Economic Review

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Contents

Economic projections for Belgium – Autumn 2014

Introduction

The economic recovery that got underway in the spring of last year is still very fragile, both in Belgium and in the euro area. Against a backdrop of declining producer and consumer confidence, the Bank's spring projections for Belgium already factored in some decline in growth from the second quarter of 2014. However, the actual slowdown was significantly steeper than projected, with economic developments in Belgium much the same as in the broader euro area. Here too, the economy virtually stalled in the second quarter, much as it did in Belgium. Most notably, the core countries were the worst affected, and Germany and France even reported slight contractions. By contrast, growth gathered momentum in quite a few of the countries in the euro area periphery, with the one exception of Italy, where economic activity also declined. The growth figures for Spain, Portugal and particularly Ireland were even remarkably high. The first flash estimate suggests no further declines in euro area growth in the third quarter, with the overall figure ending up at a still subdued 0.2 %. Growth in Germany and France, the two main euro area economies, is back in positive territory, albeit only marginally in the case of Germany.

These diverging growth figures for the euro area suggest that the domestic recovery process is gradually leading to the expected rebalancing, with the revival much stronger in countries that have had to address the biggest macroeconomic imbalances. These countries have gone through the toughest adjustment programmes to repair their competitiveness and are now showing the first rewards. In Ireland's case, growth is significantly underpinned by the country's strong trade links with global growth drivers such as the United States and the United Kingdom.

Worldwide, the economic recovery continues. Although global growth was held back by a number of specific factors in the first six months of the year – e.g. the very bad weather in the United States at the beginning of the year, and the VAT increase that depressed household consumption in Japan in the second quarter – economic activity would seem to have picked up again in the second half of the year. Global growth should end 2014 at more or less the same level as in 2013, but developments diverge in the various parts of the world. Emerging countries as a whole still account for the steepest growth rates, though some are facing gradual or even steep slowdowns. In China, for one, third-quarter growth fell back to its lowest rate since the great recession. Russia's economy would even appear to be grinding to a complete halt in the wake of its deteriorating relationship with the advanced countries and the resultant mutual economic sanctions. By contrast, some advanced countries are enjoying robust and rising growth, in some cases even exceeding expectations.

One source of concern, which is perhaps related to the changing composition of global growth, is that international trade flows would seem to benefit significantly less from growth. Less trade-intensive global growth may weigh on the pace at which the recovery spreads, and, more particularly, slow down the revival of the euro area, which has been trailing despite the sharp depreciation of the euro.

Meanwhile, the financial markets seem to be mainly reflecting the very accommodative monetary policies and significant liquidity creation in the advanced countries. Asset prices have bounced back and yields have fallen to historic lows, including those on government bonds that until recently commanded very high risk premiums. Several bouts of financial instability, like in August and

October, have jolted memories of how jittery markets can be in response to rising geopolitical tensions and to any changes, however small, in the growth outlook.

These autumn projections for Belgium, which were completed on 20 November 2014, incorporate a range of measures that were already taken or announced in sufficient detail by the various new governments, even if not all the details about their implementation were known by the cut-off date. The key measure announced by the federal government is the temporary suspension of the indexation mechanisms for wages and replacement incomes by means of the so-called "index jump" on top of the continued real wage growth freeze. As this is a key element in this projection exercise, Box 1 below goes into some detail about our assessment of its macroeconomic impact. Although it is likely to cause a sharp drop in inflation, the measure's real effects should be limited over the term of the projection horizon. After all, in an environment of low inflation it would take a while for this temporary suspension of index-linking, scheduled for the first quarter of 2015, to fully percolate through to lower wage growth. It will also take some time for lower wage costs to be transmitted to prices and for the positive effects of improved cost competitiveness to materialise in exports. Lastly, the favourable effects of the indexation suspension on economic activity will initially be offset by lower income growth depressing household consumption.

Although forecasts are still pointing to a further pick-up in economic activity, growth estimates have clearly been revised downwards. The bigger-than-expected decline in growth since the spring is keeping economic activity at only 1 % for this year. The Belgian economy is expected to grow at a similar pace next year before accelerating somewhat in 2016. The significant downward revision of the 2015 growth estimates, i.e. 0.7 percentage point relative to the spring projections, can for one third be ascribed to the carry-over effect of this year's lower growth. Other factors also come into play. For one thing, the adoption of the consolidation measures in the federal and regional government budgets has shaved about 0.1 percentage point off government expenditure's contribution to growth. Household consumption growth has also been revised downwards due to the aforementioned effects of lower income growth. The same applies to business investment, due to lower levels of production as of 2014. Lastly, net exports excluding the carry-over effect should also contribute 0.1 percentage point less in 2015, as the common technical and external assumptions underpinning Eurosystem forecasts are positing much more subdued market growth. The most important of these assumptions are described in Box 2 in this article's first section.

The recovery does continue to show on the labour market: whereas 12 000 jobs were lost in 2013, over 60 000 are expected to be created between 2014 and 2016 – barely below the figure put forward in the spring projections, despite the lower growth estimates. This is of course due to the fact that labour would be relatively cheaper thanks to much lower labour cost growth, but in part it also reflects the stronger-than-expected increase in employment in the first half of this year. With participation rates up due to certain activation measures, job creation would not be enough to push down the unemployment rate.

Like the euro area as a whole, Belgium is looking at unusually low inflation in 2014, albeit partly because of the reduction in VAT rates on household electricity bills since April 2014. After adjustment for volatile components, however, prices should rise a little faster than in 2013. Current projections do see the underlying rate of inflation gradually dipping down to below 1 %, primarily as a result of labour cost control. By contrast, the rate of inflation of the volatile components looks set to rise considerably on the back of the recovery in oil prices from 2015 as foreseen in the common assumptions. Despite the downward underlying trend, the NCPI and HICP indices for consumer inflation would therefore still increase from their current unusually low levels to over 1 % in 2016.

Turning to public finances, the budget deficit would exceed the threshold of 3 % of GDP this year, then drop significantly from 2015 but still be above the budgetary target in 2016. In this respect, it should be pointed out that, in accordance with the rules applicable to the Eurosystem projection exercises, account is taken only of measures which have been formally adopted by the government – or which are very likely to be approved – and for which the implementation arrangements have been specified in sufficient detail on the cut-off date for the forecasting exercise. In addition, estimates of the budgetary impact of certain measures, such as those designed to combat fraud, may differ from the amounts included in the budget.

1. International environment and assumptions

1.1 Global economy

The global economy's uneven recovery continued at the same pace in 2014. Overall, economic activity in the advanced countries picked up on the back of highly accommodative monetary policies and a slower pace of budgetary consolidation, while growth in the emerging economies was disappointing. This overall picture

nevertheless hides strongly diverging developments in the various countries and regions.

In the United States, economic activity appeared to be gathering momentum following a temporary contraction in the first quarter due to adverse weather conditions. Better labour and housing market conditions and the diminishing impact from household deleveraging drove the revival, coupled with even more expansive monetary policies during most of 2014 and a slower pace of budgetary consolidation.

Box 1 – The macroeconomic effects of temporarily suspending indexation

The new federal government has announced it is planning a series of general policy measures, one of the most important elements for Belgium's macroeconomic development in the next couple of quarters being the aforementioned "index jump". Although not all details of its implementation are known, this article interprets the "index jump" as a non-increase of 2 % in all wages and replacement incomes, i.e. social benefits, pensions and the like. Skipping the automatic increase should benefit companies when it comes to private sector employment and the government with regard to both employment and benefit spending.

In addition to its proposed indexation suspension, the federal government has expressed its intention to continue its wage restraint policies, which implies zero growth for real negotiated wages in both 2015 and 2016. This implies that it is assumed that employees will not be able to offset the negative shock dealt to wages by the indexation suspension when the next set of wage negotiations rolls around. In the current low inflation environment, the suspension of the indexation mechanism – which is scheduled to be implemented in the first quarter of 2015 – will result in only a very minor indexation of average wages over the projection horizon, with wage drift becoming the key driver of nominal wage increases.

This significant restraint of wage growth is likely to result in :

- A negative household income shock, causing a temporary fall in private consumption. However, the decline should be gradual as consumption patterns are typically smoothed, which implies that the savings ratio will decline.
- A positive shock boosting business competitiveness, which will be bigger to the extent that the initial wage shock pushes down end prices. Companies tend not to adapt their sales prices to their production costs immediately and it also takes time for relative prices to feed through to export results, so any gains in terms of market share will only become visible in the medium term.
- A relative reduction in labour factor costs that should gradually increase labour intensity in the production process.
- A slightly negative effect on public finances in the first few years, as the positive impact on benefit spending and wages will be wiped out by lower direct tax receipts from households and social contributions, as well as by lower indirect taxes in keeping with the steady fall in consumption. Over time, though, the shortfall should be recouped through higher employment and economic activity, making up for the initial budgetary costs of skipping the indexation.

It will take time for the 2 % contraction of nominal hourly wages to percolate through relative to a scenario in which indexation is not skipped. After all, the speed at which the indexation suspension affects the average nominal wage will depend on the indexation mechanisms specific to each sector, and the shock will also be delayed by low inflation in Belgium. Moreover, companies typically make their output prices mirror production costs – and wages – only gradually. Lastly – and as this article has already noted – real macroeconomic variables (consumption, exports, job creation, etc.) typically reflect price changes after a time lag, and the macroeconomic effects will not become fully visible until after 2016, i.e. beyond the projection horizon. From 2017 onwards, the impact is likely to be stronger in the sense that lower prices should make for less dynamic wage growth once indexation mechanisms are switched back on. All in all, the total impact on wages of temporarily suspending the index-linking should be bigger, over time, than the initial 2 % shock.

The indexation suspension's quantitative effects have been estimated by the National Bank of Belgium's quarterly econometric model[1]. The table below captures the outcomes of the simulation, which sees the impact of wages on companies' marginal costs revised downwards relative to the published version of the model, slightly reducing the wage-price spiral in the quarters after the indexation suspension. The revised specification takes on board the findings of Cornille and Robert (2005)[2] among others, who argue that labour costs account for only around one-third of the total production costs of a standard consumer item.

IMPACT OF THE INDEXATION SUSPENSION IN THE AUTUMN PROJECTIONS

(percentage change compared to the baseline scenario without the indexation suspension; cumulative growth differences from 2015)

	2015	2016	2017	2018	2019
Nominal hourly labour costs	–0.3	–1.6	–2.7	–3.0	–3.1
Export deflator	0.0	–0.4	–1.0	–1.2	–1.2
Inflation (HICP)	–0.1	–0.5	–0.9	–1.1	–1.1
GDP deflator	–0.1	–0.8	–1.7	–2.1	–2.2
Disposable household income[1]	–0.1	–0.6	–0.9	–1.0	–1.0
Household consumption[1]	–0.1	–0.3	–0.4	–0.5	–0.4
Household savings ratio[2]	0.0	–0.3	–0.5	–0.5	–0.5
Net export contribution to growth[1][2]	0.0	+0.1	+0.3	+0.5	+0.7
GDP[1]	0.0	0.0	+0.1	+0.3	+0.5
Private sector employment[3]	0.0 (0.4)	+0.1 (4.4)	+0.2 (11.9)	+0.5 (22.3)	+0.8 (33.3)
Overall government balance (in % of GDP)[2]	0.0	–0.1	–0.1	0.0	+0.2
Government debt (in % of GDP)[2]	+0.2	+1.1	+2.0	+2.2	+1.9

Source: NBB.
(1) In real terms.
(2) Change in percentage points.
(3) Figures in brackets in thousands of people, measured at the end of the calendar year.

The simulation based on the above assumptions suggests that skipping the indexation will have only a subdued effect on economic growth over the projection horizon, with a slightly negative impact on consumption in 2015 and a bigger effect in 2016. The impact of improved cost competitiveness on exports will not become fully noticeable until after 2016.

That said, the assumption of zero growth in real wages might prove untenable in the medium term. In contrast to the proposed scenario, wage negotiations might be reopened and real wages might rise, partly reducing the expected improvements in cost competitiveness. Another drawback to the proposed analysis is that this simulation fails to factor in the expectations that the affected economic agents have for the future and the possibility that these agents might act on the announced measures even before they are implemented. Besides, the simulation assumes that every gradual nominal wage cut will come as a surprise to both households and companies, while a model based on rational expectations would posit awareness on the part of these agents of the measure's future benefits for competitiveness and real growth; they would immediately adapt their behaviour, and the wage restraint policy would feed through to the real economy more quickly.

(1) Jeanfils P. and K. Burggraeve, *Noname – a new quarterly model for Belgium, National Bank of Belgium,* Working Paper 68, May 2005.
(2) Cornille D. and B. Robert (2005), "Sectoral interdependencies and cost structure in the Belgian economy: an application for input-output tables", NBB, *Economic Review*, June, 33-48.

Economic activity in Japan slumped in the second quarter of 2014 in the wake of the April consumption tax hike. To some extent, consumption shifted to the first quarter, which did see a robust growth figure. Although much-needed fiscal consolidation is likely to put a brake on growth in the years ahead, more accommodative monetary policies and better financing conditions should support the economy. However, economic activity unexpectedly contracted further in the third quarter.

The euro area recovery that had begun in the spring of 2013 fell back significantly during the course of 2014. Recording quarter-on-quarter growth of barely 0.1 %, the economy almost stalled in the second quarter. Increasing geopolitical tensions and a slowdown in growth in key emerging countries depressed exports and – through uncertainty effects – investment as well. The lack of any resolute structural reforms in a number of core euro area countries – and the resultant languishing growth – may also have played a role. No steep upturn in economic activity is expected for the second half of 2014 and so, not surprisingly, the European Commission revised its growth outlook for the euro area sharply downwards in its autumn forecast. The first available quarterly statistics suggest that third-quarter growth did not contract any further but was still limited to a modest 0.2 %. The euro area economy is therefore expected to grow only modestly in 2014, and would then accelerate in 2015 and 2016. Domestic demand should be the largest contributor to growth in the years ahead, underpinned by accommodative monetary policies, low financing costs, improved credit conditions, a slower pace of deleveraging and a return to more neutral fiscal conditions. In contrast, net exports are expected to make only a modest contribution to growth. Turning to individual euro area countries, the German economy virtually stagnated in the second and third quarter, but its strong labour market and the pick-up in foreign demand should support economic activity in the next few years. Despite surprisingly positive third-quarter growth, the French economy has in fact stalled since 2011 ; and with investment falling, household consumption flat and exports weak, no pick-up in growth is likely to materialise before 2016. The euro area periphery, by contrast, is catching up. Ireland, Greece, Spain and Portugal have already been recording high to very high quarterly growth figures, Cyprus should also see economic activity trend upwards.

In tandem with weak economic growth, labour markets have been recovering modestly as well. The unemployment rate in the euro area is expected to come down only a little in the next couple of years and to still be at pre-crisis levels by 2016. Differences between Member States continue to be significant, but the gap is narrowing as the situation is improving in the countries most affected by the crisis.

Conditions in the emerging economies diverge sharply, due to both global and country-specific factors. The emerging Asian countries such as China, India and Indonesia have enjoyed relatively robust growth, whereas geopolitical tensions have been weighing on economic activity in Russia and falling commodity prices have had a negative impact on growth in some countries in Latin America. Despite still strong growth figures, the Chinese economy is steadily losing momentum, due in part to a correction in the housing market. This correction, coupled with measures to curb credit growth in the financial sector, is likely to put a further brake on growth going forward. In Russia, investment – which had seen subdued growth even before the Ukrainian crisis – has been hit hard. The Russian economy is therefore expected to more or less stagnate in 2014, and to edge up when investment and exports revive.

Having come out of a prolonged spell in the doldrums, global trade had gained momentum in the second half of 2013 only to fall back again in the first months of 2014. Like economic activity, growth in global trade also levelled off at the beginning of the year, with falls being most marked in the Asian emerging countries, and with most notably sharply lower imports in China. Underpinning these trends are both cyclical factors – particularly the sharp slowdown in trade-intensive demand components such as business investment – and more fundamental issues, including the fact that global production chains are getting shorter after years of expansion. All these factors have led to a reduction of the elasticity of international trade relative to economic growth. While world trade is expected to start moving back up, it would do so at a slower pace than before the crisis.

In the financial markets, long-term government bond yields have fallen or stabilised at low levels against a backdrop of strongly accommodative monetary policies in the advanced countries. Prospects of a prolonged period of very low interest rates have led investors to search for yield elsewhere, a trend reinforced by the generally low volatility in international markets. As a result, equity prices have continued their upward trajectory in 2014, while risk premiums on high-yield government bonds – in the euro area periphery, for instance – fell to their lowest post-crisis levels. Although there were bouts of heightened turbulence in financial markets in 2014, such as those in August and October, these periods have so far proved temporary.

The general fall in commodity prices that had started in 2011, came to an end late in 2013. Although Brent-grade crude oil prices and industrial commodities did not show any clear trends during the first few months of 2014, food commodity prices were sharply up due to poor weather conditions in some countries and unease about the situation in Ukraine, a key grain exporter. In early May and at the end of June respectively, oil and food prices fell back steeply again, followed more recently by industrial commodity prices. The demand side is still dominated by subdued global demand and, in the case of industrial commodities, by concerns about declining growth in China. On the supply side, shale oil production in North America and the massive reserves in Saudi Arabia more than made up for supply interruptions due to geopolitical tensions in Russia, Libya and Iraq. Good harvests this year should also make for a high supply of food, primarily grain.

Movements in bilateral exchange rates in 2014 have been largely due to diverging expectations of monetary policies in the relevant countries. The euro started falling against sterling in March and against the US dollar in early May, in keeping with expectations of a faster normalisation of monetary policies in both countries compared with the euro area.

TABLE 1 PROJECTIONS FOR THE MAIN ECONOMIC REGIONS

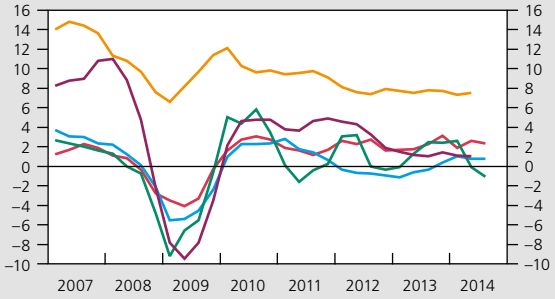
(percentage changes compared to the previous year, unless otherwise stated)

	2013	2014 e	2015 e	2016 e
Real GDP				
World	3.1	3.3	3.8	4.1
of which:				
Advanced countries	1.3	1.8	2.2	2.5
United States	2.2	2.2	3.1	3.2
Japan	1.5	1.1	1.0	1.0
European Union	0.0	1.3	1.5	2.0
Emerging countries	4.5	4.4	5.0	5.3
China	7.6	7.3	7.1	6.9
India	4.7	5.8	6.4	6.9
Russia	1.3	0.3	0.3	1.2
Brazil	2.5	0.2	1.4	2.6
p.m. World imports	*2.7*	*3.0*	*4.6*	*5.5*
Inflation[1]				
United States	1.5	1.8	2.0	2.3
Japan	0.4	2.8	1.6	1.4
European Union	1.5	0.6	1.0	1.6
China	2.6	2.4	2.4	n.a.
Unemployment[2]				
United States	7.4	6.3	5.8	5.4
Japan	4.0	3.8	3.8	3.8
European Union	10.8	10.3	10.0	9.5

Source: EC.
(1) Consumer price index.
(2) In % of the labour force.

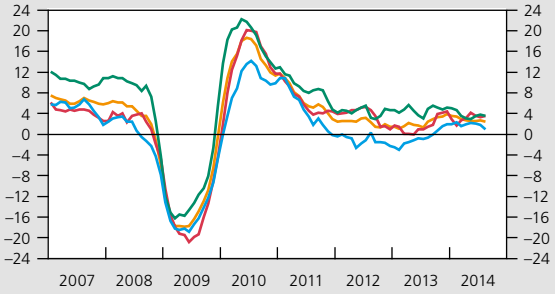
CHART 1 GLOBAL ECONOMIC ACTIVITY AND DEVELOPMENTS ON COMMODITY AND FINANCIAL MARKETS

REAL GDP GROWTH
(quarterly data, percentage change compared to the previous year)



US
Euro area
China
Japan
Russia

INTERNATIONAL TRADE
(seasonally adjusted three-month moving average of export and import volumes, percentage change compared to the previous year)

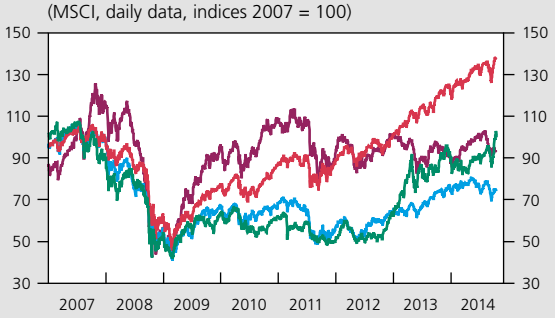


World
Euro area
US
Emerging countries

YIELD ON TEN-YEAR GOVERNMENT BONDS
(as a %)

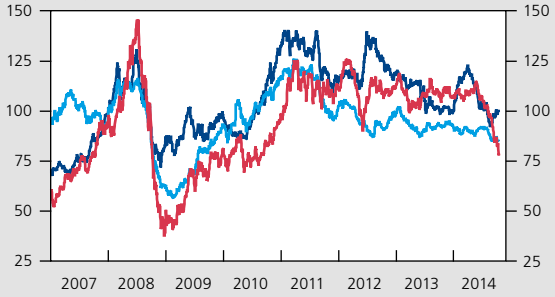
Germany
US
Japan

STOCK MARKET PRICES
(MSCI, daily data, indices 2007 = 100)



EURO STOXX BROAD (EA)
S&P 500 (US)
NIKKEI 225 (JP)
Emerging countries

COMMODITY PRICES
(daily data, in $)



Food commodities
Industrial commodities
Brent crude (per barrel)
(indices 2010 = 100)

EURO EXCHANGE RATES
(daily data)

Bilateral exchange rate against the US dollar (left-hand scale)
Bilateral exchange rate against sterling (left-hand scale)
Bilateral exchange rate against the Japanese yen (right-hand scale)
Nominal effective exchange rate (right-hand scale, indices 2007=100)

Sources: CPB, OECD, Thomson Reuters Datastream.

Box 2 – Assumptions underpinning projections

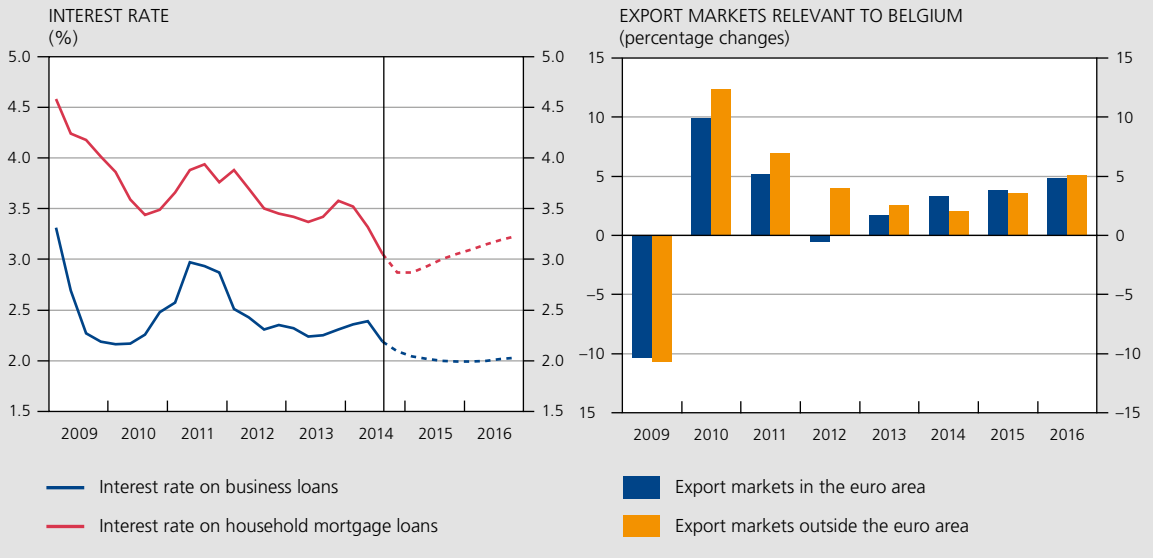
The macroeconomic projections for Belgium described in this article are the result of a joint Eurosystem exercise for the euro area. The projection exercise is based on a set of technical assumptions and forecasts for the international environment drawn up jointly by the participating institutions, namely the ECB and the national central banks of the euro area.

The projections assume that, throughout the projection period, future exchange rates will remain at the average levels recorded in the last ten working days before the cut-off date for the assumptions on 14 November 2014. In the case of the US dollar, the exchange rate then stood at $ 1.25 to the euro, a marked appreciation against the average of $ 1.33 in 2013.

As usual when it comes to mineral oil prices, account is taken of market expectations as reflected in forward contracts on the international markets. In mid-November 2014, this indicator suggested that, following the steep falls of the previous few months, the price per barrel of Brent could start picking up over the projection horizon, from an average of $ 84.6 in the last quarter of 2014 to $ 88.9 in the last quarter of 2016. Despite the expected gradual upturn, oil prices should end 2016 a lot lower than in 2013 and levels reached in the first half of 2014 – a significant downward revision with regard to the spring projections.

Interest rate assumptions are also based on market expectations in mid-November 2014. The three-month interbank deposit rate was projected to remain at an unusually low level of below 10 basis points in the final quarter of 2014. Short-term interest rates are expected to stay at such a low level for some time, only edging up to over 15 basis points by the end of the projection horizon. Long-term interest rates in Belgium are also expected to rise gradually, from 1.3 % in the final quarter of 2014 to an average of 1.6 % in 2016. Long-term interest rates for 2014 and 2015 have been revised downwards quite considerably compared to the assumptions in the projections of last spring.

INTEREST RATES AND VOLUME GROWTH OF EXPORT MARKETS



Source : Eurosystem.

The interest rates that banks are forecast to charge on business investment loans and household mortgage loans take account of the transmission generally apparent in relation to market rates. Retail rates as offered by banks have generally been revised downwards to a lesser extent, compared to the June projections. Average mortgage rates should work out at around 2.9 % in the fourth quarter and are expected to drop by nearly 20 basis points in 2015 before moving back up in 2016. Average interest rates on business investment loans, which typically reflect shorter-term rates, are projected to remain virtually unchanged at nearly 2 %.

Global economic growth projections for 2015 and 2016 have been revised upwards slightly relative to the June 2014 spring projections. In the wake of the lower trade intensity of this growth as observed earlier, there was a marked downward adjustment of the elasticity of import demand relative to global growth ; hence, the new global growth assumptions generate a distinctly lower demand for imports. In this context, the year-on-year growth of the foreign markets relevant to Belgium was revised down sharply over the projection horizon. The adjustment was steepest for markets outside the euro area, although euro area markets would also revive less quickly than had been predicted, in view of the clear slowdown in the euro area in the course of 2014. That said, these markets should still grow from less than 3 % in 2014 to nearly 5 % in 2016, with export markets outside the euro area expected to return to faster growth than those within the euro area from 2016.

Growth in Belgian exports is determined not only by the growth of these markets but also by changes in market share, and therefore Belgium's competitiveness. With regard to cost-related competitiveness aspects, one important factor is the movement in the prices which competitors charge on the export markets. In 2014, competitors' prices on the export markets would decline by 0.9 %, after already having fallen by 1.7 % on average in 2013. For both 2015 and 2016, prices are projected to stage a clear upturn, implying an upward revision on the spring projections. The revision is due partly to the fall in the value of the euro as measured on the basis of the real effective exchange rate.

The revisions relative to the spring projections of the technical, financial and international assumptions should result in an overall downward impact of nearly 0.3 percentage point on the 2015 growth estimates and of around 0.2 percentage point on those for 2016. The relatively substantial effects of more subdued growth in Belgium's markets are only partly offset by positives such as lower interest rates, lower oil prices and higher prices of foreign competitors as expressed in euros.

EUROSYSTEM PROJECTION ASSUMPTIONS

(in %, unless otherwise stated)

	2014	2015	2016
		(annual averages)	
EUR/USD exchange rate	1.33	1.25	1.25
Crude oil prices (US dollars per barrel)	101.2	85.6	88.5
Three-month interbank rate in euro	0.2	0.1	0.1
Yield on ten-year Belgian government bonds	1.7	1.3	1.6
Corporate loan rates	2.3	2.0	2.0
Household mortgage rates	3.2	3.0	3.2
		(percentage changes)	
Export markets relevant to Belgium (volume)	2.9	3.7	4.9
Export competitors' prices	–0.9	1.0	1.4

Source : Eurosystem.

1.2 Estimates for the euro area

The Eurosystem's autumn projections suggest that the recovery in the euro area, which began in the spring of 2013, would gather greater momentum, albeit at a much slower pace than indicated in the ECB's spring and September projections. The economic growth rate in the following quarters is likely to still be restrained by the factors that brought on a marked growth slowdown in this year's second and third quarter: the ongoing major geopolitical tensions, the fragile recovery of international trade and the lack of progress on economic reforms in some euro area countries. Growth should nevertheless still perk up in the next two years, to 1.5 % in 2016.

Unlike in the 2011-2013 period, domestic demand should turn into the biggest engine for growth by far, gradually also pushing up imports and thus largely offsetting higher exports on the back of growing foreign demand and a cheaper euro. Higher domestic demand will be supported by accommodative monetary policies and steady household income growth in a low inflation environment. However, the need for both governments and the private sector to continue to deleverage in a good many countries will continue to depress the growth outlook in the longer term.

Having fallen to an unusually low level since the spring 2014 projections, inflation is expected to gradually rise to around 1.4 % by the final quarter of 2016. This upward trend should come on the back of rising demand as well as the expected turnaround in price pressure from volatile components such as energy, whose massive price falls over the past months have sharply reduced inflation. This latter factor explains why underlying inflation – i.e. inflation excluding volatile movements in prices of energy and food – is expected to accelerate less swiftly and would, coming from a higher level to start with, end up at more or less the same level as HICP inflation by 2016.

The recovery in the labour market appears to be unaffected for now by the recent slowdown in economic activity. Wage restraint and recently implemented labour market reforms would seem to be driving recovery and have increased the labour intensity of economic growth. Employment momentum should become even more robust in 2015 and 2016, although the unemployment rate is still expected to be above its structural level by the end of the projection period, despite its decline by one percentage point in three years.

The average budget deficit in the euro area is projected to decline to 2.2 % of GDP by 2016. However, the improvement is attributable mainly to the revival in economic activity and the decline in interest charges on the back of unusually low interest rates. Fiscal policies are expected to remain virtually neutral in the period under review.

TABLE 2 EUROSYSTEM PROJECTIONS FOR THE EURO AREA

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

	2014 e	2015 e	2016 e
Inflation (HICP)	0.5	0.7	1.3
Underlying inflation (1)	0.8	1.0	1.3
Real GDP	0.8	1.0	1.5
Household and NPI final consumption expenditure	0.8	1.3	1.2
General government final consumption expenditure	0.9	0.5	0.4
Gross fixed capital formation	0.7	1.4	3.2
Exports of goods and services	3.2	3.2	4.8
Imports of goods and services	3.3	3.7	4.9
Domestic employment	0.4	0.6	0.5
Unemployment rate (2)	11.6	11.2	10.9
General government financing requirement (–) or capacity (3)	–2.6	–2.5	–2.2

Source: ECB.
(1) Measured by the HICP excluding food and energy.
(2) In % of the labour force.
(3) In % of GDP.

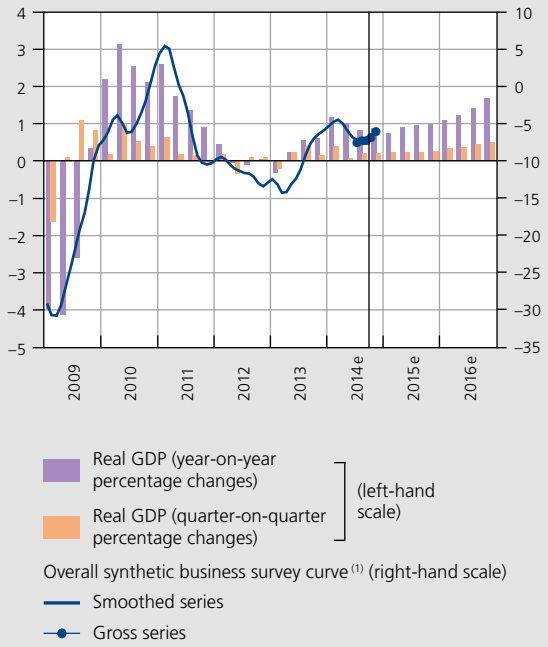
2. Activity and demand

From the second quarter of 2014, Belgium's economic recovery waned faster than had been predicted. The Bank's spring projections had factored in some edging down, but the first quarterly statistics revealed a significantly steeper fall to no more than 0.1 %. Domestic demand slowed only slightly but net exports were reported to have contributed very negatively to growth. To a degree, this was down to specific factors, such as key purchases of ships abroad by a shipping company, driving up both business investment and imports. According to the NAI's latest quarterly estimates, economic activity grew by 0.3 % in the third quarter.

The picture in Belgium is in line with that seen in the rest of the euro area. Other euro area countries, and particularly Belgium's main trading partner Germany, saw growth dip in the second quarter after a slightly more robust first quarter. For the broader euro area, lower domestic demand – and, more specifically, lower investment volumes – are mainly to blame for the slowdown. Eurostat's initial flash estimates put euro area growth in the third quarter at 0.2 %. Despite the recent volatility of quarterly growth rates and the diverging growth performance of the various euro area countries, initial analyses suggest that the underlying trend still points to ongoing recovery in the euro area.

CHART 2 GDP AND BUSINESS CYCLE INDICATOR

(data adjusted for seasonal and calendar effects, unless otherwise stated)



Sources: NAI, NBB.
(1) Non-calendar-adjusted data.

TABLE 3 GDP AND MAIN EXPENDITURE CATEGORIES

(volume data adjusted for calendar effects, percentage changes compared to the previous year, unless otherwise stated)

	2013	2014 e	2015 e	2016 e
Household and NPI final consumption expenditure	0.3	0.7	1.0	0.9
General government final consumption expenditure	1.1	0.9	0.8	0.4
Gross fixed capital formation	–2.2	2.7	2.3	2.6
general government	–5.4	–1.8	5.7	–1.7
housing	–3.5	1.2	1.7	1.1
enterprises	–1.2	3.9	2.0	3.8
p.m. Domestic expenditure excluding change in inventories	*–0.1*	*1.2*	*1.2*	*1.2*
Change in inventories (1)	–0.7	–1.0	0.0	0.0
Net exports of goods and services (1)	1.0	0.7	–0.3	0.2
Exports of goods and services	2.9	2.9	3.1	4.7
Imports of goods and services	1.7	2.0	3.6	4.6
Gross domestic product	0.3	1.0	0.9	1.4

Sources: NAI, NBB.
(1) Contribution to the change in GDP compared to the previous year, in percentage points.

Belgium's subdued second and third quarter should be seen against a backdrop of weaker producer and consumer confidence. According to the Bank's surveys, these two confidence indicators have been declining in Belgium since the beginning of the year. In fact, consumer confidence has again dipped below its long-term average; producer confidence is hovering around that level but would seem to have been perking up in the past few months. The sub-indicators most closely correlated to short-term economic trends present a rather more balanced picture: employment prospects for respondents in the consumer confidence survey are no worse than they were at the beginning of the year and remain closer to the long-term average. As regards producer sentiment, demand trends in the manufacturing industry are key, and although these were down, they appear to have bounced back in the past couple of months to a level clearly above the long-term average.

The short-term forecasting models (nowcasting models) used by the Bank, such as the BREL model described in the June 2014 Economic Review, therefore suggest unchanged growth in the final quarter of 2014. Overall, growth in 2014 would amount to 1 %. A lower-than-expected carry-over effect, among other things, should keep 2015 growth at nearly the same rate, and it will not be until 2016 that annual growth rises above potential growth – to 1.4 % – thanks to the positive effects of improved cost competitiveness on exports.

In the annual figures for 2014, both domestic demand, excluding the change in inventories, and net exports still make important contributions to growth in economic activity. For net exports, this is down solely to a significant positive carry-over effect from 2013: in 2014 itself, growth in exports would fall below that in imports. Much of the positive contribution by both these demand components is wiped out by a remarkably large negative contribution from the change in inventories, which is also only attributable to a carry-over effect from developments up to and including the second quarter of 2014, the most recent quarter for which detailed quarterly statistics are available. This negative growth contribution of stock-building suggests that companies have wound down their production rates faster than domestic and foreign demand have fallen, possibly because of the renewed uncertainty. Although we cannot rule out the possibility that companies will reduce their inventories more slowly or speed up their stock-building in the near future, the technical assumption made for all quarters of 2015 is that the change in inventories will be neutral for growth, as this whole concept is hedged with great statistical uncertainty.

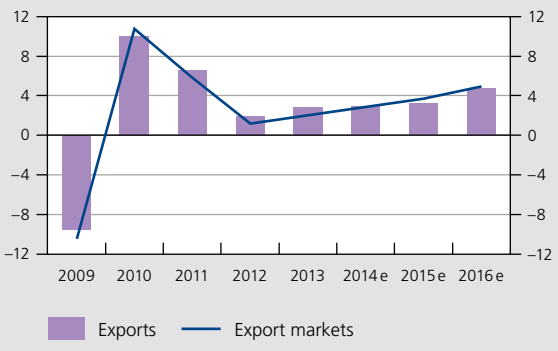
In 2015, net exports would still put a brake on annual growth in economic activity. As mentioned in Box 1 and elaborated in section 4, unit labour costs should grow more slowly because of robust wage restraint and in 2016 also because of lower social security contributions. This should result in significantly improved competitiveness and give a boost to exports, as the projections of market shares of Belgian exporters clearly show. According to the national accounts and the available statistics on the growth in demand for imports from partner countries, Belgian exporters have seen their market shares increase in real terms over the most recent period, namely from 2011 to 2013. Longer-term, however, the trend has been for the Belgian economy to lose market share, the main reason being a difference in competitiveness attributable to both costs and non-cost factors. The autumn projections suggest that this gap will gradually narrow and even reverse into a small quarterly gain as 2016 progresses. This, coupled with higher demand for imports from partner countries, should boost Belgian export growth to 4.7 % in volume terms by 2016.

With import growth set to grow more slowly as competitiveness improves over the projection horizon, net exports should gradually pick up and contribute 0.2 percentage point to annual growth by 2016. The marked increase in this contribution compared to 2015 is the reason behind the significant rise in growth in the final year of our projection period.

The contribution to growth from domestic demand excluding inventories, by contrast, is projected to remain virtually unchanged over the projection period. Over the next two years, year-on-year growth of household consumption, the key component of domestic demand, is even expected

CHART 3 EXPORTS AND EXPORT MARKETS

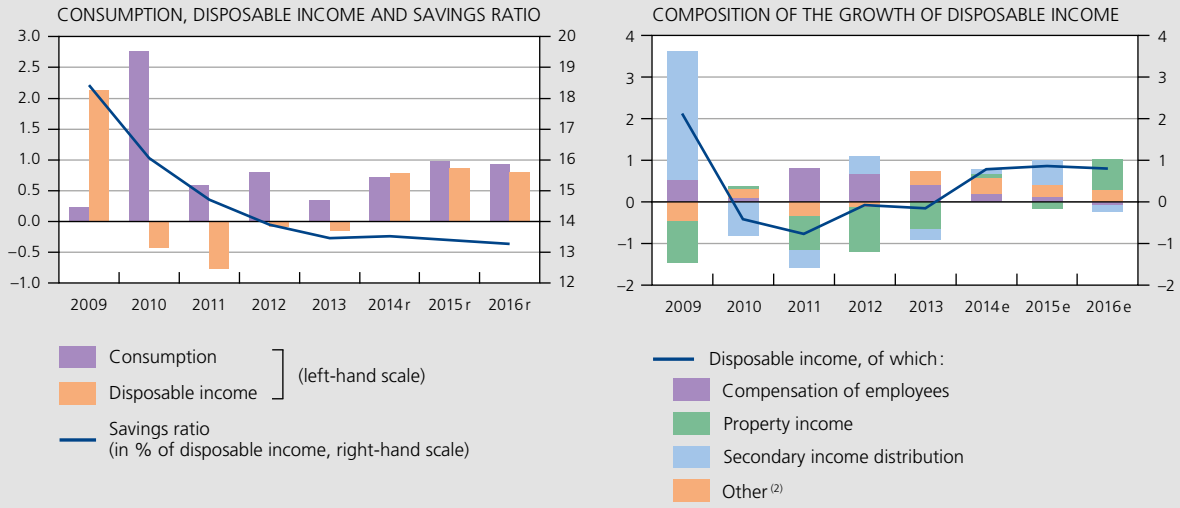
(volume data adjusted for seasonal and calendar effects, percentage changes compared to the previous year)



Sources: NAI, NBB.

CHART 4 HOUSEHOLD CONSUMPTION, DISPOSABLE INCOME[1] AND SAVINGS RATIO

(percentage changes compared to the previous year, volume data, unless otherwise stated)



Source: NBB.

(1) Data deflated by the household consumption expenditure deflator.

(2) Gross operating surplus and gross mixed income (of the self-employed).

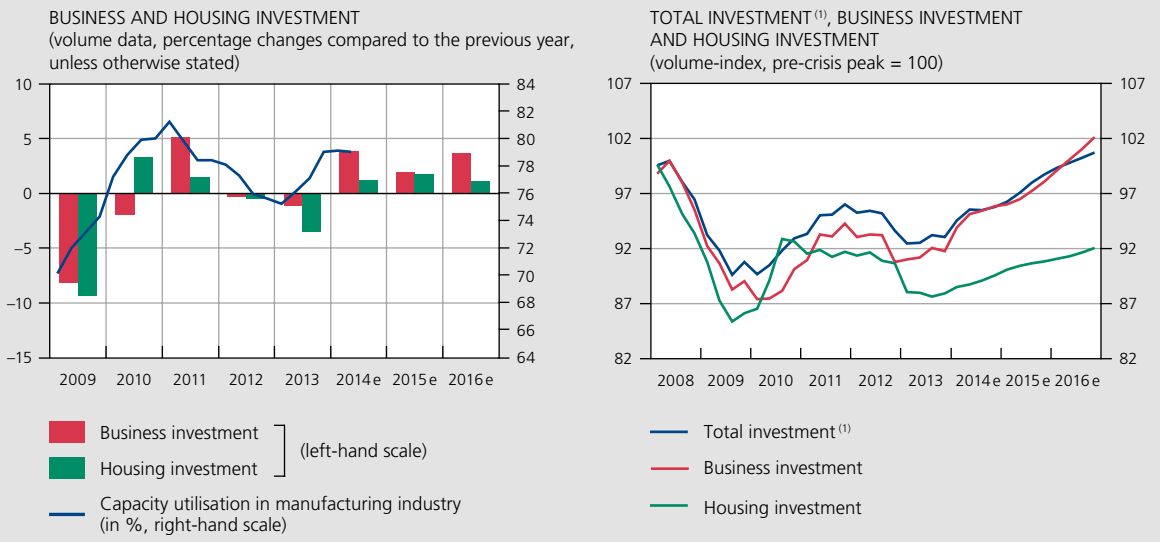
to be significantly higher than in 2014, despite a slight expected decline in 2016.

The recovery in household consumption is primarily related to an increase in disposable income. In the past four years, disposable income has recorded negative growth in real terms, mainly because property income fell markedly. However, over the projection horizon, disposable income is set to edge up by an average 0.8 % per annum. Growth in income from employment, by contrast, will be significantly limited by negligible nominal wage growth and is likely to mainly reflect the projected increases in employment and in the average number of hours worked. In fact, growth in income from employment might even turn negative in 2016 in the wake of the index suspension, but this would be amply compensated by the other sources of income. Property income for one, could rise in 2016 on the back of the interest rate rise predicted in the technical assumptions, whereas it is likely to still edge down in 2015. Despite the government's consolidation measures, the secondary distribution of income should also support disposable income growth. In 2015, this is the result of the higher tax allowance for professional expenses, but by 2016 this measure should be amply offset by other factors, such as social security cuts.

According to the current forecasts, household consumption would rise a little more rapidly than disposable income in both 2015 and 2016, causing the savings ratio to fall even further. This is the outcome of two opposite movements: property income is typically saved to a larger degree and its rising share in total household income – particularly in 2016 – should in principle lead to a higher savings ratio. A factor pulling in the opposite direction is that there is typically a delay in households changing their consumption patterns in response to lower growth in income from employment, as described in Box 1. Current projections suggest that this second effect, which pushes down savings ratios, will weigh in more heavily. This implies that the household savings ratio will touch a historic low of 13.3 % by 2016. That is barely higher than the average savings ratio in the euro area, whereas the saving propensity of Belgian households used to be much higher than this average.

On the investment front, the projections point to a slow increase in housing investment across the projection horizon. After many years of steep falls, housing investment has displayed renewed real growth since the final quarter of 2013 and there do not appear to be any immediate factors that might crush this tentative recovery. Granted, consumer confidence has slid since the beginning of 2014, but, as we have noted, the relevant sub-indicators – including consumer unemployment prospects – have hardly deteriorated. The important reform of tax rebates on mortgage loans in one of the Regions may cause the

CHART 5 PRIVATE INVESTMENT



Sources : NAI, NBB.
(1) Also includes public investment.

timeline of investment in housing to fluctuate a little (although it would seem more likely for this to affect the secondary market), but relatively little impact is expected on trend growth. In volume terms, though, investment in housing is projected to end the year 2016 at a level still nearly 8 % below that seen before the great recession.

Business investment is expected to notch up clearly higher volume growth over the projection horizon. That said, in 2015, growth is likely to come down to about half its 2014 level, as business investment in 2014 benefited greatly from a single specific factor (ship purchases by a shipping company). The current projections imply that business investment volumes should exceed pre-great recession levels by the end of 2016. This robust expansion takes place on the back of more favourable demand prospects in a reviving economy. In addition, since the beginning of 2014, capacity utilisation in the manufacturing industry has again slightly exceeded its long-term average. Stronger demand will therefore gradually lead to higher investment in expansion, on top of increased replacement investment. The financing scope for companies is also favourable : internal funding is backed by growing gross operating surpluses, while the bank lending survey also reports further relaxation of lending conditions for external financing since the beginning of the year and financial accounts reveal that businesses have significant cash positions.

Despite consolidation efforts, public consumption should keep on rising over the projection horizon, although the rate of volume growth would reach a mere 0.4 %, primarily because of the indexation suspension. Government investment, which last year declined in real terms due to the usual election cycle, should edge down a little further in 2014 only to kick ahead from 2015.

3. Labour market

As it usually does in a recovery, productivity per hour worked is expected to increase at a relatively constant but subdued rate. At the same time, economic activity growth should go hand in hand with rising labour volumes over the projection horizon. Average working hours are expected to keep edging down in 2014, as has indeed been borne out by available quarterly statistics for the first three quarters of the year. For one thing, this fall is due to the fact that employers are increasingly relying on flexible instruments, such as short-term temporary contracts, as they are reluctant to commit to fixed contracts at this early stage of the recovery. The decline is also due to the significant drop in average working hours in the second quarter of 2014, notably in the industry and construction sectors, only partly recouped in the rest of the year. In the two years ahead, these average working hours are expected to edge up slightly, reaching pre-recession levels by 2016. Note that this is not the case if employees only are factored in : their average working hours in 2016 are still projected to be below 2008 levels.

CHART 6 DOMESTIC EMPLOYMENT, AVERAGE WORKING TIME AND PRODUCTIVITY

(contribution to annual growth of GDP, data adjusted for seasonal and calendar effects)

Sources: NAI, NBB.

All this should add up to net creation of about 62 000 jobs between 2014 and 2016. By contrast, 2013 as a whole saw employment shrink by 0.3 % despite the increases of the last two quarters of the year. Employment growth is expected to accelerate over the projection horizon, not only because economic activity should be growing faster by 2016 but also because labour as a factor of production should be relatively cheaper thanks to the government measures to curb labour costs. It is important to keep in mind that the effect of these measures will take some time to be felt in the real economy. The benefits, for employment in particular, should in principle become even more significant after the projection period.

All in all, employment in branches sensitive to the business cycle should find its way back to growth, starting off modestly but gaining momentum into 2016 and so becoming the key factor underpinning job creation. The highly subsidised "other services" branch – mainly health care and social work – is also expected to make a sizeable contribution to growing employment over the projection

TABLE 4 LABOUR SUPPLY AND DEMAND

(calendar adjusted data; annual averages, unless otherwise stated)

	2013	2014 e	2015 e	2016 e
		(percentage changes)		
Volume of labour	–0.1	0.3	0.6	0.8
Domestic employment in persons	–0.3	0.4	0.4	0.5
		(changes in thousands of persons)		
Domestic employment	–12.4	17.9	19.3	25.2
p.m. Change in the course of the year, in thousands of people (1)	*12.2*	*24.0*	*17.8*	*32.1*
Employees	–19.1	10.8	11.5	16.3
Branches sensitive to the business cycle	–23.4	1.5	7.0	12.0
Public administration and education	2.2	–0.4	–5.4	–4.2
Other services	2.1	9.8	9.9	8.5
p.m. Service vouchers	*8.5*	*5.2*	*4.0*	*3.4*
Self-employed people	6.7	7.1	7.8	8.9
Frontier workers	–0.7	–0.1	0.0	0.0
National employment	–13.0	17.8	19.3	25.2
Unemployed job-seekers	24.6	13.7	55.5	–6.4
p.m. Change in the course of the year, in thousands of people (1)	*–20.2*	*–1.4*	*58.3*	*–14.3*
Labour force	11.5	31.5	74.8	18.7
p.m. Harmonised unemployment rate (2)	*8.4*	*8.5*	*8.8*	*8.7*

Sources: NAI, NEO, NBB.

(1) Difference between the fourth quarter of the relevant year and the fourth quarter of the previous year.

(2) In % of the labour force.

horizon. The system of service vouchers should likewise remain supportive, although it is expected to grow at a rather slower pace because of a gradual saturation of demand and the higher hourly cost for its users, as well as the recruitment problems facing providers of these services. On the other hand, employment in the public administration and education branch is forecast to fall as budgetary measures result in a proportion of public servants not being replaced upon retirement. This trend might gather further momentum on the back of the staff cuts announced in the various government agreements for the coming years. Lastly, as in the past, self-employed workers will contribute to the rise in employment, with a growth rate of around 1 % between 2014 and 2016, accounting for 7 000 to 9 000 extra workers a year. The growth rate of the self-employed category is therefore expected to remain higher than that of workers with employee status, despite the increase in the growth rate of this category.

Although there has been a steep fall in growth of the working age population since 2013 and recent demographic forecasts see it stalling on average over the projection horizon, the labour force should benefit from rising employment participation. The expected increase for the year 2014 is around 32 000 persons. Employment is not likely to increase enough to absorb the growing labour force and unemployment should continue to rise for the year 2014 as a whole, albeit at a lower pace than in 2013, with 14 000 new job-seekers, compared to 25 000 in 2013. This would still take the total number of unemployed close to an annual average of 600 000. The harmonised unemployment rate is projected to inch up a little further to 8.5 %, its highest level since 2005.

The steeper increase in the labour force predicted for 2015 reflects the federal government's decision to abolish special arrangements for older unemployed workers who are exempt from job-seeking. Indeed, from 1 January 2015, this group – which the National Employment Office put at 56 000 persons in the third quarter of 2014 – will be classified as regular job-seekers, who will be entitled to actively look for work and will benefit from the same mediation and assistance from government services in their applications. With this group reclassified as part of the labour force, the unemployment rate is likely to jump to 8.8 %.

Not until 2016 will employment grow enough to bring down the unemployment rate – to 8.7 %, still above the high level reached in 2013. Although the euro area unemployment rate is likely to still be over two percentage points higher in 2016, it nevertheless shows a clear downward trend over the projection horizon (see table 2).

4. Prices and costs

Labour cost projections are dominated by the measures taken by the federal government to improve the competitiveness of the Belgian economy, notably through reduction of labour costs. The assumption is that real negotiated wages will remain frozen for the year 2014 as a whole, in accordance with the draft interprofessional agreement for 2013 and 2014 as imposed by the government. Labour cost moderation policies will stay in place and be enhanced in the 2015-2016 period. This essentially means that real negotiated wages will

TABLE 5 COST AND PRICE INDICATORS

(percentage changes compared to the previous year)

	2013	2014 e	2015 e	2016 e
Labour costs in the private sector				
Labour costs per hour worked	2.4	0.8	0.6	0.2
of which indexation	1.9	0.7	0.2	0.2
Labour productivity (1)	0.2	0.5	0.3	0.5
Unit labour costs	2.2	0.3	0.3	–0.2
GDP deflator	1.5	0.6	0.9	1.0
HICP	1.2	0.6	0.8	1.2
Health index	1.2	0.4	0.7	1.1
Underlying inflation trend (2)	1.4	1.5	1.3	0.9

Sources: EC, NAI, FPS Employment Labour and Social Dialogue, NBB.
(1) Value added in volume per hour worked by employees and self-employed people.
(2) Measured by HICP excluding food and energy.

remain frozen, although, as the economy recovers, the wage drift may cause moderate real increases in the wake of emerging tensions in various sectors of the labour market. The key contributing factor driving wage restraint will be the temporary suspension of indexation mechanisms and the indirect effects this should have on inflation. From 2016, measures announced in regard to the reduction in employers' social security contributions should also kick in and push down labour costs. This reduction, which will entail cuts of nearly € 960 million, are an adjustment to the November 2013 Pact for Competitiveness and Employment, with measures scheduled for 2015 now coming into force in 2016 but significantly strengthened by measures that were initially scheduled for 2017. However, some of these relate to reductions in payroll tax which are not taken into account in calculating labour costs according to the national accounts definition.

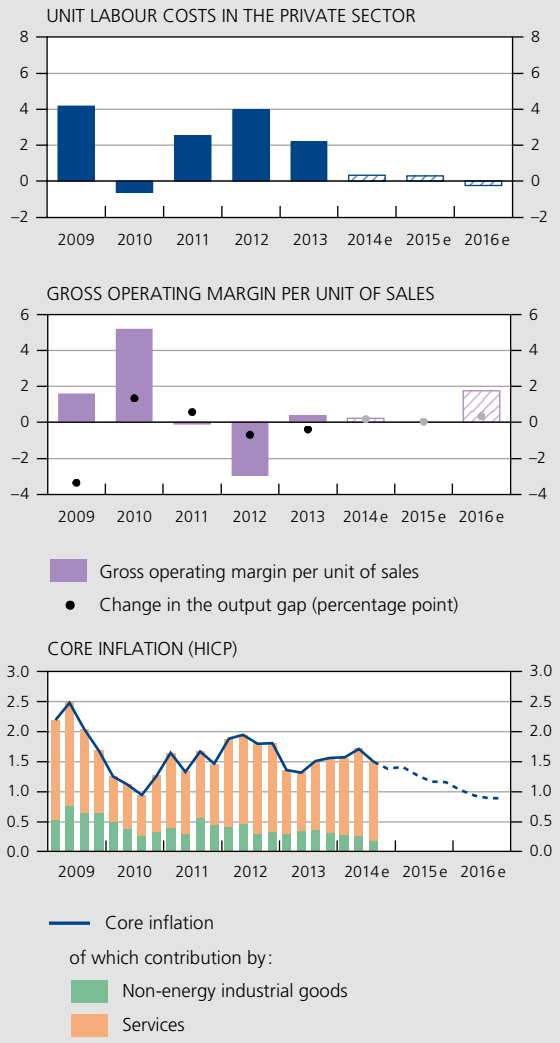
The new federal government's decision to enforce a 2 % freeze of the indexation mechanisms in 2015 should directly affect labour costs. Although some of the mechanisms currently in place allow only a gradual suspension of indexation and will therefore imply the continuation of a certain degree of index-linking, their effect on wage growth should be very limited. In addition, suspending the indexation mechanisms should add to the effect of a slower increase in the health index (0.4 % in 2014, compared with 2.7 % in 2012 and 1.2 % in 2013), which tied in with the VAT reduction on household electricity bills from 1 April 2014, as agreed in the Pact for Competitiveness and Employment.

All in all, nominal labour costs are forecast to see significantly lower growth, from 2.4 % in 2013 to 0.8 % in 2014, dipping to 0.6 % in 2015 and to 0.2 % in 2016. This, coupled with the steady recovery of labour productivity growth, should prove a favourable force in terms of unit labour cost prospects in the private sector. Since touching a high of 4 % in 2012, these costs have grown much less rapidly and they are predicted to contract by 0.2 % in 2016. As a result, Belgian companies should see their cost competitiveness improve relative to the country's three main trading partners – Germany, France and the Netherlands – in the 2014-2016 period, particularly in 2016.

As explained in Box 1, labour cost developments should gradually be reflected in prices and more specifically in underlying inflation, which does not include food and energy prices. That said, in Belgium, underlying inflation is marked by some downward rigidity and is expected to still come in at an average 1.5 % in 2014. The past couple of months have seen tentative signs of a slowdown,

CHART 7 LABOUR COSTS AND CORE INFLATION

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



Sources: EC, NBB.

though, and this should continue into 2015, taking the underlying inflation trend to an average 1.3 % for the year before it gradually inches down to below 1 % in 2016.

The current climate – of a subdued economic revival adversely affecting the recovery of company margins, which have narrowed significantly since 2011 – should encourage the transmission of wage restraint to pricing. Margins are not expected to pick up until 2016, although this has more to do with a delayed passing on to prices of moderate wage growth and the big cut in social security contributions.

Overall, inflation measured by HICP is estimated at 0.6 % in 2014, compared with 0.5 % in the euro area, pushing the rate of price increases significantly below those in the previous year, with inflation at 3.4 % in 2011 and at 2.6 % in 2012. The deceleration of total inflation is due to fluctuations in food prices, and above all, energy prices. The latter have been falling year-on-year since the beginning of 2013. Current projections indicate a reduction of 5.9 % in 2014 compared with 2013, a year in which these prices had already fallen by an average of 4.6 %. Although the scale of the contraction is expected to diminish gradually, negative year-on-year growth rates are still forecast up to the third quarter of 2015, with prices down on average by 2.8 %. Energy products are expected to be back in positive territory by 2016.

Together, the fall in energy prices gradually bottoming out over the projection horizon and the higher rate of food inflation explain why, in the face of an eroding underlying inflation trend, consumer inflation is still expected to go up from its uncharacteristically low rate today to a little over 1 % in 2016.

5. Public finances

5.1 Overall balance

Based on the latest forecasts and assuming no policy changes, public finances would have ended the year 2014 with a deficit of 3.2 % of GDP. In the macroeconomic context described in this article, the deficit should decline to 2.5 % of GDP in 2015 and to 2.1 % in 2016 – higher than the 2.1 % and 1.3 % of GDP that the Belgian government pegged on these two years at the beginning of October.

The 2014 overall balance deteriorated solely because of lower revenues as a percentage of GDP. The projected improvement in the 2015 and 2016 balance will be due to a large degree to consolidation measures taken by the federal government and the authorities in the Communities and Regions, primarily aimed at cutting government spending. Interest charges should come down further in 2014 and 2015 but remain at the same level in 2016.

The deficits would occur mainly at federal government level, while social security is expected to reach equilibrium thanks to an allocation granted by the federal government for this express purpose. Belgium's Communities and Regions and local authorities are likely to show small deficits.

TABLE 6 GENERAL GOVERNMENT ACCOUNTS
(in % of GDP)

	2013	2014 e	2015 e	2016 e
General government				
Revenue	51.5	51.0	50.9	50.8
Fiscal and parafiscal revenue	44.8	44.7	44.9 (1)	44.8
Other	6.7	6.3	6.0	6.0
Primary expenditure	51.2	51.2	50.6	50.1
Primary balance	0.3	–0.2	0.4	0.7
Interest charges	3.2	3.1	2.8	2.8
Net borrowing (–) or net lending	**–2.9**	**–3.2**	**–2.5**	**–2.1**
p.m. Effect of non-recurring factors	*0.5*	*0.4*	*0.0*	*0.0*
Overall balance per sub-sector				
Federal government	–2.4	–2.8	–2.1	–1.7
Social security	–0.1	0.0	0.0	0.0
Communities and Regions	–0.2	–0.3	–0.2	–0.3
Local authorities	–0.2	–0.1	–0.2	–0.1

Sources: NAI, NBB.

