Economic Review

June 2014

National Bank OF BELGIUM

Eurosystem

ISSN 1780-664X

Contents

Economic projections for Belgium – Spring 2014

Introduction

After several quarters of zero or even negative growth, the Belgian economy began to pick up in the spring of last year. As expected at the time of the autumn projections, that recovery gradually gathered momentum during the second half of the year, with quarterly growth of 0.3 %, and at the beginning of 2014. However, according to the statistics currently available, the expansion of activity will come to only 0.2 % in 2013 owing to a negative level effect. According to the NAI's flash estimate, quarterly growth again gathered pace slightly in the first quarter of 2014 compared to the rate recorded in the second half of 2013.

At global level, too, the recovery clearly continued. Although in all probability growth weakened slightly in the first quarter of this year, notably owing to bad weather in the United States, global activity seems to have picked up since the second half of last year. However, the picture is not the same in the various regions of the world. Thus, the widespread slowdown seen in the emerging countries since mid-2003 was offset by higher growth rates in a number of advanced countries such as the United States and the United Kingdom, but also in the euro area where the recovery has become more balanced: most of the peripheral euro area countries are now recording positive growth rates. Nevertheless, there are still some major risks confronting the global economy: in addition to the persistent uncertainty over the decline in growth in the emerging countries, there are now the recent geopolitical tensions surrounding the conflict in Ukraine.

On the financial markets, calm has been restored. In the euro area, tensions concerning the peripheral countries have eased considerably, as is evident from the sharp fall in interest rates on their government bonds and the return of several countries to market financing. Nominal interest rates have likewise continued falling in Belgium – in May 2014, yields on ten-year government bonds were at an unusually low level of less than 2 % – although it is necessary to bear in mind the very low level of inflation. In the advanced countries, stock market prices continued to rise despite occasional jitters, due notably to the gradual withdrawal of the monetary stimulus in the United States and the recent geopolitical tensions.

In that context, the current spring projections set out in this article are very similar to the autumn projections published in December 2013. They still report a continuation of the revival in activity in a low inflation environment. While the current statistics on growth in 2013 are perfectly in line with the autumn projections, the growth estimate for 2014 was revised slightly upwards to 1.3 %, an increase of around 0.2 percentage point. The common technical and external assumptions on which the Eurosystem forecasts are based, the main ones being described in the box in chapter 1 of this article, are marginally less favourable overall than those underlying the December 2013 estimates. The slight downward revision of market growth and the relative appreciation of the euro weigh on export growth in that respect. The minor negative impact of these new assumptions is, however, more than offset by two other factors. First, according to the said flash estimate, the expansion of economic activity in the first quarter of 2014 was slightly stronger than expected in the autumn projections. Second, the growth of general government expenditure (both consumption and investment) was revised upwards for 2014. That is due partly to the existing budget procedures which set nominal levels for many expenditure categories: lower than expected inflation then automatically results in higher volume growth.

Over the next two years, on the basis of the current assumptions, activity should continue to expand steadily and be fuelled to a greater extent than in 2013 and 2014 by more noticeable growth of domestic demand. Annual growth is then forecast at around 1.6-1.7 %, corresponding to the long-term average since 2000 but exceeding most estimates of the potential growth of the Belgian economy, which is not unusual in a recovery phase.

The recovery is also taking shape on the labour market. In the end, there were almost 10 000 further job losses last year. That is slightly lower than the figure suggested in the autumn projections because the labour market turned around slightly sooner than forecast, namely before the end of the year. According to the current projections, a net total of almost 12 000 jobs should be created this year. This job creation is expected to continue in subsequent years, with more than 20 000 net jobs in 2015 and over 30 000 in 2016. However, in view of the expansion of the labour force, it will be 2015 before these new jobs can bring down the annual unemployment rate.

As everywhere in the euro area, inflation will be unusually low in 2014, although in Belgium that is due partly to the cut in VAT on household electricity consumption which took effect in April 2014. After adjustment for volatile components, however, prices will rise a little faster than in 2013. According to the current projections, this underlying inflation will also continue to rise steadily to just below 2 % at the end of 2016.

Turning to public finances, the budget deficit is likely to remain unchanged this year before increasing again slightly from next year. This means that new and substantial fiscal consolidation efforts are needed to achieve the targets set in the stability programme. 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 implementing arrangements have been specified in sufficient detail on the cut-off date for the forecasting exercise, in this case 21 May. 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. At the same time, the big difference between the current estimates and the targets is a major risk for the macroeconomic projections, because the new federal and regional governments are likely to adopt significant additional measures. However, as stated in the article entitled "Is government spending the key to successful consolidation?", published in this same Economic Review, the macroeconomic impact of the consolidation measures depends very much on the exact type of measure and on certain circumstances. Moreover, these consolidation efforts may be accompanied by new structural reforms. It is therefore impossible at this stage to quantify precisely the effects of a policy aimed at achieving the fiscal targets.

