum products.

3. Trends in the financial situation of firms

The financial analysis which follows is based on the theory of interpretation of the annual accounts, from which several ratios have been borrowed. They are defined in detail in Annex 2.

The financial ratios are presented in the form of global figures and medians. The globalised ratios are obtained by taking the sum of the numerators of all companies and dividing it by the sum of their denominators. The globalised ratio is therefore the weighted average of each ratio at the level of each firm, whose weight is each firm's share in the total value of the ratio's denominator. Thus, the globalised average represents the situation of those firms having the largest value in the denominator. The median is the central value in an ordered distribution in which 50 % of firms have a ratio above the median and 50 % have a ratio below the median. These two measures are used in order to permit a complementary analysis. Since the averages, and hence the globalised ratio, are influenced by extreme values (outliers), the median value is important to neutralise those extremes. Also, the globalised average presents the situation from the macro- and mesoeconomic angle, while the median reflects the microeconomic situation.

3.1 Profitability

This section analyses a company's profitability first in relation to sales and then in relation to the equity and the balance sheet total.

3.1.1 Net margin on sales

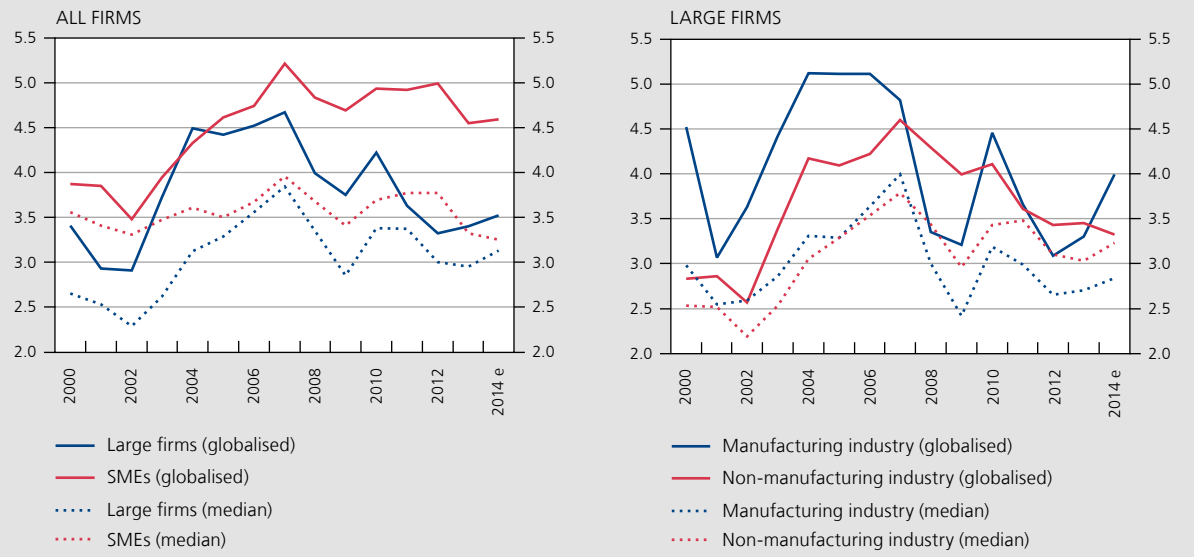
The profitability of sales can be measured by the net margin on sales, which is the ratio between the net operating result and sales. The net margin on sales gives an idea of the firm's relative efficiency after deduction of all operating expenses including depreciation, write-downs and provisions. It provides an indication of the firm's ability to achieve a positive operating result from the proceeds of sales after deduction of all operating costs and excluding financial and exceptional items and taxes.

The net margin on sales achieved by SMEs exceeded that of large firms for almost the whole of the period (see chart 4), which means that SMEs get a bigger operating profit per € 100 of sales. In this connection, it should be noted that the analysis takes account only of SMEs for which a net margin on sales can be calculated, which is not possible unless their turnover is stated in their annual accounts. In addition, the difference between the globalised net margin on sales of SMEs and that of large firms has widened over the years. There are various possible reasons for that. Large firms generally create more jobs, leading to increased staff costs, an expense item which has risen faster than value added in recent years, except for last year. As already mentioned, that exception was due to falling inflation in 2014, which had an impact on the automatic wage indexation, and due to a freeze on real wage increases for 2013-2014. Moreover, bigger firms face increased international competition, which compresses their margins.

Up to the end of 2007, large firms in manufacturing industry had a higher net margin on sales than non-manufacturing industry. That difference was due to bigger margins in chemicals, pharmacy, wood, paper and printing, metallurgy and metalworking. Conversely, since 2008, the net margin on sales of large industrial firms has been harder hit by the downturn in activity following the financial crisis. The sharpest falls were recorded in those same branches of activity, which are not only particularly sensitive to the business cycle but are also considerably influenced by the international environment.

CHART 4 NET MARGIN ON SALES

(in %)



Source : NBB.

According to the estimates for 2014, the globalised net margin on sales is recovering very slightly in both large firms (3.5 %) and SMEs (4.6 %). The hesitant revival is measurable in most industrial branches thanks to a decline in their operating costs, due largely to the fall in commodity prices. The exception is the pharmaceuticals industry : it recorded a reduction in its net margin on sales (down from 8.5 % in 2013 to 5.7 % in 2014), owing to a rise in the amortisation of capitalised R&D costs and licences for new drugs.

3.1.2 Economic and financial profitability

In the analysis of profitability in relation to the equity capital and the balance sheet total it is possible to distinguish between a company's economic profitability and its financial profitability. Economic profitability is measured by the ratio between the net result before tax and interest charges and the balance sheet total. In that connection, exceptional results were deliberately excluded because they are non-recurring and the analysis only concerns the net result of normal activities. The ratio is an indicator of the firm's economic health, regardless of how it finances its business. In contrast, financial profitability takes account of the funding method and is estimated in this study by the net return on equity, which is the pre-tax profit divided by the total equity. This ratio therefore indicates the return that shareholders receive on the firm's current activities, once again excluding exceptional results and taxes. These two profitability ratios are calculated before deduction of taxes in order to permit comparison.

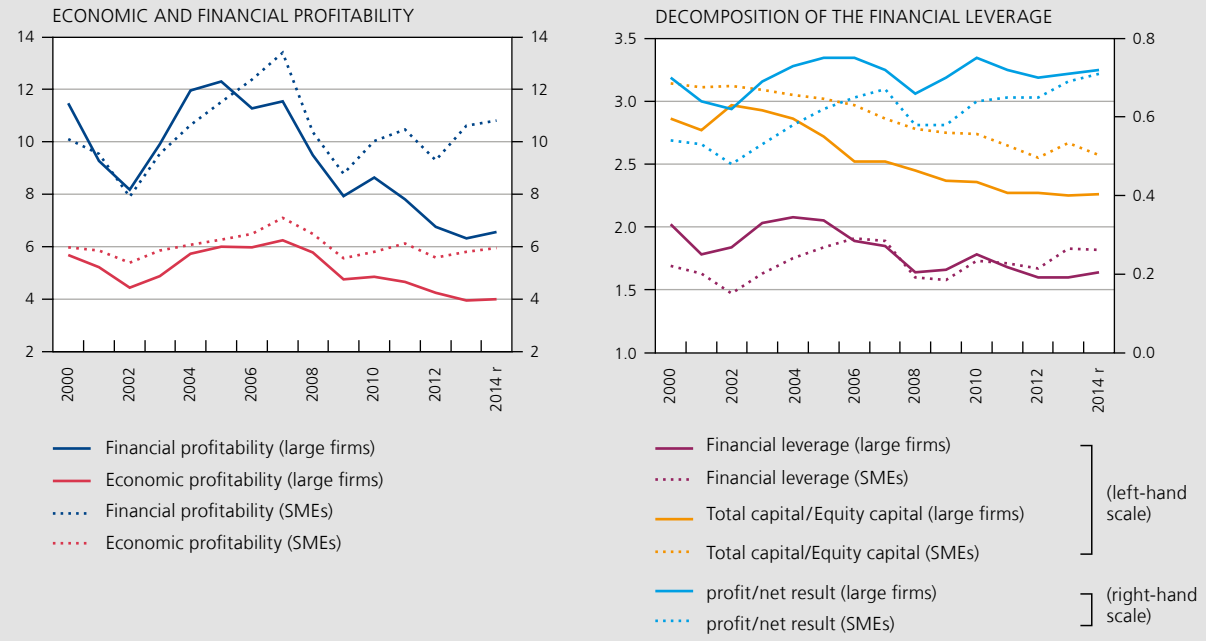
The differences between these two forms of profitability can be explained by the financial leverage effect. If a firm can borrow funds at a rate lower than its economic profitability, it can augment its financial profitability. The reason is that debts to third parties are generally less expensive than equity capital, because shareholders expect not only the normal return on investment, but also a higher risk premium (1) for their capital contribution. The firm's financial profitability is therefore determined by its economic profitability multiplied by its financial leverage effect (2), which is influenced by the degree to which the firm is funded by borrowings, and by the associated interest rates. This concerns not only the interest charges on bank loans and bonds, but also any costs associated with debt to suppliers or to other group companies. A leverage ratio higher than 1 indicates that the debt amplifies the net return on equity, while a ratio of less than 1 indicates that the debt has a negative effect on the company's financial profitability.

(1) In the event of bankruptcy, the firm will first repay its creditors followed by its subordinated creditors, and then pay out the balance to the shareholders. This last group therefore runs the biggest risk, which explains the higher risk premium.

(2) The financial leverage effect = (pre-tax profit/net result before tax and interest charges) x (total assets/equity capital).