(1) The projected increase in fiscal and parafiscal revenues in 2015 is largely due to statistical changes related to the sixth State reform. These factors, which have no effect on the overall balance, add over € 1.3 billion or 0.3 % of GDP to parafiscal revenues.

5.2 Revenue

Public revenue expressed as a percentage of GDP is set to fall by 0.5 percentage points in 2014 and a further 0.1 percentage point in both 2015 and 2016, reversing the 2009-2013 trend of permanent revenue increases.

The loss in income received by the State from various financial institutions was primarily to blame for shrinking revenues in 2014. Temporary factors also came into play: in 2013, tax revenues were boosted by exceptional receipts from tax regularisation and by front-loading related to the liquidation bonus measure, while in 2014 only tax regularisation accounted for exceptional receipts. In addition, corporate tax receipts were dragged down by sizeable refunds to a number of companies. By contrast, structural fiscal and parafiscal measures are expected to be generally favourable for government revenues, adding 0.1 % of GDP. Key elements include higher excise duties and the reduction of the notional interest deduction for companies in the wake of the lower reference interest rate. Meanwhile, revenues should also benefit from a range of measures concerning capital and the income which it generates, notably the fairness tax – applicable to certain companies whose distributed profits exceed the corporation tax base – and an increase in the tax on savings deposits will also boost revenues. However, other measures, such as the reduction in VAT on electricity and new cuts in social security contributions, will reduce the amounts raised and compensate in part for the additional revenues generated.

In 2015, both the indexation suspension and wage restraint will depress fiscal and parafiscal revenues, as the part that would have been subject to indexation can now not be taxed. Personal income tax in particular should drop off significantly, compounded by the higher deductible professional expenses allowance. In addition, tax regularisation-derived revenues will cease altogether. Only revenues from corporation tax are set to rise on the back of companies' improved profitability, taxes levied on inter-municipal utility companies and the fresh reduction of the notional interest deduction in the wake of a further decline of the reference interest rate and restrictions on the use of this system by banks. While extra revenue will be generated by the early collection of tax on pension savings, non-fiscal and non-parafiscal revenues are likely to continue falling, owing to the reduction in fees paid by banks for guarantees granted by the State.

In 2016, fiscal and parafiscal revenues will continue to be squeezed by continued wage restraint policies, while also being depressed by structural labour cost reductions via employers' social security contributions and the further increase in deductible professional expenses. Excise duty measures, by contrast, are likely to boost revenues, as well as the expected decline in the reference interest rate for calculating the notional interest deduction. Non-fiscal and non-parafiscal revenues are expected to diminish a little more, as financial institutions will be paying less dividends.

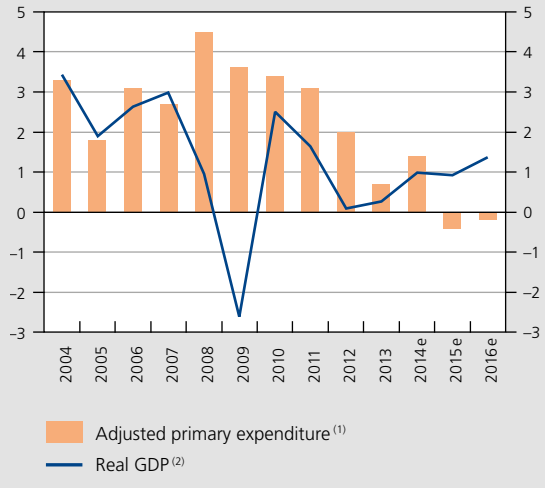
5.3 Primary expenditure

As a ratio of GDP, primary expenditure should hold steady in 2014 but decline very strongly in the two subsequent years. In nominal terms, then, expenditure is expected to grow less strongly than economic activity.

Adjusted for the impact of one-off and cyclical factors, as well as the indexation effect, real primary expenditure should rise to 1.4 % in 2014, just above the real GDP increase. Adjusted expenditure by the federal government and local authorities should record a modest upturn after last year's decline. Expenditure by Belgium's Communities and Regions as well as social security spending is forecast to go up nearly a percentage point more than economic activity. The key driver in the case of social security spending is pensions.

CHART 8 PRIMARY EXPENDITURE OF GENERAL GOVERNMENT AND GDP

(percentage changes compared to the previous year)



Sources: NAI, NBB.

(1) Primary expenditure deflated by the GDP deflator and adjusted for cyclical, non-recurring and fiscally neutral factors, as well as the impact of wage indexation. This effect derives from the difference between actual indexation (or the theoretical indexation when it comes to 2015 and 2016, in keeping with the approved skipping of the automatic indexation of public sector wages and social security benefits) on the one hand and the rise in the GDP deflator on the other hand.

(2) Calendar-adjusted data.

The primary expenditure projections for 2015 and 2016 closely tie in with savings plans launched by the new federal and local governments formed after the elections of 25 May 2014. The expected decline in adjusted expenditure – by 0.4 % in 2015 and 0.1 % in 2016 – is attributable to non-indexation of social security benefits and civil servants' pay in the wake of the indexation suspension and low inflation. Primary expenditure staying well below expected economic growth should further enhance the consolidation of public finances seen over the past few years.

5.4 Debt

The debt ratio has been on a steady upward trajectory since the onset of the financial crisis, and reached 104.5 % at the end of 2013.

In 2014, the general government debt is expected to rise to 106.6 % of GDP. Endogenous factors should have an upward impact on the debt ratio amounting to 1.7 percentage points of GDP, caused by the relatively low growth of nominal GDP, coupled with a primary balance of -0.2 % of GDP. Exogenous factors – so called because they influence the government's debt but not its overall balance – should further drive up general government debt by around 0.4 percentage point of GDP. Contributing factors include assessed but as yet not received corporate taxes, loans granted by the European Financial Stability Facility to euro area countries with funding issues and the capital contribution to the ESM. General government debt management should have a downward effect, primarily because of the large issue premiums. With coupons on general government debt securities exceeding market interest rates, the issue values of these securities were higher than their nominal values.

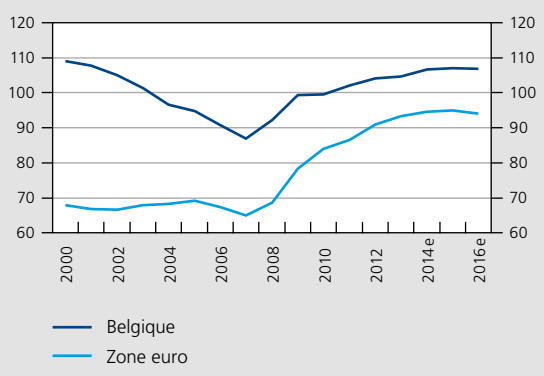
In 2015, general government debt should edge up further, to 107 % of GDP. The endogenous factors will still push debt upwards, but the primary balance is expected to be in the black from that year.

2016 should bring a reversal in the debt ratio trend, as a very slight fall to 106.8 % of GDP is projected, solely as a result of endogenous factors.

While Belgium looks set to see its debt ratio rise between 2014 and 2016, the euro area is expected to record a slight decline, widening the gap between Belgium and the euro area that had been steadily narrowing in the past two decades.

CHART 9 CONSOLIDATED GROSS DEBT OF GENERAL GOVERNMENT

(in % of GDP)



Sources: EC, NAI, NBB.

6. Risk factor assessment

This year's autumn projections still describe a gradual recovery, if at a slightly slower pace than the spring projections had foreseen. Expected economic activity growth, particularly in 2015, has been revised significantly downwards, but the risks in the international environment continue to be on the downside.

In terms of external risks, Belgium's small and open economy depends on the further recovery in the other countries of the euro area, especially its key trading partners. Any intensification of geopolitical tensions would have a greater impact on Belgian growth, also and mainly via indirect mechanisms such as growth in the country's trade partners and confidence effects. From a more general perspective, there is always a risk that the current slowdown in China and other emerging countries could turn out to be more significant or more prolonged than international forecasts currently assume. In addition, there is still a degree of uncertainty over the sustainability of the recovery in a few advanced countries, as recently underlined by the unexpectedly sharp contraction of the Japanese economy in the third quarter of 2014. Lastly, the trade intensity of global growth may have been revised down, but current assumptions still imply an increase in this intensity over the projection horizon. If global growth again turns out not to boost trade as strongly as envisaged, Belgian exporters and their domestic suppliers will also see their production affected.

Turning to domestic risk factors, attention should be drawn to the way these projections incorporate new

TABLE 7 COMPARISON WITH ESTIMATES OF OTHER INSTITUTIONS
(in %)

Institution	Publication date	Real GDP growth			Inflation (HICP, unless otherwise stated)		
		2014 e	2015 e	2016 e	2014 e	2015 e	2016 e
Federal Planning Bureau	September 2014 (1)	1.1	1.5		0.6	1.3	
IMF	October 2014	1.0	1.4	1.5	0.7	1.0	1.3
Consensus Economics	October 2014	1.1	1.3		0.6	1.2	
EC	November 2014	0.9	0.9	1.1	0.6	0.9	1.3
OECD	November 2014	1.0	1.4	1.7	0.6	0.7	1.2
NBB	**December 2014**	**1.0**	**0.9**	**1.4**	**0.6**	**0.8**	**1.2**

(1) Economic budget (September 2014). Inflation figures reflect the NCPI, which may differ slightly from the HICP.

government measures to improve competitiveness, particularly the indexation suspension, in addition to a further freeze of real wage growth and reduced social security contributions. As noted in Box 1, this analysis assumes that the much slower growth of nominal wages will be largely passed on to prices, albeit after some delay. The same applies to the significant reduction – in the last year of the projection period – in employers' social security contributions. If this happens more slowly or more quickly, to a greater or to a lesser extent, or if economic agents – including employers, investors and foreign buyers of Belgian exports – respond differently to lower wages and prices than has been posited here, economic activity, employment, the budget balance and inflation may deviate from these autumn projections.

The relatively wide range of forecasts by the various institutions – for both growth and inflation – illustrates the significant margins of uncertainty. Any comparison of these forecasts will need to allow for the different times at which they were drawn up and the datasets available at the time. For instance, the major changes introduced by the new federal government were not factored into forecasts released in September or October, such as the Federal Planning Bureau's most recent projections in the framework of the economic budget. In addition, among all the forecasts in table 7, only the Bank's autumn projections and the OECD forecasts were able to take on board the most recent quarterly statistics, drawn up in line with ESA 2010, and the National Accounts Institute's flash estimate for economic activity growth in the third quarter.

Regardless of the latter point, the autumn projections by the European Commission (EC) are possibly most comparable with this article's forecasts. The EC expects slightly higher inflation but, most importantly, clearly lower economic growth in 2016. A comparison of spending components in both sets of projections shows that, although the EC also believes domestic demand will rise less quickly, the major growth difference in 2016 can be traced back to less dynamic export growth. This would seem to reflect a markedly less sanguine take on the macroeconomic impact of Belgium's most recent efforts to improve competitiveness. Higher inflation as assumed by the EC might well reflect a situation in which lower labour costs are passed on to prices more slowly or to a smaller degree.

Annex

PROJECTIONS FOR THE BELGIAN ECONOMY: SUMMARY OF THE MAIN RESULTS

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

	2013	2014 e	2015 e	2016 e
Growth (calendar adjusted data)				
Real GDP	0.3	1.0	0.9	1.4
Contributions to growth:				
Domestic expenditure, excluding change in inventories	–0.1	1.2	1.2	1.2
Net exports of goods and services	1.0	0.7	–0.3	0.2
Change in inventories	–0.7	–1.0	0.0	0.0
Prices and costs				
Harmonised index of consumer prices	1.2	0.6	0.8	1.2
Health index	1.2	0.4	0.7	1.1
GDP deflator	1.5	0.6	0.9	1.0
Terms of trade	0.1	0.5	0.3	0.1
Unit labour costs in the private sector	2.2	0.3	0.3	–0.2
Hourly labour costs in the private sector	2.4	0.8	0.6	0.2
Hourly productivity in the private sector	0.2	0.5	0.3	0.5
Labour market				
Domestic employment (average year-on-year change, in thousands of people)	–12.4	17.9	19.3	25.2
p.m. Change in the course of the year, in thousands of people[1]	*12.2*	*24.0*	*17.8*	*32.1*
Total volume of labour[2]	–0.1	0.3	0.6	0.8
Harmonised unemployment rate (in % of the labour force)	8.4	8.5	8.8	8.7
Incomes				
Real disposable household incomes	–0.2	0.8	0.9	0.8
Household savings ratio (in % of disposable income)	13.5	13.5	13.4	13.3
Public finances				
Overall balance (in % of GDP)	–2.9	–3.2	–2.5	–2.1
Primary balance (in % of GDP)	0.3	–0.2	0.4	0.7
Public debt (in % of GDP)	104.5	106.6	107.0	106.8
Current account (according to the balance of payments, in % of GDP)	**0.1**	**1.4**	**1.3**	**1.5**

Sources: EC, DGSEI, NAI, NBB.

(1) Difference between the fourth quarter of the relevant year and the fourth quarter of the previous year.

(2) Total number of hours worked in the economy.

Normalisation of monetary policies: prospects and divergences

N. Cordemans
S. Ide [1]

Introduction

Although the world's leading central banks are currently still conducting very expansionary monetary policies, sooner or later those policies will doubtless need to be tightened. However, divergent macroeconomic situations will mean different exit timings. For instance, in the United States the purchase of securities has ended whereas the euro area recently introduced new monetary easing measures.

In that context, this article aims to look at the divergences in terms of the normalisation of monetary policies by examining more specifically the cases of the United States and the euro area. It focuses in particular on the financial turmoil that could accompany the expected normalisation in the United States, and the potential spillover effects for the euro area.

The article is in four sections. The first section presents the current monetary policy stance in the four main advanced economies, namely the United States, Japan, the United Kingdom and the euro area. The second section addresses the macroeconomic situations underlying that stance in the euro area and in the United States, while the third section considers the outlook for the monetary policy of those two economies. Finally, the fourth section deals with the normalisation of monetary policy in the United States and the potential spillover effects on the euro area.

(1) The authors would like to thank J. Boeckx and P. Butzen for their comments and suggestions on this article.

1. Monetary policy stance in the advanced economies

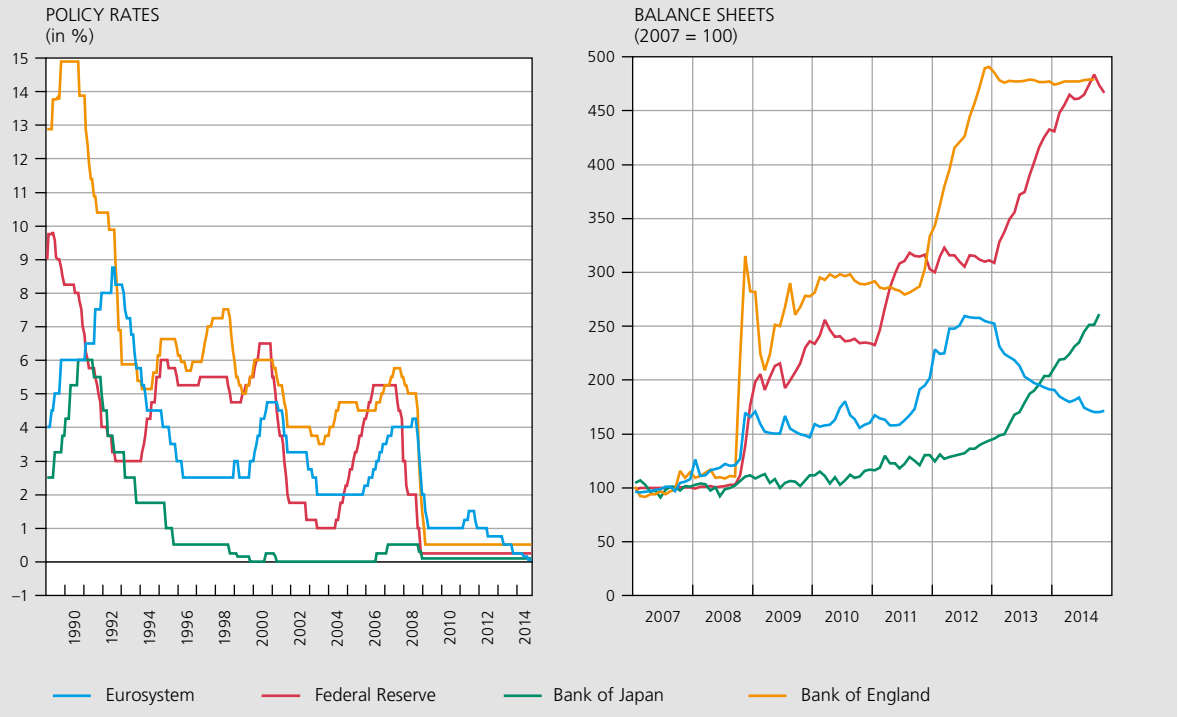
This section describes the current monetary policy stance in the four large advanced economies: the United States, Japan, the United Kingdom and the euro area. To that end, we review the main instruments used by the central banks of those regions in the wake of the recent crisis, and we discuss their effects on the interest rates relevant for decisions on consumption and investment.

A vigorous response to the crisis

In response to the economic and financial crisis that erupted in the summer of 2007, the leading central banks of the advanced economies introduced numerous measures aimed at achieving their objectives for price stability and/or employment. First, policy interest rates were slashed. In the United States, the euro area and the United Kingdom, the cuts were unprecedentedly rapid and substantial, while in Japan the rates were again reduced to their historical low. The policy rates set by the Federal Reserve, the Bank of England and the Bank of Japan are currently at their lowest level since the end of 2008 or early 2009, while the Eurosystem has recently decided to make further cuts (see section 3.1.1). Furthermore, faced with the scale of the crisis and the zero lower bound for nominal interest rates, the leading central banks have turned to "unconventional" monetary policy instruments.

On the one hand, they have adopted forward guidance for their communication on future monetary policy developments and, in particular, movement in policy rates. In so doing, the central banks aim to influence public

CHART 1 KEY POLICY RATES AND BALANCE SHEETS



Source : Thomson Reuters Datastream.

expectations concerning future short-term interest rates, exerting pressure on longer-term rates and thereby increasing the accommodative character of their monetary policy. In clarifying the central bank's assessment of the economic situation and its reaction function, forward guidance performs a special role in times of crisis, when there is usually great uncertainty. The large central banks have all issued guidance on their policy interest rates, though there are variations in the nature and number of announcements made. The Federal Reserve has been by far the most active. It first issued relatively vague guidance on its policy rates in 2008, but the statements then became more specific, defining a time horizon in 2011 and then – in 2012 – numerical thresholds for macroeconomic variables (see section 2.2). Since March 2014, however, the signals have reverted to a general, more flexible but also less transparent form. The Bank of Japan introduced forward guidance on interest rates in 2010, while the European Central Bank and the Bank of England did the same in the summer of 2013. Although the guidance has undergone slight adjustment since then, it is still currently applied.

The central banks have also made use of their balance sheets, which have expanded dramatically. Between 2007 and 2014, the balance sheets of the Federal Reserve and the Bank of England thus increased almost fivefold, while that of the Bank of Japan expanded by around two and a half times. The Eurosystem's balance sheet more than doubled between 2007 and mid-2012, before contracting significantly. While the balance sheet growth seen during the crisis is exceptional, strong expansion has also occurred in the past, during the two world wars and the Great Depression of the 1930s (Fergusson *et al.*, 2014).

The balance sheet growth really began after the collapse of the Lehman Brothers bank on 15 September 2008. At first, it generally reflected the measures taken to facilitate access to liquidity and to support credit conditions on certain specific markets. Later, once the key interest rates were close to their floor, the balance sheet expansion gradually began to reflect the adoption of asset purchase programmes aimed at influencing long-term interest rates and thus easing monetary policy further. The Federal Reserve, the Bank of England and the Bank of Japan all three approved massive asset purchase programmes financed by the creation of reserves, and the growth of their balance sheets is very largely attributable to that "quantitative easing" policy.

From November 2008, the Federal Reserve introduced a total of four purchase programmes which resulted in the acquisition of long-term assets amounting to over $ 3 800 billion. The last programme, adopted at the end of 2012 and initially providing for monthly purchases of mortgage-backed securities (MBSs) amounting to $ 40 billion and US Treasury bonds totalling $ 45 billion, was gradually scaled down from January 2014 before ending in November. The Federal Reserve thus reduced its monetary support for the economy and initiated a very gradual normalisation of its monetary policy. The Bank of England adopted an asset purchase programme in March 2009 whereby it acquired assets totalling £ 375 billion between March 2009 and November 2012. Finally, the Bank of Japan launched a modest asset purchase programme in October 2010 before switching to a more ambitious programme in April 2013. The latter, known as quantitative and qualitative easing, is intended to ensure that the new 2 % inflation target defined in January 2013 is achieved as quickly as possible. With this programme, the Bank of Japan aims in particular to double its monetary base and the amount of Japanese government bonds that it holds within the space of two years. The Eurosystem bought covered bonds between 2009 and 2012 and, under the Securities Markets Programme, government debt securities between May 2010 and February 2012. Nevertheless, the Eurosystem's purchases of assets remained modest in comparison with its balance sheet total. Moreover, they were only meant to preserve the efficient transmission of its monetary policy and thus support lending to households and businesses.

In contrast to the situation of the other central banks, the expansion of the Eurosystem's balance sheet mainly reflects its increased intermediation role and the growth of its lending to the banks, which play a crucial role in financing the euro area's private sector. While the other central banks themselves orchestrated the growth of their balance sheets as part of their quantitative easing policies, the Eurosystem essentially left the expansion of its balance sheet to the discretion of the commercial banks and their need for refinancing. The contraction of the Eurosystem's balance sheet that began in the summer of 2012 thus reflects the banks' declining need for liquidity following the reduction in financial fragmentation in the euro area (de Sola Perea and Van Nieuwenhuyze, 2014). The Eurosystem's recent decisions, namely the implementation of targeted longer-term refinancing operations (TLTROs) in June and the launch of programmes for the purchase of asset-backed securities (ABSs) and covered bonds in September, should reverse the trend and lead to a further substantial increase in the Eurosystem's balance sheet (see also section 3.1.1).

A very accommodative stance

To assess the accommodative character of the policies pursued, it is relevant to focus on the movement in real medium- and long-term interest rates, as they hold a central position in the transmission of monetary policy to the real economy. Not only do they influence decisions on consumption, saving and investment but they also affect the valuation of other assets such as equities and real estate. We shall confine ourselves to risk-free interest rates[1] because they are rates over which the central bank has more direct influence, and they are particularly important since they form the basis for determining the other interest rates in the economy (Boeckx *et al.*, 2013).

According to the interest rate term structure theory, longer-term nominal rates depend partly on expectations regarding future short-term interest rates and partly on term premiums which compensate for the uncertainty surrounding future nominal interest rates (Boeckx *et al.*, 2013). By using their policy instruments, central banks can influence each of these components. In setting their key interest rates, they aim to influence short-term rates. Since adjustments to the key interest rates are infrequent and normally indicate a trend, they affect expectations of future short-term interest rates. Moreover, central banks use their forward guidance to steer those expectations of future policy rates. As the guidance offered reduces uncertainty and encourages investors to take a longer-term view, it can also depress term premiums.

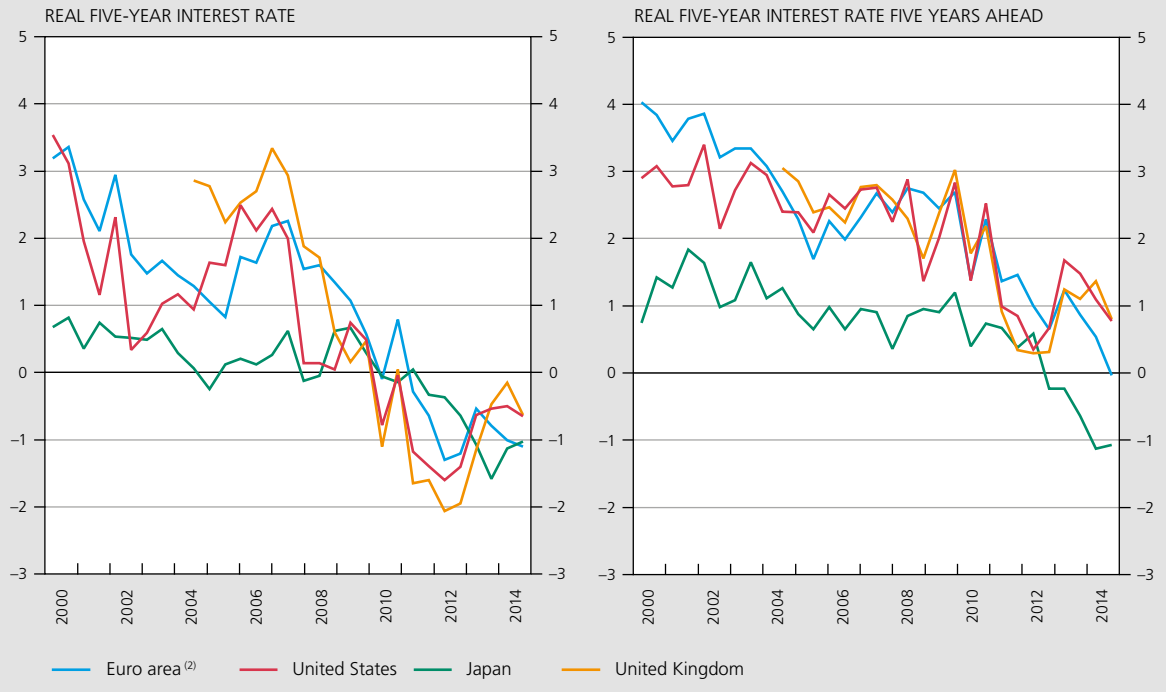
Those premiums come under more direct pressure in the case of long-term asset purchase programmes which specifically aim to reduce them. However, by signalling the central bank's views on the current and future economic situation, the announcement of purchase programmes may also influence expectations of future short-term interest rates (Bauer and Rudebusch, 2013). Finally, if inflation expectations remain firmly anchored, the movements in nominal interest rates are reflected in real interest rates, which are relevant for decisions on consumption and investment. The central bank may also influence real interest rates by modifying inflation expectations. That is what the Bank of Japan did via its programme of quantitative and qualitative easing. The introduction of that ambitious securities purchase programme led to higher inflation expectations in Japan after years of moderate deflation.

(1) Yields on Treasuries in the United States and the average yield in the five main euro area countries with an AAA rating on 30 June 2013 (Germany, Austria, Finland, France and the Netherlands). That choice enables us not only to exclude the credit risk affecting the yield on some government bonds in the euro area but also to limit the influence of negative liquidity premiums in the case of government bonds of countries such as Germany.

Real five-year interest rates, taken here as medium-term rates, declined overall at the start of the crisis in parallel with the fall in the policy rates. After some volatility and a slight rise, they dropped to a historic low between the beginning of 2012 and the beginning of 2013. In the recent period, they have displayed wide divergences between economic blocs. In the context of the statements by the Federal Reserve Chairman concerning a possible reduction in asset purchases (see section 4.1), they rose sharply in the United States and the United Kingdom between the spring and autumn of 2013; after that they remained stable or increased more slowly. In the euro area, the rise in 2013 gave way to a further decline in 2014, though it was tempered by a fall in inflation expectations. Finally, in Japan, where the rates were already very low when the crisis erupted, there was no real decline until the beginning of 2013, after the Bank of Japan adopted its programme of quantitative and qualitative easing. Against the backdrop of rising inflation expectations, they have dipped to a historically low level in recent months.

The real five-year interest rate five years ahead, our long-term rate, can be regarded as the real short-term interest rate expected in the five-year period commencing in five years' time, to which a term premium is added. The real short-term interest rate expected in that future period can be taken as the expected real GDP growth rate, in that it can be assumed that monetary policy will be neutral overall in the long-term. The decline in the real five-year interest rate five years ahead is therefore due both to the lower growth expected in the long-term and the reduction in term premiums resulting in particular from the central banks' asset purchases. Taking that into account, the real five-year interest rates five years ahead naturally remained steadier in the initial stages of the crisis. Nevertheless, they began to fall towards the end of 2010, reaching a low point between the spring of 2012 and the spring of 2013. Unsurprisingly, that was particularly apparent in countries which were quick to adopt asset purchase programmes, namely the United States and the United Kingdom. After a strong surge between the spring and autumn of 2013 following statements by the then Federal Reserve Chairman Ben Bernanke, they rapidly subsided again, primarily in the euro area. In the recent period, long-term inflation expectations have declined somewhat in the euro area, but recent monetary policy measures have probably depressed term premiums. In Japan, the real long-term interest rate is currently at an all-time low, owing to the marked rise in

CHART 2 REAL FIVE-YEAR INTEREST RATES[1] AND FIVE-YEAR INTEREST RATES FIVE YEARS AHEAD



Sources: Thomson Reuters Datastream, Consensus Economics.
(1) Nominal interest rates deflated by average inflation expectations over the period.
(2) Average yield in the five main euro area countries with an AAA rating on 30 June 2013 (Germany, Austria, Finland, France and the Netherlands)..

inflation expectations and the Bank of Japan's programme of quantitative and qualitative easing.

Generally speaking, real interest rates are no longer necessarily on the floor, but they remain very low in historical terms. At present, real five-year interest rates are still decidedly negative, and real five-year interest rates five years ahead are well below their long-term average. While the monetary policies conducted by the large central banks of the advanced economies are undeniably still very accommodating, it is nonetheless obvious that those policies have diverged recently. While renewed easing took place in Japan and the euro area, a partial tightening occurred in the United States and the United Kingdom. The macroeconomic fundamentals underlying the differences apparent between the United States and the euro area and the resulting implications are discussed in the rest of this article.

2. Macroeconomic context

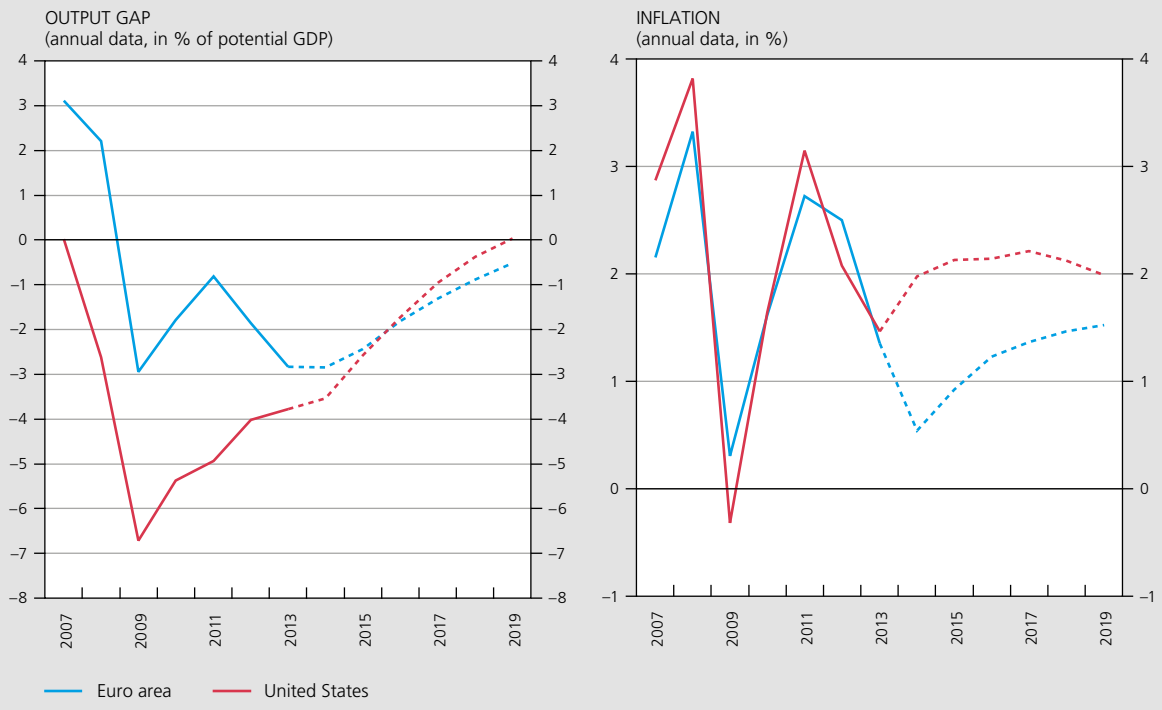
This section examines the macroeconomic situation that underlies monetary policy in the United States and in the euro area, and foreshadows the likely divergences in normalisation. Special attention will focus on labour market developments in the United States and inflation expectations in the euro area, given their major role in the current monetary policy of the Federal Reserve and the Eurosystem respectively.

2.1 General overview

The recovery of economic activity following the 2008-2009 economic and financial crisis was particularly slow from a historical perspective. However, it was clearly more vigorous in the United States than in the euro area, where the sovereign debt crisis which erupted in the spring of 2010 triggered a further contraction between late 2011 and early 2013. Moreover, in the most recent period, the growth figures have remained good in the United States, whereas growth in the euro area has been hesitant and patchy.

At the end of 2014, output was still well below its potential level in both economies, indicating substantial unused capacity. In recent years, the (negative) output gap has tended to widen in the euro area, whereas it has narrowed

CHART 3 OUTPUT GAP AND CONSUMER PRICE INFLATION (1)



Source: IMF, World Economic Outlook (October 2014).
(1) The dotted lines correspond to projections.

in the United States. Looking ahead, according to the IMF projections, the output gap will be closed faster in the United States than in the euro area.

In both economies, inflation is considerably below the target levels, though to greatly differing degrees. In the United States, that has been the case since the end of 2012. In September 2014, inflation measured by the private consumption expenditure deflator (PCE index) – for which the target is 2 % – stood at 1.48 %, and has averaged 1.4 % since the beginning of 2013. In the euro area, inflation according to the harmonised index of consumer prices has undergone a correction since the end of 2011. From an initial figure of 3 %, it dropped below 2 % at the beginning of 2013, and was down to 0.4 % in October 2014.

In the years ahead, given the inflation projections published by the IMF in October 2014, inflation measured on the basis of the consumer price index – normally slightly higher than the figure according to the private consumption expenditure index – is expected to remain at just above 2 % in the United States. In the euro area, although inflation could rise, it will nevertheless be unlikely to exceed 1 % before 2016, and could remain well below 2 % for the next five years.

Though these two leading macroeconomic indicators are not exhaustive, they do shed light on the slow and uneven recovery of activity following the great recession. While the United States still has substantial unused production capacity, it does appear to be a relatively robust economy with an inflation profile tending towards its target. Conversely, the recovery is lagging well behind in the euro area, and the downward trend in inflation suggests an increased, albeit limited, risk of deflation (see also section 2.3). Against that background, the monetary policies currently being pursued by the Federal Reserve and the Eurosystem will probably remain accommodating for some time yet. However, the normalisation of monetary policy which has begun in the United States will gradually progress, while an additional easing is not ruled out in the euro area, as is evident from the recent announcements by the ECB Governing Council. The next two sections take a more detailed look at two topics of significance for the future conduct of monetary policy in the United States and the euro area respectively, namely the labour market and inflation expectations.

2.2 Labour market in the United States

In the United States, labour market developments play a key role in determining the timing and pace of the exit from the very accommodative monetary policy currently being pursued. The assessment by the Federal Open Market Committee (FOMC) of the under-utilisation of labour and the impact of that on wages and prices is decisive in that respect.

The labour market has always played a leading role in the monetary policy debates and decisions of the FOMC, compared to other central banks in the advanced economies. That situation results largely from what is known as the Dual Mandate, whereby the Federal Reserve is responsible for ensuring full employment as well as price stability. However, quantification of the full employment concept is a serious challenge for a central bank, and the FOMC has therefore always stressed that this target was largely determined by non-monetary structural factors which may change over time and are difficult to measure, whereas the price stability target is defined as a rise in the PCE deflator of 2 % in the long term.

The attention that the FOMC pays to the labour market is also reflected in the wording of the threshold-based forward guidance introduced in December 2012, whereby the period for maintaining the exceptionally low interval for the target federal funds rate was linked to the level of unemployment. At that time, the FOMC had considered it inappropriate to raise policy rates so long as unemployment remained above 6.5 %. At the same time, the one-year inflation forecasts should not exceed 2.5 % and long-term inflation expectations should remain firmly anchored. As unemployment continued to fall during 2013, the FOMC amended its forward guidance, and the significance of the threshold was reduced somewhat. It was announced that the exceptionally low interval for the target rate was also to be maintained if unemployment fell below 6.5 %, so long as the said conditions concerning inflation forecasts and inflation expectations were met.

In March 2014, the threshold-based forward guidance and the explicit reference to the level of unemployment were replaced by a broader qualitative wording that took account of a wider range of labour market indicators. The FOMC judged it necessary to consider other indicators besides the unemployment rate in order to obtain an accurate assessment of the degree to which the US economy was still not meeting its full employment target. In addition, this rewording is a logical step when a central bank moves on from a highly accommodative monetary policy stance, in which threshold-based forward guidance is an instrument for implementing that policy, and initiates a monetary exit in which the FOMC does not wish to rely on a single, purely quantitative indicator to determine the timing of the first interest rate rise, and the pace of subsequent rate increases.

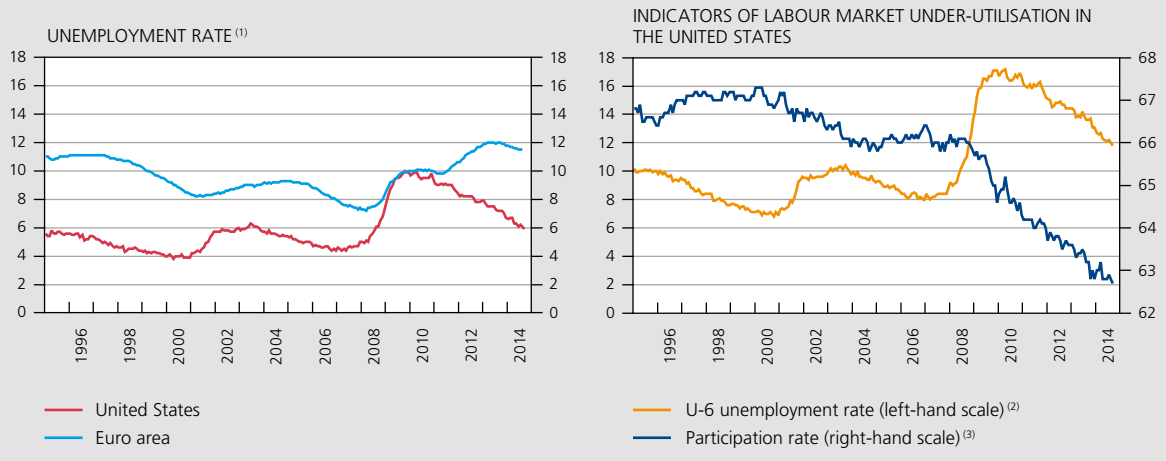
The recovery of the labour market in the United States is reflected in strengthening growth of employment accompanied by a marked fall in the unemployment rate, down from around 10 % at the end of 2009 to below 6 % at the end of 2014. At the same time, in the euro area unemployment continued to rise after 2010, peaking at 12 % in 2013, and has only declined slowly since then against the backdrop of persistently fragile economic activity. To ensure that the central bank is correct in its assessment of this apparently strong labour market recovery, Yellen (2014a, 2014b) presents six indicators which, in addition to unemployment, help to provide an accurate estimate of the use of labour and the pursuit of full employment. We shall consider two of these indicators, namely labour market participation and the number of people working part-time for economic reasons.

Part of the fall in unemployment is due to the decline in labour market participation among the population of working age. In fact, during the crisis, the activity rate dropped from around 66 % to below 63 %. This decline is due partly to structural factors, such as population ageing and incapacity to work on account of sickness, disability or school enrolment, and partly to cyclical factors relating to the deteriorating employment outlook and workers becoming discouraged from seeking jobs (Council of Economic Advisers, 2014). The analysis also shows that certain structural factors, such as inability to work on account of sickness, disability or school enrolment, also comprise a cyclical component. This tricky distinction is important if the central bank is to assess the inflation risks.

The traditional unemployment rate reflects the unemployed population of working age who have actively looked for work in the past four weeks. A broader criterion for measuring the under-utilisation of the labour market, namely the U-6 unemployment rate, also takes account of all those who are no longer seeking work because of the economic situation (the discouraged), all those who have actively looked for work in the past twelve months, but not necessarily in the past four weeks (the marginally attached), and all those who would like to work full-time but only have a part-time job for economic reasons. The discrepancy between this U-6 measure and the traditional unemployment rate is narrowing but remains considerable, and is even greater than it was in earlier recessions. This indicates that under-utilisation of the labour force remains significant.

The above statistics contribute towards a more accurate, nuanced estimate of the labour market recovery in the United States and of any upward pressure on wages and prices. That also clearly shows that the switch from a single measure – the unemployment rate – to a broad range of indicators in order to assess the under-utilisation of the labour market and determine the monetary policy stance was entirely justified. It is evident that the under-utilisation is greater than it would appear on the basis of the unemployment rate alone. That explains why, even though an

CHART 4 LABOUR MARKET INDICATORS



Sources: Thomson Reuters Datastream, Bureau of Labor Statistics, Eurostat.

(1) Persons actively seeking work in the last four weeks, in % of the labour force.

(2) Unemployment rate, including unemployed persons no longer seeking work in view of the economic situation (discouraged), unemployed persons who want to work but have not looked for a job recently, and persons working part-time for economic reasons.

(3) Ratio of persons in work and job-seekers in the labour force aged 16 years and over.

interest rate rise is looming on the horizon, it will not come for a while yet, and subsequent increases will only come gradually (see section 3).

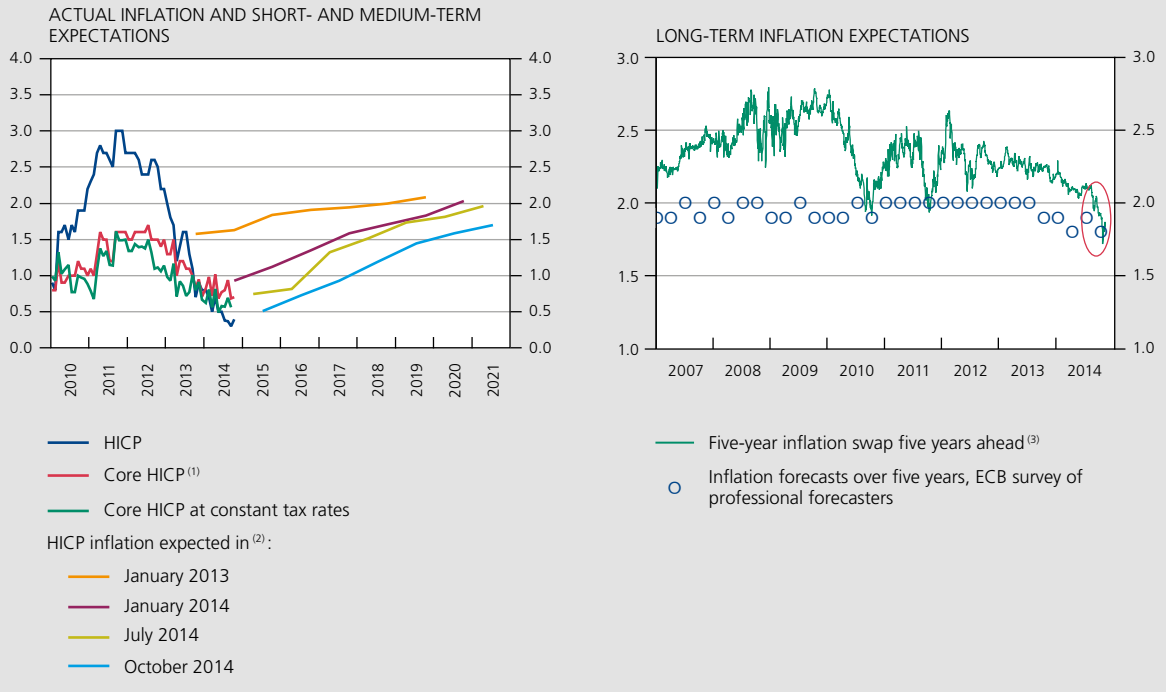
2.3 Inflation expectations in the euro area

The firm anchoring of inflation expectations in the medium term, and especially in the long term – namely the tendency of expectations to remain within a fairly narrow range around the inflation target defined by the central bank – is vital to guarantee the central bank's credibility, to ensure the effectiveness of monetary policy and, therefore, to safeguard price stability in practice.

In the euro area, price stability – the primary objective of the Eurosystem – was defined by the Governing Council as an annual rise in the HICP of less than but close to 2 % in the medium term. This medium-term concept is important in that it allows inflation to deviate temporarily from its target in response to temporary shocks affecting the economy and the prices of certain goods or services, such as food and energy. In that context, it is unsurprising that short-term inflation expectations are subject to some volatility and may sometimes deviate considerably from the inflation target. Conversely, long-term inflation expectations have to remain firmly anchored.

Year-on-year inflation in the euro area has been falling steadily since the end of 2011. Since the beginning of 2013, it has been less than 2 %, and dropped below 1 % more than a year ago. Having fallen continuously in recent months, it was down to 0.3 % in September 2014. Although core inflation was somewhat steadier, it also declined and stood at around 0.8 % in the summer of 2014. In parallel with this disinflationary trend, short-term inflation expectations – over a two-year horizon – were revised downwards. Measured on the basis of the implicit interest rate on a one-year inflation swap, they were thus significantly below 1 % at the end of 2014. More surprisingly, medium-term inflation expectations – over a two- to five-year horizon – also dropped significantly and have since remained at levels well below the ECB's quantitative definition of price stability. In both the short and the medium term, it actually appears that inflation expectations have fallen to an all-time low in the recent period. Finally, and more worryingly, long-term

CHART 5 INFLATION AND INFLATION EXPECTATIONS IN THE EURO AREA



Sources: Bloomberg, Thomson Reuters Datastream, ECB.

(1) HICP excluding energy and food.

(2) Measured on the basis of the implicit forward rate for an inflation swap. Since consumer price indices are published after some delay, inflation swaps reflect the inflation expected in the month three months before the swap's due date. For instance, one-year contracts dated October 2014 reflect the inflation rates expected in July 2015.

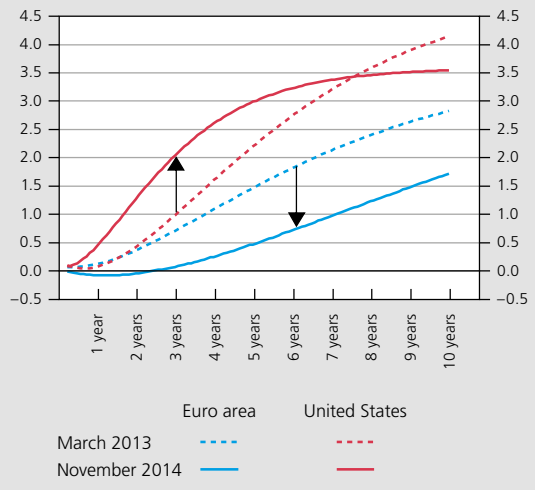
(3) Implicit inflation rate derived from swaps covering the inflation risk in the euro area for a five-year period beginning five years after the conclusion of the contract.

inflation expectations – e.g. over the five-year period beginning in five years' time – have also declined. That is particularly the case since the summer of 2014, although the decline has been small. This finding based on financial data tends to be confirmed by the ECB's surveys of professional forecasters – an indication of expectations unaffected by the uncertainty or liquidity premiums included in the prices of financial assets. These developments are troubling since that horizon is the most relevant for assessing the central bank's credibility, and long-term inflation expectations are not deemed to be influenced by fluctuations in observed inflation.

In a very low inflation environment, it is evident that the anchoring of inflation expectations in the euro area has recently been weakened to some extent. The decline in inflation expectations is worrying in that it exerts upward pressure on real interest rates, even though nominal rates are on the floor. The recent monetary policy measures adopted by the Eurosystem have to be viewed in the light of these developments and the associated risks.

CHART 6 OVERNIGHT MARKET INTEREST RATE EXPECTATIONS ON THE FINANCIAL MARKETS

(in %, based on overnight index swap rates)



Sources: Bloomberg, own calculations.

3. Outlook for monetary policy in the United States and in the euro area

3.1 When will the exit take place?

In recent years, with policy interest rates close to zero, changes to the size or composition of the central bank balance sheet together with forward guidance have become the main policy instruments of central banks in the advanced economies (see section 1). The FOMC, with its principles and plans for the normalisation of monetary policy, has recently resurrected the interest rate instrument as an indicator of the monetary policy stance during the exit phase (FOMC, 2014).

In view of the divergences in the macroeconomic situation and outlook between the United States and the euro area, the timing of the normalisation of monetary policy could well vary (see section 2). This asynchronous exit is also clearly reflected in the interest rate expectations of the financial markets. In that regard, our preferred indicator is the forward interest rate curve of the overnight index swaps (OIS), which shows the expected movement in interest rates on the overnight market. In the euro area, the overnight market rate is the Euro Overnight Index Average (Eonia), while in the United States it is the effective federal funds rate.

These interest rate curves for October 2014 show that the financial markets expect an initial interest rate rise in the United States during 2015, whereas overnight market rates in the euro area are expected to remain low or even negative for some time. Apart from the difference in the timing of the initial rate increase, it is also striking that once the first rate increase has been introduced the markets are only predicting a very gradual rise in interest rates. That is particularly the case in the euro area. Last year, the difference in the monetary policy stance – both actual and expected – between the United States and the euro area became larger. Whereas in March 2013 the expectations regarding the overnight market rate were fairly similar in the short term, macroeconomic developments have since led to a considerable divergence in the expected monetary policy stance. Finally, it should also be noted that long-term expectations relating to the overnight market rate have been revised downwards in the United States and in the euro area.

The next section presents an analysis of the decisions underlying the divergences in expectations regarding the monetary policy stance.

3.1.1 Recent Eurosystem decisions

At its June and September 2014 meetings, the ECB Governing Council adopted a series of new monetary policy measures in response to the sluggish business activity and the disinflationary trend in the euro area.

First, it slashed its key interest rates, reducing them to their lower limit. The interest rate on the main refinancing operations was thus cut from 25 to 15 basis points in June, then to 5 basis points in September. The deposit facility rate moved into negative territory, down from 0 to –10 basis points in June, then –20 basis points in September. Finally, the marginal lending facility rate was reduced from 75 to 40 basis points in June, ending up at 30 basis points in September. These decisions reinforced the accommodative character of the Eurosystem's monetary policy stance. While the reduction in the main policy rate lowered the cost of obtaining refinancing from the Eurosystem, the cut in the deposit facility rate, taking it into negative territory, is an integral part of the desired additional monetary easing. In a surplus liquidity environment, the floor policy rate plays a key role in determining the Eonia overnight interest rate. This parallel movement in interest rates also conforms to the aim of maintaining a constant corridor between the interest rate on the main refinancing operations and the deposit facility rate. That preserves the Eurosystem's intermediation margin and avoids discouraging transactions on the interbank market (Kasongo Kashama, 2014).

The Governing Council also implemented new unconventional measures. The first of these consists of targeted LTROs, which offer banks long-term financing – up to four years – in return for new lending to businesses and households, excluding mortgage loans. The interest rate on these operations is the main refinancing operation rate applicable at the time of the operation plus 10 basis points. Counterparties that satisfy the set conditions can thus obtain funding at low cost until the end of 2018, regardless of the movement in the main policy rate. Unlike the long-term operations previously introduced by the Eurosystem, these operations comprise an incentive mechanism to encourage the banks to expand their lending to the real economy.

The second measure comprises two large-scale securities purchase programmes, the first concerning ABSs and the second relating to covered bonds. These purchases should revitalise these two markets and that should in turn support issuance of securities and stimulate the underlying lending. Via these new programmes, the ECB Governing Council also intends to exercise more direct control over the growth of the Eurosystem's balance sheet. These programmes thus mark a break with a situation in which the growth of the euro area's monetary base depends essentially on the behaviour of the banks, which govern recourse to Eurosystem liquidity in the context of a full allotment liquidity-providing procedure. Apart from their direct effects on the interest rates on the securities purchased, the programmes should also influence the yields on many other assets by encouraging portfolio reallocations, and should therefore lead to a more general reduction in financing costs in the economy.

These measures indicate a new approach on the part of the ECB. With interest rates on the floor, they should enable the ECB to make its monetary policy more accommodative. The Governing Council has constantly reiterated that it is ready to take additional measures if need be.

3.1.2 Normalisation of monetary policy in the United States

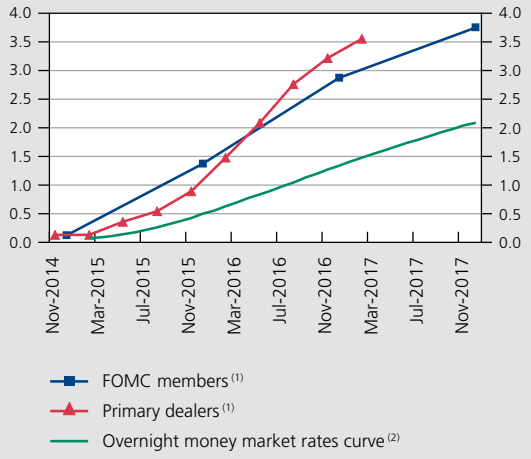
In contrast to the euro area, the United States has already taken the first steps towards normalising monetary policy. However, the exact timing and the announcement of the initial tightening of monetary policy still present major challenges for the US central bank. In the past, particularly in 1994 but also more recently, in the spring of 2013 and in January 2014, the element of surprise in the timing of the normalisation in the United States had always triggered some volatility on the global financial markets. Nevertheless, good communication by the central bank can help to reduce undesirable financial market volatility. Like many of the world's central banks, the Federal Reserve has significantly expanded its communication in the past decade, notably by announcing the economic projections of the FOMC members, by circulating the minutes of FOMC meetings more promptly, by extending the monetary policy statement issued at the end of each FOMC meeting, by organising a press conference after certain FOMC meetings and via talks by FOMC members. Two elements of the Federal Reserve's communication strategy are particularly relevant in regard to monetary policy normalisation : the publication of the interest rate path expected by individual FOMC members and the publication of the normalisation principles.

The individual forecasts of FOMC members concerning the path of the target federal funds rate have been made public four times a year since the first quarter of 2012, together with the projections for certain macroeconomic variables, namely inflation, real GDP growth and unemployment. This communication gives the financial markets access to important information about when the FOMC members expect the first interest rate increase to be made and the pace of subsequent increases. It is evident from these interest rate expectations that during 2012 and 2013 the FOMC members systematically postponed both the first interest rate rise and the subsequent ones. These interest rate expectations changed in the first quarter of 2014. Since then, against the backdrop of an improving outlook for economic growth and rising inflation expectations, the FOMC members have expected an initial interest rate rise during 2015.

In September 2014, the expected median interest rate stood at 1.37 % for the end of 2015 and 2.86 % for the end of 2016. The FOMC thus clearly indicated that it expected several interest rate increases during 2015 and further rises in 2016. As regards the pace of the rate increases, the FOMC once again stressed in its October 2014 monetary policy statement that the level of interest rates could long remain below the levels considered normal in the long term, i.e. after employment and inflation have reached levels close to those compatible with its mandate. In so doing, the FOMC signals that normalisation will be very gradual. It should also be noted that the statistic used – the median of all interest rate expectations of all the FOMC members – does not distinguish between voting and non-voting members of the FOMC. That median may therefore differ from the interest rate path expected by the FOMC that is relevant in practice.

While the primary dealers' interest rate expectations according to a survey conducted in September 2014 are fairly similar to those of the FOMC members, they differ considerably from the interest rate expectations of financial market participants based on overnight index swap rates. The primary dealers predict a federal funds rate in the region of 1.5 % in February 2016 and 3.5 % a year later. According to the OIS rate curve, the pace of the interest rate increases would thus be much slower. Part of the discrepancy between the FOMC's interest rate expectations and the overnight money market rates curve may be due to the expected persistence of abundant surplus liquidity (see section 3.2.2). But it may equally be due to a different estimate of the pace of subsequent interest rate increases. Divergences in expectations concerning the monetary policy stance are undesirable if the aim is to curb volatility and prevent sudden adjustments to market expectations (see section 4.1).

CHART 7 FEDERAL FUNDS RATE EXPECTATIONS
(in %)



Sources: Bloomberg, FOMC, Federal Reserve Bank of New York, own calculations.
(1) Median federal funds rate expected in September 2014.
(2) Based on the overnight index swap rate in November 2014.

The principles for the normalisation of monetary policy, published for the first time in June 2011, were updated in September 2014 (FOMC, 2014). Those principles specify that a more restrictive monetary policy will be implemented by using the interest rate instrument rather than by actively modifying the size or composition of the central bank's balance sheet. Section 3.2 examines in more detail the conduct of a restrictive interest rate policy in the presence of surplus liquidity.

As regards normalisation of the size of the central bank's balance sheet, in December 2013 the FOMC decided that, from January 2014, it would start tapering, i.e. scaling down the pace of its asset purchases. Since then, each FOMC meeting has decided to cut purchases of debt securities by $ 10 billion per month from the initial monthly figure of $ 85 billion. At the October 2014 FOMC meeting, it was agreed to end the purchases from November 2014. The monetary policy normalisation principles also stipulate that the size of the balance sheet will not diminish until interest rates have risen, as the plan is only to end or limit reinvestment of the amounts maturing once interest rates have been raised. As most of the debt securities held by the Federal Reserve are fairly long-dated and the FOMC has adopted a decision in principle not to sell or actively reduce the MBS portfolio, the balance sheet reduction will only be very gradual. Only in the longer term will the portfolio reserved for monetary policy – the SOMA portfolio, which represents around 95 % of the Federal Reserve's balance sheet total – expand again following the upward trend in banknotes in circulation, as had also been the case before the implementation of the quantitative easing programmes. As for its composition, until that time, the portfolio will continue to comprise a considerable proportion of MBSs, supplemented by US government bonds.

3.2 Normalisation of monetary policy in the presence of abundant surplus liquidity

In the years ahead, the major challenge for the monetary exit will consist in pursuing a more restrictive monetary policy by raising interest rates when the central bank reserves still contain substantial excess liquidity. That is the current position in the United States and the United Kingdom, but this analysis is equally relevant for the euro

area with the prospect of a marked expansion of the Eurosystem's balance sheet.

