

Economic Review

4 - 2005



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ISSN 1780-664X

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Economic projections for Belgium - Autumn 2005

Introduction

Since the spring of 2005, the economic environment has been dominated by the continuing steep rise in oil prices on the international markets and the appreciation of the US dollar against the euro. Meanwhile, activity continued to expand strongly in most economic regions.

These factors could possibly increase the inflationary pressure in the euro area, while the predicted gradual strengthening of activity still holds true. Indeed, the macro-economic projections for the euro area drawn up by the Eurosystem experts and published in the December 2005 ECB Bulletin present an inflation figure which has been revised upwards, whereas the GDP growth prospects have hardly been revised at all compared to the spring.

Coinciding with the publication of the new projections for the euro area, this article gives a brief presentation of the results for the Belgian economy. Those results, obtained using the same methods and procedures as in the spring⁽¹⁾, take account of developments which have occurred since then. In particular, they were compiled on the basis of the new national accounts data, published by the NAI this autumn. In that connection, the revisions were larger than usual, owing not only to the incorporation of more complete data, but also because of substantial changes to the methodology, most of them requested by Eurostat⁽²⁾. Those revisions cause significant changes in the movement in certain components of demand in 2004 and early 2005. The new projections also take account of the government budgets available for 2006. The projections for Belgium were produced on the basis of the information available as at 21 November 2005.

1. International environment and assumptions

Fuelled by the sustained, vigorous expansion of activity in most of the economic regions, demand for petroleum products has remained high in the past few months, whereas pressure on extraction and refining capacity persisted. International prices therefore maintained a resolute upward trend during 2005, with the price per barrel of Brent reaching around 68 dollars for a time at the end of the summer, owing to the damage caused by the hurricanes in the Gulf of Mexico, compared to an average of 38.3 dollars in 2004. Prices later subsided, but are still highly volatile. According to market expectations, the level of around 60 dollars per barrel reached in mid November is likely to persist until the end of 2006; that is about 10 dollars higher than the figure taken as an assumption in the spring.

However, the relentless rise in oil prices has only slightly depressed world growth. Although there was a deceleration after the 2004 peak, growth should remain high in 2005 and 2006, underpinned mainly by the United States, Asia and the oil-exporting economies. International trade was sluggish in late 2004 and early 2005, following a temporary slowdown in industrial output. However, trade should remain robust in the months ahead.

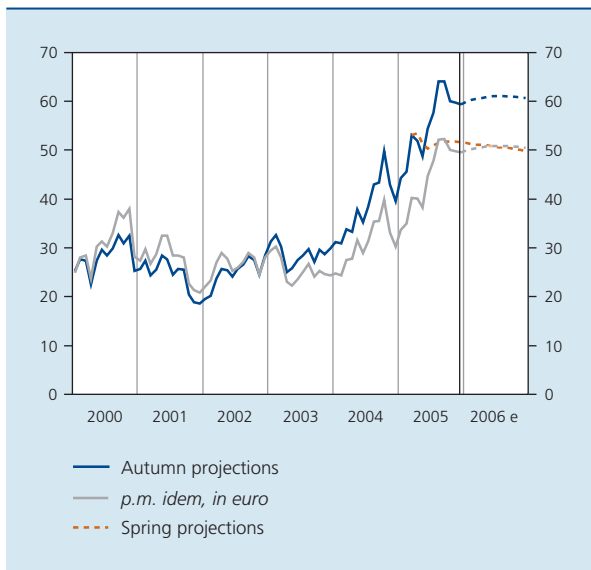
In the euro area, after four quarters of weak economic activity, a revival took place in the second half of 2005, despite the high oil prices. However, the growth rate continues to trail behind that of other economies. According

(1) NBB (2005), "Economic projections for Belgium – spring 2005", Economic Review 2-2005.

(2) The NAI published a short comment on the 2005 revisions in the national accounts for Belgium at <http://www.nbb.be/DOCDQ/FMETHOD/detrekF.pdf>.

CHART 1**CRUDE OIL PRICE**

(Monthly averages – barrel of Brent in dollar)



Source : ECB.

to the new Eurosystem projections, GDP growth is expected to reach between 1.2 and 1.6 p.c. in 2005, following growth of 1.8 p.c. in 2004. Growth is forecast to accelerate slightly in 2006 to reach between 1.4 and 2.4 p.c., borne along by exports and investments. Inflation, which stood at 2.1 p.c. in 2004 on the basis of the HICP, is predicted to remain between 2.1 and 2.3 p.c. in 2005 and between 1.6 and 2.6 p.c. in 2006, whereas in the spring it had been expected to slow down. The energy component should largely contribute to this revision.

Box – Eurosystem Assumptions

The Eurosystem economic projections for the euro area, and the corresponding projections for Belgium, are based on the following technical assumptions:

- short-term interest rates are set at 2.3 p.c. over the projection horizon;
- long-term interest rates in euro are based on market expectations; when the projections were produced, they stood at 3.5 p.c. and are expected to rise slowly, reaching 3.7 p.c. by the end of 2006;
- bilateral euro exchange rates are kept constant at their mid-November 2005 level, namely 1.19 dollar to the euro in the case of the US currency;
- in line with the implicit price movements reflected by forward contracts, world oil prices are expected to remain at a level close to 60 dollars per barrel. On average over the year, the price per barrel of Brent is likely to come to 55 dollars in 2005 and 60 dollars in 2006, against 38.3 dollars in 2004;
- Belgium's export markets, measured as the weighted sum of imports by third countries, including the euro area partners, are predicted to expand by just over 5 and 6 p.c. respectively in 2005 and 2006;
- while competitors' export prices had fallen by 0.7 p.c. in 2004, they are assumed to increase by over 3 p.c. in 2005 and 2006, partly because of the euro's depreciation during the current year;
- the results for public finances take account of the macroeconomic environment and the budget measures already announced and specified in sufficient detail.



EUROSYSTEM PROJECTIONS: RESULTS AND ASSUMPTIONS

	2004	2005	2006
Projections for the euro area			
	<i>(Annual averages)</i>		
GDP in volume	1.8	1.2 – 1.6	1.4 – 2.4
Inflation (HICP)	2.1	2.1 – 2.3	1.6 – 2.6
Eurosystem assumptions			
Three-month interbank rates in euro	2.1	2.2	2.3
Ten-year bond yields	4.2	3.4	3.6
Euro exchange rate against the US dollar	1.24	1.25	1.19
Oil price (US dollar per barrel)	38.3	55.0	60.0
	<i>(Percentage changes)</i>		
Export markets relevant to Belgium	7.3	5.4	6.1
Competitors' export prices	-0.7	3.2	3.7
of which: competitors from the euro area	1.1	2.1	1.9

Source: ECB.

2. Activity, employment and demand

In the context of a temporary weakness in the industrial activity and foreign trade of the euro area, GDP growth in Belgium dipped sharply at the end of 2004 and in the first quarter of 2005. As predicted in the spring projections, a modest recovery followed. According to the NAI estimates, which go up to the third quarter of 2005, GDP grew by just 0.1 p.c. in real terms in the first quarter, then by 0.2 p.c. and 0.4 p.c. respectively in the ensuing two quarters. Year-on-year growth, which had reached 2.8 p.c. in the third quarter of 2004, the fastest annual growth for four years, dropped back to 1.1 p.c. twelve months later.

The gradual strengthening of activity should maintain. In the short term, the recent results of the business surveys, the primary source of information for assessing the trend in activity in real time, point to an upturn since the summer. More fundamentally, the sturdier growth appears to originate from the external sector, after the recent strength of demand from the business sector, both having so far stood up relatively well in the face of the oil shock. Conversely, the contribution of private consumption demand is likely to be curbed at first by the movement in consumer purchasing power. In all, growth looks set to fall from 2.4 p.c. in 2004 to 1.4 p.c. in 2005. In 2006, it is predicted to reach 2.2 p.c., once again

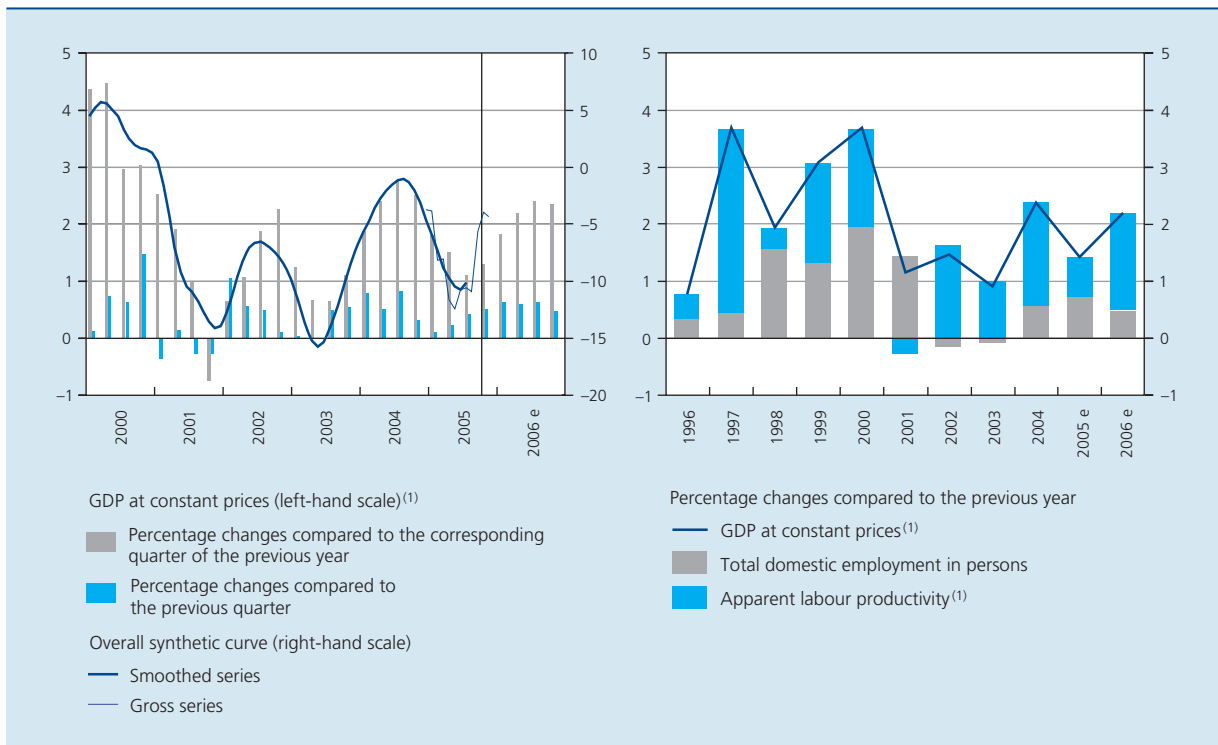
a slightly higher figure than that forecast for the euro area.

Being largely cushioned by the movements in productivity, the activity's saw tooth profile takes some time to be reflected, in a damped way, in the movement in employment. The number of persons in work in Belgium is estimated to increase by 0.7 p.c. in 2005, then by 0.5 p.c. in 2006, following a rise of 0.6 p.c. in 2004. In all, net job creation is expected to total around 75,000 for the period 2004–2006 as a whole, following a cumulative decline of 10,000 jobs in 2002 and 2003. However, in view of the expansion of the labour force, the number of job seekers is likely to continue to rise; the unemployment rate is forecast at 8.4 p.c. in 2005 and expected to remain at that level in 2006.

The forecast employment growth is slightly below the figure predicted in the spring forecasts. However, the main factor that is expected to depress the growth of individual purchasing power in 2005 and 2006 is the quickening pace of overall inflation, outstripping the rise in the health index, the reference for the indexation of a large part of incomes. However, this factor will be partly offset in the second year by the substantial effects of the implementation of the tax reform. Overall, disposable income is likely to increase in real terms by 0.6 p.c. in 2005 and 1.8 p.c. in 2006. Owing to a further expected

CHART 2 GDP, BUSINESS SURVEY INDICATOR AND EMPLOYMENT

(seasonally adjusted data)



Sources: NAI, NBB.

(1) Calendar adjusted data.

fall in the savings ratio in the first year, the volume growth of private consumption should remain stable at 1.3 p.c. in 2005 – the same rate as in 2004 – and 1.6 p.c. in 2006. Public consumption is expected to expand at roughly the same rate.

The business investment recovery which had begun in 2004 was very rapidly consolidated in the first half of 2005, partly as a result of major projects in the marine transport sector. The investment is picking up, following two years of unusually steep decline in the context of a steady improvement in corporate profitability, a recovery in stock market prices and low interest rates. According to the revised national accounts data, it now appears that investment in housing also surged in 2004. Following this rapid expansion in private investment, a return to a more balanced picture in line with that of activity and income is expected in the period covered by the forecasts. However, these movements are more dynamic than would appear from the decline in the rate of expansion of business investment, down from 9.9 p.c. in 2005 to 0.8 p.c. in 2006, mainly reflecting the absence of new ship purchases in the forecasts. Public investment, particularly that of the local authorities, should also be buoyant in

2005 and 2006, driven by the traditional electoral cycle. The major deals concerning the sale of buildings, which were scheduled in particular as part of the 2006 budgets, conceal this trend to some extent.

After expanding by 5.6 p.c. in real terms in 2004, exports of goods and services slowed down in the first half of 2005, the main factors being the previous appreciation of the euro and the temporary weakening of external demand addressed to Belgium. The revival in demand, particularly that from European partners, and the euro's depreciation by around 12 p.c. against the dollar since the peak at the end of 2004 should boost the export growth rate from 2.3 p.c. in 2005 to around 5 p.c. in 2006. As last year, the growth of imports is likely to be much higher than of exports in 2005, at 3.5 p.c., this time because of the exceptionally strong business investment. As this effect subsides in 2005, the growth of imports is expected to fall back below that of exports in 2006, at 4.4 p.c. The contribution of net exports to GDP growth will thus be negative at 0.9 percentage point in 2005, before making a positive contribution of 0.7 percentage point in 2006.

TABLE 1 GDP, EMPLOYMENT AND MAIN CATEGORIES OF EXPENDITURE

(Percentage changes compared to the previous year, calendar adjusted data)

	2003	2004	2005 e	2006 e
GDP ⁽¹⁾	0.9	2.4	1.4	2.2
Total domestic employment in persons	-0.1	0.6	0.7	0.5
<i>Components of expenditure⁽¹⁾</i>				
Final consumption expenditure of households	1.0	1.3	1.3	1.6
Final consumption expenditure of general government	2.6	1.9	1.8	1.6
Gross fixed capital formation	-0.6	4.4	8.5	1.0
Housing	3.7	9.1	2.8	2.9
General government investment	1.0	1.1	12.1	-2.4
Business investment	-2.0	3.3	9.9	0.8
Change in stocks ⁽²⁾	-0.1	0.7	-0.4	0.1
Total domestic expenditure	0.9	2.8	2.5	1.5
Net exports of goods and services ⁽²⁾	0.0	-0.3	-0.9	0.7
Exports of goods and services	2.8	5.6	2.3	5.1
Imports of goods and services	2.9	6.3	3.5	4.4

Sources: NAI, NBB.

(1) At 2000 prices.

(2) Contribution to the change in GDP.

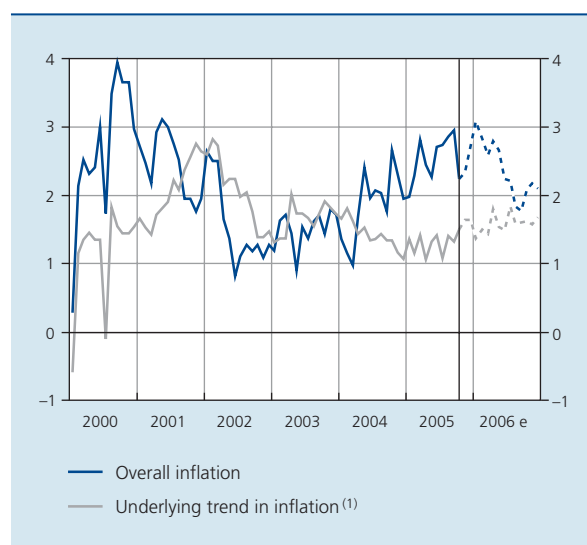
3. Prices and costs

The high level of oil prices contributed directly towards the acceleration in overall inflation during 2004 and 2005. Measured in terms of the HICP, inflation increased from 1 p.c. in March 2004 to 2 p.c. in January 2005, then 3 p.c. in September. The temporary measures to reduce the cost of heating oil for households will reduce the inflation rate by around 0.3 percentage point in the final three months of the year, and will increase it by a similar amount a year later, but leaving aside these movements it is only during 2006 that overall inflation is expected to actually drop back towards 2 p.c. Overall, it is estimated to average 2.5 p.c. in 2005 and 2.3 p.c. in 2006, exceeding the spring projections by 0.3 and 0.4 percentage point respectively.

This revision is due almost exclusively to the revision of the energy component of the price index. In Belgium, inflation is actually more sensitive to oil price movements than in the euro area, owing to the higher weight of petroleum products in the index and a lower average level of excise duty on those products.

CHART 3 INFLATION

(HICP – percentage changes compared to the corresponding period of the previous year)



Sources: EC, NBB.

(1) Measured by the HICP excluding unprocessed food and energy.

TABLE 2 PRICE AND COST INDICATORS
(Percentage changes compared to the previous year)

	2003	2004	2005 e	2006 e
Total HICP	1.5	1.9	2.5	2.3
of which: energy products	0.2	6.6	12.9	8.0
Health index	1.5	1.6	2.1	2.1
GDP deflator	1.7	2.3	2.3	2.4
Labour costs in the private sector				
Hourly costs	1.6	2.1	2.3	2.8
Unit costs	0.2	0.0	1.7	0.9

Sources: NAI, NBB.

Leaving aside the changes in the price of energy and unprocessed food, the underlying trend in inflation is expected to remain at 1.4 p.c. in 2005, a figure comparable to that for the euro area. Beyond the indirect effects of higher commodity costs on the selling prices of processed products or certain services, inflationary pressure looks set to remain moderate at first, in regard to both imports and domestic costs. It is expected to increase gradually during the period covered by the projections for two reasons, namely an increase in import prices expressed in euro and a faster rise in unit labour costs.

Having remained more or less steady in the preceding two years, unit labour costs in the private sector are expected to increase by 1.7 p.c. in 2005 and 0.9 p.c. in 2006. The reason for this acceleration lies in the slower growth of productivity, especially in 2005. It is also due to the faster rise in the health index, which is used as the reference for wage indexation. Although the effect of the higher prices of petroleum products on this index is only about half its impact on the overall consumer price index, the current forecast implies a faster rise than was taken into account in the sectoral wage negotiations. Overall, taking also account of the information available from the FPS Employment, Labour and Social Dialogue on the real increases granted at the level of the sectoral joint committees and the reductions in contributions decided on by the government, hourly labour costs in the private sector are expected to rise by an annual average of around 2.6 p.c. in 2005 and 2006, against an average increase of 1.9 p.c. in 2003 and 2004. This forecast is similar to the one presented in November 2005 by the Secretariat of the Central Economic Council in the technical report on the maximum margins available for the movement in labour costs. In that report, the Secretariat notes that the cumulative increase planned for 2005 and 2006 exceeds

the indicative norm of 4.5 p.c. adopted in the draft central agreement. Overall, the relative position of Belgian firms is likely to deteriorate during those two years by around 2 p.c. against the three neighbouring countries, also because the expected rise in hourly labour costs in those countries is considerably lower than the figure adopted at the time of the negotiation of the central agreement at the end of 2004.

4. Public finances

Taking account of the latest information, it seems that public finances should be in balance once again at the end of 2005. Compared to the spring estimate, the current forecasts show an improvement in the balance of 0.4 p.c. of GDP. As regards revenue, advance payments by companies, registration fees and tax assessments present a very favourable picture. The revenue expected from the securitisation of tax arrears has also been upgraded to 600 million euro, and Aquafin will make an exceptional VAT payment. Conversely, account must also be taken of the cost of the temporary 17.35 p.c. cut which the government has granted on the cost of heating oil and natural gas supplied to households. On the expenditure side, health care costs proved lower than expected in the first half year. Similarly, an operating leasing will be taken on the new Antwerp law courts, avoiding the need to record an item of non-recurring investment expenditure.

The projection concerning the 2006 budget balance has improved significantly in comparison with the spring estimate, which was still predicting a deficit of 1.3 p.c. of GDP. That improvement is due to the base effect of better tax revenues than initially forecast for 2005, and the fact that the budgets drawn up in the autumn were also taken

TABLE 3 GENERAL GOVERNMENT ACCOUNT⁽¹⁾
(Percentages of GDP)

	2003	2004	2005 e	2006 e
Revenue	51.2	49.4	49.9	49.2
of which: fiscal and parafiscal revenue	44.3	44.6	44.9	44.4
Primary expenditure	45.8	44.6	45.5	45.5
Primary balance	5.4	4.8	4.4	3.7
Interest charges ⁽²⁾	5.3	4.8	4.4	4.1
Financing requirement (–) or capacity ⁽²⁾	0.1	0.0	0.0	–0.4
<i>p.m. Effect of temporary measures</i>	<i>1.2</i>	<i>0.8</i>	<i>0.4</i>	<i>0.5</i>
Consolidated gross debt	98.5	94.7	94.2	90.9

Sources: NAI, NBB.

(1) Eurostat is currently examining the statistical treatment of the reorganisation of the BNRC in 2005, which is considered to have the sole effect of increasing the general government debt without affecting the overall financing balance. Eurostat is also working on the clarification of the rules on operations concerning the securitisation of tax arrears. Finally, Eurostat will need to confirm that the innovative financial partnership with the private sector, intended to optimise the management of the State's real estate, which is planned for 2006, will have a positive influence on the overall financing balance; that could depend on the actual way in which this operation is implemented.

(2) In accordance with the methodology used in the framework of the excessive deficit procedure (EDP), which includes net interest gains from certain financial transactions such as swaps and FRAs.

into account. The federal government thus introduced various consolidation measures. The structural measures, estimated at 0.2 p.c. of GDP, include the introduction of new taxes on some types of financial investments. An advance levy will thus be introduced on the yield generated by investment funds which invest over 40 p.c. in bonds, and a 1.1 p.c. levy will apply to the premiums on certain life insurance contracts. In the 2006 budget, it was also decided to introduce supplementary reductions in charges that will gradually be phased in. For 2006, extensive use will again be made of temporary measures – in line with the practice adopted in the past few years. These measures are expected to improve the general government balance by 0.5 p.c. of GDP, about half of that effect coming from scheduled real estate transactions. Among other things, the government is expecting to raise 565 million euro via an innovative financial partnership with the private sector, intended to optimise the management of the State's real estate. It was also decided to sell tax arrears, as in 2005, which should bring in 600 million euro. However, the future loss of tax revenues following these securitisation operations needs to be taken into account. Moreover, another tax regularisation operation will take place in 2006, which is expected to generate 400 million euro. In view of the uncertainty surrounding the actual proceeds of some of these measures, the figures presented by the government have been taken as working assumptions. Overall, the projections currently point to a deficit of 0.4 p.c. of GDP for general government in 2006.

Having achieved a balanced budget in 2000, the government has since succeeded in maintaining that performance. However, the primary balance has declined during that period, in the context of a downturn in economic activity, whereas the weight of interest charges has also fallen steeply. In 2006, the decline in the primary balance is nevertheless expected to outstrip the fall in interest charges, causing the overall balance to deteriorate. This projected reduction in the primary balance should be due to the steep fall in revenue, attributable mainly to the cuts in levies on labour, associated with the effects of the personal income tax reform on the tax assessments, and the reduction in social security contributions.

In 2005, the debt ratio is expected to fall by only 0.6 p.c. of GDP. The slower pace of debt reduction is due mainly to the break-up of the BNRC on 1 January 2005. In so far as the Railway Infrastructure Fund – which retains the infrastructure as it stood on 31 December 2004 plus the associated debt – comes under general government in the statistical definition, that reorganisation will increase the consolidated gross debt by 7.4 billion euro, or 2.5 p.c. of GDP. In 2006, the pace of debt ratio reduction is likely to quicken again, bringing the debt to 90.9 p.c. of GDP by the end of the year.

5. Assessment of the uncertainty surrounding the projections

In Belgium, as throughout the euro area, the main effect of the additional increase in oil prices during the summer, reinforcing the upward trend of the past two years, was to give a direct boost to the inflation rate, but so far without curbing overall activity too severely. It accounts for the upward revision in the inflation forecast for 2005 and 2006 by 0.3 and 0.4 point respectively compared to the spring projections, and the smaller adjustment to the GDP growth prediction, down by 0.2 point in 2006. Since then, oil prices have dropped in October and November 2005, but the developments on the international oil markets still represent a major source of uncertainty for both prices and growth.

The current account imbalances recorded for a number of years now deteriorated recently, heightening the risk of erratic or sudden movements in exchange rates and long-term interest rates, which could cause severe disruption to

the international environment, the main source of growth for the euro area. Moreover, the strengthening of exports and investment in the euro area as a whole from the second half of 2005, and the subsequent growth of consumption and employment, have yet to be confirmed. The marked slowdown in exports and GDP growth in Belgium at the beginning of 2005 showed that the country's economy is still heavily dependent on the European economic situation. Under some circumstances, Belgium could see a more robust recovery, but only if it maintains a satisfactory competitive position in relation to its partners.

The forecasts published recently by the NAI and the international institutions indicate GDP growth comparable to the Bank's figures. The inflation figures are more divergent, reflecting both differences in the concepts used – the national consumer price index, presented in the NAI's economic budget, being more sensitive to the effects of energy price rises than the harmonised index – and the volatility of the assumptions relating to oil prices, depending on the date on which they are adopted.

TABLE 4 COMPARISON OF THE FORECASTS FOR BELGIUM
(Percentage changes compared to the previous year, unless otherwise stated)

	Real GDP ⁽¹⁾		Inflation ⁽²⁾		Budget balance ⁽³⁾		Date of publication
	2005	2006	2005	2006	2005	2006	
NBB – Autumn 2005	1.4	2.2	2.5	2.3	0.0	-0.4	December 2005
<i>p.m. Spring 2005</i>	1.4	2.4	2.2	1.9	-0.4	-1.3	June 2005
NAI	1.4	2.2	3.0	2.9	-	-	October 2005
EC	1.4	2.1	2.7	2.6	0.0	-0.3	November 2005
OECD	1.4	2.0	2.6	2.4	0.0	-0.4	November 2005

(1) The Bank's forecasts, and in principle those of the NAI and the OECD, are produced without adjustment for calendar effects. As a rule, the EC forecasts do allow for those effects.

(2) HICP, except for NAI: national consumer price index.

(3) Percentages of GDP.

Annex

PROJECTIONS FOR THE BELGIAN ECONOMY: SUMMARY OF THE MAIN RESULTS

(Percentage changes compared to the previous year, unless otherwise stated)

	2002	2003	2004	2005 e	2006 e
Growth (calendar adjusted data)					
GDP at 2000 prices	1.5	0.9	2.4	1.4	2.2
Contributions to growth:					
Domestic expenditures, excluding change in stocks	0.6	1.0	2.0	2.8	1.4
Net exports of goods and services	0.7	0.0	-0.3	-0.9	0.7
Change in stocks	0.1	-0.1	0.7	-0.4	0.1
Prices and costs					
Harmonised index of consumer prices	1.6	1.5	1.9	2.5	2.3
Health index	1.8	1.5	1.6	2.1	2.1
GDP deflator	1.8	1.7	2.3	2.3	2.4
Terms of trade	0.7	-0.1	-0.5	-0.2	0.2
Unit labour costs in the private sector	1.4	0.2	0.0	1.7	0.9
Hourly labour costs in the private sector	4.4	1.6	2.1	2.3	2.8
Hourly productivity in the private sector	3.0	1.4	2.1	0.6	1.9
Labour market					
Domestic employment (annual average change, in thousands of units)	-6.3	-3.3	23.5	30.4	20.5
Harmonised unemployment rate ⁽¹⁾ (p.c. of the labour force) ...	7.3	8.0	7.9	8.4	8.4
Incomes					
Real disposable income of individuals	0.2	-1.0	-0.2	0.6	1.8
Savings ratio of individuals (p.c. of disposable income)	15.8	14.3	12.8	12.3	12.5
Public finances					
Primary balance (p.c. of GDP)	5.7	5.4	4.8	4.4	3.7
General government financing requirement (-) or capacity (p.c. of GDP) ⁽²⁾	0.0	0.1	0.0	0.0	-0.4
Public debt (p.c. of GDP)	103.2	98.5	94.7	94.2	90.9
Current account					
(p.c. of GDP according to the balance of payments)	4.6	4.1	3.3	1.8	3.2

Sources: EC, NAI, NSI, NBB.

(1) Adjusted series (Eurostat).

(2) According to the methodology used in the framework of the excessive deficit procedure (EDP).

Inflation persistence and price-setting in the euro area : results of the Eurosystem Inflation Persistence Network

E. Dhyne

Introduction

With the conduct of a single monetary policy for all the participants of the Eurosystem and the operation of the monetary union among the twelve Member States, both the ECB and the National Central Banks (NCBs) need to increase their understanding of the economic mechanisms at work within the euro area. One of the ways in which that need is being met consists in the establishment of temporary research networks, conducting a coordinated analysis of monetary policy issues. Thus, in 2003 the Eurosystem Inflation Persistence Network (IPN) – a temporary network of researchers from the ECB and the NCBs – was established for the purpose of joint research on inflation persistence and price-setting mechanisms.

Intuitively, inflation persistence is defined as the speed at which inflation returns to its long-run equilibrium value, following a shock; that long run value is determined by the inflation target – explicit or not – set by the monetary authorities. For a central bank whose main objective is to aim at a particular inflation rate, the knowledge of the degree of inflation persistence is a key factor determining the scale of its response to economic shocks. Apart from examining inflation persistence, the IPN also analysed the behaviour of firms in terms of their pricing policy, as the way firms set their prices has some impact on the aggregate pattern of prices and on the conduct of monetary policy. For example, the degree of price rigidity, which is an inverse function of the frequency at which firms adjust their prices, is one of the factors determining how quickly the economy reacts to a shock. Similarly, the

degree of downward price rigidity is one of the parameters influencing the optimal inflation rate.

The aim of this article is to present a summary of the main results produced by the IPN and their main implications for monetary policy. It is structured as follows. The first two sections describe the scale, determinants and consequences of inflation persistence. After defining the concept of inflation persistence, the first section presents an analytical breakdown of inflation, pinpointing the various potential sources of persistence and their potential implications for monetary policy. The second section presents a summary of the results obtained by means of econometric analyses conducted at macroeconomic level (at the euro area level or at the level of each individual Member State) and at sectoral level.

The third section discusses the results concerning price-setting behaviour. This section is based on analysis of various types of microeconomic data not previously used for research purposes. In particular, it summarises the results obtained by analysing the individual price surveys, which are conducted by the various national statistical institutes for the purpose of compiling consumer and producer price indices, or specific surveys on the pricing behaviour of firms.

Finally, section 4 presents the various general conclusions and implications for monetary policy drawn by the IPN.

Box 1 – The Eurosystem Inflation Persistence Network (IPN)

The IPN is a network of researchers from each of the twelve NCBs in the euro area, the ECB and the academic world. Set up in 2003, this network has examined inflation persistence and the pricing behaviour of firms within the euro area using a wide range of information, some of which was not accessible for research purposes before the establishment of this network.

THE VARIOUS TYPES OF DATA AVAILABLE IN THE IPN

	Macroeconomic and sectoral data	Microeconomic data		Specific surveys
		Consumer prices	Producer prices Quantitative / Qualitative	
Germany	Yes	Yes	Yes / Yes	Yes
Austria	Yes	Yes	/	Yes
Belgium	Yes	Yes	Yes /	Yes
Spain	Yes	Yes	Yes /	Yes
Finland	Yes	Yes	/	
France	Yes	Yes	/ Yes	Yes
Greece	Yes		/	
Ireland	Yes		/	Yes
Italy	Yes		Yes /	Yes
Luxembourg	Yes	Yes	/	Yes
Netherlands	Yes	Yes	/	Yes
Portugal	Yes	Yes	Yes /	Yes
Euro area ⁽¹⁾	100 p.c.	97 p.c.	85 p.c.	94 p.c.

(1) Percentage of the euro area covered.

This network was created in response to the results of a previous research network which analysed the monetary policy transmission mechanisms within the euro area. The results produced by that network, the Monetary Transmission Network (MTN), had included the following finding: the effects of a monetary policy decision on the output of the euro area reach their peak – as in the United States – after 4 to 6 quarters, before fading relatively quickly, whereas the effect on prices is more gradual but permanent. However, the response of prices in the euro area is both slower and less marked than in the United States. This slower response by prices to a change in monetary policy was interpreted as being due to greater price rigidity and/or stronger inflation persistence in the euro area compared to the United States.

The IPN was therefore given the task of assessing the importance of the degree of inflation persistence in the euro area and analysing its causes and implications for the conduct of monetary policy. The members of the IPN were also asked to analyse the pricing behaviour of firms. For that purpose, the IPN used a range of empirical approaches and summarised the various results obtained by means of a meta-analysis. This diversity of method is reflected in particular in the range of data analysed.



First, the IPN conducted a series of macroeconomic analyses, some covering the euro area and others covering the individual Member States. These analyses adopted either a univariate approach aimed at identifying the dynamic properties of the aggregate and/or sectoral time series relating to inflation,⁽¹⁾ or a multivariate approach based on analysis of the results obtained by econometric models and allowing detailed analysis of the inflation response following various types of shock.