CHART 5 GLOBALISED ECONOMIC AND FINANCIAL PROFITABILITY, AND FINANCIAL LEVERAGE BY FIRM SIZE

(in %)



Source: NBB.

Chart 5 compares the theory with the statistical data from the annual accounts.

The globalised economic profitability of large firms has been falling since the 2008 financial crisis, whereas that of SMEs has been more resilient. SMEs are less sensitive to the business cycle since they are less centred on industrial activities and international trade. Large firms have been more affected by the adverse economic climate, so that in 2013 they recorded their lowest level of economic profitability (3.9 %) in 15 years. The sharpest decline occurred in manufacturing industry. All branches of manufacturing industry suffered a fall between 2007 and 2013, with metallurgy and metalworking seeing the biggest decline. The influence of the less favourable international environment led there to the temporary suspension or even closure of production units. The agri-food industries and the chemicals industry likewise recorded a sharp fall in their economic profitability. In the latter case, that was due mainly to the squeezing of margins and to fluctuations in commodity prices. The slow economic growth revival in 2014 seems to be cautiously reflected in a modest improvement in the economic profitability of large firms, but only in manufacturing industry, and more particularly in all branches other than the pharmaceuticals sector. The strongest recovery was seen in the agri-food industries, metallurgy and metalworking, and in chemicals.

Chart 5 shows that financial profitability exceeded economic profitability over the period considered, indicating that firms – regardless of size – are able to contract debts at a rate below their economic profitability. The globalised financial profitability of SMEs recovered after 2008 thanks to a relatively constant economic profitability and increased financial leverage. The latter may be due to the fact that, over this period, compared to large firms, SMEs have made relatively more use of borrowed capital to finance their assets, so that the substantial reduction in the cost of bank credit since 2008 (see chart 8) had a bigger impact. Moreover, the financial profitability of large firms has declined steadily, year after year, reaching a 15-year low in 2013 (6.3 %). That decline was due to a fall in economic profitability and to a decline in the leverage effect (though it remained higher than 1). The smaller leverage effect was due to a relatively big increase in the equity ratio[1] in case of large firms compared to that of SMEs, which partly offset the positive effect of lower interest charges on borrowings. That is evident in a smaller rise in the ratio between the pre-tax profits and

(1) The equity ratio is the ratio between equity capital and total assets.

the net result after tax and interest charges. According to the estimate for 2014, the trend in the financial profitability of large firms appears to be turning around, thanks to the cautious recovery of their economic profitability. To sum up, this means that an investment in a large firm currently gives shareholders a smaller real return than it did ten years ago.

However, what matters to investors is whether shares still offer a bigger return than a risk-free investment, such as the yield on ten-year Belgian government bonds (OLOs). More specifically, it is necessary to consider a variant of financial profitability, namely the return on equity after tax. This is the profit after interest charges and taxes on the equity, excluding exceptional items which are, by definition, non-recurring. Chart 6 compares the globalised return on equity after tax of large firms with the yield on government bonds. The benchmark considered for that purpose is the ten-year OLO yield. The difference between the net return on equity and the yield on government bonds can be regarded as an indication of the risk premium offered to shareholders in large firms. This must be interpreted with due caution since the vast majority of large firms are not listed on the stock market. Unsurprisingly, it emerges that an equity investment was much more attractive before the financial crisis than after it, although the difference between sovereign bond yields and the globalised return on equity has increased in recent years. Following the crisis the yield on sovereign bonds also declined sharply, not only in Belgium but similarly elsewhere in Europe, owing to the monetary measures taken at European level to address the problem of heavy sovereign debts in Europe, a problem caused by the financial crisis.

3.2 Solvency

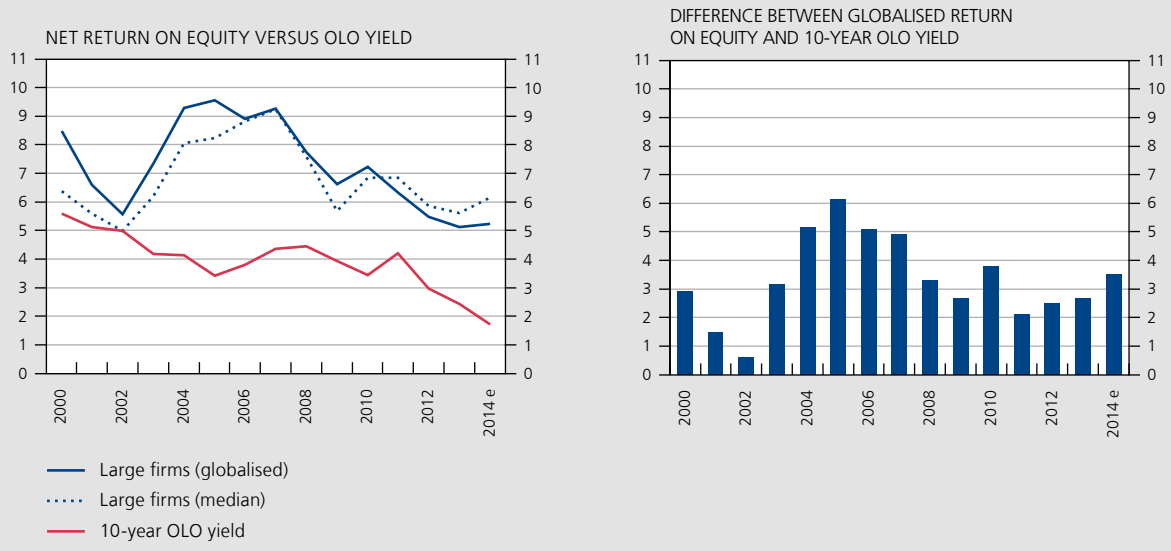
The main aim of the solvency ratios is to see the extent to which the firm can meet its financial liabilities, i.e. its interest charges and debt repayments.

The solvency ratios play a crucial role in the bankruptcy prediction models developed by the Bank, particularly in the financial health model included in the Central Balance Sheet Office company file and in the In-house Credit Assessment System (ICAS), which the NBB has officially applied since 2013 to IFRS firms, and since 2015 to BE GAAP entities. The ICAS system is an instrument for analysing the credit quality of Belgian non-financial corporations in the context of the Eurosystem's monetary policy (see section 3.3).

3.2.1 Degree of financial independence and degree of self-financing

The main measurement of solvency is the firm's degree of financial independence. That is the ratio between the

CHART 6 RETURN ON EQUITY AFTER TAX COMPARED TO THE YIELD ON BELGIAN GOVERNMENT BONDS
(in %)



Source : NBB.

equity and the total assets. The greater the financial independence, the lower the firm's debt ratio and the larger the buffer – comprising equity capital – for repaying the creditors. In other words, the degree of financial independence measures the robustness of the firm's capital structure.

A higher ratio implies a bigger chance that, in the event of bankruptcy, the equity will be sufficient to absorb the liquidation losses and repay much of what is owed to creditors. Companies with a higher degree of financial independence will generally pay lower interest charges on their debts (because the risk is lower), and that enables them to retain more funds for investment or for the distribution of dividends. That makes it easier for firms with greater financial independence to obtain bank loans or to raise funds on the capital market.

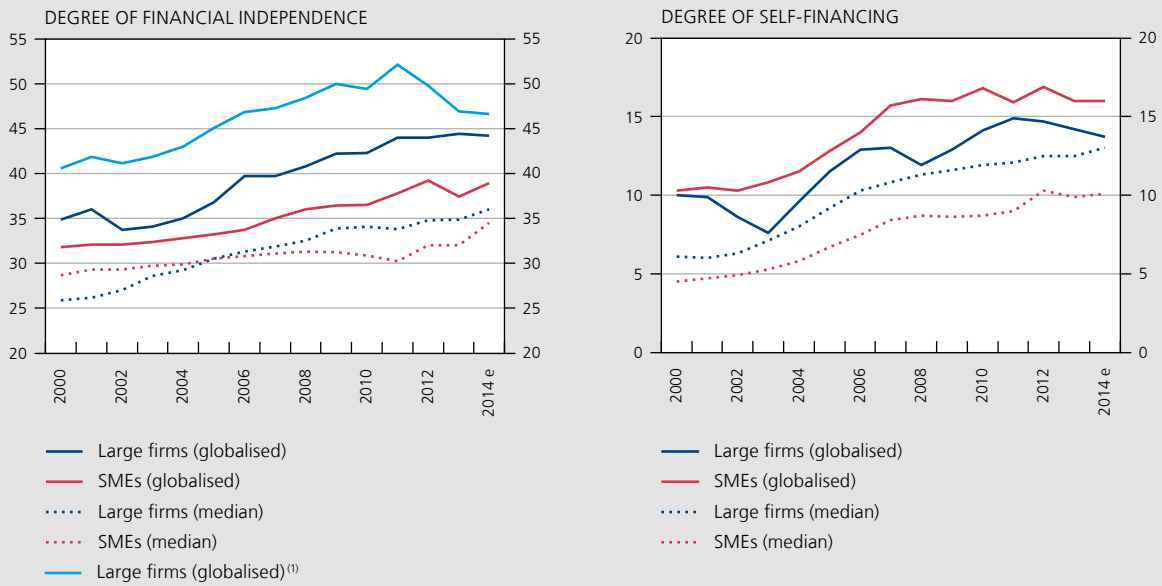
A slightly less traditional solvency ratio is the degree of self-financing, i.e. the reserves and profits/losses carried forward as a ratio of the total assets. That ratio determines the degree to which a company can accumulate equity capital out of its profits. The ratio thus represents an indicator of cumulative profitability over preceding years and the year under review. At the same time, the degree of self-financing tells us something about the firm's dividend and reserve policy. A high degree of self-financing means that the firm's growth is largely funded out of its own profits and that there is less risk that any losses will compromise the firm's stability.