3.2.1 Conducting monetary policy with an interest rate corridor

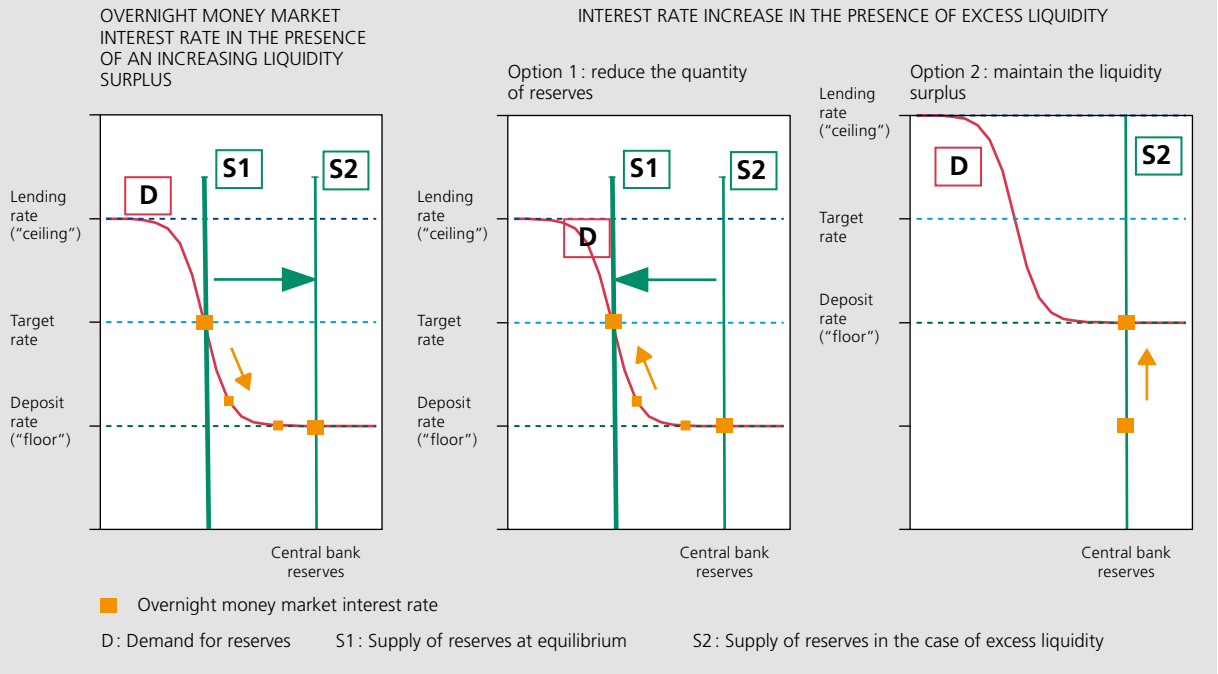
This section briefly explains how a central bank can pursue a restrictive interest rate policy in the presence of an abundant liquidity surplus by using an interest rate corridor. In theory, a corridor system may in fact curb interest rate volatility on the overnight money market and separate the interest rate policy from the size of the central bank's balance sheet (Kahn, 2010). Traditionally, a corridor system comprises three policy rates. The main one is the target rate for overnight money market rate. In the euro area, before the crisis, the target rate was in practice the rate on the weekly liquidity-providing operations, while in the United States it was the target federal funds rate. The overnight money market rate is set by the market participants and corresponds to the average rate on overnight transactions. Generally, the central bank provides a quantity of central bank reserves on the market so that, over a certain period, the overnight money market rate tends towards the target rate. At equilibrium, if the money market is operating properly, banks with a deficit (surplus) can borrow (lend) on the interbank market.

The lending rate and the deposit rate complete the corridor. The lending rate is the rate at which the central bank lends liquidity, against collateral, to counterparties facing a deficit at the end of the day which they are unable or unwilling to cover on the market. In normal circumstances, the lending rate is the interest rate ceiling on the overnight money market since the central bank's counterparties can always obtain liquidity at that rate outside the market and therefore have no reason to borrow at a higher rate. In the euro area, the lending rate is the rate on the marginal lending facility; in the United States it is the discount window rate.

The deposit rate is the remuneration of the deposits that counterparties hold on current accounts with the central bank. In principle, this is the floor rate since it is available to the central bank's counterparties at all times and they therefore have no incentive to lend at a lower rate. In the euro area, the deposit rate is the rate on the deposit facility; in the United States, it is the interest rate on excess reserves.

If the supply of central bank reserves increases so a liquidity surplus arises, the overnight money market rate will fall. That is what happened during the financial crisis when banks – particularly in the euro area – were worried about the counterparty risk and were no longer willing to lend one another funds on the interbank market, thus forcing the central bank to make up the liquidity shortfall. Excess liquidity was also created in the United States when the Federal Reserve decided to launch programmes for the

CHART 8 MONETARY POLICY IN THE PRESENCE OF EXCESS LIQUIDITY



purchase of debt instruments for the purposes of an expansionary monetary policy.

One of the challenges that central banks will have to address in the coming years will concern implementing a more restrictive monetary policy – despite abundant excess liquidity – by raising the overnight money market rate. In principle – if the monetary policy transmission mechanisms work properly – such an increase in the overnight money market rate should be transmitted to the other market interest rates. There are two ways in which the central bank can introduce a restrictive policy.

First, the central bank has the option of reducing the quantity of reserves until the central bank reserves market is restored to equilibrium. If the interbank market is operating properly, the central policy rate will regain its role as the target for the overnight money market interest rate. The central bank will then implement its restrictive policy by continuing to raise this target rate. The other two key rates – the lending rate and the deposit rate – usually move in parallel. Before the financial crisis, this operational framework was widespread in most of the advanced economies, including the euro area and the United States.

Central banks can conduct liquidity-absorbing operations by adjusting the liabilities side of their balance sheet. This does not alter the size of the central bank's balance sheet, but it changes the composition of the liabilities. Thus, until recently the Eurosystem absorbed the liquidity created by the Securities Markets Programme (SMP) by offering one-week term deposits. The Federal Reserve's instruments are term deposits and reverse repos; it has already conducted a number of operational tests. However, the central bank is dependent on the market's willingness to take part in these operations, and the markets' attitude in that regard depends on the size of the liquidity surplus. The bigger the surplus, the greater the interest among the counterparties. Other factors to be taken into account are the rate offered by the central bank and the degree of tension on the financial markets, which determines the liquidity needs at the end of the month or quarter. In the event of very substantial excess liquidity – like the $ 2 500 billion surplus in the United States in the fourth quarter of 2014 – the volume of reserves to be absorbed is so great that the rates offered on term deposits and reverse repos need to be very attractive. Such high rates could seriously disrupt money market functioning.

Another way in which central banks can reduce their liquidity surplus is to reverse the asset purchase programmes that they had introduced. This is a more structural measure in that it allows a permanent reduction in the central bank's balance sheet. In view of the current level of assets held by central banks, a massive, rapid sale would spark unprecedented volatility on the financial markets. In the case of the Federal Reserve, the impact on both domestic and global financial stability is a decisive reason for not taking that route. If assets held have to be sold at a loss, there is also the risk of repercussions on the central bank's profit and loss account, which could compromise its financial independence.

The second option consists in maintaining the liquidity surplus and hence the downward pressure on overnight market rates within the interest rate corridor, and implementing the more restrictive monetary policy by raising the floor rate. This option is frequently cited in the literature as a floor rate system.

The advantage of a floor rate system is that the interest rate policy, and hence the monetary policy stance, can be defined independently of the level of the liquidity surplus or the size of the central bank balance sheet. That advantage is particularly important if the liquidity surplus was created for reasons other than just the monetary policy stance. Thus, the Eurosystem introduced fixed-rate full allotment of liquidity against the backdrop of a malfunctioning interbank market, engendering demand-driven fluctuations in central bank balance sheets. Similarly, asset sales – e.g. in the case of the Federal Reserve – may be undesirable from the point of view of financial stability. However, if a more restrictive monetary policy becomes necessary in the meantime owing to the outlook for economic activity and inflation, a floor rate system allows interest rates to be increased without any immediate need to alter the purchase programmes or the fixed rate full allotment tendering procedure.

One important aspect of this second option is that the deposit rate is an effective floor for the overnight market rate. For the Eurosystem, that is the case, but in the United States that is not necessarily so, as mentioned in section 3.2.2. The Eurosystem's operational framework is an example of an environment in which the floor rate still operates effectively even in a crisis. During the crisis, a liquidity surplus was created owing to the increased intermediation role performed by the central bank (Boeckx and Ide, 2012). As expected in the case of an excess supply of central bank reserves, the overnight money market rate (Eonia) fell to around its floor level, namely the deposit facility rate. Within the Eurosystem, the Eonia rate has never gone below this floor. Banks with excess liquidity have always preferred to use the deposit facility rather than lend their surplus at a rate lower than that on the deposit facility. In other words, the Eurosystem's corridor system functions effectively and can therefore be used to drive up market interest rates even if there is a large liquidity surplus. Two

factors contribute to the efficiency of the transmission of the floor rate to other market interest rates. First, most banks are Eurosystem counterparties and have direct access to the deposit facility. Next, the financing of the euro area's economy takes place largely via the banking system, so that the financial conditions prevailing in the real economy are effectively influenced by the floor interest rate.

Finally, it should be noted that the existence of a corridor system with a floor rate cannot stop other market rates from being lower than that floor. The reasons are that investors do not all have access to the central bank's deposit facility, and other considerations concerning the risk incurred for the expected yield may play a role in investment decisions. Thus, in a period of increased tension, the yields on certain short-term sovereign securities have been lower than the deposit facility rate. This restricted access for financial market operators to central bank facilities remunerated at the floor rate is also a challenge for the Federal Reserve.

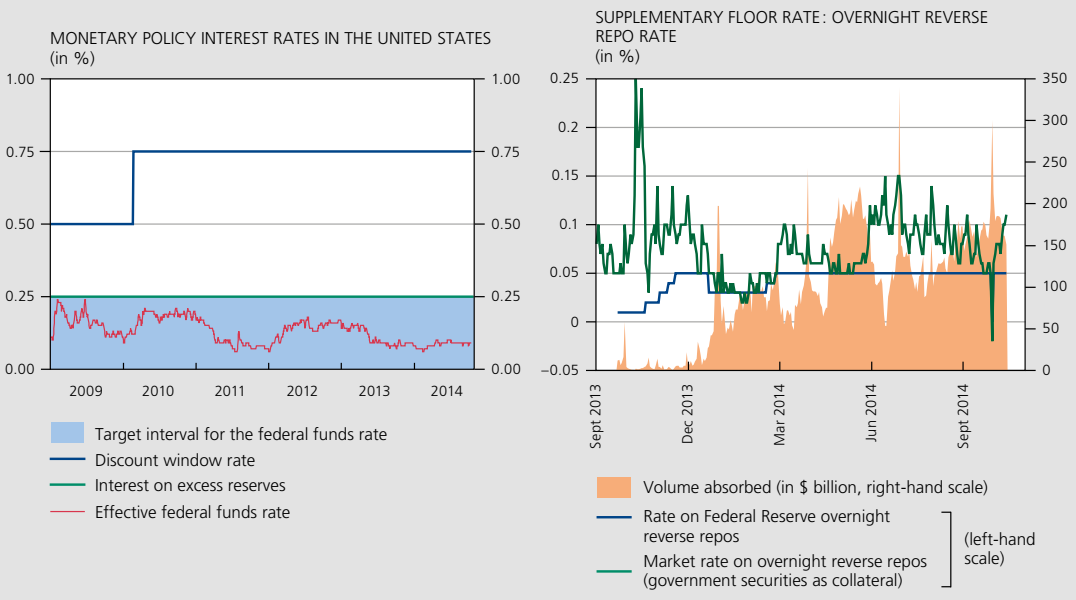
3.2.2 Federal Reserve : leaks in the floor ?

Like the Eurosystem, before the crisis, the Federal Reserve aimed to achieve equilibrium on the central bank reserves market by conducting open market operations, primarily repos, with its counterparties, but on a daily basis – rather than weekly, as in the case of the Eurosystem. Since the eruption of the financial crisis, the Federal Reserve's operational framework has also shifted towards a corridor system. In principle, the discount window rate is the ceiling overnight market rate – the effective federal funds rate – and the level of interest on excess reserves (IOER), introduced in October 2008, is the remuneration that the Federal Reserve pays to the banks, i.e. the depository institutions, on the excess reserves held. In December 2008, the FOMC established a range of between 0 and 0.25 % for the target federal funds rate, the discount window rate currently standing at 0.75 % and the rate on excess reserves at 0.25 %.

In its September 2014 exit principles, the FOMC stresses that it will implement a more restrictive policy by increasing the interval for the target federal funds rates. The overnight market rate will therefore be adjusted via the increase in the rate on the excess reserves, i.e. by the maintenance of a floor rate system. It is noteworthy that the overnight market rate is lower than the floor rate. In other words, some financial institutions lend and borrow central bank reserves at a rate below the deposit rate available to the banks on their current accounts with the Federal Reserve.

There are two main reasons for this situation. First, the government-sponsored enterprises (GSEs), such as Fanny Mae, Freddy Mac and the Federal Home Loan Banks,

CHART 9 THE MONEY MARKET IN THE UNITED STATES



Sources : Thomson Reuters Datastream, Federal Reserve Bank of New York.

operate on the federal funds market but do not receive interest on the excess reserves on the accounts that they hold with the Federal Reserve. This large volume of excess reserves exerts downward pressure on the overnight market rate. The second reason is that depository institutions which have access to the IOER facility can, in principle, engage in arbitrage by borrowing federal funds from the GSEs and depositing them with the central bank in return for remuneration. However, that does not happen, or only to a very small extent. The explanation is that, since 2011, the banks have had to pay a fee to the FDIC (Federal Deposit Insurance Corporation), the fee being related to the size of their balance sheet. Engaging in arbitrage on the federal funds market causes the balance sheet to expand, and the fee to be paid to the regulator averages between 10 and 15 basis points, though it varies from one institution to another. However, foreign banks holding an account with the Federal Reserve are exempt from these fees and are therefore fairly active on the federal funds market. Nevertheless, it is not easy to determine the extent to which these foreign banks ensure the efficient transmission of the floor rate to the other US financial market segments.

The negative spread between the IOER – which should, in principle, act as the floor rate – and the overnight market rate is a major challenge for the Federal Reserve in connection with the normalisation of its monetary policy, owing to the uncertainty over the smooth transmission of an increasing floor rate to the short-term market rates (Gagnon and Sack, 2014). That is why the FOMC, in its policy normalisation principles, mentions a supplementary floor rate, namely the rate on overnight reverse repos. However, that facility will only be used if the Federal Reserve cannot keep the overnight market rate within the desired range by using the interest rate on excess reserves alone.

The overnight reverse repo is an open market operation aimed at absorbing liquidity, whereby the counterparty receives interest from the Federal Reserve for the duration of the operation, i.e. overnight, plus collateral in the form of government securities. This operation does not affect the size of the central bank's balance sheet but it does alter the composition of the liabilities, i.e. the liquidity surplus recorded under the central bank reserves becomes smaller. A significant feature of this instrument is that, apart from the traditional counterparties such as the depository institutions and GSEs, money market funds are also eligible. The expansion of the range of counterparties to include parties active in other financial market segments is important for the efficiency of the floor rate during transmission to other market rates (see the large number of Eurosystem counterparties in the euro area, where bank financing dominates). If the reverse repo facility is implemented with fixed-rate full allotment, the overnight reverse repo rate should act as a (supplementary) floor rate. By analogy with the interest rate on the excess reserves, money market funds or GSEs would not, in principle, conclude any overnight repo contracts with government securities as collateral at a rate lower than that offered by the Federal Reserve, as overnight (reverse) repos guaranteed by government securities are particularly safe assets, especially when the counterparty is the Federal Reserve.

However, it should be noted that the first direct effect of this facility described above, namely the absorption of reserves, can also be exploited at a later stage in the normalisation process, as increased recourse to the overnight reverse repo facility would lead to the absorption of a large quantity of reserves, thus driving up their price, and that could help to reinforce the signal of a tighter monetary policy. However, excessive use of the overnight reverse repo facilities implies the risk that the available central bank reserves may diminish to the point where the overnight market rate exceeds the target rate, and that could cause an undesirable tightening of monetary policy.

In 2013 and 2014, the Federal Reserve has already conducted tests to check the efficient functioning of the overnight reverse repo facility. These tests took the form of a specific amount allotted at a fixed rate per counterparty. The amount increased gradually from $ 0.5 billion per counterparty to the current figure of $ 10 billion, and the interest rate is currently 5 basis points, as opposed to 1 basis point at the start. Money market funds are the main participants in these operations (Potter, 2014). The Federal Reserve also finds that the amounts subscribed are generally greater when the spread between the market rate and the rate offered by the Federal Reserve is relatively small. In addition, the amounts subscribed are large towards the end of a month or quarter, when money market funds have less access to safe overnight investments. According to the Federal Reserve, the provisional results are satisfactory and the overnight reverse repo rate appears to perform its function as a floor rate.

4. Normalisation in the United States and spillover effects in the euro area

Asynchronous normalisation of monetary policies in the large advanced economies implies risks associated, in particular, with unwelcome spillover effects. In an economically and financially integrated world, the effects of monetary measures adopted by one economic bloc may easily be transmitted to other regions, without

their macroeconomic situation justifying such spillovers. In that context, and in order to illustrate the potential future disruption, we analyse here the consequences of the first signals of monetary policy normalisation in the United States and the resulting spillover effects for the euro area.

4.1 The 2013 tapering episode

On 22 May 2013, Ben Bernanke, then Chairman of the Federal Reserve, suggested in Congress that, if the health of the economy continued to improve, the Fed might decide to scale down ("taper") its purchases of US Treasury bonds and MBSs. He confirmed his remarks on 19 June at a press conference. These announcements, which came after a long period of monetary easing, were a big surprise to market participants and generated increased uncertainty over the Fed's future intentions, in regard to both asset purchases and key interest rates. Although the Fed keeps its interest rate decisions separate, in principle, from its decisions to purchase assets, the ending of its securities purchases is actually regarded as heralding an interest rate rise, in order to avoid transmitting contradictory monetary policy signals. In the ensuing months, the financial markets were subject to substantial selling of securities and high volatility (BIS, 2014).

Although there was no suggestion of any increase in the key interest rates, the mere mention of a reduction in asset purchases by the Federal Reserve generated a strong reaction on the bond markets. In the space of just a few months, the yield on ten-year Treasury bonds went up by around 1 percentage point, from just under 2 % at the end of May to almost 3 % in mid-September 2013. The five-year interest rate five years ahead, which represents its long-term component, increased by over 100 basis points during the same period. That is not so surprising given that asset purchases primarily influence the term premium, which increases with the maturity of the rates. However, the five-year rate, the short-term component of the ten-year yield, also increased considerably, demonstrating that the statements about purchases of securities also affected expectations concerning future short-term interest rates and hence the policy rates.

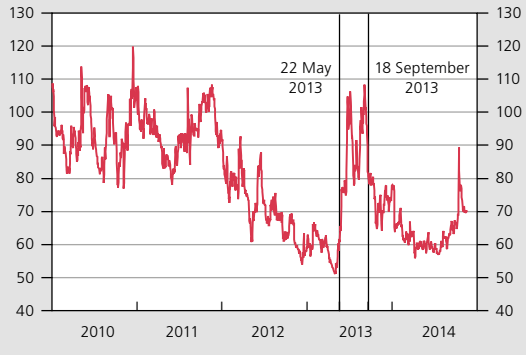
In response to the rise in short-term rates, Ben Bernanke stressed in a speech to Congress in July 2013 that the policy rates would remain at a low level for an exceptionally long period after the end of the asset purchase programme, and that the phasing out of that programme would depend on the country's economic and financial situation. There was only a very partial easing of the turbulence, and it was not until the Fed's announcement on 18 September 2013, stating that it would postpone the tapering of its securities purchases, that interest rates subsided to more moderate levels. The announcement of a reduction in purchases from January 2014, which came on 18 December 2013, was widely expected and therefore did not trigger any strong market reaction. The decision was in fact accompanied by a statement saying that the very accommodative monetary policy would be maintained for a considerable time after the end of the programme and the strengthening of the recovery.

When the Federal Reserve actually scaled down its asset purchases from January 2014, that did not create any upward pressure on rates either. From the start of the year, the five-year rate remained fairly stable overall, while the five-year rate five years ahead displayed a clear downward trend. This surprising development actually looks like a new "conundrum", the term that Alan Greenspan used in 2005 to describe the fall in long-term interest rates which accompanied the increase in the policy rates over the preceding months (Greenspan, 2005).

This conundrum is due partly to a reduction in the term premium (IMF, 2014b), which could be attributable in particular to the low level of sovereign yields in the other advanced economies and the uncertainty surrounding global economic growth, two factors that cause investors to turn to US Treasury bonds. However, it may also reflect a fall in expectations concerning the future level of long-term federal funds rates (see section 3.1) and,

CHART 10 IMPLICIT VOLATILITY OF US GOVERNMENT BONDS

(basis points)[1]

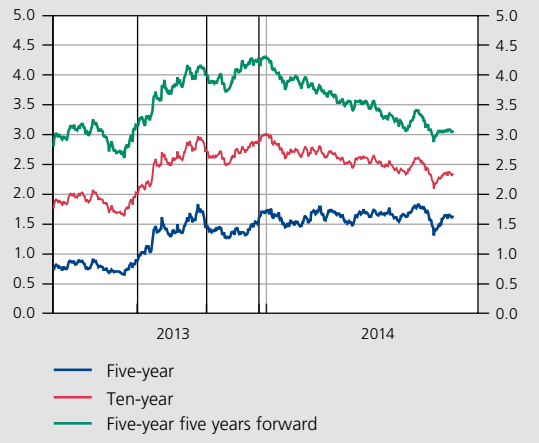


Source : Thomson Reuters Datastream.

(1) MOVE (Merrill Option Volatility Expectations) index measuring the implicit short-term volatility on US Treasury bonds of various maturities. The vertical lines respectively indicate the first statements by Ben Bernanke, on 22 May 2013, and the Federal Reserve's announcement on 18 September 2013, stating that it will not reduce its purchases for the time being.

CHART 11 US TREASURY BOND YIELDS

(percentage points)[1]



Sources: Thomson Reuters Datastream, own calculations.

(1) The vertical lines respectively indicate the first statements by Ben Bernanke, on 22 May 2013, the Federal Reserve's announcement on 18 September 2013, stating that it will not reduce its purchases for the time being, and its announcement on 18 December 2013 saying that it will reduce its purchases as from January 2014.

therefore, a downward revision of expectations regarding trend growth (IMF, 2014b). A sudden decline in interest rates occurred in mid-October, following the publication of troubling macroeconomic figures from the United States and elsewhere. Though this turbulence was short-lived, it again demonstrated the markets' potential for abrupt responses.

4.2 Factors which could contribute to greater interest rate volatility

The spring 2013 statements triggered a fit of volatility and an unexpected rise in interest rates. Conversely, the publication of macroeconomic indicators arousing fears for the health of the global economy generated a sharp fall in yields in the autumn of 2014. These developments suggest that, when it actually comes, the normalisation of American monetary policy could well create some turbulence. Various factors in particular could cause disruption on the financial markets.

First, the uncertainty surrounding future targets for the federal funds rate could be particularly severe, given the limits of forward guidance. The Federal Reserve could well decide – as announced – to maintain its interest rates at lower levels for longer than normal. However, in the long run, that could give rise to expectations that monetary policy will be tightened more quickly than in previous cycles, that being considered necessary to prevent overheating and the creation of bubbles.

Next, as indicated by the OIS yield curve, market participants seem to expect the policy to be more accommodative for a longer period than anticipated by the FOMC members themselves (see section 3.1.2). The public could therefore misinterpret the Fed's forward guidance and underestimate the degree to which short-term interest rates could change according to economic developments. Once normalisation has begun, the surprise and confusion over the Federal Reserve's intentions would be all the greater, and that could indeed cause interest rates to rise more sharply and become more volatile.

Furthermore, in an environment with substantial excess liquidity, there could be concern about the ability of central banks to maintain full control over money market rates during the normalisation process. As explained in section 3.2.2, the FOMC has a range of instruments for controlling short-term money market rates, and the tests conducted so far have proved convincing. However, if the instruments were to prove inadequate in practice, the central bank might have to sell assets in order to reduce the outstanding amount of reserves. Asset sales could also become necessary to control inflation in the event of a derailment. Whatever the reasons, the announcements and the actual sales of securities appearing on the central bank's balance sheet would probably affect the prices of the securities and hence interest rates, just as they did when the securities were bought.

Finally, the recent structural decline in bond market liquidity could exacerbate the problems identified above (IMF, 2014b). In particular, the market makers' stocks of fixed-income securities have been declining steadily since 2007, and that has probably reduced the capacity of dealers to absorb shocks during periods of tension. While some non-bank entities have emerged as substitutes for broker-dealers, there are not enough of them to compensate for the reduction in the latter's intermediation capability.

4.3 Normalisation and spillover effects

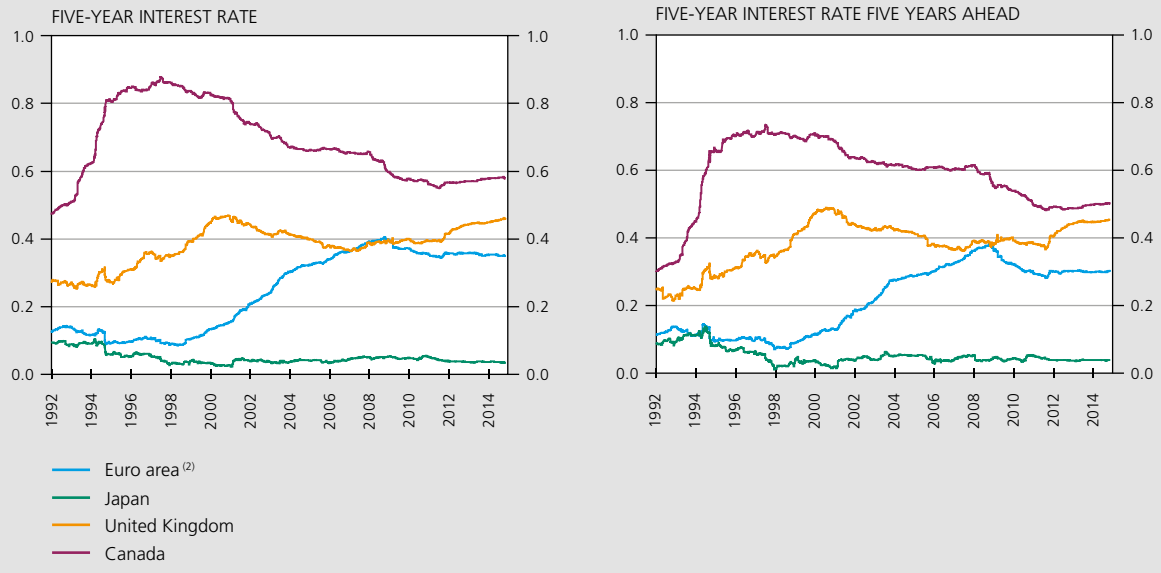
Given the weight of the United States in the global economy and the crucial role of the US dollar as a reserve currency, transatlantic financial developments may have global repercussions extending to a broad range of assets in the advanced and emerging economies. The turmoil that could result from the normalisation of American monetary policy thus raises the question of the impact on third countries.

In these circumstances, it is relevant to examine the influence of American interest rates on those in other economies. A fairly simple measure of that link is the degree to which day-to-day changes in five-year interest rates and in five-year rates five years forward are synchronised between sovereign bonds of other advanced economies and US Treasury bonds. The synchronisation of five-year interest rates tends to reflect the degree of convergence in expectations regarding key interest rates and, therefore, in the correlation of economic cycles, which depends partly on trade integration. On the other hand, the synchronisation of day-to-day changes in the five-year rates five years ahead tends to indicate parallel movements in term premiums and is thus more a sign of financial integration. In this connection, some talk about the existence of a global financial cycle, featuring common trends in asset prices, capital flows and debt levels (Rey, 2013).

In general, there has been greater synchronisation between American interest rates and those in the euro area since the late 1990s. However, since the crisis erupted, that degree of synchronisation has diminished whereas it has increased between American rates and their British counterparts. That is particularly true of five-year rates five years ahead, possibly because the Eurosystem has not adopted a quantitative easing programme, in contrast to the Federal Reserve and the Bank of England. At the extremes, it is noteworthy that the interest rate synchronisation with the United States is particularly marked for Canada, which is unsurprising given the close real and financial links between the two countries. Conversely, the synchronisation between Japanese and American rates has been extremely weak since the early 1990s, bearing witness to the significant differences in macroeconomic performance between the two nations over the past two decades.

If the synchronisation indicates the possible contagion of interest rate movements between the United States and a third economy, it is also necessary to consider the cause of the tightening of financial conditions in the United States in so far as that determines the contagion effects. According to the IMF (IMF, 2014a), it is necessary to distinguish between "real" shocks and "monetary" shocks. Positive "real" shocks concern an improvement in the growth prospects, and the accompanying interest rate rise is like a normal monetary policy response to macroeconomic developments. Conversely, positive "monetary" shocks lead to interest rate rises which are not justified by the macroeconomic situation. They can be interpreted as deviations from a monetary policy rule such as the Taylor rule, or may reflect a rise in the term premium following financial turbulence. Real shocks do not necessarily have a negative effect on the countries concerned, in that the accompanying increased yields

CHART 12 SYNCHRONISATION OF INTEREST RATES WITH THE UNITED STATES (1)



Sources : Thomson Reuters Datastream, own calculations.

(1) Coefficients of a regression on a 60-month rolling window of day-to-day changes in sovereign yields as a function of day-to-day changes in the yields on US Treasury bonds of the same duration.

(2) The rates used for the euro area correspond to the average of the rates for the main euro area countries with a AAA rating on 30 June 2013 (Germany, Austria, Finland, France and the Netherlands).

are offset by the stimulation of exports resulting from the expansion of economic activity in the United States. In contrast, monetary shocks generate negative spillover effects in third countries because the rise in yields is not offset, and it weakens the economy.

The respective influence of the two types of shock fluctuates widely over time. According to the IMF (IMF, 2014a), the initial rise in ten-year Treasury rates following the spring 2013 statements by Ben Bernanke was more monetary in character, whereas the eventual increase between May 2013 and mid-July 2014 was attributable entirely to real shocks. In the future, a gradual process of normalisation justified by strengthening economic activity should prevent risks of financial instability and should not have significant adverse repercussions.

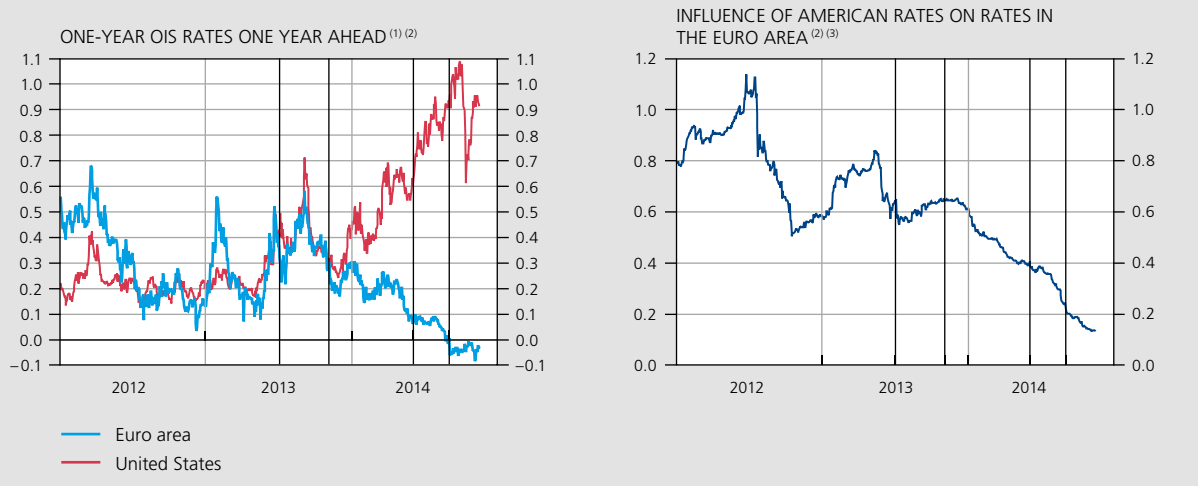
The historical synchronisation between American rates and those in the euro area shows that the latter could well feel the effects of potential disruption due to the normalisation of US monetary policy. Those repercussions will depend on the scale and nature of the underlying shocks. Regardless of the type of shock, it is nevertheless possible that the Eurosystem's monetary policy stance may be disrupted and may therefore cease to reflect the weakness of the euro area's economic fundamentals. In the next section, we look at the fall-out from the tapering episode and the way in which the Eurosystem has managed to preserve the independence of its monetary policy during the recent period.

4.4 Decoupling of the euro area during the recent period

To illustrate the effects in the euro area of the rise in interest rates across the Atlantic in mid-2013, it is relevant to consider the movement in one-year overnight swap rates one year ahead in the United States and in the euro area. Those rates reflect the money market's interest rate expectations during the twelve-month period beginning in twelve months' time, and thus form a relevant indicator of monetary policy expectations.

On the basis of these rates, it appears that the increase in American yields in the spring of 2013 largely spread to the euro area. European rates rose even though the Eurosystem introduced forward guidance, partly for the purpose of protecting the monetary policy stance from external influences. Although the announcement of that guidance on 4 July 2013 triggered an immediate sharp fall in the one-year rate one year ahead in the euro area, the rate actually began rising rapidly again following the publication of quite favourable economic data within the

CHART 13 DECOUPLING BETWEEN THE EURO AREA AND THE UNITED STATES



Sources: Thomson Reuters Datastream, own calculations.

(1) Fixed rate paid by the counterparty of an interest rate swap receiving the overnight rates for a one-year period in one year's time (Eonia for the euro area, effective federal funds rate for the United States).

(2) The vertical lines mark 4 recent decisions by the Eurosystem: introduction of forward guidance on 4 July 2013, and the policy rate cuts on 7 November 2013, 5 June 2014 and 4 September 2014.

(3) The chart represents the regression coefficient β_1 of the equation: $\Delta(OIS_{EA}) = C + \beta_1 \Delta (OIS_{USA}) + \beta_2 \Delta (CESI_{EA})$ over a 250-day rolling window. Where ΔOIS_{EA} corresponds to the daily change in the one-year OIS rate one year ahead in the euro area, ΔOIS_{US} corresponds to the daily change in the one-year OIS rate one year ahead in the United States and $\Delta CESI_{EA}$ corresponds to the daily change in the Citigroup Economic Surprise Index for the euro area.

euro area and elsewhere. However, it should be noted that the effectiveness of the forward guidance is not confined to its immediate impact, and it has to be assessed over a longer period, according to the degree of convergence between market interest rate expectations and the central bank's intentions. From that point of view, subsequent developments suggest that the forward guidance did indeed support the Eurosystem in the conduct of its monetary policy.

The autumn of 2013 brought the start of decoupling between the European interest rate and its American counterpart, following the Eurosystem's decision on 7 November 2013 to cut its policy rates once again. Shortly after that decision, rates on either side of the Atlantic began to diverge substantially and continuously, in the face of contrasting movements in macroeconomic performance in general and the inflation outlook in particular. The Eurosystem's recent decisions to make further unprecedented cuts in its policy rates and to adopt additional unconventional measures have reinforced the divergences in the monetary policy stance and accentuated the interest rate differentials.

In order to arrive at a more detailed appraisal of the influence of American rates on European rates, it is also useful to refer to a simple econometric model which controls for the impact of new macroeconomic information in the euro area. The regression studied is this :

$$\Delta OIS_{EA} = C + \beta 1\ (\Delta OIS_{US}) + \beta 2\ (\Delta CESI_{EA}).$$

ΔOIS_{EA} corresponds to the daily change in the one-year OIS rate one year ahead in the euro area, ΔOIS_{US} is the daily change in the one-year OIS rate one year ahead in the United States and $\Delta CESI_{EA}$ is the daily change in the Citigroup Economic Surprise Index for the euro area. The regression coefficient ß1 reflects the influence of American rates on their European counterparts, taking account of macroeconomic surprises for the euro area, this last factor being, in principle, the main determinant of expectations regarding future interest rates. The construction of the macroeconomic surprise index – which represents a moving average of past and present surprises – suggests that the changes in that indicator identify the most recent surprises.

The movement in the regression coefficient based on a 250-day rolling window confirms the picture of a clear decoupling between rates on either side of the Atlantic from the autumn of 2013. That coefficient stood at 0.8 just before the statements by Ben Bernanke, and 0.65 at the beginning of December 2013, i.e. a significantly positive figure. However, it has since fallen steadily, to almost zero in the recent period.

In the end, while transatlantic financial developments caused an initial shock for the euro area, since the end of 2013, the Eurosystem has clearly been successful in confirming the independence of its own monetary policy in relation to that of the Federal Reserve, thus maintaining a policy stance in phase with the euro area's economic fundamentals. That is also evident from the movement in the euro exchange rate, which has depreciated considerably since May 2014 both against the US dollar and in effective nominal terms. That is the subject of the box below.

Box – Asynchronous normalisation of monetary policy and the exchange rate

Apart from the above-mentioned spillover effects via interest rates, we can also expect the asynchronous normalisation of monetary policy to have an impact via the exchange rate. It should be noted that bilateral exchange rate movements are difficult to explain, and the definition of their determinants is complicated. Indeed, the empirical validation of theories concerning exchange rate movements has always been challenging. The increased trade and financial integration and the complexity of the monetary, financial and banking systems are certainly contributory factors. In this box, we establish the link between the divergent monetary policy stance in the United States and the euro area and the short-term fluctuations in the bilateral exchange rate. In that regard, a more expansionary monetary policy stance in the euro area – measured by the difference in the expected short-term interest rate – should in our view lead to a depreciation of the euro. We measure the monetary policy stance as the differential in the expected three-month OIS rate nine months ahead in the euro area and in the United States.

Apart from the short-term interest rate differential, we also take account of fluctuations in the VIX – which measures volatility on the American stock markets – and the impact of the European sovereign debt crisis on the

bilateral exchange rate. These two factors reflect the recent impact of financial market risks on the exchange rate. Thus, we expect a rise in the VIX to be accompanied by a euro depreciation, on the grounds that a high level of financial uncertainty prompts a flight to safety towards US government bonds. We measure the tension on the European sovereign debt market as the spread between Italian and German ten-year government bonds. That is an approximation of investors' confidence in the euro and of capital inflows and outflows in the euro area. We expect a widening of the differential to cause a depreciation of the euro.

After having estimated the equation below, we find that both the short-term interest rate spread and the two approximations of financial market tension and uncertainty are significant for explaining the actual change in the bilateral exchange rate. All three of the respective coefficients also exhibit the expected sign: expectation of a more restrictive monetary policy in the euro area leads to a euro appreciation, while increased global financial uncertainty and a widening government bond spread cause the euro to depreciate against the US dollar.

$$\Delta \text{ EUR/USD} = c + \beta_1 \Delta[E(i^{ea}) - E(i^{US})] + \beta_2 \Delta \text{Vix} + \beta_3 \Delta \text{Spread}$$

ESTIMATED PERIOD: WEEK 1 OF 2008 – WEEK 42 OF 2014; 356 OBSERVATIONS

Variable		Standard error	*t*-statistic	*p*-value
Constant	–0.0002	0.000793	–0.25	0.8025
β1	0.0218	0.007043	3.09	0.0021
β2	–0.0253	0.006423	–3.93	0.0001
β3	–0.0100	0.004334	–2.30	0.0216

$R^2 = 0.10$

The importance of the relative monetary policy stance in explaining the exchange rate is clear from examination of the period from the second half of 2010 to the first half of 2011, when there was a slight improvement in the macroeconomic and financial environment of the euro area. The ECB effectively tightened its policy stance in the spring of 2011 by raising its interest rate target. That period therefore featured an appreciation of the euro. At the height of the sovereign debt crisis, the spreads on government bonds of the peripheral euro area countries widened and these interest rate rises were reversed. The euro then depreciated continuously until the announcement of the OMT programme in the summer of 2012.

The revival of confidence in the euro following the OMT announcement – and hence, the reduction in spreads on peripheral government bonds – then triggered a marked rise in the euro against the US dollar. That appreciation was maintained until May 2014, even though it had meanwhile become clear that the divergence in the macroeconomic outlook would lead to an asynchronous normalisation of monetary policy (see section 2). It is mainly since the beginning of 2014, when the FOMC also modified the tone and content of its statement and its published interest rate expectations, that there have been wide variations in expectations regarding the monetary policy stance. However, it was only after the May 2014 Governing Council meeting, when ECB President Mario Draghi announced supplementary measures to revive the economy and inflation, that the euro began to depreciate.

Since the crisis, the relative size of the balance sheet of Eurosystem central banks and the Federal Reserve has often been used to emphasise the difference in the monetary policy stance, and in principle it could help to explain the fluctuations in the bilateral exchange rate. That point of view is based in particular on what is known as the monetary model, whereby the relative movement in the money supply determines the exchange rate. For the period estimated, the central bank balance sheet ratio does not help to explain the short-term exchange rate

movements in the above equation, because the main effect of the size of the central bank balance sheet was to expand base money but not the more broadly defined money supply. However, it remains possible that the monetary policy measures, which cause an increase in the broad money supply as well as augmenting base money, may in fact influence exchange rates.

BILATERAL EXCHANGE RATE BETWEEN THE EURO AND THE US DOLLAR AND INTEREST RATE DIFFERENTIAL

Sources: Thomson Reuters Datastream, ECB.
(1) The expected short-term interest rate is the expected three-month OIS rate nine months ahead.

Conclusion

This article highlights the continuing highly accommodative character of monetary policy in the main advanced economies six years after the start of the great recession. The current macroeconomic context implies that this situation will persist for some time yet. However, the monetary policy normalisation which has begun in the United States is likely to continue, while an additional easing has taken place in the euro area. Expectations regarding short-term interest rates derived from the financial data also indicate that the exit from the accommodative monetary policies will probably be asynchronous.

In the spring of 2013, Ben Bernanke's statements mentioning a possible reduction in the Federal Reserve's asset purchases caused a wave of volatility and a marked rise in interest rates on the bond markets. These developments indicate the disruption that could accompany the process of normalisation in the future, and raise the question of spillover effects on third countries. Owing to the weight of the United States in the global economy and the importance of its monetary and financial systems, transatlantic financial developments pose a real risk of global repercussions.

Owing to its economic and financial links with the United States, the euro area is exposed to the spillover effects of the normalisation of US monetary policy. Those effects will depend in particular on the scale and nature of the underlying shocks. Real shocks, which concern an improvement in the growth prospects, will not necessarily cause adverse spillover effects. Conversely, monetary shocks which are unconnected with the economic fundamentals will certainly be harmful. Regardless of the type of shock, it is nevertheless possible that the Eurosystem's monetary policy stance may be disrupted and that it may cease to reflect the weakness of the euro area's economic fundamentals.

The rise in US interest rates in mid-2013 was an initial shock for the euro area and therefore demonstrates the potential contagion of financial turmoil on either side of the Atlantic. Since the end of 2013, however, the Eurosystem has been very successful in affirming the independence of its own monetary policy in relation to that of the Federal Reserve, and thus setting a policy stance geared to the macroeconomic situation in the euro area.

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Recent changes in saving behaviour by Belgian households: the impact of uncertainty

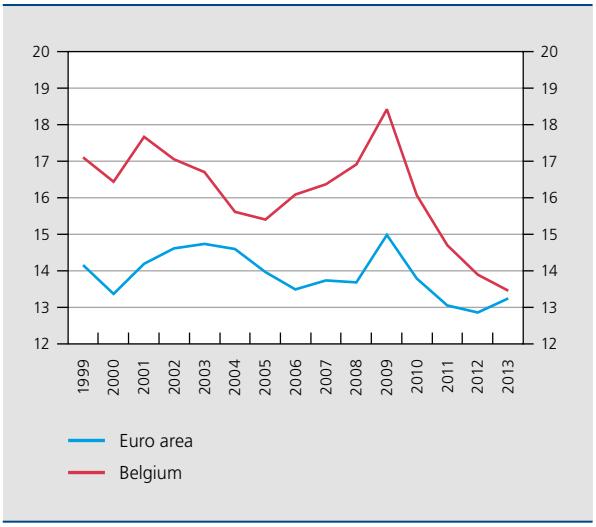
R. Basselier
G. Langenus

Introduction

The saving behaviour of Belgian households has undergone important changes in recent years. Expressed as a percentage of gross disposable income, their saving increased significantly in the run-up to and during the great recession, from slightly more than 15 % in the middle of the previous decade to 18.4 % in 2009. Quarterly statistics indicate that the saving ratio even peaked at more than 19 % in the first quarter of that year. After the great recession, the household saving ratio gradually dropped, to reach a historical low of, on average, 13.5 % of disposable income in 2013.

CHART 1 HOUSEHOLD SAVING RATIO IN BELGIUM AND THE EURO AREA

(annual figures, % of disposable income)



Sources: EC, NAI.

While the household saving ratio in the euro area to some extent exhibits the same pattern – rising before the great recession, falling afterwards –, the swings were clearly more important in Belgium. However, the positive differential with the euro area household saving ratio has declined systematically since 2009.

Clearly, different factors of a structural and cyclical nature account for changes in the saving behaviour of households. The objective of this article is to specifically gauge to what extent uncertainty concerning the general economic outlook or income prospects has contributed to these developments. We will first provide a brief overview of the relevant theoretical background before turning to the empirical part with an analysis of the driving factors of the saving rate.

1. Consumption and saving: theoretical background

Different theories aim to provide an explanation for the level and the development of household saving. Predominant among those are the neoclassical theories, which assume some form of rational forward-looking behaviour for households, in particular the permanent income theory and the life cycle hypothesis, respectively

associated with the names of Friedman (1957) and both Ando and Modigliani (1957, 1963). According to this view, consumers will not necessarily base their consumption decisions on their current disposable income, but rather on some permanent income or wealth concept, which may be defined as the present value of lifetime housing and financial wealth, current labour income and the present discounted value of the labour income that households expect to earn during their entire lifetime. Consumption will therefore not be influenced by short-run fluctuations in income, but will instead respond to permanent income shocks. This can explain changes in the saving ratio: if consumers believe that (positive or negative) income shocks are not permanent, they may not fully adjust their consumption but instead modify their saving ratio. This also implies that a policy change (regarding taxes or interest rates) will have a different impact on consumption, depending on whether consumers perceive the policy change to be of a transitory or a more permanent nature. Under stronger assumptions, in particular regarding the concern for the welfare of future generations, the so-called Ricardian equivalence would hold and households would fully take into account the government budget constraint, implying that changes in government saving through modifications of taxes would be offset by equivalent changes in private saving (Barro, 1974).

In these neoclassical models, household saving (or borrowing) to some extent serves as a shock absorber and is typically adjusted to smoothen consumption. However, in reality, households are often found to respond more strongly to current income shocks than what theory predicts (Beznoska and Ochmann, 2012). Different elements can account for deviations from neoclassical consumption theories. First of all, behavioural economists have pointed out that households may be less forward-looking and rational in real life. According to Trevisan (2013), consumers tend to rely on information that is easily available and will not bother to gather and interpret all information that is necessary to make a decision. Rather than by "rational" decision-making, private consumption may be governed to a greater extent by simple rules of thumb, pre-commitment, habit formation and imitation (McFadden, 2013).

Second, the aforementioned neoclassical theories assume that financial markets are working perfectly. Households should in particular always be able to borrow against expected future incomes. Obviously, in reality, some consumers may not have full access to credit, e.g. because banks perceive the default risk as too large. This particular argument has become increasingly relevant since the financial crisis and the recession, during which banks have become more reluctant to lend money. For these liquidity-constrained consumers, the link between consumption and current income will clearly be stronger (Dreger and Reimers, 2011). Even for households that have sufficient savings, the presence of liquidity constraints can weigh on consumption: some households might be inclined to start saving more, to be able to finance certain (durable) purchases in the future, rather than having to borrow (Echeverría, 2002).

The third possible explanation for the excess sensitivity of consumption to actual income has to do with uncertainty. In reality, permanent income concepts are not known with certainty by households but have to be estimated. Uncertainty surrounding these estimates can lead to more precautionary saving in economic downturns in particular. In this connection, Friedman and Modigliani's models have been extended by the buffer-stock models, which allow for precautionary saving. It should be taken into account that income is not constant but can change over the working life. Households are usually risk-adverse and tend to dislike this income uncertainty. As a consequence, they will save more to be able to offset sudden income shocks. The precautionary savings motive has also gained importance during the crisis years, as (large) adverse shocks were assessed as more likely and more frequent (Mody *et al.*, 2012).

In the following section, we focus on this third element and try to quantify the level of uncertainty on the basis of different indicators.

2. Measuring uncertainty

It is generally argued that the great recession has brought about a remarkable increase in uncertainty. As mentioned briefly in the previous section, uncertainty may increase the incentives for households to save, as they may come to fear income losses. Uncertainty is not directly observable but several approaches exist to quantify it. In order to capture financial market uncertainty, for example, it is common to look at the VIX, which is the implied volatility of S&P 500 index options[(1)]. To measure economic uncertainty in a broader way, the ECB (2013) distinguishes two different approaches:

– "Forecast variance" operationalised using either standard deviations of a set of projections made by different professional forecasters, or the variance of the aggregate distribution of such forecasts that also takes into account the forecasters' own assessment about the variance around their projections;

(1) The VIX is calculated and published by the Chicago Board Options Exchange.

– "Uncertainty of households and enterprises" based upon the heterogeneity in the responses to certain individual questions in business and consumer surveys.

At the euro area level, the uncertainty indicators considered rose sharply following the outbreak of the financial crisis in 2008 and, after having fallen back in the course of 2009 and 2010, increased again in the second half of 2011 due to the euro area debt crisis (ECB, 2013). In the remainder of this section, we will present different indicators for Belgium and analyse whether they follow the same pattern as the euro area uncertainty indicators.

2.1 Consumer confidence and uncertainty

In the 1970s, the National Bank of Belgium introduced a specific consumer sentiment survey. In the current format, a different sample consisting of 1850 households is interviewed on a monthly basis. Apart from respondent identification questions (sex, age, employment situation, income and education level), there are 17 questions about the economic conditions and unemployment level, the respondent's own financial situation and capacity to save, price developments and major expenditure (such as purchases of cars, furniture and other durables as well as construction or renovation of dwellings). Questions relate to past developments, the (assessment of) the current situation and the outlook for the next twelve months. Replies are qualitative with the exception of the two questions on past and future price developments, for which respondents have to provide an inflation rate. Only four questions are used in the construction of the National Bank's consumer sentiment indicator:

1. How do you expect the financial position of your household to change over the next twelve months?

2. What do you think will happen to unemployment in Belgium over the next twelve months?

3. How do you expect the general economic situation in Belgium to develop over the next twelve months?

4. Do you think that you will be able to put any money by, i.e. save, over the next twelve months?

In general, there are six possible responses: strong improvement (PP), slight improvement (P), no change, slight deterioration (M), strong deterioration (MM) or don't know. For each question, the balance of responses is then calculated using the following formula:

$$Q_{tb} = (PP_t + \tfrac{1}{2} P_t) - (\tfrac{1}{2} M_t + MM_t)$$

where t ranges from 1 to 4 as it stands for the question concerned.

The general balance of consumer confidence is then defined as the weighted average of the seasonally adjusted balances of questions 1 to 4. However, this aggregated balance obscures the underlying heterogeneity of the responses. This heterogeneity is captured by specific uncertainty indicators that measure the variability of the replies, such as the one suggested by the European Commission (2013):

$$Q_{tu} = -\tfrac{1}{6} \cdot \sum_{i=1}^{6} \alpha_i \cdot \log(\alpha_i)$$

where α_i is equal to the proportion of individuals giving one of the six possible responses and t ranges from 1 to 4, representing one of the four questions.

The indicator is equal to zero if all of the respondents choose the same response, reflecting the absence of uncertainty. Conversely, the indicator reaches its maximum if the responses are divided proportionately among the various options; in that case, the uncertainty is greatest. In chart 2, the uncertainty indicator, represented by the blue line, is standardised, i.e. it was reduced by its average long-term value and divided by its standard deviation. Its value therefore fluctuates around zero. When the indicator is above (below) zero, the uncertainty is relatively higher (lower) than on average over the observation period.

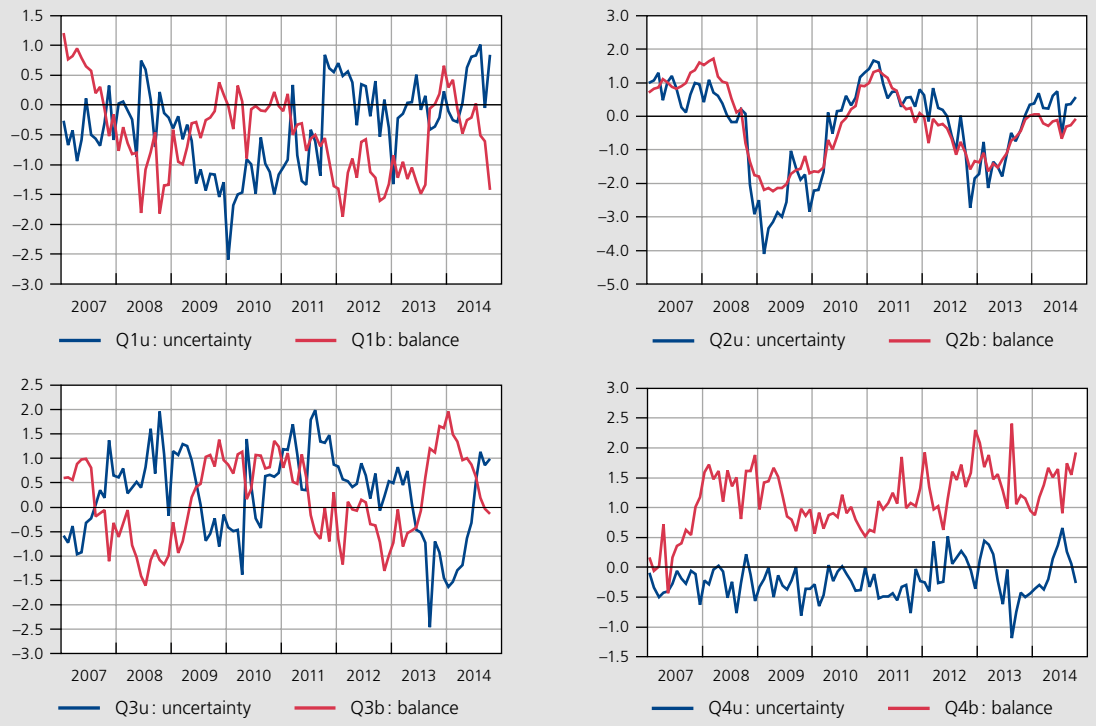
Chart 2 reproduces the uncertainty indicator, as well as the headline balance, for the four questions that are used to construct the overall consumer sentiment indicator. It is clear that the picture varies slightly according to the question concerned. The chart also shows that the relationship between the balance and the uncertainty indicator varies depending on the question. For example, in the case of expectations related to the own financial position, uncertainty is relatively higher in periods when the balance is low, i.e. when prospects are rather bleak. The same holds for the question about the general economic prospects. However, the opposite is true for the unemployment expectations: a better outlook (i.e. lower unemployment) tends to coincide with higher uncertainty, as evidenced by a larger heterogeneity in survey replies.

2.2 Economic policy indicator

Another approach to capture uncertainty is based on media coverage. The general idea is that media will report more on uncertainty if uncertainty is actually high or increasing. In addition, more media coverage may in itself raise economic uncertainty.

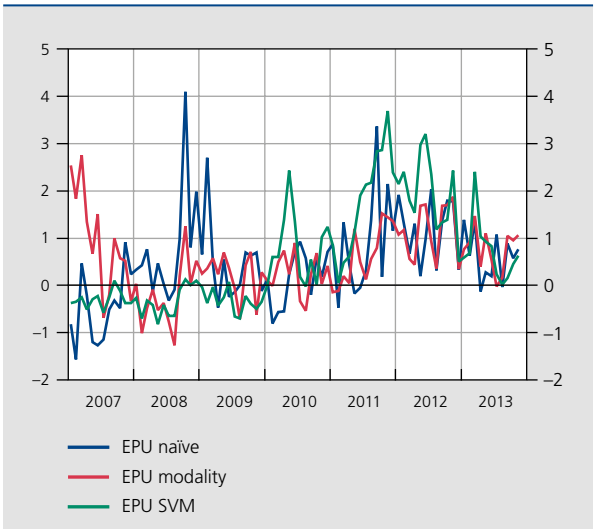
CHART 2 UNCERTAINTY INDICATOR AND BALANCE OF REPLIES TO THE CONSUMER SURVEY QUESTIONS

(Q1 : financial situation ; Q2 : unemployment ; Q3 : general economic outlook ; Q4 : saving capacity)



Note : all variables were standardised over the period beginning in 1990. A balance higher than zero means that the assessment of the future is positive; an uncertainty reading higher than zero means that uncertainty has increased.
Source : NBB, own calculations.

CHART 3 ECONOMIC POLICY UNCERTAINTY INDEX

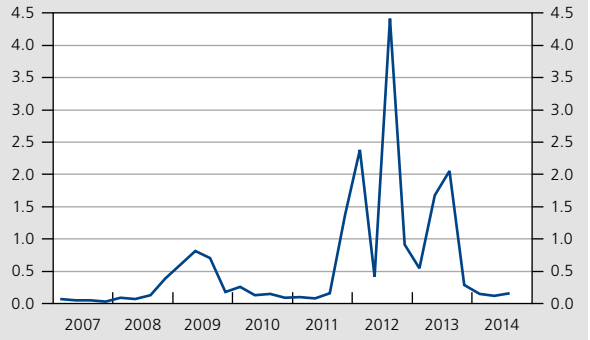


Note : all variables were standardised.
Source : Tobback *et al.* (2014).

In this connection, the seminal paper by Baker, Bloom and Davis (2013) proposes a synthetic Economic Policy Uncertainty indicator that aims at capturing a broader form of uncertainty regarding economic policies. Tobback *et al.* (2014) have extended this approach and applied it to Belgium. They construct an improved version of the existing `Economic Policy Uncertainty index' (EPU), using text mining of Dutch-language Belgian newspapers. This resulted in two additional indicators besides the existing EPU index (also referred to as the 'naïve EPU index'). The 'modality EPU index' expands the so-called 'uncertainty list' with words or verbs that also indicate uncertainty without mentioning it explicitly. The 'EPU SVM index' relies on a Support Vector Machines classification method that looks for patterns in texts and automatically selects the words with the largest discriminative power. Chart 3 shows that it is mostly the naïve indicator that peaks during the typical "crisis moments", that is at the end of 2008 (financial crisis) and during the course of 2012. The modality index had already reached a remarkable peak in 2007, and hasn't climbed higher since. The SVM index is especially volatile during the European debt crisis.

CHART 4 DIVERGENCE BETWEEN PROFESSIONAL FORECASTS

(average standard deviation with regard to point estimates of different individual forecasts for year t and year t+1 for the Belgian Prime News)



Source: NBB, Belgian Prime News.

TABLE 1 STATIC REGRESSION

Dependent variable: household saving ratio	(1)	(2)	(3)
Constant	23.458 (0.000)	24.445 (0.000)	24.278 (0.000)
Disposable income	0.0115 (0.922)		
Share of labour income	–3.669 (0.000)	–3.551 (0.000)	–3.652 (0.000)
Real net financial wealth	–0.335 (0.185)	–0.436 (0.063)	–0.407 (0.177)
Gross government debt (in % of GDP)			0.049 (0.801)

Note: regression includes quarterly data from 1999 Q1 up to 2014 Q1 and estimation was performed with DOLS (Dynamic Ordinary Least Squares). The p-value of the coefficients can be found between brackets, below the coefficient estimates

2.3 Forecast variance

A third uncertainty indicator that will be considered in this article is the degree of divergence between individual forecasts. To this end, we use the detailed projections made by the different forecasters in the context of the quarterly Belgian Prime News publication (NBB). For each issue, participating financial institutions *inter alia* provide forecasts of annual GDP growth for the current and the following year. The degree of uncertainty is defined here as the average standard deviation with regard to the different point estimates, for year t and year t+1, of the individual institutions. The result is displayed in chart 4. As could be expected, forecast uncertainty increased at the end of 2008 and in 2009. However, after an initial improvement in the course of 2010, there was another remarkable hike in the coefficient of variation of the different institutions' projections at the end of 2011.

3. Saving and uncertainty

3.1 Long-run variables

In order to assess the impact of uncertainty on household saving, we first estimate a standard Error Correction Model (ECM) on the basis of a number of potential long-run determinants. In line with the approach proposed by the European Commission (2013), we then try to expand the model by including uncertainty indicators in the short-run dynamics. In what follows, estimates will be performed using quarterly data in order to capture the precise impact of uncertainty that may mostly feed through short-term dynamics[1]. However, in view of the volatility of these quarterly time series, it should be noted that this may not be the most appropriate estimation strategy to identify long-term determinants of household saving.