Next, the IPN also conducted a series of statistical and econometric analyses based on quantitative microeconomic data permitting a description of the pricing behaviour of firms. These quantitative data come either from price surveys conducted by the national statistical institutes for the purpose of computing the consumer price index, or from the price surveys used to compute the producer price index. In all, several tens of millions of prices were analysed.

The consumer prices used were prices recorded at the outlet level, and refer to finished products sold to the final consumer. They were analysed in 10 countries (Austria, Belgium, Finland, France, Germany, Italy, Luxembourg, the Netherlands, Portugal and Spain) representing almost 97 p.c. of the GDP of the euro area.⁽²⁾ The period covered by these data varies from one country to another, but generally covers the period from January 1996 to December 2001.

In the case of the producer prices, the data were collected directly from the producers and refer to finished or intermediate products sold to other firms. However, they were only analysed in 5 countries (Belgium, Germany, Italy, Portugal and Spain). The period examined also varies from one country to another. Most countries have data covering a period of at least 4 years during 1991-2004. However, in the case of Germany and France this quantitative analysis of producer prices was supplemented by an analysis of qualitative data obtained from the business surveys, as those surveys provide information on price movements observed at the level of firms. Despite the small number of countries for which quantitative or qualitative information was available on the movement in producer prices, they nevertheless represent almost 85 p.c. of the euro area's GDP, so that those data sets provide a relatively accurate picture of the behaviour observed in the euro area as a whole.⁽³⁾

Finally, the IPN also decided to conduct a specific survey of firms to obtain additional information on the way they set their prices. That survey, based on the American study by Blinder et al. (1998) and conducted on a decentralised basis by the NCBs, was carried out between January 2003 and December 2004 in 9 countries (Austria, Belgium, France, Germany, Italy, Luxembourg, the Netherlands, Portugal and Spain). The total number of firms questioned came to over 11,000.⁽⁴⁾

(1) For a detailed analysis of the Belgian data, see Aucremanne and Collin (2005).

(2) The analysis of the Belgian consumer price data has formed the subject of two articles by Aucremanne and Dhyne (2004, 2005). A fuller presentation of the findings obtained in the various participating countries is supplied in Dhyne et al. (2005).

(3) The detailed analysis of the Belgian producer prices is presented in Dossche and Cornille (2005). An as yet provisional summary of the findings for the euro area as a whole may be found in Vermeulen et al. (2005).

(4) The results relating to the Belgian section of the survey were presented in Aucremanne and Druant (2004, 2005). A detailed summary of the results of these surveys in the various participating countries was also presented in Druant (2005) and in Fabiani et al. (2005).

1. Inflation persistence: definition and sources

1.1 Definition of inflation persistence

As explained in the introduction, one of the IPN's main aims was to measure the speed at which inflation responds to a shock. The definition of persistence adopted by the network referred to the *tendency of inflation to converge slowly towards its long-run value following a shock*.

For a central bank which aims to keep inflation close to its long-run target level (explicit or not), the fact that inflation is slow to change is not a good thing if the observed inflation rate deviates from that target. If the economy has a high degree of inflation persistence, the observed inflation rate will deviate from that target over a long period. Moreover, if the monetary authorities wish to bring inflation down more quickly to its target level, they will have to take more vigorous action than in a low persistence situation.

It is important to note that the concept of inflation persistence adopted by the IPN explicitly refers to the response of inflation following a single shock and to the long-run value of inflation. This long-run value is assumed to be the inflation target explicitly or implicitly pursued by the monetary authorities. In regard to empirical application, that definition raises the issue that, in the past, that long-run value was not explicitly announced; moreover, it has probably varied over time.

Since this definition also refers to the response of inflation following a single shock, an economy with low inflation persistence affected by a series of shocks influencing inflation in the same direction could see its inflation rate deviate from the long-term value over a relatively long period, despite low inflation persistence. In that case, the period of deviation would not be due to the slow rate at which the shocks spread through the economy but to the unfortunate accumulation of shocks.

Box 2 – Degree of persistence and inflation dynamics

The degree of inflation persistence is a measure of the speed at which inflation converges towards its long-run value. Traditionally, this measurement is taken by estimating the coefficient of correlation between the inflation observed in period t and the inflation observed in period $t-1$, i.e. the coefficient of autocorrelation of order 1 of the inflation series.

In order to illustrate the importance of this parameter for inflation dynamics, we shall assume that inflation can be described by the following equation:

$$\pi_t = (1 - \rho)\bar{\pi} + \rho\pi_{t-1} + u_t$$

This equation assumes that the inflation observed in time t , π_t , is a linear combination of the inflation target pursued by the monetary authorities, $\bar{\pi}$, and the inflation rate observed during the previous period, π_{t-1} . It also suffers shocks u_t which are taken as zero on average, with constant variance, and are independent of the past values of the shocks. The coefficient ρ , which normally takes its value between 0 and 1, determines the degree of inflation persistence.

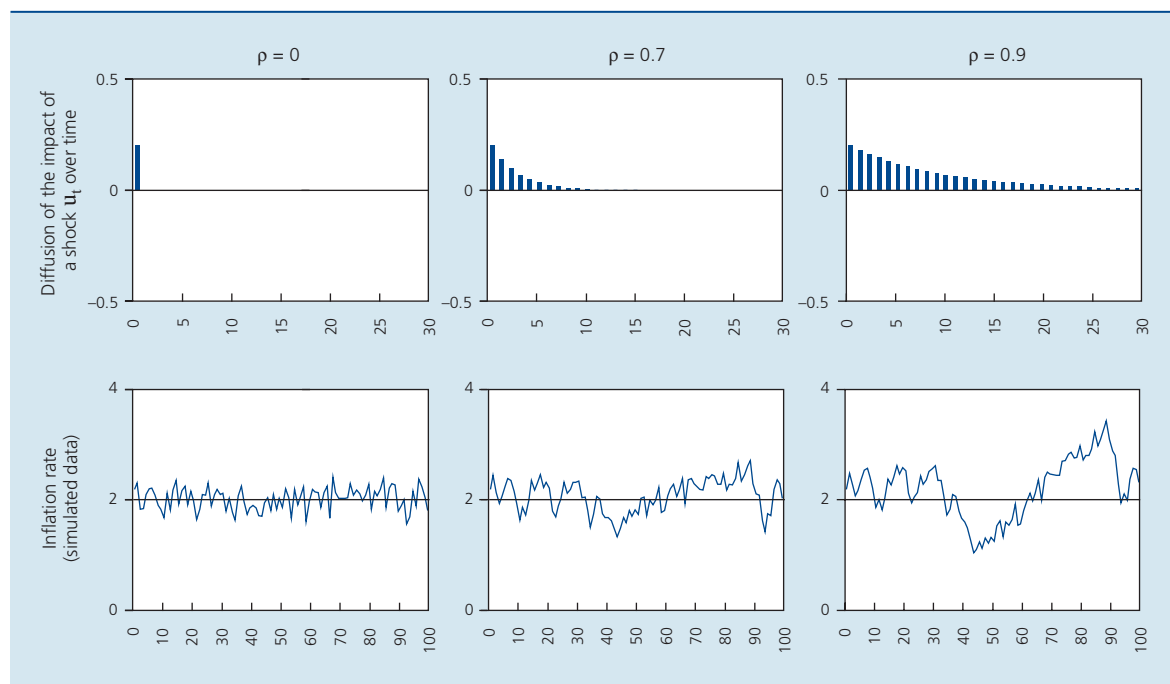
If the coefficient ρ is equal to 0, inflation at time t does not depend on its value in $t-1$ and will randomly fluctuate around the inflation target. Conversely, the closer the coefficient ρ gets to 1, the more the inflation observed in t will be influenced by inflation in $t-1$. Therefore, the effects of a shock u_t will be felt over long periods, and inflation will be very slow to revert to its long-run equilibrium level. Moreover, the variability of inflation will increase with ρ . Inflation will therefore deviate not only persistently but also more significantly from the inflation target. In the extreme case, if the value of ρ is equal to 1, inflation will never revert to its long-run value following a shock. In that case, the pattern of inflation presents what the literature calls a unit root. When estimating the



equation presented above, it is important to check whether or not the unit root hypothesis is validated by the observations.

A more complex dynamic structure may be imposed by assuming that inflation is affected by its past values (t-1, t-2, t-3,...). In that case, the degree of persistence, ρ , is measured by the sum of all the coefficients associated with past inflation values.

INFLATION PERSISTENCE: AN ILLUSTRATION



The equation presented above is a reduced form of the structural representation of inflation used by the IPN. It can be used to measure the degree of persistence, but it cannot identify its sources.

1.2 Sources of inflation persistence

In order to identify the causes of inflation persistence, the IPN used a model of inflation known as the hybrid neo-Keynesian Philips curve (HNKPC). That representation combines the traditional representation of the Philips curve and what the literature calls the neo-Keynesian Philips curve. It can be used to identify the various sources of inflation persistence. In that framework, inflation is described by the following equation :

$$\pi_t = \delta_b \pi_{t-1} + \delta_p E_t[\pi_{t+1}] + \gamma X_t + \varepsilon_t$$

Firstly, inflation has a retrospective component, i.e. it is determined partly by earlier inflation levels (π_{t-1}), as in the traditional Philips curve. This retrospective component of the HNKPC can be justified by the fact that some firms use indexation mechanisms to adjust their prices. This retrospective component of inflation is the source of what is referred to in the literature as *intrinsic inflation persistence*. Since the past inflation level partly determines the present inflation level, this component helps to slow down the rate at which inflation reverts to its long-run equilibrium value following a shock.

Secondly, inflation also has a prospective component, i.e. it is also partly determined by the inflation expectations of the economic agents ($E_t[\pi_{t+1}]$), as in the neo-Keynesian Philips curve. That contribution of future inflation expectations towards determining the current level of inflation is not in itself a source of inflation persistence if those expectations are rational and are constantly adjusted by the economic agents. However, if the agents depart from the rational expectations hypothesis and fail to adjust their expectations continuously, that component may also become a source of persistence known as *expectations-based persistence*. If inflation expectations are very persistent, that persistence will also be reflected in a high degree of persistence in the observed inflation.

The credibility of monetary policy has a very specific influence on this form of persistence. If the economic agents are confident in the monetary authorities' ability to keep inflation close to the long-run target level, they will anchor their inflation expectations at a level close to that target. Conversely, if the inflation target is not credible, the economic agents are liable to anchor their expectations consistently at a level very different from that target. The impact of the prospective component of the HNKPC will therefore be to maintain inflation at a level close to its long-run equilibrium level if that is credible, or to deviate from that target if the economic agents are not confident in the Central Bank's ability to achieve its target inflation rate.

Thirdly, inflation is a function of the economic situation, and particularly the size of the *output gap* (X_t), i.e. the difference between actual GDP and its potential value. The microeconomic basis of the HNKPC links current inflation to the deviations between actual marginal costs and their equilibrium value, deviations which are themselves a function of the output gap. This last component introduces a third source of persistence known as *extrinsic persistence*. This is the inflation persistence derived from the persistence observed in the deviations between real marginal costs and their long-run value, or the persistence of the output gap. If the deviations between output and its potential level are persistent, they will be reflected in persistent deviations between inflation and the long-run target set by the monetary authorities.

The contribution of this third component of inflation movements is determined by the value of the coefficient γ , which represents the slope of the neo-Keynesian Philips curve. This coefficient determines the sacrifice ratio confronting the monetary authorities in their battle against inflation: the lower this coefficient, the more restrictive monetary policy will need to be, and hence the greater its costs in terms of growth if inflation deviates from the

target. The degree of price stickiness on the goods and services market influences the value of this coefficient γ . Stickier prices mean that inflation is less sensitive to changes in the output gap, thus increasing the sacrifice ratio.

Finally, inflation is due to the occurrence of random shocks (ε_t). These are assumed to be independent over time, so that they do not generate any persistence in inflation dynamics. However, as mentioned earlier, we may occasionally observe a succession of exceptional shocks affecting inflation in the same direction over a period of time, giving the false impression that inflation is deviating persistently from its long-run target.

It is important to mention that the value of the coefficient δ_b of the HNKPC is less than or equal to the degree of inflation persistence based on the estimation of the reduced form presented in box 2. The coefficient ρ in fact reflects the overall degree of inflation persistence, whereas the coefficient δ_b represents only the level of the intrinsic inflation persistence.

2. Inflation persistence: what can we learn from the macroeconomic and sectoral analyses?

This section presents a summary of all the IPN's findings concerning the degree of inflation persistence in the euro area. This section is therefore based on the econometric analysis of the inflation time series. As explained in box 2, the main measure of persistence used by the network is obtained from the sum of the coefficients associated with an autoregressive representation of inflation, i.e. an econometric representation which links current inflation to its past values. Other measures were also used, but that does not cause any fundamental change in the conclusions presented below. This section is based on the results presented by Altissimo et al. (2005), which were found consistently in the various countries analysed, regardless of the analysis method used.

2.1 Moderately persistent inflation

The observation of the pattern of inflation over the past 35 years appears to indicate that inflation is in fact a persistent phenomenon. Both in the euro area member countries and in the United States, inflation persisted at a relatively high level in the 1970s, before decreasing slowly and remaining steady at a relatively low level over the past ten years. If this pattern was due to a natural trend in inflation, i.e. assuming that there was no change in the

conduct of monetary policy over the past 30 years, that would in fact reflect a high degree of persistence.

That observation is confirmed by “naïve” estimates of the degree of persistence, i.e. estimates of the degree of persistence made under the assumption that the inflation target set by the monetary authorities remained constant over the past 30 years. In that context, the degree of inflation persistence varies from 0.74 to 1.04 in the euro area, depending on the study. A similar measure for the United States fluctuates between 0.65 and 1.03 (Altissimo et al., 2005). The majority of the studies present findings in the upper range of these intervals and do not reject the unit root hypothesis (i.e. that the degree of persistence is not significantly different from 1), which would imply that inflation never returns to its long-run level. A naïve estimate of the degree of inflation persistence in Belgium over the period from the 2nd quarter of 1978 to the 4th quarter of 2004 comes to 0.95, and also does not reject the unit root hypothesis (Aucremanne and Collin, 2005).

However, the pattern of inflation observed over the past 30 years did not occur without any change in monetary policy. To suppose that, in the 1970s, the central banks of the Eurosystem member countries had already set themselves the goal of maintaining the inflation rate in their respective countries at a level comparable to the ECB's current target is out of line with historical reality. In fact,

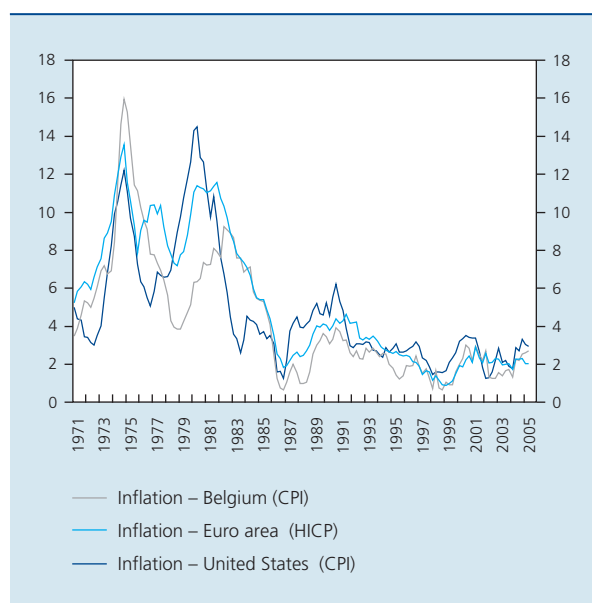
TABLE 1 ESTIMATE OF THE DEGREE OF INFLATION PERSISTENCE

(Assuming a single monetary policy⁽¹⁾)

	Belgium	Euro area	United States
Altissimo, Mojon and Zaffaroni (2004) ⁽²⁾		0.93	
Batini (2002) ⁽³⁾		0.74	
Gadzinski and Orlandi (2004) ⁽⁴⁾		[1.02; 1.04]	[0.92; 1.03]
O'Reilly and Whelan (2004) ⁽⁵⁾		0.96	
Robalo Marques (2004) ⁽⁶⁾		0.85	0.66
Levin and Piger (2004) ⁽⁷⁾			[0.65; 1.02]
Aucremanne and Collin (2005) ⁽⁸⁾	[0.95; 0.95]		

- (1) The persistence is measured by the sum of the coefficients of an autoregressive model of order p. The estimates in bold type indicate that the assumption that the sum of the coefficients is equal to 1 (unit root hypothesis) can be rejected.
- (2) Estimates based on the movement in the CPI from the 1st quarter of 1985 to the 1st quarter of 2004.
- (3) Estimates based on the movement in the HICP from the 3rd quarter of 1984 to the 2nd quarter of 2002.
- (4) Estimates for the euro area based on the movement in the GDP deflator, the CPI and the HICP and the underlying trend in inflation from the 2nd quarter of 1970 to the 3rd quarter of 2003. Estimates for the United States based on the movement in the GDP deflator, the CPI, the PCE and the underlying trend in inflation from the 2nd quarter of 1970 to the third quarter of 2003.
- (5) Estimates based on the movement in the GDP deflator and the HICP from the 1st quarter of 1970 to the 4th quarter of 2002.
- (6) Estimates for the euro area based on the movement in the CPI from the 1st quarter of 1984 to the 4th quarter of 2002. Idem for the United States.
- (7) Estimates based on the movement in the GDP deflator, the CPI, the PCE and the underlying trend in inflation from the 1st quarter of 1984 to the 4th quarter of 2003.
- (8) Estimates based on the movement in the CPI and the underlying trend in inflation from the 2nd quarter of 1978 to the 4th quarter of 2004.

CHART 1 PATTERN OF INFLATION SINCE 1971
(percentage change compared to the corresponding month in the previous year)



Sources: NSI, ECB, BLS.

during the period analysed, central banks both in the euro area member countries and in the United States progressively attached greater importance to price stability, and that led to changes in the monetary policy regime. For the euro area members, this was reflected sooner or later in a reduction in the implicit inflation target (for some of them this occurred by 1984, for others it took place during the 1990s), so that by the end of the 1990s there was convergence towards a target close to the one currently set by the ECB. These changes in the target were reflected in breaks in the average level of inflation.

If we take account of these breaks in the average level of inflation, the measures of the degree of inflation persistence are much lower. For the euro area, they range between 0.34 and 0.90, and for the United States between 0.27 and 0.89. Most of the estimates fall in the lower part of these ranges and reject the unit root hypothesis.

TABLE 2 ESTIMATE OF THE DEGREE OF INFLATION PERSISTENCE(Assuming one or more changes in the monetary policy regime⁽¹⁾)

	Belgium	Euro area	United States
Dossche and Everaert (2005) ⁽²⁾		0.40	0.58
Lünnemann and Mathä (2005) ⁽³⁾		0.40	
Gadzinski and Orlandi (2004) ⁽⁴⁾		[0.60 ; 0.90]	[0.52 ; 0.80]
Robalo Marques (2004) ⁽⁵⁾		0.34	0.27
Levin and Piger (2004) ⁽⁶⁾			[0.37 ; 0.89]
Aucremanne and Collin (2005) ⁽⁷⁾	[0.51 ; 0.79]		

(1) The persistence is measured by the sum of the coefficients of an autoregressive model of order p . The estimates in bold type indicate that the assumption that the sum of the coefficients is equal to 1 (unit root hypothesis) can be rejected.

(2) Estimates for the euro area based on the movement in the GDP deflator from the 2nd quarter of 1971 to the 4th quarter of 2003, assuming an inflation target variable over time. Idem for the United States.

(3) Estimates based on the movement in the HICP from the 2nd quarter of 1995 to the 4th quarter of 2000.

(4) Estimates for the euro area based on the movement in the GDP deflator, the CPI, the HICP and the underlying trend in inflation from the 2nd quarter of 1970 to the 3rd quarter of 2003, assuming a break in average inflation in 1993. Estimates for the United States based on the movement in the GDP deflator, the CPI, the PCE and the underlying trend in inflation from the 2nd quarter of 1970 to the third quarter of 2003, assuming a break in the mean in 1991.

(5) Estimates for the euro area based on the movement in the CPI from the 1st quarter of 1984 to the 4th quarter of 2002. Idem for the United States.

(6) Estimates based on the movement in the GDP deflator, the CPI, the HICP and the underlying trend in inflation from the 1st quarter of 1984 to the 4th quarter of 2003, assuming a break in the mean in 1991.

(7) Estimates based on the movement in the CPI and the underlying trend in inflation from the 1st quarter of 1993 to the 4th quarter of 2004.

These measures therefore seem to indicate that inflation is not an extremely persistent phenomenon. Moreover, the persistence does not seem to be much greater in the euro area than in the United States. However, it should be noted that while the estimates of the degree of inflation persistence – assuming changes in the conduct of monetary policy – are relatively low, they are relatively inaccurate.

Mention must be made of the fact that, for this last series of estimates, the dates of breaks in the average level of the inflation series analysed were not imposed in advance in order to coincide with changes in monetary policy, but were determined endogenously by econometric analysis of the data. However, ex post analysis made it possible to link the dates of these breaks with changes in monetary policy. In the case of the euro area Member States, breaks in the average level of inflation were detected either in the early 1980s (when the EMS started) or in the early 1990s (start of EMU, Maastricht Treaty convergence criteria). Furthermore, sectoral analyses conducted on French data (Bilke, 2005) and Belgian data (Aucremanne and Collin, 2005) showed that most sub-indices of sectoral inflation contained breaks in their average levels around certain dates. For France, the breaks coincided with the implementation of the “strong franc” policy in 1983, whereas in Belgium they coincided with the wage moderation policy which accompanied the devaluation of the Belgian franc in 1982. Finally, the analysis over a very long period of a set of nominal and real economic variables for some OECD countries (Corvoisier and Mojon, 2005) revealed that 3 waves of breaks in the mean – the first in the late

1960s/early 1970s, the second in the mid 1980s and the third at the beginning of the 1990s – had a synchronised effect on the nominal variables and not on the real variables, reinforcing the hypothesis that these breaks were linked to changes in monetary policy.

As regards the sources of inflation persistence, it should be noted that recent studies based on the estimation of hybrid neo-Keynesian Philips curves have shown that the influence of the retrospective component of the HNKPC has declined over time. For example, in the United States, Galí and Gertler (1999) showed that the contribution of the retrospective component became insignificant in favour of the prospective component when the recent period was analysed. Similarly, it has been shown that during the recent period, inflation in the euro area has become more prospective in character (Galí et al., 2001; Rumler, 2005). According to Paloviita (2004), the prospective character of inflation is actually reinforced if the process whereby the inflation expectations of the economic agents are formed may deviate from the rational expectations hypothesis. Such results indicate the extent to which preserving the credibility of the ECB’s inflation target is essential to maintain a relatively low inflation rate in the euro area. Any relaxation in the conduct of monetary policy leading to deterioration in inflation expectations could cause inflation to deviate persistently from its target.

2.2 Substantial international and sectoral variations

While the studies mentioned revealed a relatively moderate degree of persistence in the euro area, they also showed very substantial variations both between the various Member States and between the various components of the CPI.

As regards the variations between countries, the study by Gadzinski and Orlandi (2004) shows that the degree of persistence in the various Member States of the euro area ranges from 0.32 for Belgium to 1.03 for Austria. However, other studies (Cecchetti and Debelle, 2004; Lünemann and Mathä, 2004) obtain very different estimates. In fact, the ranking of the countries by degree of persistence varies from one study to another, making it very difficult to interpret the results.

In relation to the euro area, the results obtained for Belgium by Aucremanne and Collin (2005) differ little from those obtained by Gadzinski and Orlandi (2004). Aucremanne and Collin (2005) obtain an estimate of 0.51 for the degree of inflation persistence, when focusing their analysis on the past 12 years – a period for which the monetary policy regime can be taken as relatively stable. Conversely, the degree of persistence in the underlying trend in inflation in Belgium is still 0.79, but even in this case the unit root hypothesis is rejected.

This confirms the hypothesis that inflation persistence has been lower in the recent period, but also that these estimates are not very accurate. The negative degrees of persistence obtained for Belgium by Cecchetti and Debelle (2004) and by Lünemann and Mathä (2004) are difficult to interpret. Their results seem to be greatly influenced by the fact that the seasonal sales are taken into account, as these studies are based on the analysis of the HICP which incorporates from the 1st quarter of 2000 price movements due to the sales, whereas Aucremanne and Collin (2005) and Gadzinski and Orlandi (2004) use a measure of inflation based on the CPI which disregards the sales. For other countries, negative values for the degree of persistence were also obtained, probably for the same reason.

At the sectoral level, the findings are far more comparable. It seems that, for services and for non-energy industrial goods, inflation is more persistent than in the rest of the economy. However, that should not be interpreted as indicating that the central bank does not need to monitor inflation in the other components of the CPI (energy, unprocessed food). If second-round effects (such as the transmission of changes in energy prices to the prices of other products) were to cause the inflation associated with those components to be passed on to the more persistent components of inflation, that could cause inflation to deviate persistently from its medium/long-term target.

TABLE 3 MEASURES OF INFLATION PERSISTENCE IN THE VARIOUS MEMBER STATES OF THE EURO AREA ⁽¹⁾

	Aucremanne and Collin ⁽²⁾	Gadzinski and Orlandi ⁽³⁾	Cecchetti and Debelle ⁽⁴⁾	Lünemann and Mathä ⁽⁵⁾
Belgium	[0.51 ; 0.79]	0.32	-0.11	-0.33
Germany		0.82	-0.34	-0.16
Greece		0.82		0.51
Spain		0.93	0.23	-0.50
France		0.54	0.25	0.49
Ireland		0.79		0.38
Italy		0.58	0.45	0.23
Luxembourg		0.47	-0.62	-0.17
Netherlands		0.44	-0.02	0.28
Austria		1.03	0.33	0.43
Portugal		0.49	0.45	0.31
Finland		0.47	0.30	0.07
Euro area		[0.60 ; 0.90]		

(1) The persistence is measured by the sum of the coefficients of an autoregressive model of order p. The estimates in bold type indicate that the assumption that the sum of the coefficients is equal to 1 (unit root hypothesis) can be rejected.

(2) Estimates based on the movement in the CPI and the underlying trend in inflation from the 1st quarter of 1993 to the 4th quarter of 2004.

(3) Estimates based on the movement in the HICP from the 1st quarter of 1984 to the 2nd quarter of 2003.

(4) Estimates based on the movement in the HICP from 1990 to 2003.

(5) Estimates based on the monthly movement in the HICP from January 1995 to December 2003.

TABLE 4 MEASURES OF INFLATION PERSISTENCE BY COMPONENTS OF THE CPI⁽¹⁾

	Belgium	Euro area
Unprocessed food	0.27	0.55
Processed food	0.22	0.61
Energy	0.43	0.44
Non-energy industrial goods ...	0.75	0.68
Services	0.69	0.53
CPI	0.51	0.87

Sources: Aucremanne and Collin (2005) for Belgium, Altissimo et al. (2004) for the euro area.

(1) The persistence is measured by the sum of the coefficients of an autoregressive model of order p.

These sectoral and international variations prompted the IPN to question the impact of aggregation on the measures of persistence. It appears that the aggregate inflation persistence in an individual country tends to exceed the average inflation persistence measured at the level of the various components of the CPI. Similarly, the degree of inflation persistence in the euro area is higher than the average of the degrees of inflation persistence in the various Member States. In fact, it emerged that in the aggregation of the inflation series, the aggregate inflation persistence stems primarily from the most persistent components.

3. Price-setting behaviour of firms: what can we learn from microeconomic analysis?

The object of this section is to summarise all the findings relating to the description of the price-setting behaviour of firms. This section is based on the articles by Álvarez et al. (2005), Dhyne et al. (2005), Fabiani et al. (2005) and Vermeulen et al. (2005).

As stated in section 1.2, the price adjustment frequency determines the slope of the HNKPC, which explains why the IPN is interested in this issue. However, the aim of the analyses conducted by the IPN was not only to depict the price adjustment frequency but actually to describe as accurately as possible the price dynamics observed at the level of the firms, and to understand its underlying reasons. Having gained access for the first time to both quantitative and qualitative microeconomic data, the IPN was able to address other questions which are equally important for the conduct of monetary policy. For example, the analysis of consumer or producer prices and the specific surveys on firms' pricing behaviour made

it possible to test certain microeconomic assumptions underlying the HNKPC. Among other things, these data permitted verification of whether the price changes were time-dependent as assumed by the majority of theoretical models, rather than being made in response to economic shocks. Similarly, the surveys made it possible to analyse the relative importance of the prospective and retrospective components of the HNKPC. The microeconomic data used by the IPN also allowed measurement of the scale of the nominal downward rigidity of prices, that form of rigidity having implications for the definition of the optimal inflation rate. Finally, the specific surveys allowed the main sources of price rigidity to be determined.

Analysis of these various questions is essential for designing macroeconomic models based on realistic assumptions regarding firms' behaviour. However, there is no point in analysing these questions except in a world where firms have enough market power to set the prices of their products more or less independently. In perfectly competitive markets, prices reflect all changes in marginal costs, and there are therefore no nominal price rigidities to be seen. Conversely, if monopolistic competition is the dominant feature of the economy, firms can adjust their prices with some delay and only partially following changes in their marginal costs. The monopolistic competition hypothesis is supported by the findings of the specific survey on firms' behaviour, as that survey showed that 54 p.c. of firms in the euro area considered that they had sufficient market power to apply a variable or fixed margin (Fabiani et al., 2005).

In all, the IPN conducted over thirty studies based on microeconomic data. The results below emerged consistently in the various Member States, regardless of the type of data, the period analysed and the methods of analysis used.

3.1 Rather infrequent price changes

As regards the frequency of price changes, the microeconomic studies conducted on the basis of consumer prices indicated that firms operating in the euro area changed their prices less frequently than American firms. In any given month, only 15.1 p.c. of the prices of a sample of products representing the basket of goods and services making up the HICP were changed (Dhyne et al., 2005), compared to 24.8 p.c. in the United States (Bils and Klenow, 2004). This rate of price changes of 15.1 p.c. is reflected in the fact that, on average, the price of a product in the euro area is held constant for a period of 13 months, whereas that period is just under 7 months in the United States. The Belgian economy is in a situation very close to that of the euro area, since the frequency of

TABLE 5 MEASURES OF THE DEGREE OF PRICE RIGIDITY

	Price rigidity indicator	Belgium	Euro area	United States
CPI micro data ⁽¹⁾	Frequency (in p.c. per month)	17.6	15.1	24.8
	Duration (in months) ⁽⁵⁾	13.2	13.0	6.7
PPI micro data ⁽²⁾	Frequency (in p.c. per month)	20.0	20.0	n.
Specific survey ⁽³⁾	Duration (in months)	12.0	12.0	8.6
Macro – NKPC (GDP deflator) ⁽⁴⁾ . .	Duration (in months)		13.5 – 19.2	7.2 – 8.4

(1) Aucremanne and Dhyne (2004) for Belgium, Dhyne et al. (2005) for the euro area, Bils and Klenow (2004) for the United States.

(2) Dossche and Cornille (2005) for Belgium, Vermeulen et al. (2005) for the euro area.

(3) Aucremanne and Druant (2004, 2005) for Belgium, Álvarez et al. (2005) and Fabiani et al. (2005) for the euro area, Blinder et al. (1998) for the United States.

(4) Galí et al. (2001, 2003).

(5) For Belgium, this is a measure of the median duration based on a large sample of goods and services composing the CPI, whereas it is a measure of the average duration calculated on a sample of 50 products and services for the euro area and the United States.

price changes there is 17.6 p.c. and the median duration between two price changes is very close to the European average.

This relatively high level of consumer price rigidity is confirmed by the results of the specific surveys. Analysis of the answers to the specific surveys conducted in the various euro area Member States also shows that the median life span of a price in the euro area and in Belgium is close to 12 months (Fabiani et al., 2005), whereas it is less than 9 months in the United States (Blinder et al., 1998).

As regards adjustments to producer prices, the latter appear to be slightly more flexible than consumer prices. In fact, the average frequency of producer price changes in the euro area is 20 p.c., Belgium being in line with the euro area (Dossche and Cornille, 2005; Vermeulen et al., 2005). However, as similar information is unfortunately not available for the United States, it is not possible to conclude that the rigidity differential observed between the euro area and the United States, on the basis of the other data sources, partly disappears when focusing on the prices of products traded between firms.

These microeconomic assessments of the degree of price rigidity are in line with the estimates obtained on the basis of macroeconomic analyses by Galí et al. (2001; 2003), who assessed the average life span of prices in the euro area at between 13.5 and just over 19 months, whereas in the United States the figure was only between 7 and 8.5 months.

Various factors explain the difference in the frequency of price changes observed between the euro area and the United States. First, both the level and the variability of inflation were slightly higher in the United States during

the period analysed (January 1996 – December 2001). Second, small retailers still seem to hold a very important position compared to the super and hyper markets in the euro area, in comparison with the United States (Pilat, 1997). The results obtained in some euro area Member States show that the super and hyper markets change their prices significantly more often than the small retailers. Differences in statistical methodology are a third factor. In the majority of the euro area Member States, the data sets used take no account of price changes associated with sale periods, whereas those price changes are included in the American measures. A fourth explanation might lie in the greater variability of wages and input prices in the United States. Conversely, the analysis showed that this difference was not due to divergences in the structure of consumption between the euro area and the United States, as services – which are the most rigid component of the HICP – represent a larger share of consumption in the United States than in Europe. If the consumption structure had been the same, the price change frequency differential between the two areas would have been even greater.