However, this ratio may give a distorted view in the case of purely accounting transactions between reserves and profits carried forward, on the one hand, and capital and issue premiums on the other. If a part of the reserves is transferred to the capital, the company's degree of self-financing is reduced without any decline in the total equity. That is why the degree of self-financing has to be considered in conjunction with the degree of financial independence.

In 2014, the globalised average degree of financial independence of large firms remained more or less stable, at 44.2 %, while in the case of SMEs the ratio recovered, regaining its 2012 level (39 %), after having fallen sharply in 2013 following the reduction in operating profits, which meant a smaller transfer to the equity. Since 2011, the globalised financial independence of large firms has remained fairly constant, whereas it had previously risen steadily and was boosted from 2005 by the introduction of the tax allowance for risk capital, also known as the notional interest deduction. This notional interest scheme brought an inflow of foreign capital into Belgium, primarily in the "head office activities" branch which is not

CHART 7 FINANCIAL INDEPENDENCE AND DEGREE OF SELF-FINANCING FOR BELGIAN COMPANIES

(in %)



Source: NBB.

(1) Including the "head office activities" branch.

included in the population of this study. However, to illustrate recent developments in head office activities, the sector is included in an additional ratio in the first part of chart 7. In recent years, the notional interest deduction has become less attractive, partly because the basic interest rate used for the deduction has declined year by year (more specifically falling to 1.630 % for the 2016 tax year, compared to 4.473 % for the 2010 tax year) and partly because, since the 2013 tax year, firms have no longer been able to carry forward to a later year any interest in excess of the tax base. The less favourable notional interest conditions are reflected in a more stable globalised average degree of financial independence of companies. In the "head office activities" branch, financial independence actually decreased, because those companies are now less inclined to hold their capital in Belgium.

Over the past two years (2013-2014e), the globalised ratio of the degree of self-financing of large firms declined while the median continued to rise. The fall in the globalised average is probably due to an accounting transaction whereby the reserves were cut by an amount allocated to the capital. That transaction was applied under a transitional arrangement in the context of the increase in the withholding tax on liquidation surpluses, decided on by the former Finance Minister Koen Geens in November 2013. At the time of the March 2013 budget review, it was decided to raise the rate of the withholding tax on liquidation surpluses from 10 to 25 % with effect from 1 October 2014. A liquidation surplus corresponds to the funds that a dissolved company assigns to its shareholders in addition to the repayment of the paid-up capital, which is in principle tax free. In order to prevent a spate of active companies going into liquidation, Minister Geens devised a transitional arrangement in November 2013 whereby a firm could distribute a part of its taxed reserves as they stood at 31 March 2013 at the lower rate of withholding tax (10 %) prevailing at that time, provided they were immediately incorporated in the paid-up capital. That part of the paid-up capital can subsequently [1] be distributed free of tax as if it had always been part of the paid-up capital. This was a way of avoiding the higher rate of 25 %. Under this scheme, the distribution of dividends and the simultaneous increase in the capital could take place respectively after 1 July 2013 and before 1 October 2014, depending on whether the company's financial year conformed to the calendar year. Companies used this transitional arrangement, triggering a reduction in the degree of self-financing in 2013 and in 2014 (estimate). That fall is not very meaningful, especially as it was not accompanied by any decline in the level of equity capital, since shareholders immediately had to pay back the dividends received (which were deducted from the reserves) into the company's capital.

According to the notification by the Council of Ministers dated 15 October 2014, the current government decided, when preparing the 2015 budget, that SMEs (as defined in Article 15 of the Company Code) could retain the option of avoiding the higher rate of withholding tax if they created a liquidation reserve [2].

TABLE 5 NOTIONAL INTEREST DEDUCTION RATES
(in %)

Tax year	Basic rate	Higher rate for SMEs
2007	3.442	3.942
2008	3.781	4.281
2009	4.307	4.807
2010	4.473	4.973
2011	3.800	4.300
2012	3.425	3.925
2013	3.000	3.500
2014	2.742	3.242
2015	2.630	3.130
2016	1.630	2.130

Source : FPS Economy.

3.2.2 Average interest charges on financial debts and breakdown by type of financial debts

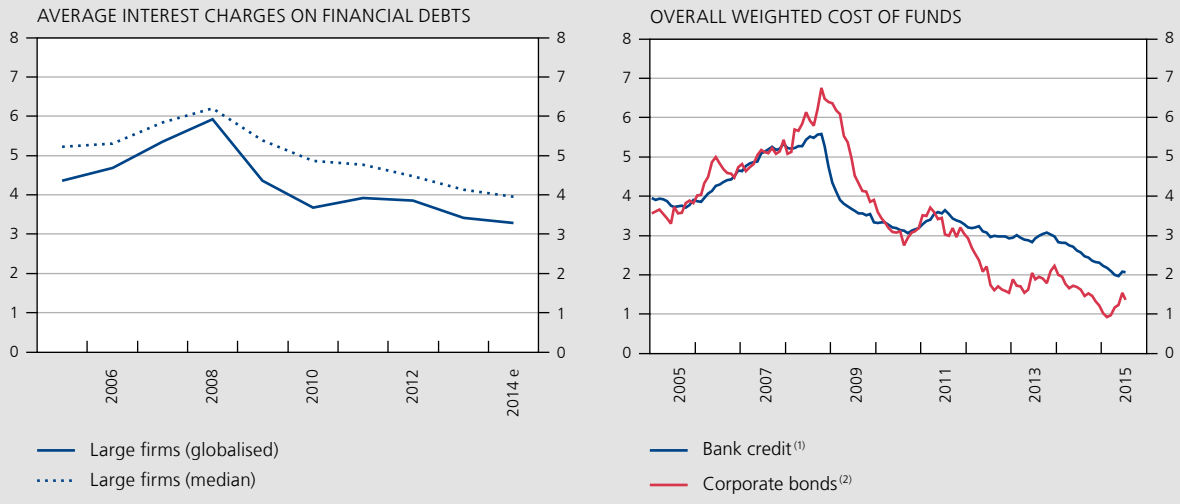
Chart 8 shows the trend in average interest charges on financial debts contracted by large firms, calculated as the ratio between the cost of the debts and the sum of the short- and long-term financial debts. That ratio is only estimated for large firms because SMEs do not provide detailed information on the interest charges on their debts. The average interest charges, in terms of both globalised figures and medians, peaked in 2008 and then subsided to their lowest level in 2014 (3.3 % for the globalised average, 4 % for the median). The ratio follows the same pattern as the weighted average cost applied by Belgian banks to new business loans, and also tracks

(1) The period for which the sums incorporated in the capital must be kept there before being distributed free of tax is four years for SMEs and eight years for large firms, with effect from the date of the capital increase.

(2) From the 2016 tax year onwards, instead of distributing profits to their shareholders, SMEs can retain the profits in the business and pay a 10 % advance withholding tax on those gains. In so doing, they avoid paying any additional withholding tax on liquidation. However, they have to keep the retained profits in the business until the company is wound up. If the retained profits are distributed in the form of dividends within five years, an additional 15 % withholding tax will be levied. If they are distributed after five years, an additional 5 % withholding tax is payable.

CHART 8 FINANCING COSTS

(in %)



Sources: NBB, Thomson Reuters Datastream.

(1) Weighted average rate charged by Belgian banks on new loans to businesses. The weighting is based on amounts outstanding for the various types of credit.

(2) Yield of an index of euro-denominated bonds issued by Belgian non-financial corporations, all maturities combined; index weighted by outstanding amounts.

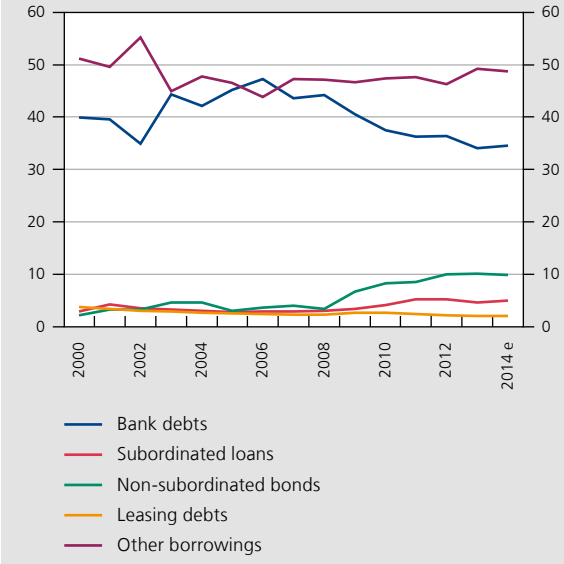
the corporate bond yield (see part 2 of chart 8). In 2014, both the cost of bank credit and the yield on corporate bonds fell sharply, largely as a result of a new cut in the ECB's key interest rate and a continuing decline in money market rates (particularly long-term rates).

Although the cost of financing bank loans has fallen to a historically low level in recent years, not all entrepreneurs took an equally favourable view of the non-monetary conditions attached to new bank loans.

According to the NBB's quarterly survey on the assessment of credit conditions, it emerges that, since 2014, the average business leader has become more optimistic about the general conditions governing access to new bank loans, for the first time since the second quarter of 2011. The easing of conditions was more evident for large firms than for SMEs. This favourable trend resulted mainly from the decline in interest rates, whereas the assessment of the non-monetary conditions deteriorated, albeit less significantly. According to the SAFE survey ("Survey on the Access to Finance of small and medium-sized Enterprises in the euro area"), a poll of Belgian SMEs reveals that it is mainly firms with a better balance sheet position which have found it easier to attract external funding. These two surveys indicate that the "non-monetary conditions for obtaining a new bank loan" are more rigid in the case of SMEs. This is a key point for attention, since the

CHART 9 SHARE OF THE VARIOUS TYPES OF FINANCIAL DEBTS, IN THE CASE OF LARGE FIRMS

(in %)



Source: NBB.