As indicated in section 1, private consumption and, hence, household saving may be determined by disposable income or some form of permanent income. As the latter is not directly measurable, we consider financial and housing wealth as proxies instead (Sierminska and Takhtamanova, 2007). As there is some evidence that saving behaviour differs depending on the type or source of income, with financial income typically saved to a larger extent, the regression equation is also augmented with the share of labour income in disposable income, for which a negative coefficient is to be expected. Variables are expressed in natural logs.

Long-term results can be found in table 1[2]. Column 1 shows that disposable income has little impact on the savings ratio. In the second column, this variable was excluded. The coefficients of the other variables changed very little, but the real net financial wealth gained some significance. As a crude test for the Ricardian equivalence theory, consolidated gross government debt (Maastricht definition) as a percentage of GDP was added to the regression in column 3. While the coefficient has the expected sign – a higher debt ratio seems to coincide with

(1) Note that these are still the quarterly data according to the ESA 1995 methodology.

(2) Note that house prices could not be included for technical reasons (their order of integration differs from the other variables).

more household saving – the impact is not significantly different from zero. Overall, it is the share of labour income in total disposable income that appears to be the most robust significant variable. A rising share of labour income in disposable income will indeed, as expected, affect the savings rate downward. Quite remarkably, the same goes for a rise in real net financial wealth, although this effect is not always significant, suggesting that this variable might not be a really good proxy for permanent income.

All in all, our results seem to suggest that, in the longer run, labour income is mostly consumed and changes in the household saving ratio are driven by variations in non-labour income (from property), as this income is mostly saved. This could partly explain the broad movements, in particular, the trend fall in the household saving ratio in the 2000-2013 period: due to lower returns on capital, the share of property income in household disposable income has been on a declining trend, from around 17-18 % at the start of the century to just 13 % or less in recent years.

Short-run dynamics are given by the short-run equation of the ECM shown in table 2. The main component of this equation is the lag of the residuals from the regression in column 2 of table 1. Its coefficient indicates the speed at which prior deviations from equilibrium will be corrected, implying that about 30 % of the gap will be closed every quarter. Again, also for the shorter term, changes in the share of labour income in total income appear to be more important drivers of changes in saving behaviour than those in total net financial wealth. Furthermore, it is clear that the savings ratio is quite persistent, as the lag of the dependent variable also turns out to be significant.

TABLE 2 ERROR CORRECTION MODEL

Dependent variable: Δ saving ratio	Coefficient	*p*-value
Constant	0.0005	0.9896
Δ saving ratio (–1)	0.2884	0.0398
Δ share of labour income	–4.3273	0.0000
Δ share of labour income (–1)	1.7200	0.0319
Δ real net financial wealth	–0.1650	0.3501
Residuals (–1)	–0.3171	0.0027

Note: regression includes quarterly data from 1999 Q1 up to 2014 Q1. The numbers between brackets refer to the number of lags.

3.2 Possible additional short-run determinants

We now try to improve the fit by sequentially adding other potential determinants for changes in saving behaviour in the short run. In a first test case, the real long-term interest rate is added to the model. It is not *a priori* clear what effect the interest rate will have on savings. On the one hand, higher interest rates make it relatively more interesting to increase savings, in order to be able to buy more in the future. On the other hand, rising interest rates imply better income prospects for households. This will rather induce them to increase present consumption (Dirschmid and Glatzer, 2004).

Regression analysis reveals that the impact of a hike in the real interest rate essentially only lasts one quarter: the contemporaneous and the lagged effect roughly offset each other in the short-run equation. This suggests that, apart from the effect on the share of non-labour income, by themselves movements in interest rates cannot account for structural changes in saving behaviour.

Turning to our main question of how and to what extent economic uncertainty adds to the overall picture, the uncertainty measures, discussed in section 2, will now be added to the error correction model, as additional possible short-term determinants. In paragraph 2.2, four possible uncertainty measures were constructed based on respondents' replies to the consumer survey. Besides the uncertainty measures, the general balances of each of the four questions will also be included. The logic behind this is that the two survey measures may complement one another. For example, low uncertainty might also exist when most of the respondents expect that the economy will be performing poorly in the next twelve months.

For every question separately, both a lag of the balance and a second lag of the uncertainty measure are added to the short-term variables. For the uncertainty variables,

TABLE 3 ERROR CORRECTION MODEL, INCLUDING INTEREST RATE [1]

	Coefficient	*p*-value
Long-term interest rate	0.0156	0.0356
Long-term interest rate (–1)	–0.0187	0.0088

Note: regression includes quarterly data from 1999 Q1 up to 2014 Q1.

(1) In this and the following tables we do not repeat the basic specification, already reported in table 2, in order to save space.

TABLE 4 ERROR CORRECTION MODEL, INCLUDING ADDITIONAL SURVEY UNCERTAINTY VARIABLES

	Coefficient	*p*-value
Financial situation		
Q1u (–2)	0.0317	0.0011
Q1b (–1)	–0.0059	0.3530
Unemployment		
Q2u (–2)	0.0039	0.5666
Q2b (–1)	0.0011	0.8726
General economic situation		
Q3u (–2)	–0.0123	0.0825
Q3b (–1)	–0.0049	0.2482
Ability to save		
Q4u (–2)	0.0074	0.7157
Q4b (–1)	–0.0018	0.7805

Note: regression includes quarterly data from 1999 Q1 up to 2014 Q1. The numbers between brackets refer to the number of lags.

the second lag was included because this was often more significant than the first lag. Results are reported jointly in table 4, without mentioning the coefficients for the other variables again, as these are largely unchanged from the numbers in table 2-3.

Clearly, the way in which uncertainty is measured, matters. The variables with regard to the financial situation (question 1) have the expected signs: an increase in the uncertainty leads to a (significant) rise of the savings rate. A higher overall balance (better prospects) leads to a decline of the savings rate, but the coefficient estimate is not significantly different from zero. All other estimates turn out to be non-significant even though some of them have the expected signs (positive for the uncertainty indicator, negative for the balance indicator).

TABLE 5 ERROR CORRECTION MODEL, INCLUDING POLICY UNCERTAINTY INDICATORS
(added separately)

	Coefficient	*p*-value
EPU naïve	0.0063	0.2206
EPU modality	–0.0040	0.4862
EPU SVM	0.0003	0.9603

Note: data for the policy uncertainty indicators are available from 2000 Q1 to 2012 Q3, so the regressions in this table were executed over a somewhat smaller sample.

TABLE 6 ERROR CORRECTION MODEL, INCLUDING FORECAST DISAGREEMENT

	Coefficient	*p*-value
Professional forecasters' uncertainty (–1)	0.0218	0.6142

Note: the forecasters' uncertainty is available from 2002 Q4 to 2014 Q1, so the regression in this table was executed over a somewhat smaller sample.

In table 5, the error correction model is expanded by means of the policy uncertainty indicators that were constructed by Tobback *et al.* (2014). Again, these variables appear to have no significant relationship with the savings rate, when they are added separately to the ECM. This might be due to the fact that these indicators were constructed using only Dutch-language newspapers, whereas the saving ratio is of course calculated for Belgium as a whole. To the extent that media coverage on uncertainty differs between regions, this could have an impact on the estimation results.

In table 6, the professional forecasters' uncertainty is added to the error correction model. The regression would suggest that higher uncertainty, measured as the coefficient of variation in professional forecasters' projections, gives rise to higher savings, but the variable is in fact not significant.

As a final test, uncertainty variables from table 5 and table 6 were also combined with the variables from table 4. Table 7 only reports the combination which turned out to be significant: the EPU naïve (again without lags) does have a significant impact on the savings ratio, when it is combined with the Q1 indicators. Moreover, including this variable improves the value of the adjusted R-squared from 0.74 (only including Q1-indicators) to 0.76. Baker *et al.* (2013) suggest that the EPU indicator partly reflects changes in confidence, rather than just changes in uncertainty, which may explain why, in combination with

TABLE 7 ERROR CORRECTION MODEL, COMBINING DIFFERENT UNCERTAINTY MEASURES

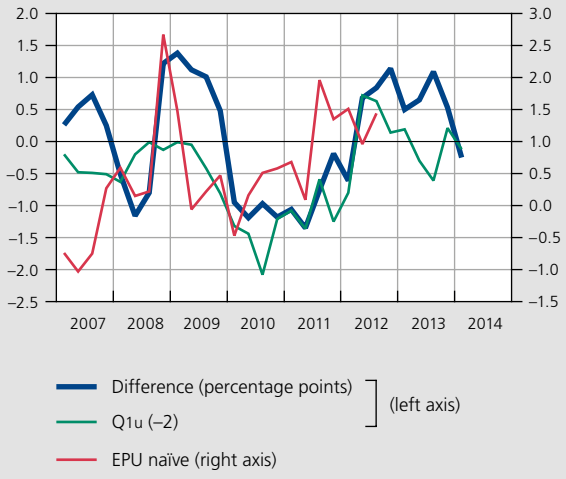
	Coefficient	*p*-value
EPU naïve	0.0145	0.0233
Q1u (–2)	0.0312	0.0010
Q1b (–1)	0.0090	0.2919

the survey-based uncertainty measure, this EPU indicator can still have additional predictive power for consumption dynamics.

Putting our empirical results together, the recent movements and current level of the saving ratio of Belgian households can now be interpreted. Both at the beginning of the great recession, in 2008 and 2009, and in the 2012-2013 period, Belgian households saved more than the equilibrium level anticipated by the long-run equation of the ECM. These two episodes with relatively high saving rates (compared to the estimated benchmark) can to some extent be traced back to periods of rising uncertainty, as our empirical findings suggest.

In the first phase of the great recession, extensive media coverage regarding economic uncertainty, as witnessed by a surge in the (naïve) EPU indicator, is likely to have boosted precautionary saving and motivated households, in particular, to spend income increases (e.g. coming from an indexation based on higher inflation in the previous year) only to a very minor extent. This accounts for the peak in saving in the first quarter of 2009. In the following quarters, uncertainty gradually declined and the saving ratio fell back to lower levels: in 2010 and 2011, it was more than 1 percentage point below the structural levels anticipated by our model. However, the lingering euro area crisis and falling activity growth brought about a new increase in uncertainty in the last two years, as shown by the increasingly diverging replies to the survey question related to the financial situation. This prevented the saving ratio from dropping further and kept it above the model estimates throughout the 2012-2013 period. The saving ratio only dropped again in the first quarter of 2014, despite improving economic conditions and declining uncertainty from the spring of 2013 onwards. This may be related to the lag that we find in the pass-through from uncertainty to saving.

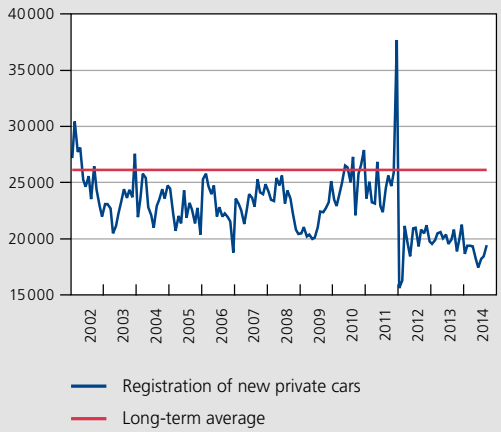
CHART 5 DIFFERENCE BETWEEN THE ACTUAL AND THE ESTIMATED LONG-TERM SAVING RATE



Source: NBB.

CHART 6 REGISTRATION OF NEW PRIVATE CARS AND THE LONG-TERM AVERAGE LEVEL

(since 1990)



Source: FEBIAC.

Higher (precautionary) saving mechanically translates into lower consumption. In this connection, consumption of durable goods is likely to be hit hardest; such expenses are particularly costly to reverse as the value of the good drops immediately after it is first used (Gudmundsson and Natvik, 2012). One example of such a durable good is the purchase of a new car. As chart 6 shows, those purchases have indeed been consistently below their long-term average level since 2012.

As a final note, we will shortly compare our results to those found by other authors who have recently also constructed uncertainty indicators, but mostly assessed their impact on consumption rather than on the savings ratio. In the article by the EC (2013), estimations were performed for a panel of eight countries, which also included Belgium. They concluded that, in the long run, disposable income, net foreign assets, house prices and the ratio of credit to house prices are important drivers of consumption. In the short run, they found a significant negative impact stemming from the long-term interest rate, two of the consumer uncertainty indicators and, to a lesser extent, the policy uncertainty indicator.

Lebrun and Pérez Ruiz (2014) also relied on an Error Correction Model to look into the impact of uncertainty on components of domestic demand for Belgium, Germany and France separately. In the case of Belgium, the authors found that consumer confidence and uncertainty indicators had a non-significant impact on consumption. Their long-term equation did point to a marginal impact from financial wealth and a significant role for real disposable income (excluding property income) : the income elasticity of consumption was estimated at 0.85. Furthermore, they were also unable to find a robust significant impact from real interest rates or house prices.

Concluding remarks

This article focused on the impact of economic uncertainty on household saving. While, in the longer run, the downward drift in the saving ratio of Belgian households should be seen in the context of the declining share of property income (that is saved to a relatively larger extent) in total household income, other factors may account for the short-run dynamics.

Our empirical results suggest that the level of uncertainty can help to explain movements in the household saving ratio. However, the precise definition of the uncertainty indicator matters. We find that self-reported uncertainty (in the consumer survey) regarding the financial situation has a significant impact on household saving behaviour. This may also be the case, albeit to a lesser extent, for media coverage of economic uncertainty. On the other hand, we find no evidence that divergence between professional economic forecasts has any explanatory power for the Belgian household saving ratio.

Relatively high levels of uncertainty are likely to have increased saving in the 2012-2013 period, thereby preventing the saving ratio from falling even further to historically low levels that could be expected on the basis of the currently very low share of non-labour income in household disposable income. The increase in confidence against the background of improving economic conditions in the course of 2013 coincided with declining economic uncertainty. To the extent that this trend can be sustained and is not fundamentally derailed by the economic slowdown and decline in sentiment seen recently, this may herald a further drop in the saving ratio in 2014 – as already suggested by the first quarterly statistics – and, hence, support consumption growth.

In interpreting our results on the positive impact of economic uncertainty on the household saving ratio in recent years, it should be kept in mind that the latter is currently at a very low level due to the changes in the composition of household income. A rising share of property income is likely to result in an increase of the saving ratio even if uncertainty declines.

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Main lessons of the NBB's 2014 conference

"Total factor productivity: measurement, determinants and effects"

E. Dhyne
C. Fuss

Introduction

As stated by Paul Krugman, winner of the Nobel prize for economics in 2008, "Productivity isn't everything, but in the long run it's almost everything". Indeed, while the contribution of an increase in total factor productivity (TFP) to economic growth in the short term may seem relatively small, the cumulative effects of changes in TFP are the sole sustainable source of long-term growth. That is sufficient in itself to justify the interest that it attracts from economists, analysts, researchers and decision-makers.

For some years now, TFP growth has been slowing down at macroeconomic level in all developed countries, and particularly in Europe. That deceleration is naturally a source of major concern, because it affects not only the current situation of our economies but also their future growth potential.

The slackening of TFP growth was particularly apparent from the early 2000s. The economic and financial crisis therefore cannot be held responsible, although it has aggravated the situation. Both the poor prospects for demand and the possible financial constraints confronting businesses have delayed the productive, innovative investment which could help restore TFP growth and potential output to their historical levels. That situation is damaging the sustainability of our public finances and social protection systems. This modest TFP growth accompanied by weak domestic demand and flagging growth of external demand could amplify the risk that the European economies might be entering what some economists call a secular stagnation phase.

In view of the potential consequences of the TFP slowdown for long-term growth, it is vital – as stated by the Governor Luc Coene in his opening address to the conference – to have adequate tools for measuring TFP, for understanding the sources of growth, and for establishing the necessary incentives and stimuli.

To achieve an accurate analysis and take appropriate decisions it is essential to obtain the most precise and reliable measurement. That objective requires a special effort, knowing that TFP is measured as the residual figure in the estimation of production functions. TFP can in fact be defined as the efficiency with which goods and services are produced, using a given technology and taking account of the quantity of available inputs. This is obviously a concept that has no directly observable equivalent, but which is nonetheless quantifiable. That is a reminder of the importance of having access to data that are as accurate, complete and reliable as possible, and of using the most appropriate econometric techniques.

Given the crucial importance of this variable, the Bank devoted its eighth biennial conference to this topic. The conference on "Total Factor Productivity: measurement, determinants and effects" took place in Brussels on 16 and 17 October 2014. At this event, six original contributions

analysing the trend in TFP in Belgium and in Europe were presented. Three internationally renowned speakers tackled this subject from a broader perspective. This article aims to summarise the lessons of those contributions and the ensuing discussions. Since the subject is by nature extremely broad, the article will only address some of the questions relating to TFP. It begins by presenting a general observation on the trend in TFP in the advanced economies, possible reasons for the decline in recent years, and the diverging developments between sectors. Next, it aims to assess the scale of the challenges associated with major external changes such as population ageing. It also inquires into the sources of TFP growth, and in particular the factors that corporate decisions may influence. It then examines the impact on business performance of the increased competition resulting from the expansion of imported products. Finally, it looks at the potential role of economic structures and policies.

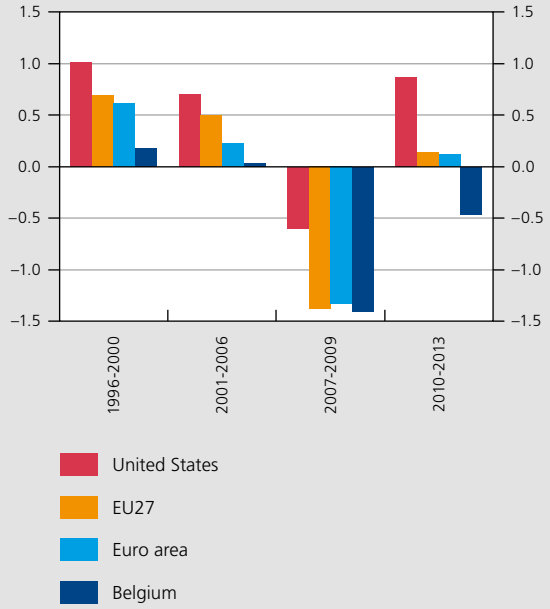
1. General observation and issues

As Bart van Ark said at the conference, TFP growth has clearly stagnated in developed economies over the past decade. TFP, which can be linked to productive efficiency and/or technological progress, plays a central role in long-term economic growth. In the short term, year-on-year TFP growth only represents part of the increase in GDP, but since its effects are cumulative, it is the only source of long-term sustainable growth in per capita GDP. These developments are therefore justifiably a focus of attention.

If we consider the average annual growth of TFP in the United States, Europe and the euro area over the periods 1996-2000, 2001-2006, 2007-2009 and 2010-2013, at least three important lessons emerge. First, the TFP slowdown was more abrupt in Europe than in the United States. Second, the economic and financial crisis exacerbated the slowdown, as TFP growth was negative in the euro area during 2007-2009. Third, while TFP growth has returned to its pre-crisis level in the United States since 2010, the recovery is yet to come in Europe.

Belgium was no exception to these phenomena: its TFP growth rates are particularly low, and have actually been negative for several years. Moreover, as demonstrated by the study by Verschelde *et al.* (2014), there have been divergences between Belgian industrial sectors. Despite a steady rise in some sectors such as that comprising rubber and plastic products, TFP declined in other sectors such as textiles, the manufacture of other non-metallic minerals, and metallurgy. Moreover, the economic and financial crisis led to a substantial fall in TFP in several sectors.

CHART 1 AVERAGE ANNUAL GROWTH OF TOTAL FACTOR PRODUCTIVITY PER REGION AND PER PERIOD



Source: Conference Board – Total Economy Database.

Although economists differ on the outlook for technological progress and future growth at global level, it must be said that the weakening of TFP growth, especially since the crisis, has led to a downward revision of the trend in potential output. Thus, the European Commission's DG-ECFIN cut its estimate of the trend in potential output in the euro area from 1.9 % before the crisis to just 0.6 % for 2009-2014 and 1.4 % from 2014 onwards. As a corollary, the growth of our economies is currently close to potential output growth, and the problem is not so much that we are in a cyclical trough, it is more a matter of being faced with the conditions for weak long-term growth.

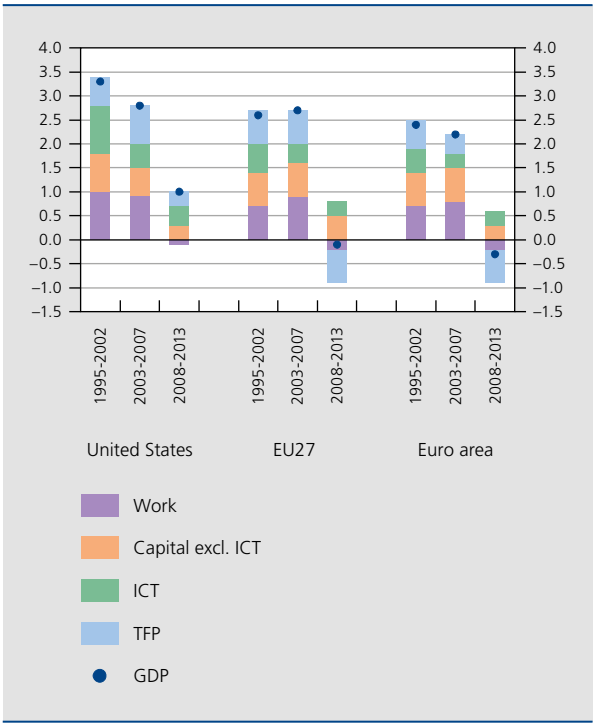
In view of that outlook, it is essential to understand both the sources of TFP growth and the factors impeding it. Comparing the experiences of various countries or economic sectors reveals a number of factors. First, the shift towards the services sectors in our economies automatically reduces TFP growth because that growth is generally weaker in services than in industry. For example, according to the EU-KLEMS data, in the period 1996-2006, TFP in Belgium increased by 9.7 % in the manufacturing sector and declined by 3.2 % in the market services sector. At the same time, the share of manufacturing industry in total value added declined from 23.6 % in 1996 to 18 % in 2010, while the contribution of market services rose

from 47.8 % to 51.8 %, according to the NAI's ESA 2010 statistics.

Furthermore, the comparison between Europe and the United States suggests that European economies are suffering from a shortage of investment in innovations, and a lack of efficiency in their use in general, and in information and communication technologies (ICT) in particular. The gains generated by the ICT revolution come from three sources: (1) the innovations of firms producing ICT, (2) the benefits in terms of productive efficiency gained by firms investing in ICT and incorporating those technologies in their production processes, and (3) the positive externalities associated with network effects. Bart van Ark (2014) illustrates the annual contribution of each of these factors to TFP growth in the eight European economies for which those data are available[1]. That contribution was assessed at 0.28, 0.44 and 0.25 % respectively for the period 2001-2007, and at 0.16, 0.21 and −0.24 % for the period 2008-2011. ICT thus accounted for almost 1 percentage point of annual GDP growth before the crisis, or around a third of GDP growth over that period. According to Bart van Ark, there is still massive potential for ICT growth via the adoption of ICT by firms and network effects.

CHART 2 CONTRIBUTIONS TO GDP GROWTH

(in %)



Source: van Ark (2014).

The comparison between European countries and the United States reveals not just a lack of investment in physical capital (ICT or non-ICT), but also a shortage of investment in intangible assets. A study by Corrado *et al.* (2013) in fact shows that, over the period 1995-2009, spending on intangible assets[2] represented 6.6 % of GDP in the EU15 compared to 10.6 % in the United States. Moreover, the proportion of intangible assets increased more strongly in the United States (+33 % over the period 1995-2007) than in the EU15 (+21 % over the same period). Finally, the authors highlight the existence, at macroeconomic level, of a positive link between investment in intangible assets and TFP growth, suggesting that there are spillover effects for this type of assets.

The low level of investment in intangible assets in Europe, and especially in Belgium, is particularly striking in the case of expenditure on R&D, rights and patents, and digital information (which covers both software and expenditures associated with the purchase, development and management of databases). In addition, the EU15 tends to invest little in organisational capital. This last point applies less to Belgium, which instead lags behind significantly in expenditure on training.

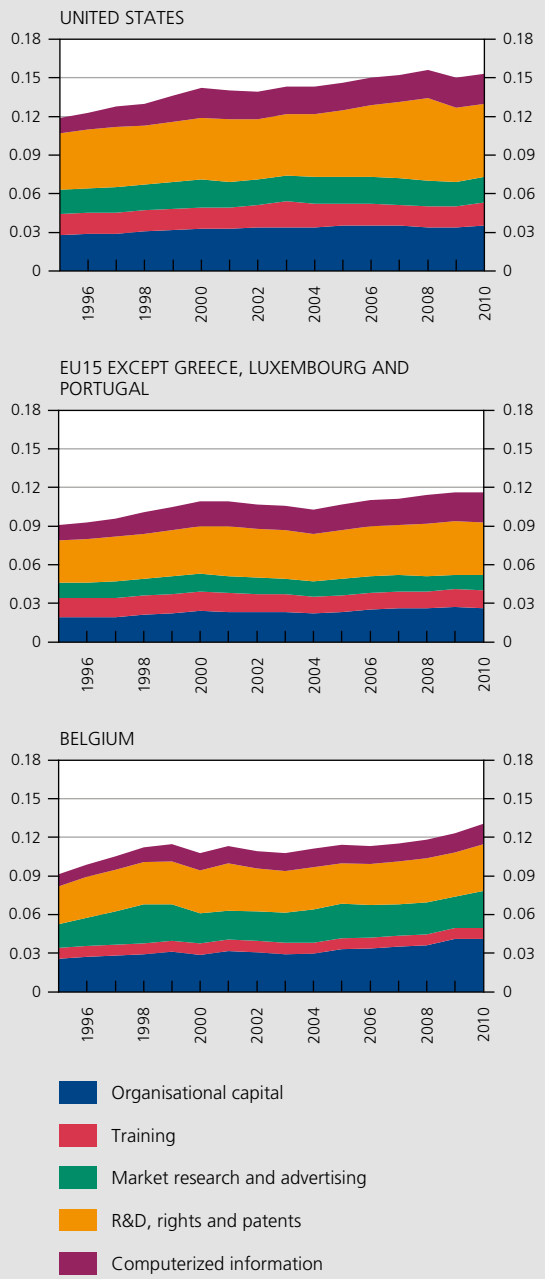
On the basis of this first set of results, we find that the advanced economies, and the European economies in particular, need to implement policies which can stimulate TFP in order to return to sustainable long-term growth. The need to promote TFP is justified not only in view of the slowdown in TFP growth over the past decade but also on account of the many issues that will confront these economies in the future.

At the Bank's conference, one contribution dealt more specifically with one of those challenges, namely population ageing. While this question has mainly been discussed in terms of the sustainability of public finances and social protection systems, the study by Ariu and Vandenberghe (2014) sheds new light on the subject by focusing on the consequences of ageing for the dynamism of TFP. The authors assess the impact of the changing age structure of the labour force on TFP growth at the level of Belgian firms in the market sectors, excluding agriculture. Their estimations indicate that the TFP growth of firms is lower the higher the proportion of older workers employed, regardless of gender or status (manual or non-manual workers). That effect seems more pronounced in industry, construction and trade taken as a whole than in other market services (excluding trade).

(1) Germany, Austria, Spain, Finland, France, Italy, Netherlands and United Kingdom.

(2) The authors take intangible assets to mean digital information, R&D, other forms of innovative property, market research and advertising, training and organisational capital.

CHART 3 INVESTMENT IN INTANGIBLE ASSETS
(in % of GDP)



Source : Intangible investment database – www.intan-invest.net.

This study also permits a simulation of the impact of labour force ageing on aggregate TFP, even though the estimated figures need to be treated with caution. According to Ariu and Vandenberghe (2014), labour force ageing accounts for a decline in aggregate TFP of 4.5 percentage points since 1991. In view of the demographic projections, population ageing will continue until the mid-2020s. If structures and policies remain unchanged, the reduction in TFP due to labour force ageing is therefore set to continue. If Belgium were to achieve the European target of an employment rate of 75 %, with workers aged between 55 and 64 years accounting for 25 % of employment in 2023, the cumulative loss of TFP would be even greater. These factors present numerous challenges calling for the development of measures to stimulate the productivity and employability of older workers.

2. Sources of TFP growth

TFP represents the efficiency with which output is produced from a given quantity of inputs. A rise in TFP therefore raises the level of output based on a given quantity of inputs. Innovations are an obvious example of the factors that lead to TFP growth. The reallocation of resources from the least productive to the most productive firms can also have a significant impact on aggregate TFP. Finally, for a given quantity of inputs, their quality will also be a factor increasing output.

2.1 The effect of innovations on TFP

The role of innovations in economic growth in general, and in TFP growth in particular, was established and analysed long ago. At the conference, Bronwyn Hall (2011) presented a summary of the lessons that can be drawn from the empirical studies devoted to the link between innovation and productivity.

Most of the studies have focused on R&D expenditure, as those data are the most widely available. However, the expected effects of innovations on TFP are greater than those measured by microeconomic analyses of the link between R&D expenditure and TFP. First, other types of innovations (organisation, management, marketing, and expenditure related to the creation, management and operation of databases, etc.) have to be considered. Next, if existing firms develop or adopt innovations in order to improve their productive efficiency, the R&D is not necessarily carried out by the firm itself but may be created by a third party. It is therefore necessary to distinguish between firms that innovate and firms that adopt innovations developed by others. The firm's ability to absorb innovations or to adapt to them, be it in terms of organisation or the skills and adaptability of the labour force, plays a decisive role in that respect. Third, it is necessary to bear in mind that expenditure that firms commit to innovation is not confined to R&D spending alone, and that new technologies may also be adopted via investment in physical capital. By way of illustration, Hall (2011) states that the results of the Community Innovation Survey conducted

in the United Kingdom in 1998-2006 reveal that barely a third of expenditure on innovations by manufacturing firms concerns R&D; 40 % of that expenditure covers the acquisition of machines or IT resources; the balance relates to expenditure on marketing, design and training. Fourth, it is necessary to take account of the spillover effects of innovations in one firm on other firms; those effects have been demonstrated by other studies.

Subject to these restrictions, Hall (2011) presents an overview of all the available results, and particularly the estimates of TFP elasticity in relation to the proportion of sales generated by innovations. The results indicate that elasticity is positive, as one would expect. It is higher in capital-intensive sectors or those specialising in advanced technology, sectors where technological innovations in products or production processes may prove particularly fruitful.

In some cases, the survey data make it possible to distinguish between process innovations and product innovations. The effect of process innovations on TFP is hard to measure, owing to the complexity of measuring quality; in the present case, that refers to the quality of the capital stock, but it may also extend to the other production factors. In parallel with process innovations, innovations in management or organisation also tend to improve productive efficiency and reduce production costs. However, it is not easy to conduct an empirical assessment of that effect, notably because it is difficult to measure these types of more intangible innovations.

Another issue associated with estimating the impact of innovations on TFP lies in the fact that, in many cases, econometricians cannot distinguish between actual productive efficiency and the firm's pricing policy. As innovations in processes or organisation tend to reduce production costs, ultimately lowering the prices of firms' products and hence their income, these innovations will also tend to have a negative impact on the traditional measures of TFP (known as TFP-R or TFP in revenues), even if they have a real, positive, direct effect on productive efficiency.

The contribution by Braguinsky *et al.* (2014), presented by Chad Syverson, illustrates in particular how the adoption of a more efficient way of managing both production and demand can enhance firms' performance. This paper gives a very detailed account of a period of industrial restructuring featuring many mergers and acquisitions. Even though it concerns a particular phenomenon – the study analyses the cotton-spinning sector in Japan in the 19th century – it illustrates very clearly the effects on TFP of the adoption of organisational innovations. It shows how the performance of the firms taken over improved once they had adopted the buyer firms' methods of organising production and managing demand. The profitability of the acquired firms increased once they came under the control of the acquiring firms, partly by more intensive use of their production capacity and partly by better demand management.

The role that organisational innovations can play in the use and adoption of innovations was also demonstrated by Bloom *et al.* (2012). Their study indicates that, within firms operating in the United Kingdom, the productivity of American multinationals is higher than that of similar non-American firms, essentially owing to more effective use of ICT. Furthermore, their results show that a takeover by an American firm increases the productivity of those firms. The authors attribute that finding to forms of organisation that make more efficient use of the new technologies.

TABLE 1 LINK BETWEEN INNOVATION AND TFP: RESULTS OF VARIOUS ECONOMETRIC ESTIMATES

(elasticity of TFP in relation to the proportion of firms' sales generated by innovations)

	Elasticity	Estimation period
France	0.07	1986-1990
Finland	0.09	1994-1996
Norway	0.26	1995-1997
Sweden	0.15	1994-1996
Sweden	0.12	1996-1998
Netherlands	0.13	1994-1996
France		
High-tech manufacturing sectors	0.23	1998-2000
Low-tech manufacturing sectors	0.05	1998-2000
Sweden		
Capital-intensive manufacturing sectors	0.29	1998-2000
Services sectors	0.09	1996-1998
Germany		
Capital-intensive manufacturing sectors	0.27	1998-2000

Source: Hall (2011).

2.2 Reallocation effects

It has been shown that the reallocation of the means of production from the least productive to the most productive firms can generate a significant proportion of

aggregate TFP growth. That factor may prove particularly relevant in a situation where economic conditions have deteriorated.

Technological progress may also be linked to the creation of new businesses, the expansion of innovative companies and the closure of less productive firms, what Schumpeter calls "creative destruction". That is the case where there is increasing pressure of competition from firms whose efficiency has improved, driving down the prices and/or market shares of less productive firms below the profitability threshold.

These reallocation effects concern the closure of some businesses and the creation of new ones as well as, more generally, a change in companies' market shares or adjustment of their product portfolio. In all cases, this process implies the reallocation of both human and financial resources. It requires an adaptable labour force, particularly in terms of skills, but also the efficient allocation of financial resources and establishment of conditions that favour business start-ups.

2.3 The quality of the production factors

Apart from innovations and reallocation effects, input quality can also be regarded as an essential factor in the dynamism of TFP. For example, in regard to physical capital, the contribution by Braguinsky *et al.* (2014) demonstrates that in the specific case studied the productivity of the firms depended essentially on the age of the capital stock. That case illustrates the positive effect of the absorption of technological innovations via investment in physical capital, the newest capital being associated with more efficient technology.

In regard to the quality of the factor labour, the skills of the labour force naturally play a crucial role. They influence not only the efficiency of production, but also the capacity to absorb and adapt to new technologies. In this connection, the study by Verschelde *et al.* (2014) notes that technological progress may be accompanied by a change in the intensity of the use of certain production factors. More generally, some technological developments lead to the "replacement of men by machines", while others modify the type of skills that employers seek. For example, the development of ICT has transformed the duties of workers, amplifying demand for workers whose skills match the jobs associated with these new technologies and, conversely, reducing demand for other categories of labour less suited to the job or workers who can be directly replaced by these new technologies. The study by Verschelde *et al.* (2014) aims to assess more generally whether technological progress has brought a change in demand for the various inputs. Their estimations for firms in the Belgian manufacturing sector over fifteen years indicate that technological progress has been accompanied by a reduction in the proportion of manual workers in many sectors. In the great majority of cases, that has not been offset by a rise in demand for non-manual staff. In some sectors, technological progress tends to imply a greater intensity in physical capital. Other sectors make more use of intermediate products, reflecting the increasing fragmentation of production. That results in more outsourcing to other Belgian firms, but also higher imports of intermediate products.

3. Market structure, industrial policy and TFP growth

Apart from the various TFP growth drivers highlighted in the preceding section, some structural reforms may also improve the long-term dynamism of TFP growth, notably via measures aimed at making product and labour markets operate more efficiently. Similarly, industrial policy measures can influence productivity.

3.1 Competition from foreign products and TFP growth

Numerous studies, both theoretical (Aghion and Howit, 1996) and empirical (Holmes and Schmitz, 2010), have revealed the potentially beneficial effect on productive efficiency of reforms aimed at boosting competition on the product market. In the face of tougher competitive pressure, a firm – be it at the cutting edge of technical capability or lagging behind in its technology – will have a greater incentive to invest in the various forms of innovation mentioned above, either to stay in the lead or to catch up.

During the conference, three articles (De Loecker *et al.*, 2014, Dhyne *et al.*, 2014, Dobbelaere and Vancauteren, 2014) addressed from various angles some of the questions relating to the complex link between competition and productive efficiency. The first two articles examined this issue by considering how competition from imports influences domestic producers of similar products.

By way of illustration, according to the international trade data recorded at the NBB, 42 243 Belgian firms imported goods (including intermediate products) in 2012, 37 % of them importing from Chinese companies. It should be noted that the beneficial effect of access to better quality or cheaper inputs is not limited to importers.

TABLE 2 IMPACT OF AN INCREASE IN THE DEGREE OF FOREIGN COMPETITION ON PRODUCTIVE EFFICIENCY

	$log(TFP-Q_t)$ at the level of the firm		$log(TFP-Q_t)$ at the level of firm × product	
	(1)	(2)	(3)	(4)
Degree of foreign competition$_{t-4}$	0.082***	0.024***	0.012	0.079*
Degree of foreign competition × $Rank2_{t-4}$	–	–	–	–0.103***
Degree of foreign competition × $Rank3_{t-4}$	–	–	–	–0.131***
$Log(TFP-Q_{t-4})$	–	0.656***	0.896***	0.872***
# observations	46 090	33 169	19 402	19 402

Source: Dhyne *et al.* (2014)

Notes: Dhyne *et al.* (2014) use various measures of the degree of foreign competition. The results presented are based on the share of imports net of re-exports in total domestic output and net imports, assessed at product level (PRODCOM 8-digit nomenclature). The authors use either a measure of competition at firm level obtained as the weighted average of the degrees of competition observed for each product in the firm's range, or measures at product level. The first measure is compared with a measure of $TFP-Q$ at firm level (overall productive efficiency). The second is compared with a measure of $TFP-Q$ at the level of the firm × product combination (productive efficiency for each product in the range). *Rank2* and *Rank3* are indicative variables showing that the product ranks either second or third in importance in the firm's product range. This analysis only considers the three main products.

Since the degree of competition variable is a percentage, the coefficients shown represent elasticities.

*, ** and *** mean significant at 10, 5 and 1 % respectively.

The index t denotes the quarter.

Some of the latter are trade intermediaries that also give non-importing firms access to these imported inputs. On the basis of the data from the 2012 VAT returns, we can consider that, on average, eight non-importing firms buy from an importer (that figure rises to 22 if firms buying in China are taken into account). Access to imported inputs therefore has potentially significant spillover effects for Belgian firms.

Although imports, when considered as a means of access to a broader product range and better quality or cheaper intermediate inputs, can directly improve the productive efficiency of the importing firms, they also increase the pressure of competition confronting domestic producers of those goods.

In their article, Dhyne *et al.* (2014) analyse the question of the link between competition from imports and productive efficiency (TFP-Q or TFP in quantities) on the basis of various measures of TFP assessed at the level of firms in the manufacturing sector. The authors calculated both the overall productive efficiency of the firms and their productive efficiency per product. More than 50 % of firms active in the various branches of manufacturing industry make more than one type of good. In measuring the productive efficiency per product, the authors can thus determine how a firm responds to imported competition according to its product range.

For that purpose, they base their analysis on extremely detailed data on firms' production, obtained in particular from the survey of industrial output conducted monthly by the NSI on Belgian manufacturing firms, and the international trade data recorded at the NBB. By combining these various sources, the authors construct precise measures of the degree of foreign competition confronting a Belgian producer, taking account of the producer's product range and the fact that Belgium is a port of entry to the Single Market. In practice, not all the imports entering Belgium, e.g. via the port of Antwerp, are necessarily destined for the Belgian market[1].

Dhyne *et al.* (2014) conclude their analysis by showing that firms facing greater foreign competition on the Belgian market tend to step up their productive efficiency. However, that positive effect appears to apply only to each firm's main product, in which firms already have an advantage in terms of TFP[2]. Indeed, the authors demonstrate that if the relative importance of each product in the firm's range is taken into account, when the degree of foreign competition increases for products other than the main one, the effect on productive efficiency associated with those goods tends to be negative.

This therefore suggests that, faced with increased foreign competition, a firm will tend to improve its production system if the increased competition concerns its main

(1) Duprez (2014) assesses the overall level of these re-exports at 30 % of total Belgian exports in 2010.

(2) The results obtained by Dhyne *et al.* (2014) show that, within its product range, a firm is on average more efficient in the production of its main product, and that the more marginal a product in its range, the less efficient the firm is at producing it.

product. Conversely, if it concerns a second – or third – rank product, the firm will tend to stop investing in production of that product and will therefore become less efficient at producing it. According to the authors, this disinvestment in the production of more exposed minor goods may then lead either to increased specialisation in the production of the main product, or to the development of other, less exposed products.

In their study, De Loecker *et al.* (2014) also tackle the question of firms' response to increased pressure of foreign competition. However, their analysis is not confined to identifying only the impact of foreign competition on TFP, but also encompasses a range of variables, such as the level of firms' prices, their marginal cost, their margins and their productive efficiency. In addition, foreign competition comes in two forms.

On the one hand, competition is introduced by the import of products, possibly intermediate inputs, from countries with low production costs. In that connection, their study focuses more particularly on competition from products imported from China, whose share of Belgium's imports grew from 1.2 % in 1995 to 3.8 % in 2013.

The authors also consider the effect of competition from firms based in the three neighbouring countries (France, Germany and the Netherlands). They measure the degree of competition by the labour cost differential between Belgium and those countries.

The results indicate that, in the face of increased imports from China, Belgian firms in manufacturing industry branches have, on average, cut their marginal costs, probably by using imported intermediate products. However, that reduction in marginal costs does not seem to have been fully reflected in lower prices.

Where productive efficiency is concerned, the increased competition from Chinese products does not seem to have had the same influence on all Belgian producers. According to the authors, it is mainly technologically backward firms, i.e. those with a relatively low level of TFP, which have had to respond to the increased competition by becoming more efficient.

As regards competition from neighbouring countries, the findings – though they are still preliminary – suggest that the relative decline in labour costs in France and the Netherlands compared to Belgium has led to a reduction in the margins and productive efficiency of Belgian firms, whereas the relative movement in labour costs in Germany seems to have had no significant effect. However, on the basis of a specific study of the food industry, the authors show that firms based close to the German border, and therefore potentially more exposed to competition from German firms, responded to the relative fall in labour costs in Germany by significantly increasing their productivity and reducing their costs and their prices.

3.2 Market structures and TFP growth

The article by Dobbelaere and Vancauteren (2014) examines the link between the degree of competition on the

TABLE 3 IMPACT OF INCREASED COMPETITION FROM CHINESE IMPORTS ON PRODUCTIVE EFFICIENCY (TFP_Q), MARGINAL COST (CM) AND PRICES (P)

	$log(TFP\_Q_t)$		$log(MC\_Q_t)$		$log(P_t)$	
	(1)	(2)	(3)	(4)	(5)	(6)
Degree of Chinese competition $_t$	–0.166	–	–0.684**	–	–0.722***	–
Degree of Chinese competition × Low_t	–	3.507***	–	–1.042***	–	–4.339***
Degree of Chinese competition × $Medium_t$	–	–0.078	–	–0.730**	–	–0.942**
Degree of Chinese competition × $High_t$	–	–3.158**	–	–0.331	–	2.445**
# observations	48 664	48 664	48 664	48 664	48 664	48 664

Source: De Loecker *et al.* (2014).

Notes: De Loecker et al. (2014) use a sectoral measure of the degree of competition from Chinese imports: the proportion of imports from China in the total of domestic output and Chinese imports, assessed at the CPA 2-digit level, taking account of re-exports. The variables *Low*, *Medium* and *High* are indicative variables showing that the level of TFP_Q in a firm during the first year of observation is respectively in the 1st quartile, between the 1st and 3rd quartile, and in the last quartile of the distribution of TFP_Q for the sector.

Since the variable indicating the degree of competition from Chinese imports is a percentage, the coefficients presented represent elasticities.

*, ** and *** mean significant at 10, 5 and 1 % respectively.

The index t denotes the year.

product market and TFP growth. On the basis of individual data on firms operating in Belgium and the Netherlands, and the methodology developed by Dobbelaere and Mairesse (2013), the authors estimate productive efficiency in conjunction with certain parameters characterising the degree of imperfection observed on the product and labour markets, before analysing the link between TFP growth and imperfections on those markets.

According to their results, the dominant competition model on the product market is the imperfect competition model, which concerns 90 % of branches in the Belgian economy (defined at the NACE Rev. 2 2-digit level) and 89 % of firms[1]. Next, the authors examine the link between the degree of imperfection on the product market (measured by the mark-up) and the parameters of the distribution of the TFP growth rates. In general, they show that, while the degree of competition appears to exhibit a positive correlation with the average TFP growth rate (the mark-up exhibits a negative correlation), that correlation is not significant. Similarly, the other parameters of the distribution of the TFP growth rates (variance, skewness, kurtosis) do not appear to be significantly affected by an increase in competition on the product market.

As stated above, Dobbelaere and Vancauteren (2014) are not only interested in the impact on TFP of the degree of competition on the product market. They also measure the degree of imperfection on the labour market. On

(1) Slightly higher rates are observed in the Netherlands (93 % of branches and 96 % of firms).

TABLE 4 COMPETITION REGIMES ON THE PRODUCT AND LABOUR MARKETS AND CHARACTERISTICS OF THE DISTRIBUTION OF TFP GROWTH RATES IN BELGIUM

			Product market	
			Perfect competition	Monopolistic competition
			% branches: 10.0 % firms: 11.4	% branches: 90.0 % firms: 88.6
Labour market	Perfect competition or right-to-manage	% branches: 13.3 % firms: 27.0	% branches: 3.3 % firms: 8.6 TFP (average): n. TFP (standard deviation): n.	% branches: 10.0 % firms: 18.4 TFP (average): 0.012 TFP (standard deviation):0.754
	Efficient bargaining	% branches: 53.3 % firms: 50.7	% branches: 0.0 % firms: 0.0 TFP (average): n. TFP (standard deviation): n.	% branches: 53.3 % firms: 50.7 TFP (average): 0.011 TFP (standard deviation): 0.161
	Monopsony	% branches: 33.4 % firms: 22.3	% branches: 6.7 % firms: 2.8 TFP (average): n. TFP (standard deviation): n.	% branches: 26.7 % firms: 19.5 TFP (average): 0.014 TFP (standard deviation): 0.170

Source: Dobbelaere and Vancauteren (2014).

the basis of their estimates, they classify the branches of activity (and hence firms) into three different regimes on the labour market: the perfect competition or right-to-manage regime in which wages are equal to the marginal productivity of labour, the efficient bargaining regime in which the level of wages exceeds marginal productivity, and finally the monopsony regime in which wages are lower than marginal productivity. According to their calculations, 53.3 % of branches in the Belgian economy (51 % of firms) come under the efficient bargaining regime, 33.3 % (22 % of firms) come under the monopsony regime, while perfect competition on the labour market, or the right-to-manage regime concerns only the remaining 13.3 % (27 % of firms)[1].

By comparing the degree of imperfection on the labour market with the TFP distribution parameters, the authors show that this factor does affect the distribution of TFP growth rates. In fact, branches operating under perfect competition on the labour market seem, on average, to have higher TFP growth rates than those observed in branches where an efficient bargaining regime prevails. However, that higher average TFP growth seems to be accompanied by greater divergences in corporate performance.

3.3 Industrial policy and TFP growth

A final contribution presented at the conference concerned the effects of state aid on corporate performance, particularly since the crisis. Although industrial policy is not the main way of stimulating TFP growth, it can still play a role in the short run. In their study, Van Cayseele *et al.* (2014) analyse how the various forms of state aid authorised by the European Commission affect the TFP of a sample of European firms during 2003-2011. In principle, state aid is prohibited in the EU, but there are some exceptions enabling Member States to set up government aid on a temporary basis, targeting a particular sector or a limited number of firms. For instance, state aid may be granted if it can help to boost growth and encourage innovation, primarily in cases where the recipient firms are faced with shortcomings in the market, such as financing constraints.

The authors show that Member States made widespread use of this economic policy tool from 2007 onwards, as a short-term response to the funding problems that the recent crisis had caused for businesses. They also show that, over the recent period, the granting of state aid has had a positive effect on the TFP growth of firms suffering from a technology gap, but without hitting firms at the cutting edge of technical efficiency. That positive effect of state aid seems to have been particularly significant for firms experiencing problems in raising finance.

The research by Aghion *et al.* (2012) likewise confirms the positive short-term effects of certain industrial policy measures, so long as they benefit an economic sector as a whole rather than just particular firms. However, these policies must be considered as short-term support policies and cannot on their own constitute the response of European countries to the challenges of secular stagnation and those resulting from the current crisis. In fact, while such measures may make it easier for some firms to finance investment in R&D to make good a technology gap, they may also slow the essential reallocation of resources between sectors and firms.

(1) For the Netherlands, the breakdown of branches by type of imperfection on the labour market is 56.7 % for the efficient bargaining regime, 16.7 % for monopsony and 26.7 % for perfect competition or the right-to-manage regime.

TABLE 5 EFFECTS OF STATE AID ON TFP, ACCORDING TO THE TECHNOLOGY GAP

	2003-2011	2003-2006	2007-2011	2003-2011	2003-2006	2007-2011
	(1)	(2)	(3)	(4)	(5)	(6)
State aid recipient	0.008	–0.002	0.025*	0.007*	0.002	0.018***
Technology gap	–	–	–	0.338***	0.475***	0.214***
Technology gap × State aid recipient	–	–	–	0.105*	0.110	0.161***

Source: Van Cayseele *et al.* (2014).
Notes: The technology gap variable takes a value between 0 and 1. The firm with the biggest technology gap has a value of 1.
*, ** and *** mean significant at 10, 5 and 1 % respectively.

4. Conclusions – How to avoid secular stagnation ?

On the basis of the findings presented above, many speakers at the conference drew attention to the various policies to be conducted in Europe, and more specifically in Belgium, to restore TFP growth and thus avoid what Summers (2014) calls secular stagnation.

It is not only a question of identifying policies that favour TFP growth, but also of striking a balance between various policies, objectives and horizons. On the one hand, the long-term aims are to restore the growth of TFP and potential output in order to ensure sustainable growth. On the other hand, against the backdrop of the consolidation of public finances, it will be necessary to make difficult choices in order to implement economic policies conducive to growth. Moreover, some measures and reforms will only have an effect in the medium or long run, while implying immediate adjustments and costs. Policies supporting these measures and reforms and stimulation in the short term could prove to be a key complement.

The main economic policies to be pursued were the subject of the conference's closing discussion panel, which comprised four international experts : Nick Johnstone, from the OECD, Servaas Deroose, from the European Commission, Henri Bogaert, honorary Plan Commissioner, and Leo Sleuwaegen, from the Vlerick School of Economics, and was chaired by Jan Smets, Director of the NBB. These four experts were able to present the range of actions to be taken at the level of the European Union, Belgium and firms.

The OECD representative, Nick Johnstone, began by stressing the need to improve the ability of the advanced economies to absorb the technological changes brought about by the ICT revolution. That greater adaptability includes reforms aimed at boosting the flexibility of the labour market in order to permit a better reallocation of the available resources from declining or stagnating sectors and firms to expanding sectors and firms.

In that respect, he considers that the European labour markets need structural reforms, but those reforms must be accompanied by new policies on lifelong training, particularly in the context of a longer working life. This increased labour market flexibility must be understood in the broadest sense as an increase in the ability to adapt to change. For example, efficient reallocation of the production factors from one firm or sector to another requires adjustment to a new environment, and may entail supplementary skills or the development of new skills. Moreover, the ability of firms to absorb technological changes also depends on the flexibility of the workers, who have to get used to new tools and new methods of organisation and production. In that context, responsibility for the policies to be pursued does not rest solely with governments. Firms also have a role to play here, by stepping up their investment in training, particularly in Belgium.

In regard to stimulating TFP growth, Nick Johnstone also stressed the importance of measures aimed at facilitating business start-ups, and policies designed to improve entrepreneurship in Europe and reduce the administrative or regulatory barriers to the creation or expansion of businesses. Bart van Ark mentioned in particular the need to create a Single Market for services in Europe.

Turning to the question of the policies to be implemented at European level, Servaas Deroose first pointed out that the European institutions have revised downwards their long-term growth assumptions for the EU's potential output, as their economic forecasts in fact incorporate a permanent slowdown in TFP growth. The European Commission therefore considers it essential to implement structural reforms in order to restore the long-term growth prospects. Those reforms must not be delayed or postponed.

This downward revision of growth potential also concerns Belgium, as stated by Henri Bogaert. He therefore likewise advocated structural reforms, but he also mentioned other routes to TFP growth, stressing that some investments are necessary to maintain or reinforce the growth potential of the Belgian economy. In his presentation, Bart van Ark in fact pinpointed the worrying lack of investment, be it in Belgium or in other European economies such as Germany. This dearth of investment is extremely troubling if it takes the form of low investment in R&D or in information and communication technologies, as research has demonstrated the long-term multiplier effects of such investment on TFP growth. The restoration of business confidence is one of the factors involved in revitalising investment in Europe.

Henri Bogaert emphasised the need for public investment in transport infrastructure, to alleviate the congestion problems around large cities, investment in the network industries, particularly the energy sector, and finally, investment in R&D.

On the effects of investment in R&D, he mentioned that the repercussions of R&D are not confined to the firms funding the research, but that this type of investment generates very significant spillover effects for the whole economy. In that context, it is also said to favour measures

that preserve or enhance the attractiveness of the Belgian economy for foreign investors, the latter being a powerful vehicle for the spread of technical or organisational innovations. In particular, he advocated improvements in the efficiency of administrative structures in Belgium and drew attention to the importance of the predictability of the institutional framework in which private operators have to function, notably in regard to investment in the energy sector.

Last, Leo Sleuwaegen highlighted the problems of production factor reallocation as one of the main weaknesses of the Belgian economy, and called on the government to reduce the burden of regulation in order to foster that reallocation. In addition to the points made by the other three speakers, he commented that, in his opinion, our firms need creative workers and they must therefore adapt in order to encourage the creativity of their staff. This change in firms' methods of organisation and production also entails a transformation of the education system in order to enhance the development of individual creativity. More creative workers should also increase the momentum of business start-ups.

Jan Smets closed the conference and summed up its main lessons by observing that, in order to avoid the spectre of secular stagnation in Europe, and particularly in Belgium, we need a whole range of policies, measures and reforms. We need to promote a stable economic environment favourable to investment, both corporate investment, particularly in innovation, and public investment programmes. We also need to introduce structural reforms that favour both the development of new technologies and the ability to absorb innovations, and encourage the creation (and financing) of businesses or the efficient reallocation of the production factors. Finally, we need to conduct support policies aimed at facilitating the transition of our economy and the process of reallocating resources from the least productive to the most productive firms.

These policies, whether or not they target certain sectors, require the involvement of all players at all levels of power – European, federal and regional. Finally, firms also have a role to play, both in investing in new sources of TFP growth and in working with the social partners to develop the means to boost workers' productivity and employability.

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Results and financial situation of firms in 2013

David Vivet

Introduction

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

This article is in three parts. The first part briefly describes the method used and the population studied. The second part presents an extrapolation of the main items in the operating account for the 2013 financial year, focusing mainly on value added, staff costs, depreciation and the operating result. The extrapolations are presented according to company size and according to the main branches of activity. Other points highlighted are the amount that firms devote to investment, and developments since the outbreak of the financial crisis. The third part assesses the financial position of companies in terms of profitability and financial structure. This analysis is based on the theory of the interpretation of annual accounts, and provides both a macroeconomic view (globalised figures) and a microeconomic picture (medians and other distri-bution measures). This year, an additional section looks at corporate cash flows on account of their marked expansion over the recent period. The analysis refers to such concepts as net working capital, net working capital needs, and net cash position.

1. Method and description of the population

1.1 Method

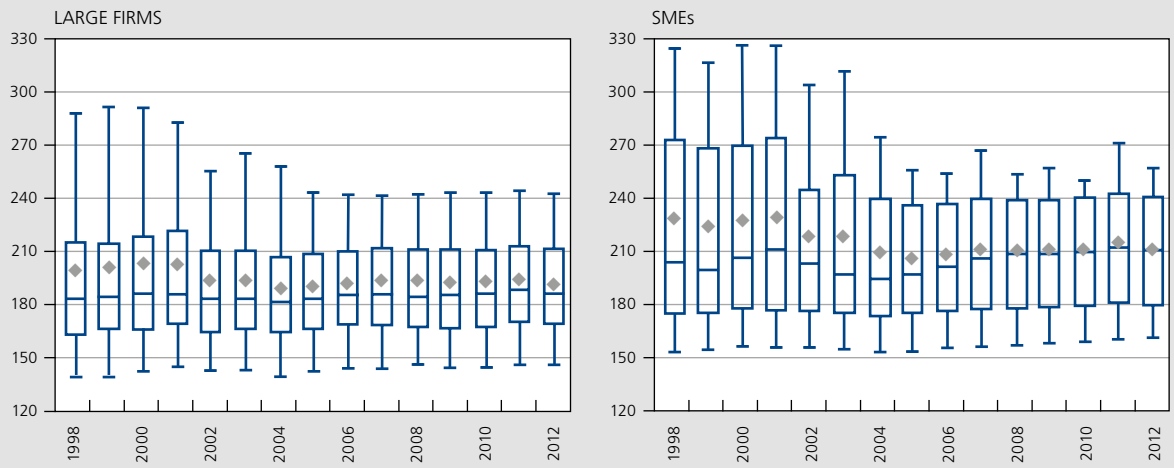
The Central Balance Sheet Office has collected the accounts of non-financial corporations since the late 1970s. To that end, firms are required to lodge their annual accounts in a standardised form no later than seven months after the end of the financial year. The data are then checked and corrected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

However, it is always the case that the annual accounts for the latest year considered – in this case 2013 – are not yet all available. That is because a significant number of accounts are filed late or fail the arithmetical and logical checks conducted by the Central Balance Sheet Office. That is why the data for 2013 are estimated on the basis of a constant sample. The sample comprises firms which have filed annual accounts covering a 12-month financial year for both 2012 and 2013. The method consists in extrapolating the 2013 results according to developments observed in the sample, which are presumed to be representative of trends affecting the population as a whole. As verified in previous editions of this article, that assumption is broadly correct: in the vast majority of cases, the extrapolations give a good indication of the direction and scale of the real movements.

This year's sample was drawn on 10 September 2014. It comprises 252 731 sets of annual accounts, or 74.0 % of the total number filed for the 2012 financial year. In terms

CHART 1 DISTRIBUTION OF THE TIME TAKEN TO FILE ANNUAL ACCOUNTS

(number of days from the end of the financial year)



Source: NBB.

The lower and upper extremes of the box plots correspond respectively to the 1st and 3rd quartiles. The line inside the box represents the median. The extremes of the lower and upper moustaches correspond respectively to the 1st and 9th decile. The grey dot indicates the average.

of value added its representativeness is much higher, at 88.1 %.

The sample has become significantly more representative over the past ten years: in 2005, it only represented 52.6 % of the number of companies, and 82.4 % of value added. There are two main factors accounting for that improvement.

First, the programme law of 27 December 2005 introduced increased charges for late filing of accounts from the 2005 financial year onwards, and that had a marked effect on firms' behaviour. As indicated by chart 1, which presents box plots showing the distribution of the time taken to file accounts, the biggest impact was on the tardiest strata of the population. In 2003 they still represented 20 %, but in 2005 the proportion of annual accounts filed more than nine months after the end of the financial year dropped to 8 %, and remained fairly stable thereafter at less than 10 %.

Technical progress has also shortened the time taken to collect and process the data. Apart from the electronic filing of annual accounts, which is more or less universal today, the IT system of the Central Balance Sheet Office has undergone various improvements in recent years, including the development of a data warehouse and use of the XBRL language.

1.2 Description of the population studied

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

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

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

The Company Code defines a small company as one which has not exceeded more than one of the following limits in the last two financial years:

- annual average number of employees: 50;
- turnover (excluding VAT): € 7 300 000;
- balance sheet total: € 3 650 000;

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

In all other cases the company is regarded as large.