3.2 Wide variations between sectors

The relatively low frequency of price changes observed at aggregate level in the euro area conceals considerable sectoral diversity. In some sectors, the degree of price flexibility is high or even very high. These sectors have a price change frequency of over 20 p.c., and even as high as 80 p.c. This applies to petroleum products and unprocessed foods in the case of consumer prices, and to energy, food products and intermediate goods in the case of producer prices. Conversely, certain product categories display very

TABLE 6 FREQUENCY OF PRICE CHANGES BY PRODUCT TYPE
(In p.c. per month)

	Consumer prices ⁽¹⁾				
	Unprocessed food	Processed food	Non-energy industrial goods	Energy (petroleum products)	Services
Belgium	31	19	6	82	3
Euro area	28	14	9	78	6
United States	48	27	22	74	15

	Producer prices ⁽²⁾					
	Food	Consumer durables	Non-durable consumer goods	Energy	Intermediate goods	Investment goods
Belgium	18	13	18	n.	22	15
Euro area	26	10	12	70	22	9
United States	n.	n.	n.	n.	n.	n.

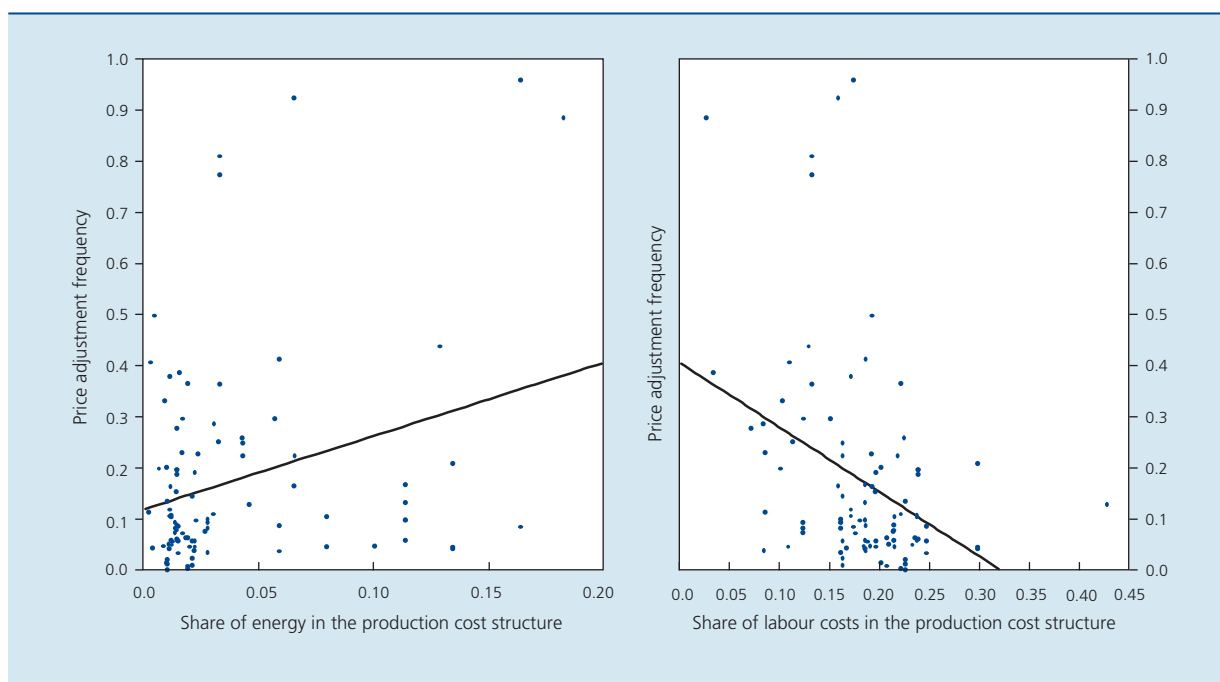
(1) Aucremanne and Dhyne (2004) for Belgium, Dhyne et al. (2005) for the euro area, Bils and Klenow (2004) for the United States.

(2) Dossche and Cornille (2005) for Belgium, Vermeulen et al. (2005) for the euro area.

high price rigidity, as these products have a price change frequency of less than 10 p.c. This concerns non-energy industrial goods and services in the case of consumer prices, durable goods and investment goods in the case of producer prices.

In fact, it seems that the degree of product sophistication reduces the price adjustment frequency. If the degree of product sophistication is regarded as an indicator of the firm's market power, that finding is supported by the fact that the specific surveys on firms' behaviour appear to

CHART 2 LINK BETWEEN PRICE ADJUSTMENT FREQUENCY AND PRODUCTION COST STRUCTURE



Source : Dossche and Cornille (2005).

indicate that the degree of competition increases that frequency (Fabiani et al., 2005). The production cost structure also influences the price adjustment frequency. Thus, the importance of labour costs in the production cost structure of a product reduces the price adjustment frequency, whereas its energy content (mainly petroleum products) accelerates the price changes (see Dossche and Cornille, 2005, for the detailed results for Belgium).

It is important to note that the sectoral differences observed in the euro area are also found in the United States. Also, the price change frequencies per sector observed in Belgium are not significantly different from the European average.

3.3 No greater downward price rigidities

Although prices are adjusted relatively infrequently in the euro area, that is not due to excess nominal downward price rigidity, preventing firms from lowering their prices when they wish. In fact, consumer price surveys indicate that on average almost 40 p.c. of the price adjustments recorded in the euro area are price reductions. A similar proportion is also observed in Belgium (Aucremanne and Dhyne, 2004) and in the United States (Klenow and Kryvtov, 2005). If producer prices are analysed, the proportion is actually 45 p.c.

However, the situation varies greatly from one sector to another. In services, where the price adjustment frequency is particularly low, price reductions are less common. In this sector, only one out of five price changes is a reduction. This greater rarity of price reductions in the service sector is due partly to the higher inflation rates seen in this sector, compared to the other components of the HICP. Since inflation is higher in services, firms have less reason to lower their prices. However, the importance of wages in the service production cost structure could also indicate that the rarity of price reductions in services in fact reflects greater nominal downward rigidity in wages. Conversely, for certain products featuring rapid technological depreciation, such as electronic goods, up to 95 p.c. of the price adjustments observed are reductions (Aucremanne and Dhyne, 2004).

3.4 Substantial price changes

Analysis of the consumer price surveys also showed that when a firm adjusts the price of a product, the adjustment is relatively large compared to the inflation rate. The average size of price increases in the euro area is in fact close to 8 p.c. The average size of price reductions is even slightly greater, since a firm which lowers its price does so by 10 p.c. on average. These values are comparable to those obtained for Belgium (Aucremanne

TABLE 7 FREQUENCY AND AVERAGE SIZE OF PRICE INCREASES AND REDUCTIONS

	Consumer prices ⁽¹⁾		
	Belgium	Euro area	United States
Price increases			
Frequency (in p.c. per month)	9.8	8.3	16.1
Average size (in p.c.)	6.8 ⁽³⁾	8.2	12.7
Price reductions			
Frequency (in p.c. per month)	5.2	5.9	13.2
Average size (in p.c.)	8.7 ⁽³⁾	10.0	14.1
	Producer prices ⁽²⁾		
	Belgium	Euro area	United States
Price increases			
Frequency (in p.c. per month)	11.0	11.0	n.
Price reductions			
Frequency (in p.c. per month)	9.0	9.0	n.

(1) Aucremanne and Dhyne (2004) for Belgium, Dhyne et al. (2005) for the euro area, Klenow and Kryvtov (2005) for the United States.

(2) Dossche and Cornille (2005) for Belgium, Vermeulen et al. (2005) for the euro area.

(3) For Belgium, the figure shows the median size and not the average size.

and Dhyne, 2004) and the United States (Klenow and Kryvtsov, 2005).

In terms of sectoral variation, unprocessed foods are the products which feature the largest price changes. This suggests that prices in this sector are largely determined by supply factors relating to weather conditions. Conversely, the prices of petroleum products, which have the highest degree of flexibility, display small changes in relation to the more rigid components of the HICP.

3.5 Asymmetric reactions to shocks

While price reductions do not appear to be much less common, on average, than price increases, the surveys specifically analysing the behaviour of firms seem to indicate that the way in which firms adjust their prices varies according to whether the firms face changes in costs or changes in demand. Moreover, their reactions may differ according to whether the changes are increases or reductions. Thus, cost increases seem to be the main reason for price increases, whereas price reductions are motivated primarily by a fall in demand. The results obtained also indicate that the response to cost increases is faster than the response to a fall in demand (Fabiani et al., 2005). Similar results were obtained for Belgium (Aucremanne and Druant, 2004; 2005) and the United States (Blinder et al., 1998).

TABLE 8 ASYMMETRY IN FIRMS' REACTION: RESULTS OF SPECIFIC SURVEYS
(Average scores⁽¹⁾)

	Belgium	Euro area
Factors explaining price increases		
Raw material costs	2.9	3.0
Labour costs	2.9	3.0
Competitors' prices	2.5	2.4
Demand	2.2	2.2
Interest charges	2.2	2.2
Factors explaining price reductions		
Raw material costs	2.3	2.5
Labour costs	2.1	2.1
Competitors' prices	2.9	2.8
Demand	2.5	2.5
Interest charges	1.8	1.9

Sources: Aucremanne and Druant (2004; 2005) for Belgium, Fabiani et al. (2005) for the euro area.

(1) The average score has a value between 1 (not important) and 4 (very important).

3.6 Price changes made on particular dates or in response to the economic situation

On the basis of the analysis of the quantitative data from surveys of both consumer and producer prices, it emerged that a substantial proportion of price changes occur in specific months, mainly in January and to a lesser extent in September, whereas they were relatively uncommon in July and August. However, it is not possible to determine from these observations whether these price changes reflect a seasonality inherent in price dynamics or a response to seasonal variations in production costs. In the first case, it can be said that most of the price changes are time-dependent, whereas in the latter case prices are adjusted in response to a change in the economic context in which the firms operate. Since these two interpretations have different implications as regards inflation dynamics, it is important to be able to distinguish between the two phenomena.

The specific surveys of firms' behaviour provided an answer to this question. The results obtained show that around one-third of the firms questioned change their prices using only time-dependent rules (e.g. prices are changed once a year, in January) whereas the other two-thirds decide to change their prices either solely in response to shocks (20 p.c. of the firms questioned) or – in the case of 46 p.c. of firms – according to a combination of the two strategies. According to this hybrid strategy, a firm reviews its prices at regular intervals in a normal economic context, but may respond quickly to a significant change in its situation. Similar results were obtained for the United States (Blinder et al., 1998). In Belgium, the proportion of firms using only time-dependent pricing rules is 26 p.c., whereas 34 p.c. of firms change their prices only in response to shocks (Aucremanne and Druant, 2004; 2005).

The importance of price changes motivated by shocks is also confirmed by certain results obtained on the basis of the quantitative data. Dhyne et al. (2005) demonstrate that the frequency of price changes has a significant correlation with changes in indirect taxation or changes in the general and/or sectoral price trend, and to changes in the price of inputs or wages. Similarly, an event such as the introduction of the euro notes and coins in January 2002 caused a temporary increase in the frequency of price changes around that date.

TABLE 9 PRICE ADJUSTMENT PRACTICES:
RESULTS OF THE SPECIFIC SURVEYS
(in p.c.)

	Belgium	Euro area
Prices adjusted according to		
the date	26	34
the situation	34	20
both the date and the situation	40	46
Information used to set the price		
Predefined rule	37	n.
Information on the past and the present	29	34
Information on the present and the future	34	48

Sources: Aucremanne and Druant (2004; 2005) for Belgium, Fabiani et al. (2005) for the euro area.

3.7 Price indexation or pricing on the basis of expectations

Having considered the question of the criterion underlying a firm's decision on when to change its prices, this section looks at the information used to determine the size of the change. That question is particularly important for assessing the relative significance of the retrospective and prospective components of the HNKPC.

As mentioned in section 1.2, when a firm chooses to adjust its price, it may determine the scale of that adjustment on the basis of simple rules, such as the indexation of its price to an aggregate price indicator, or historical data. Both types of behaviour contribute to the significance of the retrospective component of the HNKPC. The firm may also engage in prospective behaviour and take account of its inflation expectations in deciding on the price; that contributes to the significance of the prospective component of the HNKPC. According to the results obtained by the specific surveys, it seems that almost 50 p.c. of firms use this latter option when deciding to change their prices. In the countries where the information is available – namely Belgium, Luxembourg, Portugal and Spain – the first solution is evidently used by only one-third of respondents. These results are therefore in line with those obtained on the basis of the macroeconomic analyses.

As regards the behaviour of Belgian firms, the proportion of firms adopting prospective behaviour is smaller (34 p.c.) than the percentage observed in the euro area. This is due mainly to the composition of the samples of firms

questioned in the various countries. The Belgian sample contains both manufacturing firms and firms operating in the retail sector, the service sector and the building industry. In contrast, the majority of the other surveys covered the manufacturing sector only. If we restrict ourselves to that sector, the findings for Belgium are quite close to the average for the euro area.

3.8 The main causes of price rigidity

Finally, the IPN wanted to identify the main causes of price rigidity by questioning firms on the reasons preventing them from adjusting their prices. Economic theory presents an abundance of different hypotheses explaining nominal price rigidity. One of the best known is the menu cost theory, i.e. the costs associated with printing new prices. Since there is a cost entailed in making a price change (the cost of new labels), a firm may decide to postpone the change because the associated gain is not sufficient to offset the cost. Examples of the various theories include the implicit or explicit contract theory, which attributes the source of price rigidity to the contractual nature (explicit or otherwise) of the business relationship, or the theory concerning the existence of information costs (in this case, it is not changing the price that is costly but the need to collect information in order to establish the new optimal price level). A more comprehensive list of the various sources of rigidity is given in Aucremanne and Druant (2004; 2005).

The pricing survey was an opportunity for asking directly to firms which theories were the most relevant. It emerged that European firms consider that the main obstacle to price changes is the existence of implicit or explicit contracts with their customers. This finding is in line with the fact that the firms questioned state that 70 p.c. of their business is done with customers with whom they have a long-standing relationship. The next reason for price rigidity is that some firms have little incentive to adjust their prices since their marginal cost curve is relatively flat, i.e. their marginal costs and hence their prices vary little if at all according to the quantities produced. Finally, it seems that firms do not like to be the first to change their prices and prefer to wait for their competitors to make a decision. This behaviour is associated with the "truncated demand curve" theory.

Conversely, firms consider that the information cost and menu cost theories, though popular in the literature, are of little importance; the same applies to the psychological price threshold theory, which refers to the fact that firms set many prices at specific levels (multiples of 5 or ending in 9), which may cause some rigidity. The low

TABLE 10 FACTORS EXPLAINING PRICE RIGIDITY

	Belgium (average scores) ⁽¹⁾	Euro area (average scores) ⁽¹⁾	United States (ranking)
Implicit contracts	2.5	2.7	4
Explicit contracts	2.4	2.6	5
Flat marginal costs curve	2.4	2.6	2
Truncated demand curve	2.2	2.4	1
Product judged according to price	1.9	2.1	12
Risk of having to adjust the price in the opposite direction	1.8	2.0	
Changes in factors other than price	1.7	1.7	3
Menu costs	1.5	1.6	6
Cost of collecting information	1.6	1.6	
Psychological price thresholds	1.7	1.6	8

Sources: Aucremanne and Druant (2004; 2005) for Belgium, Fabiani et al. (2005) for the euro area and Blinder et al. (1998) for the United States.
 (1) The average score has a value between 1 (not important) and 4 (very important).

importance of the information cost theory is also evident from the firms' statement that they review their prices more frequently (1 to 3 times a year) than they change them (once a year).

If there are rigidities in the adjustment of prices, they therefore lie mainly in the decision to change the price and are motivated by the customers' desire for fixed nominal prices.

Finally, it is worth mentioning that the ranking of the various theories within the euro area is not noticeably different from the ranking indicated by Belgian or American firms.

4. Conclusions and general implications for monetary policy

The IPN has produced a description of both the degree of inflation persistence in the euro area Member States and the practices followed by firms in terms of their price adjustment policy. The main conclusions for the euro area are as follows.

As regards inflation persistence:

1. The degree of inflation persistence in the euro area is relatively moderate, but estimates of the degree of persistence are not very accurate.
2. The degree of intrinsic persistence is fairly low under the current monetary policy regime.
3. Inflation expectations play an increasingly important role in inflation dynamics.

4. Aggregate inflation persistence is mainly the outcome of a higher degree of persistence in the components of the underlying inflation trend represented by services and non-energy industrial goods.

As regards firms' pricing policies:

1. Firms in the euro area change their prices less frequently than American firms.
2. The frequency of price changes varies greatly from one sector to another (high frequency for petroleum products and unprocessed food, low frequency for non-energy industrial goods, and especially for services).
3. Price reductions are not rare events in comparison with price increases, but firms appear to be slower to pass on negative shocks in their prices.
4. Firms adjust their prices by significant amounts, and do so mainly in response to shocks.
5. Only one-third of firms use simple rules such as indexation for adjusting their prices.
6. The main causes of price rigidity lie in the contractual character (explicit or otherwise) of business relationships, and not in other factors such as the cost entailed in changing prices.

These results have numerous implications for the macroeconomic modelling of inflation (Angeloni et al., 2005). They should in fact enable the development of theoretical models based on microeconomic fundamentals compatible with the observed behaviour. Such models would provide a better understanding of inflation and the impact of monetary policy.

More generally, these results also have implications for the conduct of monetary policy.

Firstly, the fact that the degree of inflation persistence is low under the current monetary policy regime can be regarded as a good thing. Bringing inflation down to the target set by the ECB is actually easier than the naïve estimates of inflation persistence would suggest. However, if this low persistence is attributable primarily to the beneficial effects of the efforts made during the convergence period to anchor the inflation expectations of the economic agents at a level close to 2 p.c., it must be stressed that this low persistence should not be interpreted as a signal to ease monetary policy. Something which has taken a long time to achieve can be rapidly destroyed if the economic agents begin to doubt the ability of the monetary authorities to attain their objectives. Any relaxation of monetary discipline could soon cause inflation expectations to drift, leading to a return to pricing practices which are more retrospective than prospective. The relative uncertainty surrounding the estimates of the degree of persistence further reinforces the need not to underestimate the importance of maintaining credibility in monetary policy.

Secondly, while the fact that price changes appear to be less frequent in the euro area than in the United States may indicate an attenuation of the effects of extrinsic persistence on inflation dynamics, as inflation is less sensitive to changes in real marginal costs and the output gap, these results confirm that inflation control seems to entail higher costs in the euro area than in the United States. Maintenance of price stability is therefore essential to the preservation of growth in the euro area, since correcting any excess inflation would be costly in terms of growth and employment.

Thirdly, the results obtained showed the existence of wide sectoral variations, both in terms of persistence and in the frequency of price adjustments. As regards the conduct of monetary policy, the economic literature suggests that the monetary authorities should focus particularly on the inflation picture in the economic sectors where inflation is most persistent, namely services and non-energy industrial goods. This finding therefore implies a need for close monitoring of the underlying trend in inflation. However, the pattern of inflation in the other components of the HICP (energy and food) should not be ignored altogether, since inflation in those sectors could be passed on to the more persistent sectors, particularly via the movement in labour costs.

Fourthly, one surprising result merits attention. In contrast to common beliefs, the analyses conducted by the IPN showed that a large percentage of the price changes observed in the euro area consisted of price reductions, which suggests that nominal downward price rigidities are not very significant. Such a result reduces the need to maintain a positive inflation rate in the long term, as the benefits of doing so lie in the fact that inflation facilitates relative price adjustments where nominal downward rigidity exists. Since the downward price rigidities appear to be low, there is less benefit in maintaining a positive inflation rate. However, it is important to note that in the service sector, which has a very significant weight in the HICP, price reductions are rare, and this could be partly due to the fact that wages represent a large share of the production costs. Since the IPN did not investigate the dynamics of labour costs, the question of the importance of rigidities in the adjustment of wages in the euro area has been left unanswered for now. But even though there is no overall downward rigidity in the case of prices, there could be for wages. That could justify maintaining a low but positive inflation target for the long term.

Where Belgium is concerned, it is important to point out that the conclusions based on the analysis of the Belgian data are similar to those arrived at for the euro area. In terms of both price rigidity and inflation persistence, the findings for Belgium are very close to the average for the euro area. Similarly, the scale of the nominal downward price rigidities in Belgium differs little from that observed for the euro area. That shows that the conduct of a single monetary policy for the euro area is not a handicap for our economy, and does not lead to substantial asymmetries in its transmission.

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Trend in the financial structure and results of firms in 2004

David Vivet *

Introduction

Every year, in the fourth quarter's Economic Review, the National Bank describes the developments taking place in the annual accounts of non-financial corporations. By the autumn, the Central Balance Sheet Office in fact already has a representative sample of the annual accounts relating to the previous year. The conclusions drawn on the basis of that sample can therefore be extrapolated relatively reliably to the population as a whole.

Historically, this article essentially comprised a study of developments in the profit and loss accounts of firms. In recent years, that study has been gradually supplemented by a financial and microeconomic analysis, not only of the profit and loss accounts but also of the balance sheets and the annexes to the annual accounts. Since last year, on the basis of the results of an internal business failure prediction model, an appraisal of the financial risks incurred by firms has also been presented.

This article is in three sections. Section 1 describes the methodology and the sample used. Section 2 presents an extrapolation of the main profit and loss account items. Finally, Section 3 assesses the financial situation of companies, particularly their level of profitability, solvency, liquidity and financial risk.

1. Methodology and constant sample

1.1 Characteristics of the data used and construction of the constant sample

Since the late 1970s, the Central Balance Sheet Office has collected data on the accounts of non-financial corporations each year. For that purpose, the firms are required to submit their annual accounts using a standard form by no later than seven months after the end of the financial year. The data are then adjusted if necessary to meet the required quality standards, after which an initial analysis can be conducted from September onwards. However, every year the nature of the data available for the latest financial year examined – in this case 2004 – raises two methodological questions.

First, the population of annual accounts relating to 2004 is incomplete. This situation arises because many sets of annual accounts are filed late or do not pass the arithmetical and logical checks conducted by the Central Balance Sheet Office. For example, where 2003 is concerned, the proportion of accounts not filed or not usable on 31 August 2004 came to 23 p.c.,⁽¹⁾ or around 58,000 sets of accounts. Since these problems mainly concern fairly small firms, these missing accounts represented 7 p.c. of the value added of all non-financial corporations: a small proportion but nonetheless significant⁽²⁾.

Second, firms whose annual accounts are available late are in a structurally less favourable financial situation than other firms. Table 1 shows, for the 2003 financial year, the significant differences between firms according to the time of filing their annual accounts: firms which filed

* The author is grateful to his colleagues in the Microeconomic Analysis unit who collaborated on this article, especially Jean-Marc Troch for his valuable work in preparing the data.

(1) For the record, this proportion was only 1 p.c. on 31 December 2004.

(2) It is also necessary to note that, every year, there are some firms which fail to submit annual accounts, despite the statutory obligation to do so. The percentages stated inevitably disregard those firms.

TABLE 1 FINANCIAL PROFILE OF FIRMS ACCORDING TO THE TIME TAKEN TO FILE THEIR ANNUAL ACCOUNTS⁽¹⁾

(2003 financial year, medians)

	Annual accounts filed before 31 August 2004	Annual accounts filed after 31 August 2004
Liquidity in the broad sense	1.23	1.13
Degree of financial independence	31.21	24.38
Return on equity	6.41	5.29

Source: NBB.

(1) The financial ratios are defined in Annex 2. Their implications are also explained in section 3 of this article.

their accounts after 31 August 2003 are significantly less liquid, less solvent and less profitable⁽¹⁾. In all probability, the data currently available for 2004 therefore present an over-optimistic view of reality.

Being subject to this double bias, the 2004 data are not directly comparable with those from previous years. In order to ensure comparability, the constant sample method is used. The constant sample for 2003-2004 comprises firms which filed annual accounts for both 2003 and 2004, and which satisfy the following conditions:

- both sets of annual accounts relate to a 12-month financial year;
- both sets of annual accounts satisfied the quality requirements of the Central Balance Sheet Office;
- the annual accounts relating to 2003 were filed before 31 August 2004;
- the annual accounts relating to 2004 were filed before 31 August 2005.

The method consists in extrapolating the 2004 results on the basis of the trends found in the constant sample: the 2004 figures are obtained by taking the final figures for 2003 and applying the rates of change recorded in the sample. It is therefore assumed that the trends seen in the sample are representative of the trends occurring in the population as a whole. As verified in previous editions of this article, that assumption is largely borne out since, in the vast majority of cases, the estimates give an accurate representation of the direction and scale of the actual movements.

(1) The time taken to file annual accounts is also one of the explanatory variables used in the business failure prediction model presented below: the greater a firm's delay in filing its annual accounts, the higher the risk of failure estimated by the model.

(2) Details of these criteria can be found in Article 15 of the Companies Code.

(3) For more details on this reclassification, see the article published in the Economic Review for the 4th quarter of 2003.

1.2 Classification of firms by size and branch of activity

Non-financial corporations form a diverse population within which very divergent trends may be seen. The tendencies detected by analysis of the overall results therefore have to be refined by analysis according to the firms' size and branch of activity. For one thing, the method of financing and – more generally – the financial position of firms varies according to whether the firm is large or small. Also, firms are subject to cyclical movements specific to each branch of activity, and these are generally reflected in the movement in the annual accounts.

The distinction according to size is based on the criteria specified by the Companies Code. According to the Code, the following are classed as large:

- firms employing over 100 people, as an annual average, or
- firms which exceed more than one of the following limits:
 - annual average number of employees: 50;
 - annual turnover excluding VAT: € 6,250,000;
 - balance sheet total: € 3,125,000.⁽²⁾

Firms which do not exceed these criteria, i.e. SMEs, can draw up their annual accounts in an abbreviated format, unlike large firms which are obliged to use the full format. However, not all SMEs use the option available to them. As a result, the population of annual accounts filed in the full format contains not only the annual accounts of large firms, but also those of a significant number of SMEs. For example, in 2003 the 16,000 sets of full-format accounts filed included 7,000 sets of accounts relating to SMEs. The firms therefore cannot be classified strictly by size according to the type of format used. For that reason, since 2001 the distinction has no longer been based on the type of format used but is applied strictly according to the Companies Code criteria. SMEs filing full-format accounts are thus no longer included in the population of large firms but are placed in the SME category.⁽³⁾

The distinction according to branch of activity is based on the NACE-BEL nomenclature of activities, used in most of the statistics offering a breakdown by branch in Belgium. The composition of the branches of activity studied is shown in Annex 1.

1.3 Representativeness of the constant sample

The constant sample for 2003-2004 is shown in table 2. It contains 130,758 firms, or 53 p.c. of the total number of sets of annual accounts filed in 2003. As in previous years, the representativeness measured in relation to the balance sheet total is considerably higher, since it exceeds 83 p.c. The reason is that large firms are traditionally more representative than SMEs. Within the 2003-2004 sample, the coverage of large firms is thus 19.6 points higher in terms of the number of firms, and 27.7 points higher in terms of the balance sheet total. In fact, large firms have a natural tendency to submit their annual accounts more promptly; moreover, they are the focus of special attention on the part of the Central Balance Sheet Office, which makes sure that it obtains a high degree of representativeness in terms of value added as quickly as possible. Furthermore, primarily because of the preponderance of large firms, manufacturing industry has a higher coverage rate than non-manufacturing branches. Finally, the representativeness of the sample has increased considerably in recent years. This improvement is due to the provisions of the programme law of 8 April 2003, which introduced administrative fines for late submission of annual accounts. These fines came into force with effect from annual accounts for the year ending 31 December 2002, and have had a clear impact on the promptness with which accounts are filed.

TABLE 2 COMPOSITION AND REPRESENTATIVENESS OF THE CONSTANT SAMPLE FOR 2003-2004

	Firms in the 2003-2004 sample	All non-financial corporations in 2003	Representativeness of the sample, in p.c.
Number of firms	130,758	248,740	52.6
Large firms	6,160	8,612	71.5
SMEs	124,598	240,128	51.9
Manufacturing industry . .	12,419	22,100	56.2
Non-manufacturing branches	118,339	226,640	52.2
Balance sheet total (millions of euro) ⁽¹⁾	760,359	914,545	83.1
Large firms	663,298	753,512	88.0
SMEs	97,061	161,032	60.3
Manufacturing industry . .	194,849	206,936	94.2
Non-manufacturing branches	565,510	707,609	79.9

Source: NBB.

(1) For firms in the constant sample, the balance sheet total taken into account is the 2003 figure.

2. Movement in the main components of the profit and loss account

2.1 Cyclical context and movement in the main components of the profit and loss account

After three successive years of weak expansion in activity in Belgium, GDP growth accelerated in 2004 to reach 2.6 p.c. The revival of economic activity had already begun in the autumn of 2003, and GDP grew steadily up to the third quarter of 2004. As in the previous year, household spending was a major factor bolstering growth, while gross fixed capital formation by enterprises recovered after contracting for two consecutive years. Foreign demand was another factor driving the economy, as is evident from the marked growth of exports. However, owing to the even more pronounced expansion of imports, the contribution of foreign trade to growth was slightly negative. Finally, as in the two preceding years, the Belgian economy grew at a faster rate than that of the euro area in 2004.

In this context, the total value added created by non-financial corporations, i.e. the difference between sales revenues and the cost of goods and services supplied by third parties, exceeded € 139 billion (at current prices) in 2004. Between 2003 and 2004, value added thus grew by 6.3 p.c., the strongest growth since 2000 (table 3).

The value added created by a firm enables it to cover its operating expenses, with any surplus recorded as a net operating profit. That represents the income generated by the firm's normal commercial and industrial activity. Staff costs make up the bulk of the operating expenses: in 2004 they accounted for over 57 p.c. of value added. Following a weak increase in 2003, they regained momentum in 2004 with growth of 3.5 p.c. The main reason for this resurgence was the small increase in the number of workers recorded in the staff register, after a decline in 2002 and 2003. After staff costs, depreciation is by far the largest item in the operating expenses. In 2004, despite the marked recovery in investments, depreciation contracted for the third consecutive year, continuing to be influenced by the low rate of investment in the two preceding years. Total operating expenses increased by 2.7 p.c., being greatly affected by the movement in staff costs and depreciation.

As in the previous year, the growth of value added therefore far exceeded the rise in operating costs. As a result of these contrasting movements, the net operating result once again increased particularly strongly to over 24 p.c. Such strong growth in two successive years was

TABLE 3 MAIN COMPONENTS OF THE PROFIT AND LOSS ACCOUNT

	Percentage changes compared to the previous year					Millions of euro	Percentages of value added
	2000	2001	2002	2003	2004 e	2004 e	2004 e
Value added	7.6	2.1	1.5	4.3	6.3	139,008	100.0
Staff costs	(-) 6.0	3.9	3.2	1.6	3.5	79,999	57.5
Depreciation, downward value adjustments and provisions	(-) 10.2	5.2	-2.0	-3.2	-2.2	23,842	17.2
Other operating expenses	(-) 11.4	7.8	-2.2	9.3	10.5	8,221	5.9
<i>Total operating expenses</i>	<i>7.3</i>	<i>4.4</i>	<i>1.6</i>	<i>0.9</i>	<i>2.7</i>	<i>112,062</i>	<i>80.6</i>
Net operating result	8.7	-10.6	0.7	25.5	24.3	26,946	19.4
Financial income	(+) 38.6	5.4	24.5	6.8	-7.2	46,465	33.4
Financial charges	(-) 33.1	4.6	38.8	4.5	-11.8	39,639	28.5
<i>Financial result</i>	<i>73.7</i>	<i>9.4</i>	<i>-42.2</i>	<i>31.8</i>	<i>34.2</i>	<i>6,827</i>	<i>4.9</i>
Ordinary result	19.5	-5.8	-11.3	26.7	26.2	33,773	24.3
Exceptional result ⁽¹⁾	(+) -	-	-	-	-	-255	0.2
Net result before tax	4.3	-10.1	-26.9	77.0	2.2	33,518	24.1
Taxes on profits	(-) 11.5	-0.2	-4.9	6.9	10.4	7,273	5.2
Net result after tax	2.3	-13.1	-34.5	112.0	0.5	26,244	18.9
<i>p.m. Net result after tax excluding the exceptional result</i>	<i>22.6</i>	<i>-7.7</i>	<i>-13.7</i>	<i>34.8</i>	<i>31.3</i>	<i>26,500</i>	<i>19.1</i>

Source: NBB.

(1) There is little point in calculating the percentage change for this aggregate, which may be either positive or negative and does not lend itself to reliable estimation.

unprecedented during the past two decades, bearing witness to the remarkable performance achieved by firms in their core activity. The movements in value added and in the net operating result can also be compared with the movement in the business survey indicator (chart 1). These three variables traditionally move in parallel. This proved to be the case once again in 2004: the strong and widespread recovery of business confidence which had begun in 2003 and persisted in 2004 can be linked with the robust growth of value added and the net operating result.