For the first time, the projection period covered by this article extends to year t+2, i.e. 2016. The Bank is thus conforming to the new publication format applicable to euro area forecasts by the ECB and the Eurosystem. From this year onwards, these projections in fact cover a two-year period. Thus, a forecast relating to 2016 was published for the first time in the ECB's March 2014 Monthly Bulletin. It is understood that the margins for error are greater for later years, notably because of the increased uncertainty surrounding the international environment and the technical assumptions. Moreover, it should be noted that for later years the estimates take account only of the economic policy which is currently known. That applies not only to fiscal policy, as stated above, but also to monetary policy and structural reforms. Deviations from the forecasts presented here may therefore result from future changes to economic policy. In that connection, it should be noted that the effects of the ECB's monetary policy decision dated 5 June 2014 could not be taken into account in this projection exercise.

1. International environment and assumptions

1.1 Global economy

In 2013, the rather general slowdown in activity in the emerging countries led to a deceleration in the growth of the global economy. Conversely, the contribution of the advanced economies increased during the year, as a result of the economic recovery in the United States, more vigorous growth in Japan, and a slow recovery in the euro area. On average, international trade continued to record weak growth but gathered pace in the second half of the year, driven by the recovery in the advanced countries. Recent indicators show a mixed picture for the international environment. Thus, global growth slowed again in the final quarter of 2013 and world trade remained stable in the initial months of 2014. Nonetheless, the international institutions expect world growth to strengthen gradually overall in 2014 and 2015, with a marked expansion in world trade.

In the advanced economies, temporary factors such as the harsh winter in the United States may have played a role in the moderate growth of activity at the beginning of the year. For those countries, the international institutions in fact predict that economic growth will almost double during 2014 and 2015. In the United States, factors likely to support economic activity are a fiscal policy which is less tight and – thanks to recent political agreements on the budget and the debt ceiling – less uncertain, continuing favourable financing conditions, the improvement in the labour market and the rise in property prices and stock market prices. In Japan, the expansion fostered by government measures is set to weaken gradually, notably owing to the need for fiscal consolidation. Following years of deflation, consumer prices in Japan edged upwards in 2013, thanks to government recovery measures and the strong depreciation of the yen. For 2014, inflation is actually expected to increase considerably, though that will be due partly to the consumption tax hike; in 2015, prices should then resume a more moderate upward trend.

In the euro area, according to the EC's latest projections, the recovery in 2014 and 2015 is set to continue strengthening and should become less uneven across the Member States. The outlook is also better for the most fragile countries: only Cyprus is projected to see a further contraction in its economic activity in 2014. Growth should also become more broad-based, supported by the recovery of domestic demand, as the labour market situation is gradually improving and the restraint on demand exerted by macroeconomic adjustments and debt deleveraging is expected to diminish gradually. Domestic demand is also likely to be bolstered by a less tight fiscal policy and favourable financial market conditions, although bank lending remains weak. In that respect, the fragmentation between Member States in regard to bank lending conditions remains significant. In the context of the progressive revival of the global economy, export growth in the euro area as a whole is projected to strengthen. However, import growth is also likely to increase as a result of the quickening pace of domestic demand so that net exports – which were a major factor in the recovery in previous years – will therefore gradually reduce their contribution to growth.

Conversely, there was a growth slowdown in the emerging economies from 2012, particularly in a few large countries such as China, which had a negative effect on the other economies. In mid-2013, that effect was compounded by stricter financing conditions following the announcement by the US central bank of its intention to adjust its securities purchases; that triggered serious turmoil on the financial markets of several major emerging countries, which flared up again at the end of 2013 and in early 2014. The situation differs widely across the various emerging economies some of which have weak fundamentals, but overall the international institutions expect growth in these countries as a whole to stabilise in 2014. In China, where growth is slowly moving away from exports and is becoming based more on domestic sources, the pace of expansion is projected to decelerate gradually. In Russia, economic activity growth was considerably slower in 2013, one reason being the marked deceleration in private investment. According to provisional indicators, growth continued to weaken in the first quarter of 2014, and that is no doubt linked to the tensions concerning the conflict in Ukraine. Moreover, the uncertainty over the Russian forecasts was greatly increased.