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

Table 1 summarises the main characteristics of the population studied. The 2013 data are shown for the record because, as already stated, they were incomplete when this article went to press. SMEs make up the great majority (320 787 companies in 2012, or 94 % of the total). Conversely, in terms of value added and jobs, large firms clearly predominate (€ 131 billion value added and 1.3 million jobs in 2012, or 74 % and 70 % of the total respectively).

In the space of twenty years the number of non-financial corporations filing annual accounts has doubled. That long-term trend has continued over the recent period, the number of companies studied rising from 301 026 units in 2008 to 341 313 units in 2012. This net creation of firms originates mainly from services (business services,

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

TABLE 1 CHARACTERISTICS OF THE POPULATION STUDIED

(situation as at 10 September 2014)

	2008	2009	2010	2011	2012	*p.m. 2013*
Number of firms	**301 026**	**313 457**	**317 993**	**336 477**	**341 313**	***264 404***
Large firms	17 546	18 215	19 268	20 091	20 526	*18 978*
SMEs	283 480	295 242	298 725	316 386	320 787	*245 426*
Manufacturing industry	21 848	22 000	21 641	22 303	22 149	*17 327*
Non-manufacturing branches	279 178	291 457	296 352	314 174	319 164	*247 077*
Public limited companies	87 108	86 251	83 618	83 382	80 623	*62 960*
Private limited companies	191 716	203 793	210 157	227 314	234 443	*180 754*
Cooperative societies	9 189	9 049	8 741	8 914	8 577	*6 329*
Other legal forms	13 013	14 364	15 477	16 867	17 670	*14 361*
Value added (€ million)	**164 902**	**158 983**	**167 797**	**174 025**	**176 413**	***161 289***
Large firms	123 899	117 994	126 412	128 997	130 944	*127 258*
SMEs	41 004	40 988	41 385	45 028	45 470	*34 031*
Manufacturing industry	46 462	43 301	46 820	46 642	46 841	*44 200*
Non-manufacturing branches	118 440	115 682	120 978	127 383	129 573	*117 089*
Public limited companies	118 804	111 729	116 073	117 794	117 337	*109 079*
Private limited companies	28 075	29 031	31 913	35 621	37 609	*31 749*
Cooperative societies	4 002	4 051	4 044	4 256	4 461	*4 503*
Other legal forms	14 022	14 171	15 767	16 353	17 006	*15 959*
Employment[1]	**1 856 881**	**1 816 209**	**1 816 635**	**1 881 784**	**1 879 699**	***1 631 400***
Large firms	1 290 522	1 251 053	1 268 985	1 304 153	1 306 420	*1 237 574*
SMEs	566 359	565 157	547 651	577 631	573 279	*393 827*
Manufacturing industry	501 227	478 156	457 515	460 475	454 795	*406 636*
Non-manufacturing branches	1 355 653	1 338 053	1 359 120	1 421 309	1 424 905	*1 224 764*
Public limited companies	1 291 711	1 233 136	1 221 136	1 244 288	1 229 567	*1 098 515*
Private limited companies	359 982	376 381	388 453	428 869	442 363	*336 914*
Cooperative societies	48 452	48 861	48 347	50 025	49 805	*45 669*
Other legal forms	156 737	157 831	158 699	158 602	157 964	*150 303*

Source : NBB.

(1) Average workforce in full-time equivalents.

management consultancy, IT activities, real estate, liberal professions, etc) and construction. Conversely, in industry the number of companies has been far more stable for many years. Annex 3 gives a detailed view of the changes in the number of companies per branch of activity.

Generally speaking, new firms are relatively small entities: for instance, 30 % of companies created in the past five years do not employ any staff, and only 5 % of them employ more than five persons; moreover, the very great majority of new firms are private limited companies.

The number of public limited companies has been declining for the past ten years. However, in almost a quarter of cases, public companies that have disappeared have undergone a merger by acquisition (compared to less than 5 % of private companies) and therefore do not strictly speaking represent a cessation of business. Furthermore, public companies continue to account for a very large proportion of value added and total employment, at 67 % and 65 % respectively.

Other legal forms have continued to expand, mainly as a result of the growth of non-trading partnerships. These are particularly popular among members of the liberal professions, including accountants, tax advisers, lawyers, notaries and architects. These partnerships generally take the form of private limited companies, so that most of them are subject to the rules applicable to the latter[(1)]. Finally, for the record, the number of general partnerships and limited partnerships has also risen over the recent period, though it is still marginal (these entities represent less than 1 % of the total).

2. Trend in components of the operating account

2.1 Economic climate

Following a long period of stagnation which had begun in the second half of 2011, activity in Belgium returned to positive growth from the second quarter of 2013. Over 2013 as a whole, GDP grew by 0.3 % whereas it had fallen by 0.1 % in 2012. In general, GDP was still held back by the persistent uncertainty over the fundamental factors supporting growth, such as employment, personal income, and the sales outlook for firms.

(1) One of the main differences concerns creditors' rights in the event of bankruptcy. Also, the law on the continuity of businesses does not apply to non-trading partnerships.

The weak average GDP growth recorded in 2013 was supported by private consumption, which gained momentum throughout the year after having stagnated for two years. Government consumption was also a contributory factor, even though it slowed down on account of fiscal consolidation.

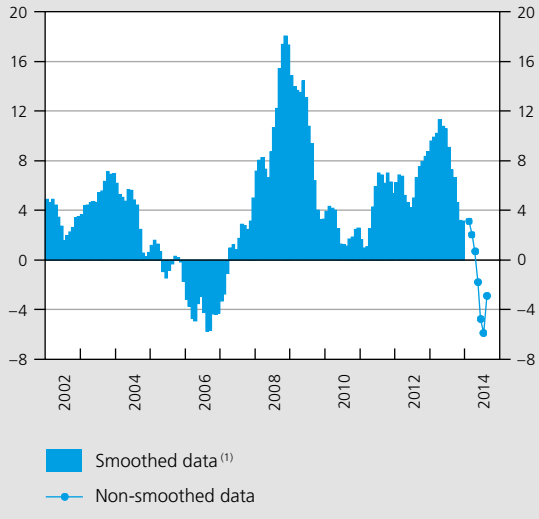
The growth of business investment proved slightly negative on average over the year. Households also cut their investment in housing by even more than in 2012, while government investment was down sharply, as is generally the case in the year following the municipal and provincial elections.

Net exports made a positive contribution to growth, owing to the combined effects of the export revival and a modest rise in imports. Nonetheless, as in 2012 the contribution from net exports was largely negated by changes in inventories, as firms were probably once again keen to reduce their stocks.

Recent macroeconomic developments have had an impact on the vulnerability of Belgian firms, as is evident from the bankruptcies which the commercial court reported to the Central Business Databank (see chart 2). To ascertain the trend, these data need to be smoothed, because they are subject to a high degree of volatility and seasonal effects.

CHART 2 NUMBER OF BUSINESS BANKRUPTCIES IN BELGIUM

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



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

After having peaked in the midst of the 2008-2009 recession, the rise in the number of bankruptcies had slowed sharply up to the beginning of 2011, as a result of the upturn in economic activity. The number of bankruptcies then gradually accelerated, and in 2013 reached its highest level for the past four years: over 2013 as a whole, the number of bankruptcies was up by 10.9 %, equivalent to the rate of increase in 2008 (+10.4 %) and in 2009 (+11.1 %). The branches accounting for the biggest share of increased bankruptcies in 2013 were business services (+18.5 %), construction (+14.6 %), hotels and restaurants (+9.7 %) and trade (+9.1 %). Conversely, manufacturing industry (+1.3 %) and transport (+0.6 %) were relatively unscathed.

The year 2014 began with a period of calm: in the first six months the number of bankruptcies was down by 3.8 %, the first decline since the outbreak of the financial crisis. However, that must not mask the fact that the bankruptcy statistics remain at historically high levels. In the first half of 2014 the number of bankruptcies came to 5 689 units, or 42 % more than in the first half of 2007 (4 020 units).

2.2 Global trends in the operating account

Over 2013 as a whole, 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, increased by 2.0 % at current prices (see table 2). That is slightly higher than in 2012, when value added had risen by 1.4 %. This growth occurred despite the erosion of sales (–1.0 %), as total purchases recorded a larger fall (–1.7 %), partly as a result of the reduction in prices of industrial commodities, energy and food.

Overall, the activity of firms therefore continued to lack momentum in 2013. In particular, over the past two years under review, value added has grown by much less than the average for the previous ten years (+4.1 % [1]).

The value added that a firm creates enables it to cover its operating expenses and to record any excess as its net operating profit. The latter reflects the firm's current trading efficiency, regardless of its funding policy and any exceptional factors.

Staff costs usually make up the major part of the operating expenses. In 2013, their growth (+2.1 %) was in line with the rise in value added, in contrast to previous years when their increase had been much stronger. The movement in the wage bill in 2013 was influenced mainly by the marked slowdown in hourly labour costs in the private sector, brought about via the wage indexation mechanism, owing to the fall in inflation. The total number of workers employed remained very stable in 2013 (–0.1 % in full-time equivalents), as had already been the case in 2012.

After staff costs, the biggest operating expenses comprise item 630 in the annual accounts, namely depreciation and write-downs on tangible fixed assets, intangible fixed assets and start-up costs. In 2013, their growth slowed again to a relatively low level (+2.6 %). Overall,

(1) Excluding 2009, a year in which the growth of value added had been negative.

TABLE 2 TRENDS IN THE MAIN COMPONENTS OF THE OPERATING ACCOUNT
(current prices)

	Percentage changes compared to the previous year					In € million	In % of value added
	2009	2010	2011	2012	2013 e	2013 e	2013 e
Value added	**–3.6**	**5.5**	**3.7**	**1.4**	**2.0**	**180 018**	**100.0**
Staff costs (–)	–0.3	0.6	5.3	3.0	2.1	104 098	57.8
Depreciation and write-downs [1] (–)	6.1	2.1	4.1	3.3	2.6	33 837	18.8
Other operating expenses (–)	–5.2	3.0	4.7	2.5	0.5	11 087	6.2
Total operating expenses	*0.7*	*1.1*	*5.0*	*3.0*	*2.1*	*149 021*	*82.8*
Net operating result	**–21.1**	**28.6**	**–1.7**	**–5.9**	**1.8**	**30 996**	**17.2**

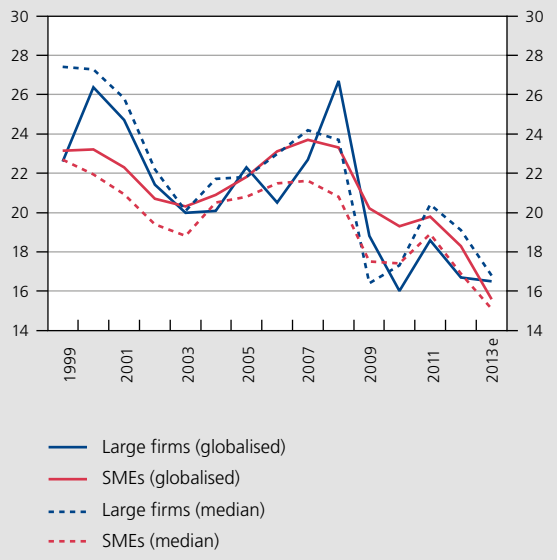
Source: NBB.
(1) On tangible and intangible fixed assets and start-up costs (item 630).

the increase in depreciation has been modest in recent years, reflecting an investment policy which has become much more conservative since the outbreak of the financial crisis.

In the annual accounts, corporate investment spending can be ascertained from the ratio of new tangible fixed assets. That ratio divides acquisitions of tangible fixed assets during the year by the stock of tangible fixed assets at the end of the previous year. Whatever the yardstick applied, the ratio contracted very sharply in the wake of the 2008-2009 recession, and has since remained at levels well below those prevailing before the financial crisis (chart 3). This downward trend has affected almost all branches of the Belgian economy (see Annex 4). In 2013, the ratio was again hit by sluggish demand and the gloomy growth outlook in a persistently uncertain environment. The degree of capacity utilisation in manufacturing industry, which remained below its long-term average throughout the year, also discouraged new investment. Chart 4 shows the close link between the renewal of tangible fixed assets and the degree of capacity utilisation as calculated in the Bank's business surveys: the correlation between the two variables comes to 0.76 over the period 1996-2013.

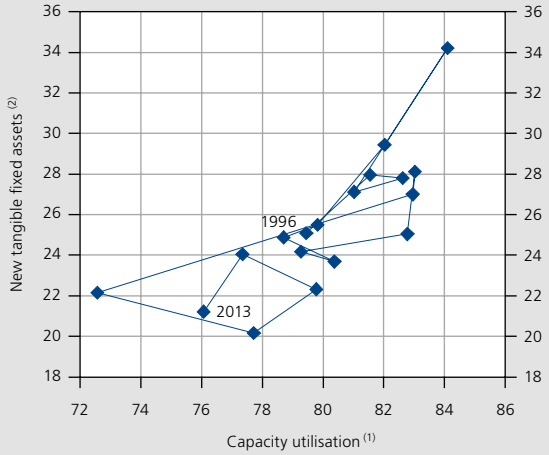
Total operating expenses, determined largely by staff costs and depreciation, increased by 2.1 % in 2013, a controlled rise roughly equivalent to the growth of value added. As a result, there was a very small improvement in the net operating profit (+1.8 %) to a total of € 31 billion in 2013, thus ending the erosion seen in both 2011 (–1.7 %) and 2012 (–5.9 %).

CHART 3 RATIO OF NEW TANGIBLE FIXED ASSETS
(%)



Source: NBB.

CHART 4 RATIO OF NEW TANGIBLE FIXED ASSETS AND CAPACITY UTILISATION IN MANUFACTURING INDUSTRY
(%)



Source : NBB.
(1) Annual average.
(2) Globalised figure for all manufacturing companies.

2.3 Developments per branch of activity

Table 3 describes the movements in the operating account for each branch of activity over the past two years under review. Chart 5 depicts sectoral developments since the outbreak of the financial crisis.

The slight improvement in the results in 2013 is attributable to both manufacturing and non-manufacturing branches (see table 3). Overall, manufacturing benefited from less unfavourable foreign trade, while the non-manufacturing sector was bolstered by the revival in consumption spending. However, these general findings need to be qualified in view of the economic context specific to the various sub-sectors.

2.3.1 Manufacturing industry

In the manufacturing branches, it was the pharmaceutical and agri-food industries that performed best in 2013, in line with the trend of recent years. Since the outbreak of the financial crisis, the phar-maceutical industry has

benefited from its innovative character, reflected for instance in a value added ratio (i.e. the value-added-to-sales ratio) well in excess of that in the other industrial branches. The agri-food sector was sheltered from the fluctuations in international trade, thanks to its strong focus on the home market.

Taken overall, the other components of industry were much less affected by the recent economic situation. Branches that have recorded the most significant decline since 2007 include textiles and metallurgy: for a very long time now, textiles have faced international competition, particularly from the low-cost countries, while metallurgy suffered particularly from the effects of the 2008-2009 recession, including the closure of some production units[1].

Other branches, such as metal manufactures and chemicals, have recorded mixed results in recent years. In metal manufactures, the dynamism of certain technological industries has been offset by the reper-cussions of some massive restructuring operations. The chemical industry as a whole has faced a cut in its margins, partly as a result of fluctuations in the prices of certain industrial and energy commodities. However, firms in this branch remain subject to varying market situations determined largely by the nature of their output.

(1) The surge in the operating result in metallurgy in 2013 is of little significance since the result had fallen to a low point in 2012 following several very bad years for the sector.

TABLE 3 VALUE ADDED AND OPERATING RESULT PER BRANCH OF ACTIVITY

(percentage changes compared to the previous year)

	Value added		Net operating result		*p.m. Branch's share, in % of total value added in 2013 e*
	2012	2013 e	2012	2013 e	
Manufacturing industry	**0.4**	**1.3**	**–14.3**	**2.5**	***26.4***
of which:					
Agri-food industries	4.8	5.4	9.3	20.3	*4.3*
Textiles, clothing and footwear	–0.3	–1.6	16.1	–0.6	*0.8*
Wood, paper and printing	–2.4	–3.7	–6.2	–23.7	*1.6*
Chemicals industry	–2.9	1.4	–27.6	–5.5	*3.8*
Pharmaceuticals industry	6.7	10.9	–18.3	36.5	*3.2*
Metallurgy and metalworking	–6.2	1.0	–87.9	179.6	*3.6*
Metal manufactures	0.8	–1.6	–1.2	–5.6	*5.1*
Non-manufacturing branches	**1.7**	**2.3**	**–2.9**	**1.6**	***73.6***
of which:					
Trade in motor vehicles	–5.5	–0.7	–26.6	–7.2	*2.4*
Wholesale trade[1]	0.6	–0.1	–6.3	–7.0	*12.5*
Retail trade[1]	1.8	3.5	–7.8	4.6	*7.0*
Transport and storage	1.5	3.2	n.s.	56.7	*8.4*
Hotels, restaurants and catering	2.5	4.1	–21.1	25.6	*2.0*
Information and communication	1.3	–0.9	–5.4	–16.2	*6.8*
Real estate activities	8.6	3.9	7.2	5.7	*3.1*
Business services	4.3	3.4	4.3	8.7	*14.4*
Energy, water and waste	–7.9	–1.9	–25.7	–29.2	*5.1*
Construction	4.4	1.0	12.6	0.6	*7.8*
Total	**1.4**	**2.0**	**–5.9**	**1.8**	***100.0***

Source: NBB.

(1) Excluding trade in motor vehicles.

Overall, manufacturing industry still bears the scars of the financial crisis, and has yet to regain its pre-crisis position : in 2013, value added and the net operating result stood 1.1 % and 29.2 % respectively below their 2007 peak.

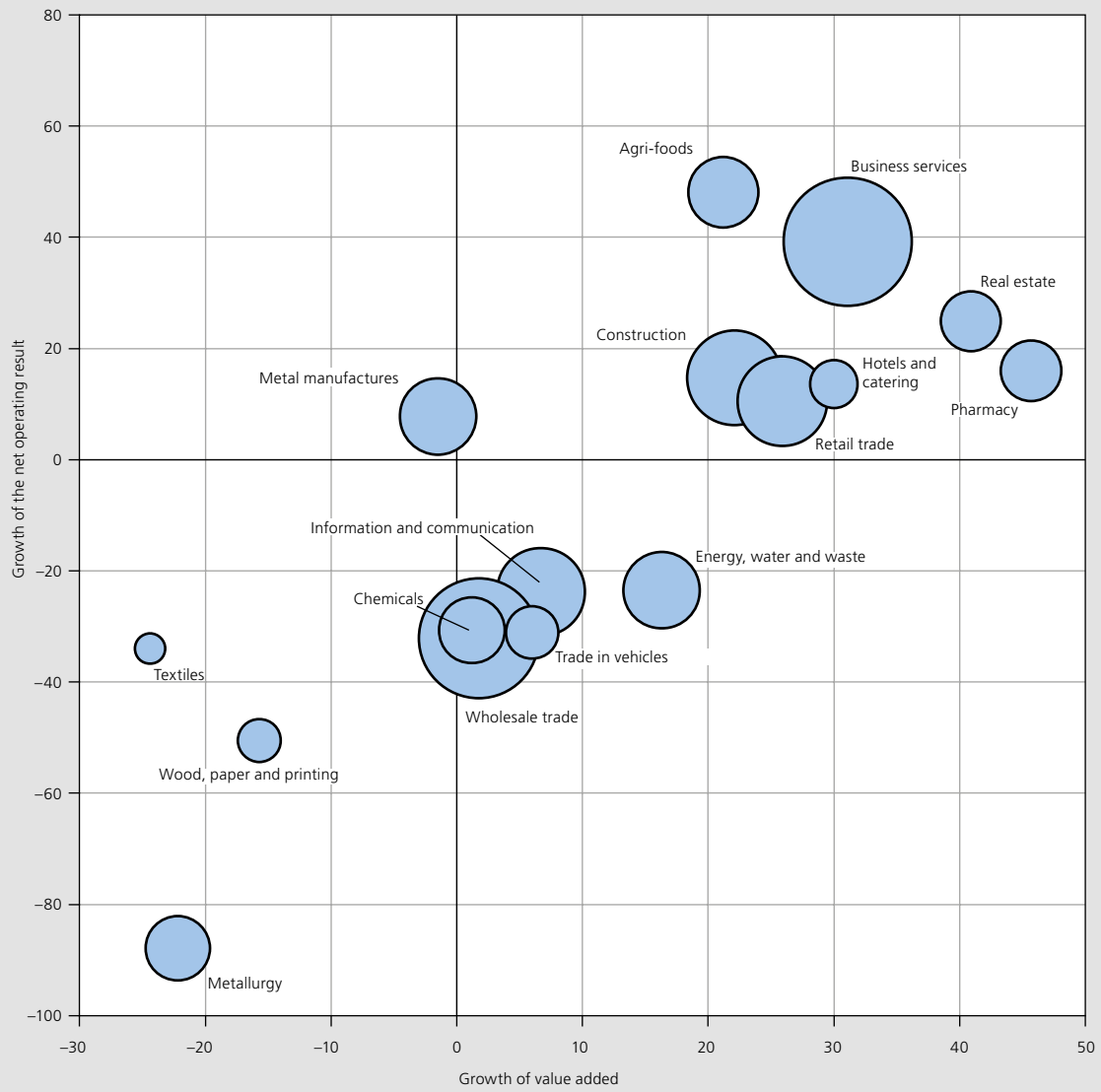
2.3.2 Non-manufacturing branches

Despite a general improvement in their performance, the situation in the non-manufac-turing branches was variable in 2013. For instance, retailing benefited from the revival in consumption while, conversely, the results for trade in motor vehicles were again affected by the propensity of the economic agents to postpone their purchases of durable goods. The wholesale trade suffered mainly from the decline in petroleum product volumes and prices. In energy and telecommunications, the results were again hit by the reduction in margins due mainly to competition and the regulatory environment. Finally, the results in construction in 2013 were far less favourable than in previous years owing to the slump in public investment and investment in housing, and the bad weather at the beginning of the year.

Since the start of the financial crisis, the service branches that have proved most resilient are business services, real

CHART 5 VALUE ADDED AND NET OPERATING RESULT, 2007 – 2013 (1)

(%)



Source : NBB.

(1) The size of the circles is proportionate to each branch's share in total value added in 2013.

estate, hotels, restaurants and catering, and the retail trade. In general, these branches have benefited from the relative robustness of domestic demand since 2008. It should also be noted that, in the long term, the trend towards outsourcing of non-core activities has stimulated the growth of some of these branches, most especially business services. Conversely, the wholesale trade is among the service branches most affected by the economic situation in recent years, owing to its exposure to industrial activity and international trade; however, some wholesaling activities have been more resilient, including those linked to food and pharmaceuticals.

3. Trends in the financial situation of firms

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

The financial ratios are presented in the form of global figures and medians. The globalised ratios are obtained by taking the sum of the numerators of all companies and dividing it by the sum of their denominators. The median is the central value in an ordered distribution for a given ratio: 50 % of firms have a ratio above the median and 50 % have a ratio below the median. The two measures are complementary because they focus on different points of interest. Since it takes account of the weight of each observation in the numerator and in the denominator, the globalised figure primarily reflects the situation of the largest firms. In contrast, the median reflects the picture for the distribution as a whole, because it is influenced equally by every firm, regardless of size.

3.1 Profitability

In this article, profitability is assessed on the basis of four ratios: the net margin on sales, the return on operating results, the return on equity and the return on total assets.

The net margin on sales is equal to the ratio of net operating result to turnover[1]. It expresses the commercial performance of a business unit, irrespective of financing, exceptional results and tax considerations. For SMEs, the ratio can only be calculated if turnover is reported in the annual accounts.

The net return on operating assets is the ratio of net operating result to operating assets. The latter are defined as the sum of non-financial fixed assets, inventories, receivables at less than one year and adjustment accounts[2]. Other assets (financial fixed assets, amounts receivable

after one year, investments and available assets) are regarded as financial assets and are not included in the ratio's denominator. Thus, the ratio expresses the commercial performance relative to the balance sheet items directly involved in operations.

The return on equity is the net profit after tax divided by equity capital. This ratio indicates the return which shareholders receive after the deduction of all expenses and taxes. From a strictly financial standpoint, it is therefore the ultimate measure of profitability.

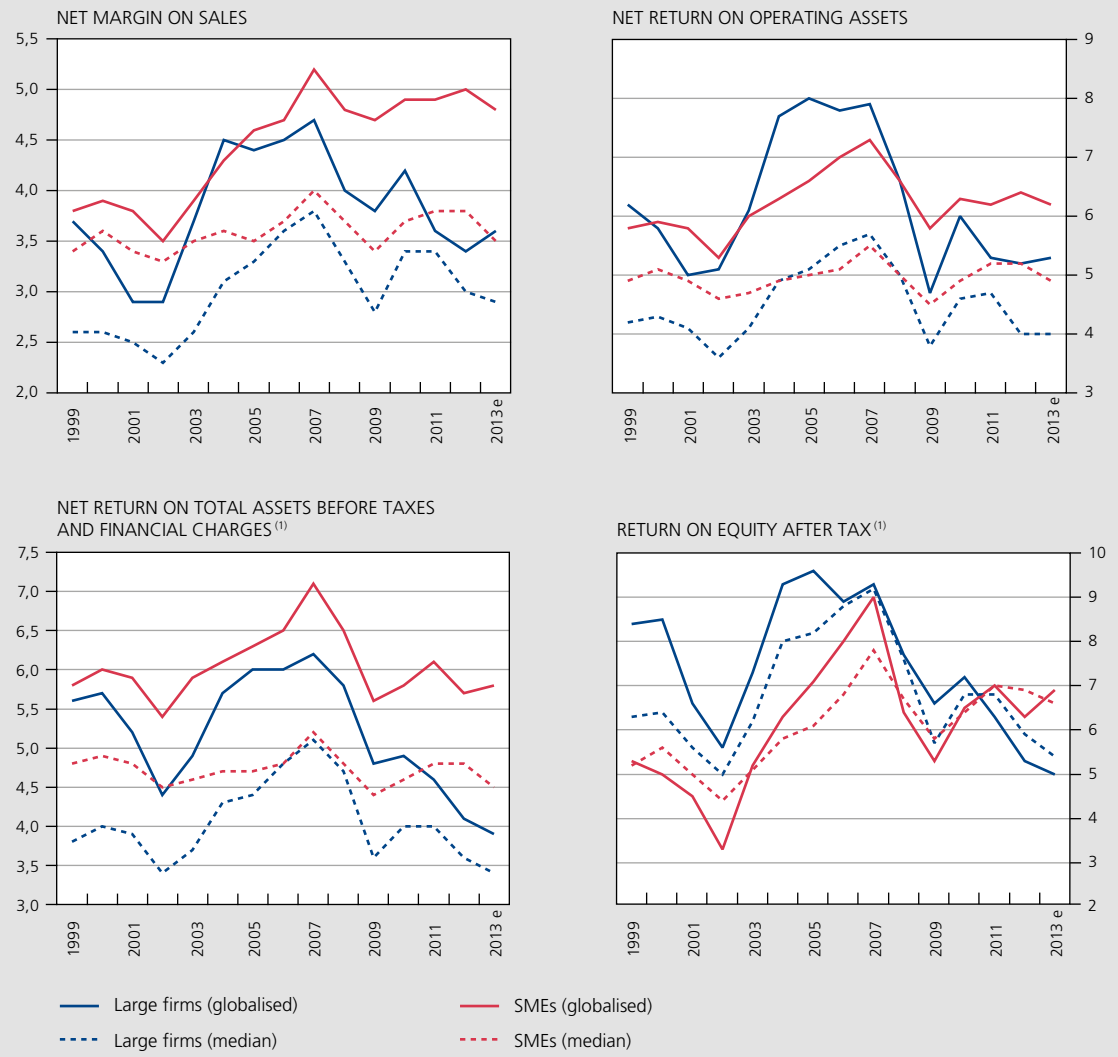
Lastly, the net return on total assets before taxes and financial expenses measures the firm's profitability in relation to all the resources at its disposal. Profits are considered before taxes and financial expenses so as to be unaffected by taxation and financing policy. Consequently, the ratio is sometimes called the "economic return".

Chart 6 shows the trend in the four ratios thus defined. In 2013, profitability was down according to most of the criteria considered, for both large firms and SMEs. However, the profitability of SMEs has stood up better overall in recent years: SMEs are less sensitive to economic cycles because they are less focused on industrial activities and international trade. In contrast, the ratios of large firms were clearly harder hit by the recent economic situation, and have now reached their lowest levels for ten or even fifteen years. That is true for almost all the branches of activity studied.

(1) In the case of large firms, turnover is increased by other operating income and reduced by operating subsidies.

(2) This is the definition proposed in Ooghe and Van Wymeersch (2006), *Traité d'analyse financière*, Intersentia, Antwerp-Oxford.

CHART 6 PROFITABILITY
(%)



Source: NBB.
(1) Excluding exceptional results.

3.2 Business solvency and financing

3.2.1 Degree of financial independence

Solvency is the ability of firms to honour their short- and long-term liabilities. This criterion is crucial to the financial diagnosis of firms, and it figures prominently in the model of financial health developed by the Bank.

The main measurement of solvency is the degree of financial independence, namely the ratio between equity and total liabilities. If the ratio is high, the firm is not dependent on borrowings, and that has two beneficial effects: first, interest charges are low and therefore do not weigh heavily on profits; also, if need be, the firm can easily contract new debts on good terms. The degree of financial independence can be interpreted as measuring the financial risk that the firm incurs, since the remuneration of third parties is fixed, unlike the firm's results which fluctuate over time.

In 2013, the globalised ratio went up by 0.4 percentage point for large firms and 0.2 point for SMEs to 43.4 % and 37.7 % respectively (see the first part of chart 7). Over the past two years, financial independence has remained relatively stable in globalised terms, after rising

over a long period. From 2005, this long-term trend had been reinforced by the introduction of the risk capital tax allowance ("notional interest") which brought a massive inflow of foreign capital into Belgium, particularly in the branch comprising head office activities. This branch, which used to comprise the coordination centres, now contains several hundred companies which generally provide internal banking or cash management services within corporate groups. Although, as stated in section 1.2, head office activities are excluded from the population studied in this article, they are included in an additional statistic in chart 7, on account of the large changes in capital to which they have recently been subject.

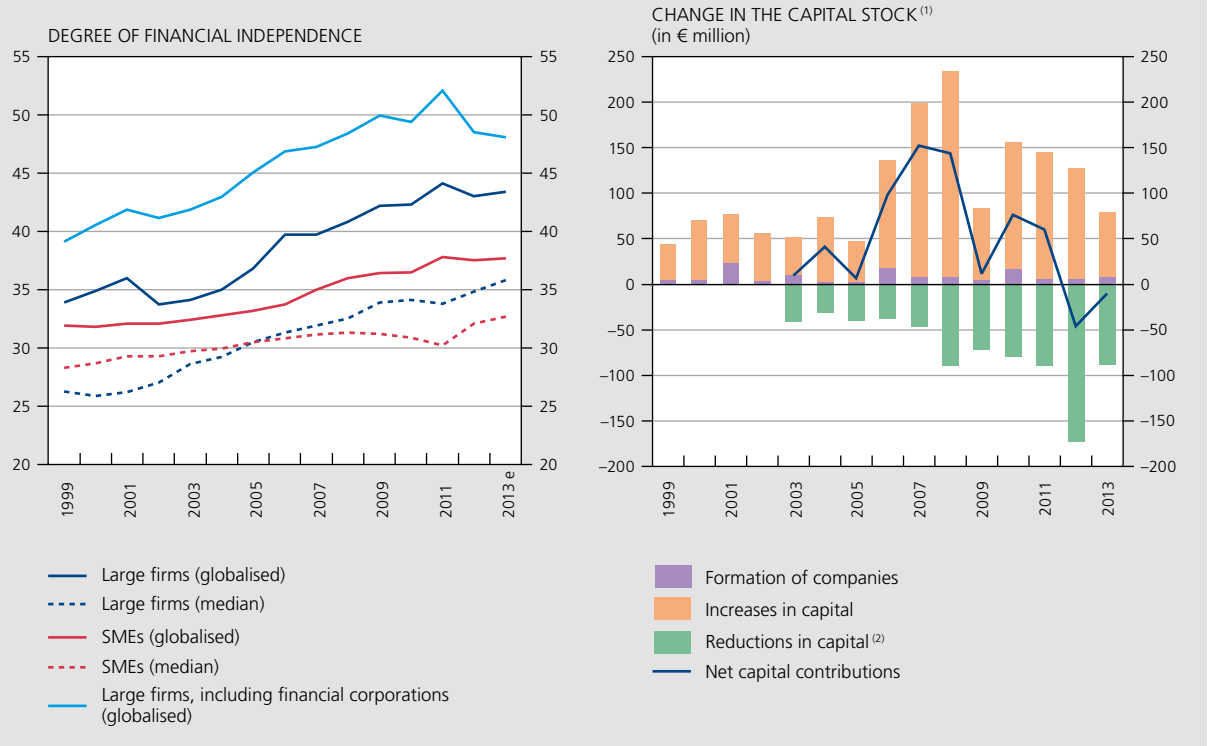
The attractions of the notional interest allowance have gradually diminished over recent years. The basic interest rate used for the deduction was capped at 3.8 % (2011 and 2012 tax years), then 3 % (from the 2013 tax year). As table 4 shows, the rates applicable from the introduction of the allowance increased up to 2010, as a result of the steady rise in OLO yields. They have since fallen significantly, as yields flattened out and then declined. Moreover, the option of postponement to a later financial year in the case of interest exceeding the tax base was abolished with effect from the 2013 tax year [1].

The set of restrictions on the notional interest scheme is the main reason for the recent stabilisation of globalised corporate financial independence. In the head office activities branch, financial independence actually contracted in the latest years under review, as companies in the branch had become less inclined to hold their capital in Belgium. That development is reflected in particular in the statistics on net capital contributions compiled on the basis of the Moniteur belge : net contributions were negative in both 2012 and 2013, whereas they had always been positive in previous years, reaching record levels in the second half of the 2000s (see chart 7, second part).

(1) Previously, any interest not deducted could be carried forward for seven years. The stock of interest which had not yet been deducted before the 2013 financial year can still be carried forward for seven years but stricter rules will apply.

CHART 7 FINANCIAL INDEPENDENCE AND CHANGE IN THE CAPITAL STOCK OF COMPANIES ESTABLISHED IN BELGIUM

(in % unless otherwise stated)



Source : NBB.

(1) All Belgian companies including financial corporations.

(2) Reductions in capital have been recorded since 2003.

TABLE 4 INTEREST RATE ACTUALLY APPLICABLE FOR THE RISK CAPITAL TAX DEDUCTION

(in %)

Tax year	Base rate	Higher rate for SMEs
2007	3,442	3,942
2008	3,781	4,281
2009	4,307	4,807
2010	4,473	4,973
2011	3,800	4,300
2012	3,425	3,925
2013	3,000	3,500
2014	2,742	3,242
2015	2,630	3,130

Source: NBB.

3.2.2 Average interest charges on financial debts

The average interest charges on financial debts permit assessment of the cost of recourse to external funding. The ratio divides debt charges by the sum of the short- and long-term financial debts; it is not calculated for SMEs because their income statement does not permit accurate identification of debt servicing [1].

In both globalised and median terms, average interest charges declined again in 2013 to reach an historically low level (3.4 % in globalised terms, 4.2 % in median terms). Over the past ten years as a whole the ratio has followed a trend similar to that for the cost of funding based on the MIR surveys [2] and the data on corporate bond yields.

While funding costs therefore remain particularly attractive, it should be noted that, according to the Bank's qualitative survey of business leaders, the latter's assessment of general credit conditions remained unfavourable in 2013, except in the case of very large firms. SMEs thus reported a deterioration in their assessment owing to the substantial collateral required by the banks and the limits on the amount of credit.

3.2.3 Breakdown of financial debts

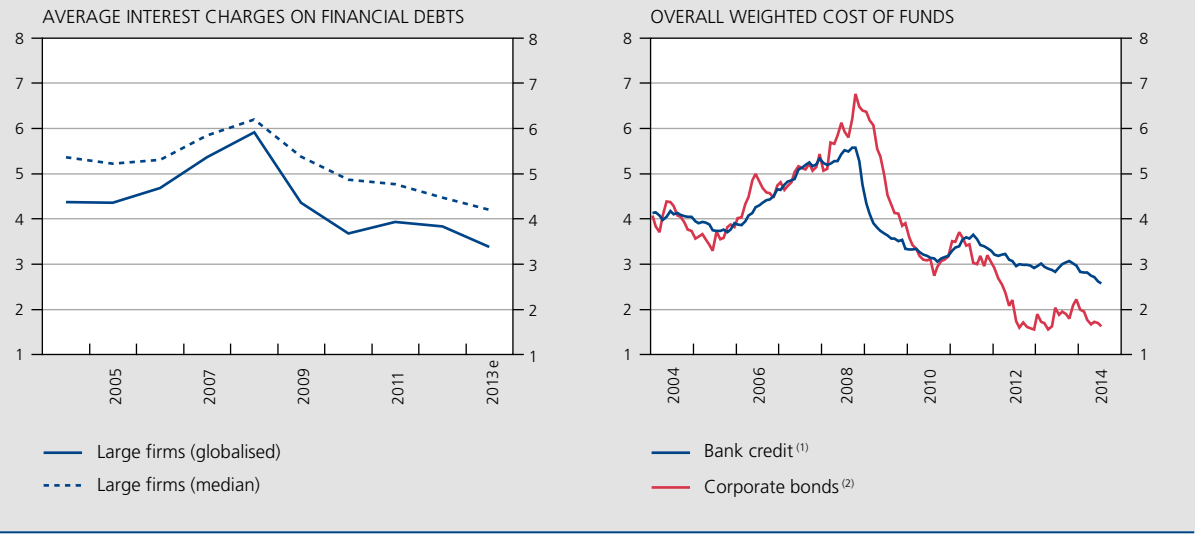
Finally, firms continued to make greater use of non-bank funding sources, particularly corporate bonds. Between 2008 and 2013, the proportion of financial

(1) In the abridged formats, debt servicing is included under "financial charges" (item 65).

(2) MIR surveys are harmonised euro area surveys concerning the interest rates that monetary financial institutions apply to deposits and loans of non-financial corporations and households.

CHART 8 FINANCING COSTS

(%)



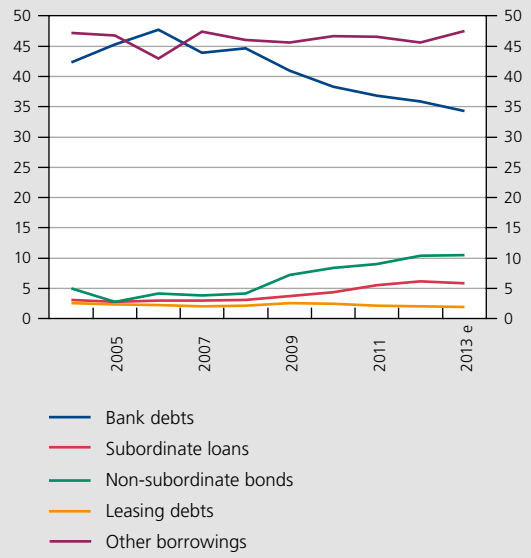
Sources: NBB, Thomson Reuters Datastream.

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

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

CHART 9 BREAKDOWN OF FINANCIAL DEBTS

(in %, large firms)



Source: NBB.

debts represented by bank debt fell from 44.7 % to 34.3 %, while the share of bonds increased from 4.1 % to 10.5 % (chart 9). This shift in the funding structure was caused partly by the tightening of bank lending conditions and the renewed attraction of corporate bonds, which offer better yields than sovereign bonds.

The share of intra-group loans which make up the bulk of the "other loans" item has remained particularly stable in the past decade, fluctuating between 43 % and 47 %. Lastly, the use of subordinate loans which generally also comprise inter-company borrowings has increased slightly in recent years, though it remains relatively marginal.

3.3 Recent trends in the cash position

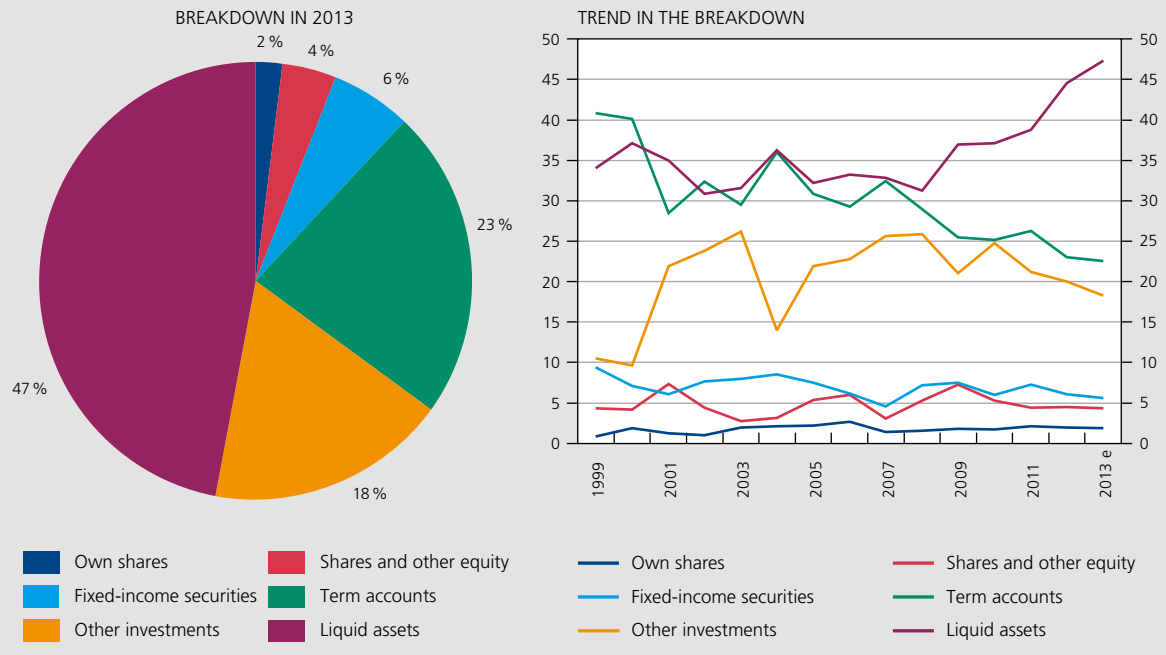
3.3.1 Composition of the cash position

The cash position is defined as the sum of cash investments and liquid assets.

Cash investments mainly comprise shares and other equity, fixed-income securities held for investment purposes, term accounts with credit institutions, own shares and investments relating to cash pooling activities. Liquid assets

CHART 10 BREAKDOWN OF THE CASH POSITION

(in %, large firms)



Source: NBB.

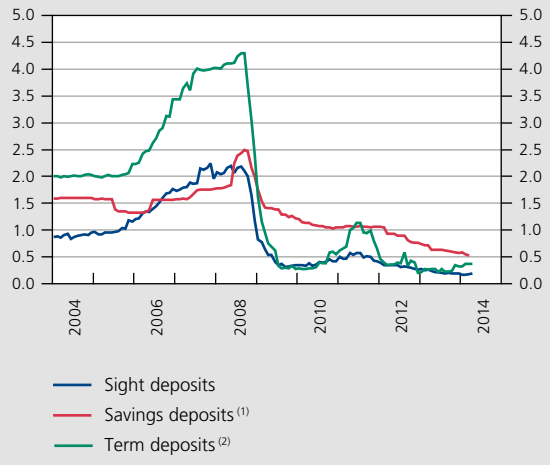
consist of cash balances, securities due for payment, sight accounts and savings accounts with credit institutions.

Chart 10 shows the breakdown of the cash position that can be determined from the annual accounts of large firms (such a breakdown is not feasible for SMEs). In 2013, liquid assets represented 47 % of the total, compared to 23 % for term accounts, 6 % for fixed-income securities, 4 % for shares and other equity, 2 % for own shares and 18 % for other investments. The last item corresponds mainly to deposits with affiliated firms for cash pooling purposes.

The proportion of cash held as liquid assets has risen considerably in recent years, from 33 % in 2008 to 47 % in 2012. The main corollary to this growth is evident in term accounts, whose share declined from 32 % to 23 % over the same period. The reason for this is that term accounts have become less attractive. For one thing, the interest rate differential compared to savings accounts and sight accounts has contracted sharply since the outbreak of the financial crisis (see chart 11), as term deposit rates are more closely linked to the market and to the expectations of economic agents. Also, the withholding tax on income from term accounts increased from 15 % to 25 % following two successive rises in 2012 and 2013, whereas savings accounts still have exemption for the initial tranche of interest (€ 1 880 euros in 2013).

CHART 11 GROSS INTEREST RATES ON CORPORATE DEPOSITS

(%)



Source : NBB, MIR surveys.
(1) Excluding loyalty bonus.
(2) Term deposits at less than one year.

3.3.2 Net cash position, net working capital and net working capital needs

To neutralise the effects of offsetting between the assets and the liabilities on the balance sheet, the cash position has to be analysed in net terms, i.e. after deduction of short-term financial debts. The net cash position is therefore defined as follows :

Net cash position = Cash investments
+ Liquid assets
– Short-term financial debts

The net cash position is also defined by reference to the concepts of net working capital and net working capital needs.

Net working capital is equal to the difference between the limited current assets (assets which are constantly renewed in the course of business, namely inventories, short-term claims, cash investments, liquid assets and adjustment accounts) and short-term capital borrowings.

Net working capital = Inventories and work in progress
+ Short-term claims
+ Cash investments
+ Liquid assets
+ Accrued income
– Short-term capital borrowings
– Accrued liabilities

Positive net working capital provides a buffer enabling the firm to (a) cover the risk of part of the current assets being converted into cash (1) when short-term capital borrowings have to be repaid, and (b) finance the permanent element of the current assets essential for operation (tooling stock, trade receivables, etc).

However, it should be stressed that a high working capital figure may be due, for example, to overstocking which is potentially dangerous for the firm (increased storage costs, disposal problems, etc). Furthermore, the net working capital reflects an overall equilibrium in balance sheet due dates, if the dates for the realisation of the current assets correspond to the dates for repayment of short-term borrowings, which is rarely the case. Finally, the amount of working capital that a firm requires depends directly on the needs created by the operating cycle.

(1) For example, stocks may remain unsold and customers may become insolvent or delay payment.

The net working capital need answers that last question. It is defined as the difference between operating needs and operating resources, and therefore represents the part of the operating needs not covered by the operating resources.

Net working capital need = Inventories and work in progress
+ Short-term claims
+ Accrued income
– Short-term debts excluding financial debts
– Accrued liabilities

The net working capital need arises because of the time lag between incoming and outgoing payments associated with the operating cycle: for example, a firm has to pay its suppliers and staff first, and it is only later that its customers pay the firm, and the stocks that it has built up are eventually sold. That time lag varies greatly from one branch of activity to another and from one firm to another, depending on payment periods (customers, suppliers, social security and tax authorities, etc.) and storage times. As a general rule, the longer the operating cycle the more net working capital is needed.

By deduction, the net cash position corresponds to the difference between the two concepts thus defined:

Net cash position = Net working capital
– Net working capital needs

TABLE 5 NET WORKING CAPITAL, NET WORKING CAPITAL NEEDS AND NET CASH POSITION, BY BRANCH OF ACTIVITY
(in % of the balance sheet total, 2013)

	Net working capital		Net working capital needs		Net cash position	
	Globalised	Median	Globalised	Median	Globalised	Median
Manufacturing industry	**7.3**	**15.8**	**9.8**	**4.1**	**–2.5**	**6.6**
of which:						
Agri-food industries	0.7	2.3	4.6	–6.1	–3.8	5.7
Textiles, clothing and footwear	18.9	21.3	12.6	8.9	6.3	6.1
Wood, paper and printing	10.5	14.9	9.9	2.4	0.6	7.3
Chemicals industry	1.2	19.3	12.4	11.8	–11.3	2.9
Pharmaceuticals industry	18.8	14.9	11.1	5.0	7.8	4.3
Metallurgy and metalworking	8.8	19.1	8.2	5.7	0.6	7.3
Metal manufactures	17.6	23.5	12.1	9.5	5.4	7.5
Non-manufacturing branches	**5.7**	**10.8**	**0.8**	**–3.8**	**4.9**	**8.6**
of which:						
Trade in motor vehicles	11.6	15.3	8.3	6.0	3.3	5.8
Wholesale trade (1)	16.3	18.7	14.4	6.0	1.9	6.2
Retail trade (1)	6.2	12.8	–3.5	–0.7	9.7	8.8
Transport and storage	4.7	8.8	1.0	–3.5	3.7	7.1
Hotels, restaurants and catering	–3.4	–12.4	–6.9	–24.7	3.5	8.1
Information and communication	–5.7	22.2	–5.1	–3.4	–0.6	19.1
Real estate activities	1.3	–2.4	–5.2	–8.0	6.5	2.4
Business services	8.5	13.4	–2.5	–6.1	10.9	13.3
Energy, water and waste	–0.4	5.7	–3.3	–2.7	3.0	6.2
Construction	15.0	19.3	11.0	4.2	4.0	8.8
Total	**6.7**	**11.1**	**3.1**	**–3.3**	**3.6**	**8.5**

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

If the net working capital exceeds the net working capital needs, the operating requirements are fully met and the net cash position is positive. Conversely, if the working capital is insufficient to cover the deficit associated with the operating cycle, the net cash position is negative and the firm has to resort to short-term financial debts (in the form of an overdraft, a straight loan, etc.).

There are many ways in which a firm can optimise its cash position. For instance, the net working capital can be improved by increasing the capital, retaining earnings, converting short-term debts into long-term debts, or selling assets. The working capital need can be reduced by collecting trade receivables more quickly and/or taking longer to pay suppliers, while ensuring that trading relations are not threatened. Techniques such as factoring and discounting can be used for this purpose. The firm can also optimise its stock management, i.e. cut stock levels but without running out of goods.

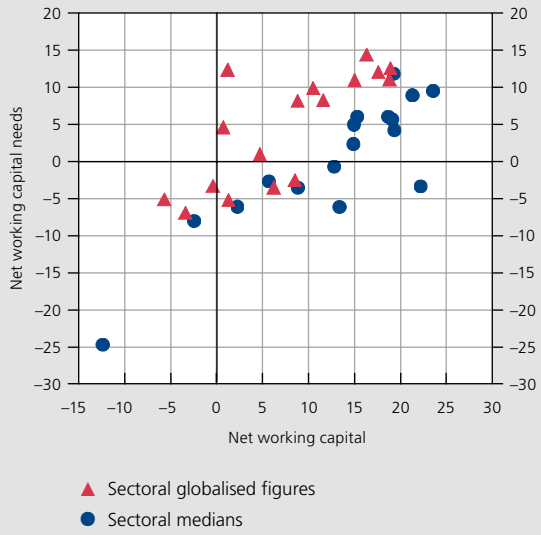
First, we can see that the net working capital is positive in the great majority of branches. For non-financial corporations as a whole, the net working capital represents 6.7 % of the balance sheet total in globalised terms and 11.1 % in terms of medians. It should be noted that in a number of branches of activity the results are influenced by intra-group funding arrangements. For instance, the relatively substantial working capital in the pharmaceutical industry is due in particular to claims on affiliated firms for cash pooling purposes. Those claims inflate the "cash investments" item and consequently the net working capital. Conversely, low or negative working capital is due in some cases to short-term financial debts to affiliated firms, usually also for the purpose of cash pooling. In many cases those debts are regularly renewed, which explains why they are recorded as short-term debts even though they actually contribute towards the permanent funding of the recipient companies.

It must also be stressed that the net working capital can fluctuate considerably from year to year, depending on temporary cash flow conditions. For example, that is the case in the telecommunications branch : while this branch normally has positive globalised working capital, the figure was negative in 2013 on account of bank debts due for payment during the year, though they are almost certain to be renewed.

As pointed out above, the interpretation of the working capital de-pends largely on the corresponding working capital needs. In that regard, there is a very strong positive link between the two variables : the greater the need for net working capital in a branch of activity, the higher the net working capital of the branch (see chart 12). That is logical, as firms create a buffer for themselves according to their needs. The cor-relation between the two figures is 0.87 for medians and 0.76 in globalised terms.

CHART 12 RATIO BETWEEN NET WORKING CAPITAL AND NET WORKING CAPITAL NEEDS, BY BRANCH OF ACTIVITY

(in % of the balance sheet total, 2013)



Source : NBB.

Overall, the statistics on working capital needs are in line with intui-tion. In industry and construction, the working capital need is positive and rela-tively substantial, owing to the length of the operating cycle and the resulting delays in collecting payment. The working capital need is also considerable in the motor vehicle trade and the wholesale trade, because they sometimes hold large stocks of expensive goods (technology products, motor vehicles, diamonds, etc). Conversely, most of the service branches have a negative net working capital need : in general, these branches feature a short operating cycle, prompt collection of payments, and negligible inventories.

In the retail trade the working capital need is only slightly negative, which may be surprising as mass retailing is generally cited as a typical example of a very negative need for working capital. This situation is due to the heterogeneity of the products sold and the selling methods used in retailing. If we isolate "retail trade in a non-specialist store selling mainly food, having an area of more than 400 m²" [1], which corresponds to what is commonly

(1) NACE-BEL codes 47.114 (" Retail trade in a non-specialist store selling mainly food, having a sales area of between 400m² and 2500m² ") and 47.115 (" Retail trade in a non-specialist store selling mainly food, having a sales area of 2500m² or more).

known as a supermarket, the net working capital need comes to –11.6 % in globalised terms and –19.1 % in median terms.

The last part of table 5 shows the net cash position, i.e. the result of comparing the net working capital with the net working capital need. We find that the net cash position is positive in the great majority of cases, which means that, on the whole, the buffer that firms create enables them to cover their operating needs.

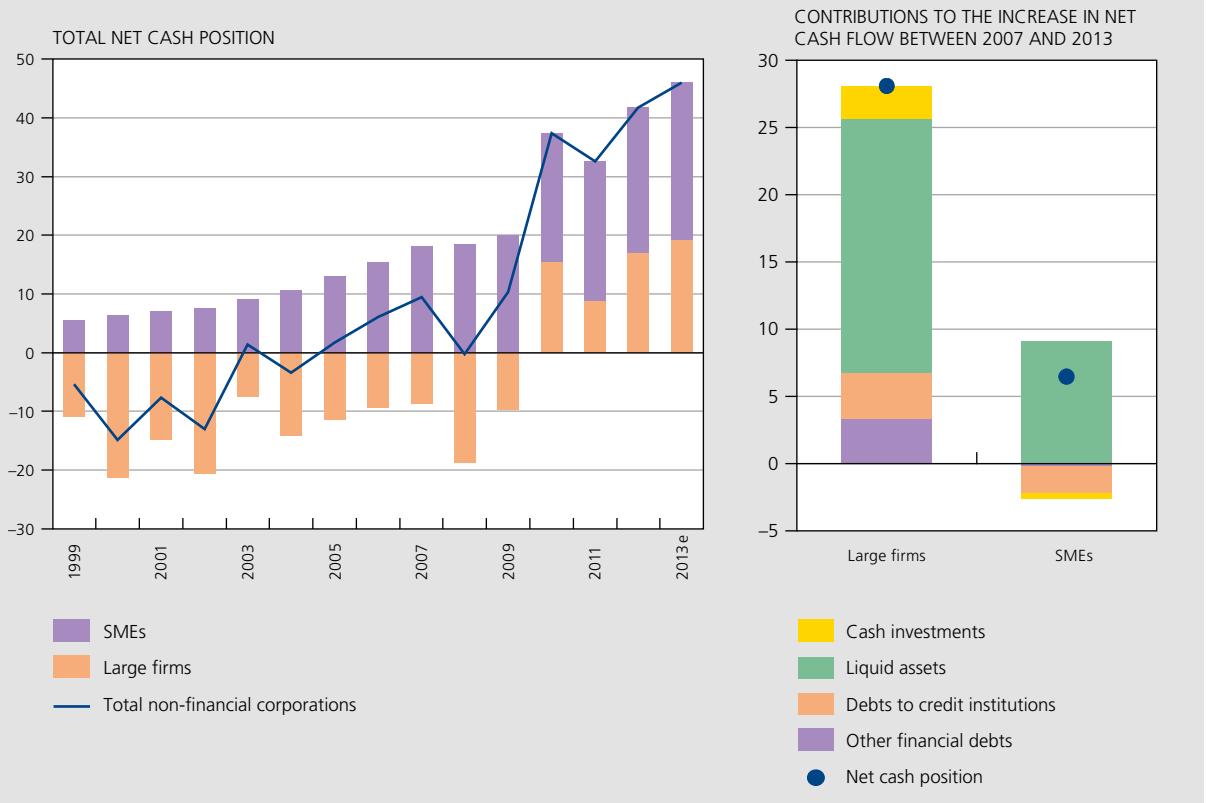
In globalised terms, chemicals and food are among the few branches with a negative net cash position ; that is very largely due to short-term debts contracted by a few large firms for the purpose of intra-group cash pooling. As already mentioned, these debts artificially reduce the net working capital of the firms concerned, whereas they are in fact a source of recurrent funding. In median terms, the net cash position is positive in all the branches studied. However, this favourable picture indicated by the median should not conceal the fact that a significant number of firms are in a less enviable position : every year, just under 20 % of the companies considered have a negative cash position.

3.3.3 Trend in the net cash position

Since the outbreak of the financial crisis, the net cash position of companies has ballooned from € 9.5 billion in 2007 to € 46.2 billion in 2013 (see chart 13). The expansion applies to both large firms and SMEs, and to the great majority of branches of activity studied (see Annexes 5 and 6). In general, this reflects increased prudence on the part of firms wishing to hold more substantial liquid reserves in order to cope with the uncertain economic conditions and the limits on borrowings. The expansion of the cash position is also the corollary to the drastic reduction in investment projects. That is reflected partly in the decline in the new tangible fixed asset ratio (see section 2.2).

Statistical analysis of the trend in the net cash position is particularly difficult because it involves a combination of complicated factors such as corporate results, periods for

CHART 13 TREND IN THE NET CASH POSITION
(in € billion)



Source : NBB.

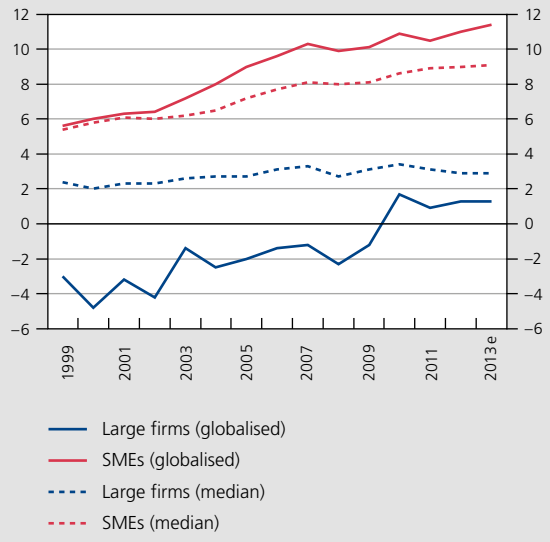
the realisation of short-term assets and liabilities, investment flows and the capital remuneration policy. Such an analysis is beyond the scope of this article and should be conducted at least at the level of each branch of activity. However, a number of general findings can be stated.

In large firms, the net cash position increased by € 28 billion between 2007 and 2013. It should be noted that, considered overall, the net cash position of large firms was negative until 2009. That situation was due mainly to the size of the other short-term financial debts which, as already stated, mainly comprise intra-group borrowings renewed on a regular basis. This funding method concerns a small number of large or very large companies, so that most large firms have a positive cash position. The main contributions to the growth of the net cash position of large firms come from components independent of intra-group funding : liquid assets were decidedly predominant (+ € 19 billion), ahead of debts to credit institutions, other financial debts and cash investments.