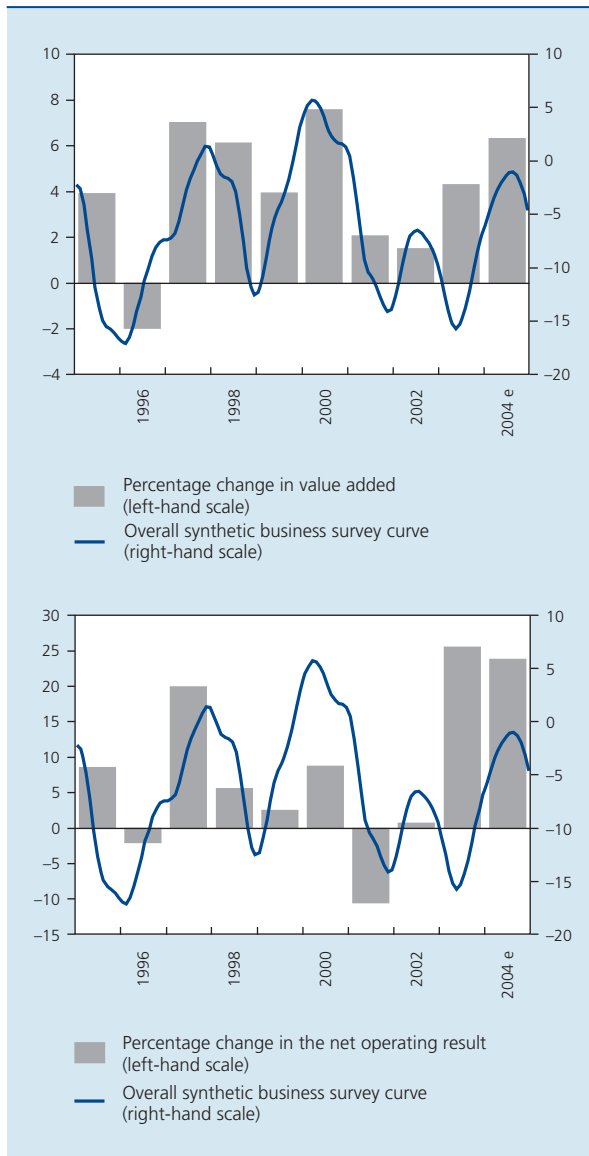
In line with the trend of the past decade, the financial result increased once again in 2004, to reach almost 6.8 billion euros. However, in contrast to previous years, this increase was the outcome of a fall in both financial expenses and financial income, the fall being more pronounced in the case of income. In the space of ten years, the share of the financial result in the current result⁽¹⁾ has increased fivefold, rising from 4.2 p.c. in 1995 to over 20 p.c. today (chart 2). This increase is due essentially to the growing proportion of financial assets in the balance sheet of firms, resulting partly from the expansion in

transactions between companies in the same group (and more particularly via coordination centres), and partly from the mergers and acquisitions which have proliferated in recent years.

After recording a surplus of almost € 6 billion in 2003, the exceptional result was close to balance in 2004, with a small deficit of less than € 0.3 billion.⁽²⁾ This considerable reduction in the exceptional result practically cancelled out the growth of the operating result, so that pre-tax profits increased by only 2.2 p.c. Taxes on the result continued to increase because of the renewed rise in the operating result, which is by far the largest component of corporate taxable income.

(1) I.e. the sum of the net operating result and the financial result.

(2) In 2003, the substantial exceptional profit was due mainly to a capital gain on the realisation of fixed assets in the telecommunications branch.

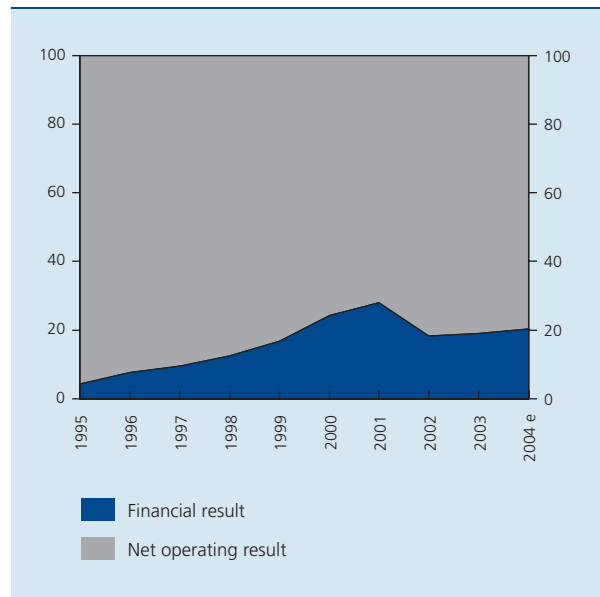
CHART 1 VALUE ADDED, NET OPERATING RESULT AND BUSINESS SURVEY INDICATOR

Source: NBB.

After aggregation of all the components of the profit and loss account, non-financial corporations made a net profit after tax of more than € 26 billion, equivalent to the 2003 figure. Although profits therefore stagnated in 2004, it should be remembered that they had more than doubled in the previous year to reach a record level. Moreover, these movements reveal the substantial influence which the exceptional result may exert on corporate profits: excluding the exceptional result, profits would have risen by 31.3 p.c. in 2004, against 34.8 p.c. in 2003.

CHART 2 FINANCIAL RESULT AND NET OPERATING RESULT AS PERCENTAGES OF THE ORDINARY RESULT

(percentages)



Source: NBB.

2.2 Results by branch of activity

In manufacturing industry, the growth of value added accelerated once again to reach 4.2 p.c. in 2004, the strongest rise since 2000 (table 4). The branches which had the greatest impact on this trend were metallurgy and metal manufactures which, after three years of sluggish activity or even contraction, benefited from the strong global demand for their products. The agricultural and food industry, where activity was underpinned by higher retail sales and exports, also recorded growth above the industrial average. In chemicals, despite buoyant exports, value added increased at a fairly modest pace, mainly because of the renewed rise in oil prices.

In 2004, the operating result of manufacturing industry increased strongly for the third consecutive year (+29.4 p.c.). This performance was due to control of operating costs in a context of strong business activity. On the one hand, staff costs increased more slowly than value added, mainly because the number of workers remained steady. Also, 2004 saw a further decline in depreciation, reflecting the sluggishness of industrial investment over the past four years. While the majority of manufacturing branches followed these trends and therefore recorded a very marked rise in their operating result, it was metallurgy that achieved the most notable increase

(+ 120.3 p.c.). While benefiting from the strong foreign demand for their products, firms in this branch made very substantial cuts in their operating costs, as is evident from the high capacity utilisation rate and the stable level of employment in the branch in 2004.

In the non-manufacturing branches, the expansion of activity which had already strengthened markedly in 2003 accelerated further to reach 7.3 p.c. in 2004. Overall, the non-manufacturing branches benefited from the vigour of domestic demand and particularly household consumption. The wholesale trade, which made the largest contribution to the growth of value added in services, was also stimulated by the rise in oil companies' profit margins, while in real estate and construction, growth was supported by the maintenance of interest rates at historically low levels.

As in industry, the operating result of non-manufacturing branches rose sharply in 2004 (+21.8 p.c.). It thus confirmed the robust recovery which had begun in 2003 after three years of stagnation or even contraction. The main factor here was that staff costs increased by significantly less than value added, primarily because of the limited rise in the number of workers. Moreover, despite the revival in investments in 2004, depreciation remained static or actually declined in many non-manufacturing branches.

TABLE 4 VALUE ADDED AND NET OPERATING RESULT BY BRANCH OF ACTIVITY
(Percentage changes compared to the previous year)

	Value added		Net operating result		<i>p.m.</i> Percentage share of the branches in total value in 2004 e
	2003	2004 e	2003	2004 e	
Manufacturing industry	3.2	4.2	23.6	29.4	33.1
of which:					
Agricultural and food industries	6.3	4.6	31.6	18.4	4.4
Textiles, clothing and footwear	-8.9	0.3	-23.4	7.8	1.5
Timber	48.6	8.0	211.4	50.4	0.7
Paper, publishing and printing	-1.2	3.5	15.4	19.9	2.5
Chemicals	0.1	2.5	8.3	16.1	8.6
Metallurgy and metalworking	0.4	13.7	60.9	120.3	4.8
Metal manufactures	-1.1	8.3	63.3	18.8	6.9
Non-manufacturing industry	4.9	7.3	26.5	21.8	66.9
of which:					
Retail trade	6.7	5.6	24.4	15.7	8.3
Wholesale trade	7.7	11.1	22.6	34.8	13.1
Horeca	5.5	5.0	-9.5	49.1	1.7
Transport	5.2	5.5	59.5	259.1	7.3
Post and telecommunications	3.5	5.7	56.5	45.7	5.1
Real estate activities	8.5	8.8	9.2	19.3	3.2
Business services	5.1	6.2	22.7	18.9	12.1
Energy and water ⁽¹⁾	-14.5	13.2	24.4	-12.0	4.2
Construction	2.7	5.9	11.9	15.3	6.2

Source: NBB.

(1) In 2003 and 2004, the changes in the value added and net operating result of this branch were due mainly to the electricity sector: pursuant to the law of 11 April 2003, Electrabel and SPE transferred to Synatom the management of the provisions formed for dismantling nuclear power stations. Since Synatom comes under manufacturing industry and therefore does not belong to the energy and water branch, the changes in value added and operating result arising from that transfer were not directly offset within the branch. Having caused a reduction in value added and an increase in the operating result in 2003, the operation produced movements in the opposite direction in 2004.

3. Movement in the financial situation of firms

The financial analysis which follows is based on the theory of interpretation of the annual accounts, from which a number of ratios, in particular, are borrowed.⁽¹⁾

The financial ratios are presented in both global form and as a median. The globalised ratios are obtained by taking the sum of the numerators for all firms and dividing it by the sum of their denominators. The median is the central value in an ordered distribution: for a given ratio, 50 p.c. of firms have a ratio above the median and – hence – 50 p.c. of firms have a lower ratio. The two measures are complementary as they are used for different purposes. Since it takes account of each firm according to its real weight in the numerator and the denominator, the globalised ratio primarily reflects the situation of the largest firms. In contrast, by indicating the situation of the central firm, the median reflects the movement in the population in general, as the median is influenced equally by each of the firms examined, regardless of size.⁽²⁾

3.1 Profitability

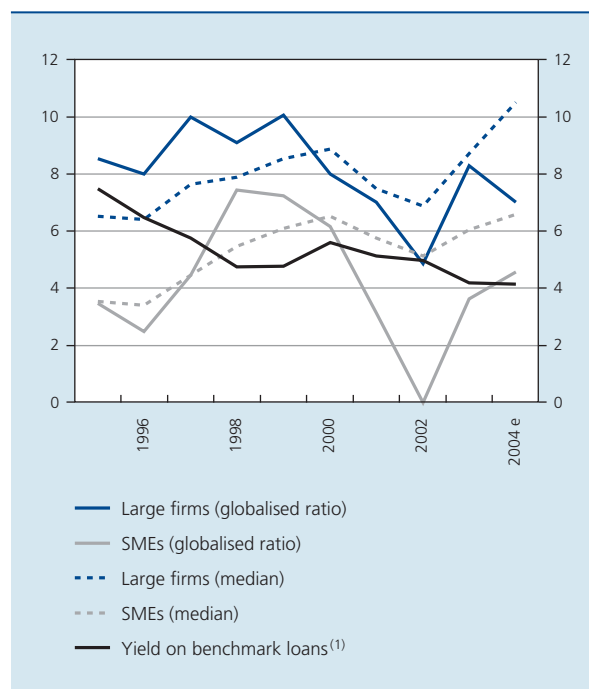
Profitability concerns the firms' ability to generate profits. It can be assessed, in particular, on the basis of the average net return on a firm's own capital. Also known as the return on equity (ROE), this figure expresses the net profit after tax as a percentage of the equity capital. The ratio therefore indicates the return received by the shareholders after deduction of all expenses and taxes. Over a sufficiently long period, the return on equity has to exceed the return on a risk-free investment in order to provide shareholders with a premium to compensate for the higher risk incurred (risk premium).

In 2004, the globalised return on equity came to 7.0 p.c. for large firms and 4.7 p.c. for SMEs (chart 3). In contrast to earlier years, the two categories of firms saw their profitability move in different directions. Following the marked surge in the previous year, the profitability of large firms declined in 2004, despite the strong growth of their operating result (and to a lesser extent their financial result). The reason for this decline lies in the substantial contraction in the exceptional result, mentioned above, attributable mainly to a handful of very large

firms. Furthermore, it is possible to verify that the median ratio of large firms, which is by definition rather insensitive to individual fluctuations, continued to rise in 2004. Decidedly less affected by movements in the operating result, the profitability of SMEs maintained the recovery which had begun in 2003 following several years of erosion. This new increase was brought about by the combined improvement in the operating result, the financial result and the exceptional result.

The globalised profitability of large firms can be compared with the yield available on government bonds. In 2002, for the first time since 1994, the profitability of large firms had fallen below the benchmark bond yield, which has itself been declining throughout the past decade. In 2003, the profits recovery combined with a further fall in the yield on government bonds once again provided shareholders with a substantial risk premium. In 2004, as a result of the decline in profitability, this risk premium was eroded slightly, making an equity investment significantly less attractive to the investor. This comparison must, of course, be treated with caution as for one thing, equities and government bonds are different financial instruments; also, many large firms are not listed on the stock market.

CHART 3 RETURN ON EQUITY AND YIELD ON BENCHMARK LOANS
(percentages)



Source: NBB.

(1) Average yield on 10-year bonds.

(1) Since the concepts addressed cannot be explained in detail in this article, the reader is requested, if necessary, to consult the reference works on the subject.

(2) As a microeconomic measure, the median was preferred to the simple mean. In the analysis of non-financial corporations, the median in fact has the advantage of being more robust than the mean, as it is practically unaffected by incidental fluctuations in a small number of observations.

TABLE 5 RETURN ON EQUITY AFTER TAX, BY BRANCH OF ACTIVITY
(Percentages)

	Large firms ⁽¹⁾			SMEs ⁽¹⁾		
	2002	2003	2004 e	2002	2003	2004 e
Manufacturing industry	6.5	10.1	11.1	2.4	4.8	5.2
of which:						
Agricultural and food industries	12.6	11.8	13.3	4.3	6.4	7.6
Textiles, clothing and footwear	12.0	-0.9	-1.5	0.0	0.1	-1.8
Timber	2.4	-7.3	58.3	1.9	-4.4	-5.1
Paper, publishing and printing	5.4	24.5	-18.2	-0.5	6.7	7.3
Chemicals	8.4	10.0	7.7	1.8	13.1	7.5
Metallurgy and metalworking	-7.6	-2.1	17.0	5.6	6.5	6.9
Metal manufactures	-6.4	7.8	13.1	-1.5	3.0	4.6
Non-manufacturing industry	4.5	7.8	6.0	-0.3	3.5	4.5
of which:						
Retail trade	5.0	5.0	8.2	5.2	6.8	8.7
Wholesale trade	0.4	6.2	9.2	6.9	6.5	7.7
Horeca	-4.2	-2.9	-17.6	-3.5	-4.0	16.7
Transport	-10.7	-2.1	3.6	3.6	12.0	8.7
Post and telecommunications ⁽²⁾	12.8	51.7	15.5	-73.3	6.3	-3.2
Real estate activities	6.5	10.8	16.0	1.6	2.9	4.6
Business services	3.7	4.1	4.0	-2.6	0.1	0.2
Energy and water	15.2	15.8	8.7	7.7	8.4	13.2
Construction	6.0	9.5	11.0	5.7	8.2	9.2

Source: NBB.

(1) Globalised ratio.

(2) In 2003, the exceptional profitability of large firms in this branch was due to substantial capital gains on the realisation of fixed assets by a telecommunications company, already mentioned under points 2.1 and 2.2.

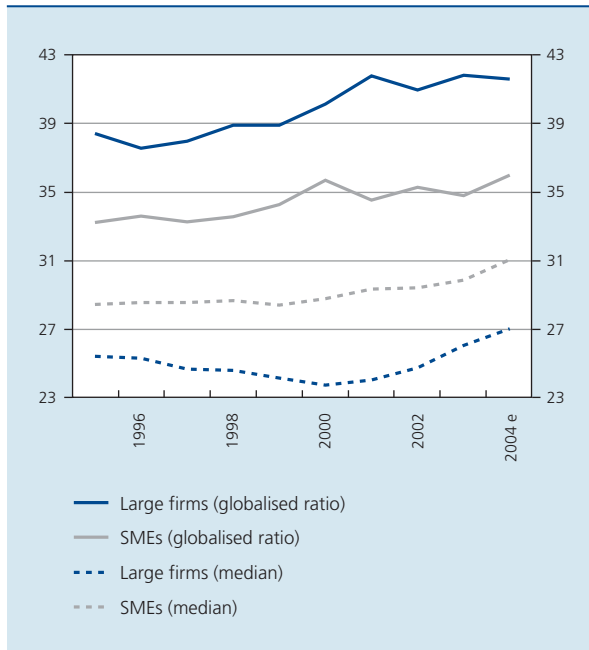
Table 5 shows details of the movement in profitability by branch of activity. It reveals that the decline in the profitability of large firms in 2004 was attributable to the non-manufacturing branches, and – more specifically – to the telecommunications branch whose profitability had been swollen by the exceptional result in 2003. The table also indicates that, overall, during the last three years, manufacturing industry has been more profitable than the non-manufacturing branches, for both large firms and SMEs. Finally, in the case of large firms, the most profitable branches of the Belgian economy in 2004 were metallurgy, real estate, telecommunications, the agriculture and food industry and metal manufactures.

3.2 Solvency

Solvency concerns the ability of firms to honour all their short-term and long-term commitments. This article examines it via three concepts: the degree of financial independence, the degree to which borrowings are covered by the cash flow, and the interest charges on financial liabilities.

The degree of financial independence is equal to the ratio between equity capital and total liabilities. If the ratio is high, the firm is independent of borrowings. This has two beneficial effects: first, financial expenses are low and therefore do little to depress profits; also, if necessary, new debts can be easily contracted on favourable terms. The degree of financial independence can also be interpreted as a measure of the firm's financial risk, since the remuneration of third parties is fixed, unlike the firm's results which fluctuate over time.

CHART 4 DEGREE OF FINANCIAL INDEPENDENCE
(percentages)



Source : NBB.

In 2004, globalised financial independence came to 41.6 p.c. for large firms and 36 p.c. for SMEs, for which it is traditionally lower (chart 4). In both categories of firms, the ratio has followed an upward trend during the last decade, leading to an improvement of around three points. This trend also affected the majority of firms, as is evident from the increase in the median ratios in recent years. Although chart 4 presents a sound and stable picture of corporate solvency, it must be pointed out that almost 16 p.c. of firms have negative financial independence, which means that their losses carried forward exceed the capital invested by shareholders.

The degree of financial independence, and its converse, the degree of indebtedness, provide a picture of the general balance sheet equilibrium. Although this picture is necessary in order to diagnose solvency, it is not sufficient in itself, since it does not permit assessment of the firm's ability to repay its debts, nor of the level of charges which the debts entail. These two concepts are addressed below.

(1) The English term "cash flow" is commonly used nowadays to mean the net flow of cash generated by the firm, i.e. the difference between incoming revenue and outgoing expenditure. The cash flow, which thus represents the firm's self-financing capability, is of fundamental importance for the firm's development: in particular, the firm can use its cash flow to distribute dividends, repay its debts or finance new investments.

By measuring the percentage of the debts that the firm could repay by allocating the whole of the year's cash flow to that purpose, the degree to which borrowings are covered by cash flow indicates the firm's repayment capability.⁽¹⁾ The converse of the ratio indicates the number of years which it would take to repay all the debts at a constant cash flow. The information supplied by that ratio supplements that offered by the financial independence ratio, as a high level of indebtedness can be mitigated by a substantial repayment capability, and vice versa.

In 2004, large firms and SMEs recorded divergent trends in the degree to which their borrowings were covered by cash flow (chart 5). Having improved in 2003, the large firms' ratio declined in 2004, falling to 9.5 p.c. (its lowest level for ten years), owing to the combined effects of a small reduction in the cash flow and an increase in debts. This was in line with the trend for the past decade, during which the ratio has been eroded by more than three points. This erosion of the ability of large firms to repay their debts, originating in both industry and services, qualifies the gains achieved over the same period in terms of financial independence. However, it must be stressed that, having risen once again, the median ratio reached a 10-year high in 2004. On the one hand, this indicates that the coverage of borrowings improved in the majority of large firms; it also reveals the influence which a minority

CHART 5 DEGREE TO WHICH BORROWINGS ARE COVERED BY CASH FLOW
(percentages)



Source : NBB.

of firms can exert on the globalised ratio. In contrast to that of large firms, the globalised ratio of SMEs continued the recovery which had begun in 2003, rising to 11.1 p.c. At the same time, the median ratio of SMEs, like that of large firms, reached its highest level since the mid 1990s.

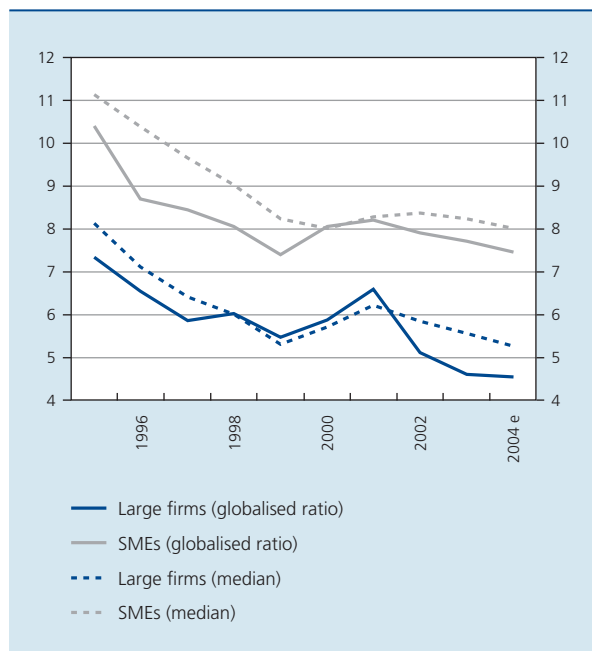
The average interest charges on the financial debts can be used to assess the cost of recourse to borrowing. In 2004, those charges came to 4.5 p.c. for large firms and 7.5 p.c. for SMEs, in globalised terms (chart 6). For both categories of firms, 2004 brought a further small reduction as market interest rates were maintained at a historically low level. Taking a long-term view, debts have become significantly less expensive for firms: since the beginning of the 1990s, average interest charges have fallen by around four points. Furthermore, the interest charges paid by large firms are structurally lower than those for SMEs. In fact, for the same method of financing, SMEs generally have to pay a risk premium because lenders consider their financial profile to be less sound. In addition, SMEs make more use of cash advances, which are a more expensive form of credit. Over the past decade, the difference between the two categories of firms has fluctuated between 1.6 and 3.1 points; in 2004, it stood at 3 points.

3.3 Liquidity

Liquidity indicates the capacity of firms to mobilise the cash resources needed to meet their short-term commitments. It is traditionally assessed by means of the liquidity ratio in the broad sense. This ratio, derived from the concept of net working capital, compares the total assets realisable and available (stocks, claims at up to one year, cash investments, liquid resources and accruals) with the short-term liabilities (debts at up to one year and deferrals). The higher the liquidity in the broad sense, the more capable the firm of meeting its short-term commitments. In particular, when the ratio is higher than 1, the net working capital is positive.

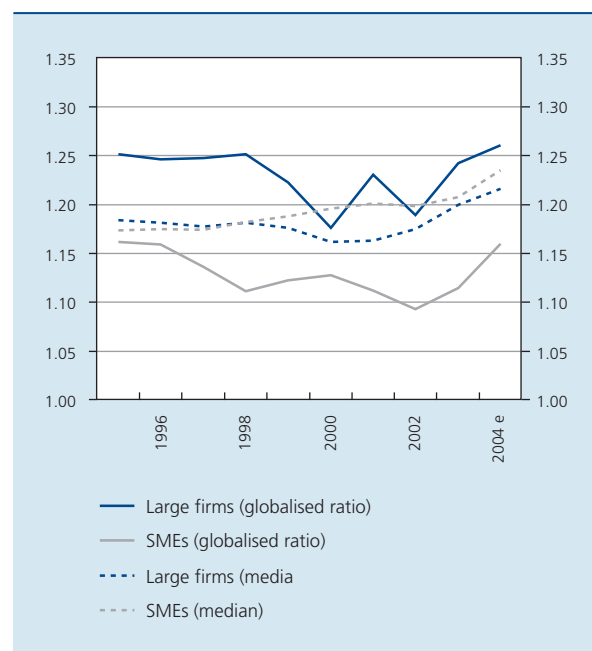
In 2004, the globalised ratio was 1.26 for large firms and 1.16 for SMEs (chart 7). In both categories of firms, liquidity continued the improvement which had begun in 2003, reaching its highest level since 1995, indicating that the balance sheet maturities were more evenly balanced. The median ratio has been edging upwards for several years. As in the case of solvency, the calm picture presented by the globalised ratio and the median conceals the disparities between firms. For example, almost 40 p.c. of firms have liquidity which, in the broad sense, is less than 1, i.e. negative net working capital.

CHART 6 AVERAGE INTEREST CHARGES ON FINANCIAL DEBTS
(percentages)



Source : NBB.

CHART 7 LIQUIDITY IN THE BROAD SENSE

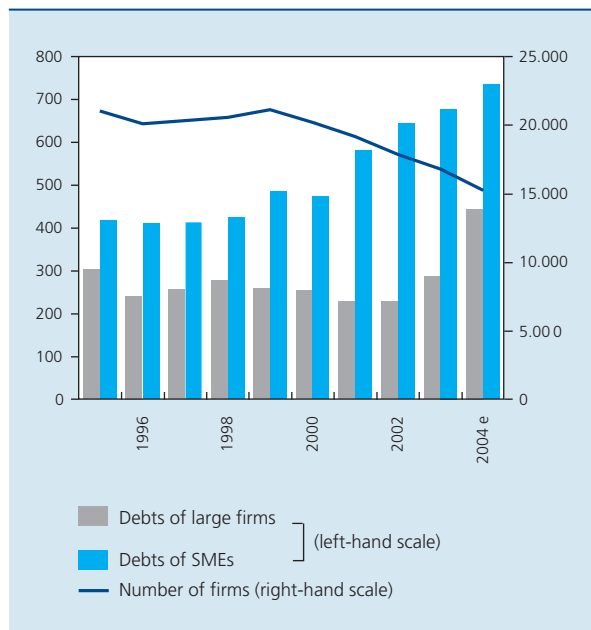


Source : NBB.

The situation of firms with precarious liquidity can be ascertained from an examination of overdue debts to the tax authority and the NSSO, mentioned in the annex to the annual accounts. Delayed payments to these two preferential creditors are in fact frequently synonymous with an acute cash flow crisis for a firm; they also serve as “warning lights” for the commercial court investigators in their work of detecting firms in difficulty. Overdue debts to the tax authority and the NSSO are also one of the central elements of the business failure prediction model presented later on in this article.

In 2004, just over 15,200 firms, the vast majority being SMEs, reported overdue debts to the tax authority and the NSSO, amounting to a total of € 1.2 billion (chart 8). The branches most affected were construction, the timber industry, hotels and restaurants, trade and transport, while chemicals, energy, real estate and business services were relatively unscathed. For several years now, these debts have followed contrasting trends. On the one hand, the number of firms affected fell by 6,000 units between 1999 and 2004, mainly as a result of the preventive measures implemented by the commercial courts. On the other hand, the total volume of these debts has increased sharply in the past 4 years, especially in the services branch. This upward trend continued in 2004, for both SMEs and large firms.

CHART 8 OVERDUE DEBTS TO THE TAX AUTHORITY AND THE NSSO
(€ millions, unless otherwise stated)



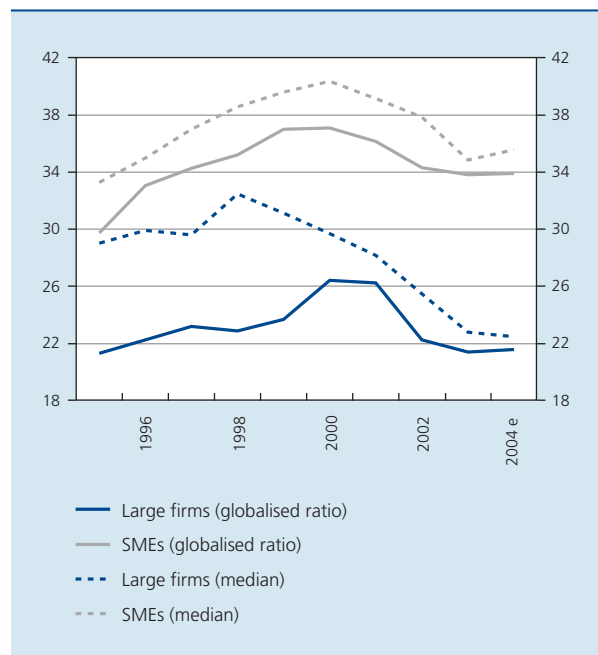
Source : BNB.

3.4 Investment

The amount which firms devote to investment can be assessed by the rate of investment, which is the ratio between acquisitions of tangible fixed assets and the value added for the year, and therefore indicates the degree to which the wealth created by firms is allocated to investment. In 2004, the globalised ratio was 21.6 p.c. for large firms and 33.9 p.c. for SMEs (chart 9); this corresponds to an imperceptible increase compared to 2003, when the investment rate had reached its lowest level since the second half of the 1990s. While the ratio fell in industry for the fourth consecutive year, mainly as a result of stagnating investment, it showed a modest increase in the non-manufacturing branches, as in 2003. Moreover, the persistently low levels maintained by the median ratios reveal that the downward trend in investment is affecting Belgian firms in general.

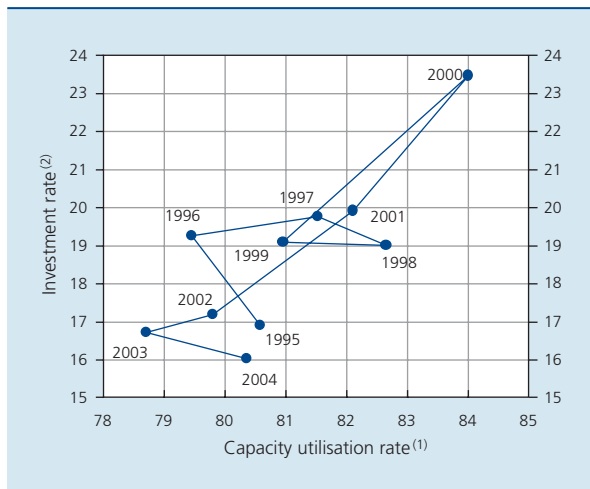
In manufacturing industry, the investment rate can be compared to the capacity utilisation rate, which is in fact one of the fundamental determinants of investment. Chart 10, which shows how the two variables have moved in parallel since 1995, demonstrates the positive link between them. After reaching a peak in 2000, they both underwent a sharp correction, and in 2003 they fell to their lowest level since the mid 1990s. In 2004, despite

CHART 9 TAUX D'INVESTISSEMENT
(percentages)



Source : NBB.

CHART 10 INVESTMENT RATE AND CAPACITY UTILISATION RATE IN MANUFACTURING INDUSTRY



Source: NBB.
 (1) Annual average.
 (2) Globalised for manufacturing firms in general.

the upturn in economic activity and the marked recovery in capacity utilisation, the investment rate slipped a little further in the manufacturing branches. It was metallurgy and metal manufactures which had the most influence on these divergent trends, mainly because of the high level of uncertainty about their growth prospects and the redirection of some of their investments towards new geographical regions.

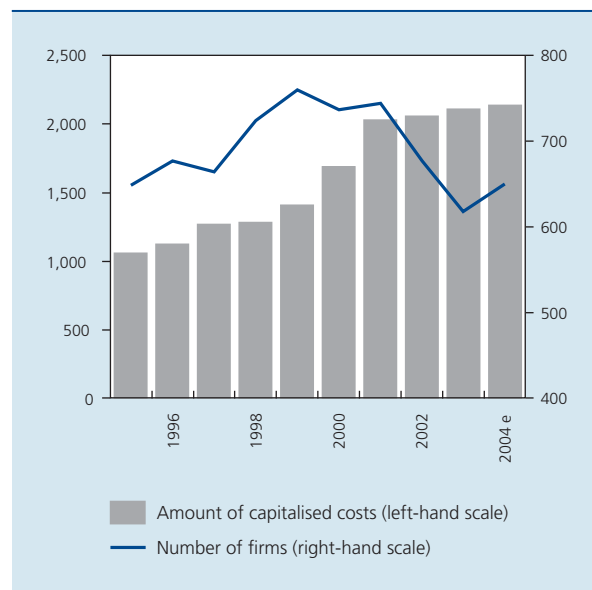
Firms invest in intangible fixed assets as well as tangible assets. In this regard, the annex to the accounts permits appraisal of the firms' involvement in research and development.⁽¹⁾ Such an appraisal is quite important: it is commonly acknowledged that research and development activities boost the growth potential of firms, and hence of the economy as a whole.

In 2004, around 650 non-financial corporations spent money on research and development, representing a total of just over € 2.1 billion; the pharmaceutical industry, and to a lesser extent the technological industries, accounted for most of that figure (chart 11). Research expenditure was also concentrated on a small number of firms: the ten companies investing most heavily in R&D represent three-quarters of that figure. Having almost doubled

(1) The information is available only for firms filing full-format accounts. Research and development costs should be understood as the cost of research, manufacture and development of prototypes, products, inventions and know-how useful in the firm's future activities (Royal Decree of 30 January 2001 implementing the Companies Code, Article 15).
 (2) A summary of the model methodology was published in Coppens F., A. Hermesse and D. Vivet (2004), "The ICT sector in Belgium", Economic Review I-2004, National Bank of Belgium, Brussels.