Belgian economy has a high concentration of SMEs and, for those firms, bank loans are by far the main source of debt financing.

For large firms, it is easier to obtain not only bank loans but also other forms of external funding (see chart 9). Thus, since 2006, large firms have steadily reduced their recourse to bank debts: their proportion has fallen from 47 % in 2006 to 34 % in 2014. External funding was raised by issuing corporate bonds (4 % in 2006, compared to 10 % in 2014) and contracting "other loans" (up from 44 % in 2006 to 49 % in 2014), mainly intra-group loans.

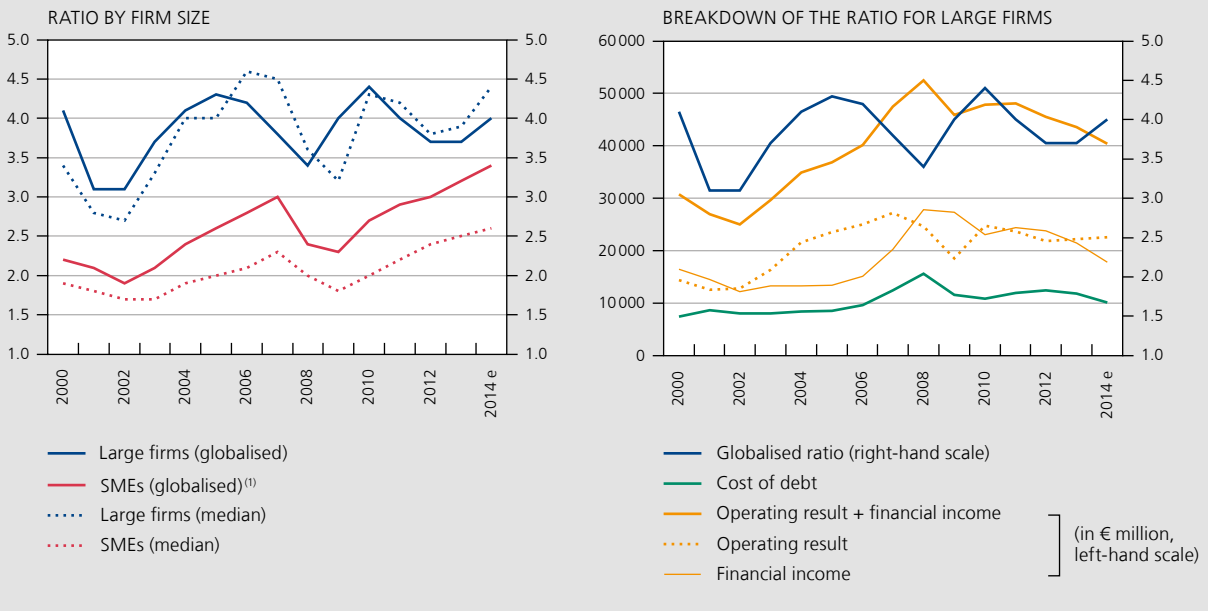
3.2.3 Times interest earned ratio

As stated above, a firm's solvency position can be determined by the degree to which it can afford the fixed interest charges on borrowings, even when its operating result and financial income are less favourable. That can be measured by the times interest earned ratio, which is the ratio between the company's net operating result plus financial income and the interest charges on its bank debts and bond loans. We choose to take account of financial income as well because that can be fairly substantial in the case of some large firms, especially if they hold shares in other firms or if the company lends funds to other firms in the same group, notably in the form of cash pooling.

If the coverage ratio is less than 1, the company does not generate sufficient operating profits or financial income to honour its interest liabilities. In both globalised and median terms, the times interest earned ratio is higher than 1 for both large firms and SMEs during the period considered (2000-2014e). The ratios of large firms are considerably higher than those of SMEs. There are two reasons for that difference: first, large firms receive more financial income from participating interests or cash pooling remuneration than SMEs, and second, debt charges are relatively higher for SMEs, especially as their debt ratio exceeds that of large firms (see chart 7).

In the period 2000-2006, the globalised coverage ratio of large firms tracked the trend in the total operating result realised and the financial income. After 2006, the coverage ratio was driven down by the rise in interest charges, attributable to the increased cost of external funding in the case of both bank credit and corporate bonds (see chart 8). The coverage ratio dropped to a low point in 2008 following the financial crisis. From 2009 onwards, the ratio recovered thanks to a sharp fall in the cost of bank loans and corporate bonds which outweighed the decline in the operating results. In 2010, the operating results picked up thanks to a revival in economic activity which reinforced the rise in the coverage

CHART 10 THE TIMES INTEREST EARNED RATIO AND ITS COMPONENTS



Source: NBB.
(1) The times interest earned ratio of SMEs includes in the denominator "all financial charges" since the SMEs' abridged formats do not give any details on "the cost of debt".

TABLE 6 TIMES INTEREST EARNED RATIO AT THE LEVEL OF BRANCHES OF ACTIVITY, FOR LARGE FIRMS

	2007	2008	2009	2010	2011	2012	2013	2014 e	Share of "cost of debt" in 2014 e (in %)
Manufacturing industry	**4.17**	**3.53**	**4.52**	**5.49**	**4.60**	**4.28**	**4.12**	**5.55**	**28**
of which :									
Agri-food industries	3.97	2.57	4.55	3.69	3.36	3.39	3.11	4.56	8
Textiles, clothing and footwear	3.22	1.56	2.61	3.80	3.18	3.98	3.88	6.23	1
Wood, paper and printing	2.84	2.69	2.55	3.77	3.96	3.16	2.96	2.90	2
Chemicals industry	3.44	2.50	3.39	4.96	4.33	4.44	3.74	5.88	7
Pharmaceuticals industry	5.11	7.83	13.27	9.94	7.49	6.39	7.46	7.32	1
Metallurgy and metalworking	6.11	2.85	1.60	4.04	2.79	0.97	2.48	4.10	3
Metal manufactures	7.71	6.18	5.07	7.09	6.96	7.13	8.09	9.15	3
Non-manufacturing branches	**3.58**	**3.25**	**3.65**	**3.87**	**3.77**	**3.39**	**3.51**	**3.35**	**72**
of which :									
Trade in motor vehicles	4.94	2.24	2.88	4.21	5.72	4.24	4.64	6.27	1
Wholesale trade	3.65	3.48	3.93	5.58	4.94	4.49	5.17	6.78	7
Retail trade	5.55	3.98	4.38	4.42	5.11	4.57	4.26	3.07	3
Transport and storage	4.02	4.53	4.49	3.15	2.22	3.01	2.98	2.15	7
Hotels, restaurants and catering	2.12	1.89	1.78	2.40	2.57	1.58	2.30	4.41	1
Information and communication	3.86	4.43	4.36	4.08	4.40	3.75	3.03	2.84	7
Real estate activities	1.80	1.73	1.51	1.31	1.66	1.66	1.60	1.52	9
Other business services	3.32	3.09	2.69	3.76	3.64	3.62	4.16	4.56	8
Energy, water and waste	2.99	2.31	3.60	3.39	3.29	2.81	2.48	2.06	17
Construction	5.04	4.57	4.72	4.81	4.42	4.17	4.62	4.27	4
Total	**3.81**	**3.36**	**3.96**	**4.40**	**4.04**	**3.66**	**3.70**	**3.98**	**100**

Source : NBB.

ratio. In 2011-2012, the ratio dipped as a result of an economic downturn. The past two years have brought a very cautious recovery in both economic growth and the operating results. That improvement, associated with a new fall in the cost of bank credit and an even bigger decline in the cost of bond loans, in a situation where that type of borrowing is increasingly used as a form of external funding (see chart 9), accounts for the positive trend in the coverage ratio of large firms.

The trend in the globalised coverage ratio of SMEs matches that of large firms, except in 2011 and 2012 when the economic recession made less impact on the operating profits of SMEs.

Table 6 shows that the coverage ratio of large firms in manufacturing industry is higher than that in non-manufacturing industry. In addition, the difference in value increases after the financial crisis. The explanation lies in a bigger reduction in interest liabilities in industrial firms following a sharper rise in the degree of self-financing in industrial companies and a more substantial fall in the rate of investment in tangible fixed assets in manufacturing industry since 2008.

The "times interest earned ratio" is persistently low in the "real estate activities" branch because firms in the property sector have a fairly high financial debt ratio (short- and long-term financial debts in relation to the balance sheet total), averaging 41 % over the period 2007-2014e, while the average figure for large firms is 32 % over the same period. The pharmaceuticals and metalworking industries tend to have a fairly high coverage ratio because these sectors opt to make limited use of financial debts to fund their activities (13 % and 20 % respectively).

The industrial branches with the highest "cost of debt" ratio are the agri-food industry and the chemicals industry. In these two sectors, the times interest earned ratio is influenced mainly by the operating profits and financial income. The sharp rise in the coverage ratio in the agri-food industry in 2009 and 2014e is due on both occasions to the exceptional increase in dividends on participating interests in a few large firms, whereas in the chemicals sector the estimation of the ratio for 2014 reveals a marked rise in the operating profits thanks to the reduction in operating costs resulting from the fall in commodity prices. In addition, a large firm in the basic chemicals sector exerted further influence on the coverage ratio as a result of increased income from participating interests.