In the SME group, the net cash position has increased by € 9 billion since 2007 to € 19 billion in 2013. Liquid assets are the only component to have increased (+ € 11 billion), while debts to credit institutions made a negative contribution of € 3 billion and the other components had virtually no impact. We also find that SMEs have very few other short-term debts, which is logical since the vast majority of SMEs are not members of a group.

CHART 14 NET CASH POSITION AS A PERCENTAGE OF THE BALANCE SHEET TOTAL

(%)



Source : NBB.

Finally, as is evident from chart 14, the net cash position as a percentage of the balance sheet total has pursued an upward trend over the long term, particularly in globalised terms : in the space of fifteen years the globalised ratio increased from 5.6 % to 11.4 % for SMEs and from –3.0 % to 1.3 % for large firms. The trend in medians was less marked, especially in the case of large firms, for which the median remained very stable over the period, indicating that most large firms were not involved in the increase. The last point to note is that the cash ratio is structurally lower for large firms : apart from the intra-group funding of large firms which has already been mentioned, this situation is due mainly to a sounder basis requiring fewer precautions in terms of liquidity.

Conclusion

Over the year 2013 as a whole, the total value added created by non-financial corporations increased by 2.0 % at current prices. That is a slight improvement on 2012, when value added grew by 1.4 %. This came about despite the erosion of sales (–1.0 %), as total purchases recorded a larger fall (–1.7 %) owing to such factors as the decline in prices of industrial commodities, energy and food.

At the same time, the rise in staff costs was smaller because inflation subsided. Depreciation slowed down again, reflecting an investment policy which has become much more conservative since the outbreak of the financial crisis. In that regard, the tangible fixed asset renewal ratio has fallen very steeply in recent years, and is now well below its long-term average.

Total operating costs, which are largely determined by staff costs and depreciation, were up by 2.1 % in 2013 ; this controlled rise was very similar to the growth of value added. Following these movements, there was a very modest improvement in the net operating result (+1.8 %) which totalled € 31 billion in 2013, thus ending a period of erosion in both 2011 (–1.7 %) and 2012 (–5.9 %).

According to most of the criteria considered, profitability was down again in 2013. The profit ratios of large firms were particularly hard hit by the recent fluctuations in activity, so that they are now at their lowest level for ten or even fifteen years. That finding holds for almost all branches of activity considered. Overall, SME profitability has been more resilient, as SMEs are less concentrated on industrial activities and international trade.

Corporate financial independence has been relatively stable for the past two years, owing to the reduced

attraction of the notional interest scheme (rate ceiling and reduction, abolition of postponement option). However, the picture varies from one branch of activity to another. Thus, in the case of head office activities, which comprise companies generally providing internal banking or cash management services for corporate groups, financial independence has diminished during the last few years under review, as these companies have become less inclined to hold their capital in Belgium. That development is reflected, for instance, in the statistics on net capital contributions based on the Moniteur belge : net contributions were negative in both 2012 and 2013, whereas they had been systematically positive in previous years, and actually reached record levels after entry into force of the notional interest scheme.

Analysis of the financial structure also shows a reallocation of external funding sources. Between 2008 and 2013, bank debts as a share of financial debts in fact dropped from 44.7 % to 34.3 %, while the share of bonds rose from 4.1 % to 10.5 %. Factors influencing this shift in the funding structure included the tightening of bank lending conditions and the renewed attractions of corporate bonds, as they offer better yields than sovereign bonds.

The last part of the article examines recent trends affecting corporate cash flows. The first point to emerge is that net cash positions have expanded strongly since the outbreak of the financial crisis, rising from € 9.5 billion in 2007 to € 46.2 billion in 2013. This increase reflects greater prudence on the part of firms, which want more substantial liquid reserves in order to cater for an uncertain economic context and the limitations of external funding. The cash flow expansion is also the corollary to the drastic reduction in corporate investment projects. The analysis likewise shows that the proportion of the cash held in liquid assets has risen sharply since 2008, mainly at the expense of term accounts, which have become less attractive since the start of the financial crisis.

Finally, the article offers a sectoral analysis of the concepts of net working capital and net working capital need. Statistically, there is a very strong positive link between the two variables : the greater the need for net working capital in a branch of activity, the higher the net working capital. That is logical, as firms build up a buffer according to their needs. It is also evident that the working capital is positive and relatively substantial in industry and construction, owing to the length of the operating cycle and the resulting time lag before payment is received. Conversely, most service branches have a negative need for working capital because, on the whole, these branches have a brief operating cycle, with speedy collection of payment and negligible inventories. The specific character of mass retailing is also very evident in a working capital need which is among the most negative in the Belgian economy.

Annex 1

SECTORAL GROUPINGS

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

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

Annex 2

DEFINITION OF THE RATIOS

	Item numbers allocated	
	in the full format	in the abbreviated format
1. Ratio of new tangible fixed assets		
Numerator (N)	8169 + 8229 – 8299	8169 + 8229 – 8299
Denominator (D)	8199P + 8259P – 8329P	8199P + 8259P – 8329P
Ratio = N/D × 100		
Conditions for calculation of the ratio:		
12-month financial year		
8169 + 8229 – 8299 > 0 (1)		
2. Net margin on sales		
Numerator (N)	9901 + 9125	9901 + 9125
Denominator (D)	70 + 74 – 740	70
Ratio = N/D × 100		
Condition for calculation of the ratio:		
Simplified format: 70 > 0		
3. Net return on operating assets		
Numerator (N)	9901	9901
Denominator (D)	20 + 21 + 22/27 + 3 + 40/41 + 490/1	20 + 21 + 22/27 + 3 + 40/41 + 490/1
Ratio = N/D × 100		
Conditions for calculation of the ratio:		
12-month financial year		
20 + 21 + 22/27 + 3 + 40/41 + 490/1 > 0 (1)		
4. Return on equity, excluding exceptional result		
Numerator (N)	9904 – 76 + 66	9904 – 76 + 66
Denominator (D)	10/15	10/15
Ratio = N/D × 100		
Conditions for calculation of the ratio:		
12-month financial year		
10/15 > 0 (1)		
5. Net return on total assets before tax and debt servicing, excluding exceptional result		
Numerator (N)	9904 + 650 + 653 – 9126 + 9134 – 76 + 66	9904 + 65 – 9126 + 67/77 – 76 + 66
Denominator (D)	20/58	20/58
Ratio = N/D × 100		
Condition for calculation of the ratio:		
12-month financial year		
6. Degree of financial independence		
Numerator (N)	10/15	10/15
Denominator (D)	10/49	10/49
Ratio = N/D × 100		

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

DEFINITION OF THE RATIOS (continued)

	Item numbers allocated	
	in the full format	in the abbreviated format
7. Average interest expense on financial debts		
Numerator (N)	650	
Denominator (D)	170/4 + 42 + 43	
Ratio = N/D × 100		
Condition for calculation of the ratio:		
12-month financial year		
8. Net cash position as a percentages of the balance sheet total		
Numerator (N)	50/53 + 54/58 – 43	50/53 + 54/58 – 43
Denominator (D)	10/49	10/49
Ratio = N/D × 100		

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

NUMBER OF NON-FINANCIAL CORPORATIONS, BY BRANCH OF ACTIVITY

(situation at 10 September 2014)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	*p.m. 2013*
Manufacturing industry	**21 448**	**21 516**	**21 756**	**22 001**	**21 848**	**22 000**	**21 641**	**22 303**	**22 149**	***17 327***
of which:										
Agri-food industries	3 615	3 712	3 776	3 823	3 786	3 816	3 767	3 898	3 875	*2 956*
Textiles, clothing and footwear	1 849	1 777	1 745	1 734	1 657	1 625	1 544	1 549	1 517	*1 180*
Wood, paper and printing	3 879	3 851	3 886	3 869	3 812	3 771	3 671	3 722	3 690	*2 898*
Chemicals industry	636	626	627	640	646	635	629	651	635	*522*
Pharmaceuticals industry	124	119	129	130	134	133	132	140	142	*121*
Metallurgy and metalworking	4 125	4 257	4 378	4 476	4 513	4 580	4 536	4 692	4 647	*3 622*
Metal manufactures	2 479	2 448	2 442	2 493	2 466	2 493	2 453	2 534	2 500	*1 999*
Non-manufacturing branches	**243 910**	**252 055**	**261 452**	**270 998**	**279 178**	**291 457**	**296 352**	**314 174**	**319 164**	***247 077***
of which:										
Trade in motor vehicles	10 450	10 499	10 706	10 873	10 632	10 833	10 703	11 175	11 174	*8 129*
Wholesale trade[1]	33 082	32 819	32 990	33 339	32 938	33 094	32 759	33 453	33 061	*26 092*
Retail trade[1]	32 764	33 891	34 775	35 638	35 476	36 443	36 321	38 234	38 181	*27 614*
Transport and storage	9 916	10 219	10 517	10 873	10 937	11 185	11 009	11 387	11 315	*8 515*
Hotels, restaurants and catering	16 259	17 390	18 173	18 854	18 702	19 436	19 449	20 920	20 884	*13 617*
Information and communication	11 623	12 269	12 841	13 537	14 290	15 135	15 699	16 903	17 553	*14 606*
Real estate activities	27 125	27 152	27 903	27 835	29 535	30 958	31 748	33 204	33 539	*27 225*
Business services	51 773	54 392	57 409	60 388	63 992	67 991	70 802	76 135	79 051	*65 321*
Energy, water and waste	959	974	1 008	1 063	1 133	1 202	1 293	1 416	1 491	*1 275*
Construction	30 605	32 524	34 525	37 027	38 545	40 999	41 840	45 130	46 397	*34 878*
Total	**265 358**	**273 571**	**283 208**	**292 999**	**301 026**	**313 457**	**317 993**	**336 477**	**341 313**	***264 404***

Source: NBB.

(1) Excluding trade in motor vehicles.

Annex 4

RATIO OF NEW TANGIBLE FIXED ASSETS, BY BRANCH OF ACTIVITY

(in %)

	2007	2008	2009	2010	2011	2012	2013 e
Manufacturing industry	**28.1**	**27.0**	**22.2**	**20.2**	**22.3**	**24.0**	**21.2**
of which:							
Agri-food industries	26.7	26.2	28.4	21.7	21.8	21.5	21.9
Textiles, clothing and footwear	25.5	24.9	17.8	18.5	22.8	21.6	23.2
Wood, paper and printing	26.8	25.1	19.4	18.5	16.9	18.6	17.9
Chemicals industry	29.0	22.6	14.9	18.8	23.4	31.4	22.5
Pharmaceuticals industry	33.5	30.6	37.9	22.9	25.8	25.2	22.7
Metallurgy and metalworking	26.8	27.1	19.9	18.6	21.3	20.2	17.1
Metal manufactures	30.3	33.1	22.8	21.2	21.7	20.7	17.5
Non-manufacturing branches	**22.0**	**25.4**	**18.7**	**16.5**	**18.4**	**16.1**	**15.5**
of which:							
Trade in motor vehicles	27.8	24.5	20.6	23.9	23.2	21.3	18.9
Wholesale trade[1]	30.2	28.4	21.9	21.9	23.9	22.5	21.7
Retail trade[1]	26.5	26.1	22.3	22.1	23.4	23.9	20.9
Transport and storage	25.0	48.5	19.0	14.9	16.6	12.6	17.5
Hotels, restaurants and catering	20.1	19.6	15.4	15.9	16.0	15.6	12.1
Information and communication	25.0	31.1	21.1	18.7	24.0	24.9	28.0
Real estate activities	11.4	11.3	10.6	9.8	13.1	9.9	9.9
Business services	38.7	37.6	27.3	26.8	31.4	28.6	24.1
Energy, water and waste	12.4	13.1	17.4	13.0	11.8	10.8	7.6
Construction	32.9	34.0	27.0	22.9	25.7	20.9	17.7
Total	**23.0**	**25.6**	**19.3**	**17.0**	**19.0**	**17.2**	**16.3**

Source: NBB.

(1) Excluding trade in motor vehicles.

COMPONENTS OF THE NET CASH POSITION

(in € million)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013 e
Large firms										
Cash investments	**25 496**	**33 871**	**36 414**	**40 932**	**46 707**	**43 629**	**51 420**	**47 455**	**43 973**	**43 360**
Own shares	846	1 097	1 445	869	1 051	1 234	1 382	1 662	1 567	1 563
Shares and other equity	1 267	2 676	3 262	1 869	3 582	5 049	4 343	3 417	3 543	3 540
Fixed-income securities	3 408	3 753	3 343	2 785	4 856	5 187	4 922	5 606	4 793	4 639
Term accounts	14 399	15 397	15 945	19 780	19 664	17 628	20 556	20 327	18 217	18 567
Other cash investments	5 576	10 948	12 418	15 628	17 554	14 531	20 216	16 444	15 854	15 052
Liquid assets	**14 468**	**16 092**	**18 124**	**20 039**	**21 212**	**25 565**	**30 338**	**30 039**	**35 285**	**39 012**
Financial debts at up to one year (–)	**54 040**	**61 433**	**63 826**	**69 664**	**86 642**	**78 878**	**66 277**	**68 613**	**62 216**	**62 990**
Credit institutions	21 536	26 916	29 568	29 787	40 608	32 765	25 244	25 609	27 342	26 431
Other financial debts	32 505	34 518	34 259	39 877	46 034	46 113	41 032	43 004	34 874	36 559
Net cash position	**–14 076**	**–11 470**	**–9 289**	**–8 693**	**–18 722**	**–9 684**	**15 482**	**8 881**	**17 042**	**19 383**
SMEs										
Cash investments	**5 817**	**6 636**	**8 052**	**10 481**	**11 314**	**9 628**	**9 420**	**10 573**	**10 043**	**10 377**
Liquid assets	**12 627**	**14 799**	**16 574**	**17 700**	**17 894**	**21 619**	**23 759**	**25 087**	**26 788**	**28 598**
Financial debts at up to one year (–)	**7 745**	**8 308**	**9 234**	**9 973**	**10 717**	**11 226**	**11 252**	**11 902**	**12 180**	**12 173**
Credit institutions	6 762	7 291	8 090	8 796	9 581	9 938	10 057	10 626	10 814	10 793
Other financial debts	983	1 017	1 144	1 177	1 136	1 287	1 195	1 276	1 366	1 380
Net cash position	**10 699**	**13 126**	**15 392**	**18 208**	**18 490**	**20 021**	**21 927**	**23 758**	**24 651**	**26 802**

Source: NBB.

NET CASH POSITION, BY BRANCH OF ACTIVITY

(in € million)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Manufacturing industry	**–16 959**	**–18 348**	**–13 915**	**–11 713**	**–19 342**	**–12 761**	**–5 906**	**–9 764**	**–4 124**	**–4 167**
of which :										
Agri-food industries	–2 409	–2 129	–2 084	–3 829	–4 885	–3 148	–2 324	–3 454	–2 603	–2 194
Textiles, clothing and footwear	–46	–89	–118	–147	–362	–182	16	63	134	305
Wood, paper and printing	–774	–1 043	–767	–1 698	–1 593	–1 311	9	128	735	79
Chemicals industry	–7 297	–7 895	–10 028	–7 793	–8 966	–7 752	–7 370	–12 188	–7 493	–7 092
Pharmaceuticals industry	–2 775	1 871	2 008	4 429	4 264	3 427	4 243	4 659	4 123	3 201
Metallurgy and metalworking	–408	–896	–1 018	–488	–1 366	–1 511	–521	144	682	827
Metal manufactures	–287	150	2 524	1 266	1 307	1 529	2 808	2 910	2 220	2 467
Non-manufacturing branches	**13 581**	**20 005**	**20 019**	**21 227**	**19 110**	**23 099**	**43 315**	**42 402**	**45 816**	**50 352**
of which :										
Trade in motor vehicles	–331	–788	78	323	–531	370	664	795	591	1 042
Wholesale trade[1]	–2 144	–3 495	–4 596	–1 996	–3 811	–2 475	–235	469	752	2 509
Retail trade[1]	2 366	3 281	3 940	3 309	3 044	2 248	3 595	4 097	4 359	4 376
Transport and storage	–384	2 004	2 200	4 077	4 760	3 429	5 769	5 621	4 787	4 348
Hotels, restaurants and catering	97	44	–479	–573	–90	–122	58	97	236	683
Information and communication	2 879	2 420	1 934	1 318	419	–3 468	2 528	2 899	1 833	1 246
Real estate activities	275	1 627	2 734	3 254	2 173	2 165	3 210	3 571	3 935	3 024
Business services	3 166	3 075	4 680	6 406	7 418	9 573	10 669	9 605	13 707	16 152
Energy, water and waste	4 411	7 988	4 815	–1 254	–3 507	603	6 017	3 700	3 435	4 397
Construction	779	1 036	1 525	2 328	2 028	2 322	2 685	2 828	2 821	2 250
Total	**–3 378**	**1 656**	**6 104**	**9 514**	**–232**	**10 338**	**37 409**	**32 638**	**41 693**	**46 185**

Source : NBB.

(1) Excluding trade in motor vehicles.

The 2013 social balance sheet

P. Heuse

Introduction

Information contained in the social balance sheet makes it possible to analyse the composition of the staff of firms that complete it, to measure staff changes, as well as to estimate the volume of hours worked, staff costs and the scale of employee movements during the course of the year. The social balance sheet is also a primary source of statistical information about the efforts made by companies each year to encourage training among their workforce, which enables progress in this field to be assessed on a regular basis.

With the exception of non-profit organisations, foundations and other legal entities governed by private law employing less than 20 FTE workers, all companies trading in Belgium are currently required to file a social balance sheet. The adoption, in June 2013, of Directive 2013/34/EU of the European Parliament and of the Council on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings and its transposition into national law, expected by July 2015, are likely to change this. Driven by the desire to simplify the administrative burden on small firms, this Directive sets maximum reporting requirements for the Member States as regards the content of the annual accounts of small companies. Information contained in the social balance sheet does not actually form part of the range of data that can be requested from them in this context. There are many valuable things that can be learnt from it, however.

The first part of this article contains an original analysis of the specific features of (very) small firms, based on information contained in the social balance sheets filed for the year 2012, the latest one for which data are complete and final. First of all, the characteristics of (very) small firms are compared with those of other categories of firms in terms of specialisation and geographical location. The article then goes on to look at the workforce particulars, working time and labour costs, as well as training policy. The analysis mainly revolves around the dispersion of individual results observed in each of these three fields.

The second part of the article follows the same lines as in previous years. It comments on changes in the main variables mentioned in the social balance sheets between 2012 and 2013, calculated from a reduced population of existing firms[1]. The first section describes changes in employment, first of all across the board for all firms in this population, then in those that filed a full-format, more detailed social balance sheet. The second section takes a look at information that firms have provided about staff training.

The two parts of this article can be read separately, which is why the same footnotes may appear twice.

1. Small and very small firms in Belgium : what specific features emerge from the social balance sheets ?

For several years now, simplification of administrative work has been on the agenda of both the Belgian federal government and the European authorities. A good many initiatives have been taken to this end by all levels of power.

(1) The characteristics of this reduced population are described in section 1.2 of Annex 1. It is comprised of companies that filed a social balance sheet for both 2012 and 2013 ; consequently, new companies and those that ceased trading during the course of the year 2013 are excluded from this population. The time needed to get information for all firms justifies this approach.

The impact of the measures that have been implemented in Belgium has been a substantial reduction in the administrative burden (associated with employment, taxation and the environment) borne by companies and the self-employed. Based on a survey carried out once every two years, the Federal Planning Bureau (Kegels Ch., 2014) has actually estimated that the cost borne by these entities came down from € 8.57 billion in 2000 to 6.36 billion in 2012, a drop of 26 %. This expenditure was equivalent to 1.70 % of GDP in 2012, compared with 3.48 % twelve years earlier. The bulk of these costs – i.e. 80.7 % of the total – is borne by companies, with the rest in the hands of the self-employed, a category that includes the liberal professions and businesses with no salaried staff. The survey findings show that 54.3 % of the total costs falling to companies were paid by small firms in 2012. Administrative burdens accounted for 5.6 % of their turnover. The costs are proportionally heavier for small structures : the amount per worker employed in this type of firm came to almost € 6 000, which is three times as much as in medium-sized enterprises and twelve times more than in large firms.

Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings is also part of the wider process of simplifying the administrative burden borne by European SMEs, while still endeavouring to improve the comparability of financial information published by the different Member States.

Under the terms of this Directive, the requirements imposed on firms vary depending on their size, which is determined according to a set of three criteria : the balance sheet total, net turnover and the number of FTE workers. The Directive refers to four categories of firm : micro-undertakings, small, medium-sized and large undertakings. The Member States must in any case allow for two categories, large and small firms, with the former possibly being subjected to wider reporting than the latter. Under no circumstances will small firms be required to report information that is not explicitly demanded by the Directive. The Member States also have the option, should they so wish, of drawing up specific accounting formats for medium-sized and micro-enterprises. The size of a firm will from now on be determined on an individual basis and no longer by taking account of whether it is part of a group or not, as is currently the case.

The transposition of the Directive into national law, which must be completed by 20 July 2015 at the latest, is likely to involve considerable easing of the red tape burden for European SMEs, depending on the options chosen by each Member State. In Belgium, maximum use of the simplification options could mean creating two new reporting formats, on top of the two existing ones (the full format – which applies to large firms – and the abbreviated format – filed by small firms). The content of the format intended for the very many micro-enterprises registered in the country could be quite minimalist. On the basis of data for 2012, the share of each type of reporting format could change from 6 % of the total for large firms and 94 % for small ones at the moment to 0.5 % for large firms, 2 % for medium-sized ones, 14.5 % for small ones and 83 % for micro-enterprises. Moreover, the rule formally prohibiting the Member States from adding any other statistical reporting requirements than those expressly laid down by the Directive to the annual accounts of small companies raises the question of whether the social balance sheet should be annexed to these financial statements in the future.

Without prejudice to the options that the Belgian authorities will choose here, the loss of information contained in the social balance sheet is likely to deprive analysts of information not available elsewhere, notably as regards staff educational levels or training. Nonetheless, filling out this form, at least the part that is not completed by social secretariats, is undoubtedly an administrative burden for firms. The dividing line between information that is strictly necessary and what is superfluous is a matter of political choice, which will not be discussed here.

The first part of this article endeavours to make the best use of the information available in the social balance sheets, the objective being to examine the level and dispersion of a series of variables – reported by all companies – depending on their size, or even their branch of activity or their geographical location, in order to detect any specific features amongst the smallest ones.

Like large firms, those that use an abbreviated format [1] have to submit information about the number of workers employed, the volume of hours worked and staff costs. They are nevertheless exempted from providing a gender breakdown of these variables, while large firms have been required to do so since 2012. The latter obligation helps narrow the gender wage gap, i.e. differences in pay between female and male staff [2]. Likewise, small firms are not required to give information about agency and seconded staff, nor do they have to specify the personal

(1) When it does not exceed more than one of the following ceilings for the two last accounting years closed, i.e. an average of 50 employees during the financial year, a net turnover (excluding VAT) of € 7 300 000 and a balance sheet total of € 3 650 000, any firm is authorised to fill up an abbreviated format of the social balance sheet, which contains less information than the full format. Nevertheless, if the annual average staff numbers exceed 100 units, it is obliged to file a full-format social balance sheet.

(2) See Heuse P., 2013, pages 103 to 105.

characteristics of workers who join or leave the company. On the other hand, the information given about training and particulars of employees at the end of the year is identical for both the full and the abbreviated formats.

For the purposes of this analysis, companies have been classified by size on the basis of one sole criterion: the number of workers employed[1]. Data related to turnover and the balance sheet total are not actually available for firms that file a one-off social balance sheet or a social balance sheet annexed to non-standardised annual accounts. The breakdown used in the analysis singles out micro-firms (that employ no more than 10 FTE workers – whether they have filed abbreviated or full-format social balance sheets –, also referred to hereafter as 'very small firms'), small ones (between 10 and 50 FTEs), medium-sized ones (between 50 and 250 FTEs) and large firms (more than 250 FTEs).

Various different statistical measurements have been used to study the dispersion of the observations: arithmetic average, median, quartiles, deciles, interdecile intervals. The arithmetic average is the sum of the values recorded for any quantitative variable divided by the number of observations. Consequently, it is a non-weighted average: each firm has the same weight, whether it is very big or very small. For a given variable, the median is the value that divides up the distribution of the observations classified in ascending order into two equal parts, while the values associated with the 1st and 3rd quartiles are those that separate respectively the first quarter of the distribution from the second and the third quarter from the fourth. It follows from this that 25 % of the firms have a result below the value noted at the 1st quartile and another 25 % have a result above the value recorded at the 3rd quartile. To further refine the analysis, one can add the values associated with the deciles, which, as their name suggests, are those that sub-divide the distribution into ten groups of the same size. When the distribution of the values is symmetrical, the median is equal to the average. When this is not the case, the interquartile or interdecile ranges enable the degree of asymmetry to be calculated.

(1) This methodology differs from that adopted under the EU Directive, which classes as micro-undertakings firms that do not exceed two of the three following thresholds: balance sheet total: € 350 000; net turnover: € 700 000; average number of employees: 10 FTEs. For small firms, the limits are: balance sheet total: € 4 000 000; net turnover: € 8 000 000; average number of employees: 50 FTEs. For medium-sized firms, they are respectively: balance sheet total: € 20 000 000; net turnover: € 40 000 000; average number of employees: 250 FTEs. Large firms are those that exceed two of the last three limits.

(2) Some of the micro-undertakings as defined in Directive 2013/34/EU – those which have less than one FTE worker on their staff register – are thus by definition left out of the analysis population.

1.1 Analysis population

The population used for the purposes of this analysis meets the quality criteria set out in Annex 1. In short, the companies selected are those which had filed a social balance sheet covering a twelve-month period ending on 31 December 2012 and which had at least one FTE worker[2]. Moreover, firms that had no staff registered at the end of the accounting year have also been excluded. This additional criterion can be explained by the fact that the behaviour of firms has been partly differentiated on the basis of the breakdown of staff numbers measured on this date.

In 2012, 83 912 companies had filed a social balance sheet meeting the above-mentioned terms. Micro-firms make up almost three-quarters of the firms in this analysis population. Since their staff numbers are by definition quite small – two-thirds of them count less than four

TABLE 1 ANALYSIS POPULATION IN 2012: BREAKDOWN BY FIRM SIZE

	Number of firms	Average employment, in FTE	*p.m. Average employment, in persons*	Number of firms	Average employment, in FTE
	(in units)			(in % of the total)	
Micro-firms (10 FTEs at most)	62 127	215 799	*259 653*	74.0	12.2
Small firms (more than 10 to 50 FTEs)	17 107	375 637	*420 112*	20.4	21.2
Medium-sized firms (more than 50 to 250 FTEs)	3 820	387 363	*432 614*	4.6	21.8
Large firms (more than 250 FTEs)	858	794 292	*898 373*	1.0	44.8
Total	**83 912**	**1 773 091**	***2.010 753***	**100.0**	**100.0**

Source: NBB (social balance sheets).

FTEs –, they only account for a little more than 12 % of the total staff employed. The relative shares of small firms in the total number of firms, on the one hand, and in total employment, on the other, are similar, equal to or slightly higher than 20 %. Medium-sized enterprises only account for 4.6 % of the total number of firms, but together they provide 22 % of the FTE employment. For their part, large firms employ almost 45 % of the workers in the analysis population, despite the fact that they only file 1 % of the total number of social balance sheets.

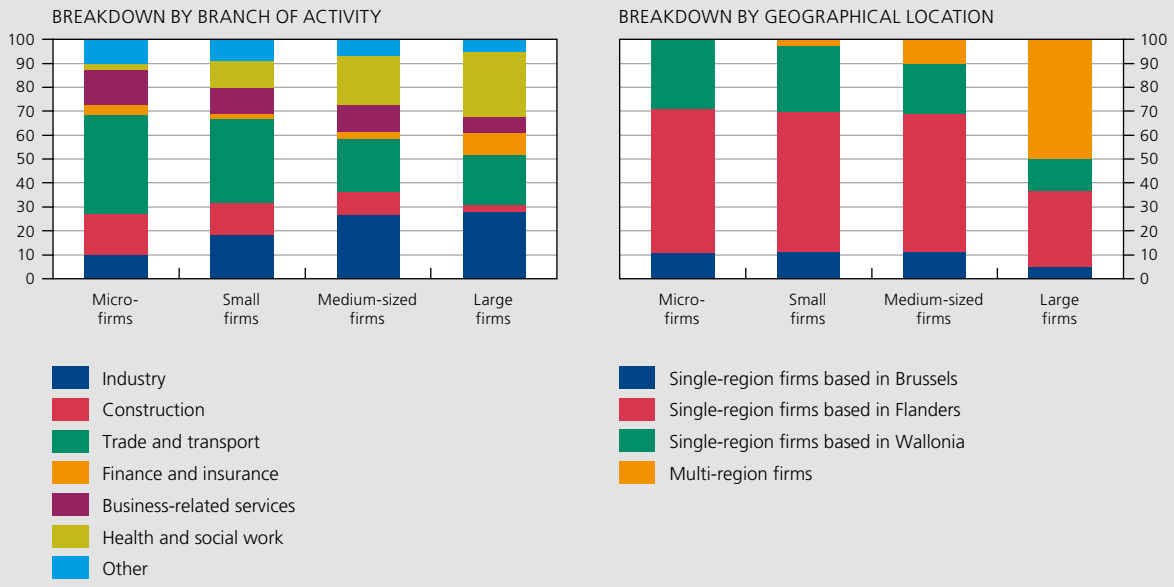
The specialisation of firms per branch of activity – measured by the yardstick of volume of employment expressed in FTEs – differs considerably depending on the category to which they belong. For example, the proportion of companies active in trade and transport becomes smaller the bigger the company is : 41 % of employment in micro-enterprises comes under this branch of activity, compared with only 21 % for large firms. A reduction in the relative share of employment can also be observed for activities like construction (which employs 17 % of micro-entreprise workers, compared with 3 % of large firms' workforces) and business-related services (14 % of employment in micro-firms, which is double the level recorded in large firms). On the other hand, the relative importance of branches like industry and health care – which still comprise very large companies, even though the restructuring efforts of the last few years have led to a marked contraction of staff numbers in some establishments – increases with firm size. In large and medium-sized firms, roughly 28 % of workers have an industrial-type job, while this is only the case for 18 % of employees of small firms and no more than 10 % of micro-firm staff. Furthermore, 27 % of the workforce of large firms is made up of health and social workers, compared with scarcely 3 % in micro-firms. In small and very small firms, one in every ten workers has a professional activity that comes under agriculture, information and communication, real estate or other services (notably culture and leisure), grouped together in this part under the term 'other (branches)'. The proportion of workers in finance and insurance is limited to respectively 4 and 2 % in small and very small firms, while it is as much as 9 % in large ones.

Virtually all micro-enterprises and small firms are located in just one of Belgium's three Regions[1]. There are scarcely more than a hundred or so multi-region firms in the first group and about 340 in the second. The employment breakdown by Region is quite similar : roughly 60 % of employees from companies that are solely active in Flanders and a little less than 30 % from firms established in Wallonia, while

(1) Single-region firms are those which have their head office and operating establishment(s) in one and the same Region. Multi-region firms operate in more than one Region.

CHART 1 ANALYSIS POPULATION IN 2012 : SPECIALISATION AND LOCATION BY FIRM SIZE

(in % of the total, average employment expressed in FTE)



Source : NBB (social balance sheets).

(1) Single-region firms are those with headquarters and the seat(s) of operation are installed in a single Region. The multi-regional firms are based in more than one Region.

CHART 2 ANALYSIS POPULATION IN 2012: SPECIALISATION OF SINGLE-REGION MICRO-FIRMS AND SMALL FIRMS

(in % of the total, average employment expressed in FTE)

	Micro-firms			Small firms		
Number of firms	6 890	37 654	17 472	1 957	10 006	4 801
Number of workers in FTEs	23 741	129 730	61 717	42 602	219 397	104 277

Source: NBB (social balance sheets).

11 % are employed by companies that operate exclusively in Brussels. In large firms, on the other hand, half of all employees are linked to a multi-region enterprise.

An obvious similarity in specialisation can be noted between small firms based exclusively in Flanders and those that only operate in Wallonia. However, those trading within the Brussels-Capital Region show substantial differences. The resemblance between Flanders and Wallonia is particularly strong for the micro-firms: in the two Regions, roughly 70 % of FTE employment is concentrated in industry, construction and the trade and transport branch. This latter branch counts some 40 % of the workers of the micro-firms in each of the country's three Regions. In Brussels, on the other hand, the services sector largely dominates micro-firms' business activity: outside trade and transport, 46 % of employment is concentrated in various market or non-market services, and barely 12 % of FTE employment is in the manufacturing industry and construction. This preponderance of the services sector is related to the urban nature of the Brussels-Capital Region, more suitable to the supply of services than to goods production. And this same dominance can also be observed for firms counting 10 to 50 FTEs. The small firms' activities generally tend to be more varied than those of micro-enterprises: in Flanders and in Wallonia, industry is more developed, but construction is proportionally smaller. The relative share of trade and of transport is also lower, especially in Brussels and Wallonia. According to the Region, respectively 7 to 16 % of small firms' staff are employed in the health and social work branch, compared with 2 to 5 % of micro-firms' staff.

1.2 Workforce characteristics

The social balance sheets enable the composition of company workforces to be examined, notably by gender and by working arrangements, as well as by educational level and type of contract. In this section, we have chosen to highlight four groups of workers, often regarded as being 'at risk' on the labour market: the first two are respectively women and those with lowest skills, since their employment rate is respectively lower than that for men and for people with higher education diplomas; the other two groups are part-time workers and workers with a temporary contract, as these people are sometimes obliged to accept such jobs having failed to find a full-time or a permanent job and whose working conditions are consequently insecure. The presence of

these groups in the four size categories of firms is far from uniform.

Whereas, on average, the proportion of female employees in workforces seems to be relatively consistent (ranging from 36 to 43 % depending on the size of the firms, with the highest rates recorded in micro-firms and in large companies), the range of findings is quite different: micro-firms are split into those that only employ men (35 % of the total) – which get a ratio equal to 0 % –,

CHART 3 WORKFORCE CHARACTERISTICS IN FIRMS FROM THE ANALYSIS POPULATION IN 2012: DISPERSION OF OBSERVATIONS BY FIRM SIZE

(in % of the total, data as at 31 December)

Source: NBB (social balance sheets).

(1) Less-skilled workers are those with primary or secondary school qualifications.

(2) Temporary workers are those who are employed under a fixed-term contract, a substitution contract or a contract concluded for a specific project. In this chart, the average and median values should be read on the right-hand scale.

those that only employ women (21 %) – where the feminisation rate is 100 % –, and those whose workforces have a mixture of men and women (44 %). The staff gender mix is much more widespread in the other groups of companies : among small firms, almost 90 % have staff composed of both men and women, a proportion that comes close to 100 % in medium-sized and large firms.

It is almost exactly the same picture for part-time staff, the majority of whom are women too. On average, the micro-firms provide jobs for 29.4 % of part-time workers and large ones for 28.3 %, with the average observed in the other two groups being a bit less. The dispersion of results is greater in micro-enterprises : 11 % of them only employ part-time workers and 46 % only full-time workers. Among small companies, it is further noted that 16 % of them only have full-time staff, but less than 1 % of them employ solely people working reduced hours. Among the biggest firms, cases of fully homogeneous workforce compositions of one or the other working arrangement are even more rare.

Information about the breakdown of workers by qualification is undoubtedly the least reliable among data giving a decomposition of workforces according to their personal characteristics. The social balance sheet effectively makes provision for companies to break down their workforce according to employees' educational level – setting four forms of education for this (primary, secondary, higher non-university and university education) – separately for men and women. Analysis of the information sent in shows that it is not rare for companies to make reporting errors that result in a sum of components that is different from the total. Also, owing to a lack of information, companies sometimes tend to lump all their employees in one and the same category. Obviously, it is not possible to correct any anomalies nor detect whether a uniform distribution is actually caused by real facts or by missing statistical returns in individual companies. The social balance sheet data have therefore been used just as they are. They show that there are on average proportionally more less-skilled workers, defined here as those with at best primary or secondary education qualifications, in micro- and small firms than in larger ones.

Among micro-enterprises, a very clear predominance of employees with primary or secondary education qualifications can be noted : 72 % of them only employ workers that have this educational level ; at the other end of the scale, 11 % of these small firms report that they only have employees with higher education diplomas on their staff. On average, the proportion of less-skilled workers comes to 82 % in micro-enterprises. The situation is not much different in small firms where, on average, 78 % of less-skilled workers can be found, even though the proportion of companies using only this type of labour is a lot smaller (42 % of the total). These observations must be seen alongside the specialisation of micro- and small firms, whose business is mainly oriented towards trade and transport, construction and industry, where educational requirements generally tend to be lower. It should also be added that the skills needed to carry out some of the occupations in these branches of activity are acquired on the job, through an apprenticeship contract, which in turn leads on to a secondary education qualification.

In larger-sized enterprises, more variety in terms of qualifications can be found. On average, 64 % of the staff employed in large firms are less-skilled workers ; in one quarter of these firms, this figure is less than 45 % ; and in one in every ten firms, it is even less than 24 %, which logically infers that the percentage of staff with higher education diplomas exceeds 76 % here. The proportion of highly-skilled workers is in fact particularly large in banks and insurance companies, as well as in hospitals, which account for a sizeable share of large firms.

As regards employment contracts, micro-firms also give a much clearer-cut picture than larger enterprises. On the one hand, they include companies whose entire staff has been hired under a permanent contract (80 % of the total) and, on the other hand, firms that make wide use of temporary work (16 % of all firms employ at least 20 % of their staff under a fixed-term contract, a substitution contract or a contract concluded for a specific project). These particulars may stem from the fact that, owing to their small size, micro-enterprises cannot allow themselves the luxury of any significant rotation of their employees, for fear of jeopardising their business : offering an open-ended contract from the outset is therefore a way of having a more stable workforce, especially since, as the next section will show, pay conditions are generally less favourable in these firms than in larger ones. At the same time, in view of their small workforces, recruitment of just one temporary worker – for a fixed term or for a specific task, or even because the new recruit is an apprentice or an intern whose contract is naturally short-term – can be reflected by a high percentage of temporary staff. Thus, in 7 % of very small firms, the share taken up by temporary employees is equal to or higher than 50 %. These observations influence the average, which works out at 7.6 % for this category of firm, one percentage point more than for small firms and two percentage points more than for medium-sized and large enterprises. The diversity of findings tends to narrow with increasing firm size : 90 % of those employing more than 250 FTEs record a proportion of workers

under a temporary contract below 14 %; this limit rises to 17 % for medium-sized enterprises and 22 % for small firms; coming to as much as 33 % in micro-firms, this threshold is more than twice as high as that observed in large firms.

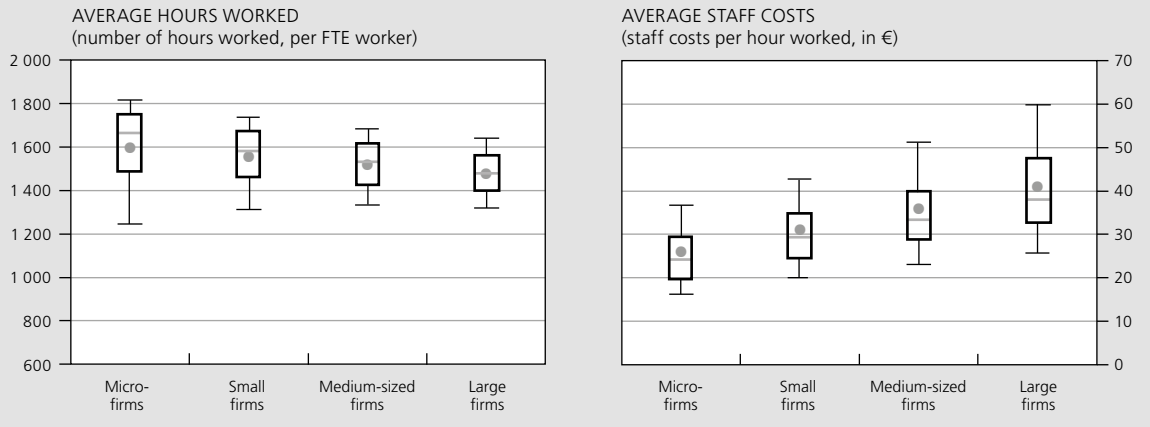
1.3 Hours worked and staff costs

In the firms covered by the analysis population, the average duration of work was 1 584 hours per FTE in 2012. Given that this is an average that is not weighted by employment, this level is strongly influenced by information coming from micro-firms, because they are the most common. In these entities, average hours worked are higher than those registered in the other groups of companies. With an average of 1 597 hours per FTE, annual working time in fact exceeds the levels recorded in small, medium-sized and large firms by 2.6, 4.8 and 7.5 % respectively. There is also much greater variability here: in 10 % of the micro-enterprises surveyed, annual working time per FTE is less than 1 247 hours, while in the same proportion of these companies again, more than 1 818 hours are worked per year; there is a difference of 571 hours between these thresholds. In large enterprises, they come to respectively 1 321 and 1 641 hours and there are only 321 hours separating them. The distribution of the results is quite symmetrical in the case of large firms: the differences between the median, on the one hand, and the values at the 1st and 9th deciles, on the other, are quite similar in size, at respectively 153 and 167 hours. However, wider variations among the findings can be noted in smaller-scale companies, especially for observations below the median. The gap between the latter and the value at the 1st decile is 414 hours for micro-enterprises – more than two and a half times the level recorded for large firms – and 270 hours for small businesses.

The average cost of one hour's work in firms covered by the analysis population was € 27.7 in 2012. A clear increasing relationship between staff costs and firm size can be seen. In very small firms, the average cost was € 26 per hour worked. In small firms, it came to € 5.1 more; in medium-sized and large enterprises, it reached respectively € 35.9 and 41. Unlike the observations established for the average number of hours worked, the dispersion of the findings concerning staff costs is wider in large enterprises than in smaller ones, and it is more marked for the results above the median. The deviation between the median and the value recorded at the 1st decile is € 8.3 in the case of micro-enterprises, about € 10 for small and medium-sized enterprises and € 12.3 for large ones. On the other hand, the difference between the median and the value noted at the 9th decile comes to respectively € 17.7 and 21.9 for medium-sized and large enterprises, compared with about € 12 for micro- and small firms.

Since particular interest is being paid to micro- and small firms and these are mainly businesses active in just one Region and specialised in trade and transport, construction or industry, it seemed interesting to examine

CHART 4 HOURS WORKED AND STAFF COSTS IN FIRMS IN THE ANALYSIS POPULATION IN 2012: DISPERSION OF OBSERVATIONS BY FIRM SIZE (1)



Source: NBB (social balance sheets).

(1) The box plots read as follows. The upper and lower boundaries of the box correspond respectively to the 1st and 3rd quartiles. The line inside the box represents the median. The boundaries of the upper and lower whiskers correspond respectively to the 1st and 9th deciles. The grey point indicates the average.

whether or not pay conditions are homogeneous across these companies. For each of the branches of activity considered separately, the companies have been grouped together according to their size and the Region where they are based. In the case of the trade and transport branch, the three Regions have been taken into account; but for construction and industry, the analysis has been limited to companies operating in Flanders and in Wallonia, in view of the very small number of Brussels-based firms carrying out such activities. In all, the companies selected account for 62 % of micro- and small firms, and for 55 % of their staff numbers (i.e. 322 500 FTEs in total); they employ 22 % of the entire workforce across the analysis population.

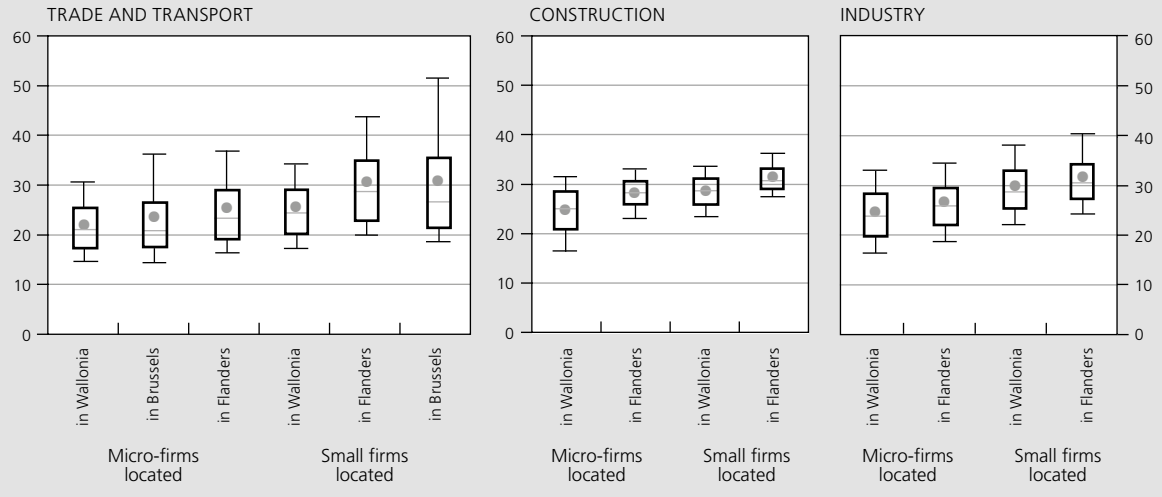
Whatever the branch of activity, the average hourly costs are lower in Wallonia than in Flanders, and for both micro-enterprises and small firms. The average observed for Brussels-based micro-enterprises active in trade and transport falls somewhere between the levels recorded in Wallonia and Flanders, while the average observed for small firms based in Brussels is very slightly higher than that obtained for Flemish firms.

Generally speaking, it is in the trade and transport branch that hourly costs are the lowest. The average across the various sub-groups varies between € 22.3 and 31. In the other two branches of activity, it fluctuates between roughly € 24.5 and 31.5. The lower figure in trade and transport can be explained by the conditions prevailing in micro-enterprises in the three Regions: in both Wallonia and Flanders, average hourly wage costs in this branch of activity are 4 to 9 % lower than those recorded in construction and industry; the average of the results collected for Brussels-based micro-enterprises is of the same magnitude as that calculated for their Flemish and Walloon counterparts.

Even though pay conditions are less favourable on average in trade and transport than in the other branches, it should be noted that the observations here are also much more widely dispersed. The range of activities covered by this branch of activity possibly has something to do with this. In construction, for example, where the work is more similar and where there is fierce competition from foreign workers, differences in pay conditions are much less pronounced, both between the various groups of companies under consideration and within each of these groups: the gap separating the values observed at the 1st and the 9th deciles is particularly small here – € 10 at most –, except for the Walloon micro-firms group, where it comes to € 15. In industry, the averages posted for hourly staff costs are quite close to those recorded in the construction sector for each of the groups of companies, but there is much more variation in the results, since the interdecile intervals are close to € 16 here. In trade and transport, on the other hand, the difference between the values at the 1st and the 9th deciles varies from € 16 to € 33,

CHART 5 STAFF COSTS IN MICRO- AND SMALL FIRMS IN THE ANALYSIS POPULATION IN 2012: DISPERSION OF OBSERVATIONS BY BRANCH OF ACTIVITY AND LOCATION (1)

(staff costs per hour worked, in €, ranking in ascending order based on the average value observed in the groups of companies)



Source: NBB (social balance sheets).

(1) The box plots read as follows. The upper and lower boundaries of the box correspond respectively to the 1st and 3rd quartiles. The line inside the box represents the median. The boundaries of the upper and lower whiskers correspond respectively to the 1st and 9th deciles. The grey point indicates the average.

with the highest figure recorded for small Brussels-based firms. Moreover, the breakdown of the findings is largely asymmetrical in this branch of activity: for each group of companies, the difference between the median and the value corresponding to the 9th decile is much bigger than that measured between the median and the value at the 1st decile.

1.4 Training policy

As far as training is concerned, it is widely claimed that people employed in smaller companies have fewer opportunities to brush up their knowledge or acquire new skills than workers in large firms. The European Continuing Vocational Training Survey (CVTS[1]), which measures training efforts made by firms with more than ten employees and falling under branches of activity B to N and R to S in the NACE Rev.2 classification, shows that the proportion of training firms, and likewise the rate of participation by workers in classes and training courses given in their company or outside, is actually lower in small structures than in large ones.

The information given in the social balance sheets about training confirms that the proportion of training firms, that is those which mention employees attending training courses, increases with size. The administrative burden that is involved with collecting and summarising the information related to training needed to fill up the social balance sheet should not be underestimated. The data requested are actually relatively detailed, since all firms – filing both the full and the abbreviated format – are required to break down the number of workers benefiting from training, the hours devoted to it and the associated costs by gender, and to do this separately for formal, informal and initial training[2]. Reporting such information is an administrative burden that companies cannot delegate to their social secretariat, unlike the data concerning staff, working time or remuneration. It is therefore possible that some small firms fail to set up the necessary procedures for recording their training efforts, even when they do arrange training activities intended for their workers.

In the analysis population, barely 6 % of the micro-enterprises report that one or more of their employees have followed a formal training activity; this proportion comes to less than 5 % for informal and initial training. Among those that employ between 10 and 50 FTE employees, 29.1 % are formal trainers, 15.5 % have arranged informal training and 9 % apprenticeships and internships. Among the medium-sized and large enterprises, there are respectively almost 75 and 95 % of firms offering formal training. The shares taken up by informal and initial training firms are also relatively bigger here than in smaller enterprises, reaching respectively about 71 and 22 % in the case of the large ones.

TABLE 2 TRAINING FIRMS IN THE ANALYSIS POPULATION IN 2012: BREAKDOWN BY FIRM SIZE

	Training		
	formal	informal	initial
Micro-firms	6.0	4.4	4.6
Small firms	29.1	15.5	9.0
Medium-sized firms	74.8	42.7	13.9
Large firms	94.9	71.3	22.5

Source: NBB (social balance sheets).

When calculating the training indicators just for the training firms included in the analysis population, it has to be said that workers in micro-firms do not always come out so well.

The formal training participation rate, which compares the number of beneficiaries with the average number of workers, effectively worked out at 62 % on average in micro-firms in 2012, higher than the figure observed in the other size categories of firms. Admittedly, in firms with a very small workforce, one sole employee in training (even for just one hour) can lead to very high participation rates; it is even possible to exceed the 100 % mark, when some workers are replaced by others. It should nevertheless be stressed that half the micro-firms surveyed post participation rates of between 33 and 92 %, which is not so different from the rates prevailing in large firms, where these thresholds come to respectively 33 and 82 %. These levels are lower for small and medium-sized firms.

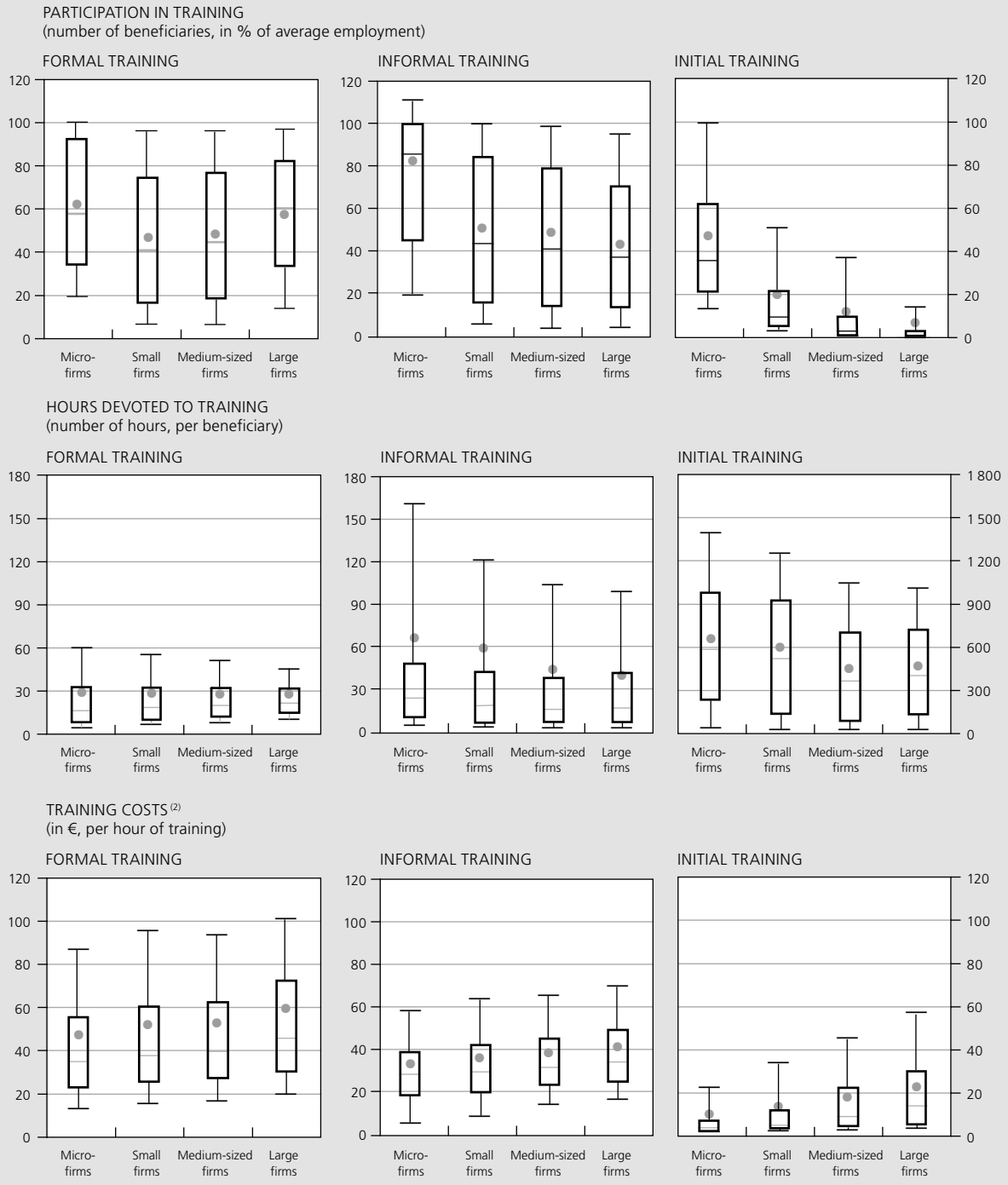
In the field of informal and initial training, the behaviour of micro-firms can be clearly distinguished from that of the other groups of companies. In half of them, the informal training participation rates exceed the 86 % mark, while, for the other size groups, the median is around 40 %. There are also proportionally more

(1) The CVTS (Continuing Vocational Training Survey) is a harmonised European-wide survey that aims to measure the efforts made by companies to train their employees. It is carried out once every five years. The latest results available are for the year 2010. The findings for Belgium are published by the FPS Economy, SMEs, Self-employed and Energy: http://statbel.fgov.be/fr/modules/publications/statistiques/marche_du_travail_et_conditions_de_vie/enquete_sur_la_formation_professionnelle_continue.jsp (French version).

(2) Formal training covers courses and practical classes designed and given by training staff in premises separate from the workplace. Informal training includes other apprenticeship activities, planned according to the learner's needs, and including training in the workplace. Initial training is intended for workers under schemes alternating training and practical work experience, with a view to acquiring a diploma.

micro-enterprises offering apprenticeships and internships. On average, 47 % of workers benefited from some initial training in these firms, which is more than double the proportion recorded in small firms (20 %). This ratio comes to respectively 12 and 7 % in medium-sized and large firms.

CHART 6 TRAINING PROVIDED IN TRAINING FIRMS IN THE ANALYSIS POPULATION IN 2012: DISPERSION OF OBSERVATIONS BY TYPE OF TRAINING AND FIRM SIZE (1)



Source: NBB (social balance sheets).

(1) The box plots read as follows. The upper and lower boundaries of the box correspond respectively to the 1st and 3rd quartiles. The line inside the box represents the median. The boundaries of the upper and lower whiskers correspond respectively to the 1st and 9th deciles. The grey point indicates the average.

(2) Training costs are net costs, obtained by deducting from the gross cost subsidies and other financial benefits received. The net costs of formal training also comprise contributions paid and payments to collective funds.

Individual results as regards participation rates vary considerably, whatever the company category or type of training envisaged. In the case of initial training, that is particularly true for micro-firms, because this type of initiative is proportionally less widespread in the largest enterprises. Major differences between companies also appear for the average number of hours of training followed by a beneficiary, as well as for hourly training costs.

It is for initial training that the time spent training is the longest, which is not at all surprising since, in principle, these tend to be training courses alternating school classes and in-company work experience over a period of at least six months. Under this kind of scheme, all hours spent in the workplace are considered as training. Differences between companies are particularly marked for the smallest of them: in half of the micro-firms surveyed, the hours devoted to training per apprentice or intern ranges on average from between 230 and 980 hours a year, but 10 % of them report more than 1 392 hours. In medium-sized and large enterprises, on the other hand, the threshold for the 9th decile is just over 1 000 hours per beneficiary. As noted in the previous section, it is among the micro-firms that the longest annual working hours are reported; so it is not surprising that young workers on initial training schemes calculate their working time on that of their colleagues and/or boss.

Although initial training is marked by much longer time spent training, it is also subject to lower hourly costs: apprentices actually receive an apprenticeship grant that varies with age, but is still way below the minimum wage; in some cases, employers may also take advantage of extra subsidies, which have to be deducted from gross costs. On average, in micro-enterprises, the cost of one hour of initial training is € 10. This figure rises to € 13 in small firms. It is much higher in medium-sized firms (€ 18) and in large ones (€ 23). Of course, this can be partly explained by the fact that one-third of large training firms are hospitals, which have a lot of interns (doctors) in training, whose pay is well above that of workers under an industrial apprenticeship contract. It is also possible that the results are skewed by accounting errors: some companies do seem to be including induction modules organised for their new recruits – whose hourly wage is higher than that for people involved in vocational training schemes – in the table on initial training.

As far as formal training is concerned, the differences observed between the size groups of companies in terms of hourly costs contrast strongly with the relative homogeneousness recorded for time spent training per participant. The annual average time spent training is between 28 and 29 hours par beneficiary in each of the size categories of companies. For hourly costs, on the other hand, average costs are € 47 per hour of training in micro-firms, while they exceed € 50 in the other three categories and even approach the € 60 mark in large firms. This is not at all surprising, given that wages of workers in training are in principle included in the training costs and staff costs per hour worked are higher in large firms than in smaller ones. Both in duration and costs, the distribution of the observations is asymmetrical in all groups of companies: more than two-thirds of the difference between the values noted at the 1st and the 9th deciles comes from figures over and above the median.

An increasing relationship between training costs and firm size is also noted for informal training: this costs on average € 34 an hour in micro-firms, € 37 in small firms and more than € 40 in the largest companies. Although the diversity of the results, measured by the gap separating the values observed at the 1st and the 9th deciles, is quite similar in the different categories of firms, a more pronounced asymmetry can be seen in large firms, tending towards values over and above the median. On the other hand, as far as the average time devoted to training is concerned, the smaller the firms, the more varied are the findings: we note, for example, that 10 % of the firms that record higher figures mention time spent training per participant of more than 160 hours in micro-enterprises and over 121 hours in small firms, while these figures are closer to 100 hours in larger companies.

2. Principal information collected from the 2013 social balance sheets

Since the full population of firms filing social balance sheets is only available about fifteen months after the accounting year is closed, not all the accounts for the year 2013 had been filed with or validated by the Central Balance Sheet Office by 19 September 2014, when the data needed for this analysis were extracted. And as the results obtained from using the accounts that were in the database on this date cannot be compared properly with those from the full population for 2012, the changes mentioned in the second part of this article have been calculated for companies that completed a social balance sheet of sufficiently high quality for both the years 2012 and 2013. Working with a constant population of existing firms implies that neither newly-established firms nor those that have ceased trading during one of these two years are taken into consideration. The trends observed can therefore differ from those recorded under the total population or, wider still, in the national accounts, where the employee log is exhaustive. They are also biased in favour of developments registered in large firms: because

there are more of them filing their social balance sheet by the deadline and the Central Balance Sheet Office gives priority to processing and checking large firms' accounts, proportionally more large firms are actually found in the reduced population than in the total population.