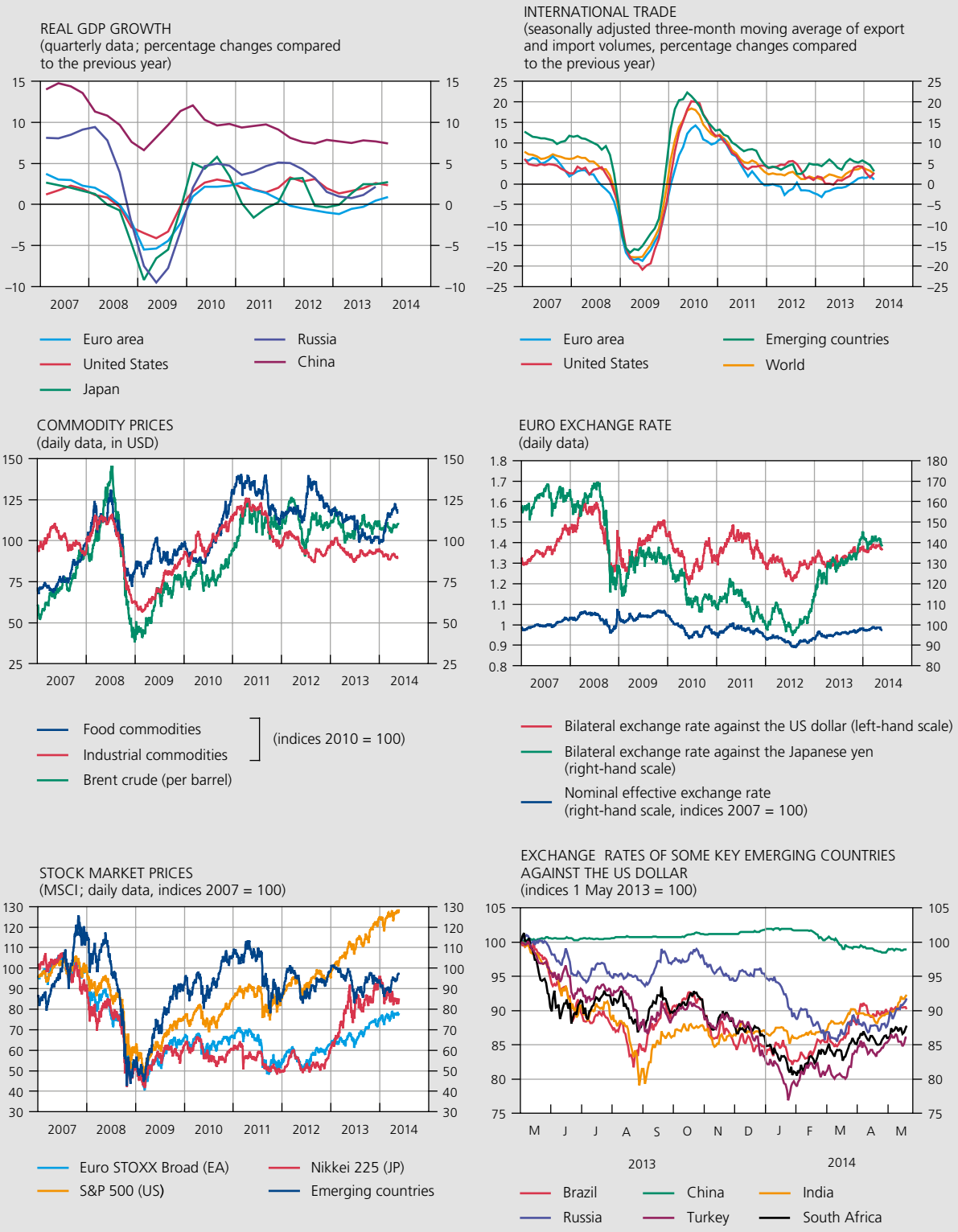
TABLE 1 PROJECTIONS FOR THE MAIN ECONOMIC REGIONS

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

	2013	2014	2015
	Actual figures	Projections	
Real GDP			
World	2.9	3.5	3.8
of which:			
Advanced countries	1.2	2.2	2.5
United States	1.9	2.8	3.2
Japan	1.5	1.5	1.3
European Union	0.1	1.6	2.0
Emerging countries	4.6	4.7	5.1
China	7.7	7.2	7.0
India	3.9	4.7	5.4
Russia	1.3	1.0	2.0
Brazil	2.3	2.6	2.9
p.m. World imports	*2.2*	*4.4*	*5.7*
Inflation (1)			
United States	1.5	1.7	1.9
Japan	0.4	2.5	1.6
European Union	1.5	1.0	1.5
China	2.6	2.4	2.4
Unemployment (2)			
United States	7.4	6.4	5.9
Japan	4.0	3.8	3.8
European Union	10.8	10.5	10.1

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

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



Sources: ECB, OECD, CPB, Thomson Reuters Datastream.

From the closing months of 2013, the general fall in commodity prices – which had persisted for two years and partly reflected the growth slowdown in the emerging countries – came to a halt. Brent crude oil prices hovered around 109 dollars per barrel from October to May, and industrial commodity prices did not exhibit any clear trend during that period. Food commodities actually increased sharply in price from the beginning of 2014, owing to bad weather in certain food commodity producing countries and concern about the situation in Ukraine, which is a major exporter of cereals. In view of these developments and excess production capacity, price rises in the advanced economies were moderate. In the euro area, the appreciation of the euro was also a contributory factor.

In January 2014 the euro lost ground, but in a context of positive investor sentiment it then resumed its appreciation that had begun from mid-2012. However, the euro depreciated again in May, both bilaterally in relation to the Japanese yen and the US dollar, and in nominal effective terms. Overall, in mid-May the weighted average euro exchange rate was slightly below the level prevailing at the end of December 2013. The depreciation against the yen is linked to the apparent turnaround, from the beginning of 2014, in that currency's general sharp depreciation since mid-2012.

The potential impact of the gradual reduction in the monetary stimulus in the United States on the international financial markets, particularly those of the emerging economies, and the uncertainty surrounding the Chinese economy are risks for the global economy in the years ahead. Moreover, the geopolitical risk has also been heightened by the events in Ukraine, with potential consequences for growth, primarily in central and eastern Europe.

Box 1 – Assumptions adopted for the projections

The macroeconomic projections for Belgium described in this article are the result of a joint Eurosystem exercise for the euro area. That 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.