The main branches (in terms of cost of debt) of the non-manufacturing industry, present a varied picture for the coverage ratio. Here, too, the divergences in the times interest earned ratio were determined mainly by fluctuations in the operating results and financial income. As a capital-intensive sector, the "energy, water and waste" branch represents a large proportion of the total "cost of debt" of large firms. This branch of activity has posted lower operating results since 2012 owing to the sluggish economic climate, increased competition, the persistent decline in margins on sales of electricity and natural gas, and the heavy regulatory pressure imposed by the government. Furthermore, in 2014, the financial income of the biggest Belgian electricity producer diminished owing to the disappearance of dividend income which had been exceptionally high in 2013. That explains the reduction in the coverage ratio in the energy sector during the past few years.

According to the estimates, the coverage ratio of the "transport and storage" branch dropped to its lowest level in 2014, as a result of specific events such as the radical reorganisation of one operator and a substantial write-down of inventories by one firm managing natural gas reserves.

Since large firms in the wholesale trade use financial debts to fund a constant proportion (22 %) of their total assets, the reduction in interest charges on bank debts and corporate bonds accounts for a decline in the cost of debt. At the same time, the operating profits realised in the wholesale trade were significantly influenced by the results in manufacturing industry, owing to the close link between the two branches of activity.

(1) See https://www.ecb.europa.eu/paym/coll/risk/ecaf/html/index.en.html.
(2) An article on the Bank's in-house credit assessment system will be published at a later date.

3.3 Credit risk

In 2015, the ECB approved the Bank's In-house Credit Assessment System (ICAS)[1][2], so the system can now be used to assess the credit quality of Belgian non-financial corporations in the context of the Eurosystem monetary policy. Credit quality is a measure of the default risk. It also permits the calculation of a risk indicator per branch of activity. Chart 11 illustrates, for the various branches, the movement in the quartiles (first quartile, median and third quartile) of the sectoral credit risk for SMEs and large firms. The quarterly data show the changes from mid-2012 up to the second quarter of 2015. The higher the upper (third quartile) and lower (first quartile) lines, the higher the estimated credit risk. Consequently, the chart indicates that this risk is more dispersed, and therefore greater, for SMEs than for large firms. It is also possible to deduce that large firms operating in the pharmaceuticals industry had the lowest credit risk over the period as a whole. Similarly, in chemicals, the food industry and the "energy, water and waste" branch, the credit risk of large firms is relatively low. Unsurprisingly, firms in the hotels, restaurants and catering sector have a fairly high default risk.

For SMEs with a higher default risk (within the coming year) (third quartile), the credit risk seems to have declined in most branches of activity in the second quarter of 2015. More recent data will confirm whether that trend is continuing.

The findings presented briefly above on the basis of the trend in the credit risk broadly confirm the results of the ratio analysis discussed in the preceding sections. Thus, the higher rate of self-financing in large firms suggests that their credit risk is lower, and chart 11 confirms that. The observation that large firms in the pharmaceutical and metalworking industries make less use of financial debts to fund their activities also implies that those firms have a lower credit risk. Another point worth noting is that, in order to calculate the credit risk indicator, several ratios are combined and in some cases they are even supplemented by expert analysis. Unlike the ratios, which are calculated solely from the annual accounts, the risk indicator is also available for more recent periods, implying a significant advantage for this indicator and making it possible to enhance traditional analysis

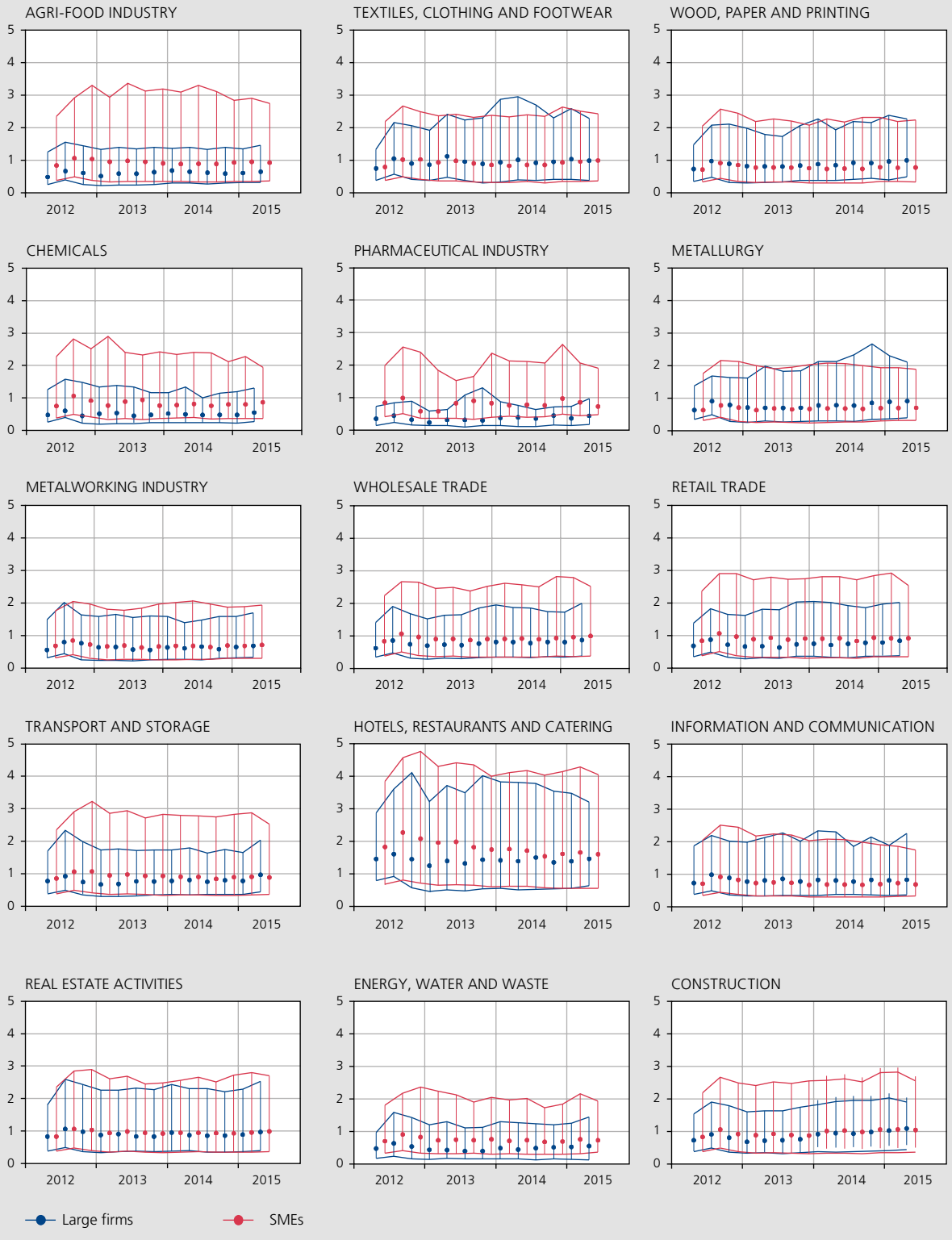
4. Payment periods and default risk

4.1 Recent developments

This section discusses the recent developments concerning the payment periods of customers and suppliers in so

CHART 11 CREDIT RISK BY BRANCH OF ACTIVITY AND FIRM SIZE

(in %, showing quartile 1, the median and quartile 3)



Source: NBB.

far as they can be calculated from the annual accounts. These two ratios offer an indication of the liquidity of trade debts and receivables. They are defined in full in Annex 2. Broadly speaking, they can be interpreted as follows:

– The days sales outstanding (DSO) is the ratio between trade receivables and sales, multiplied by 365. The lower this ratio, the sooner the firm is paid by its customers, and vice versa.
– The days payable outstanding (DPO) is the ratio between trade debts and purchases, multiplied by 365. The lower this ratio, the sooner the firm pays its suppliers, and vice versa.