CHART 11 CAPITALISED RESEARCH AND DEVELOPMENT COSTS⁽¹⁾

(€ millions, unless otherwise stated)



Source: NBB.
 (1) Acquisitions for the year, including capitalised production costs.

between the mid 1990s and 2001, under the impetus of the branches mentioned above, research and development expenditure then lost its momentum, with a growth rate well below the increase in value added. This trend continued in 2004, though the year was notable for a rise in the number of firms involved in innovation, after two years of decline.

3.5 Financial risks

3.5.1 Development of a business failure prediction model

In order to assess the financial risks incurred by firms, the National Bank has developed an internal business failure prediction model, which was presented in the Economic Review for the 3rd quarter of 2004.⁽²⁾ For the record, the explanatory variables and the associated ratios are set out in table 6. The main attraction of the model is that it summarises all aspects of a firm's financial position in a single figure: the risk score L. On that basis, four risk classes were defined, corresponding to intervals in the score L. They group the firms into risk classes with similar percentages of failing firms:

- class 1 : $L < -0.84$: healthy firms with practically zero risk of failure within three years;

TABLE 6 BUSINESS FAILURE PREDICTION MODEL

	Coefficients	Variables	Standardised coefficients
L =	-1.3		
	+27.1	Overdue debts to the tax authority and the NSSO / total assets	(+1.24)
	-2.9	Cash-flow / borrowings	(-0.66)
	-3.4	Gross profit before tax and debt servicing / total assets	(-0.60)
	+2.3	Debts to credit institutions / debts at up to one year	(+0.47)
	+17.1	Debt servicing / total assets	(+0.34)
	+0.5	Time taken to file annual accounts (number of days)	(+0.20)
	-0.2	Current liquid assets / short-term borrowed capital	(-0.19)
	-0.4	Equity capital / total assets	(-0.17)

Source: NBB.

- class 2: $-0.84 \leq L < 0.21$: neutral firms, where the probability of failure within three years is comparable to the average;
- class 3: $0.21 \leq L < 1.10$: firms in difficulty, where the probability of failure within three years is 3 to 4 times higher than average;
- class 4: $1.10 \leq L$: firms in great difficulty, where the probability of failure within three years is more than 10 times higher than average.

This classification of the firms has to be used with caution. For one thing, only a tiny proportion (between 1.5 and 2 p.c. depending on the year) of the firms examined will actually go bankrupt or apply for judicial composition. The classification should therefore be viewed as an indication of financial health rather than a true prediction of failure: firms in classes 3 and 4 are not necessarily destined for bankruptcy, but they are prone to serious financial problems. Bankruptcy aside, those problems are liable to lead to delay in repaying debts or paying suppliers, redundancies, restructuring or cessation of activity. Another important point is that a number of Belgian firms in difficulty are members of multinational groups which are prepared to provide financial support, at least temporarily. Moreover, the classification is an incomplete assessment of the firms' economic situation, as it is based only on analysis of the annual accounts. Other important aspects, such as management quality, the competitive environment, the economic situation and development prospects, are therefore disregarded.⁽¹⁾ Thus, the classification must be viewed as a strictly financial assessment of the firms at a particular moment.

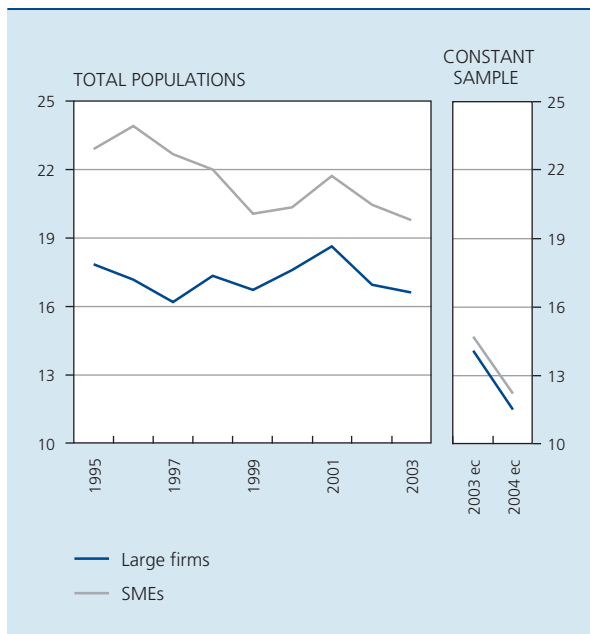
3.5.2 Trend in financial risks

As pointed out in the first section of this article, the annual accounts filed late come from firms whose financial profile is less favourable overall. These filing delays are particularly significant in the case of firms in classes 3 and 4, which are therefore decidedly under-represented in the annual accounts currently available for the 2004 financial year. Tests conducted on previous years show that the trend in the risks observed in the constant sample is not systematically representative of the real trends, particularly in the case of SMEs. That is why there will be no comments here on the level of risk beyond 2003. In order to provide an initial impression of the latest tendencies, the trends apparent in the constant sample are also presented, but separately. These estimation difficulties should be viewed in perspective: as the model estimates the risks of failure in the next three years, the 2003 situation covers the period 2004-2006.

In 2003, the percentage of firms in classes 3 and 4 came to 16.6 p.c. for large firms and 19.8 p.c. for SMEs (chart 12). Almost one in five Belgian firms therefore faces serious financial problems. Those firms employ a total of 215,000 workers, including 78,000 in class 4. Following a marked rise in 2000 and 2001, due mainly to the adverse economic environment, the risks subsided during the ensuing two years, so that today's level is comparable to that of 1999. The downward trend also continued in 2004 for companies in the constant sample. In the long term, the two categories of firms followed slightly divergent trends: while the vulnerability of SMEs has shown a marked fall since 1995, that of large firms has remained fairly stable.

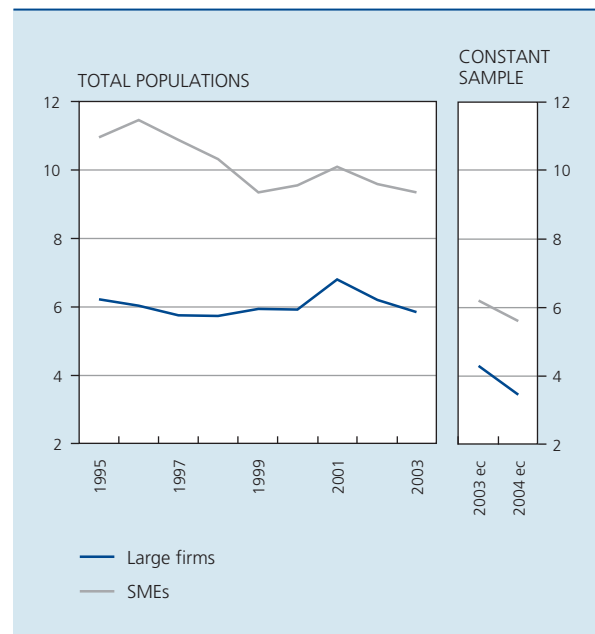
(1) It is hard to see how such qualitative variables could be taken into account in a statistical study covering several thousand firms.

CHART 12 PERCENTAGE OF FIRMS IN CLASSES 3 AND 4



Source : NBB.

CHART 13 PERCENTAGE OF FIRMS IN CLASS 4



Source : NBB.

In line with the bankruptcy statistics, the proportion of vulnerable firms is structurally higher for SMEs than for large firms. Moreover, as may be seen from chart 13, this difference is due almost exclusively to the proportion of firms in great difficulty (class 4). In 2003, while 5.9 p.c. of large firms were in great difficulty, the figure was 9.3 p.c. for SMEs.

Overall, the financial risk of the non-manufacturing branches is structurally higher than that of manufacturing industry, in terms of both the percentage of firms in classes 3 and 4 and the percentage of jobs concerned (table 7). However, the difference between the two groups has narrowed considerably since 2001, as the risks have declined to a greater extent in services than in industry. It is true that service companies had faced a particularly tough time in 2000 and 2001, e.g. because of the weakness of domestic demand and the widespread collapse of enthusiasm for the new technologies.

In the manufacturing branches, the past two years have brought an overall decline in the risks, with chemicals and the agriculture and food industries as the driving force. Contrary to this trend, the number of firms in difficulty increased in metallurgy, and especially in metal manufactures: this mainly concerned SMEs involved in processing, which were hit by difficult conditions on the commodity markets, namely rising prices and some supply problems. Finally, the textile sector is by far the most vulnerable

branch, with over 28 p.c. of firms in difficulty. The high level of risks in this sector is due mainly to the fierce international competition, especially from the low cost countries.

In the majority of the non-manufacturing branches, the vulnerability of firms has declined in the past two years. That trend has been most noticeable in trade, telecommunications and business services. The last two branches have benefited in particular from the stronger financial position of firms active in the new technologies. The hotel and restaurant trade is by far the most exposed branch, with almost 30 p.c. of firms and 21 p.c. of jobs in classes 3 and 4. Moreover, this is the Belgian branch where bankruptcies are most frequent. Conversely, energy and water, and post and telecommunications are fairly secure, especially where jobs are concerned.

TABLE 7 FINANCIAL RISKS BY BRANCH OF ACTIVITY

	Percentage of firms in classes 3 and 4			Percentage of jobs concerned		
	2001	2002	2003	2001	2002	2003
Manufacturing industry	19.5	19.0	18.8	13.7	13.0	13.1
of which:						
Agricultural and food industries	20.7	18.5	17.8	20.9	12.2	13.7
Textiles, clothing and footwear	27.3	27.1	28.1	23.3	18.7	21.0
Timber	24.7	22.1	21.4	25.5	22.0	21.1
Paper, publishing and printing	18.6	16.0	16.4	14.5	10.0	9.7
Chemicals	18.5	15.6	15.4	8.9	7.6	7.4
Metallurgy and metalworking	14.2	16.4	15.6	10.8	14.2	16.0
Metal manufactures	18.6	19.4	21.2	10.1	13.4	11.1
Non-manufacturing industry	21.6	20.1	19.3	17.4	14.8	14.4
of which:						
Retail trade	24.7	22.9	22.4	23.4	15.1	12.5
Wholesale trade	25.9	23.0	21.7	21.1	17.8	17.5
Horeca	29.2	28.3	29.7	19.1	19.3	20.7
Transport	12.8	11.4	11.6	9.1	6.7	15.9
Post and telecommunications	30.0	27.4	17.7	4.2	2.3	1.4
Real estate activities	23.1	24.2	21.0	22.0	23.6	24.2
Business services	21.0	20.1	18.6	23.2	22.7	18.5
Energy and water	11.6	2.2	12.2	2.4	0.2	1.2
Construction	17.9	17.0	16.4	13.8	13.1	12.7

Source: NBB.

Conclusion

After three successive years of weak expansion in activity in Belgium, GDP growth gained momentum in 2004, rising to 2.6 p.c. In that context, the total value added generated by non-financial corporations increased by 6.3 p.c. in nominal terms, the biggest improvement since 2000. At the same time, while the rate of increase in operating expenses did accelerate, at 2.7 p.c., it was far outpaced by the rise in value added. On the one hand, the increase in staff costs was moderate, reflecting the modest employment growth. Also, despite the marked investment revival in 2004, depreciation declined once again, as it continued to feel the effects of the subdued investment in preceding years. As in 2003, the growth of value added therefore far outstripped the increase in operating expenses. These contrasting trends culminated in a further particularly strong rise in the net operating result, which came to over 24 p.c. Two successive years of such increases were unprecedented in the past two decades, bearing witness to the remarkable performance achieved by firms in their core activities.

While the financial result was once again decidedly positive, the exceptional result was down sharply: having produced a surplus of € 6 billion in 2003, it was close to balance in 2004. After aggregation of all the components of the profit and loss account, non-financial corporations showed a net profit after tax of over € 26 billion, almost equalling the 2003 figure. Thus, although profits therefore stagnated in 2004, it must be remembered that they had more than doubled to a record level in 2003. Another important point is that this stagnation was due to the major correction in the exceptional result, which practically cancelled out the rise in the operating result. Excluding the exceptional result, corporate profits would have increased by 31.3 p.c. in 2004, against 34.8 in 2003.

As for the firms' financial situation, after deteriorating in 2001 and 2002, in 2004 it maintained the recovery triggered by the cyclical upturn of the previous year. Overall, the globalised and median financial ratios showed an improvement. However, where the results are concerned a distinction must be made according to the firm's size.

While the globalised profitability of SMEs continued the recovery which had begun in 2003, that of large firms slipped slightly, mainly because of the substantial correction in the exceptional result. The financial risks subsided once again, reverting to levels comparable to those seen in 1999, before the period of the economic downturn. However, the proportion of vulnerable firms remained considerable, at 16.6 p.c. for large firms and 19.8 p.c. for SMEs. Altogether, these firms in difficulty employ 215,000 workers.

Annex 1

SECTORAL CLASSIFICATION

	NACE-Bel code
Manufacturing industry	15-37
of which:	
Agricultural and food industries	15-16
Textiles, clothing and footwear	17-19
Timber	20
Paper, publishing and printing	21-22
Chemicals	24-25
Metallurgy and metalworking	27-28
Metal manufactures	29-35
Non-manufacturing industry	01-14 and 40-95
of which:	
Retail trade	50-52
Wholesale trade	51
Horeca	55
Transport	60-63
Post and telecommunications	64
Real estate activities	70
Business services	72-74 ⁽¹⁾
Energy and water	40-41
Construction	45

(1) Except 74151 (management of holding companies).

Annex 2

DEFINITION OF THE FINANCIAL RATIOS

	Item numbers allocated	
	full format ⁽¹⁾	abbreviated format
1. Liquidity in the broad sense		
Numerator (N)	3 + 40/41 + 50/53 + 54/58 + 490/1	3 + 40/41 + 50/53 + 54/58 + 490/1
Denominator (D)	42/48 + 492/3	42/48 + 492/3
Ratio = N/D		
2. Degree of financial independence		
Numerator (N)	10/15	10/15
Denominator (D)	10/49	10/49
Ratio = N/D*100		
3. Degree to which borrowings are covered by cash-flow		
Numerator (N)	70/67 + 67/70 + 630 + 631/4 + 6501 + 635/7 + 651 + 6560 + 6561 + 660 + 661 + 662 - 760 - 761 - 762 + 663 - 9125 - 780 - 680	70/67 + 67/70 + 8079 + 8279 + 631/4 + 635/7 + 656 + 8475 + 8089 + 8289 + 8485 - 9125 - 780 - 680
Denominator (D)	16 + 17/49	16 + 17/49
Ratio = N/D*100		
Condition for calculating the ratio:		
12-month financial year		
4. Average interest charges on financial debts		
Numerator (N)	650	- 65 - 9125 - 9126
Denominator (D)	170/4 + 42 + 43	170/4 + 42 + 43
Ratio = N/D*100		
Condition for calculating the ratio:		
12-month financial year		
5. Return on equity		
Numerator (N)	70/67 + 67/70	70/67 + 67/70
Denominator (D)	10/15	10/15
Ratio = N/D*100		
Conditions for calculating the ratio:		
12-month financial year		
10/15 > 0 ⁽²⁾		
6. Investment rate		
Numerator (N)	8169 + 8229 - 8299	8169 + 8229 - 8299
Denominator (D)	70/74 - 740 - 60 - 61	70/61 + 61/70
Ratio = N/D*100		
Conditions for calculating the ratio:		
70/74 - 740 - 60 - 61 > 0 (full format) ⁽²⁾		
70/61 + 61/70 > 0 (abbreviated format) ⁽²⁾		

(1) In which the profit and loss account is presented in list form.

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

The social balance sheet 2004

Ph. Delhez
P. Heuse

Introduction

Introduced in the 1996 financial year, the social balance sheet contains a consistent set of data on various aspects of employment in firms. On the basis of this information, this article in turn analyses the following areas: trends in employment, staff movements, the type of employment contracts, the duration and cost of labour, and training. The data in Table III of the social balance sheet concerning the use of measures promoting employment was not analysed. Apart from the fact that the list is not entirely up-to-date, a comparison of the data with the administrative statistics collected by agencies such as the NEMO and the NSSO suggests that it is not representative of the actual use of those measures.

The analysis presents the provisional results of the 2004 social balance sheet, obtained following early closure of the period for receipt of annual accounts. Where appropriate, these provisional results are compared with the final results obtained for the years 1998 to 2003. The data relating to this period concerns the total population of enterprises, which, as at 31 December, had completed a financial year of a standard twelve-month duration and whose social balance sheets met the criteria concerning homogeneity, quality and consistency defined in the methodology for constituting populations of firms, contained in Annex 1. This means that the results appearing in this article differ from the overall data published by the Central Balance Sheet Office. The latter in fact uses all annual accounts ending within a calendar year, whatever the closing date and length of year.

In 2005, the preparatory work of establishing the constant reduced population for 2003 and 2004 (according to the methods described in section 1.6 of Annex 1),

which serves as a basis for the analysis of the 2004 social balance sheet, began with the provisional closure of accounts on 30 August, although last year this latter took place on 9 September. The reduced population of companies selected for analysis in the 2004 social balance sheet is therefore slightly smaller than that used in the previous year: 38,530 companies for the 2004 reduced population as opposed to 40,630 for the previous year. This population (whose characteristics are described in section 2 of Annex 1) is consequently slightly less representative: the workers employed in the companies included in this population represent 50.9 p.c. of the private employment recorded in the national accounts, as opposed to 53.3 p.c. the previous year.

Most of the tables and charts that appear in this article give the results obtained from this reduced population of companies. The use of a constant population permits analysis of a range of variables between the years 2003 and 2004, whereas comparison with the complete data relating to the year 2003, covering a much larger population, would introduce a bias that would distort the conclusions. However, the use of a constant population also imposes limits on the interpretation of trends. In fact, by definition, the firms in this population must have filed social balance sheets of adequate quality covering a twelve-month financial year ending on 31 December for two successive years. This automatically excludes new companies and bankrupt companies from the scope of the analysis, possibly causing some discrepancies between the changes observed in the reduced population and those recorded in the total population. However, the adoption of this approach is justified in view of the excessive length of time required to obtain information for all the firms and the safeguards offered by the representativeness of the reduced population.

Where long time series appear in tables and charts, they always relate (unless otherwise stated) to results obtained for the total population, calculated for the years 1998 to 2003. Trends noted between 2003 and 2004 are then used to extend these historic time series: these are indicated by the note "2004e". As in other years, the tables in Annexes 3 to 9 provide detailed data by branch of activity. In the majority of cases, these tables supply retrospective data for the years 1998 to 2003, as well as the developments recorded between 2003 and 2004.

Last year, the emphasis was placed on a regional analysis of the social balance sheets. This was carried out on the basis of statistics from establishments dating from June 2002, updated by the NSSO. In 2003, the introduction of the multifunctional declaration led to a delay in producing the NSSO statistics, such that data by establishment for 2003 was still not available as of the end of September 2005. It was thus considered preferable not to conduct a regional analysis of the social balance sheets on the basis of out-of-date information, and to delay publication of such statistics until a later date. This article does not therefore include, either in the descriptive section or in the annexes, a section relating to regional results. The analysis focuses on trends recorded in companies broken down by size and by branch of activity. The breakdown by size distinguishes between small companies with fewer than 50 FTEs, medium-sized companies employing between 50 and 250 FTEs, and large companies employing more than 250 FTEs. The breakdown by branch of activity is carried out on the basis of the NACE-BEL nomenclature of activities given in Annex 2. When interpreting results by branch of activity, care is required when considering the agriculture, Horeca, and community, social and personal services branches: this is because the staff employed in

the reduced population of companies in fact accounted for less than 25 p.c. of the salaried employment recorded in the national accounts.

1. Developments in employment

1.1 General characteristics of developments in employment

As already stated, the reduced population comprised 38,530 firms which, in 2004, employed an average of 1,331,229 people, being 4,124 more workers than in the year 2003. This 0.3 p.c. increase was due purely to an increase of 16,480 units in the number of part-time workers, representing a rise of 5.9 p.c. compared to 2003. At the same time, the number of full-time employees declined by 12,356 units, or 1.2 p.c.

Although the total average number of workers employed was up between 2003 and 2004, the volume of labour measured in FTEs fell slightly, by 0.1 p.c., due to the sharp increase in part-time work.

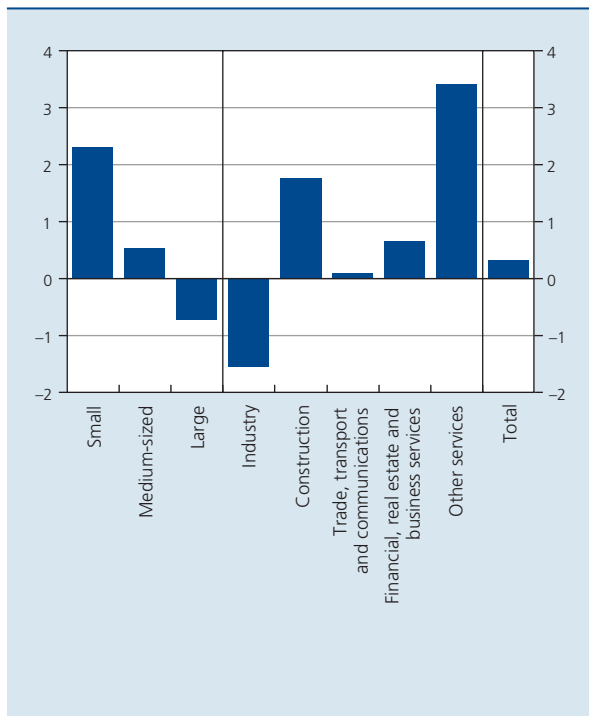
The increase in the workforce between 31 December 2003 and 31 December 2004, whether expressed in staff numbers or in FTEs, was more favourable. In terms of staff numbers, it amounted to 0.5 p.c. compared to 0.3 p.c. in yearly average, and in FTEs to 0.3 and -0.1 p.c. respectively, resulting in a relative improvement in the employment situation of companies within the reduced population over the year. Information from the national accounts confirms such a recovery during 2004: growth in the number of employees in the private sector recorded between the final quarter of 2003 and the final

TABLE 1 DEVELOPMENTS IN EMPLOYMENT BETWEEN 2003 AND 2004
(Reduced population)

	Persons employed			FTEs
	Full-time	Part-time	Total	
Annual average				
Units	-12,356	16,480	4,124	-759
Percentages	-1.2	5.9	0.3	-0.1
As at 31 December				
Units	-8,848	14,838	5,990	3,399
Percentages	-0.9	5.2	0.5	0.3

Source: NBB (social balance sheets).

CHART 1 DEVELOPMENTS IN EMPLOYMENT BETWEEN 2003 AND 2004: BREAKDOWN OF ENTERPRISES BY SIZE AND BRANCH OF ACTIVITY
(Percentage change, reduced population)



Source: NBB (social balance sheets).

quarter of 2004 in fact amounted to 1.2 p.c. compared to an average of 0.7 p.c. throughout the year.

Small firms were largely responsible for the growth in employment. Here, the number of workers rose by 2.3 p.c., or 7,789 units. Almost 60 p.c. of this increase related to full-time workers. In medium-sized and large firms, however, the number of full-time workers fell. In the former, this fall was offset by an increase in the number of part-time workers to the extent that an overall rise of 1,520 workers (or 0.5 p.c.) was recorded. In large companies, the expansion in part-time work (by 10,064 units) failed to offset the decline in full-time workers (-15,249 units) and numbers fell overall by 0.7 p.c., or 5,184 units.

Over the period 1998-2003, as the pattern of staff recruitments and departures shows, small firms were invariably responsible for net job creations. These ranged from 23,000 to 28,000 units per annum over the years 1998 to 2000. Net staff recruitments then fell, although remaining broadly positive. In – medium-sized firms, net job creations peaked at almost 23,000 units during the year 2000. In 2001, following a slowdown in growth of activ-

ity, they represented only half this number. In 2002 and 2003, employment stagnated, with the year 2004 marking a return to growth. Between 1998 and 2001, net job creations in large companies remained appreciably lower than those observed in companies with fewer than 50 FTEs. The year 2000 was an exception, some 30,000 jobs having been created in firms with more than 250 FTEs, as a result of the favourable economic conditions prevailing at the time. Since 2002, net job losses have been recorded in these firms.

These job losses are due largely to movements recorded within industry. From 2001 to 2003, large-scale net departures were recorded in this branch of activity (relating to more than 14,000 workers in 2003). Further staff cuts were made between 2003 and 2004 in the reduced population: staff numbers in this branch fell by an annual average of 1.6 p.c., affecting more than 6,000 workers.

Recent trends in employment are more favourable in the financial, real estate and business services branch, where net job losses were also recorded in 2002 and 2003. Employment expanded on average by 0.7 p.c. between 2003 and 2004 within firms in the reduced population. This growth was due exclusively to increased employment within real estate and business services, which added almost 3,400 jobs, whilst financial sector firms recorded almost 2,000 jobs losses.

In other services, which includes the health and social work branches, as well as the smaller community, social and personal services branch, the expansion of employment observed since 1998 continued between 2003 and 2004. On average almost 7,000 additional jobs were created within firms in the reduced population over this period, of which almost 90 p.c. were in the health and social work sector.

In the construction and trade, transport and communications branches, net staff recruitments, whilst fewer in number, were also observed over the period 1998 to 2003, with the year 2002 being an exception for both branches. Whilst employment again increased by 1.8 p.c. (or 1,531 additional workers) in construction firms within the reduced population between 2003 and 2004, it virtually stagnated in trade, transport and communications (+0.1 p.c. or 381 workers), undoubtedly due to the implementation of restructuring plans in a number of former public enterprises, with the consequence of staff cuts.

1.2 Developments in part-time employment

For some years now, growth in employment has been sustained by increases in part-time work. From a static point of view, the sharing of working time in fact enables the volume of labour necessary for production to be divided amongst a larger number of people. From a dynamic point of view, part-time work enables the development of new activities. In some firms, and this applies particularly to the largest amongst them, the changeover to part-time work by part of the workforce also enables the effects of restructuring to be mitigated or the end of a professional career to be facilitated. Part-time work also responds to the aspirations of some workers who wish to better reconcile the performance of a professional activity with the demands of family life. It is estimated that the number of additional jobs resulting from the use of part-time work represented 11 p.c. of staff numbers in the total population in 2003. According to results from the reduced population, this proportion increased significantly between 2003 and 2004.

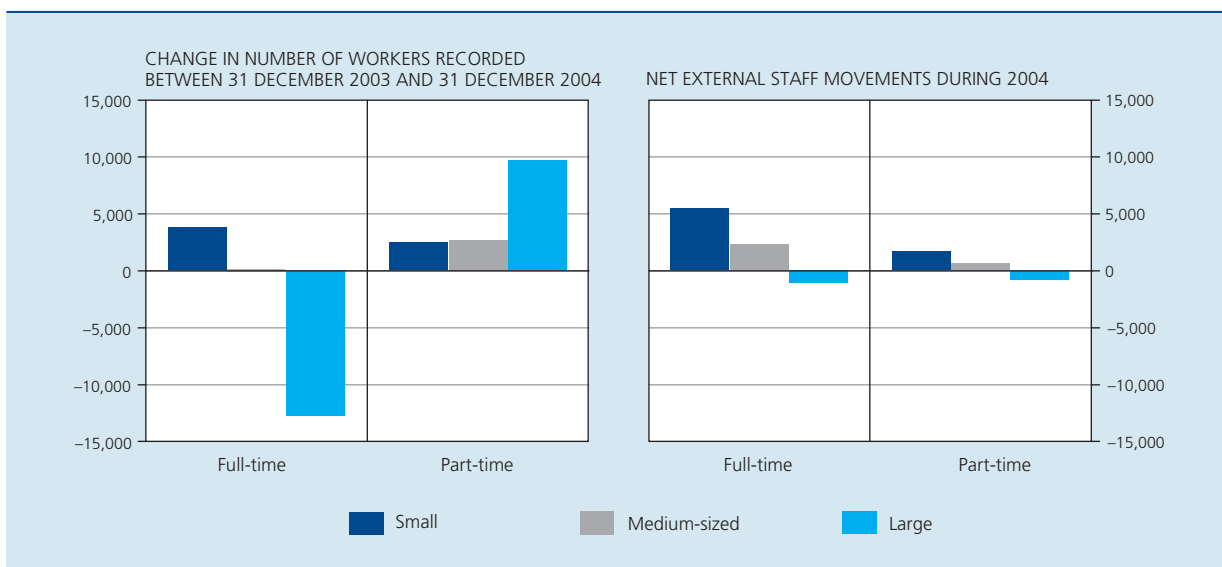
When increases in part-time work are the result of hiring part-time staff, this takes place through external channels. These movements are hence recorded in the staff recruitment and departures tables for the year. When the increase in part-time work is the result of a change in working arrangements, it takes place through internal channels. These movements are measured according to the

differences observed between developments recorded in the staff register as at 31 December of the year under review and as at 31 December of the previous year and external staff movements.

In small firms, the expansion of part-time work takes place primarily through external channels. In fact, it is conceivable that, in small work units, the rate of growth in activity may be too great for the additional work load to be managed by the existing staff but insufficient to justify the hiring of an extra full-time worker. This would explain the observed net hiring of part-time workers (approximately 1,700 persons) by these firms, in addition to the net creation of full-time jobs (some 5,400 additional workers).

In large firms, however, external staff movements show net departures in both part-time and full-time workers, totalling around 1,000 units in both cases. The staff register paints a very different picture, however: between 31 December 2003 and 31 December 2004, the number of part-time workers increased by almost 10,000 units. This increase is therefore due solely to a change in the working arrangements of full-time workers, whose numbers in fact fell by a little less than 13,000 units over the year.

CHART 2 STAFF MOVEMENTS DURING 2004: BREAKDOWN OF WORKERS BY TYPE OF WORKING ARRANGEMENT AND COMPANY SIZE
(Persons, reduced population)



Source : NBB (social balance sheets).

TABLE 2 PART-TIME EMPLOYMENT BETWEEN 1998 AND 2004
(Percentages)

	Part-time employment rates (as at 31 December)			Additional jobs created by use of part-time workers ⁽¹⁾
	Men	Women	Total	
Total population				
1998	6.3	42.9	19.9	9.5
1999	6.8	43.6	20.7	9.9
2000	7.1	43.9	20.7	9.9
2001	7.4	45.4	21.8	10.4
2002	8.3	46.9	23.3	10.7
2003	9.2	48.4	24.5	11.0
Reduced population				
2003	7.7	45.5	21.4	8.8
2004	8.4	46.7	22.4	9.2
<i>p.m. Percentage change</i>	8.8	2.6	4.8	4.6

Source: NBB (social balance sheets).

(1) Difference, in per cent, between the actual number of jobs (sum of full-time and part-time jobs) and the number of jobs that would have been necessary to achieve the same volume of labour using full-time workers only.

Given their magnitude, these changes in working arrangements have a considerable influence on the development of part-time work. Between 2003 and 2004 alone, the part-time employment rate increased by 4.8 p.c. within the reduced population, from 21.4 to 22.4 p.c. of total staff number.

By applying this trend at the level observed in the total population in 2003, it emerges that more than one worker in every four was on a part-time work contract in 2004. This area does, however, remain predominantly the domain of women, half of whom work under such an arrangement. The increase observed in female part-time employment rate between 2003 and 2004 (2.6 p.c.) is nonetheless less significant than that of male part-time employment rate (8.8 p.c.). If the same method of calculation is used, one man out of every ten was working part-time in 2004, as opposed to only a little over 6 p.c. in 1998. This increase stems partly from the desire of some men to achieve a better balance between work and private life. It is also the result, in many cases, of a change in working arrangements as retirement approaches, either through the time-credit scheme or company-specific systems.

The rate of part-time work is highest among the smallest and largest firms. The reasons for this are undoubtedly very different. As previously explained, in small companies, the volume of activity is a determining factor in deciding whether to hire a full-time or a part-time worker.

In large firms, however, the distribution of the volume of work is potentially more flexible as it is managed by a larger number of workers. Whilst in small companies the rate of female part-time employment hardly changed during 2003 and 2004, in medium-sized and large firms it increased appreciably. On the other hand, male part-time employment rate grew mainly in large firms, some of them using shorter working hours at the end of employees' careers to avoid redundancies.

It is primarily in the industry, transport and communications and financial services branches that these practices are applied: the rate of male part-time employment rose by around 5 p.c. between 2003 and 2004, as was also the case in real estate and business services. In the other branches, the rate of male part-time employment increased only slightly or even declined.

The rate of female part-time employment increased particularly in the transport and communications and financial services branches, as well as in industry, a branch in which female workers are not common (scarcely one fifth of employees are women) and where female part-time employment is even less prevalent (fewer than 30 p.c. of female workers, which is the lowest rate of all branches).

2. Staff movements

2.1 Total staff recruitments and departures

Net changes in staff numbers recorded between 31 December 2003 and 31 December 2004 in firms within the reduced population are not sufficient to enable the extent of gross recruitments and departures of staff throughout the year to be evaluated, nor their nature to be assessed. This emerges from the following table of staff recruitments and departures.

In 2004, over 390,000 persons were hired by firms within the constant reduced population, slightly more than the 376,000 hired in the previous year. Moreover, some 382,000 workers left the staff register of these companies, 2 p.c. more than in 2003. Given that the rate of increase in departures remained less than that of recruitments, net staff recruitments (the difference between total recruitments and total departures) was up. It totalled 8,156 units in 2004, against only 1,864 in the previous year.

2.2 Breakdown of net recruitments by standard of education

For companies filing full-format accounts, the staff recruitments and departures table also provides a detailed breakdown by type of employment contract, by gender and by standard of education of these movements as well as, for departures only, a breakdown by reason for leaving. The resulting information cannot be generalised to cover all firms as it does not relate to those filing short-format accounts. However, the relatively lesser importance of these latter companies in terms of staff (they represent 77.5 p.c. of all firms but only 17.8 p.c. of total staff numbers) enables it to be used as an indicator.