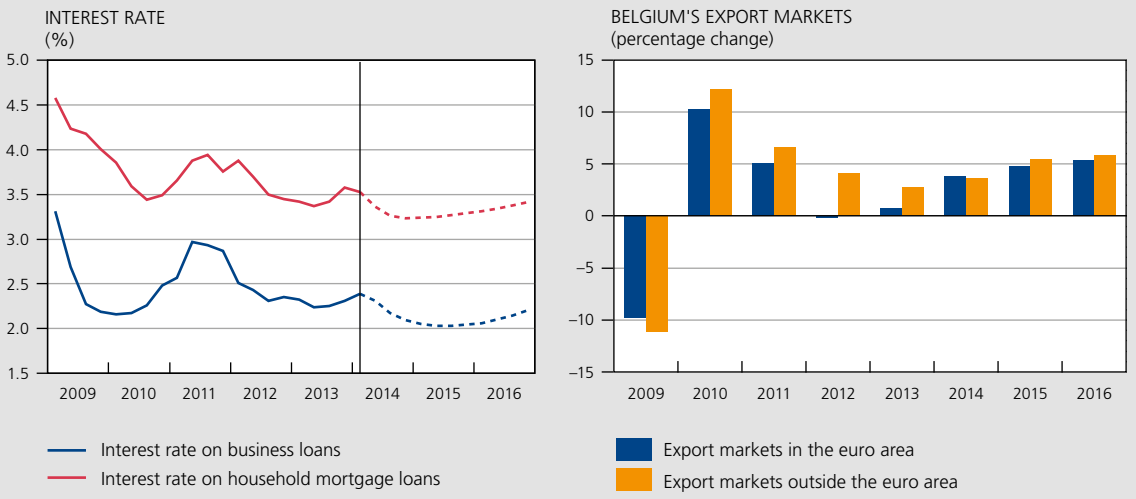
In the projections, it is assumed that future exchange rates will remain throughout the projection period at the average levels recorded in the last ten working days before the cut-off date of the assumptions on 15 May 2014. In the case of the US dollar, the exchange rate then stood at $ 1.38 to the euro, a marked appreciation against the average of $ 1.33 to the euro in 2013.

As usual, in regard to oil prices, account is taken of market expectations as reflected in forward contracts on the international markets. In mid-May 2014, this indicator suggested that the price per barrel of Brent could decline gradually over the projection horizon, from an average of $ 108 in the first quarter of 2014 to $ 97 in the last quarter of 2016.

The interest rate assumptions are likewise based on market expectations in mid-May 2014. The three-month interbank deposit rate remained at an unusually low level of 30 basis points in the first quarter of 2014. A comparable level is expected for the end of 2015, followed by a rise to 54 basis points by the end of 2016. The level of long-term interest rates in Belgium is also expected to rise gradually, from 2 % in the second quarter of this year to an average of 2.8 % in 2016. It is mainly the long-term interest rate that has been revised downwards quite considerably for 2014 and 2015, compared to the assumptions made in the latest autumn projections.

However, the interest rates that the 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, but since December the adjustments to these retail rates offered by the banks have generally been downwards. In the first quarter of 2014, the average mortgage interest rate stood at around 3.5 %, very similar to the level prevailing a year earlier. That interest rate level is expected to continue falling by a further 30 basis points in 2014 before

INTEREST RATES AND VOLUME GROWTH OF EXPORT MARKETS
(%)



Source: Eurosystem.

picking up in 2015. In comparison with the December 2013 assumptions, only a small downward revision was made for 2015. The average interest rate on business loans, which is closer to the short-term segment, exhibits more or less the same tendency: it is likely to fall further in 2014 to just over 2 % in the final quarter, and maintain that level in general throughout 2015 before beginning to edge back up during 2016.

Global economic growth has been revised downwards slightly since the December 2013 autumn projections. However, growth is not slackening everywhere, since the United States and the United Kingdom are actually likely to see more vigorous growth than those projections predicted. The main downward revision concerns Russia and its neighbouring countries, one reason being the geopolitical tensions caused by the conflict in Ukraine.

Taking account of the slight downward revision of global growth, disregarding the euro area, and the presumed lower elasticity of trade to GDP, the year-on-year growth of the foreign markets relevant to Belgium underwent a slight downward adjustment in 2014 and 2015.However, over the projection horizon, foreign markets in general display a clearly positive trend, as the projections expect 3.7 % growth in 2014, rising to 5.5 % in 2016. Belgium's markets expanded in 2014, mainly owing to the influence of export markets in the euro area, which recovered sooner than originally expected, thanks to the economic revival in the euro area countries. The growth of Belgium's export markets outside the euro area was revised downwards in relation to the assumptions made for the December 2013 projections, and that applies to the whole projection period. Nonetheless, from 2015 export markets outside the euro area are forecast to outpace the growth of those in the euro area once again.

The trend in Belgian exports is determined not only by the growth of these markets but also by changes in market shares, and therefore Belgium's competitiveness. In regard to cost-related competitiveness aspects, one important factor is the movement in the prices which competitors charge on the export markets. Those prices have been falling since the last quarter of 2012: in 2014, competitors' prices on the export markets are forecast to decline by 1.5 %, after already having fallen by 1.7 % on average in 2013. For both 2015 and 2016, the projections expect prices to rise by more than 1 %. This is a sharp downward revision, especially for 2014 (down by 1.9 percentage

points), in comparison with the autumn projections, a revision which is due partly to the appreciation of the euro as measured on the basis of the real effective exchange rate.