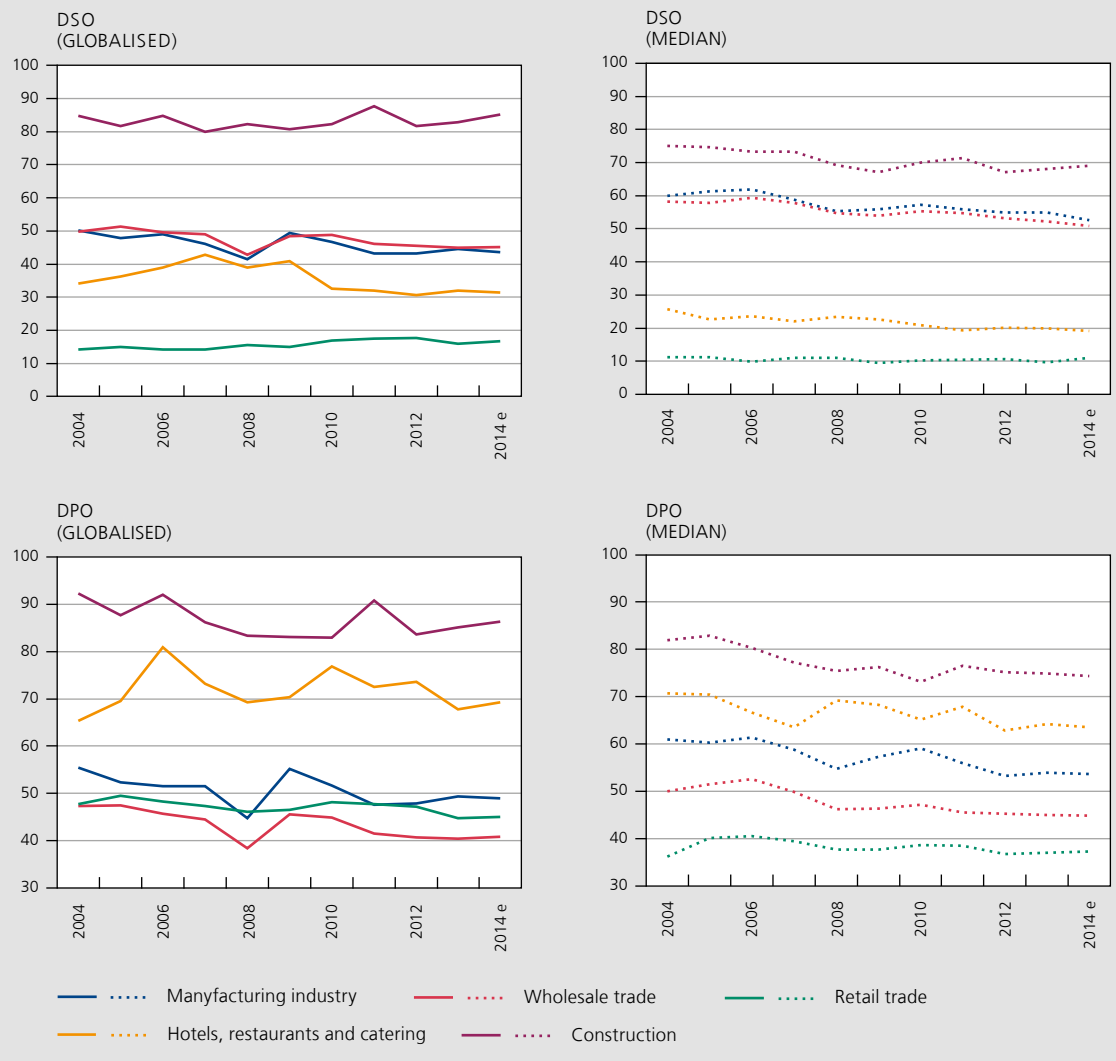
These ratios are discussed here only in the case of companies filing full-format accounts. They could be calculated in the case of abridged formats stating figures for turnover and purchases; however, such statistics would cause considerable bias since the number of abridged format accounts including that optional information has fallen sharply in recent years[1].

Another important point is that the payment period ratios compare flows (sales or purchases made over the financial year as a whole) with stocks which tend to fluctuate

(1) For example, the number of abridged format accounts for which the DSO can be calculated declined from 55 351 in 2004 to 27 329 in 2013.

CHART 12 AVERAGE DSOs AND DPOs

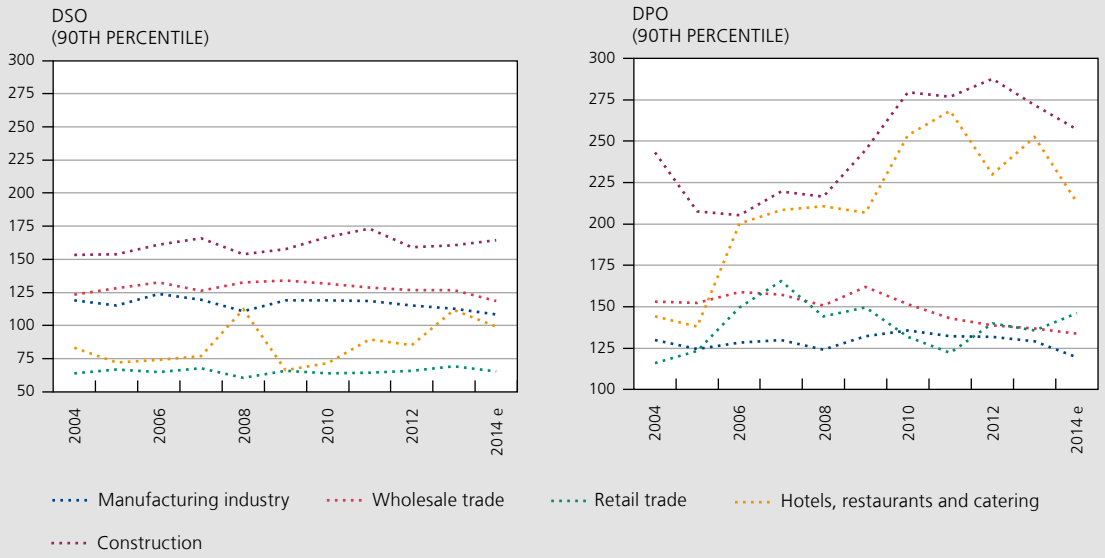
(number of days, large firms)



Source: NBB.

CHART 13 90TH PERCENTILE OF DSOs AND DPOs

(number of days, large firms)



Source: NBB.

(trade debts or receivables as at the end of the financial year), and which are not necessarily representative[1].

Chart 12 shows the trend in the ratios for a selection of fairly homogenous branches of activity. It emerges that, in terms of both medians and globalised figures, payment periods have displayed a slight downward trend overall during the past ten years. The business cycle causes hardly any variation in the values. Only the globalised DPO lengthened in certain branches following the 2008-2009 recession, but the increase was very small. Chart 12 also reveals certain specific, sectoral characteristics, including more especially the prompt payments in the retail trade and, conversely, the longer payment periods in construction. It is evident that, since households make up a large part of the clientele, the retail trade and the hotels, restaurants and catering sector use inter-firm credit as a structural source of funding, since suppliers' payment periods are much longer than those of customers.

In order to isolate the companies postponing their payments the longest, chart 13 shows developments at the extreme of the distribution. In the case of DSO, the 90th percentile of the ratio has been very stable over the past ten years, indicating that the proportion of companies paid (very) late by their customers has not risen despite the adverse economic conditions. The situation is more mixed at the extremity of the distribution of DPO: while the 90th percentile has fluctuated very little in industry and trade, it increased sharply in construction and in hotels, restaurants and catering, particularly after the 2008-2009 recession, before subsiding again in recent years.

Except in a few cases, credit periods therefore vary little according to the economic climate. That seems at odds with the sharp rise in bankruptcies over the recent period (see chart 1), since payment delays are commonly acknowledged as a cause of bankruptcy[2]. It should also be remembered that the ability to repay creditors is central to the legal definition of bankruptcy: Article 2 of the Law of 8 August 1997 stipulates that "any trade who persistently fails to effect payment and who is no longer considered creditworthy is in a bankruptcy situation."

4.2 Link with default risk

In view of this counter-intuitive pattern of credit periods as calculated on the basis of the annual accounts, it was necessary to examine whether those periods are genuinely a symptom of financial vulnerability. To that end,

(1) A number of remarks concerning accounts can be made in connection with these ratios. See for example Ooghe and Van Wymeersch (2006), Traité d'analyse financière, Intersentia, Antwerp-Oxford.

(2) See for example Graydon (2008), Het bedrijf in moeilijkheden voorbij, www.graydon.be.

TABLE 7 DSOs, DPOs AND RISK OF FAILURE
(2011 financial year)

	Number of observations	Average	Confidence interval of the average (95 %)	
DSO				
Manufacturing industry (p = 0.92)				
Non-failing firms	3 058	68.7	66.8	70.6
Failing firms	53	69.4	53.8	85.1
Construction (p = 0.40)				
Non-failing firms	1 366	85.1	81.5	88.8
Failing firms	29	92.3	75.5	109.1
Wholesale trade (p = 0.77)				
Non-failing firms	3 907	68.3	66.6	70.1
Failing firms	40	65.7	45.7	85.8
Retail trade (p = 0.65)				
Non-failing firms	1 032	27.8	24.9	30.8
Failing firms	15	24.3	7.9	40.7
DPO				
Manufacturing industry (p = 0.13)				
Non-failing firms	3 058	67.7	65.8	69.7
Failing firms	53	79.4	65.7	93.2
Construction (p = 0.78)				
Non-failing firms	1 366	93.5	89.6	97.5
Failing firms	29	89.6	68.8	110.5
Wholesale trade (p = 0.38)				
Non-failing firms	3 907	60.2	60.2	64.0
Failing firms	40	72.7	48.6	96.9
Retail trade (p = 0.92)				
Non-failing firms	1 032	54.3	51.0	57.7
Failing firms	15	55.8	16.5	95.1

Source : NBB.

we analysed the differences between failing and non-failing companies, a company being regarded as failing if bankruptcy proceedings are brought against it within 1 095 days (i.e. three times 365 days) following the year-end date of its annual accounts. All other companies are regarded as non-failing. This was the definition used for developing the financial health indicator included in the Central Balance Sheet Office company files.

Table 7 presents various statistics on the average credit periods for the 2011 financial year, enabling us to examine the bankruptcies which occurred in 2012, 2013 and 2014. The first point to be made is that the proportion of failing companies after three years is small : it comes to 1.6 % in industry, 2.1 % in construction, 1 % in the wholesale trade and 1.4 % in the retail trade[1]. As pointed out in the previous section, these findings only concern large firms for which credit periods can be calculated. The failure rate after three years is considerably higher for non-financial corporations in general (2.9 % in 2011).

The data are winsorised for the 5th and 95th percentiles in order to neutralise the impact of extreme values on the calculation of the average : values below the 5th percentile were equalised at the 5th percentile, while values above the 95th percentile were equalised at the 95th percentile. On that basis, the averages and corresponding confidence intervals were calculated. The difference between the averages of the two groups was also tested by means of the Student's

(1) Hotels, restaurants and catering were excluded from the analysis because there were insufficient observations in the branch (namely 229, with only one failure).

t-test. The result of that test is synthesised by the value p, which represents the probability of an error in the event of rejection of the assumption that the two averages are equal. In simple terms, that means that the lower the probability, the more credible it is that the two averages diverge.