In companies filing full-format accounts, staff recruitment numbers amounting to 259,935 units were recorded in 2004 whereas, over the same period, 256,000 workers left the staff register of these companies. Overall, 3,935 net staff recruitments were therefore recorded. This corresponds to a combination of net recruitments of workers who had completed a university degree (+2,217 units) or higher non-university education (+5,011 units) and net departures of workers holding only certificates for completion of basic (–2,769 units) or secondary education (–524 units).

TABLE 3 STAFF RECRUITMENTS AND DEPARTURES
(Units, reduced population)

	2003	2004
Recruitments		
Total	376,494	390,203
of which: full-format accounts	253,386	259,935
Departures		
Total	374,630	382,047
of which: full-format accounts	258,115	256,000
Net recruitment		
Total	1,864	8,156
of which: full-format accounts	–4,729	3,935

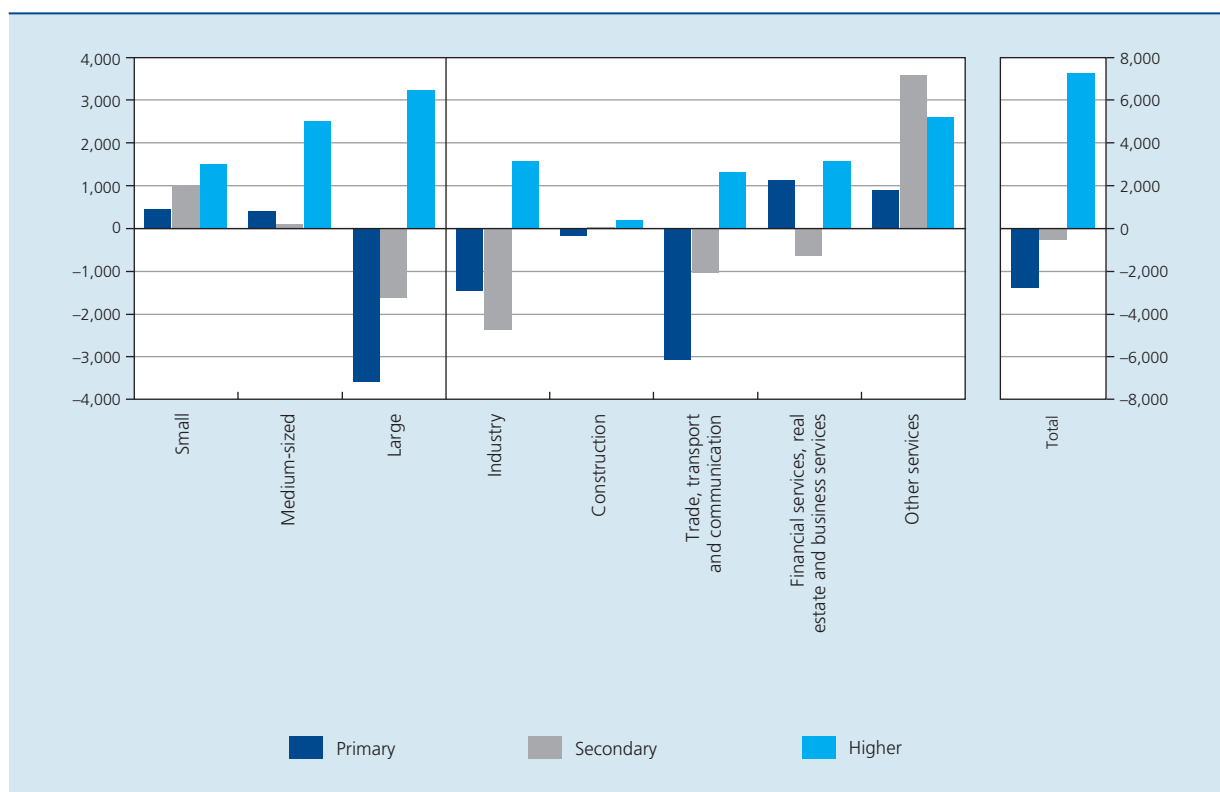
Source: NBB (social balance sheets).

Net recruitments of workers holding a higher education certificate were recorded in all firms. There were few in the construction firms, representing in all fewer than 200 workers. The proportion of highly qualified workers in this branch continues to be much lower compared to that generally observed in other branches of activity, the production techniques still requiring a large proportion of less skilled workers. The proportion of highly qualified workers is greatest in the service sector. These activities have developed more recently, relying on a more highly qualified workforce that is better able to adapt to the technological changes required by a modern economy. In contrast, firms in industry are still often characterised by heavy production processes and a plentiful and less skilled workforce. The competitive pressures to which these firms are exposed consequently often result in staff restructuring, affecting first and foremost those with low or average qualifications.

Workers holding no more than a certificate of primary education, in fact, continue to be discarded by industrial firms and by companies active in the trade, transport and communications branch. This was already the case in previous years, with the exception of 2000, a year in which the labour market was buoyant, including for the less skilled. This situation is largely the result of many low-skilled workers taking retirement, and their departures not being offset by the hiring of staff with an equivalent standard of education. This trend is resulting in an increase in the average standard of education of the workforce in the branches in question. In contrast, net recruitments of low-skilled workers have been observed in the financial services, real estate and business activities

CHART 3 NET EXTERNAL STAFF MOVEMENTS IN FIRMS FILING FULL-FORMAT ACCOUNTS IN 2004: BREAKDOWN OF WORKERS BY STANDARD OF EDUCATION

(Persons, reduced population)



Source: NBB (social balance sheets).

branch and in that of other services. Firms active in the real estate and business services branch, health and social work plus, to a lesser extent, in that of community, social and personal services, in fact remain job creators for low-skilled workers. In contrast, the financial and insurance activities branch continues to reduce the numbers of its low-skilled staff.

Workers holding at best a certificate for completion of secondary education fare scarcely any better than the low-skilled. Job losses at this level of qualification were recorded in the main branches of activity, with the exception of construction, where their numbers increased only very slightly, and other services, again thanks to the buoyancy of the health and social work branch, where almost 3,000 jobs were created for those with average qualifications. The emergence of new needs in terms of assistance for dependent persons, be it children, the elderly or disabled, has in fact enabled a range of jobs to be developed that are based more on social and relational skills than on good professional qualifications.

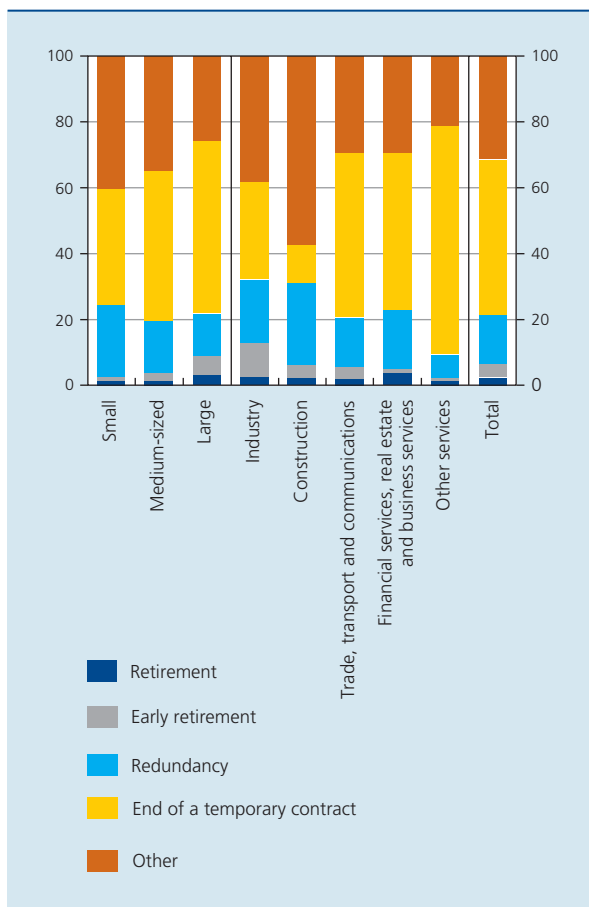
2.3 Breakdown for gross departures by reason

In firms within the reduced population that filed full-format accounts, gross staff departures fell slightly between 2003 and 2004, from 258,115 to 256,000 units. A decline was observed as regards most reasons for leaving. The fall was particularly marked for retirement (whether early or not), which affected a little over 16,000 persons, or 6,4 p.c. of the total number of departures, as opposed to 17,700 in 2003, or 6,9 p.c. of the total. Some 38,000 workers were made redundant in 2004, 2 p.c. less than a year earlier, and around 120,000 temporary contracts came to an end in 2004, as opposed to approximately 124,000 in 2003. In contrast, departures for other reasons, essentially voluntary change in occupation, rose between 2003 and 2004: almost 80,000 workers left their jobs in 2004, representing more than 30 p.c. of total departures, compared to 78,000 in 2003. This trend demonstrates the increased mobility of workers within a more favourable labour market.

CHART 4

STAFF DEPARTURES IN FIRMS FILING FULL-FORMAT ACCOUNTS IN 2004: BREAKDOWN BY REASON

(Percentage of total, reduced population)



Source : NBB (social balance sheets).

An analysis of the reasons for departure in 2004 shows that the main reasons for leaving the staff register are very different depending on the size and the activity of the firm.

In small firms, voluntary change in occupation is proportionally more significant. In 2004, they represented 40 p.c. of the total volume of departures, compared to only 26 p.c. in large firms. The same goes for redundancies, which constituted 22 p.c. of departures in small firms and 13 p.c. in large ones. Redundancies are clearly more difficult to avoid in small companies than in large ones when faced with a decline in the volume of work. In fact, it can be seen that the greater the company size, the lower the level of redundancies, and the same goes for voluntary change in occupation. The job security offered by large firms is undoubtedly a weighty argument when deciding whether or not to change jobs. On the other hand, the proportion of workers taking retirement or early

retirement is greater in large companies, such leaving options frequently being used in the context of restructuring, a process that is proportionally more significant in large companies. The latter were, moreover, responsible for almost 78 p.c. of departures through early retirement recorded in 2004 by companies filing full-format accounts and 71 p.c. of departures through retirement.

This phenomenon also emerges from a breakdown by branch. Early retirement is most widespread in industry, where large firms are more numerous, and in branches dominated by former public enterprises. Firms in the industry branch, and the trade, transport and communications branch in fact account for 55 and 29 p.c. respectively of all early retirements observed in 2004 within companies filing full-format accounts.

The construction branch also frequently uses such retirement options. This can no doubt be explained by the more strenuous nature of the work, which has a greater effect on older workers. This branch is also characterised by a relatively high level of redundancies and by a significant proportion of voluntary change in occupation, which represent more than half of all staff departures.

In the service sector, the expiry of temporary contracts is the main reason for workers leaving the staff register. This represents almost half of all departures in the trade, transport and communications branch and in the financial, real estate and business services branch, and nearly 70 p.c. in other services.

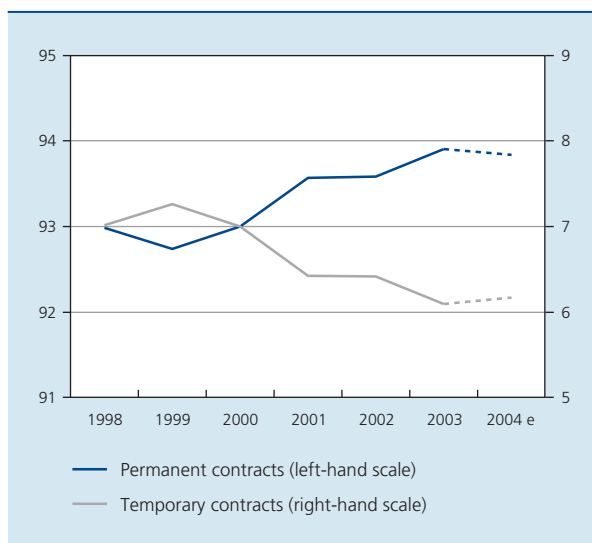
3. Type of employment contracts

Temporary employment contracts, as well as the use of temporary agency workers, represent an important instrument with which to adjust the volume of labour to the imperatives of production. In a period of economic slow-down, less use is made of these two types of contract, whilst an increase in temporary agency work is often one of the first signs of a recovery or an upturn in activity.

3.1 Permanent contracts and temporary contracts

The number of workers recorded in the staff register with a temporary work contract (i.e. a fixed-term contract, a replacement contract or a contract concluded for a specific project) increased markedly between 1998 and 2000, as a result of the cyclical upturn. Subsequently, however, it declined. Whilst in 1999, the proportion of the workers with a temporary contract represented 7.3 p.c. of all workers, it was down to just 6.1 p.c. in 2003. Although

CHART 5 DEVELOPMENT IN THE PROPORTION OF TEMPORARY ⁽¹⁾ AND PERMANENT CONTRACTS
(Percentage of total, total population ⁽²⁾)



Source : NBB (social balance sheets)

(1) Temporary contracts : fixed-term contracts, replacement contracts or contracts concluded for a specific project.

(2) The results for 2004 were calculated by applying the change recorded between 2003 and 2004 for the reduced population to the value observed for the total population in 2003.

a slight increase was observed between 2003 and 2004 in the reduced population, it would be premature to talk of a trend reversal. This should rather be seen in terms of a stabilisation, even if the sharp increase in temporary agency work observed over the same period might indicate that the number of temporary contracts could rise again in the next few quarters.

While a slight recovery in the share of temporary contracts between 2003 and 2004 was observed in all categories of company size, the fall in this share in previous years affected primarily the large firms. In this category of company, the share of temporary contracts continued to fall between 1998 and 2003, from 9.2 to 6.5 p.c., a drop of 2.6 percentage points, while the decline amounted to only 0.3 percentage point in medium-sized companies, and small firms actually recorded an increase of 1.1 percentage point to 5.4 p.c. in 2003, but, admittedly, from a markedly lower level.

It was in the branch of the other services that the drop in the share of temporary contracts was greatest between 1998 and 2003 : starting from a high level, this share was down from 13.6 to 11.5 p.c. of the total over this period, a fall of 2.1 percentage points. The decline was particularly sharp in the health and social work branch, where this share declined from 14.1 p.c. to 11.7 p.c., a level still

higher than that observed in the other branches, with the exception of Horeca. The labour shortages in hospitals may well have prompted employers to offer more permanent contracts in order to attract new staff. In contrast, the significant fall in industry and in financial, real estate and business activities tends to reflect the restructuring of the workforce, which also takes the form of a non-renewal of fixed-term contracts.

Even if their relative importance declined very slightly between 2003 and 2004, permanent contracts continue to represent the vast bulk of work contracts. If the change observed in the reduced population between 2003 and 2004 is applied to the 2003 level, in 2004 93.8 p.c. of workers were in fact employed on this type of contract. This share is slightly higher in small companies, which use such contracts to ensure the loyalty of their workforce, while large companies employ a greater proportion of workers on fixed-term or replacement contracts.

The developments in the composition of the workforce by type of employment contract seem relatively limited when the situations as at 31 December 2003 and 31 December 2004 are examined. In total, 5,990 additional jobs were created between these two dates, of which 4,726 were permanent contracts and 1,264 temporary contracts. Gross movements are, however, far more significant and, amongst these, the proportion of temporary jobs was clearly higher. Thus recruitments totalled 390,203 units in 2004, of which 259,935 were accounted for by companies filing full-format accounts. In the latter companies, 52 p.c. of new workers, or 135,000 persons, were employed on a temporary contract, a similar percentage to that observed a year earlier.

3.2 Temporary work

Whilst the proportion of temporary contracts rose only slightly between 2003 and 2004, the use of temporary agency workers increased markedly. Together with the faster rate of growth in employment over the year, this increase resulted in an improved labour market situation in 2004.

The number of temporary agency workers being used by firms in the reduced population filing full-format accounts rose sharply between 2003 and 2004. Expressed in FTEs, it was up from 27,957 units to 32,330 units, an increase of 15.6 p.c. The proportion of temporary workers in the total workforce, expressed in FTEs, consequently rose, from 2.7 p.c. in 2003 to 3.1 p.c. in 2004, an increase that confirms the reversal in the downward trend previously observed between 2002 and 2003 in the total population.

TABLE 4 TEMPORARY AGENCY WORK IN COMPANIES
FILING FULL-FORMAT ACCOUNTS
(Reduced population)

	2003	2004
As a percentage of the total		
Number of FTEs	2.7	3.1
Hours worked	3.2	3.7
Staff costs	2.3	2.6
In units		
Number of FTEs	27,957	32,330
Hours worked (thousands)	52,745	60,814
Hours worked per FTE	1,887	1,881
Staff costs per hour worked (in euro)	22.3	23.2
As a percentage of temporary work recorded by Federgon		
Hours worked	40.8	41.3

Source: NBB (social balance sheets).

Information on temporary agency work included in the social balance sheets comes exclusively from companies filing full-format accounts. However, the volume of temporary agency work recorded in the social balance sheets, calculated in hours worked, represents more than 40 p.c. of the volume of labour recorded by Federgon⁽¹⁾ for 2004. Moreover, the rate of growth in this volume of labour is of the same order of magnitude according to both sources, i.e. around 15 p.c. The conclusions that can be drawn from the social balance sheets therefore appear to be representative.

Although only 45 p.c. of small firms filing full-format accounts indicate that they use the services of temporary agency workers (as opposed to 74 p.c. of medium-sized and 86 p.c. of large firms), such staff represented 4.9 p.c. of employment in these companies in 2004 (compared to 4.5 p.c. for medium-sized firms and only 2.1 p.c. for large firms). The observed increase in temporary agency work between 2003 and 2004 was, moreover, greater in small firms: the number of workers employed on this basis rose by almost 24 p.c. (amounting to 1,119 FTEs or a quarter of all additional temporary agency workers used) whilst in the other two categories of company, the increase remained less than 15 p.c.

The rise was significant in all branches of activity, with the exception of the construction branch (where the use of temporary agency workers was not authorised until 2002) and the branch of other services, with the rates of penetration of temporary work amounting to only about 1 p.c. It is in industry that temporary agency work is most widespread: 80 p.c. of firms use temporary workers and, in these companies, one worker in every twenty is a temporary agency worker.

The volume of hours worked by temporary agency workers increased in similar proportions to the number of FTEs, i.e. by 15.3 p.c. In 2004, these hours represented 3.7 p.c. of the total volume of labour for companies filing full-format accounts. Given that the number of FTEs rose slightly faster than the volume of hours worked, the average annual working hours per temporary agency worker fell slightly, from 1,887 hours in 2003 to 1,881 hours in 2004.

The costs related to using temporary agency workers increased slightly faster than the volume of labour, at a rate of 19.7 p.c. The average cost per hour of temporary agency work, which rose from 22.3 to 23.2 euro, was up by 3.8 p.c., which is appreciably more than the average increase of 2.0 p.c. observed for workers recorded in the staff register of companies filing full-format accounts.

3.3 Choice between flexible contracts

Despite a contraction in the proportion of temporary contracts observed since 2000, this instrument of flexibility is still more widespread than the use of temporary agency workers in enterprises filing full-format accounts: in 2004, 5.5 p.c. of workers recorded in the staff register of these enterprises were employed on the basis of temporary employment contracts, while temporary agency workers represented only 3.1 p.c. of their FTEs.

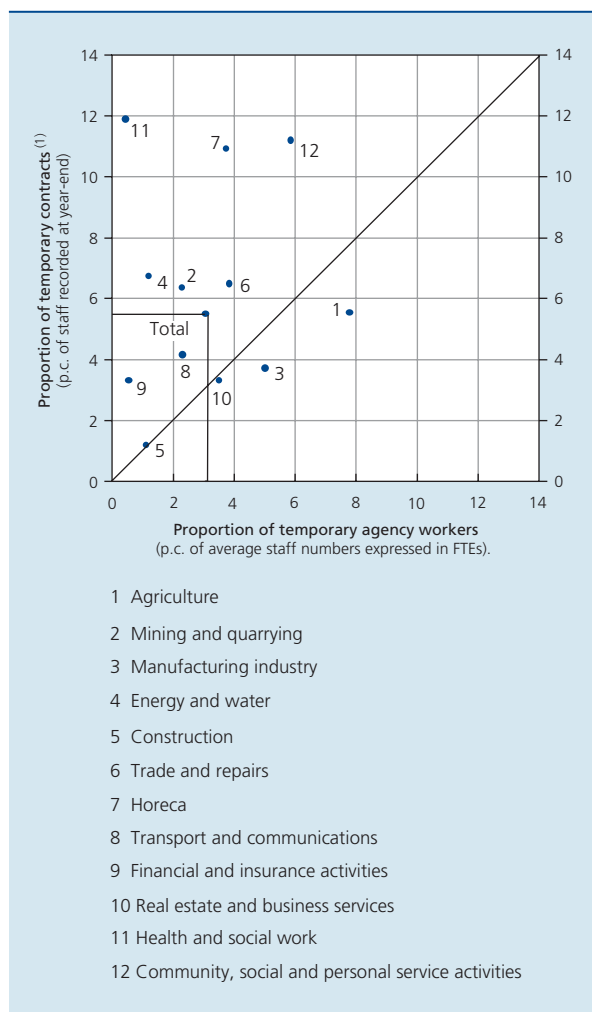
They are, of course, two quite different forms of contract. In the former, the worker is directly linked to the employer whilst, in the latter, the search and selection procedure is delegated to a third party, with the employer thus paying for both the temporary agency worker employed in his enterprise and the services provided by the agency.

The use of temporary agency workers is less than that of temporary contracts in most branches of activity. Agriculture and the manufacturing industry are exceptions to this rule.

(1) Federation of temporary employment agencies

CHART 6 USE OF FLEXIBLE CONTRACTS IN FIRMS FILING FULL-FORMAT ACCOUNTS IN 2004: BREAKDOWN OF ENTERPRISES BY BRANCH OF ACTIVITY

(Percentage, reduced population)



Source : NBB (social balance sheets).

(1) Temporary contracts : fixed-term contracts, replacement contracts or contracts concluded for a specific project.

In the field of construction, these two flexible instruments are resorted to in equal measure although their use remains very limited. The use of temporary agency workers has been permitted in the construction branch since 2002. This relaxation has, however, taken place against a background of a depressed economy, and the take-up of temporary agency work in this branch of activity has been slow. However for 2004, Federgon's annual report notes significant growth in temporary agency work in this branch, which is not recorded in the social balance sheets. It is nonetheless possible that this growth has been observed above all in enterprises filing short-format accounts and who consequently do not provide information on their use of temporary

agency workers. These firms account for a very large proportion of the total in this branch of activity: they represent 91 p.c. of all balance sheets filed for 2004, and 46 p.c. of employment in this branch.

The health and social work branch of activity represents another extreme: despite a sharp decline since 1998, the proportion of temporary employment contracts represents around 12 p.c. of the total, whilst temporary agency work affects only 0.4 p.c. of workers employed.

4. Working hours

Since 1st January 2003, the statutory working week has been 38 hours. In the years leading up to this date, numerous adjustments took place through the joint committees, with the aim of satisfying this obligation.

Between 1998 and 2003, the average working hours of a full-time worker thus fell by 3 p.c. The increase in working hours observed between 2003 and 2004 consequently constitutes a break with the previous trend. The annual hours worked by part-time workers has shown a higher degree of fluctuation. The increase observed in 2003 nonetheless continued into 2004.

The average annual hours worked by a full-time worker fell markedly from 1,593 hours to 1,544 hours between 1998 and 2002, to stabilise the following year. Between 2003 and 2004, however, average working hours increased by

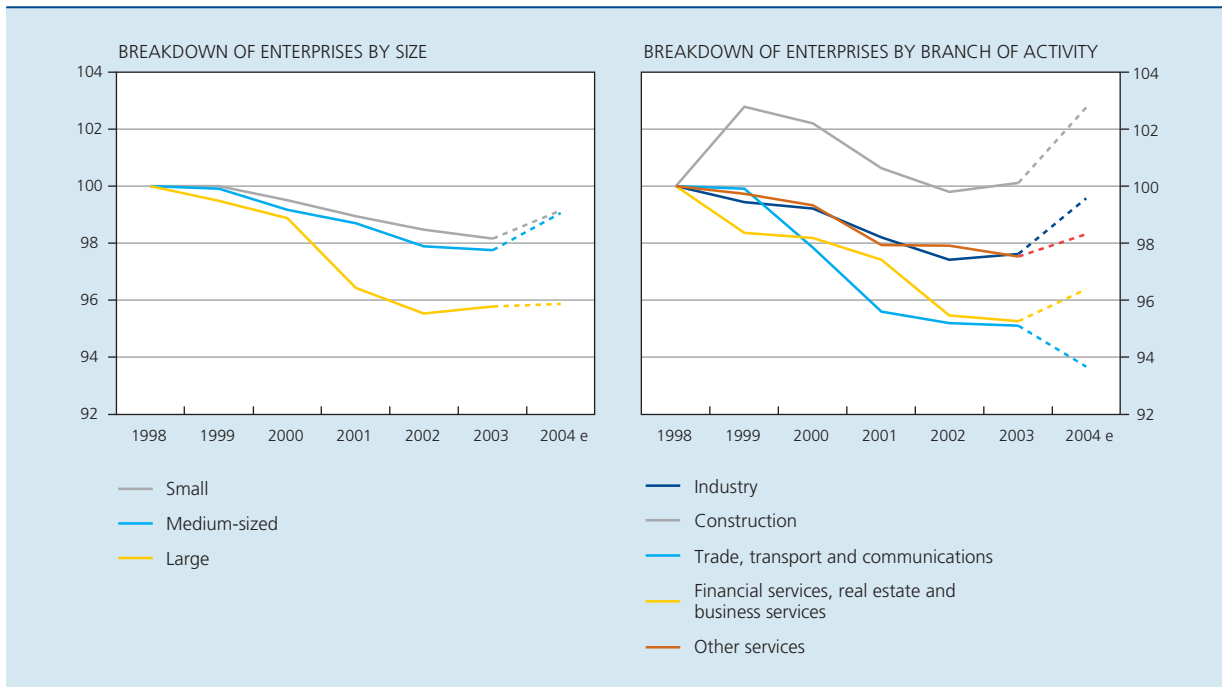
TABLE 5 AVERAGE HOURS WORKED BY FULL AND PART-TIME WORKERS
(Hours, per year)

	Full-time workers	Part-time workers
Total population		
1998	1,593	917
1999	1,589	922
2000	1,579	915
2001	1,556	911
2002	1,544	912
2003	1,544	918
Reduced population		
2003	1,543	946
2004	1,553	957
<i>p.m. Percentage change</i>	0.6	1.2

Source : NBB (social balance sheets).

CHART 7 AVERAGE HOURS WORKED BY FULL-TIME WORKERS

(Indices 1998 = 100, total population ⁽¹⁾)



Source : NBB (social balance sheets).

(1) The results for 2004 were calculated by applying the change recorded between 2003 and 2004 for the reduced population to the value observed for the total population in 2003.

0.6 p.c., the number of hours worked by these employees having declined less sharply than the number of staff, by -0.5 and -1.2 p.c. respectively.

Between 1998 and 2003, the average hours worked by part-time employees initially rose slightly, to fall again in 2001 and 2002 to below the 1998 level, recording a figure of 917 hours worked per annum. This level was again marginally exceeded in 2003, when part-time workers worked an average of 918 hours. The rate of increase in these workers' average working hours between 2002 and 2003, at 0.7 p.c., accelerated during 2003 and 2004 to reach 1.2 p.c.

This extension in the average working hours of part-time workers is taking place in parallel with a significant and increasing use of time-credit schemes. According to NEMO's 2004 annual report, the number of payments made in the context of this formula for working arrangements increased by more than 34 p.c. between 2003 and 2004. Reducing working hours by one-fifth was particularly common: on average, in 2004, 39,000 persons or half of those entitled to time-credit benefited from this, as opposed to 27,000 the previous year.

Given the extension of the average working hours of part-time workers between 1998 and 2004, and the fall in the number of hours worked by full-time workers, the average hours worked by part-time workers currently represent 59.8 p.c. of the hours worked by full-time workers. In 1998, this share amounted to 57.6 p.c.

The drop in working hours of full-time workers was more significant in large enterprises. While the trend was fairly consistent until 2000, the gap widened during 2001. Between 2000 and 2001, annual working hours in large enterprises declined from 1,573 to 1,534, down by 2.5 p.c. On the other hand, in the other two groups of enterprises the drop was limited to around 0.5 p.c. Between 2003 and 2004, the changes taking shape in enterprises in the reduced population once again showed very divergent trends: while working hours increased by 1 and 1.3 p.c. respectively in small and medium-sized enterprises, they remained virtually unchanged in the large ones. In total, between 1998 and 2004, working hours were down by 4.1 p.c. in the latter, whilst the decline was limited to around 1 p.c. in the other two categories of enterprises.

This difference can in part be explained by the fact that, in some large enterprises, restructuring includes changing their working arrangements as employees approach the end of their career. It is thus sometimes possible for older workers to benefit from a fairly long period of leave before retirement. They are still recorded in the staff register, however, and their salary continues to be paid, even though they are not providing any labour. This was the case in trade, transport and communications in 2004. Average working hours fell by 1.5 p.c. although they increased noticeably in all other branches of activity. This phenomenon largely explains the levelling-off in the number of hours worked in large enterprises between 2003 and 2004.

If the trend between 2003 and 2004 is excluded, it can be seen that it is therefore in trade, transport and communications that the fall in average working hours of full-time workers, of the order of 4.9 p.c., was most pronounced. At 4.7 p.c., it was of a very similar size in financial services, real estate and business services. In industry, and in other services, the drop was limited to 2.5 p.c. In construction, however, average working hours were almost identical in 1998 and 2003, the steady decline observed since 2000 compensating for the increase recorded between 1998 and 1999.

The latter branch of activity was characterised by a very significant increase in working hours between 2003 and 2004; they grew by 2.6 p.c. as opposed to 2 p.c. in industry and around 1 p.c. in services (with the notable exception of trade, transport and communications, where they fell). Construction, like other branches of activity, has perhaps resorted to the authorisation of additional working hours without time off in lieu. The law stipulates a limit to any such extension to the statutory working week: it must not exceed 65 hours per calendar year, as long as this is provided for by the collective agreement and it is not possible to undertake compensatory recruitment. The annual increases in working hours observed between 2003 and 2004 of 38 hours in construction and 30 hours in industry, where there are numerous job vacancies for lack of duly qualified applicants, can partly be explained by the application of this rule.

5. Labour costs

The total amount allocated by enterprises to paying the workers recorded in their staff register increased by 2.5 p.c. between 2003 and 2004. It should be recalled that this budget does not include payments made by enterprises to their retired staff – who no longer appear in the staff register – nor certain costs related to possible

TABLE 6 LABOUR COSTS RELATING TO WORKERS RECORDED IN THE STAFF REGISTER

(Annual averages, reduced population)

	2003	2004	Percentage change between 2003 and 2004
Per FTE, in euro	47,153	48,355	2.6
Per hour worked, in euro			
Per full-time worker	31.09	31.74	2.1
Per part-time worker	27.50	28.00	1.8
Total	30.59	31.18	1.9
Hourly cost of a part-time worker in p.c. of a full-time worker.	88.5	88.2	–

Source: NBB (social balance sheets).

restructurings – which can be recorded on the enterprise's balance sheet under exceptional costs. In addition, the trend noted in the social balance sheets relates to a reduced and constant population of companies subject to the filing of a social balance sheet, with the exclusion of workers and enterprises implicated by this methodology. It emerges that the change in costs noted in the social balance sheets differs from that recorded – for the private sector – in the national accounts, which totalled 2.9 p.c. between 2003 and 2004.

While staff costs increased by 2.5 p.c. in the social balance sheets, the number of workers – expressed in FTEs – at the same time fell by 0.1 p.c. Consequently, the cost per FTE increased by 2.6 p.c., rising from 47,153 euro in 2003 to 48,355 euro in 2004.

As the volume of hours worked increased by 0.5 p.c. while the number of FTEs contracted, the rise in cost per hour worked was less than that of the cost per FTE. In all, this amounted to 1.9 p.c. in the reduced population of enterprises, the increase being slightly higher among full-time workers (2.1 p.c.) than for part-time workers (1.8 p.c.).

The relative trend in labour costs in Belgium and neighbouring countries is an important indicator of the cost competitiveness of enterprises. Since the entry into force, in 1996, of the law on promoting employment and safeguarding competitiveness, the margin for increases in hourly labour costs, or wage norm, has been established within the context of central agreements negotiated every two years, with reference to the average changes

expected in this same variable in Germany, France and the Netherlands. For the 2003-2004 period, the December 2002 agreement thus set an indicative norm of 5.4 p.c. for increases in hourly labour costs.