EUROSYSTEM PROJECTION ASSUMPTIONS

(in %, unless otherwise stated)

	2014	2015	2016
		(annual averages)	
EUR/USD exchange rate	1.38	1.38	1.38
Oil price (US dollars per barrel)	107.16	102.24	98.22
Interest rate on three-month interbank deposits in euro	0.26	0.25	0.43
Yield on ten-year Belgian government bonds	2.14	2.37	2.75
Corporate loan interest rate	2.24	2.04	2.13
Household mortgage interest rate	3.34	3.26	3.36
		(percentage changes)	
Export markets relevant to Belgium	3.7	5.1	5.5
Export competitors' prices	–1.5	1.1	1.4

Source: Eurosystem.

1.2 Estimates for the euro area

According to the Eurosystem's spring projections, the recovery which began in the euro area in the spring of 2013 should become more vigorous. In 2014 the euro area's economy is likely to grow by 1 % and growth should gain further momentum during the ensuing two years. In that regard, the growth contribution of net exports is forecast to decline, giving way to a rise in domestic demand which will become by far the main engine of growth during the projection period. Factors supporting that rise in domestic demand include the waning of uncertainty, the accommodative monetary policy, and the steady growth of incomes in a low inflation environment. However, the need for both governments and the private sector to proceed with further debt reduction in a good many countries continues to depress the growth outlook.

After having fallen to an unusually low level in the spring of 2014, inflation is also set to begin rising gradually, driven by stronger demand, to reach around 1.5 % in the last quarter of 2016. Underlying inflation – i.e. inflation excluding volatile movements in prices of energy and food – is expected to rise gradually to an average of around 1.5 % in 2016.

Although the growth of output will initially be supported to some extent by the improvement in productivity and the number of hours worked per person, employment is forecast to exhibit a clear upward trend from 2014. Unemployment, which still stood at 12 % in 2013, should therefore fall by around one percentage point in 2016.

The average budget deficit in the euro area is projected to decline by more than 1 % of GDP over three years to just 1.9 % of GDP in 2016. However, that improvement is attributable mainly to the revival in economic activity, the disappearance of several one-off factors weighing on the deficit, and the decline in interest charges. Fiscal policy is expected to remain fairly neutral during the period considered, because new consolidation efforts in some countries will be largely offset by an easing of fiscal policy in other countries.

TABLE 2 EUROSYSTEM PROJECTIONS FOR THE EURO AREA

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

	2014 e	2015 e	2016 e
Real GDP	1.0	1.7	1.8
Final consumption expenditure of households and NPIs	0.7	1.5	1.6
Final consumption expenditure of general government	0.4	0.4	0.4
Gross fixed capital formation	1.7	3.1	3.5
Exports of goods and services	3.6	4.8	5.3
Imports of goods and services	3.6	4.8	5.5
Inflation (HICP)	0.7	1.1	1.4
Underlying inflation (1)	1.0	1.2	1.5
Employment	0.3	0.5	0.7
Unemployment rate (2)	11.8	11.5	11.0
General government financing requirement (–) or capacity (3)	–2.5	–2.3	–1.9

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

As had been predicted in the Bank's autumn forecast, the economic recovery which began in the spring of 2013 continued to strengthen in the second half of the year to reach a growth rate of 0.3 % per quarter. According to the first complete statistics for the full year available since the end of April, it is evident that the recovery was largely maintained. From the second half of the year, the quarterly growth of value added became clearly positive in most of the main branches of activity. The same applies to the growth contribution of all the expenditure components except for the change in inventories, which maintained its negative impact on real GDP in the third and fourth quarters of last year. In that regard, following a marked strengthening in the first half of the year, private consumption flagged slightly, recording a lower growth rate. In contrast, investment in housing returned to positive growth slightly sooner than expected in the autumn projections.