Nevertheless, the constant population that has been used (also referred to as the reduced population), even though it is more limited than the total population, is broadly representative. It features 50 365 companies, or 59 % of the social balance sheets taken from the total population for the year 2012. Together, these companies employed 1 573 347 workers in 2012, which is 78 % of the total population's workforce and 59 % of the corresponding private sector salaried employment[1] mentioned in national accounts statistics.

2.1 Changes in employment

2.1.1 All firms

In view of the sluggish growth in the volume of business – GDP rose by merely 0.1 % in 2012, then by just 0.3 % in 2013 –, salaried employment, which normally reacts to fluctuations in activity with a certain time lag, still increased very slightly in 2012 according to the national accounts, before falling back by 0.5 % in 2013.

In the firms included in the reduced population – which we should stress once again is composed of a stable population of existing companies –, the number of workers rose by 0.5 % as an annual average in 2013. It was the increase in the number of part-time workers, which reached 1.6 %, that was behind this progress because the number of full-time workers remained stable. There was nevertheless some deterioration during the course of the year, so that by 31 December 2013, the number of workers employed was 0.2 % less than that observed one year earlier. The number of full-time workers shrank from one year-end to the next, while the pace of growth in part-time staff slowed down.

It was firms counting more than 250 FTE workers that account for the drop in employment observed between the end of 2012 and the end of 2013 : the number of employees shrank by 1.1 % in these companies, while it actually increased in smaller firms. The job losses involved almost exclusively full-time posts in large enterprises, while part-time staff numbers remained virtually unchanged. In smaller firms, the expansion of employment was largely based on growth in the number of employees working reduced hours. In medium-sized enterprises, this is what explains the entire increase. Among the small firms, the extra part-timers helped offset the contraction in the number of full-time workers, observed principally in the industry, construction and trade and transport branches. Lastly, in micro-enterprises, the same trend was accompanied by an increase in full-time jobs too.

Employment trends contrast widely from one branch of activity to another. In industry and construction, the number of workers has dropped respectively by 3 700 and 2 700 units, declines of 1 and 2.4 %. Most of the lost full-time jobs have been recorded in these branches : out of a total of 7 853 job destructions of this type, about 3 600 have been shed in industry and almost 2 600 in construction. Jobs have also been lost in some services sectors : the information and communication and finance and insurance branches have each shed more than 1 300 workers, which corresponds to declines of respectively 2.2 and 1.4 %. The trade and transport branch has managed to limit the damage (just under 700 jobs destroyed, a fall of 0.2 %), with extra part-time jobs partly offsetting the decline in full-time

(1) Private sector salaried employment, i.e. salaried employment recorded in the total economy (S1), less salaried employment in the general government sector (S13) and in the households sector (S14). Also left out of this concept are workers employed in NACE-BEL divisions 78 (employment-related activities), 84 (public administration and defence; compulsory social security) and 85 (education).

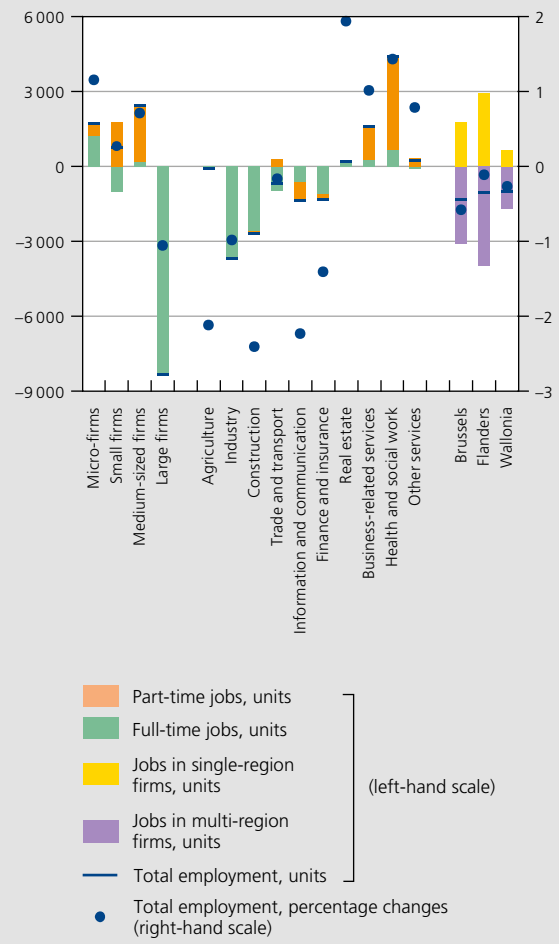
TABLE 3 CHANGES IN EMPLOYMENT BETWEEN 2012 AND 2013
(reduced population)

	Full-time workers		Part-time workers		Total	
	In units	In %	In units	In %	In units	In %
Annual average	341	0.0	7 501	1.6	7 842	0.5
As at 31 December	–7 853	–0.7	4 455	0.9	–3 398	–0.2

Source : NBB (social balance sheets).

CHART 7 CHANGE IN EMPLOYMENT BETWEEN END-2012 AND END-2013: BREAKDOWN BY FIRM SIZE, ACTIVITY AND LOCATION[1]

(data as at 31 December, reduced population)



Source: NBB (social balance sheets).

(1) Single-region firms are those whose head office and operating establishment(s) are located in just one Belgium's three Regions. They accounted for 98.3 % of firms in the reduced population in 2013, or 49 526 firms. The remaining 839, referred to as multi-region firms, have establishments in more than one Region. Their staff numbers recorded on 31 December were spread across the three Regions, according to an apportionment formula based on the establishment data gathered by the National Social Security Office, thus allowing the National Accounts Institute to break down employment according to the districts where a firm has its head office and its operating establishment(s). At the end of 2013, 61 % of employees from the reduced population were working in Flanders, 24.2 % in Wallonia and 14.7 % in Brussels.

staff numbers. However, the other services branches have seen their workforces expand, largely as a result of an increase in part-time employment. Employment gains have been particularly strong in health and social work (a little over 4 400 additional workers, a rise of 1.4 %) and in business-related services (around 1 500 extra jobs, or a 1 % increase).

A breakdown of employment by geographical Region where the work is done[1] reveals that salaried staff numbers have declined in each of the country's three Regions. The scale of the decline expressed in units is not very different: just over 1 000 jobs have been lost in Flanders and in Wallonia, and roughly 1 300 in Brussels. Expressed in percentages, however, the decline is greater in the Brussels-Capital Region (–0.6 %) than in the other two areas (respectively –0.3 % in Wallonia and –0.1 % in Flanders). Throughout the country, the dynamism of single-region firms in terms of job creation has nevertheless not been sufficient to compensate for the staff cuts in companies established in several Regions. The majority of the former are small (22 workers on average) and are mainly specialised in the trade and transport branch (between 21 and 24 % of employment depending on the Region) and health and social work (between 19 and 28 %). Added to these two branches are industry in Wallonia and in Flanders (respectively 27 and 28 %) and business-related services in Brussels (20 %). For their part, companies established in several Regions are mainly large-scale ones (556 workers on average) active in trade and transport (36 % of the total), industry (19 %) or finance and insurance (16 %), three branches where employment has contracted in varying degrees in 2013.

Overall, in Brussels, it was mainly the negative trends observed in the trade and transport, finance and insurance, and information and communication branches that influenced the global situation. In the other two Regions, the decline in employment is mainly explained by the shrinking workforces in industry and construction. In Wallonia, a deterioration in the employment situation in trade and transport was also recorded, while in Flanders there was a movement in the opposite direction. The increase in employment in the health and social work branch – which was particularly strong in Flanders and in Wallonia – and also in business-related services, was not enough, in any of the three Regions, to stem these downward trends.

A breakdown of employment by worker characteristics shows that male staff numbers fell by 0.7 % between 2012 and 2013 in firms from the reduced population, while, at the same time, the number of women employed has grown by 0.4 %. These trends are in line with those observed in the different branches of activity. Sectors where jobs have been lost are also those where workforces are predominantly male, while those where jobs have been created are branches where there are proportionally more women, even though a number of extra male workers were also hired in these branches in 2013. Overall, the relative share of women has risen, by about 0.3 percentage point on the previous year, so that,

(1) The method for regionalising employment and the characteristics of single-region and multi-region firms are featured in Annex 1, section 2.

TABLE 4 CHANGE IN EMPLOYMENT BETWEEN END-2012 AND END-2013: BREAKDOWN BY WORKER CHARACTERISTICS

(data as at 31 December, reduced population)

	Changes between 2012 and 2013		Levels in 2013	
	In %	In units	In % of the total	In units
Total staff registered [1]	**–0.2**	**–3 398**	**100.0**	**1 566 307**
Breakdown by gender				
Men	–0.7	–6 332	57.0	892 569
Women	0.4	2 934	43.0	673 738
Breakdown by type of contract				
Permanent staff	–0.3	–4 102	94.0	1 472 321
Temporary staff [2]	0.8	704	6.0	93 986
Breakdown by occupational category				
Manual workers	–1.1	–6 825	40.1	628 336
Clerical workers	0.2	2 115	57.7	904 142
Managerial and supervisory staff	2.8	636	1.5	23 177
Others [3]	6.8	676	0.7	10 652

Source: NBB (social balance sheets).
(1) Workers for whom the firm has submitted a DIMONA declaration or who are recorded in the staff register.
(2) Workers with a fixed-term contract, substitution contract or contract concluded for a specific project.
(3) Residual category, comprising apprentices and interns, among others.

by the end of 2013, they accounted for 43 % of the total workforce in the reduced population. For both men and women, the drop in full-time staff numbers has been accompanied by a rise in part-time staff. Consequently, the relative share of part-time work has grown for both gender groups, to reach 12.2 % of the male workforce (+0.2 of a percentage point) and 54.2 % of the female workforce (+0.3 point). Overall, the proportion of workers on reduced hours has risen from 29.9 to 30.3 % of all employees.

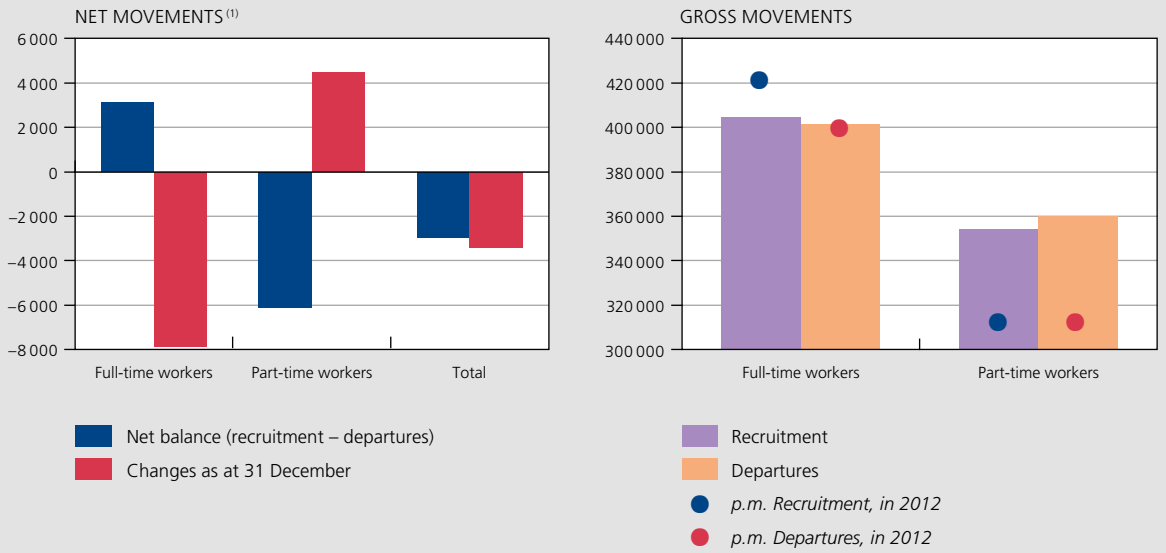
The decrease in the workforce between 31 December 2012 and the same date in 2013 was reflected in a net decline in the number of workers under a permanent contract of 0.3 %, or 4 102 people. This type of staff nevertheless remains widely predominant, since it still made up 94 % of the workforce at the end of 2013. On the other hand, the number of temporary workers – i.e. people employed under fixed-term contracts, substitution contracts and contracts concluded for a specific project – increased by 0.8 %, which corresponds to just over 700 additional workers.

A breakdown of the staff numbers by occupational category shows that manual workers – very common in industry and construction, where employment has contracted – saw their headcount fall back by 1.1 %, which means that 6 825 jobs have been lost. Conversely, the number of clerical workers picked up slightly, by 0.2 %, or 2 115 people. The number of managerial and supervisory positions and jobs listed under the 'others' category – a residual group that notably includes apprentices and interns – grew at a much faster pace (respectively 2.8 and 6.8 %), althoug starting out with smaller numbers. At the end of 2013, manual workers represented 40.1 % of the total workforce (that is, 0.3 percentage point less than the year before) and clerical workers accounted for 57.7 % (compared with 57.5 % as at 31 December 2012). The other two categories together made up 2.2 % of workers in the reduced population.

The very slight change in employee numbers as at 31 December conceals the scale of staff movements that took place during the year – movements that are measured by net recruitment and departures of workers during the course of the year – and reallocations of employees between the various working arrangements. As far as the latter are concerned, while the change in staff numbers as at 31 December shows a drop in full-time employees (–7 853 units) and a rise in those employed on a part-time basis (+4 455 units), the balance of net staff movements gives a completely opposite picture, where net recruitment of full-time staff, to the tune of 3 117 units,

CHART 8 STAFF RECRUITMENT AND DEPARTURES IN 2013

(units, reduced population)



Source: NBB (social balance sheets).

(1) Owing to errors in the social balance sheets filed, the year-on-year changes for staff employed as at 31 December are not always equal to net staff recruitment and departures during the course of the year.

goes alongside net departures of part-time workers, the equivalent of 6 074 units, which suggests that, as in previous years, full-time employees have switched to reduced working hours during the course of the year.

All in all, gross flows of recruitment and departures account for almost half of total staff numbers. Of course, this does not mean that one in every two workers changes jobs during an accounting year since some jobs, for instance those taken up by workers under temporary contracts, student jobs, apprenticeships or internships, imply much more rotation than others. These gross movements turned out to be much larger in 2013 than in 2012. Staff recruitment involved a total of 758 670 workers during the year 2013, roughly 19 000 more than the year before. Departures, marginally higher than recruitment, affected 761 627 people, which is 46 000 units more than in 2012. Movements of full-time workers explain more than half of all staff movements, that is, 53.3 % in the case of recruitment and 52.7 % in the case of departures.

2.1.2 Situation in firms filing full-format accounts

The data supplied by firms required to file full-format accounts make it possible to fine-tune the characteristics of the whole workforce because they include additional information about the use of out-of-company staff, whether agency staff or workers on secondment from another company. Full-format social balance sheets also provide detailed information about the characteristics of employees who have joined or left these companies during the course of the year.

2.1.2.1 Employees in the staff register, out-of-company workers

Workers on staff registers make up the lion's share of the labour forces that companies filing full-format social balance sheets have recourse to: in 2013, these employees accounted for 95.9 % of the total volume of employment expressed in FTEs, added to which were agency staff (3.3 % of the total) and staff on secondment (0.9 %).

Overall, the workforce volume remained stable between 2012 and 2013 (an increase of just 234 FTEs). Seconded staff grew by 2.3 %. Since these staff numbers are only very small to start with, they only expanded by another 231 FTEs in the end. Staff registered showed a very moderate increase expressed in terms of percentage change, only 0.2 %, but which corresponds to an extra 1 781 FTEs. Conversely, use of agency staff, the volume of which is more easily adjustable to cyclical trends than ordinary employment, fell back by 4.4 % as a result of weak growth in economic activity in 2013, with the resultant loss of 1 779 FTE jobs.

TABLE 5 CHANGE IN EMPLOYMENT EXPRESSED IN FTEs IN FIRMS FILING FULL-FORMAT ACCOUNTS

(annual average, reduced population)

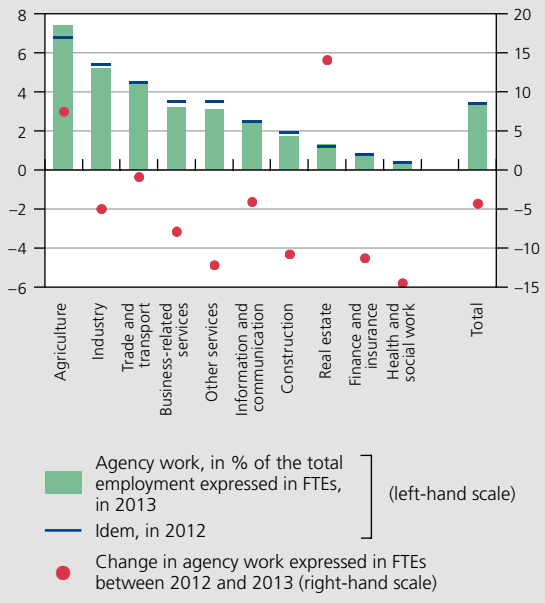
	Changes between 2012 and 2013		Levels in 2013	
	In %	In units	In % of the total	In units
Staff registered[1]	0.2	1 781	95.9	1 131 977
Agency staff	–4.4	–1 779	3.3	38 435
Staff on secondment	2.3	231	0.9	10 395
Total	**0.0**	**234**	**100.0**	**1 180 308**

Source: NBB (social balance sheets).
(1) Workers for whom the firm has submitted a DIMONA declaration or who are recorded in the staff register.

Only a very small proportion of the 10 794 firms that filed full-format accounts indicated that they had resorted to using workers on secondment. In 2013, 459 of them found themselves in this situation, which was scarcely 4.3 % of the total. Moreover, this practice is concentrated in a small number of branches of activity, namely trade and transport (48 % of seconded workers during the year in question) and health and social work (31 %). In these branches, this category of workers accounts for respectively 1.8 and 1.5 % of the total volume of employment expressed in FTEs.

CHART 9 AGENCY WORK IN FIRMS FILING FULL-FORMAT ACCOUNTS: BREAKDOWN BY BRANCH OF ACTIVITY

(in %, reduced population)



Source: NBB (social balance sheets).

Information concerning agency staff employed comes from just over 6 000 firms, or 56 % of those that filed a full-format social balance sheet for the year 2013. The volume of agency employment expressed in FTEs fell back from 40 214 to 38 435 units between 2012 and 2013. According to the social balance sheets, all branches of activity, with the exception of agriculture and real estate (both of which are marginal), contributed to the negative trend in agency employment, but only four of them are responsible for as much as 84 % of the contraction.

Industry, which alone employed 46 % of the 40 214 FTE agency workers registered in the social balance sheets in 2012, is behind more than half the contraction of the total volume of this type of staff, accounting for a loss of 945 FTE jobs or 5.1 % of the original volume in this branch. The share held by agency work fell back from 5.4 to 5.2 % of FTE employment here between 2012 and 2013. The business-related services branch also made a large contribution to the decline – almost 300 agency jobs expressed as FTEs were lost in this sector –, as did the construction, trade and transport branches (respectively 135 and 140 FTE jobs shed). In the first two branches, this led to a drop in the agency staff penetration rate, from 3.5 to 3.2 % for business-related services and from 1.9 to 1.7 % for construction. However, in the trade and transport branch – where agency work also plays a key role as 35 % of the total agency workers are employed there –, the relative share of these workers in the FTE employment remained stable, at 4.4 %.

2.1.2.2 Staff movements

As for the whole population of firms, the rate of employment growth in companies filing full-format accounts slowed down during the course of the year: the increase in the number of staff registered of 0.2 % as an annual average gave way to a sharp decline in these employee numbers at the end of the year 2013. Staff movements in the course of the year show that the number of workers who left their employer during the year 2013 (412 828 people) was higher than the number of new recruits (407 332 workers); the difference comes to 5 496 people. This trend contrasts strongly with what had been noted in the same companies the year before, during which time a positive balance, equivalent to 15 309 additional workers, had still been observed.

Net recruitment of temporary staff was nevertheless recorded once again in 2013, of just over 12 000 people, as in 2012. It is worth noting that the stable nature of this balance conceals an 8 to 9 % expansion of both hirings and departures of temporary workers. On the other hand, movements of permanent staff point to net departures of 18 105 workers, while net recruitment had been recorded in 2012. The flow of permanent workers who left their company nevertheless fell back by 2.3 % compared with 2012; the size of the negative balance is thus largely explained by the scale of the reduction in recruitment, which was more than 15 %. It consequently seems that employers have adopted a more wait-and-see attitude, preferring to meet their staff requirements through wider use of temporary staff, even if it means renewing these contracts if necessary, rather than by hiring permanent staff, the volume of which is harder to adjust to cyclical fluctuations in activity.

Recruitment and departures of temporary workers accounted for the bulk of staff movements in firms filing full-format accounts in 2013, making up respectively 66.3 and 62.3 % of new recruits and staff leaving. However, the relative importance of these temporary contracts was still quite limited, at just 5.3 % of the workforce, because they are partly for positions that have a very high staff turnover rate (for example, student jobs, internships and apprenticeships) or for tasks with very precise specifications where the jobs in question disappear as soon as the set task has been accomplished.

The total number of staff departures during the course of the year reached 32.9 % of staff employed at the beginning of the year. Even though temporary workers are more exposed to staff turnover than permanent employees, given the very nature of their employment contract, the ties binding the latter to their employer may also be severed, notably because they are coming to the end of their career, want to change jobs or even because they are made redundant. In 2013, 13 % of permanent workers left their company, compared with 13.4 % the year before. This decline is due to the unpromising economic context: although there were proportionally more redundancies in 2013 than in 2012, it was mainly voluntary resignations that dropped back sharply, since the prospects of recruitment on a permanent basis were less favourable.

In total, staff departures affected nearly 413 000 persons in 2013, 16 653 more than in 2012. The increase was particularly strong in the case of redundancies, the volume of which expanded by 28 %, that is, 10 327 people more than during the previous year. Departures following expiry of temporary contracts were also up, by 8.6 %,

TABLE 6 RECRUITMENT AND DEPARTURES OF STAFF REGISTERED[1] IN FIRMS FILING FULL-FORMAT ACCOUNTS

(data as at 31 December, reduced population)

	2012	2013
Recruitment (in units)		
Total	411 484	407 332
of which: Permanent staff	162 235	137 426
Departures (in units)		
Total	396 175	412 828
of which: Permanent staff	159 273	155 531
Net recruitment (in units)		
Total	15 309	–5 496
of which: Permanent staff	2 962	–18 105
Turnover rate[2] (in %)		
Total	32.0	32.9
of which: Permanent staff	13.4	13.0
Reasons for staff departures (in % of the total)		
Retirement	3.1	3.0
Unemployment with employer top-up	1.6	1.6
Redundancy	9.3	11.4
End of temporary contract[3]	59.8	62.3
Other reasons[4]	26.2	21.6

Source: NBB (social balance sheets).

(1) Workers for whom the firm has submitted a DIMONA declaration or who are recorded in the staff register.

(2) Ratio between the numbers of staff departures recorded during the financial year and the number of workers recorded at the beginning of this year.

(3) Fixed-term contract, substitution contract or contract concluded for a specific project.

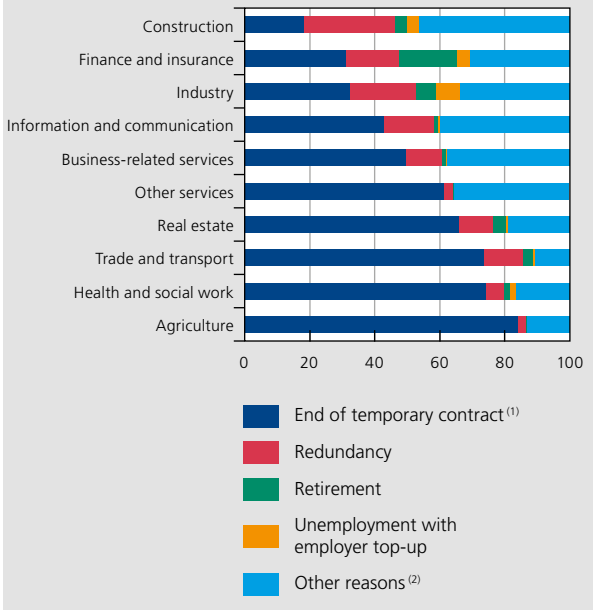
(4) Spontaneous departures, death in service.

which corresponds to an extra 20 395 departures. On the other hand, the number of departures for another reason, whether workers leaving on their own initiative or by mutual agreement between the parties or owing to death in service, fell by 14.3 %, or 14 851 units. These wide variations have significantly changed the breakdown of departures by reason for leaving. While less than 10 % of departures followed redundancies in 2012, this share came to 11.3 % of the total in 2013. And the proportion of departures due to the end of a temporary contract rose from 59.8 to 62.3 %. Conversely, that concerning 'other reasons' diminished appreciably, falling back to 21.6 % of all departures in 2013, from 26.2 % the year before. The relative shares of departures for retirement – 3 % in 2013 – or for the unemployment with employer top-up scheme (formerly called the pre-pension) – 1.6 % – have not changed much or at all.

A large part of the staff departures recorded in 2013 were concentrated in the branches trade and transport (40 % of the total), health and social work (22 %) business-related services (12 %) and industry (9 %). In the first two branches, almost three-quarters of all departures are related to the end of a temporary contract. In the business-related services branch, this arrangement is only cited for half of all departures, while the 'other reasons' (mainly voluntary resignations) are behind 37.5 % of departures. In industry, both the above-mentioned arrangements are the reason behind one-third each of departures, while redundancies concern 20.6 % of all cases. Lay-offs are only proportionally higher in construction, where they were responsible for 27.9 % of departures in 2013. The industry and construction branches also shed a lot of their staff by pensioning them off (respectively 5.9 and 3.9 % of departures) or putting them on the unemployment with employer top-up scheme (respectively 7.4 and 3.5 %). In the other branches, there were fewer staff departures. It is worth noting the unusual breakdown for people leaving their jobs in the finance and insurance branch, which is still restructuring after the financial crisis: in 2013, 21.7 % of the total staff outflows came from departures for retirement and the unemployment with employer top-up scheme (including 17.7 % in the former case) and 16.3 % from ordinary redundancies.

CHART 10 REASONS FOR STAFF DEPARTURES IN 2013 IN FIRMS FILING FULL-FORMAT ACCOUNTS: BREAKDOWN BY BRANCH OF ACTIVITY

(in % of the total, reduced population)



Source: NBB (social balance sheets).

(1) Fixed-term contract, substitution contract or contract concluded for a specific project.

(2) Spontaneous departures, death in service.

2.2 Training

The first paragraph of this section takes stock of the committee work done by the Group of Experts on Competitiveness and Employment (GECE), which, among other topics, endeavours to measure the training efforts of private sector companies: in response to the report published in July 2013 (GECE, 2013), the group has in fact been instructed to continue its work in 2014. The second paragraph comments on trends in the training indicators observed in firms in the reduced population between the years 2012 and 2013.

2.2.1 Assessment of the financial efforts made by private sector firms providing training: update on the GECE's work

In Belgium, the efforts made by private sector companies in the field of training have for many years been regulated by quantitative targets. It was thus agreed that training expenditure should account for 1.9 % of the wage bill, failing which firms whose efforts prove to be insufficient are liable to a fine in the form of a supplementary contribution to help fund the paid educational leave scheme. This sanctions mechanism is triggered as soon as the financial target is missed collectively by private sector firms.

In 2013, the GECE, set up upon the initiative of the government at the beginning of January 2013, focused notably on the question of assessing how much private sector

companies are spending on training activities[1], as the legal framework effectively leaves itself open to various interpretations making it impossible to decide whether or not the target of 1.9 % has been met.

On the basis of aggregated data for the year 2012 published by the Central Balance Sheet Office – covering all social balance sheets filed for this year, whatever the closing date, and regardless of the size and activity of the company –, total training expenditure (including all types of training[2]) represented 1.58 % of staff costs and formal training expenses alone 1.07 % . According to the latest CVTS survey findings available[3], the costs associated with training courses (a concept that is consistent with the notion of formal training) came to 2.4 % of the wage bill in 2010. The two statistical sources therefore produce very dissimilar results, even though they are based on identical concepts. As part of the work carried out in 2013 and extended until autumn 2014, the experts have singled out several factors causing divergence.

The populations studied are themselves one of these factors. The CVTS survey applies to firms with more than ten employees operating in the branches of activity B to N and R to S in the NACE-Rev.2 classification, while the Central Balance Sheet Office aggregations established from the social balance sheet data are virtually exhaustive[4].

The experts also pointed out that some amounts appearing in the social balance sheets were obviously underestimated in relation to those notified in the CVTS survey, even though the definitions given in the social balance sheet methodological note are modelled on those applied at European level for the survey. This is the case for direct training costs (owing to many companies' failure to notify all or part of the remuneration-based component for staff on training courses), as well as for contributions and payments to collective funds (which are not given for a good many firms despite the fact that these payments are compulsory). Corrections could be made to some information featuring in the social balance sheets in order to take into consideration the missing data on expenditure. Nevertheless, there is still a wide divergence between the number of hours devoted to training as reported in the social balance sheets and the number mentioned in the CVTS survey in the case of some of the companies that have completed both forms, and no way of determining which of the two sources is the most realistic. The divergence could be explained by the fact that CVTS survey respondents and those who fill up the social balance sheet are not necessarily the same people, which is a source of differences of interpretation of the instructions and the associated methodological options. The former, who are usually human resources or training managers in the firms under consideration, are assisted in the reporting process by people conducting the survey. But there is no clearly defined profile for the latter. In many cases, the sections concerning staffing in the social balance sheets (number of workers, hours worked, staff costs) are filled up by social secretariats, but the part on training is filled up by the companies themselves, without anyone checking the exhaustiveness and accuracy of the reported data. In fact, only large enterprises and very large non-profit associations and foundations are subject to mandatory inspection by a company auditor. If necessary, the auditor is only required to check whether the company's accounting documents (invoices, for example) tally with the amounts reported in the annual accounts. So, it is not really surprising that omissions, inaccuracies or mistakes are found in the social balance sheets. However, they are still the sole source of information available on a yearly basis for assessing changes in firms' training policy.

2.2.2 Social balance sheet findings for 2013

The results presented in this paragraph are based on training-related data notified by companies in the reduced population[5]. Given the predominance in this population of large-scale firms which, on the one hand, invest more on average in training their staff and, on the other hand, are proportionally more numerous in reporting their training initiatives, the levels of the indicators calculated from this population are not comparable with those obtained on the basis of the aggregations by the Central Balance Sheet Office, which are based on exhaustive populations. The trends noted in the reduced population nonetheless offer good approximations of those expected for all firms.

(1) See GECE, 2013. Apart from analysing the training target, the group also had to give its opinion on the impact of subsidies reducing the wage-related costs in Belgium and the neighbouring countries and on disparities in terms of wage costs and productivity by branch of activity observed between Belgium and the neighbouring countries.

(2) The social balance sheet distinguishes between three types of training. Formal training covers courses and practical classes designed and given by training staff in premises separate from the workplace. Informal training includes other apprenticeship activities, planned according to the learner's needs, and including training in the workplace. Initial training is intended for workers under schemes alternating training and practical work experience, with a view to acquiring a diploma.

(3) The CVTS (Continuing Vocational Training Survey) is a harmonised European-wide survey that aims to measure the efforts made by companies to train their employees. It is carried out once every five years. The latest results available concern the year 2010. The findings for Belgium are published by the FPS Economy, SMEs, Self-employed and Energy: http://statbel.fgov.be/fr/modules/publications/statistiques/marche_du_travail_et_conditions_de_vie/enquete_sur_la_formation_professionnelle_continue.jsp (French version).

(4) Among all the companies, solely non-profit organisations, foundations and other legal persons governed by private law and employing less than 20 FTEs are exempt from the requirement to file a social balance sheet.

(5) The data submitted by firms are subject to a series of incoming checks when they are filed with the Central Balance Sheet Office. If necessary, any obvious mistakes (wrong units, mixed-up headings, etc.) are corrected while preserving overall consistency. When this cannot be guaranteed within the given timeframe, the erroneous figures revert to 0, so as to neutralise the effects of errors found. However, no corrections are made to social balance sheets to make up for missing data.

2.2.2.1 Training indicators in all firms

The number of firms providing training[1] has grown in the reduced population, rising from 12 777 in 2012 to 13 072 in 2013, i.e. 26 % of the total reduced population firms in 2013. It is a moving population changing from one year to the next, not only because new training firms appear, but also because not all firms report their training efforts for the two consecutive years. There were 10 138 of them among the reduced population, that is, 78 % of all firms recorded as providing training in 2013. The others only mentioned workers undergoing training for 2012 or for 2013. As a result, the figures concerning training vary both because of changes in firms' training policy and changes in the population of firms providing training.

One-third of training companies combine different types of training. The number of these firms that mention workers in formal and/or informal training increased between the two years, by respectively 345 and 157 units. So, in 2013, 18.9 % of all firms in the reduced population had offered their employees some formal training activities, compared with 18.2 % a year earlier. The proportion of companies providing informal training came to 11.1 % in 2013, up by 0.3 of a percentage point on the previous year. Conversely, in the case of initial training, a slight drop in the number of firms providing training can be noted (–59 units), with their relative share working out at 5.7 % of the total number of firms in 2013. Although this latter ratio is very low, it is nevertheless likely that the number of companies taking part in initial training programmes has been over-estimated. In fact, each year, the Central Balance Sheet Office finds firms that include in this category of training the induction modules intended for their new recruits, while it should only include hours worked in the company by apprentices and interns who are following a training programme combining learning in an educational establishment and practical work experience.

The proportion of firms providing training varies considerably between branches of activity: just 12 % of companies in the agriculture branch mention workers in training, while, at the other end of the scale, 43 % of firms active in health and social work offer training. The ratio of training firms is above average in industry (38 %) and in the information and communication branch (33 %). In business-related services, it is right on the average. Elsewhere, it fluctuates around 22 or 23 %.

(1) A firm is regarded as providing training when the number of participants in formal, informal or initial training activities is positive. Firms reporting positive training costs (owing to contributions or payments to collective funds) while no employee has been trained are therefore not recorded among the training firm category.

Overall, in 2013, 43.9 % of workers employed in firms in the reduced population had taken part in one or several formal training activities. At the same time, 24.9 % of employees had benefited from some informal training and 1.2 % from an initial training programme. While the rate of participation in formal training rose by 0.9 of a percentage point, the ratios for informal and initial training were down, by respectively 0.6 and 0.1 of a percentage point. It is worth noting that the data available in the social balance sheets does not make it possible to calculate an aggregate participation rate, since employees who have followed different types of training during the same year are recorded in each of the *ad-hoc* tables.

Among the wide range of indicators intended for assessing companies' training policies, the share of firms providing training makes it possible above all to measure their involvement in reporting their training activities, something which is nevertheless not directly related to the extent of the efforts that firms make in this area, unlike the participation, duration or cost indicators. So, while the proportion of companies providing training is similar in the finance and insurance branch and in construction – which each employ 6 to 7 % of all staff from the reduced population –, the proportion of workers who have followed some formal type of training is more than twice as high in the former (65.6 %) than in the latter (27.5 %); in the case of informal training, the ratio is 3 to 1. On the other hand, the formal training participation rate is similar in the health and social work and information and communication branches as well as in industry – just over half of all workers concerned –, while the share of firms providing training is very different there. Note that the informal training participation rates are not at all homogeneous in these branches: this form of training is particularly widespread in the finance and insurance (39.3 %) and health and social work (35.1 %) branches, even though it is still less frequent here than formal training. Industry, with an informal training participation rate of 29.2 %, completes the top three. In each of the other branches, less than one-fifth of workers benefited from this type of initiative.

Participation of workers in initial training is by definition more common in branches where occupations taught through apprenticeship channels are widespread. This is the case not just in construction, where 2.1 % of the workers are recruited under programmes of this kind, but also in agriculture (1.6 %) and in other services – which include personal services, like for example, hairdressing and beauty care – (1.5 %), as well as in industry and the trade and transport branch (1.4 % each). On the other hand, in the health and social work branch – where a majority of students who want to become health professionals

TABLE 7 PARTICIPATION IN TRAINING IN 2013

(reduced population)

	Firms providing training[1]	Beneficiaries of a training activity[2]		
		formal	informal	initial
	(in % of all firms)	(in % of average employment)		
Breakdown by branch of activity:				
Agriculture	11.9	6.4	8.7	1.6
Industry	37.8	50.4	29.2	1.4
Construction	23.5	27.5	13.1	2.1
Trade and transport	21.5	36.6	18.1	1.4
Information and communication	32.6	53.3	18.4	1.5
Finance and insurance	21.8	65.6	39.3	0.2
Real estate	22.3	18.9	11.8	1.4
Business-related services	26.3	30.8	18.4	0.9
Health and social work	43.3	53.2	35.1	0.8
Other services	21.5	22.1	14.5	1.5
Total	**26.0**	**43.9**	**24.9**	**1.2**

Source: NBB (social balance sheets).

(1) A firm is regarded as providing training when the number of participants in formal, informal or initial training activities is positive.

(2) Formal training covers courses and practical classes designed and given by training staff in premises separate from the workplace. Informal training includes other apprenticeship activities, planned according to the learner's needs, and including training in the workplace. Initial training is intended for workers under schemes alternating training and practical work experience, with a view to acquiring a diploma.

acquire practical experience through unpaid internships and are thus not listed in the social balance sheet – and in the business-related services and finance and insurance branches, less than 1 % of employees are involved.

Expenditure on training reported in the social balance sheets of firms in the reduced population rose by scarcely 0.5 % between 2012 and 2013, while, at the same time, staff costs increased by 2.6 %. Consequently, the indicator for the financial effort companies devote to training, which relates training expenditure to the wage bill, dropped back from 1.82 to 1.78 %. Both formal and informal training budgets grew very marginally, by less than 1 %, while the resources allocated to initial training fell by almost 7 %. Total expenditure on formal training in 2013 accounted for 1.23 % of staff costs, compared with 1.25 % a year earlier; the indicator for initial training also dipped from 0.08 to 0.07 %; the ratio calculated for informal training nevertheless remained unchanged, at 0.49 %.

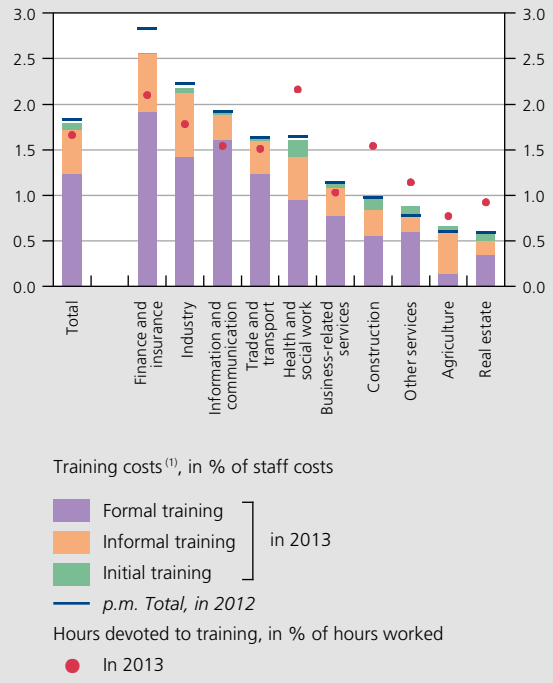
The training costs listed in the social balance sheet are net costs: for each of the different types of training, subsidies and other financial benefits received are deducted from gross costs, which comprise direct training-related costs and remuneration of staff in training. As far as formal training is concerned, net costs also include social security contributions and payments to collective funds made under legal or joint committee obligations. This expenditure has to be declared even if none of the company's employees have received any training. However, a lot of companies do not mention any figure in the appropriate heading[1]. In 2013, contributions paid were equal to 0.07 % of the staff costs declared. Subsidies granted for formal training also came to 0.07 % of staff costs in 2013, which enabled them to cover on average 5.9 % of the corresponding gross training costs.

The 2.3 % rise in the number of hours devoted to training observed between 2012 and 2013 was higher than for expenditure. It also exceeded that for total hours worked in the firms in the reduced population, up by a mere 0.2 %. The working time freed up for employees to follow training courses thus rose from 1.63 to 1.66 % of total hours worked. The increase reflects longer hours devoted to formal training, while the number of hours devoted to both informal and initial training diminished. All in all,

(1) The absence of payments is justified in the case of public enterprises, including the SNCB, bpost and Belgacom (which has since been renamed Proximus), whose staff are not affiliated to any joint committee. They are not therefore required to fulfil this obligation.

CHART 11 COSTS AND DURATION OF TRAINING ACTIVITIES IN 2013: BREAKDOWN BY BRANCH OF ACTIVITY

(in %, reduced population)



Source: NBB (social balance sheets).

(1) Training costs are net costs, obtained by deducting subsidies and other financial benefits from gross costs. The net costs of formal training include, in addition, contributions and payments to collective funds.

working hours dedicated to formal training in 2013 accounted for 0.89 % of the total number of hours worked (compared with 0.85 % a year earlier), while informal and initial training each took up respectively 0.50 and 0.27 % of hours worked.

Companies' training requirements vary depending on their specialisation, the challenges that they face and the skills of their workforce. For instance, a firm that wants to reorientate its business will have to give its employees a chance to take in the new expertise that such a change involves if it wants to avoid having to replace them by new recruits with a profile more in line with its development targets. The same goes for firms that renew or modify their production facilities. Nowadays, workers are also encouraged to acquire generic or specific skills intended to support employability, which makes them more capable of developing their career within their company, their branch of activity, or even elsewhere.

Among the firms in the reduced population, those falling under the finance and insurance branch are the ones that devote proportionally the most funds to training. Between 2012 and 2013, however, a big drop in resources allocated to this field was recorded: following the sharp budget cutbacks made by the country's three biggest banks, the financial effort came to 2.55 % of the wage bill in 2013, compared with 2.83 % a year earlier. Conversely, the strongest increase, to the tune of 0.11 of a percentage point, was observed in the other services branch, where this indicator reached a level equivalent to 0.89 %. In the other branches, changes in the financial indicator have remained a lot smaller. It is noteworthy that the ranking based on the intensity of the financial effort is not the same as that based on working time freed up to allow workers to follow a training activity. Thus, firms in the health and social work branch devote 2.16 % of total hours worked to training, which is more than companies in the finance and insurance branch, where the ratio comes to 2.10 %. Construction – where there are proportionally more apprentices, for whom all hours spent within the company are recorded as time spent training – is also making a great improvement in its score; with a ratio equal to 1.54 %, it now takes up third place in the rankings based on the duration indicator, while it only comes seventh in the financial effort classification.

2.2.2.2 Other training indicators

Employees undergoing formal training received on average 27.3 hours of learning in 2013, almost one hour more than in the previous year. In the case of informal training, the average duration was slightly shorter, at 26.8 hours – also up on 2012. Costs incurred through formal training are much higher than those involved in informal training. They comprise, apart from the wages of the instructors and those of the employees following training activities, the costs of the premises and equipment provided, as well as trainees' travel and accommodation costs where appropriate. The trends observed in 2013 were not the same for the two types of costs. In 2013, one hour of formal training cost an average of € 53.8 – down 4.5 % on 2012 levels –; yet companies spent € 38.1 on one hour of informal training, or 1.1 % more than in the previous year. The average expenditure per worker trained came to € 1 387 for formal training and € 1 023 for informal training.

The amounts given by firms for initial training differ considerably from those reported for continuing vocational training. On average, apprentices and interns followed around 304 hours of training during the course of 2013, which was eleven times more than the beneficiaries of another type of training. On the other hand, the hourly cost of training is much less, as it barely exceeds € 10 an hour. The annual budget per trainee totalled € 3 059 in 2013.

TABLE 8 COST AND DURATION OF TRAINING ACTIVITIES IN FIRMS PROVIDING TRAINING

(reduced population)

	Formal training	Informal training	Initial training
Net costs per participant[1] (in €, unless otherwise stated)			
2012	1 413	997	3 147
2013	1 387	1023	3 059
Change (in %)	–1.8	2.6	–2.8
Net costs per hour of training[1] (in €, unless otherwise stated)			
2012	56.4	37.7	10.4
2013	53.8	38.1	10.1
Change (in %)	–4.5	1.1	–3.7
Duration of training per participant (in hours, unless otherwise stated)			
2012	26.5	26.4	301.3
2013	27.3	26.8	304.1
Change (in %)	2.8	1.5	0.9

Source: NBB (social balance sheets).

(1) Net costs are obtained by deducting subsidies and other financial benefits from gross costs. The net costs of formal training include, in addition, contributions and payments to collective funds.

Conclusions

The forthcoming transposition into Belgian law of Directive 2013/34/EU of the European Parliament and of the Council on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings could lead to changes in reporting on the part of small firms established in Belgium. In particular, the social balance sheet, which currently takes the form of an annex to the annual accounts for every firm, may in future no longer be an integral part of it for small businesses. Yet, it contains a wealth of information. An analysis of individual behaviour of firms based on the variables available in the social balance sheets for the year 2012 shows that patterns diverge considerably with firm size.

One of the first conclusions to be drawn is that specialisation of companies varies greatly depending on their size: micro- and small firms are mainly active in trade and transport, as they are in construction and industry. Among the biggest firms, a predominance of activities related to health and social work as well as to manufacturing is noted, while the relative importance of trade and transport is smaller. The groups of companies can also be distinguished by a different geographical location: micro-firms and small enterprises have a decidedly regional focus, while larger firms operate nationwide to a proportionately greater extent.

Analysis of the profile of workers recruited in the various groups of firms shows that the workforce is more homogenous in small entities than in larger ones. There is less gender diversity in micro-firms, and the number of graduate staff is comparatively smaller. As for working arrangements and employment contracts, greater uniformity can also be noted: there are proportionally more companies employing either full-time employees only, or workers on reduced hours only, or even exclusively permanent staff in the groups of micro- and small firms.

An examination of employment conditions reveals that the average working time is longer in micro-firms, and that the variations in individual practice are greater than in larger companies. On the other hand, hourly labour costs are higher the larger the firm, and the range of observations is wider for them than for smaller entities. An in-depth study at the level of the branches of activity in which micro- and small firms are specialised indicates that staff costs per hour worked are lower on average in trade and transport than in construction or in industry, but that the individual costs differentials are also greater. All other things being equal, hourly costs are also lower in firms established in Wallonia than in those based in Flanders.

Lastly, although the proportion of firms offering training is lower in small entities, the training indicators calculated for training firms only are not systematically lower for the smaller ones. The average participation rates in micro-enterprises and in small firms are similar to or higher than those in larger firms, be it a question of formal, informal or initial training. That is also the case for the annual duration of training per beneficiary. On the other hand, expenditure per hour of training is higher on average in large firms.

The second part of this article discusses movements between 2012 and 2013 in a series of variables found in the social balance sheets, as observed for a stable population of existing firms. In these companies, the workforce contracted by 0.2 % between the end of 2012 and the end of 2013. A decline was seen in all three Regions of the country. Workforces in SMEs continued to expand, but this increase was not enough to offset the job losses in companies with more than 250 FTE employees. The

workforce declined in almost all branches, with notably sharp falls in industry and in construction. However, staff numbers expanded in health and social work and business-related services.

The workforce profile continued to change. Full-time job losses outweighed the growth of part-time employment, so the relative share of part-time workers has grown, to reach 30.3 %. There was also further growth of the female workforce, but continued erosion of the relative share of manual workers – the main victims of job losses in the secondary sector. Permanent staff numbers fell, whereas the temporary workforce expanded, until it came to 6 % of the workforce by the end of 2013.

In firms that file full-format accounts, the volume of the labour force – measured in FTEs – remained stable in 2013 compared to 2012. Workers recorded in the staff registers of these firms and personnel on secondment were up by 0.2 and 2.3 % respectively ; on then other hand, there was a 4.4 % decline in agency staff. The latter fall affected almost all branches of activity, but it was particularly marked in industry (where half of the lost FTEs were concentrated), as well as in the business-related services branch, in construction and in the trade and transport branch.

In those same companies, the number of workers leaving during the year was slightly higher than the number of new recruits. Contrasting trends have been observed for permanent (net departures) and temporary (net recruitment) staff. The flow of recruitment and departures of temporary workers made up the bulk of staff movements : the expiry of temporary contracts accounted for 62.3 % of departures in 2013, while redundancies represented 11.4 %. These two reasons for leaving were more widely used in 2013 than in 2012. Conversely, the proportion of spontaneous resignations was smaller in 2013, down from 26.2 to 21.6 % of the total.

In 2013, 43.9 % of all workers benefited from a formal training course, 24.9 % underwent some informal training and 1.2 % took part in an initial training programme. The former rate was up on the previous year, but the other two rates were down on 2012. Likewise, the volume of hours devoted to training expanded in the case of formal training and contracted in the other two cases. A total of 1.63 % of all hours worked were devoted to refreshing or broadening skills in 2013, compared with 1.66 % in 2012. Expenditure on training came to 1.78 % of staff costs, against 1.82 % a year earlier. The budgets allocated to formal and informal training increased, but were outpaced by the rise in staff costs. However, expenditure on initial training declined.

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Annex 1 – Methodological annex

1. Composition of the population of firms

1.1 Methodological principles

The methodological principles that governed the composition of the populations of firms used in the analysis of the social balance sheets are described in detail in Annex 1 to the article "The social balance sheet 2005", which appeared in the December 2006 Economic Review and is available on the website of the National Bank of Belgium (www.nbb.be).

In order to have reliable and consistent data, the analysis only considers the social balance sheets of firms which meet a number of criteria. In particular, the financial year must comprise twelve months and end on 31 December; firms must belong to the private sector[(1)]; they must employ at least one full-time equivalent worker; their economic activity and location must be clearly identified[(2)]; the data reported in the social balance sheet must tally with the data in the annual accounts[(3)]; firms submitting abnormal figures for hourly staff costs or average working time are left out, while any anomalies found in regard to training[(4)] and the use of agency workers are neutralised.

Application of these methodological principles means that the number of social balance sheets included in the analysis for the purposes of this article is considerably smaller, each year, than the total number of social balance sheets filed with the Central Balance Sheet Office. At the end of the selection process, the total population for 2012 comprised 85 223 firms employing an average of 2 017 825 salaried workers.

Moreover, the analysis of the social balance sheets filed for 2013 is based on a reduced[(5)] constant[(6)] population, which further diminishes the coverage of the analysis population in regard to the balance sheets filed with the Central Balance Sheet Office. The results presented in this article therefore reflect the movements recorded between 2012 and 2013 in a stable population of existing firms and may therefore differ from those observed following the final closure for all firms filing a social balance sheet[(7)].

1.2 Characteristics of the reduced population

The constant reduced population comprises 50 365 companies, which together had an average of 1 573 347 employees on their payroll in 2012, corresponding to 78 % of the workforce in the total population, even though the number of firms included in the reduced population represents only 59 % of the total population. The number of workers employed in the firms in the reduced population comes to 59 % of the corresponding private sector employment recorded in the national accounts.

Representativeness according to the employment criterion varies from one branch of activity to another. Expressed as a percentage of the number of employees in the firms in the total population, it is lower in the branches with a predominance of small firms, whose annual accounts are often filed and/or checked later. This applies particularly in agriculture, forestry and fisheries and in accommodation and food service activities.

(1) Private sector employment is defined as employment recorded in the total economy (S1), less employment in the public sector (S13) and in the household sector (S14). Also left out of this concept are workers employed in NACE-BEL divisions 84 (public administration and defence; compulsory social security) and 85 (education). NACE-BEL division 78 (employment activities), which includes in particular temporary employment agency activities, is also excluded.

(2) Firms whose activity or address is unknown are excluded from the population.

(3) This amounts to excluding firms in which some of the employees work abroad or are not entered in the staff register (statutory staff).

(4) From the year 2010, the Central Balance Sheet Office has introduced stricter quality checks on the items relating to training. The remaining checks are therefore intended primarily to make sure that the changes recorded in firms in the reduced population are not biased by errors or methodological modifications.

(5) Firms have seven months starting from the date of the end of the financial year to file their social balance sheets with the Central Balance Sheet Office. In view of the time needed to check the data, the full set of social balance sheets relating to 2013 was not available on 19 September 2014, when the data were extracted.

(6) Firms which did not file a social balance sheet for one of the two years are excluded from the reduced population.

(7) Since the Central Balance Sheet Office gives priority to processing the annual accounts of large firms and there are more small firms that file their accounts late, the results based on this reduced population lead to some distortion in favour of large firms.

Furthermore, certain categories of firms or jobs do not appear in the analysis population. This is true of non-profit-making organisations and foundations employing fewer than 20 FTE workers, which are not required to file a social balance sheet. Similarly, employees working for an employer who is not incorporated as a company are not included since the obligation to file a social balance sheet only applies to companies. Consequently, the representativeness of the reduced population expressed as a percentage of the salaried employment recorded in the national accounts is particularly low in the branches where such firms or workers are numerous, notably in agriculture, forestry and fisheries, accommodation and food service activities, the arts, entertainment and recreational activities, and other service activities.

TABLE 1 REPRESENTATIVENESS OF THE REDUCED POPULATION IN 2012

	Number of workers			Representativeness of the reduced population	
	In the national accounts[1]	In the social balance sheets[2]		In % of private sector salaried employment[1]	In % of the number of workers in the total population
		Total population	Reduced population		
	(1)	(2)	(3)	(4) = (3) / (1)	(5) = (3) / (2)
According to the employment criterion	**2 663 011**	**2 017 825**	**1 573 347**	**59.1**	**78.0**
Agriculture, forestry and fishing	12 695	6 282	3 571	28.1	56.8
Mining and quarrying, manufacturing and other industry	556 235	433 619	376 704	67.7	86.9
Mining and quarrying	2 912	2 586	2 330	80.0	90.1
Manufacturing	507 312	386 737	333 143	65.7	86.1
Electricity, gas, steam and air conditioning supply	20 766	20 936	20 664	99.5	98.7
Water supply; sewerage, waste management and remediation activities	25 245	23 360	20 567	81.5	88.0
Construction	209 064	153 037	112 161	53.6	73.3
Trade, transport and accommodation and food service activities	774 568	545 163	423 783	54.7	77.7
Wholesale and retail trade; repair of motor vehicles and motorcycles	483 490	316 825	246 144	50.9	77.7
Transportation and storage	193 110	163 455	141 639	73.3	86.7
Accommodation and food service activities	97 968	64 882	35 999	36.7	55.5
Information and communication	85 479	70 468	61 058	71.4	86.6
Financial and insurance activities	120 725	110 205	95 328	79.0	86.5
Real estate activities	17 038	12 679	9 260	54.4	73.0
Business-related services	317 199	204 420	155 442	49.0	76.0
Professional, scientific and technical activities	145 815	96 476	72 247	49.5	74.9
Administrative and support service activities[3]	171 384	107 944	83 194	48.5	77.1
Human health and social work activities	473 864	434 420	306 277	64.6	70.5
Culture, recreation and other services	96 144	47 534	29 763	31.0	62.6
Arts, entertainment and recreation	28 745	15 423	9 988	34.7	64.8
Other service activities	67 399	32 111	19 775	29.3	61.6
According to the criterion concerning the number of firms	**n.**	**85 223**	**50 365**	**n.**	**59.1**

Sources: NAI, NBB (social balance sheets).

(1) Private sector salaried employment, i.e. salaried employment recorded in the total economy (S1), less salaried employment in the general government sector (S13) and in the households sector (S14). This concept also excludes workers employed in NACE-BEL divisions 84 (public administration and defence; compulsory social security) and 85 (education).

(2) Average number of workers, i.e. the sum of items 1001 (full-time workers) and 1002 (part-time workers).

(3) Excluding employment activities (NACE-BEL 78), which comprise in particular activities of employment placement agencies.

In the analysis population, the breakdown of firms by branch of activity is based on the NACE-BEL sections and divisions presented in Annex 2. Branch titles have been simplified to make the text easier to read.

Overall, workers in the trade and transport branch represent 27 % of the staff in the reduced population, and those in industry 24 %. Health and social work activities employ 19 % of workers. The other branches are relatively less important, at 10 % for business-related services, 7 % for construction, 6 % for the finance and insurance branch, 4 % for information and communication and 2 % for other services. Real estate activities and agriculture are marginal branches (less than 1 % of the total).

The classification of firms by size is based on the average number of workers expressed as full-time equivalents (FTEs) in 2012. Micro-firms employ ten FTEs at the most. Although they account for 70 % of all firms in the reduced population, they employ less than 10 % of total number of workers. Small firms with more than 10 to 50 FTEs, or 23 % of total number of companies in the reduced population, employ 18 % of the workforce in that population. Medium-sized companies employing more than 50 to 250 FTEs account for 22 % of the workforce in the reduced population. There may not be so many large firms, i.e. those with a workforce of more than 250 FTEs, but they employ half of the workers in the reduced population, against 45 % for the total population. The developments described on the basis of the reduced population are therefore influenced by the over-representation of large firms.

TABLE 2 CHARACTERISTICS OF THE TOTAL AND REDUCED POPULATIONS IN 2012

(in % of the total, unless otherwise stated)

	Total population		Reduced population	
	Number of firms	Number of workers[1]	Number of firms	Number of workers[1]
p.m. In units	*85 223*	*2 017 825*	*50 365*	*1 573 347*
Breakdown by branch of activity				
Agriculture	0.9	0.3	0.8	0.2
Industry	11.3	21.5	13.0	23.9
Construction	15.6	7.6	15.2	7.1
Trade and transport	39.4	27.0	38.9	26.9
Information and communication	2.9	3.5	3.1	3.9
Finance and insurance	4.3	5.5	4.4	6.1
Real estate	2.0	0.6	1.9	0.6
Business-related services[2]	14.0	10.1	14.2	9.9
Health and social work	5.3	21.5	4.8	19.5
Other services	4.2	2.4	3.7	1.9
Breakdown by size of firm[3]				
Micro-firms (10 FTEs at most)	74.3	13.1	69.4	9.5
Small firms (more than 10 to 50 FTEs)	20.2	20.9	23.1	18.3
Medium-sized firms (more than 50 to 250 FTEs)	4.5	21.5	6.0	21.7
Large firms (more than 250 FTEs)	1.0	44.6	1.5	50.5

Source: NBB (social balance sheets).

(1) Average number of workers, i.e. the sum of items 1001 (full-time workers) and 1002 (part-time workers).

(2) Excluding employment activities (NACE-BEL 78), which comprise in particular activities of employment placement agencies.

(3) Determined according to the value of item 1003 (FTE workers) in 2012.

2. Regional breakdown of the social balance sheets

The analysis populations were broken down by Region for the purposes of this article. For the 1998 to 2012 years, the apportionment formulas are the ones applied by the NAI to regionalise the national employment accounts in the corresponding year. Since the formula for 2013 is not yet available, the one for 2012 was used to regionalise the reduced population for both 2012 and 2013.

Single-region firms are those which have their head office and operating establishment(s) in one and the same Region. In 2012, the reduced population comprised 49 526 single-region firms, or 98 % of total firms. These are generally fairly small companies: on average, they had 22 workers. The other 839 companies – referred to as multi-region firms – operated in more than one Region. They employed an average of 556 workers.

In the case of multi-region firms, the proportional allocation method, which entails breaking down the social balance sheet data between the various Regions in which the firm is active, was only applied to the number of employees as at 31 December. This is in fact the variable which is most similar to the basic data per establishment collected by the NSSO (i.e. the number of jobs at the end of the fourth quarter), which are used by the NAI to regionalise the national employment accounts. This apportionment formula is not entirely satisfactory for the other social balance sheet items.