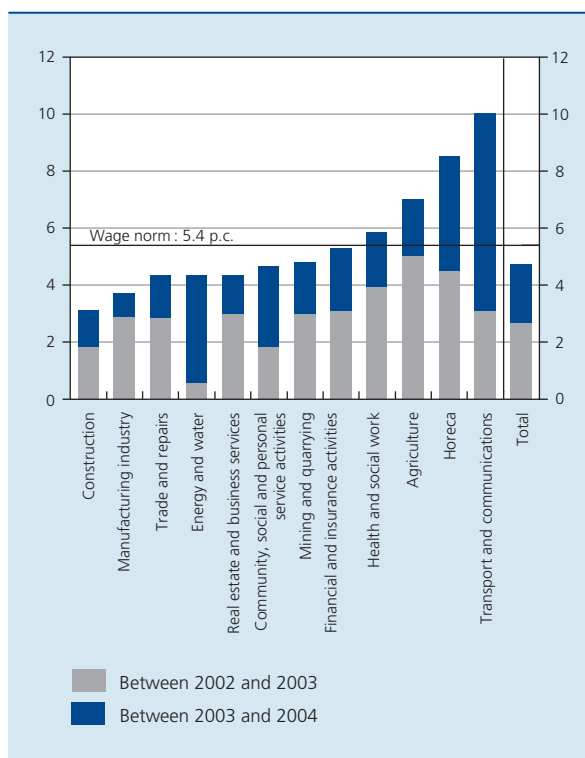
Although it is not possible to conduct a precise macro-economic analysis, based on the social balance sheets, of the extent to which this norm is being respected, they do permit an ex-ante evaluation of the increase in hourly costs compared to this wage norm at the level of individual enterprises or groups of enterprises. To this end, a reduced population of enterprises, constant for the 2002-2004 period, was formed. It includes 33,875 firms employing, in 2004, 1,233,869 workers.

A quarter of the enterprises in this population, some of the smallest since they employed an average of 23 workers, recorded a fall in hourly costs between 2002 and 2004. This trend may be explained by different factors such as, for example, the replacement of older workers – whose average salary is higher due to the pay-scale increases they have benefited from throughout their career – with younger workers whose salaries are lower, or the use of measures to reduce social security contributions, pushing labour costs down. Twelve per cent of the enterprises recorded an increase below indexation which, for these two years, was 2.9 p.c. Thirteen per cent of enterprises recorded an increase that was between indexation and the forecast wage norm. The remaining enterprises, or half of the total, consequently recorded an increase exceeding the norm. It should be noted that such changes can sometimes be explained by exceptional events, such as restructurings, mass redundancies, or payments into pension or insurance funds.

In all, the average increase in hourly labour costs amounted to 4.7 p.c. between 2002 and 2004 in the enterprises in this ad hoc population, i.e. 0.7 percentage point below the wage norm. Although, at the level of all enterprises, the increase in labour costs remained moderate, significant differences can be observed between the different branches of activity.

In health and social work, the norm was slightly exceeded, the increase amounting to 5.9 p.c. The agriculture and Horeca branches, where the increase was 7.1 and 8.5 p.c. respectively, were also exceptions to the rule but it should be noted that the enterprises subject to the filing of social balance sheets are far from representative of the total employment and total wage bill in these branches. Moreover, it is also in these branches of activity that the average hourly costs were lowest. Finally, in transport and communications, the hourly costs increased by 10 p.c. Staff reductions in enterprises such

CHART 8 CHANGE IN HOURLY LABOUR COSTS BETWEEN 2002 AND 2004 : BREAKDOWN OF ENTERPRISES BY BRANCH OF ACTIVITY
(Percentage change, reduced population 2002-2004)



Source : NBB (social balance sheets).

as the Post Office, SNCB and Belgacom, which probably led to supplementary payments – sometimes without any work being carried out in return – may have played an important role in this regard, primarily in 2004, the increase recorded during the first year of application of the agreement having remained roughly equal to the average.

Apart from these exceptions, all branches of activity recorded increases below the wage norm. Over the two years, the increase in hourly costs was lowest in construction, i.e. 3.1 p.c., then in the manufacturing industry, where it amounted to 3.7 p.c. The other branches recorded increases of between 4.3 and 4.8 p.c., with the exception of financial and insurance services, where an increase above the average but slightly lower than the norm was observed.

The differences in the biennial rate of increase can again be highlighted. In energy and water, for example, the bulk of the rise took place during the second year of application of the norm, and the same was the case, albeit to a lesser extent, in community, social and personal service

activities. In the manufacturing industry, however, as in real estate and business services, the increases were more focused on 2003.

6. Training

Like other instruments, the social balance sheets enables enterprises' training efforts to be measured. Its indisputable advantages remain its annual nature, its exhaustiveness (the field of application of the social balance sheet being extensive) and the fact that the information comes straight from the enterprises. Two other instruments will soon provide additional useful information. Since 2005, labour force surveys have included a question on the participation in one or more training courses over the last twelve months (and no longer over the last four weeks only), as well as on the financial participation (or not) of the employer in the training courses followed. In addition, a new Continuous Vocational Training Survey (CVTS) relating to 2005 will be conducted in all EU Member States in 2006. In the future, this survey will be conducted every five years in the EU Member States.

6.1 Formal training

For many years already, the social partners, together with the different Belgian and European authorities, have made commitments to increase training efforts for workers, and more particularly those identified as risk groups (women,

the low skilled, older workers, immigrants, the disabled). However, the results have obviously failed to come up to expectations in Belgium.

Less than one enterprise in ten reports a participation of employees to continuous vocational training courses. The proportion of formal training enterprises, which increased in 1999, declined in the years that followed. In 2003, this proportion was no more than 7.1 p.c., or 5,300 enterprises out of a total of some 74,000 enterprises. This decline reflects the change in all the indicators since the start of the decade. Moreover, on the basis of data from the reduced population, the proportion of training enterprises did not change from 2003 to 2004.

During this last period, the total budget devoted to workers' training fell by 2.9 p.c., whilst staff costs rose by 2.5 p.c. The indicator of the cost of training, which gives the training budget as a proportion of total staff costs, consequently dropped by 5.3 p.c. This trend, applied to the result observed in 2003, would put this indicator at 1.12 p.c. for 2004, i.e. below the target of 1.90 p.c. set for the end of the year 2004 by the social partners when the central agreement was concluded in 1998 and reiterated on conclusion of subsequent agreements and at the 2003 Employment Conference.

The number of hours devoted to training as a proportion of total hours worked were slightly higher in 2003 as compared to 1998, at 0.77 and 0.75 p.c. respectively, even though, again, the level achieved in 2003 was

TABLE 7 FORMAL TRAINING IN ENTERPRISES

	Training enterprises (in p.c. of all enterprises)	Cost of training		Length of training		Workers attending training (in p.c. of average employment)
		(in p.c. of staff costs)	(average per hour, in euro)	(in p.c. of total hours worked)	(average per beneficiary, in hours)	
Total population						
1998	7.5	1.34	44.3	0.75	32.9	33.3
1999	7.9	1.30	44.2	0.75	31.1	34.9
2000	7.6	1.41	42.8	0.86	35.3	35.2
2001	7.1	1.35	43.9	0.84	33.3	35.7
2002	7.3	1.26	45.8	0.79	31.3	35.1
2003	7.1	1.19	45.0	0.77	30.6	35.2
Reduced population						
2003	10.5	1.32	46.9	0.86	31.9	38.3
2004	10.5	1.25	47.7	0.82	29.4	39.5
<i>p.m. Percentage change</i>	0.0	-5.3	1.7	-5.1	-7.8	3.2

Source: NBB (social balance sheets).

appreciably lower than that observed in 2000. Between 2003 and 2004, the total number of hours devoted to training fell by 4.5 p.c. in enterprises in the reduced population, while the total volume of hours worked was up. Consequently, the proportion of training hours in the volume of labour fell by more than 5 p.c. The number of training hours per participant was also down, by almost 8 p.c. over the course of this latter period, whilst between 2000 and 2003 the average hours of training had already dropped by 13 p.c. from more than 35 hours in 2000 to only 30.6 in 2003.

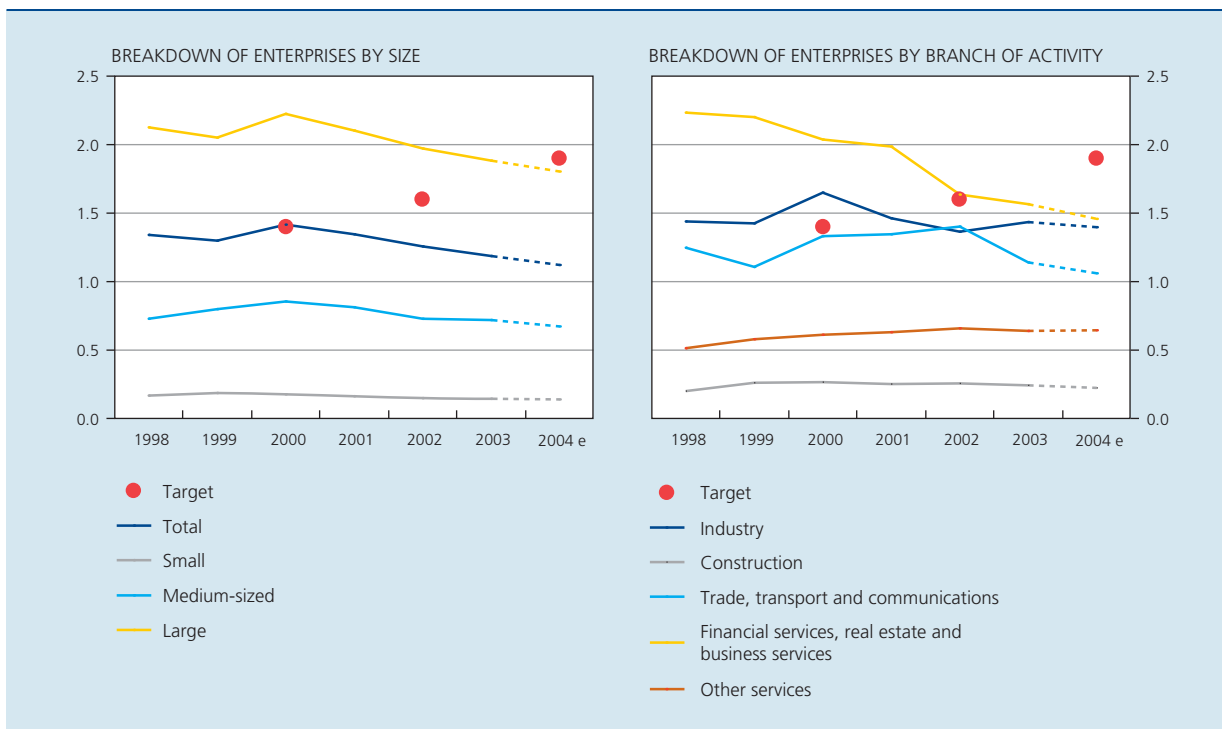
However, between 2003 and 2004, because the overall training budget declined less sharply than the number of training hours recorded, the average cost per hour of training rose by 1.7 p.c. Since 2000, the hourly cost of training is up markedly, from 42.8 to 45 euro in 2003. This contrasting trend might be the result of employers being more selective and choosing shorter, on average more expensive training courses that are, however, more likely to generate future productivity gains.

Despite the decline in both budget and volume of training hours, the number of participants continued to increase. In 2004, some 526,000 workers benefited from one or more training courses in enterprises within the reduced population, or 3.5 p.c. more than in 2003. Whilst, over the same period, employment grew by an average of 0.3 p.c. in these enterprises, the participation rate increased by 3.2 p.c. This significant rise contrasts with the trend observed between 2000 and 2003, a period during which the participation rate varied little. This is encouraging, as it demonstrates an effort at democratisation, despite the restrictions imposed on training budgets and volume of training.

Although successive central agreements provided for continuing increases in the indicator of the cost of training, this has fallen continuously since 2000. Even though this relates to a macroeconomic objective, it is interesting to identify the categories of enterprise that contribute most to the training effort, all the more so as the Intergenerational Solidarity Pact submitted to the social partners by the government in October 2005 proposes renewing the target of 1.90 p.c. for training investment for the end of 2006, with a sector-level assessment of

CHART 9 SITUATION IN RELATION TO THE TRAINING COSTS TARGET

(Training costs expressed as a percentage of staff costs, total population⁽¹⁾)



Source : NBB (social balance sheets).

(1) The results for 2004 were calculated by applying the change recorded between 2003 and 2004 for the reduced population to the value observed for the total population in 2003.

performance, planning of efforts to be provided, and the imposition of specific contributions in cases of absence of a sectoral training policy. In the context of this exercise, the changes observed between 2003 and 2004 in the reduced population were used to extend the historic time series for the years 1998 to 2003.

Large enterprises invest proportionately more in the training of their workers. This is also the group in which budget reductions have been the most significant. The decline in the cost indicator, which was down from 2.22 p.c. in 2000 to 1.80 p.c. in 2004, amounted to 0.42 percentage point in the case of large enterprises. At the same time, this decline was 0.18 percentage point in medium-sized enterprises which, in 2004, devoted 0.67 p.c. of their labour costs to training. Small enterprises invest very little in formal training, around 0.14 p.c. of labour costs in 2004, but the decline in the indicator was limited to 0.03 percentage point. The erosion of the cost indicator in small and medium-sized enterprises since 2002 is undoubtedly limited by proportionately greater recourse to subsidised training (particularly through the sectoral funds) and by the introduction of training vouchers. In fact, the latter enable small enterprises, based on different systems in the Wallonia and Flanders regions, to reduce their training costs.

As can be seen from the breakdown by size, the fall in the cost indicator has been most marked in those branches of activity in which training efforts were most significant. Between 1998 and 2000, while an increase in the indicator was observed in all other branches, the training budget expressed as a percentage of staff costs was declining in financial, real estate and business services, from a record level of 2.24 p.c. in 1998 to 2.04 p.c. in 2000. The training effort has since continued to decline. In 2004, it accounted for just 1.46 p.c. of staff costs. In this branch of activity, the changeover to the year 2000 and the introduction of the euro, first in scriptural, then fiduciary form, undoubtedly partly explains the high levels recorded at the start of the period. The fall has been all the more striking since.

In industry, training efforts peaked at 1.65 p.c. of staff costs in 2000. They then gradually declined to regain, in 2003 and 2004, their original starting level of around 1.40 p.c. This was despite the steady increase observed in the energy and water branch which, admittedly, is relatively unimportant. In trade, transport and communications, the 2004 level of 1.06 p.c. was slightly lower than that recorded at the start of the period, i.e. 1.25 p.c., even though from 2000 to 2002 it was on a par with or greater than 1.35 p.c. This, too, is perhaps linked to the preparation of staff for the introduction of the euro.

In the other branches, the efforts have remained fairly steady but at relatively low levels. It is likely that in construction the indicator does not reflect all the enterprises' training efforts. These are in fact required to pay contributions into a sectoral fund that organises training courses in which workers in the sector can participate "free of charge". The contributions paid to these sectoral funds by enterprises are not systematically accounted for as training costs in their social balance sheets.

6.2 Mentoring

The component related to activities of training, guidance and mentoring, which has existed since 2002, records the number of persons aged 50 or over who receive allowances for halving their working hours and spending the time thus made available on training new workers in their enterprise or branch of activity.

Not many enterprises communicate this information, either because there are only a few that use this system or because, being a recent measure, it is incorrectly accounted for. In 2002, 327 enterprises, or scarcely 0.5 p.c. of the total, provided this information. In 2003, 388 did so. In the reduced population, only 301 enterprises filled in the table on mentoring for 2004.

In 2002, 5,997 trainers were recorded in the social balance sheets, the number of workers trained totalling 26,001 units. The number of trainers rose to 7,658 in 2003, with around 31,000 workers trained (or 1.7 p.c. of the total workforce). According to information from the reduced population, the number of mentors, like the number of beneficiaries of training, fell between 2003 and 2004, by almost 3 p.c. for the former and 4.4 p.c. for the latter. As for the number of hours of training provided, this was down from 735,000 to 730,000 units. Finally, the number of hours devoted per year and per mentor to these activities increased on average from 105 to 107 units.

6.3 Less formal and informal training

In the social balance sheets, Table IV relating to the training of workers throughout the year only notes the enterprises' formal training efforts, that is continuous vocational training courses provided on premises reserved for this purpose, either in the enterprise or outside. However, formal training only represents the most visible part of the training efforts funded by employers. Training in the workplace, on-the-job or by job rotation, and also participation in conferences or seminars and self-learning,

when funded by the employer, are all ways of improving workers' skills without using formal trainers.

These different forms of training, known as less formal or informal, also generate costs for the employer because the working hours devoted to this training are, in the short term, lost in terms of production. These costs, which can be high in some enterprises and which, in small units, undoubtedly constitute the bulk of employers' training efforts, are not currently recorded in the social balance sheets.

Following an agreement with the social partners, and in order to more correctly measure the overall extent of companies' training efforts, it was decided to include an extra table on less formal and informal training in the social balance sheets. It was agreed to ask for an assessment of the number of participants and length of such training (by gender for these two variables), along with an estimate of the costs incurred by the enterprise. The entry into force of this new section of the social balance sheet will take place once the royal decrees implementing this have been issued.

This addition to the social balance sheet forms part of a wider evaluation of enterprises' training policies, a task that was entrusted jointly to the National Labour Council and the Central Economic Council during the Employment Conference in October 2003. In response to this task, a recommendation to introduce a "scoreboard" for training indicators was submitted in June 2004. It had been observed that it was impossible to provide a single indicator summarising the enterprises' training efforts and so it was decided to use a number of indicators from different sources to evaluate them, primarily the social balance sheet and labour force surveys. To satisfy these evaluation needs, a series of additions were planned to the existing questionnaires. An updated version of the indicators listed in this scoreboard is included in the technical report of the Central Economic Council, published in November 2005.

7. Conclusion

This article has set out the provisional results obtained from the social balance sheets for 2004 filed at the Central Balance Sheet Office before 30 August 2005. Since not all the social balance sheets were available at this date, the study is based on a reduced population, compiled in accordance with the principle of a constant sample.

In this reduced population, comprising 38,530 enterprises, employment rose on average by 0.3 p.c. per year between 2003 and 2004. The increase of 0.5 p.c. recorded between 31 December 2003 and 31 December 2004 was slightly higher, which results from an improvement in the labour market over the course of the year. This is confirmed by the sharp increase in temporary agency work, which rose by more than 15 p.c. in 2004. The increase in the volume of staff movements and the break with the downward trend noted in the share of temporary contracts also testifies to the return of a more favourable employment climate.

This trend is based largely on the buoyant conditions enjoyed by small enterprises, which, as in the past, were responsible for net job creations. In medium-sized enterprises, net recruitments remained more limited whilst in large enterprises job losses were recorded. These declines in staff numbers were particularly severe in industry. In contrast, the other services branch of activity, particularly health and social work, has for a number of years been an important creator of jobs, including low skilled ones.

Part-time work has again increased noticeably. Between 2003 and 2004, the part-time employment rate was up by 4.8 p.c. The increase, at 8.8 p.c., was particularly marked for men. This trend is partly the result of a greater use of time-credit schemes, which are increasingly being used to better reconcile professional and family life and also to facilitate the transition to retirement at the end of a working career, particularly in large enterprises. In fact, a significant number of transfers from a full-time to a part-time working arrangement can be seen in the latter, with such transitions being appreciably fewer in smaller enterprises.

The total volume of labour provided increased by 0.5 p.c. between 2003 and 2004. At the same time, the average hours worked per year by a full-time worker increased by 0.6 p.c. Breaking with the downward trend observed since 1998, an increase was recorded in most enterprises, whatever their size or activity. Large firms in the trade, transport and communications branch were the exception to the rule. Amongst some of these, workers approaching retirement were in particular able to benefit from exceptional holiday entitlements, to the extent that average working hours were affected. A further increase in the working hours of part-time workers was also noted. This may be partly the result of a marked preference for a one-fifth reduction in working time on the part of workers opting for time-credit.

The total wage bill increased at a rate of 2.5 p.c. between 2003 and 2004 in companies within the reduced population. Given the slight increase in the volume of labour, hourly costs increased by an average of 1.9 p.c., this rise being slightly more pronounced amongst full-time workers. The indicative wage norm for 2003-2004, which authorised an average 5.4 p.c. increase in hourly labour costs in the private sector between 2002 and 2004, was – according to the results of an analysis based on a constant reduced population over this period – adhered to in the majority of branches of activity, even though an increase exceeding the norm was recorded in half the enterprises. This increase was particularly striking in transport and communications, where the calculation of hourly costs was probably distorted by the exceptional holiday entitlements granted to staff approaching retirement in 2004.

Finally, despite the concerns expressed by the European and Belgian authorities, the indicators of formal training declined again in 2004, with the exception of the rate of participation, which increased by some 3 p.c. Expressed as a percentage of staff costs, the training budget – which was less than 1.2 p.c. in 2003 for the total population – was down by more than 5 p.c. in 2004 in enterprises within the reduced population, thus moving yet further from the 1.9 p.c. target set in the central agreement. A fall on the same scale was noted for the indicator of length of training, expressed as a percentage of the volume of labour. However formal training, in premises set aside for this purpose, forms only the most visible aspect of training activities. The social balance sheet will soon include a table aimed at assessing the efforts made in the area of informal training (particularly workplace training) and this should enable an improved measurement of overall training investments to be made.

Annex 1

Methodology for composing the populations of firms for the financial years 1998 to 2004 and characteristics of the reduced population used for the 2004 analysis

The populations of firms used to calculate the results set out in the tables and charts of this article consist of companies whose social balance sheets have passed a list of tests concerning homogeneity, consistency and quality. The methodological principles which determine whether or not the firms are included in the population are the same for the years for which all the accounts are available (namely 1998 to 2003) and for the 2004 financial year where only the accounts submitted before 30 August 2005 were taken into consideration.

1. Methodology for the composition of the populations of firms used for analysis

1.1 Duration and closing date of the financial year

In order to ensure the internal consistency of the social balance sheets and the consistency of the period covered by the analysis, firms were only considered if they ended a 12-month financial year on 31 December.

1.2 Exclusion of some categories of firms or activities

The analysis takes no account of firms which – according to the national accounts – belong to the public sector and which mainly come under the branches L “General government” (mainly health insurance funds in the social balance sheet) and M “Education”, in order to keep as close as possible to the private sector concept in which firms behave in a more uniform way. In contrast, public enterprises are included in the reference population in the branches where they pursue their activities.

Private sector firms in the NACE-Bel division 80 “Education”, and firms which do not pursue any visible activity or whose activities are not clearly defined, and the extraterritorial organisations belonging to the private sector are also disregarded. Temporary employment agencies are also omitted in view of the specific character of this sector and the difficulty of identifying anomalies in their social balance sheets.

Finally, firms employing less than one FTE were left out of the analysis owing to the numerous errors in their social balance sheets.

1.3 Consistency between annual accounts and social balance sheets

To allow comparison between the annual accounts and the social balance sheet of firms obliged to file both these documents, the analysis only takes firms into account if those documents relate to the same population of employees, which means that firms where some of their employees work abroad or are not recorded in the staff register (statutory workers in public enterprises, for example) are excluded. In practice, this means that the items recording the workers employed, namely 1003 in the social balance sheet and 9087 in the annual accounts, have to tally. However, a small difference, less than 0.5 FTE, is tolerated.

1.4 Critical thresholds for some ratios

A large number of firms submit abnormal values for one financial year or another in respect of labour costs per hour or number of hours worked per FTE. Critical values have therefore been set for those ratios. In some cases the thresholds have been made flexible to take account of situations specific to certain branches of activity. Firms which, for any given year, submit results with ratios outside those critical values are removed from the population for that year. On the basis of that criterion, a firm can therefore be excluded for one year but included for other years.

The *average staff costs* per hour obtained by taking item 1023 divided by item 1013 should be between 10 and 100 euro. For restaurants and cafés, hairdressers, taxis and sheltered workshops, the lower limit is reduced to 7 euro.

The annual number of hours worked per FTE, obtained by taking item 1013 and dividing it by item 1003, must not be lower than 800 (except in building and civil engineering, where the limit is reduced to 600 hours) or higher than 2,200 (except in road haulage where this threshold is raised to 3,000 hours).

1.5 Adjustments to the training items

The social balance sheet is a key instrument for measuring the training efforts made by firms; those efforts are regarded as essential both by the social partners and by the Belgian and European authorities.

However, year after year, substantial and sometimes actually recurrent anomalies are found in the items relating to training (number of workers trained, hours of training and training costs). To eliminate those errors and still keep the social balance sheets as a whole for the firms for which the anomalies are found, the items relating to training are recorded as zero for those firms while the rest of the social balance sheet is kept intact. Two ratios are used to detect anomalies: the number of hours of training per trainee must not exceed 15 p.c. of the annual number of hours worked per FTE, while the average hourly training costs must not be more than five times higher than the average labour costs per hour. Conversely, no adjustments are made at all to the new items relating to mentoring introduced since the 2003 financial year.

The application of these strict methodological principles for composing the basic populations inevitably reduces the number of firms included in the analysis compared to the total number of firms filing a social balance sheet for each of the years in question, as recorded in the aggregate data published by the Central Balance Sheet Office.

In addition, the classification of firms by branch of activity used in this article differs from that used by the Central Balance Sheet Office because the activity code in the business register developed by the NSI on the basis of the DBRIS databank⁽¹⁾ was systematically preferred to the code allocated by the Central Balance Sheet Office. However, the resulting reclassifications only concerned a few firms.

Despite the exclusion of a number of firms, necessary in order to ensure that the historical data were reliable and consistent, the populations used for the years 1998 to 2003 are still amply representative of the total, as regards both the number of firms and the number of workers. The results obtained for those years may be regarded as representative for the entire employed population. However, there is a possibility that the aggregate data may be distorted by one-off events or by legal changes in some major companies. Those anomalies have not been corrected.

(1) The business register developed by the NSI (containing a set of administrative information concerning the firms active during a particular year) was taken as the reference source for determining the branch of activity of firms. The 2002 register was used for the years 1998 to 2002, while the 2003 register was used for 2003 and 2004. The firms which do not appear in the DBRIS registers keep the activity code allocated by the Central Balance Sheet Office.

1.6 Composition of a constant reduced population for the 2003-2004 analysis

Developments between 2003 and 2004 are measured on the basis of a constant, reduced population. The reason for using a reduced population is the smaller number of firms that had submitted their social balance sheet before 30 August 2005. The use of a constant population is also necessary to measure the changes in certain variables. Comparison of the results obtained on the basis of a reduced population with those based on a total population could introduce a bias and distort the conclusions of the analysis. Consequently, the results presented in this article reflect the developments observed in a stable population and may differ from the picture that emerges after the final closure for the full population. The method adopted implies the loss of the information concerning firms which have not submitted a social balance sheet, either in 2003 (recently established firms or firms taking on their first employee) or in 2004 (social balance sheet filed or processed too late, bankruptcy, merger, takeover, de-merger). Since the Central Balance Sheet Office gives priority to processing the annual accounts of large firms, the results based on the reduced population for 2004 lead to some distortion in favour of the large firms.

For the analysis of the 2004 results, the reduced population consists of the companies which, on 30 August 2005, had filed a social balance sheet for both 2003 and 2004, and which also satisfied the quality criteria applicable to all firms (see 1.1 to 1.5). In addition, any firms affected by legal changes (merger, takeover, de-merger) were disregarded if they displayed inconsistencies in the staff movements recorded, or if abnormal changes were detected in regard to average labour costs per hour or average annual working hours, indicating incorrect recording of the implications of these legal changes.

At the end of the selection procedure, the reduced population consisted of 38,530 firms which together employed 1,331,229 workers in the year 2004 (see table 2 in annex 1). Some of these firms displayed unjustified developments with regard to training and temporary work. Since the errors which were found could not be corrected in time by contacting the firms, and since these firms represented a considerable share of their branch of activity, all of the items relating to training and/or temporary work were recorded as zero, so as not to distort the developments observed in these branches.

The populations of firms for the financial years 1998 to 2003 have a different status from those for 2004. The tables in annexes 3 to 9 therefore contain data in level for the years 1998 to 2003; for 2004, they show mainly percentage changes which reflect developments observed in the firms in the reduced population between 2003 and 2004. In some cases, however, the level of the results for the reduced population is stated for the years 2003 and 2004, so that attention can be drawn to the possible differences between the results obtained in 2003 for the total population and for the reduced population.

2 Characteristics of the reduced population used to analyse the social balance sheets for the financial year 2004

2.1 Representativeness⁽¹⁾

In 2003, the employees recorded in the staff register of firms included in the reduced population represented 50.9 p.c. of private sector employment as recorded in the national accounts⁽²⁾ and 73 p.c. of employees in all firms filing a social balance sheet for the year under review, although the number of firms included in the reduced population represents only 51.9 p.c. of the total population of firms.

(1) The representativeness of the reduced population is calculated both with regard to the national accounts and the total population of firms filing a social balance sheet. It therefore relates to the 2003 financial year, the last year for which all social balance sheets are available.

(2) The concept of paid employment in the private sector used here corresponds to employment in the total economy (S1) less employment in the public sector (S13). That concept also omits workers employed in the branches L «General government», M «Education» and P «Domestic services», who are not taken into account in full in the social balance sheets.

Representativeness according to the employment criterion varies from one branch of activity to another. Expressed as a percentage of the total number of workers employed in the firms of the total population for 2003, the representativeness is lowest in the branches dominated by small firms, whose annual accounts are filed and/or processed later. That applies in agriculture, for instance, and in the hotel and restaurant branches. It is also in these branches that the number of unincorporated self-employed persons (who are consequently exempted from submitting a social balance sheet, even if they employ paid staff) is greatest. Therefore, the representativeness of these branches, compared to national accounts, is very limited.

TABLE 1 REPRESENTATIVENESS OF THE REDUCED POPULATION IN 2003

	Number of employees			Representativeness of the reduced population	
	In the national accounts ⁽¹⁾	In the social balance sheet of firms in the total population ⁽²⁾	In the social balance sheet of firms in the reduced population ⁽²⁾	In p.c. of paid employment in the private sector	In p.c. of the total population
	(1)	(2)	(3)	(4) = (3) / (1)	(5) = (3) / (2)
According to the employment criterion					
Agriculture	25,621	8,659	4,401	17.2	50.8
Industry	623,581	478,578	402,921	64.6	84.2
Mining and quarrying	3,178	2,903	2,518	79.2	86.7
Manufacturing industry	594,704	456,238	381,395	64.1	83.6
Energy and water	25,699	19,437	19,009	74.0	97.8
Construction	189,054	133,179	87,019	46.0	65.3
Trade, transport and communications	796,161	572,572	411,973	51.7	72.0
Trade and repairs	461,648	299,483	193,947	42.0	64.8
Horeca	98,383	50,667	23,429	23.8	46.2
Transport and communications	236,130	222,421	194,597	82.4	87.5
Financial services, real estate and business activities	504,189	290,518	217,182	43.1	74.8
Financial and insurance activities	130,030	116,974	104,119	80.1	89.0
Real estate and business services	374,159	173,545	113,063	30.2	65.1
Other services	470,367	334,551	203,609	43.3	60.9
Health and social work	372,833	297,495	180,727	48.5	60.7
Other community, social and personal service activities	97,534	37,056	22,881	23.5	61.7
Total	2,608,973	1,818,058	1,327,105	50.9	73.0
According to the criterion concerning the number of firms					
	n.	74,195	38,530	n.	51.9

Sources: NAI, NBB (social balance sheets).

(1) The concept of paid employment in the private sector used here corresponds to employment in the total economy (S1) less employment in the public sector (S13). Moreover, this concept excludes employees in the branches L "General government", M "Education" and P "Domestic services", who are not taken into account in full in the social balance sheets.

(2) Item 1001 + item 1002.

2.2 Characteristics of the reduced population in 2004

Of the 38,530 firms in the population used to analyse the situation in 2004, 998 firms, mainly belonging to the health and social work branch and to financial and insurance services, together employing around 272,000 workers, filed a separate social balance sheet. Also, the 29,859 firms which submitted accounts in the abbreviated format employed 236,539 workers; this corresponded to an average of 7.9 employees per firm, compared to an average of 126.2 employees in the 8,671 firms filing full format accounts. The firms which submitted accounts in the full format therefore represent 22.5 p.c. of the total number of social balance sheets and 82.2 p.c. of the total number of workers.

For the purposes of the analysis, the firms filing a social balance sheet were classified by branch of activity and by size.

Manufacturing industry employs 28.2 p.c. of workers in the reduced population. The branches of trade, transport and communications and health and social work each account for 14 to 15 p.c. of employees. The branches of real estate and business services, financial and insurance services and construction employ 8.7, 7.7 and 6.7 p.c. of workers respectively. The other branches are of rather minor importance; they each represent under 2 p.c. of the workers taken into account in this study.

The classification of the firms by size is based on the average number of workers expressed in FTEs recorded in the staff register in 2003. Small firms with no more than 50 FTEs, i.e. 92 p.c. of the total, accounted for a little more than a quarter of the workforce in the reduced population in 2004, or an average of 9.8 workers per firm, while medium-sized firms employing 50 to 250 FTEs represent 2,533 firms and some 288,000 workers, which is 22 p.c. of the total. There were 618 large firms, i.e. those with over 250 FTEs, which employed just under 700,000 persons in 2004, which represents an average of 1,127.5 workers per firm and more than half of the total number of workers employed in the firms considered.

TABLE 2 CHARACTERISTICS OF THE REDUCED POPULATION IN 2004

	Number of firms		Number of employees ⁽¹⁾	
	Units	In p.c. of the total	Units	In p.c. of the total
Firms filing a social balance sheet having met the selection criteria	38,530	100.0	1,331,229	100.0
of which:				
Firms filing a separate social balance sheet	998	2.6	272,373	20.5
Firms filing a social balance sheet as an annex to the annual accounts	37,532	97.4	1,058,856	79.5
of which:				
Firms filing short-format accounts	29,859	77.5	236,539	17.8
Firms filing full-format accounts	8,671	22.5	1,094,690	82.2
Breakdown of firms by branch of activity				
Agriculture	569	1.5	4,522	0.3
Industry	6,389	16.6	396,642	29.8
Mining and quarrying	61	0.2	2,558	0.2
Manufacturing industry	6,291	16.3	375,509	28.2
Energy and water	37	0.1	18,576	1.4
Construction	5,657	14.7	88,550	6.7
Trade, transport and communications	16,260	42.2	412,354	31.0
Trade and repairs	12,034	31.2	196,676	14.8
Horeca	1,690	4.4	24,030	1.8
Transport and communications	2,536	6.6	191,648	14.4
Financial services, real estate and business activities	7,277	18.9	218,595	16.4
Financial and insurance activities	1,372	3.6	102,147	7.7
Real estate and business services	5,905	15.3	116,449	8.7
Other services	2,378	6.2	210,566	15.8
Health and social work	1,340	3.5	186,784	14.0
Other community, social and personal service activities	1,038	2.7	23,782	1.8
Breakdown of firms by size⁽²⁾				
Small firms (no more than 50 FTEs)	35,379	91.8	346,163	26.0
Medium-sized firms (more than 50 to 250 FTEs)	2,533	6.6	288,273	21.7
Large firms (more than 250 FTEs)	618	1.6	696,792	52.3

Source: NBB (social balance sheets).