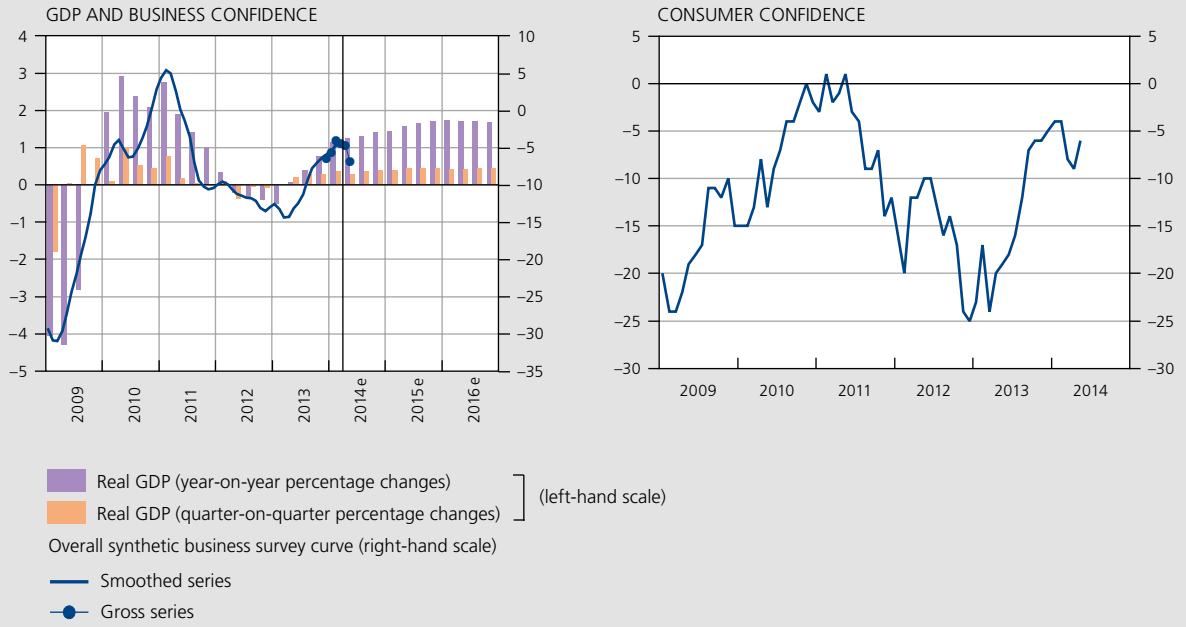
This picture is in line with that seen in the rest of the euro area. In other European countries, too, including many peripheral countries, the economic recovery is continuing. However, it remains fragile, and the quarterly growth rates are still very low, at between 0.1 and 0.2 % for the euro area as a whole. In the first quarter of this year, according to the initial flash estimates published by Eurostat, the euro area again recorded 0.2 % growth. However, it should be noted that the growth rates of individual countries vary widely, with a marked increase in Germany and confirmation of the recovery in Spain, lower than expected growth – virtually zero – in France and Italy, and a sharp fall in the Netherlands and Portugal. This wide dispersion is probably due largely to certain specific factors: thus, the extremely mild winter stimulated the German construction industry, while in the Netherlands and France it tended to depress the production and consumption of energy, and hence growth. Despite the volatility of the quarterly growth rates, according to the initial analyses the underlying trend still indicates continuation of Europe's economic recovery.

The economic upturn during 2013 took place in the context of a strong improvement in producer and consumer confidence. According to the Bank's surveys, these two confidence indicators have been rising in Belgium since the spring of 2013. At the start of this year they were clearly above their long-term average. Since then the restoration of confidence has, at the very least, been slightly eroded. Thus, in recent months there has been hardly any improvement in producer confidence, and some deterioration in May, and consumer confidence clearly weakened from February onwards, not regaining its year-end 2013 level until May.

In Belgium, it seems that activity growth likewise slightly outpaced that of the euro area in the first quarter of

CHART 2 GDP AND CONFIDENCE INDICATORS

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



Sources: NAI, NBB.

2014. The Bank's current forecasts are based on the assumption of a continuation of the economic revival with growth clearly positive again in the second quarter. That assumption is based partly on the estimates supplied at the forecast cut-off date by the short-term forecasting models (nowcasting models) used by the Bank, particularly the BREL model, described in another article in this Economic Review. According to the current projections, activity will then expand by an average of around 0.4 % in the coming quarters. However, annual growth for 2014 will be limited to 1.3 % overall, though it is expected to increase to 1.6 or even 1.7 % over the next two years. Once again, it is necessary to bear in mind the very high degree of uncertainty inherent in estimates for later years. As usual, as the recovery progresses, economic growth will gradually gain more support from domestic spending and less from net exports, which were still making a large contribution to growth in 2013. The change in inventories continues to depress annual growth in 2014, but that is due solely to a substantial level effect resulting from the downward trend in 2013. Although we must certainly not rule out the possibility that firms might reduce their inventories at a slower pace in the near future, or speed up their stock building, the technical assumption made for all quarters in the period covered by the projections was that the change in inventories would be neutral for growth, again because of the greater statistical uncertainty surrounding this concept.

The growth contribution of net exports is expected to remain positive this year, but in both 2015 and 2016 imports are likely to rise faster than exports, making that contribution slightly negative. The projections predict that export growth will fall slightly short of market expansion since it is assumed that Belgium will lose market shares. The movement in these market shares is fairly volatile year-on-year, and according to the national accounts and the available statistics on the growth of 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. Measured over a slightly longer period, however, the Belgian economy suffers from a tendency to lose market shares, the main reason being a lack of competitiveness, attributable to both costs and non-cost factors. According to the forecasts, those losses will be less than the long-term average and should diminish towards the end of the projection period. It is mainly thanks to the recent measures aimed at limiting wage increases, as the first move towards reducing the competitiveness gap in relation to neighbouring countries, that labour costs are set to rise more slowly in Belgium than in the euro area as a whole,

TABLE 3 GDP AND MAIN EXPENDITURE CATEGORIES

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

	2011	2012	2013	2014 e	2015 e	2016 e
Final consumption expenditure of households and NPIs	0.2	–0.3	0.8	1.1	1.3	1.6
Final consumption expenditure of general government	0.4	1.7	0.6	1.5	1.7	1.5
Gross fixed capital formation	4.0	–2.0	–1.4	2.0	2.7	2.9
general government	5.4	2.5	–5.0	–0.6	3.9	1.2
housing	–3.2	–3.2	–2.5	0.9	1.3	1.7
enterprises	7.3	–2.1	–0.5	2.9	3.2	3.6
p.m. Domestic expenditure excluding change in inventories	*1.1*	*–0.1*	*0.3*	*1.4*	*1.7*	*1.8*
Change in inventories[1]	1.0	–0.5	–0.6	–0.3	0.0	0.0
Net exports of goods and services[1]	–0.3	0.5	0.5	0.3	–0.1	–0.1
Exports of goods and services	6.4	1.8	1.9	3.3	4.2	4.9
Imports of goods and services	6.9	1.3	1.4	3.1	4.3	5.1
Gross domestic product	1.8	–0.1	0.2	1.3	1.6	1.7

Sources: NAI, NBB.