TABLE 3 STRUCTURE OF EMPLOYMENT BY REGION IN 2012 (1)

(in % of the total, unless otherwise stated, reduced population)

	Single-region firms				Multi-region firms	Total
	Brussels	Flanders	Wallonia	Total		
Number of firms (in units)	4 802	32 543	12 181	49 526	839	50 365
Number of workers (in units)	105 175	722 851	278 546	1 106 571	466 776	1 573 347
Average number of workers per firm (in units)	21.9	22.2	22.9	22.3	556.3	31.2
Breakdown by branch of activity						
Agriculture	0.0	0.4	0.3	0.3	0.0	0.2
Industry	10.5	27.9	27.1	26.0	19.0	23.9
Construction	4.3	9.3	10.4	9.1	2.4	7.1
Trade and transport	23.2	24.1	20.6	23.1	36.0	26.9
Information and communication	8.1	3.1	1.5	3.1	5.6	3.9
Finance and insurance	8.3	1.4	1.5	2.0	15.6	6.1
Real estate	1.9	0.6	1.0	0.8	0.0	0.6
Business-related services (2)	19.8	8.6	7.3	9.3	11.1	9.9
Health and social work	18.6	23.0	28.3	23.9	9.0	19.5
Other services	5.4	1.8	2.0	2.2	1.2	1.9
Breakdown by size of firm (3)						
Micro-firms	13.3	13.6	13.3	13.5	0.1	9.5
Small firms	28.2	24.7	25.7	25.3	1.7	18.3
Medium-sized firms	31.6	27.8	25.1	27.5	7.9	21.7
Large firms	27.0	33.9	35.8	33.7	90.3	50.5

Source: NBB (social balance sheets).

(1) Average number of workers, i.e. the sum of items 1001 (full-time workers) and 1002 (part-time workers).

(2) Excluding employment activities (NACE-BEL 78), which comprise in particular activities of employment placement agencies.

(3) Determined according to the value of item 1003 (FTE workers) in 2012.

Such is the case, for example, for employment broken down by gender, level of education or employment contract, as the conduct of the various operating sites belonging to a single firm may vary considerably depending on their activity and their particular method of organisation. In the case of training activities or agency work, the firm's location and the range of training activities or agency workers available may also make a difference. It is therefore inappropriate to use a standard apportionment formula for all the items. Consequently, multi-region firms form a separate group from single-region companies for all the variables, apart from the total number of workers employed at 31 December.

While single-region firms differ from multi-region firms by being smaller in size, they also specialise in different fields. Multi-region firms employ proportionately more workers than single-region companies in the branches of trade and transport and finance and insurance, while the branches of industry and health and social work are proportionately less developed here. Within single-region companies, there are also differences in specialisation between firms based in Brussels, which focus more on services, and those in Flanders or Wallonia, which tend more towards industry. This heterogeneity is part of the reason for the differences between the Regions in the indicators presented in Annexes 11 to 13.

Annex 2 – Classification of firms by branch of activity

The classification of firms by branch of activity is based on the activity code listed in the directory of firms compiled by the National Bank of Belgium for the purpose of producing the national accounts; the directory contains a range of administrative data on firms active during a year. The 2012 directory, based on the NACE-BEL 2008 nomenclature, was chosen as the reference to determine the classification by sector and by branch of activity of firms for all financial years from 1998 to 2013. Firms not listed in the 2012 directory retain the activity code which they were given in previous directories or, failing that, the code assigned to them by the Central Balance Sheet Office.

The descriptions in this article are generally based on a ten-branch breakdown. The names of these branches were simplified for the reader's convenience ("Abbreviated title" column). In Annexes 3 to 10, the breakdown into ten branches is detailed to show sections A to S of the NACE-BEL 2008 nomenclature.

CLASSIFICATION USED TO ANALYSE THE SOCIAL BALANCE SHEETS AND
LIST OF SECTIONS AND DIVISIONS IN THE NACE-BEL 2008 NOMENCLATURE OF ACTIVITIES

Title	Abbreviated title	Section	Division
Agriculture, forestry and fishing	Agriculture	A	01-03
Mining and quarrying, manufacturing and other industry	Industry	B-E	05-39
Mining and quarrying		B	05-09
Manufacturing		C	10-33
Electricity, gas, steam and air conditioning supply		D	35
Water supply; sewerage, waste management and remediation activities		E	36-39
Construction	Construction	F	41-43
Trade, transport and accommodation and food service activities	Trade and transport	G-I	45-56
Wholesale and retail trade; repair of motor vehicles and motorcycles		G	45-47
Transportation and storage		H	49-53
Accommodation and food service activities		I	55-56
Information and communication	Information and communication	J	58-63
Financial and insurance activities	Finance and insurance	K	64-66
Real estate activities	Real estate	L	68
Business-related services[1]	Business-related services	M-N	69-82
Professional, scientific and technical activities		M	69-75
Administrative and support service activities[1]		N	77-82
Human health and social work activities	Health and social work	Q	86-88
Culture, recreation and other services	Other services	R-S	90-96
Arts, entertainment and recreation		R	90-93
Other service activities		S	94-96

(1) Excluding employment activities (NACE-BEL 78), which comprise in particular temporary employment agency activities.

Annex 3

CHANGE IN THE NUMBER OF WORKERS[1] BETWEEN 2012 AND 2013 IN FIRMS IN THE REDUCED POPULATION

	Full-time equivalents			Number of persons						
	Average employment		Employment as at 31 December	Average employment						Employment as at 31 December
				Full-time		Part-time		Total		
	Units	%	%	Units	%	Units	%	Units	%	%
Agriculture, forestry and fishing	35	1.1	–1.7	55	2.2	–48	–4.7	7	0.2	–2.1
Mining and quarrying, manufacturing and other industry	–2 133	–0.6	–1.0	–2 372	–0.7	247	0.5	–2 125	–0.6	–1.0
Mining and quarrying	–31	–1.3	–1.7	–28	–1.3	–3	–1.7	–31	–1.3	–1.6
Manufacturing	–2 172	–0.7	–0.9	–1 991	–0.7	10	0.0	–1 981	–0.6	–1.0
Electricity, gas, steam and air conditioning supply	–257	–1.3	–2.7	–579	–3.1	119	6.1	–460	–2.2	–2.6
Water supply; sewerage, waste management and remediation activities	327	1.7	0.7	226	1.3	121	4.9	347	1.7	0.7
Construction	–687	–0.6	–2.4	–704	–0.7	46	0.5	–657	–0.6	–2.4
Trade, transport and accommodation and food service activities	624	0.2	–0.1	233	0.1	660	0.5	893	0.2	–0.2
Wholesale and retail trade; repair of motor vehicles and motorcycles	1 724	0.8	–2.4	1 136	0.7	769	1.0	1 905	0.8	0.3
Transportation and storage	–1 471	–1.1	0.4	–980	–0.9	–839	–2.8	–1 819	–1.3	–1.4
Accommodation and food service activities	372	1.4	–1.2	76	0.5	730	3.7	807	2.2	1.2
Information and communication	–129	–0.2	–1.2	–54	–0.1	–719	–7.2	–773	–1.3	–2.2
Financial and insurance activities	–222	–0.3	–1.4	–145	–0.2	–224	–0.8	–368	–0.4	–1.4
Real estate activities	283	3.4	2.9	315	4.7	137	5.5	452	4.9	1.9
Business-related services	2 996	2.2	1.0	1 378	1.4	2 631	4.5	4 009	2.6	1.0
Professional, scientific and technical activities	1 430	2.1	0.7	1 118	2.0	502	3.2	1 620	2.2	0.7
Administrative and support service activities[2]	1 566	2.4	1.4	261	0.6	2 129	5.0	2 390	2.9	1.3
Human health and social work activities	4 276	1.8	1.8	1 489	1.1	4 176	2.4	5 665	1.8	1.4
Culture, recreation and other services	347	1.4	0.3	145	0.8	594	5.1	739	2.5	0.8
Arts, entertainment and recreation	–7	–0.1	0.2	–54	–0.9	128	3.5	74	0.7	0.9
Other service activities	354	2.1	0.3	199	1.7	466	5.9	665	3.4	0.7
Total	**5 390**	**0.4**	**–0.2**	**341**	**0.0**	**7 501**	**1.6**	**7 842**	**0.5**	**–0.2**

Source: NBB (social balance sheets).

(1) Workers for whom the firm has submitted a DIMONA declaration or who are recorded in the staff register.

(2) Excluding employment activities (NACE-BEL 78), which comprise in particular temporary employment agency activities.

Annex 4

HOURS WORKED[1]

	In units, per year (total population)									*Percentage change between 2012 and 2013 (reduced population)*		
	2006	2007	2008	2009	2010	2011	2012					
	Per full-time equivalent						Per full-time equivalent	Per full-time worker	Per part-time worker	*Per full-time equivalent*	*Per full-time worker*	*Per part-time worker*
Agriculture, forestry and fishing	1 605	1 621	1 622	1 611	1 638	1 666	1 658	1 657	960	*–0.6*	*–0.6*	*0.9*
Mining and quarrying, manufacturing and other industry	1 520	1 524	1 513	1 446	1 492	1 499	1 490	1 492	1 007	*–0.2*	*–0.2*	*0.3*
Mining and quarrying	1 479	1 499	1 509	1 447	1 437	1 485	1 448	1 447	1 034	*–2.7*	*–2.8*	*–1.5*
Manufacturing	1 522	1 523	1 513	1 439	1 490	1 497	1 488	1 491	1 001	*–0.1*	*–0.2*	*0.4*
Electricity, gas, steam and air conditioning supply	1 400	1 460	1 465	1 466	1 485	1 472	1 488	1 476	1 118	*–2.2*	*–0.9*	*–3.3*
Water supply; sewerage, waste management and remediation activities	1 593	1 570	1 562	1 551	1 544	1 551	1 534	1 536	1 045	*–0.3*	*–0.3*	*0.8*
Construction	1 450	1 452	1 467	1 433	1 420	1 468	1 443	1 438	998	*–1.4*	*–1.5*	*–1.2*
Trade, transport and accommodation and food service activities	1 579	1 576	1 576	1 556	1 559	1 558	1 557	1 565	915	*0.4*	*–0.6*	*4.1*
Wholesale and retail trade; repair of motor vehicles and motorcycles	1 590	1 589	1 591	1 575	1 579	1 578	1 570	1 580	966	*–0.1*	*–0.5*	*1.2*
Transportation and storage	1 565	1 560	1 554	1 528	1 530	1 527	1 539	1 551	976	*1.4*	*–0.9*	*15.8*
Accommodation and food service activities	1 564	1 557	1 556	1 531	1 538	1 539	1 539	1 523	719	*–1.0*	*–0.6*	*–2.3*
Information and communication	1 606	1 602	1 604	1 599	1 601	1 593	1 601	1 609	1 025	*–0.1*	*–0.2*	*7.1*
Financial and insurance activities	1 423	1 438	1 438	1 426	1 439	1 442	1 445	1 444	1 000	*–0.2*	*1.0*	*–4.5*
Real estate activities	1 588	1 586	1 596	1 567	1 560	1 561	1 556	1 557	965	*0.2*	*–0.2*	*–5.2*
Business-related services	1 588	1 592	1 605	1 569	1 570	1 569	1 553	1 563	949	*–0.2*	*0.2*	*–1.1*
Professional, scientific and technical activities	1 626	1 631	1 648	1 625	1 627	1 622	1 624	1 627	1 050	*–0.1*	*–0.3*	*0.7*
Administrative and support service activities[2]	1 547	1 547	1 557	1 507	1 510	1 513	1 478	1 467	911	*–0.2*	*0.9*	*–1.8*
Human health and social work activities	1 487	1 464	1 487	1 462	1 469	1 458	1 449	1 438	919	*–0.3*	*–0.4*	*0.0*
Culture, recreation and other services	1 566	1 576	1 573	1 564	1 564	1 559	1 561	1 568	887	*–0.9*	*–1.3*	*–1.8*
Arts, entertainment and recreation	1 606	1 618	1 610	1 609	1 592	1 601	1 606	1 604	796	*0.8*	*0.4*	*1.6*
Other service activities	1 547	1 556	1 555	1 542	1 551	1 540	1 540	1 549	925	*–1.8*	*–2.2*	*–3.3*
Total	**1 531**	**1 530**	**1 531**	**1 497**	**1 510**	**1 513**	**1 506**	**1 510**	**936**	***–0.2***	***–0.4***	***0.7***

Source: NBB (social balance sheets).

(1) By workers for whom the firm has submitted a DIMONA declaration or who are recorded in the staff register.

(2) Excluding employment activities (NACE-BEL 78), which comprise in particular temporary employment agency activities.

Annex 5

BREAKDOWN OF THE NUMBER OF WORKERS[1] BY EMPLOYMENT CONTRACT AND BY GENDER

(in % of total employment as at 31 December)

	2006	2007	2008	2009	2010	2011	2012	*2012*	*2013*
	(total population)							*(reduced population)*	
By employment contract									
Permanent contract	93.6	93.6	93.4	93.8	93.5	93.1	93.3	*94.1*	*94.0*
Fixed-term contract	5.3	5.3	5.5	5.1	5.4	5.7	5.6	*5.0*	*5.0*
Agriculture, forestry and fishing	6.4	13.2	11.7	11.5	11.2	9.1	12.2	*9.9*	*9.8*
Mining and quarrying, manufacturing and other industry	4.4	4.6	4.4	2.9	3.6	4.2	3.8	*3.7*	*3.6*
Mining and quarrying	8.2	7.0	6.1	4.5	4.9	5.2	4.4	*4.3*	*2.6*
Manufacturing	4.3	4.7	4.4	2.8	3.6	4.2	3.9	*3.7*	*3.7*
Electricity, gas, steam and air conditioning supply	7.3	5.2	6.0	5.3	4.7	4.3	3.5	*3.5*	*3.3*
Water supply; sewerage, waste management and remediation activities	3.7	3.1	3.0	2.1	2.4	2.7	2.5	*2.7*	*2.7*
Construction	3.2	3.3	3.5	3.7	3.6	3.8	4.0	*3.0*	*3.1*
Trade, transport and accommodation and food service activities	6.0	6.0	6.5	6.6	6.7	7.3	7.3	*6.0*	*6.4*
Wholesale and retail trade; repair of motor vehicles and motorcycles	5.8	5.9	6.6	6.5	7.4	8.0	7.7	*6.9*	*7.1*
Transportation and storage	3.2	3.3	3.3	3.3	2.5	2.8	2.5	*2.1*	*2.2*
Accommodation and food service activities	15.6	14.9	15.9	15.9	14.9	15.9	18.1	*15.6*	*17.6*
Information and communication	3.9	3.2	3.1	2.5	2.3	3.4	2.7	*2.6*	*2.5*
Financial and insurance activities	3.0	2.7	2.1	2.1	2.0	1.8	1.7	*1.5*	*1.4*
Real estate activities	4.3	5.0	5.1	5.4	5.4	5.3	6.8	*1.5*	*1.4*
Business-related services	4.5	4.7	4.1	3.8	4.0	3.8	4.0	*3.4*	*3.5*
Professional, scientific and technical activities	3.4	3.0	3.2	3.3	3.6	3.2	3.5	*3.0*	*3.1*
Administrative and support service activities[2]	5.4	6.3	4.9	4.1	4.3	4.4	4.5	*3.7*	*3.9*
Human health and social work activities	7.6	7.2	7.6	7.4	7.6	7.6	7.5	*7.5*	*7.3*
Culture, recreation and other services	7.7	8.1	8.9	10.1	10.7	10.3	10.2	*10.0*	*10.3*
Arts, entertainment and recreation	9.8	9.4	11.4	13.1	13.8	12.6	11.9	*10.9*	*12.8*
Other service activities	6.8	7.4	7.7	8.6	9.3	9.4	9.4	*9.5*	*9.1*
Substitution contract	1.0	0.9	1.0	1.0	1.0	1.0	1.0	*0.9*	*0.9*
Contract concluded for a specific project	0.2	0.2	0.2	0.1	0.2	0.2	0.1	*0.1*	*0.1*
By gender									
Men	59.9	59.5	58.0	57.2	56.4	56.2	55.7	*57.3*	*57.0*
Women	40.2	40.5	42.0	42.8	43.6	43.8	44.3	*42.7*	*43.0*

Source: NBB (social balance sheets).

(1) Workers for whom the firm has submitted a DIMONA declaration or who are recorded in the staff register.

(2) Excluding employment activities (NACE-BEL 78), which comprise in particular temporary employment agency activities.

Annex 6

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

(in % of average employment expressed in FTEs)

	2006	2007	2008	2009	2010	2011	2012	*2012*	*2013*
	(total population)							*(reduced population)*	
Workers for whom the firm has submitted a DIMONA declaration or who are recorded in the staff register.	**93.6**	**93.4**	**93.8**	**96.3**	**95.6**	**95.2**	**95.7**	***95.7***	***95.9***
Agency workers	**3.8**	**4.0**	**3.7**	**2.8**	**3.3**	**3.6**	**3.3**	***3.4***	***3.3***
Agriculture, forestry and fishing	8.0	8.9	9.6	9.8	5.4	4.6	6.2	*6.8*	*7.4*
Mining and quarrying, manufacturing and other industry	6.1	6.4	5.8	4.1	5.5	6.0	5.4	*5.4*	*5.2*
Mining and quarrying	2.8	3.2	3.4	2.2	2.7	3.5	3.0	*2.8*	*2.6*
Manufacturing	6.3	6.5	6.0	4.2	5.7	6.3	5.6	*5.8*	*5.5*
Electricity, gas, steam and air conditioning supply	1.5	2.3	1.4	1.6	1.7	1.1	1.2	*1.1*	*1.1*
Water supply; sewerage, waste management and remediation activities	6.4	6.7	6.3	5.5	6.3	6.3	5.7	*4.7*	*4.8*
Construction	2.0	2.2	2.0	1.8	1.8	2.0	2.0	*1.9*	*1.7*
Trade, transport and accommodation and food service activities	4.2	4.5	4.7	3.8	4.3	4.8	4.6	*4.5*	*4.4*
Wholesale and retail trade; repair of motor vehicles and motorcycles	4.3	4.4	4.4	3.8	4.2	4.5	4.3	*4.3*	*4.2*
Transportation and storage	4.0	4.4	4.8	3.8	4.2	4.9	4.9	*4.7*	*4.6*
Accommodation and food service activities	6.3	7.1	7.1	5.5	6.7	7.0	5.6	*5.6*	*6.1*
Information and communication	2.8	3.2	3.2	2.5	2.5	2.7	2.6	*2.5*	*2.4*
Financial and insurance activities	1.0	1.1	1.0	0.6	0.7	0.8	0.8	*0.8*	*0.7*
Real estate activities	1.7	2.0	2.2	1.7	1.9	1.6	1.4	*1.2*	*1.3*
Business-related services	3.8	4.1	3.8	3.0	3.4	3.7	3.6	*3.5*	*3.2*
Professional, scientific and technical activities	3.5	3.6	4.1	3.2	3.7	3.6	3.3	*3.6*	*3.4*
Administrative and support service activities[1]	4.0	4.5	3.6	2.7	3.1	3.9	4.0	*3.5*	*3.0*
Human health and social work activities	0.5	0.5	0.4	0.4	0.5	0.5	0.4	*0.4*	*0.3*
Culture, recreation and other services	4.2	3.9	4.4	4.0	4.2	4.1	3.5	*3.5*	*3.1*
Arts, entertainment and recreation	4.2	4.0	4.0	3.5	3.6	3.9	4.3	*4.2*	*3.2*
Other service activities	4.1	3.9	4.5	4.2	4.5	4.1	3.1	*3.3*	*3.0*
Workers seconded to the firm[2]	**2.6**	**2.6**	**2.5**	**0.9**	**1.0**	**1.1**	**1.0**	***0.9***	***0.9***

Source: NBB (social balance sheets).

(1) Excluding employment activities (NACE-BEL 78), which comprise in particular temporary employment agency activities.

(2) 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]

	In €, per year (total population)							*Percentage change between 2012 and 2013 (reduced population)*
	2006	2007	2008	2009	2010	2011	2012	
Agriculture, forestry and fishing	30 592	30 782	31 158	32 159	32 858	33 328	34 782	*1.9*
Mining and quarrying, manufacturing and other industry	53 953	55 169	57 843	57 065	59 835	62 469	63 763	*2.5*
Mining and quarrying	48 001	50 672	52 480	52 776	53 527	57 423	56 927	*3.6*
Manufacturing	52 806	54 688	56 464	55 520	58 480	60 440	62 285	*2.7*
Electricity, gas, steam and air conditioning supply	89 647	88 061	97 976	92 633	93 488	105 915	98 175	*0.9*
Water supply; sewerage, waste management and remediation activities	47 698	49 114	51 375	53 088	53 489	56 741	57 789	*2.3*
Construction	39 368	40 447	42 505	43 050	43 105	45 563	46 769	*1.0*
Trade, transport and accommodation and food service activities	44 223	45 364	47 372	48 801	48 963	50 074	51 243	*2.4*
Wholesale and retail trade; repair of motor vehicles and motorcycles	45 061	46 409	48 319	49 838	49 931	51 074	52 182	*2.6*
Transportation and storage	46 127	47 141	49 546	50 821	51 157	52 560	53 962	*2.2*
Accommodation and food service activities	29 479	30 070	31 710	33 403	34 270	34 953	36 146	*3.7*
Information and communication	61 912	63 370	66 060	67 933	68 582	70 594	71 209	*2.8*
Financial and insurance activities	70 908	72 829	77 266	78 470	78 416	80 780	84 017	*1.1*
Real estate activities	43 181	43 826	45 972	47 246	47 864	49 669	50 912	*3.6*
Business-related services	49 857	50 850	52 812	52 903	52 518	53 609	54 518	*1.2*
Professional, scientific and technical activities	59 670	61 130	63 752	64 006	64 186	65 468	66 523	*1.7*
Administrative and support service activities [2]	39 160	38 997	40 531	40 897	40 266	41 205	42 032	*0.6*
Human health and social work activities	40 318	39 691	43 061	43 770	44 884	46 164	47 181	*3.3*
Culture, recreation and other services	37 719	40 588	41 697	43 918	44 278	44 790	47 212	*1.7*
Arts, entertainment and recreation	40 426	42 974	43 554	46 965	45 771	46 893	49 475	*0.8*
Other service activities	36 443	39 417	40 810	42 470	43 574	43 850	46 152	*2.3*
Total	**48 648**	**49 479**	**51 865**	**52 203**	**52 980**	**54 544**	**55 791**	***2.2***

Source: NBB (social balance sheets).
(1) Item 1023 / item 1003.
(2) Excluding employment activities (NACE-BEL 78), which comprise in particular temporary employment agency activities.

Annex 8

STAFF COSTS PER HOUR WORKED [1]

	In € (total population)							*Percentage change between 2012 and 2013 (reduced population)*
	2006	2007	2008	2009	2010	2011	2012	
Agriculture, forestry and fishing	19.1	19.0	19.2	20.0	20.1	20.0	21.0	*2.5*
Mining and quarrying, manufacturing and other industry	35.5	36.2	38.2	39.5	40.1	41.7	42.8	*2.7*
Mining and quarrying	32.5	33.8	34.8	36.5	37.2	38.7	39.3	*6.5*
Manufacturing	34.7	35.9	37.3	38.6	39.3	40.4	41.9	*2.8*
Electricity, gas, steam and air conditioning supply	64.1	60.3	66.9	63.2	63.0	72.0	66.0	*3.2*
Water supply; sewerage, waste management and remediation activities	29.9	31.3	32.9	34.2	34.6	36.6	37.7	*2.6*
Construction	27.2	27.9	29.0	30.0	30.4	31.0	32.4	*2.5*
Trade, transport and accommodation and food service activities	28.0	28.8	30.1	31.4	31.4	32.1	32.9	*2.1*
Wholesale and retail trade; repair of motor vehicles and motorcycles	28.3	29.2	30.4	31.6	31.6	32.4	33.2	*2.7*
Transportation and storage	29.5	30.2	31.9	33.3	33.4	34.4	35.1	*0.7*
Accommodation and food service activities	18.8	19.3	20.4	21.8	22.3	22.7	23.5	*4.8*
Information and communication	38.6	39.6	41.2	42.5	42.8	44.3	44.5	*2.9*
Financial and insurance activities	49.8	50.7	53.7	55.0	54.5	56.0	58.2	*1.3*
Real estate activities	27.2	27.6	28.8	30.2	30.7	31.8	32.7	*3.4*
Business-related services	31.4	31.9	32.9	33.7	33.4	34.2	35.1	*1.4*
Professional, scientific and technical activities	36.7	37.5	38.7	39.4	39.4	40.4	41.0	*1.9*
Administrative and support service activities [2]	25.3	25.2	26.0	27.1	26.7	27.2	28.4	*0.8*
Human health and social work activities	27.1	27.1	29.0	29.9	30.5	31.7	32.6	*3.5*
Culture, recreation and other services	24.1	25.7	26.5	28.1	28.3	28.7	30.2	*2.7*
Arts, entertainment and recreation	25.2	26.6	27.1	29.2	28.8	29.3	30.8	*–0.1*
Other service activities	23.6	25.3	26.2	27.5	28.1	28.5	30.0	*4.1*
Total	**31.8**	**32.3**	**33.9**	**34.9**	**35.1**	**36.0**	**37.0**	***2.3***

Source: NBB (social balance sheets).
(1) Item 1023 / item 1013.
(2) Excluding employment activities (NACE-BEL 78), which comprise in particular temporary employment agency activities.

Annex 9

TRAINING ACTIVITIES IN 2013 IN FIRMS IN THE REDUCED POPULATION

	Participants in training activities[1] (in % of average employment)			Hours devoted to training activities (in % of hours worked)				Net training costs[2] (in % of staff costs)			
	Formal[3]	Informal[4]	Initial[5]	Formal[3]	Informal[4]	Initial[5]	Total	Formal[3]	Informal[4]	Initial[5]	Total
Agriculture, forestry and fishing	6.4	8.7	1.6	0.1	0.3	0.3	0.8	0.14	0.46	0.06	0.66
Mining and quarrying, manufacturing and other industry	50.4	29.2	1.4	0.9	0.7	0.1	1.8	1.43	0.70	0.05	2.18
Mining and quarrying	47.4	24.1	0.1	0.7	0.7	0.0	1.5	0.97	0.74	0.01	1.73
Manufacturing	48.0	29.6	1.5	0.8	0.8	0.2	1.8	1.22	0.75	0.05	2.02
Electricity, gas, steam and air conditioning supply	76.0	34.6	0.0	2.2	0.5	0.0	2.8	3.83	0.51	0.00	4.34
Water supply; sewerage, waste management and remediation activities	64.0	16.9	2.7	0.9	0.3	0.1	1.3	1.19	0.28	0.04	1.50
Construction	27.5	13.1	2.1	0.5	0.3	0.8	1.5	0.55	0.29	0.13	0.97
Trade, transport and accommodation and food service activities	36.6	18.1	1.4	0.8	0.4	0.3	1.5	1.24	0.36	0.05	1.65
Wholesale and retail trade; repair of motor vehicles and motorcycles	30.5	15.1	1.8	0.5	0.4	0.5	1.4	0.73	0.42	0.08	1.23
Transportation and storage	53.0	25.4	0.4	1.5	0.3	0.0	1.8	2.20	0.29	0.01	2.49
Accommodation and food service activities	15.5	10.4	2.1	0.3	0.3	0.6	1.1	0.34	0.26	0.10	0.71
Information and communication	53.3	18.4	1.5	1.1	0.3	0.1	1.5	1.60	0.28	0.04	1.92
Financial and insurance activities	65.6	39.3	0.2	1.2	0.9	0.0	2.1	1.92	0.63	0.01	2.55
Real estate activities	18.9	11.8	1.4	0.3	0.2	0.5	0.9	0.34	0.16	0.08	0.58
Business-related services	30.8	18.4	0.9	0.6	0.3	0.2	1.0	0.77	0.31	0.04	1.12
Professional, scientific and technical activities	34.0	17.4	1.1	0.6	0.3	0.2	1.1	0.78	0.29	0.04	1.11
Administrative and support service activities[6]	28.1	19.3	0.7	0.5	0.3	0.2	1.0	0.76	0.34	0.04	1.14
Human health and social work activities	53.2	35.1	0.8	1.3	0.5	0.3	2.2	0.95	0.48	0.18	1.62
Culture, recreation and other services	22.1	14.5	1.5	0.4	0.2	0.6	1.1	0.60	0.19	0.09	0.89
Arts, entertainment and recreation	14.1	7.7	1.6	0.3	0.1	0.3	0.6	0.36	0.11	0.06	0.54
Other service activities	26.1	17.9	1.4	0.5	0.2	0.7	1.4	0.73	0.23	0.10	1.06
Total	**43.9**	**24.9**	**1.2**	**0.9**	**0.5**	**0.3**	**1.7**	**1.23**	**0.49**	**0.07**	**1.78**

Source: NBB (social balance sheets).

(1) Owing to double counting linked to the fact that the same person may have pursued more than one type of training, no total is calculated here.

(2) Gross costs less subsidies and other financial benefits. The net costs of formal training also include contributions and payments to collective funds.

(3) Courses and practical classes designed and given by training staff responsible for their organisation and content, intended for a group of learners in premises separate from the workplace.

(4) Other apprenticeship activities of which the organisation and content are largely determined by the learners according to their own needs, directly connected with the work or workplace. These activities also include attending conferences or trade fairs as part of the learning process.

(5) Training of a minimum duration of six months, given to workers under schemes alternating training and practical work experience, with a view to acquiring a diploma.

(6) Excluding employment activities (NACE-BEL 78), which comprise in particular temporary employment agency activities.

Annex 10

TRAINING ACTIVITIES IN 2013 IN TRAINING FIRMS IN THE REDUCED POPULATION

	Hours devoted to training (average per participant, in hours)			Net training costs[1] (average per hour of training, in €)		
	Formal[2]	Informal[3]	Initial[4]	Formal[2]	Informal[3]	Initial[4]
Agriculture, forestry and fishing	22	59	302	26.9	30.4	4.3
Mining and quarrying, manufacturing and other industry	26	36	140	66.7	43.0	15.1
Mining and quarrying	21	40	540	54.1	44.8	15.5
Manufacturing	25	37	153	59.7	42.4	14.8
Electricity, gas, steam and air conditioning supply	42	22	200	115.7	65.6	53.6
Water supply; sewerage, waste management and remediation activities	20	30	28	51.8	31.9	28.9
Construction	23	29	529	34.3	36.6	5.5
Trade, transport and accommodation and food service activities	31	28	332	49.7	34.7	5.8
Wholesale and retail trade; repair of motor vehicles and motorcycles	22	37	362	47.8	36.0	5.9
Transportation and storage	40	18	146	51.7	33.3	9.3
Accommodation and food service activities	21	27	301	25.5	26.1	4.5
Information and communication	31	29	113	65.5	37.6	19.1
Financial and insurance activities	24	29	385	94.2	43.0	8.3
Real estate activities	20	21	481	39.7	32.0	5.7
Business-related services	24	22	239	44.7	36.8	9.3
Professional, scientific and technical activities	27	28	225	49.6	38.1	10.3
Administrative and support service activities[5]	22	17	258	38.5	35.2	8.3
Human health and social work activities	28	18	441	23.2	30.2	20.3
Culture, recreation and other services	23	15	484	44.8	36.3	5.0
Arts, entertainment and recreation	24	18	217	43.3	35.4	7.6
Other service activities	23	14	634	45.3	36.5	4.5
Total	**27**	**27**	**304**	**50.8**	**38.1**	**10.1**

Source: NBB (social balance sheets).

(1) Gross costs less subsidies and other financial benefits. The net costs of formal training also include contributions and payments to collective funds.

(2) Courses and practical classes designed and given by training staff responsible for their organisation and content, intended for a group of learners in premises separate from the workplace.

(3) Other apprenticeship activities of which the organisation and content are largely determined by the learners according to their own needs, directly connected with the work or workplace. These activities also include attending conferences or trade fairs as part of the learning process.

(4) Training of a minimum duration of six months, given to workers under schemes alternating training and practical work experience, with a view to acquiring a diploma.

(5) Excluding employment activities (NACE-BEL 78), which comprise in particular temporary employment agency activities.

Annex 11

TYPE AND STRUCTURE OF EMPLOYMENT CONTRACTS BY REGION

	2006	2007	2008	2009	2010	2011	2012	*Percentage change between 2012 and 2013*
	(total population)							*(reduced population)*
Part-time work (in % of employment as at 31 December)								
Single-region firms	26.2	26.6	27.8	29.9	30.6	30.9	31.3	*1.7*
Brussels	23.1	24.2	25.8	28.2	30.1	30.8	31.0	*1.4*
Flanders	26.7	26.8	28.0	30.0	30.7	30.7	31.1	*1.7*
Wallonia	26.0	26.9	28.1	30.3	30.8	31.3	32.0	*1.9*
Multi-region firms	29.3	30.5	30.6	31.8	32.5	32.4	32.3	*0.1*
Total	**27.0**	**27.6**	**28.5**	**30.4**	**31.1**	**31.3**	**32.3**	***1.2***
Temporary work[1] (in % of employment as at 31 December)								
Single-region firms	6.8	6.7	6.9	6.6	7.0	7.4	7.3	*0.4*
Brussels	6.1	6.6	6.7	6.9	7.5	7.5	7.6	*7.6*
Flanders	5.8	5.5	5.5	5.1	5.5	5.7	5.6	*1.4*
Wallonia	9.5	9.6	10.6	10.2	10.5	11.2	11.0	*–2.8*
Multi-region firms	5.5	5.5	5.5	5.0	5.1	5.4	5.1	*2.4*
Total	**6.4**	**6.4**	**6.6**	**6.2**	**6.5**	**6.9**	**5.1**	***1.0***
Agency work in firms filing full-format accounts (in % of average employment expressed in FTEs)								
Single-region firms	4.6	4.8	4.2	3.2	3.7	4.0	3.7	*–4.4*
Brussels	2.8	3.2	2.5	2.6	3.2	3.3	2.9	*–14.7*
Flanders	4.8	5.1	4.5	3.2	3.8	4.2	3.9	*–2.0*
Wallonia	4.5	4.7	4.4	3.2	3.8	3.7	3.2	*–8.4*
Multi-region firms	2.4	2.7	2.7	2.1	2.5	2.9	2.7	*–5.1*
Total	**3.8**	**4.0**	**3.7**	**2.8**	**3.3**	**3.6**	**3.3**	***–4.4***

Source: NBB (social balance sheets).

(1) Fixed-term contracts, substitution contracts and contracts concluded for a specific project.

Annex 12

HOURS WORKED AND STAFF COSTS BY REGION

	2006	2007	2008	2009	2010	2011	2012	*Percentage change between 2012 and 2013*
	(total population)							*(reduced population)*
Hours worked per FTE (in units, per year)								
Single-region firms	1 549	1 544	1 546	1 508	1 522	1 527	1 519	*–0.3*
Brussels	1 577	1 581	1 588	1 563	1 575	1 562	1 564	*–0.2*
Flanders	1 554	1 548	1 547	1 508	1 525	1 529	1 523	*–0.2*
Wallonia	1 523	1 521	1 525	1 484	1 494	1 506	1 494	*–0.7*
Multi-region firms	1 483	1 488	1 489	1 466	1 477	1 474	1 467	*0.2*
Total	**1 531**	**1 530**	**1 531**	**1 497**	**1 510**	**1 513**	**1 506**	***–0.2***
Staff costs per FTE (in €, per year)								
Single-region firms	45 924	47 053	49 123	49 293	49 996	51 422	52 658	*2.3*
Brussels	54 053	55 555	58 714	58 322	58 470	58 166	59 521	*1.6*
Flanders	46 001	47 351	49 289	49 424	50 237	51 883	53 215	*2.2*
Wallonia	42 280	42 857	44 719	45 201	45 955	47 573	48 486	*2.8*
Multi-region firms	56 011	56 301	59 639	60 533	61 499	63 733	65 170	*2.1*
Total	**48 648**	**49 479**	**51 865**	**52 203**	**52 980**	**54 544**	**55 791**	***2.2***
Staff costs per hour worked (in €)								
Single-region firms	29.7	30.5	31.8	32.7	32.8	33.7	34.7	*2.6*
Brussels	34.3	35.1	37.0	37.3	37.1	37.2	38.1	*1.8*
Flanders	29.6	30.6	31.9	32.8	32.9	33.9	35.0	*2.4*
Wallonia	27.8	28.2	29.3	30.5	30.8	31.6	32.5	*3.5*
Multi-region firms	37.8	37.8	40.1	41.3	41.6	43.2	44.4	*2.0*
Total	**31.8**	**32.3**	**33.9**	**34.9**	**35.1**	**36.0**	**37.0**	***2.3***

Source: NBB (social balance sheets).

Annex 13

FORMAL TRAINING IN ALL FIRMS: BREAKDOWN BY REGION [1] [2]

	2006	2007	2008	2009	2010	2011	2012	*Percentage change between 2012 and 2013*
	(total population)							*(reduced population)*
Participants in training activities (in % of average employment)								
Single-region firms	26.3	26.0	26.6	27.8	29.1	29.8	31.8	*3.8*
Brussels	26.6	24.7	25.8	26.9	27.2	27.3	28.3	*–0.4*
Flanders	27.9	27.9	27.7	28.9	30.2	31.3	33.9	*3.5*
Wallonia	21.9	21.9	24.3	25.8	27.2	27.5	28.2	*6.3*
Multi-region firms	61.5	61.4	54.6	56.4	58.7	58.9	61.5	*0.6*
Total	**35.7**	**35.2**	**33.8**	**35.2**	**36.7**	**37.1**	**39.1**	***2.1***
Hours devoted to training activities (in % of hours worked)								
Single-region firms	0.53	0.55	0.50	0.53	0.55	0.56	0.60	*0.1*
Brussels	0.56	0.54	0.50	0.52	0.53	0.54	0.54	*–4.4*
Flanders	0.57	0.57	0.53	0.55	0.57	0.59	0.65	*0.5*
Wallonia	0.43	0.50	0.42	0.46	0.52	0.49	0.52	*0.7*
Multi-region firms	1.47	1.55	1.42	1.38	1.28	1.26	1.34	*12.3*
Total	**0.77**	**0.80**	**0.73**	**0.74**	**0.73**	**0.73**	**0.78**	***5.3***
Net training costs [3] (in % of staff costs)								
Single-region firms	0.70	0.71	0.71	0.66	0.72	0.77	0.82	*–2.1*
Brussels	0.70	0.73	0.67	0.61	0.75	0.77	0.73	*2.7*
Flanders	0.73	0.73	0.73	0.67	0.69	0.78	0.85	*–4.6*
Wallonia	0.60	0.67	0.66	0.68	0.78	0.74	0.77	*2.8*
Multi-region firms	2.27	2.35	2.17	1.98	2.01	2.00	2.01	*–0.7*
Total	**1.19**	**1.20**	**1.15**	**1.06**	**1.11**	**1.13**	**1.16**	***–1.8***
Training firms (in % of all firms)								
Single-region firms	6.1	6.5	10.9	11.6	12.1	11.6	14.0	*3.9*
Brussels	6.9	7.1	10.7	11.3	11.8	11.0	13.3	*1.0*
Flanders	6.7	7.1	11.4	12.2	12.4	12.1	14.7	*5.9*
Wallonia	4.5	4.9	9.9	10.6	11.5	10.7	12.8	*–0.5*
Multi-region firms	43.4	42.0	50.0	52.8	55.9	57.1	60.8	*2.3*
Total	**6.7**	**7.0**	**11.5**	**12.2**	**12.7**	**12.2**	**14.6**	***3.8***

Source: NBB (social balance sheets).

(1) The introduction of a new social balance sheet form applicable to financial years ending on or after 1 December 2008 causes a break in the series between data for years from 2008 onwards and those relating to previous years.

(2) Courses and practical classes designed and given by training staff responsible for their organisation and content, intended for a group of learners in premises separate from the workplace.

(3) Gross costs less subsidies and other financial benefits, plus contributions and payments to collective funds.

Summaries of articles

Economic projections for Belgium – Autumn 2014

This article presents the Bank's new macroeconomic projections for 2014-2016. They have been produced for the first time on the basis of the national accounts under ESA 2010. They already take account of the measures adopted by the new federal government and the federated entities in accordance with the provisions applicable to Eurosystem projection exercises. Among those measures, the temporary suspension of the mechanisms for the indexation of wages and replacement incomes will have a major influence on future macroeconomic developments and the effects of that measure have thus received special attention in the article.

Despite a mixed picture in the first half of the year, the global economy is currently maintaining a modest recovery which should strengthen in the years ahead. According to the Eurosystem projections, real GDP growth in the euro area will come to 0.8 % in 2014, strengthening to 1.5 % in 2016. As for Belgium, the expansion of activity is likely to remain moderate in 2014 (1 %) and in 2015 (0.9 %), gathering pace to 1.4 % in 2016. The stronger growth that year will be due mainly to net exports, which will gain momentum as the improvement in cost competitiveness, driven by the measures aimed at reducing labour costs, is gradually reflected in the export performance of Belgian firms.

In 2014, net job creations should amount to almost 18 000, but will be confined mainly to the non-market service branches and self-employed activity. A cumulative total of around 45 000 extra jobs should be created in 2015 and 2016, as a result of stronger growth and the reduction in labour costs. Taking account of the expected movement in the labour force, the unemployment rate should decline slightly from 2016 onwards only.

Inflation, which has fallen steeply in Belgium in recent months, is expected to dip to 0.6 % in 2014, a very low level attributable partly to the cut in VAT on electricity, and in line with widespread disinflation in the euro area. In 2015 and 2016, the package of measures aimed at reducing labour costs should compress core inflation, but headline inflation is likely to rise slightly, reaching 1.2 % in 2016 as a result of higher energy and food prices.

The public deficit is expected to fall significantly over the projection horizon, declining from 3.2 % of GDP in 2014 to 2.1 % in 2016. The public debt is forecast to stabilise at around 107 % of GDP.

JEL codes : E17, E25, E37, E66

Key words : Belgium, macroeconomic projections, Eurosystem

Normalisation of monetary policies: prospects and divergences

Although the world's leading central banks are currently still conducting a decidedly expansionary monetary policy, it can be assumed that, sooner or later, that policy will be tightened. In view of the divergent macroeconomic situations and prospects, the normalisation of monetary policy is likely to be asynchronous. The Federal Reserve's preparations for this normalisation are now far advanced, with the estimate of excess capacity on the labour market and the likely pressure on wages and prices as crucial elements for determining the timing and pace of the exit. In the euro area, the monetary policy stance is expected to remain extremely accommodative in a climate of very low inflation which appears to be weakening the anchoring of inflation expectations to some extent.

A challenge for the exit from the current policy stance is the implementation of a more restrictive monetary policy by means of higher interest rates, while the central bank reserves still contain a substantial liquidity surplus. In that connection, the Federal Reserve has now felt the need to expand its operational framework with a supplementary interest rate floor, namely the overnight reverse repo rate, in order to ensure the optimum transmission of the policy rates to market interest rates.

Asynchronous normalisation of monetary policy in the major advanced economies implies risks of undesirable spillover effects. The increased synchronisation in government bond yield movements shows that the euro area could well feel the impact of any potential turmoil associated with the normalisation of monetary policy in the United States. However, it is evident that, since the end of 2013, the Eurosystem has been successful in clearly establishing the independence of its monetary policy and is managing to devise a monetary policy course in line with the euro area's fundamentals. That is also apparent from the movement in the exchange rate since mid-2014.

JEL codes: E58, F41, E61

Key words: central banks' policies, open economy macroeconomics, exit strategy

Recent changes in saving behaviour by Belgian households: the impact of uncertainty

Belgian households save a lot in comparison to the average for the euro area. Recently, the household saving rate has shown large swings. During the great recession, it temporarily jumped to a record high but since then it has gradually fallen to record lows. Different factors of a structural or cyclical nature may account for these swings. The objective of the article is to gauge to what extent uncertainty related to the general economic outlook or households' income prospects has contributed to changes in households' saving behaviour. However, uncertainty is not directly observable and needs to be estimated. Different approaches are used, including most notably an uncertainty indicator based upon the heterogeneity in the responses given by consumers to specific questions in the Bank's consumer survey. The author assesses the significance of these uncertainty indicators for household saving using an error correction model. Her empirical results suggest that, apart from reported consumer sentiment, the uncertainty surrounding households' prospects, in particular as regards their future financial situation, does also play a role in the short-term dynamics of the savings ratio and may contribute to explaining deviations from its long-run equilibrium value.

JEL codes: D411, E21

Key words: household saving behaviour, uncertainty indicator

Main lessons of the NBB's 2014 conference "Total factor productivity : measurement, determinants and effects"

The article summarises the scientific contributions and discussions at the 2014 conference organised by the NBB on "Total factor productivity : measurement, determinants and effects".

At this conference, six original contributions were presented and discussed. They addressed the following questions : (i) what are the implications of technological progress for the relative demand for production factors ? (ii) what are the implications of ageing for the level of productivity in Belgian firms ? (iii) how does competition from imports affect domestic producers ? (iv) what is the link between production efficiency and the organisation of the goods and labour markets ? (v) does State aid improve corporate productivity ? Apart from these contributions, three lectures looked at the causes of the slowdown in total factor productivity in the advanced economies and the effect of innovations (in the form of products, processes or organisation and management) as a driver of TFP growth.

Finally, a panel of international experts discussed the main economic policies necessary to avoid what some refer to as secular stagnation.

JEL codes : D24, O3, O47

Key words : Total Factor Productivity, potential growth

Results and financial situation of firms in 2013

The article looks at the financial situation of non-financial corporations in Belgium over the period from 1 January to 31 December 2013. After briefly describing the methodology and the population studied, it presents an extrapolation of the main operating result items for 2013, with a breakdown by sector and size. The article then goes on to assess the financial situation of companies as regards profitability, solvency and investment. This year, a separate section presents an analysis of their available funds, which have increased a lot over recent years. This analysis focuses among others on the concepts of working capital and working capital needs.

JEL codes : G30, G33, L60, L80

Key words : firms' results, financial structure, sectoral analysis, treasury, working capital

The 2013 social balance sheet

The transposition into national law of Directive 2013/34/EU on the annual financial statements of companies, expected by no later than July 2015, could alter the statistical obligations on small firms in connection with the filing of their annual accounts. In any case, the social balance sheet can no longer form an integral part of their accounts. Nevertheless, it contains original information whose usefulness is highlighted, on the basis of the social balance sheets for 2012, by examining the individual behaviour of firms and how that behaviour varies according to the firms' size.

The analysis reveals wide variations in the specialisation and location of firms according to their size : small and very small firms, active mainly in trade and transport, construction and industry, are decidedly regional. Their workforce is generally more homogeneous than that of larger firms : there is less gender diversity, and they employ fewer graduates. They also display greater uniformity of working arrangements and employment contracts. The annual working time is longer on average in small and very small firms, but there are greater variations in individual practice. On the other

hand, their hourly labour costs are lower on average than those of large firms. It is also shown that, even though the proportion of training firms is lower among small entities, the level of their training indicators is not systematically lower.

Employment contracted slightly between the end of 2012 and the end of 2013. The workforce declined in all three of Belgium's Regions and in almost all branches of activity; nonetheless, there was a clear increase in the staff registered in the "health and social work" and "business services" branches. In firms that file full-format accounts, the use of temp agency staff declined considerably in 2013. They also recorded larger numbers of staff leaving than in the previous year owing to a rise in the number of expiring temporary contracts and redundancies; conversely, there were fewer spontaneous departures. The proportion of workers receiving formal training expanded, but there was a decline in the rate of participation in informal and initial training. Similarly, the volume of hours devoted to training was up in the case of formal training but down in the other two cases. The indicator of the financial effort devoted to training declined because the formal and informal training budgets did not keep pace with the rise in staff costs, and there was a reduction in expenditure on initial training.

JEL codes : J20, J21, J22, J24, J31, J63, M53

Key words : agency worker, employment change, firing, hiring, social balance sheet, staff costs, staff turnover, temporary worker, training

Abstracts from the Working Papers series

264. The effects of state aid on total factor productivity growth, by P. Van Cayseele, J. Konings, I. Sergent, October 2014

The paper analyses the relationship between state aid and firm performance in terms of productivity growth. To this end, the authors use all European state aid cases that were granted (either to an individual firm or a group of firms under the form of a scheme) in manufacturing between 2003 and 2011. Their findings show that state aid measures are able to enhance productivity growth when firms are constrained due to a lack of cash availability. Since laggard firms are more likely to be financially constrained, they experience more TFP growth than close-to-frontier firms when receiving state aid. This beneficial effect of state aid is mainly driven by the post-crisis years in the sample. Their results are consistent with optimal development planning by profit-maximising firms.

265. Assessing the role of ageing, feminising and better-educated workforces on TFP growth, by A. Ariu, V. Vandenberghe, October 2014

The paper uses Belgian firm-level data, covering the 1998-2006 period, to assess the impact on TFP growth of key labour force structural changes: ageing, feminisation and rise of educational attainment. Based on a Hellerstein-Neumark analytical framework, the authors show that an ageing workforce negatively affects TFP growth, whereas its feminisation and its tendency to be better-educated do not have any independent positive or negative impact. Therefore, the TFP slowdown induced by the ageing process is neither gender biased nor counterbalanced by the rising educational attainment of the workforce. These findings are robust to many additional treatments applied to the data, and controlling for the different sources of endogeneity. Quantitatively, ageing workforces account for a –4.5 percentage point loss in terms of cumulative TFP growth over the 1991-2013 period; and the projections suggest that this fall to could –fall to –7 percentage points by the mid-2020s. This pattern is not so much dictated by Belgium's demography, but rather its commitment to attain an overall employment rate of 75 % by 2020. The latter almost inevitably implies virtually doubling the current employment rate of people aged 55-64.

266. A constrained nonparametric regression analysis of factor-biased technical change and TFP growth at the firm-level, by M. Verschelde, M. Dumont, B. Merlevede, G. Rayp, October 2014

Using firm-level data for Belgium, the authors study the validity of Hicks neutrality in several sectors that cover the spectrum of knowledge intensity. They find that Hicks neutrality is clearly not supported by the data in different sectors. The results are not sensitive to altering the specification of the technology by including firm age and R&D in the analysis. The authors also reject Hicks neutrality for a balanced sample, pointing to 'within-firm' factor-biased technical change and they also find factor-biased technical change in the pre-crisis era, indicating that unobserved heterogeneity in demand does not drive the results. Overall, their results point towards low-skilled-labour-saving and materials-using technical change. So far, this has received little attention and may be linked to offshoring and global value chain networks. Finally, they show that nonparametric estimates of TFP change that allow for factor biases support the evidence of the recent slowdown in TFP growth in many manufacturing sectors in Belgium. Estimates of TFP and technical change are shown to be sensitive to the estimation method and the specification of the factor bias of technical change.

267. Market imperfections, skills and total factor productivity: Firm-level evidence on Belgium and the Netherlands, S. Dobbelaere, M. Vancauteren, October 2014

The paper revisits the relationship between competition and total factor productivity by analysing how the type and the degree of product and labour market imperfections affect different moments of total factor productivity distributions. Following the methodology developed in Dobbelaere and Mairesse (2013), the authors use an unbalanced panel of 5 285 firms over the period 2003-2011 in Belgium and 9 653 firms over the period 1999-2008 in the Netherlands to first classify 30 comparable manufacturing and service industries into six distinct regimes that differ in the type of competition prevailing in product and labour markets. In both countries, the dominant regime is one of imperfect competition in the product market and efficient bargaining in the labour market. The authors find important cross-country differences in the composition of industries making up the regimes and cross-country variation in the levels of product and labour market imperfection parameters within the dominant regime. They then provide clear descriptive evidence of total factor productivity distributional characteristics varying by the type of competition predominating in product and labour markets and to some extent by the degree of product and labour market imperfections. In both countries, average total factor productivity growth rates are found to be higher in high-skilled enterprises in all regimes, except where there is perfect competition in both markets.

268. Import competition, productivity and multi-product firms, by E. Dhyne, A. Petrin, V. Smeets, F. Warzynski, October 2014

Using detailed firm-product level quarterly data, the authors develop an estimation framework of a Multi-Product Production Function (MPPF) and analyse firm-product level TFP estimates at various levels (industries, products). After documenting the estimation results, they relate productivity estimates with import competition, using firm and product level measures of import competition. They find that if productivity at the firm level tends to positively react to fiercer import competition, the multi-product firms' response varies according to the relative importance of the product that faces stronger import competition in their product portfolio. When import competition associated with the main product of a firm gets tougher, the firm tend to increase its efficiency in producing that core product, in which it has a productivity advantage. However, when the degree of foreign competition increases for a firm's non-core products, it tends to lower its efficiency in producing those goods.

269. International competition and firm performance: Evidence from Belgium, by J. De Loecker, C. Fuss, J. Van Biesebroeck, October 2014

The authors evaluate the impact of international competition on firm-level performance in Belgium. In the manufacturing sector, they consider both the impact of global competition through measures of import penetration and the impact of intra-EU competitiveness using measures of relative labour cost. In selected manufacturing sectors, they identify the strength of international competition through a firm's proximity to the border. In both instances, they consider the impact on a variety of performance dimensions to learn about the mechanisms and about firms' adjustment to these competitive pressures.

270. Acquisitions, productivity, and profitability: Evidence from the Japanese cotton spinning industry, by S. Braguinsky, A. Ohyama, T. Okazaki, C. Syverson, October 2014

The authors explore how changes in ownership and managerial control affect the productivity and profitability of producers. Using detailed operational, financial, and ownership data from the Japanese cotton spinning industry at the turn of the last century, they find a more nuanced picture than the straightforward "higher productivity buys lower productivity" story commonly referred to in the literature. Acquired firms' production facilities were not on average less physically productive than the plants of the acquiring firms before acquisition, assuming that they were operating. They were much less profitable, however, due to consistently higher inventory levels and lower capacity utilisation rates – differences that reflected problems in managing the uncertainties of demand. When purchased by more profitable firms, these less profitable acquired plants saw drops in inventories and gains in capacity utilisation that raised both their productivity and profitability levels, consistent with acquiring owners/managers spreading their better demand management abilities across the acquired capital.

271. Total factor productivity: Lessons from the past and directions for the future, by B. van Ark, October 2014

The paper begins with a brief review of some of the key notions and issues with regard to the measurement and use of total factor productivity metrics. The author then focuses on some empirical applications, which include the latest updates of the TFP slowdown in Europe, newly measured TFP spillovers from ICT network effects, and the impact of intangible investment on TFP. The paper concludes with a few observations with regard to policy-making aimed at reviving growth through productivity in Europe.

272. Outward foreign direct investment and domestic performance: In search of a causal link, by E. Dhyne, S. Sarisoy Guerin, October 2014

The aim of the paper is to examine causal effects on a large number of domestic performance indicators of outward foreign direct investment activities of corporations that start expanding abroad. Their results indicate that there is no evidence in their data to show that FDI has any statistically significant impact on productivity, employment and output. The only statistically significant result indicates that FDI causes positive growth in export intensity. On the other hand, when the authors restrict their sample to Belgian manufacturing firms only, they do find that switching to OFDI causes positive growth in TFP. This effect is coupled with an increase in wages and exports. On the other hand, they do not find any statistically significant evidence that internationalisation of Belgian firms causes any loss of employment for the unskilled worker as in other studies.

273. Economic importance of air transport and airport activities in Belgium – Report 2012, by F. Van Nieuwenhove, November 2014

The study assesses the economic importance of air transport and airport activities in Belgium in terms of value added, employment and investment over the 2009-2012 period. The sector considered embraces not only the activities directly connected with air transport, but also all the activities that take place on site at the six Belgian airports (Antwerp, Brussels, Charleroi, Kortrijk, Liège and Ostend). The study reviews the direct and indirect effects of the sector on the basis of microeconomic data (mainly obtained from the Central Balance Sheet Office) and macroeconomic data (from the National Accounts Institute). It also includes an analysis of the social balance sheet and certain ratios using Central Balance Sheet Office data.

In 2012, air transport and airport activities generated € 5.6 billion in direct and indirect value added (i.e. 1.5 % of Belgian GDP) and employed 66 200 people in full-time equivalents (FTEs) either directly or indirectly (1.7 % of domestic employment).

Brussels Airport is the country's biggest airport in terms of passenger traffic, but has seen its leading position somewhat eroded by Charleroi, which with Ryanair has staged robust growth in the low-cost segment. Meanwhile, Liège has assumed the position of leading cargo airport and currently accounts for over half of total cargo traffic to and from Belgium. Charleroi and Liège are the fastest growing airports in terms of value added and employment. With the exception of Ostend, the Flemish regional airports have also proved resilient on both counts, while Brussels Airport may be described as holding more or less steady.

274. Fiscal policy and TFP in the OECD : Measuring direct and indirect effects, by G. Everaert, F. Heylen, R. Schoonackers, November 2014

The paper analyses the direct and indirect effects of fiscal policy on total factor productivity (TFP) in a panel of OECD countries over the period 1970-2012. This contribution is twofold. First, when estimating the impact of fiscal policy on TFP from a production function approach, the authors identify the worldwide available level of technology by exploiting the observed strong cross-sectional dependence between countries instead of using ad-hoc proxies for technology. Second, next to direct effects, they allow for indirect effects of fiscal policy by modelling the access of countries to worldwide available technology as a function of fiscal policy and other variables. Empirically, they propose and implement a non-linear version of the Common Correlated Effects Pooled (CCEP) estimator developed by Pesaran (2006). The estimation results show that, through the direct channel, budget deficits do harm TFP. A shift towards productive expenditure has a strong positive impact on TFP, whereas a shift towards social transfers reduces TFP. Through the indirect channel, significant positive effects on a country's access to global technology come from reducing the statutory corporation tax rate and from reducing barriers to trade.

Conventional signs

e	estimate
e.g.	exempli gratia
i.e.	id est
n.e.c.	not elsewhere classified
p.m.	*pro memoria*

List of abbreviations

Countries or regions

EU15	European Union of 15 countries, before the 2004 enlargement
EU27	European Union, excluding Croatia
EA	Euro area
JP	Japan
US	United States

Others

ABS	Asset-backed securities
ASC	Accounting Standards Commission
BIS	Bank for International Settlements
CPA	Classification of Products by Activity
CPB	Centraal Planbureau (Netherlands)
CVTS	European Continuing Vocational Training Survey
DG-ECFIN	Directorate General for Economic and Financial Affairs
DGSEI	Directorate General for Statistics and Economic Information (Belgium)
DIMONA	Déclaration immédiate/Onmiddellijke aangifte (electronic declaration for notifying hirings and departures to social security authorities)
DOLS	Dynamic ordinary least squares
EC	European Commission
ECB	European Central Bank
ECM	Error correction model
Eonia	Euro Overnight Index Average
EPU	Economic Policy Uncertainty indicator
ESA	European System of Accounts
ESM	European Stability Mechanism
EU	European Union
EU-KLEMS	EU-level analysis of capital (K), labour (L), energy (E), materials (M) and service (S) inputs

FDIC	Federal Deposit and Insurance Corporation
FEBIAC	Belgian motor vehicle and cycle federation
Fed	Federal Reserve
FOMC	Federal Open Market Committee
FPS	Federal Public Service
FTE	Full-time equivalent
GDP	Gross domestic product
GECE	Group of Experts on Competitiveness and Employment
GSE	Government-sponsored enterprise
HICP	Harmonised index of consumer prices
ICT	Information and communication technologies
IMF	International Monetary Fund
IOER	Interest on excess reserves
MBS	Mortgage-backed securities
MIR	Monetary financial institution interest rates
MOVE	Merrill Option Volatility Expectations index
MSCI	Morgan Stanley Capital International
NACE-Bel	Nomenclature of economic activities in the European Community, Belgian version
NACE-Rev. 2	Nomenclature of economic activities in the European Community, Second Revision (2008)
NAI	National Accounts Institute
NATO	North Atlantic Treaty Organization
NBB	National Bank of Belgium
NCPI	National consumer price index
NEO	National Employment Office
NPI	Non-profit institution
NSSO	National Social Security Office
OECD	Organisation for Economic Cooperation and Development
OIS	Overnight index swaps
OLO	Linear bonds
OMT	Outright monetary transactions
PCE	Personal Consumption Expenditures
PRODCOM	EU-wide statistical survey on the production of industrial goods
R&D	Research and development
SME	Small and medium-sized enterprise
SMP	Securities Markets Programme
SNCB	Belgian national railway company (Société nationale des chemins de fer belges)
S&P	Standard and Poor's
SVM	Support vector machines
TFP	Total factor productivity
TLTROs	Targeted long-term refinancing operations
VAT	Value added tax

VIX	Volatility Index
XBRL	Extensible business reporting language

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