In regard to DSOs, table 7 shows that the average of the failing firms is higher than that of non-failing firms in industry and construction, whereas it is lower in the wholesale and retail trade. This means that, on average, firms at risk are paid later in some branches and earlier in others. However, the dispersion is very considerable in the case of failing firms, as is evident from the very wide confidence intervals for those firms. In all the branches analysed, the confidence interval of failing firms overlaps with that of non-failing firms, and the result of the Student t-test also indicates that the averages do not differ significantly.

These results point to a wide variety of payment situations concerning customers, and the ambivalence of the variable for the financial diagnosis. On the one hand, firms in difficulty ought to insist on being paid more promptly in order to resolve their cash flow problems; on the other hand, their financial difficulties could actually be due to late payment by their customers. Vulnerable firms may be placed at a disadvantage by a range of factors that hamper the speedy collection of sums due, such as a lack of bargaining power, a poor image or an inefficient organisation. In general, the time taken to pay trade receivables is partly exogenous to the firm, in that it depends on customers' behaviour.

In regard to the time taken to pay suppliers, the average of failing firms is higher in three out of four branches, but as the t-test indicates, the difference is not statistically significant, except in industry. The values are also very widely dispersed for failing firms, which again suggests a great variety of situations: while firms in difficulty tend in principle to pay their suppliers late, that may also apply to sound firms which, owing to their bargaining power or reputation, are able to obtain an extended credit period from their trading partners. Conversely, the suppliers of firms in difficulty may be inclined to insist on payment in cash, which in that case contributes to a reduction in payment periods.

In conclusion, DSOs and DPOs are of little statistical significance for the purpose of detecting firms in difficulty. That explains why the recent economic climate has had very little impact on them overall. Nor are these variables included in the failure prediction models developed by the Bank. It should be remembered that this conclusion only concerns payment periods which can be calculated from the annual accounts, which implies a number of assumptions and accounting reservations (see section 4.1).

For comparison, table 8 presents the same statistics for a solvency ratio (financial independence) and a profitability ratio (net return on assets), two dimensions of financial analysis which traditionally play a leading role in default models. It is evident that, on average, failing firms are systematically and significantly less solvent and less profitable than non-failing firms. Moreover, in almost all cases the confidence intervals do not overlap. These results are a little less transparent in the retail trade, notably in regard to financial independence, and that is due partly to the very small number of failing firms observed in that branch.

Finally, chart 14 illustrates the financial dynamics of failure on the basis of the four ratios mentioned above. For that purpose, the annual accounts are identified according to the failure's proximity in time, the failure period being defined as the difference between the bankruptcy date and the closing date of the financial year. All the annual accounts are given one of the following codes:

- DEF01: if the failure period is ≤ 365 days;
- DEF02: if 365 days < failure period ≤ 730 days;
- DEF03: if 730 days < failure period ≤ 1 095 days;
- ...
- DEF10: if 3 285 days < failure period ≤ 3 650 days;
- NODEF: if the annual accounts relate to a non-failing company (in the 3 650 days following the closing date of the financial year).

Using this typology, it is possible to observe changes in the statistical distribution of the ratios as the bankruptcy approaches, illustrated in the form of box plots in chart 14. It emerges that the distribution of the DSO does not change significantly either up or down in the transition from group NODEF to group DEF01. The distribution of the DPO moves upward overall, with a gradual increase of around twenty days for all parameters of the distribution, except for the 10th percentile, which remains very stable. However, as in the case of the DSO, the dispersion is very marked and the distributions overlap to a considerable degree: in the non-failing group, the DPO of 90 % of firms falls between 17 (10th percentile) and 178 days (90th percentile); in the group of failing firms at one year, the 10th percentile comes to 23 days and the 90th percentile to 200 days.

In contrast, the dynamics are much more obvious in regard to profitability and financial independence: when failure is approaching, the two ratios deteriorate and that affects the whole of the distribution. The deterioration

TABLE 8 SOLVENCY, PROFITABILITY AND FAILURE RISK
(2011 financial year)

	Number of observations	Average	Confidence interval of the average (95 %)	
Degree of financial independence				
Manufacturing industry (p = 0)				
Non-failing firms	3 058	40.8	39.7	41.8
Failing firms	53	14.7	6.3	23.2
Construction (p = 0)				
Non-failing firms	1 366	32.5	31.0	34.0
Failing firms	29	0.9	–10.1	11.9
Wholesale trade (p = 0)				
Non-failing firms	3 907	36.2	35.2	37.2
Failing firms	40	8.0	–2.5	18.5
Retail trade (p = 0.16)				
Non-failing firms	1 032	30.4	28.2	32.7
Failing firms	15	17.0	–5.1	39.2
Net return on assets				
Manufacturing industry (p = 0)				
Non-failing firms	3 058	5.6	5.2	6.0
Failing firms	53	–3.2	–7.2	0.8
Construction (p = 0.03)				
Non-failing firms	1 366	6.5	5.9	7.1
Failing firms	29	–0.9	–7.7	5.8
Wholesale trade (p = 0)				
Non-failing firms	3 907	7.7	7.3	8.0
Failing firms	40	–1.2	–5.5	3.2
Retail trade (p = 0.01)				
Non-failing firms	1 032	5.7	4.9	6.5
Failing firms	15	–3.2	–12.5	6.0

Source : NBB.

is particularly marked in the years preceding the failure. Moreover, the dispersion of solvency and profitability tends to increase with the approach of the bankruptcy, once again testifying to the variety of situations applicable to failing firms.

The above findings indicate that the same value of a financial ratio may correspond to a multitude of real economic situations for a firm, in terms of the outlook for development, competition, management quality, or shareholders' inclination to provide financial support. They also mean that a strictly financial analysis based on the annual accounts must always be supplemented by a qualitative analysis which can take account of a firm's overall situation.

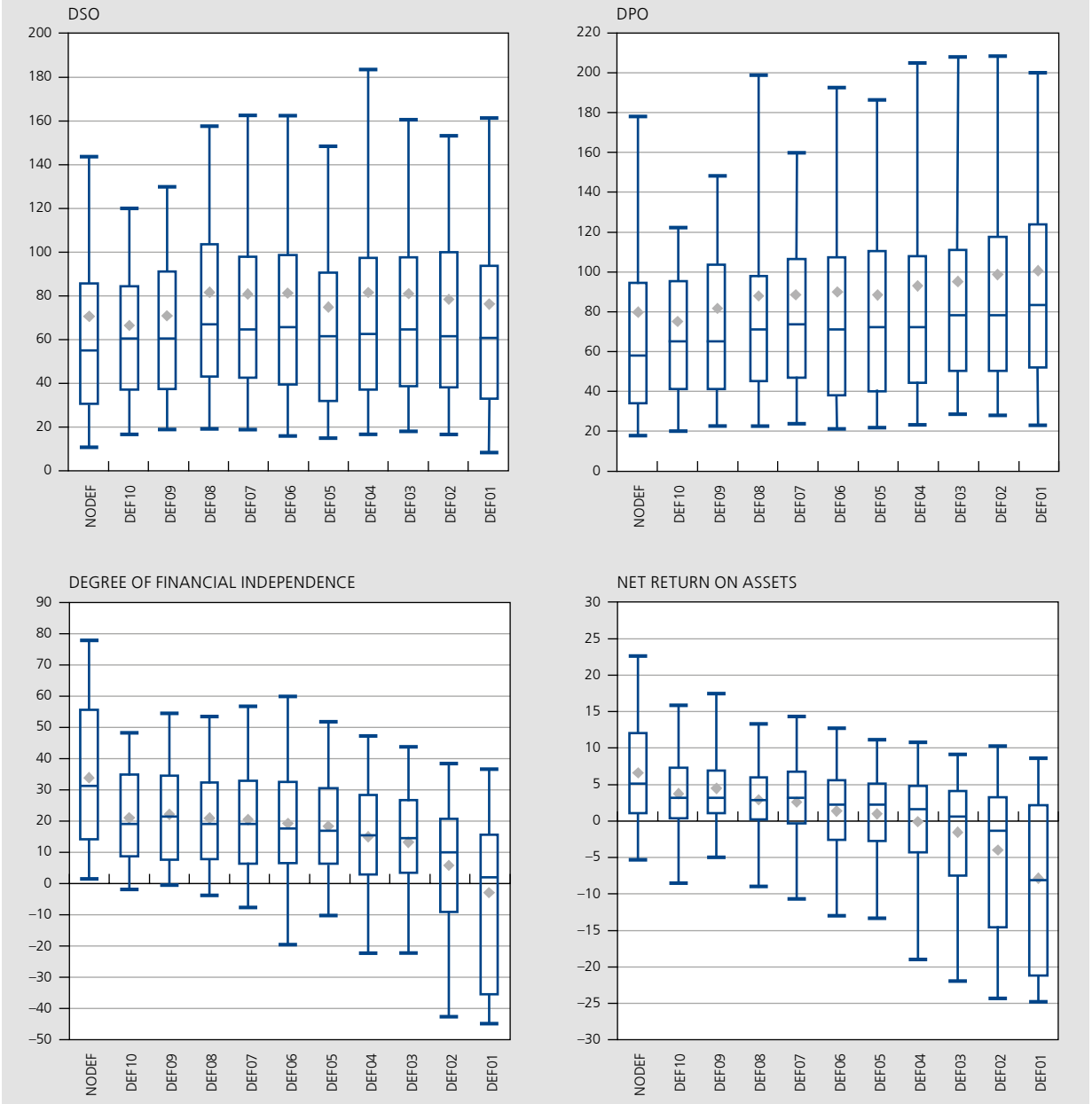
Conclusion

Over the year 2014 as a whole, the total value added created by non-financial corporations grew by 0.5 % at current prices. That was the lowest growth rate for more than 15 years, with the exception of 2009, and was due to the stagnation of both sales and purchases. In fact, the growth of value added has been clearly declining over the past four years.