(1) Item 1001 + item 1002.

(2) Determined on the basis of the number of FTEs (item 1003) in 2003.

Annex 2

LIST OF SECTIONS AND DIVISIONS FROM THE NACE-BEL NOMENCLATURE OF ACTIVITIES USED FOR THE ANALYSIS

	Section	Division
Agriculture	A-B	01-05
Industry		
Mining and quarrying	C	10-14
Manufacturing industry	D	15-37
Energy and water	E	40-41
Construction	F	45
Trade, transport and communications		
Trade and repairs	G	50-52
Horeca	H	55
Transport and communications	I	60-64
Financial services, real estate and business services		
Financial and insurance activities	J	65-67
Real estate and business services ⁽¹⁾	K	70-74
Other services		
Health and social work	N	85
Other community, social and personal service activities	O	90-93

(1) Excluding temporary work agencies (code NACE-BEL 74.502).

Annex 3

DEVELOPMENTS IN EMPLOYMENT BETWEEN 2003 AND 2004 IN FIRMS INCLUDED IN THE REDUCED POPULATION

	In full-time equivalents			In persons						
	Average employment		Employment at the end of the exercise	Average employment						Employment at the end of the exercise
	(units)	(p.c.)		Full-time		Part-time		Total		
			(units)	(p.c.)	(units)	(p.c.)	(units)	(p.c.)	(units)	(p.c.)
Agriculture	81	2.0	0.9	67	2.0	54	5.0	121	2.7	0.0
Industry	-6,332	-1.6	-0.9	-8,021	-2.2	1,742	4.7	-6,279	-1.6	-0.9
Mining and quarrying	35	1.4	-2.4	29	1.2	12	10.6	40	1.6	-2.2
Manufacturing industry	-5,929	-1.6	-0.8	-7,569	-2.2	1,683	4.7	-5,887	-1.5	-0.8
Energy and water	-438	-2.3	-3.4	-480	-2.7	48	4.5	-433	-2.3	-3.1
Construction	1,399	1.6	0.9	1,197	1.4	334	9.0	1,531	1.8	1.0
Trade, transport and communications	-310	-0.1	-0.4	-3,859	-1.2	4,240	4.7	381	0.1	-0.4
Trade and repairs	2,532	1.4	1.3	1,165	0.8	1,564	3.1	2,729	1.4	1.1
Horeca	481	2.8	2.2	96	0.8	504	4.2	601	2.6	0.9
Transport and communications	-3,323	-1.8	-2.3	-5,120	-3.1	2,172	7.7	-2,949	-1.5	-2.1
Financial services, real estate and business services	-563	-0.3	0.7	-3,107	-1.8	4,520	9.4	1,413	0.7	1.3
Financial and insurance activities	-2,923	-3.0	-2.1	-3,985	-4.9	2,013	9.1	-1,972	-1.9	-1.2
Real estate and business services	2,360	2.3	3.4	877	1.0	2,508	9.7	3,385	3.0	3.6
Other services	4,966	3.0	3.7	1,367	1.3	5,590	5.7	6,957	3.4	3.6
Health and social work	4,111	2.9	3.6	719	0.8	5,337	5.8	6,056	3.4	3.5
Other community, social and personal service activities	855	4.3	4.6	648	3.9	253	4.1	901	3.9	4.0
Total	-759	-0.1	0.3	-12,356	-1.2	16,480	5.9	4,124	0.3	0.5

Source: NBB (social balance sheets).

Annex 4

HOURS WORKED BY WORKERS RECORDED IN THE STAFF REGISTER

	Units, per year (total population)								Percentage changes between 2003 and 2004 (reduced population)		
	1998	1999	2000	2001	2002	2003			Per full-time equivalent	Per full-time worker	Per part-time worker
	Per full-time equivalent					Per full-time equivalent	Per full-time worker	Per part-time worker			
Agriculture	1,553	1,572	1,573	1,538	1,545	1,533	1,526	788	1.0	1.0	-1.2
Industry	1,546	1,537	1,534	1,518	1,506	1,508	1,508	979	1.9	2.0	3.3
Mining and quarrying	1,490	1,516	1,517	1,479	1,487	1,497	1,495	915	-0.6	-0.5	-6.2
Manufacturing industry	1,549	1,539	1,540	1,523	1,510	1,512	1,512	977	2.0	2.1	3.4
Energy and water	1,498	1,501	1,417	1,415	1,427	1,426	1,425	1,081	0.8	0.9	0.6
Construction	1,430	1,469	1,462	1,439	1,428	1,432	1,428	926	2.6	2.6	0.7
Trade, transport and communications	1,709	1,706	1,674	1,638	1,626	1,618	1,624	908	-1.2	-1.5	2.3
Trade and repairs	1,660	1,650	1,634	1,627	1,609	1,600	1,606	944	0.5	0.6	1.3
Horeca	1,634	1,620	1,624	1,581	1,590	1,567	1,544	686	-0.8	-0.5	1.1
Transport and communications	1,790	1,804	1,727	1,660	1,654	1,649	1,653	1,014	-2.8	-3.3	4.0
Financial services, real estate and business services	1,628	1,612	1,601	1,588	1,551	1,541	1,549	871	0.9	1.2	-0.9
Financial and insurance activities	1,573	1,534	1,529	1,500	1,428	1,426	1,450	889	1.0	1.4	-2.1
Real estate and business services	1,676	1,676	1,657	1,653	1,645	1,624	1,622	861	0.6	0.7	0.1
Other services	1,567	1,560	1,558	1,536	1,536	1,537	1,520	934	0.6	0.8	0.5
Health and social work	1,563	1,555	1,553	1,530	1,528	1,530	1,509	944	0.6	0.9	0.5
Other community, social and personal service activities	1,596	1,599	1,595	1,581	1,592	1,593	1,583	790	0.0	0.2	0.7
Total	1,598	1,594	1,585	1,562	1,549	1,546	1,544	918	0.6	0.6	1.2

Source : NBB (social balance sheets).

Annex 5

BREAKDOWN OF EMPLOYMENT BY TYPE OF CONTRACT AND BY GENDER

(Percentages of total workers recorded in the staff register at the end of the exercise)

	1998	1999	2000	2001	2002	2003	2003	2004
	(total population)						(reduced population)	
By type of contract								
Permanent contract	93.0	92.7	93.0	93.6	93.6	93.9	94.7	94.6
Fixed-term	5.4	5.7	5.5	4.9	5.1	5.0	4.2	4.3
Agriculture	6.3	8.8	7.4	7.5	5.2	6.1	5.3	5.8
Industry	4.7	4.6	5.2	4.2	3.9	3.6	3.5	3.8
Mining and quarrying	3.4	4.5	6.1	5.6	5.8	6.0	5.8	6.5
Manufacturing industry	4.5	4.5	5.1	4.0	3.7	3.4	3.3	3.6
Energy and water	8.4	8.7	8.0	7.4	6.2	6.3	6.4	6.3
Construction	3.0	3.2	3.1	2.1	2.7	2.7	2.2	2.2
Trade, transport and communications	4.9	5.1	4.6	4.7	5.1	5.5	4.6	4.4
Trade and repairs	4.4	4.7	5.1	5.6	5.6	6.0	5.0	4.8
Horeca	7.2	8.1	9.8	8.9	9.7	11.4	9.7	10.1
Transport and communications	5.0	4.8	2.8	2.5	3.5	3.6	3.5	3.1
Financial services, real estate and business services	4.5	5.0	4.7	4.1	4.1	4.2	2.9	3.2
Financial and insurance activities	4.3	4.9	4.8	4.4	3.5	2.9	2.9	3.0
Real estate and business services	4.7	5.0	4.6	3.9	4.5	5.0	3.0	3.3
Other services	9.2	9.9	9.6	8.3	8.7	7.6	7.2	7.5
Health and social work	9.4	10.0	9.6	8.2	8.6	7.5	7.0	7.4
Other community, social and personal service activities	7.2	8.6	9.0	9.0	8.9	8.7	8.9	8.3
Replacement contract	1.4	1.4	1.3	1.3	1.1	1.0	0.9	0.9
Contract for a specific project	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.1
By gender								
Male	62.9	62.3	63.2	61.9	61.2	60.9	63.8	36.2
Female	37.1	37.7	36.8	38.1	38.8	39.1	63.3	36.7

Source: NBB (social balance sheets).

Annex 6

BREAKDOWN OF EMPLOYMENT BY STATUS OF WORKERS IN FIRMS FILING FULL-FORMAT ACCOUNTS

(Percentages of average FTE employment)

	1998	1999	2000	2001	2002	2003	2003	2004
	(total population)						(reduced population)	
Workers recorded in the staff register	96.4	96.5	96.3	96.6	96.7	96.5	96.5	96.1
Temporary agency workers	2.7	2.7	3.0	2.7	2.6	2.7	2.7	3.1
Agriculture	2.9	3.3	2.9	3.7	5.4	5.4	6.8	7.8
Industry	4.3	4.2	4.8	4.2	4.1	4.3	4.1	4.8
Mining and quarrying	2.9	2.9	4.1	3.3	3.7	3.1	2.9	2.3
Manufacturing industry	4.5	4.4	5.0	4.4	4.3	4.5	4.3	5.0
Energy and water	0.7	0.8	1.2	0.9	0.9	1.1	1.0	1.2
Construction	1.3	1.5	1.5	1.5	1.2	1.2	1.1	1.1
Trade, transport and communications	2.7	2.7	2.8	2.7	2.7	2.8	2.6	3.0
Trade and repairs	3.4	3.2	3.7	3.5	3.4	3.5	3.5	3.9
Horeca	3.8	4.3	6.1	5.1	4.7	4.0	3.5	3.8
Transport and communications	1.9	2.0	1.8	1.8	1.9	2.1	1.9	2.3
Financial services, real estate and business services	1.6	1.9	2.0	2.0	1.7	1.7	1.6	2.0
Financial and insurance activities	0.8	1.1	1.2	1.2	0.8	0.7	0.5	0.6
Real estate and business services	2.5	2.7	2.8	2.7	2.6	2.6	2.8	3.5
Other services	0.7	0.9	1.0	0.8	0.8	0.9	0.9	1.0
Health and social work	0.4	0.4	0.6	0.4	0.4	0.5	0.4	0.4
Other community, social and personal service activities	4.6	5.8	5.4	5.2	4.7	5.5	5.4	5.9
Workers seconded to the firm ⁽¹⁾	0.9	0.7	0.7	0.7	0.8	0.8	0.9	0.8

Source: NBB (social balance sheets).

(1) Workers recorded in a firm's staff register and seconded to another firm which is obliged to file a social balance sheet are counted twice.

Annex 7

STAFF COSTS PER FTE ⁽¹⁾

	Euro, per year (total population)						Percentage changes between 2003 and 2004 (reduced population)
	1998	1999	2000	2001	2002	2003	
Agriculture	25,284	26,344	26,656	27,040	28,417	28,745	3.2
Industry	43,066	44,183	44,984	46,490	48,724	49,685	2.9
Mining and quarrying	37,942	38,998	39,958	41,812	43,949	45,628	1.2
Manufacturing industry	41,541	42,761	43,839	45,311	47,316	48,623	2.9
Energy and water	79,864	77,816	70,491	74,023	77,462	74,704	4.1
Construction	31,332	32,960	33,664	34,690	35,828	36,685	3.9
Trade, transport and communications	35,699	36,932	37,546	38,877	40,593	41,399	2.7
Trade and repairs	37,193	37,815	38,304	39,714	41,000	41,500	2.0
Horeca	23,865	24,473	24,766	25,170	26,530	27,519	2.0
Transport and communications	35,569	37,996	38,561	39,940	42,220	43,508	3.6
Financial services, real estate and business services	51,522	52,538	53,592	55,179	56,156	56,925	2.1
Financial and insurance activities	59,122	61,530	62,535	63,947	64,318	65,683	3.1
Real estate and business services	44,811	45,290	46,607	48,599	49,923	50,588	1.7
Other services	33,253	33,548	34,083	35,191	37,448	38,693	2.6
Health and social work	33,465	33,669	34,229	35,324	37,413	38,765	2.6
Other community, social and personal service activities	31,529	32,591	33,029	34,209	37,701	38,142	2.5
Total	39,690	40,646	41,384	42,740	44,457	45,324	2.6

Source: NBB (social balance sheets).

(1) Item 1023 / item 1003.

Annex 8

STAFF COSTS PER HOUR WORKED ⁽¹⁾

	Euro (total population)						Percentage changes between 2003 and 2004 (reduced population)
	1998	1999	2000	2001	2002	2003	
Agriculture	16.29	16.76	16.94	17.58	18.40	18.75	2.2
Industry	27.85	28.75	29.32	30.62	32.35	32.95	1.0
Mining and quarrying	25.46	25.73	26.35	28.27	29.56	30.48	1.8
Manufacturing industry	26.83	27.79	28.47	29.75	31.33	32.16	0.8
Energy and water	53.30	51.83	49.76	52.30	54.28	52.40	3.2
Construction	21.91	22.43	23.03	24.10	25.08	25.61	1.2
Trade, transport and communications	20.89	21.64	22.43	23.73	24.96	25.59	4.0
Trade and repairs	22.40	22.92	23.45	24.40	25.48	25.94	1.5
Horeca	14.60	15.10	15.25	15.92	16.69	17.56	2.8
Transport and communications	19.87	21.07	22.33	24.06	25.53	26.38	6.6
Financial services, real estate and business services	31.65	32.58	33.48	34.75	36.20	36.94	1.2
Financial and insurance activities	37.59	40.11	40.90	42.62	45.05	46.07	2.1
Real estate and business services	26.73	27.03	28.13	29.40	30.34	31.15	1.2
Other services	21.22	21.51	21.87	22.91	24.39	25.17	2.0
Health and social work	21.41	21.65	22.04	23.09	24.49	25.34	1.9
Other community, social and personal service activities	19.75	20.38	20.71	21.63	23.69	23.95	2.6
Total	24.84	25.49	26.12	27.36	28.71	29.31	1.9

Source: NBB (social balance sheets).

(1) Item 1023 / item 1013.

Annex 9

VOCATIONAL TRAINING IN FIRMS INCLUDED IN THE REDUCED POPULATION IN 2004

	Number of trainees			(in p.c. of the number of hours worked)	Hours of training			(in p.c. of labour costs)	Training costs		
	(in p.c. of employment)				(average per trainee, units)				(average per trainee, in euro)		
	Total	Male	Female		Total	Male	Female		Total	Male	Female
Agriculture	8.8	6.2	17.2	0.17	27.5	33.1	22.6	0.48	1,503	1,926	1,132
Industry	45.9	47.9	40.8	1.04	33.5	34.6	28.9	1.48	1,654	1,720	1,365
Mining and quarrying	26.2	26.8	22.0	0.51	28.4	27.9	35.6	0.66	1,186	1,137	1,886
Manufacturing industry	45.2	47.2	40.0	1.02	33.7	34.7	29.4	1.43	1,578	1,636	1,323
Energy and water	63.2	65.2	58.4	1.40	31.2	33.6	21.1	2.29	2,782	2,972	1,958
Construction	12.9	13.0	11.3	0.21	23.4	23.6	21.5	0.24	719	715	792
Trade, transport and communications	38.0	41.6	31.9	0.80	30.7	31.9	27.5	1.26	1,339	1,445	1,073
Trade and repairs	25.6	25.4	25.7	0.53	30.0	31.8	27.7	0.64	999	1,151	805
Horeca ⁽¹⁾	9.0	10.5	7.5	0.12	15.2	15.4	15.0	0.17	413	418	406
Transport and communications ⁽¹⁾	42.2	46.2	31.0	1.02	36.6	36.4	37.4	1.68	1,713	1,708	1,738
Financial services, real estate and business services	45.6	45.6	45.4	0.92	28.2	29.8	26.3	1.64	1,959	2,024	1,877
Financial and insurance activities	61.1	61.0	61.4	1.23	26.6	27.5	25.7	2.37	2,467	2,558	2,367
Real estate and business services	32.0	33.6	29.4	0.67	30.9	33.0	27.6	0.76	1,109	1,270	850
Other services	47.3	35.6	50.7	0.70	18.0	19.9	17.6	0.67	442	540	419
Health and social work	50.4	37.6	53.2	0.76	18.0	20.5	17.5	0.71	433	527	415
Other community, social and personal service activities	22.5	29.4	14.9	0.29	18.2	17.7	19.4	0.37	598	592	609
Total	39.5	39.4	40.2	0.82	29.4	32.7	24.0	1.25	1,403	1,616	1,044

Source: NBB (social balance sheets).

(1) The training indicators are affected by the absence in these branches of one or more dominant firms whose errors could not be corrected in time.

Summaries of articles

Economic projections for Belgium – Autumn 2005

Twice a year, in June and December, the National Bank of Belgium publishes macroeconomic projections for the Belgian economy for the current and the following year. These projections make up the national component of the broad macroeconomic projection exercise conducted within the Eurosystem; the ECB publishes the aggregated results of this exercise for the euro area economy.

The current projections are an update of the projections for 2005 and 2006 published in the spring in the Economic Review, 2nd quarter 2005. Since then, the price of oil has continued to rise and is expected to remain at around 60 dollars per barrel of Brent over the projection horizon. The US dollar has appreciated against the euro. The growth of activity has remained buoyant in most of the economic regions. In that context, after a temporary slowdown at the end of last year and the start of the current year, GDP growth in the euro area should strengthen in the second half of 2005 and in 2006. Inflation projections have been revised upwards, being influenced by the persistent high level for oil prices.

In Belgium, after dipping at the beginning of the year, growth produced a modest recovery as predicted in the spring projections. The gradual strengthening of activity seen from the third quarter of 2005 should be maintained. In the short term, the recent business survey results indicate an upturn since the summer. More fundamentally, the sturdier growth appears to originate from the external sector, after the recent strength of demand from the business sector, both having so far stood up relatively well in the face of the oil shock. Conversely, the contribution of private consumption demand is likely to be curbed at first by the contained evolution in households purchasing power. In all, real GDP growth looks set to fall from 2.4 p.c. in 2004 to 1.4 p.c. in 2005. In 2006, it is predicted to reach 2.2 p.c., a downward revision of 0.2 percentage point compared to the spring, but once again a slightly higher figure than that forecast for the euro area. The number of persons in work in Belgium is estimated to increase by 0.7 p.c. in 2005, then by 0.5 p.c. in 2006, following a rise of 0.6 p.c. in 2004. In all, net job creation is expected to total around 75,000 for the period 2004-2006 as a whole, following a cumulative decline of 10,000 jobs in 2002 and 2003. However, in view of the expansion of the labour force, the number of job seekers is likely to continue to rise; the unemployment rate is forecast at 8.4 p.c. in 2005 and expected to remain at that level in 2006. Overall, inflation, measured by the harmonised index of consumer prices (HICP) is expected to average 2.5 p.c. in 2005 and 2.3 p.c. in 2006, or 0.3 and 0.4 point respectively above the spring projections. The forecast movements in inflation and the revisions since the spring mainly reflect the rise in crude oil prices. The projections for public finances take account of the measures which were announced and were sufficiently well-defined in the budgets for 2006. Conversely, they do not anticipate any additional measures which might yet be adopted. On basis of the latest information, it seems that public finances should be in balance once again at the end of 2005. Taking account

of the partly structural and partly non-recurring consolidation measures introduced in connection with the budgets, the projections for 2006 now point to a deficit of just 0.4 p.c. of GDP against 1.3 p.c. of GDP in the spring projections. The deterioration in comparison with 2005 is likely to be due to a further fall in the primary balance following the decline in revenue attributable to the effects of the personal income tax reform on the tax assessments, and to the reduction in social security contributions.

JEL Code: E17, E25, E37, E66

Key words: Belgium, macroeconomic projections, Eurosystem

[Inflation persistence and price setting in the euro area : results of the Eurosystem Persistence Network](#)

This article presents a summary of the main results produced by the Inflation Persistence Network (IPN), a network of researchers from the twelve national central banks of the euro area, the ECB and the universities, which aimed to conduct a joint analysis of inflation persistence and pricing mechanisms. This network carried out both macroeconomic and microeconomic surveys. As regards inflation persistence, one of the research findings indicated that the degree of inflation persistence in the euro area was relatively moderate under the current monetary policy regime, but that these estimates were not very accurate. As regards the pricing strategies of firms, the IPN demonstrated among other things that firms in the euro area changed their prices less often than American firms, but that this greater rigidity was not due to any excess nominal downward price rigidity. The findings should permit the development of theoretical models based on microeconomic foundations compatible with the observed behaviour, and provide a better understanding of inflation and the impact of monetary policy.

JEL Code: E31, E52

Key words: Inflation persistence, price rigidity, monetary policy

[Trend in the financial structure and results of firms in 2004](#)

Each year, in the 4th quarter's Economic Review, the National Bank examines the situation regarding the annual accounts of Belgian non-financial corporations. By that time, the Central Balance Sheet Office has already collected a representative number of annual accounts for the preceding year.

The article is in three parts. The first part describes the methodology used and the sample. The second part studies the main developments in the profit account. Finally, the third part contains a financial analysis of Belgian companies; this analysis is completed by the interpretation of the results of the default model developed by the Bank.

The main findings of the study can be summarised as follows. In 2004, the total value added created by Belgian non-financial corporations increased by 6.3 p.c., which is the best result since 2000. At the same time, the operating costs (mainly personnel costs and depreciation) grew by 2.7 p.c. So, as in 2003, value added growth far exceeded the rise in operating costs. As a result, the net operating profit increased by more than 24 p.c. After taking into account the other elements of the results, and particularly the financial and exceptional results, non-financial corporations made a net profit after tax of 26 billion euros, representing a stagnation in comparison with 2003. This stagnation is almost entirely due to the considerable reduction in the exceptional result which, having shown a substantial surplus in 2003, produced a zero balance in 2004. This reduction in the exceptional result almost cancelled out the growth in the net operating profit.

As far as the companies' financial position is concerned, having clearly suffered from the weak economic situation in 2001 and 2002, in 2004 it generally maintained the recovery which had begun in 2003. However, as regards the return on equity, a distinction must be made according to company size: while the globalised rate of return achieved by small and medium enterprises continued to increase in 2004, there was a slight fall in the case of large companies, mainly because of the decline in the exceptional result. As for the financial risks, they once again diminished, reverting to the levels prevailing in 1999, that is before the period of weak economic activity. Yet, according to the model, a large number of companies are still in difficulties: the proportion of companies experiencing problems amounts to 16.6 p.c. for large companies and 19.8 p.c. for small and medium enterprises. These distressed companies employ 215,000 workers.

JEL Code: G30, L60, L80, C35, G33

Key words: firms results, financial structure, bankruptcy prediction, sectoral analysis

The social balance sheet 2004

Each year, in the 4th quarter's Economic Review, the National Bank examines the provisional results of the social balance sheets. As all the social balance sheets are not yet available for 2004, the study is based on a limited population of enterprises, compiled according to the principle of a constant sample. This population is made up of 38,530 enterprises employing around 1,331,000 workers in 2004. The main results of the analysis, in terms of employment, working hours, labour cost and training, are as follows.

Employment in the enterprises of the limited population increased by 0.3 p.c. on average between 2003 and 2004. The rise recorded at the end of the year is slightly higher, which points to an improvement in the course of the year. The growth of employment was particularly strong in the companies employing less than 50 full-time equivalents, whereas employment diminished in those employing over 250 workers. The health and social sector and construction proved to be most dynamic, whereas industry continued to reduce its staff.

As usual, the improvement in the economic climate first translated in an increased use of more flexible working schemes: the downward trend recorded for some years in the share of fixed term employment contracts stopped and the enterprises filing full-format balance sheets revealed a sharp rise of work by temporary employment agency staff. However, there were still major differences between the various branches of activity as to the way they resort to those instruments.

The adjustment of the production capacity to the growth in economic activity also showed in the increase in the average working hours. Thus, a rise was recorded for the number of full-time workers, i.e. a break with the downward trend observed since 1998. In some large enterprises, however, end-of-career workers benefited from extra days off, which affected average working hours. A new extension of the working hours of part-time workers was also recorded.

In parallel, the share of part-time employment contracts increased significantly. The article stresses the differences between small and large enterprises and between the various branches of activity in the breakdown of workers by working scheme. Thus, in the small enterprises, which are particularly dynamic in job creation, the rise of part-time work mainly results from new engagements. In the large enterprises, on the other hand, it primarily results from the transition from full-time jobs to part-time jobs.

The full-format balance sheets data allow to analyse some characteristics of the staff movements. The net inflow of workers has been broken down by their level of training and the gross outflow of workers by the reason for their leaving their job. In those areas as well, the enterprises show major differences according to their size and their branch of activity.

Staff costs per hour worked increased by 1.9 p.c. on average between 2003 and 2004. The rise was slightly more marked for full-time workers. According to the results of an analysis based on a constant limited population over the period 2002-2004, the indicative wage norm of 5.4 p.c. was respected in most branches of activity, even though a rise exceeding that norm was observed in half of those enterprises.

Finally, in spite of the concerns expressed by European and Belgian authorities, the formal training indicators again showed a drop in 2004, except for the participation rate. Especially the cost indicator, which relates the training budget to overall staff expenses, again fell, thus moving even further away from the 1,9 p.c. objective set in the successive central agreements signed since 1998.

JEL Code: J20, J24, J30, J31, M51, M53

Key words: employment, staff costs, training, working hours, employment contract, full-time, part-time, skills, temporary worker

Abstracts of the working papers series

74. Price setting in the euro area: Some stylized facts from individual consumer Price Data by E. Dhyne, L. J. Álvarez, H. Le Bihan, G. Veronese, D. Dias, J. Hoffmann, N. Jonker, P. Lünemann, F. Rumler, J. Vilminen, September 2005

This paper documents patterns of price setting at the retail level in the euro area, summarized in six stylized facts. First, the average euro area monthly frequency of price adjustment is 15 p.c., compared to about 25 p.c. in the US. Second, the frequency of price changes is characterized by substantial cross product heterogeneity – prices of oil and unprocessed food products change very often, while price adjustments are less frequent for processed food, non energy industrial goods and services. Third, cross country heterogeneity exists but is less pronounced. Fourth, price decreases are not uncommon. Fifth, price increases and decreases are sizeable compared to aggregate and sectoral inflation rates. Sixth, price changes are not highly synchronized across retailers. Moreover, the frequency of price changes in the euro area is related to several factors, such as seasonality, outlet type, indirect taxation, pricing practices as well as aggregate or product specific inflation.

75. Importance économique du Port Autonome de Liège: Rapport 2003, by F. Lagneaux, October 2005

The Port Autonome de Liège, with its 26 kilometres of berths and several multimodal platforms, plays an important role in the Walloon and Belgian economy.

This update⁽¹⁾ paper gives an extensive overview of the economic importance and the latest developments of the Port Autonome de Liège, through revised results for the period 1997-2003. Focusing on the three major variables of value added, employment and investment, it also provides some information about the financial situation of a few vital sectors. An indication concerning the financial health of the companies studied is also provided, using the National Bank's bankruptcy prediction model. In addition, it includes figures of several cargo traffics and draws a picture of social developments in the Port Autonome de Liège.

(1) Update of Lagneaux F. (2004), *Importance économique du Port Autonome de Liège: Rapport 2002*, NBB, Working Paper No. 64 (Document series).

Annual accounts data from the Central Balance Sheet Office were used for the calculation of direct effects, the study of financial ratios and the analysis of the social balance sheet. The indirect effects of these port activities are estimated in terms of value added (VA) and employment, on the basis of data from the National Accounts Institute.

In the Liège harbour's network, direct VA came to 1 billion euro and total VA – the sum of direct and indirect VA – to 2 billion euro in 2003. In the same year direct and total employment respectively attained 12,400 and 28,500 full-time equivalents, while investment directly linked with the port fell to 121 million euro.

	Value added ⁽¹⁾	Employment ⁽¹⁾	Investment ⁽¹⁾	Tonnage ⁽¹⁾
Annual average change (1997-2003)				
Direct	-1.9	-2.5	-6.1	5.7
Indirect	1.5	1.7	-	-
Total	-0.3	-0.3	-	-
Change from 2002 to 2003				
Direct	-10.6	-9.5	-21.4	-1.7
Indirect	-10.9	-7.7	-	-
Total	-10.7	-8.5	-	-

(1) Percentages.

The position of the Port Autonome de Liège as the second largest inland port in Europe is threatened by the planned closure of the Cockerill Sambre's blast furnaces. This will take place gradually but will be completed by 2009. 2,700 direct and 4,500 indirect jobs are concerned, as well as 8 million tonnes of transshipment. However new spaces will be opened up, which means that new businesses will be created in the port area. New development sites are under construction and will soon be operative. An overall restructuring of the Liège harbour's network is under way and constitutes the main challenge for the Port Autonome de Liège's authorities in the next five years.

In spite of this climate of uncertainty, the Port Autonome de Liège is striving to establish itself as a major logistic centre in the region, able to add value to the goods passing through it, in order to withstand the climate of increasing regional and international competition.

76. The pricing behaviour of firms in the euro area: New survey evidence, by S. Fabiani, M. Druant, I. Hernando, C. Kwapil, B. Landau, C. Loupias, F. Martins, T. Mathä, R. Sabbatini, H. Stahl, A. Stokman, November 2005

This study investigates the pricing behaviour of firms in the euro area on the basis of surveys conducted by nine Eurosystem national central banks. Overall, more than 11,000 firms participated in the survey. The results are very robust across countries. Firms operate in monopolistically competitive markets, where prices are mostly set following mark-up rules and where price discrimination is a common practice. The evidence suggests that both time- and state-dependent pricing strategies are applied by firms in the euro area: around one-third of the companies follow mainly time-dependent pricing rules while two-thirds use pricing rules with some element of state-dependence. Although the majority of firms take into account a wide range of information, including past and expected economic developments, about one-third adopt a purely backward-looking behaviour. The pattern of results lends support to the recent wave of estimations of hybrid versions of the New Keynesian Phillips Curve (HNKPC). Price stickiness arises both at the stage when firms review their prices and

again when they actually change prices. The most relevant factors underlying price rigidity are customer relationships – as expressed in the theories about explicit and implicit contracts – and thus, are mainly found at the price changing (second) stage of the price adjustment process. Finally, the authors provide evidence that firms adjust prices asymmetrically in response to shocks, depending on the direction of the adjustment and the source of the shock: while cost shocks have a greater impact when prices have to be raised than when they have to be reduced, reductions in demand are more likely to induce a price change than increases in demand.

77. Income uncertainty and aggregate consumption, by L. Pozzi, November 2005

The paper investigates the relevance of aggregate and consumer-specific income uncertainty for aggregate consumption changes in the US over the period 1952-2001. Theoretically, the effect of income risk on consumption changes is decomposed into an aggregate and into a consumer-specific part. Empirically, aggregate risk is modelled through a Generalized Autoregressive Conditional Heteroskedasticity (GARCH) process on aggregate income shocks and individual risk is modelled as an unobserved component and obtained through Kalman filtering. The results suggest that aggregate income risk explains a negligible fraction of the variance of aggregate consumption changes. A more important part of aggregate consumption changes is explained by the unobserved component. The interpretation of this component as reflecting consumer-specific income risk is supported by the finding that it is negatively affected by received consumer transfers.

Conventional signs

–	the datum does not exist or is meaningless
e	estimate by the Bank
n.	not available
p.c.	per cent
p.m.	pro memoria

List of abbreviations

BNRC	Belgian National Railway Company
CLA	Collective labour agreement
CVTS	Continuous Vocational Training Survey
EC	European Commission
ECB	European Central Bank
EDP	Excessive Deficit Procedure
EMS	European Monetary System
EMU	Economic and Monetary Union
EU	European Union
FPS	Federal Public Service
FRA	Forward rate agreements
FTE	Full-time equivalents
GDP	Gross domestic product
HICP	Harmonised index of Consumer Prices
HNKPC	Hybrid neo-Keynesian Philips curve
ICP	Index of consumer prices
IMF	International Monetary Fund
IPN	Inflation Persistence Network
IPP	Index of product prices
MTN	Monetary Transmission Network
NACE-Bel	Belgian version of the statistical nomenclature of economic activities in the European Community
NAI	National Account Institute
NBB	National Bank of Belgium
NCB	National Central Bank
NEMO	National Employment Office
NSI	National Statistical Institute
NSSO	National social security office

OECD	Organisation for Economic and Co-operation and Development
OLO	Linear bond
PCE	Personal consumption expenditures
ROE	Return on equity
SME	Small and medium sized enterprise
VAT	Value added tax

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© Illustrations: DigitalVision
GoodShoot
PhotoDisc
National Bank of Belgium

Cover and layout: NBB Prepress & Image

Published in December 2005