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

though another factor is a marked acceleration in wage growth in Germany in particular. Although, as mentioned in section 4, the increase in corporate margins implies a further slight attenuation of the effect of this more moderate wage growth on the movement in prices in the domestic market, export prices will nevertheless rise more slowly in comparison with those of foreign competitors. That is likely to support export growth even if the effects will perhaps only be fully apparent in the longer term.

In general, the volume growth of exports should therefore steadily accelerate to just below 5 % in 2016. However, as in the case of exports, the increase in domestic demand is set to relate partly to foreign production, so that in the end import growth will slightly outstrip the growth of exports.

While the autumn projections were still expecting zero real growth in 2013, domestic demand (excluding the change in inventories) ultimately increased a little faster than forecast, and volume growth already reached 0.3 % last year. During the projection period, that growth is likely to continue rising to reach almost 1.5 % this year, before gaining a little more momentum during the following two years.

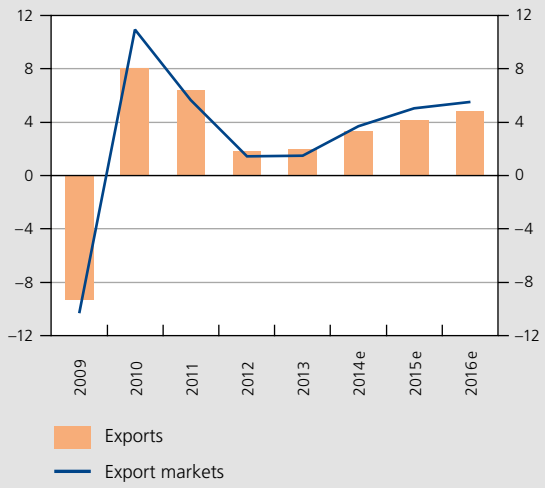
As in 2013, private consumption is again the main engine of growth. Despite the still relatively unfavourable economic situation and the limited growth of their purchasing power, households began to step up their consumption from the beginning of 2013, thus ending an unusually long period of decline in the volume of private consumption. The revival of consumer confidence during 2013, and in particular the waning of uncertainty over the employment outlook, played a decisive role here.

Despite the dip in confidence at the end of the first quarter of 2014, private consumption is expected to continue to recover during the forecast period. Although the nominal growth of incomes is limited by the wage moderation decided by the government, the initially still slow improvement in the labour market, and the erosion of property incomes due to the very low level of interest rates, low inflation is boosting purchasing power. In real terms, the growth of household disposable incomes should therefore accelerate as job creation continues to rise, and the growth of property incomes will strengthen slightly from 0.6 % to around 1 % in 2014 and 1.5 % or more in 2015 and 2016.

This income picture is likely to be reflected to a large extent in private consumption. According to the forecasts, there will only be a very moderate rise in the savings ratio. The proportion of property incomes, which are allocated more to savings, relatively speaking, is set to rise slightly at the end of the period under review, and many households which have had to contend with liquidity constraints in recent years will take advantage

CHART 3 EXPORT MARKETS AND EXPORTS OF GOODS AND SERVICES

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



Sources: NAI, NBB.

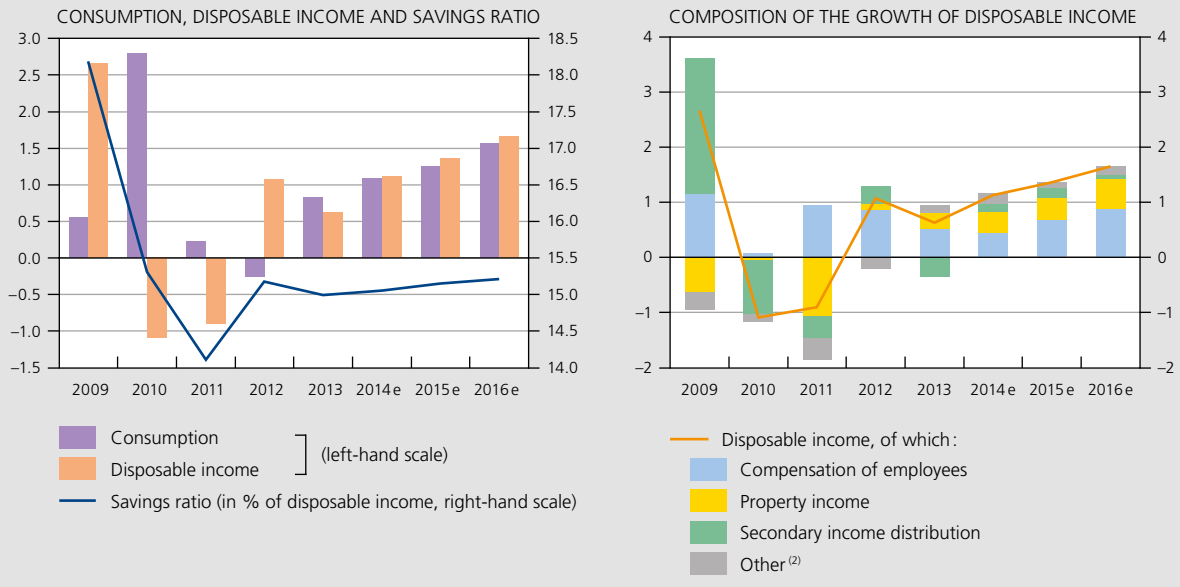
of the economic recovery to top up their reserve savings. Conversely, the easing of uncertainty will probably lead to a new decline in precautionary savings, and the return on savings will remain at a historically low level. This last factor is the main reason why the expected increase in the household savings ratio will remain very meagre overall, and why the savings ratio will still be well below its long-term average at the end of 2016.