Staff costs were down by 0.6 % in 2014 after having outpaced the growth of value added in the preceding years. This reduction in the wage bill is due essentially to the sharp fall in inflation (which was largely passed on in labour costs via the indexation mechanism),

CHART 14 DISTRIBUTION OF THE FINANCIAL RATIOS AND PROXIMITY OF FAILURE

(financial years 2003 to 2011, large firms, 147 666 observations)



Source : NBB.

The box plots are interpreted as follows. The lower and upper edges of the box correspond respectively to the 1st and 3rd quartiles. The line inside the box represents the median. The upper and lower ends of the whiskers correspond respectively to the 1st and 9th deciles. The grey dot indicates the average.

the freezing of real wage increases imposed by the government, and the decline in the number of workers (1 % in full-time equivalents in 2014). At the same time, the increase in depreciation slowed for the third consecutive year, confirming the cautious attitude towards investment that firms have been displaying now for several years.

Total operating expenses were down by 0.3 % in 2014, the first reduction in more than 20 years, largely as a result of the movement in staff costs and depreciation. Combined with the modest rise in value added, this led to a slight improvement (+3.9 %) in the operating result in 2014 to € 32 billion. In the past four years the operating result has been very stable overall, remaining at a level

which is still below the pre-recession peak of 2008-2009 (€ 36 billion).

In contrast to the long-term trend, the results of the manufacturing branches were more dynamic than those of the non-manufacturing branches in 2014, the main reason being a decline in costs: apart from the fall in labour costs, industry benefited from the drop in prices of commodities, particularly oil. The branches where lower costs had the most impact are metallurgy, basic chemicals and metal manufactures. Manufacturing industry itself achieved only very modest growth, as is evident from the sales figures (+0.6 % in 2014) and industrial production indices.

According to the estimate for 2014, the profitability ratios considered, exhibit a small increase for all firms, regardless of size. The profitability of large firms, greatly affected by the downturn in economic activity, declined in 2013 to its lowest level for ten – or in some cases even 15 – years. The cautious recovery in large firms in 2014 was due to an improvement in manufacturing industry. In recent years, SMEs' profitability has stood up better, as SMEs are not only less sensitive to the economic climate but are also less concentrated on industrial activities and international trade. Despite the lower level of net profitability of large firms in recent years, equities continue to offer a higher yield than Belgian government bonds.

Since 2011, the overall financial independence of large firms has remained fairly constant following the additional limits introduced by the government to reduce the attraction of using the notional interest deduction. Moreover, in the past two years there has been a decline in the rate of self-financing among large firms; that is no cause for concern, especially as there is no accompanying reduction in the level of their own funds. The lower rate of self-financing in 2013-2014 was due mainly to an accounting operation whereby the reserves were reduced by an amount which was added to the capital, via the application of the transitional measure in the context of the increase in the withholding tax on liquidation surpluses from 1 October 2014.

While the cost of financing bank loans has dropped to a historically low level in recent years, the non-monetary conditions for obtaining a new bank loan are tougher for SMEs than for large firms. This is an important point for attention, especially as SMEs are heavily represented in Belgium and bank loans are often the sole means of financing their debts. Large firms can more easily replace bank loans with other forms of borrowing, by issuing corporate bonds or contracting intra-group loans.

Whatever the firm's size and activity, the globalised "times interest earned ratio" is greater than 1 during the period 2000-2014e considered, which indicates that firms are able to pay their fixed interest charges out of the resources obtained from their operating profits and financial income. While the property sector has a permanently low coverage ratio owing to its high financial debt ratio, the pharmaceuticals and metallurgical industries record a constantly high ratio, as they fund their activities without incurring substantial financial debts. In the past two years, there has been a very hesitant recovery in both economic growth and operating results. That combined with a further fall in the cost of bank loans and corporate bonds explains the recovery of the globalised coverage ratio in 2014e, for both large firms and SMEs.

For Belgian non-financial corporations, the In-house Credit Assessment System (ICAS) can estimate the risk of default during the coming year. The ICAS findings broadly confirm the results obtained by the ratio analysis mentioned above. The risk indicator shows that SMEs with a higher risk of default (within one year) saw their default risk decline in the second quarter of 2015 in most branches of activity. More recent data will confirm whether that trend is persisting.

Finally, the last part of the article describes developments concerning the payment periods of customers and suppliers according to calculations based on the annual accounts. Except in a few cases, it is evident that payment periods hardly vary according to the economic situation, which seems at odds with the sharp rise in bankruptcies in the recent period, considering that it is commonly acknowledged that payment arrears are a cause of bankruptcy. In order to verify whether these variables constitute a genuine sign of financial vulnerability, a statistical comparison was conducted between failing and non-failing companies. Among other things, this revealed non-significant differences of average between the two categories of firms, and a very marked dispersion of values for failing firms, testifying to the wide variety of situations and explanatory factors. For example, as regards the payment of suppliers, while firms in difficulty are theoretically the most likely to delay paying their trading partners, that may also apply to sound businesses which, owing to their bargaining power or reputation, are able to secure extended credit periods. Conversely, suppliers of risky firms may be inclined to require them to pay cash, and that may tend to shorten the payment periods.

Annex 1

SECTORAL GROUPINGS

	NACE-BEL 2008 divisions
Manufacturing industry	**10-33**
of which :	
Agri-food industries	10-12
Textiles, clothing and footwear	13-15
Wood, paper products and printing	16-18
Chemicals industry	20
Pharmaceuticals industry	21
Metallurgy and metalworking	24-25
Metal manufactures	26-30
Non-manufacturing branches	**01-09, 35-82, 85.5 and 9** (1)
of which :	
Trade in motor vehicles	45
Wholesale trade (2)	46
Retail trade (2)	47
Transportation and storage	49-53
Accommodation and food service activities	55-56
Information and communication	58-63
Real estate activities	68
Business services (3)	69-82
Energy, water supply and waste	35-39
Construction	41-43

(1) Except 64, 65, 70100, 75, 94, 98 and 99.
(2) Excluding motor vehicles and motor cycles.
(3) Excluding head office activities (70100).

Annex 2

DEFINITION OF THE RATIOS

	Item numbers allocated	
	in the full format	in the abbreviated format
1. Ratio of new tangible fixed assets		
Numerator (N)	8169 + 8229 – 8299	8169 + 8229 – 8299
Denominator (D)	8199P + 8259P – 8329P	8199P + 8259P – 8329P
Ratio = N/D × 100		
Conditions for calculation of the ratio:		
12-month financial year		
8169 + 8229 – 8299 > 0 (1)		
2. Net margin on sales		
Numerator (N)	9901 + 9125	9901 + 9125
Denominator (D)	70 + 74 – 740	70
Ratio = N/D × 100		
Condition for calculation of the ratio:		
Simplified format: 70 > 0		
3. Net return on total assets before tax and debt servicing, excluding exceptional result		
Numerator (N)	9904 + 650 + 653 – 9126 + 9134 – 76 + 66	9904 + 65 – 9126 + 67/77 – 76 + 66
Denominator (D)	20/58	20/58
Ratio = N/D × 100		
Condition for calculation of the ratio:		
12-month financial year		
4. Return on equity, before tax, excluding the exceptional result		
Numerator (N)	9904 – 76 + 66 + 9134	9904 – 76 + 66 + 9134
Denominator (D)	10/15	10/15
Ratio = N/D × 100		
Conditions for calculation of the ratio:		
12-month financial year		
10/15 > 0 (1)		
5. Return on equity after tax, excluding the exceptional result		
Numerator (N)	9904 – 76 + 66	9904 – 76 + 66
Denominator (D)	10/15	10/15
Ratio = N/D × 100		
Conditions for calculation of the ratio:		
12-month financial year		
10/15 > 0 (1)		

(1) Condition valid for the calculation of the median but not for the globalised ratio.

DEFINITION OF THE RATIOS (continued)

	Item numbers allocated	
	in the full format	in the abbreviated format
6. Degree of financial independence		
Numerator (N)	10/15	10/15
Denominator (D)	10/49	10/49
Ratio = N/D × 100		
7. Degree of self-financing		
Numerator (N)	13 + 14	13 + 14
Denominator (D)	10/49	10/49
Ratio = N/D × 100		
8. Average interest expense on financial debts		
Numerator (N)	650	
Denominator (D)	170/4 + 42 + 43	
Ratio = N/D × 100		
Condition for calculation of the ratio:		
12-month financial year		
9. Times Interest Earned Ratio		
Numerator (N)	9901 + 75	9901 + 75
Denominator (D)	650	65
Ratio = N/D		
Conditions for calculation of the ratio:		
Full format: 650 > 0		
Abridged format: 65 > 0		
10. Customers' payment period		
Numerator (N)	40 + 9150	
Denominator (D)	70 + 74 – 740 + 9146	
Ratio = N/D × 365		
Conditions for calculation of the ratio:		
12-month financial year		
(40 + 9150) > 0		
11. Suppliers' payment period		
Numerator (N)	44	
Denominator (D)	600/8 + 61 + 9145	
Ratio = N/D × 365		
Conditions for calculation of the ratio:		
12-month financial year		
44 > 0		