The restoration of consumer confidence was also accompanied last year by a still very limited revival in investment in housing. After having deteriorated for almost three years, that investment recorded positive volume growth in the second half of 2013. As suggested, in particular, by the strong rise in applications for building permits, which has yet to be reflected in a marked increase in the number of housing starts, the forecasts now indicate the continuation of a moderate revival in the construction of new housing over the whole projection period.

However, the estimated growth of investment in housing is likely to remain relatively meagre and will only partly offset the sharp contraction which occurred in preceding years: at the end of 2016, the volume of this investment is projected to remain about 13 % below the level prevailing before the great recession. Two specific factors are

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 self-employed persons).

curbing growth. First, as shown in particular by the bank lending survey, the conditions for obtaining mortgage loans have clearly become tighter in recent years, and interest rates have risen in real terms despite a historically low nominal rate. Also, the uncertainty over the tax treatment of mortgage loans following the transfer of competence from the federal government to the Regions may prompt households to delay their building projects for a while.

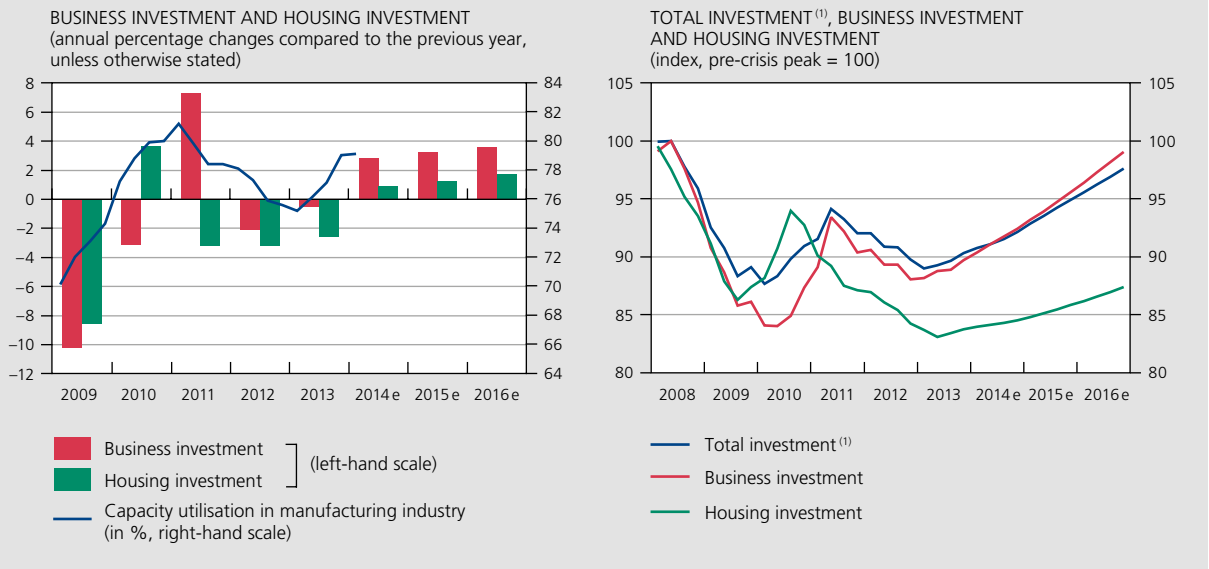
The volume of business investment, too, had already returned to positive growth at the end of 2013. That investment should continue to rise steadily during the period covered, to reach an annual volume growth rate of around 3 % from 2014. During the ensuing two years that growth is expected to strengthen a little more. The business investment revival is of course due to the improvement in the demand outlook in a context of economic recovery. In addition, capacity utilisation in manufacturing industry has again slightly exceeded its long-term average since the beginning of this year. Stronger demand will therefore gradually lead to higher investment in expansion, plus increased replacement investment. The improvement in the gross operating surplus not only boosts the existing cash reserves, it also enhances the firms' scope for internal financing; moreover, according to the bank lending survey, credit conditions became easier for firms during 2013. In contrast to investment in housing, this implies that, at the end of 2016, the volume of business investment should be back to more or less the same level as that prevailing before the great recession.

Despite the consolidation efforts, public consumption is still rising in real terms. Owing to the need to bring the budget deficit down below 3 % of GDP, the growth rate slowed to around 0.6 % in 2013. However, this low public consumption growth rate is likely to pick up again in 2014 and in the ensuing years to around 1.5 %. Conversely, public investment is set to fall a little further in real terms in 2014, in accordance with the usual electoral cycle. The volume growth of this investment is nevertheless expected to become positive again in 2015 and 2016.

3. Labour market

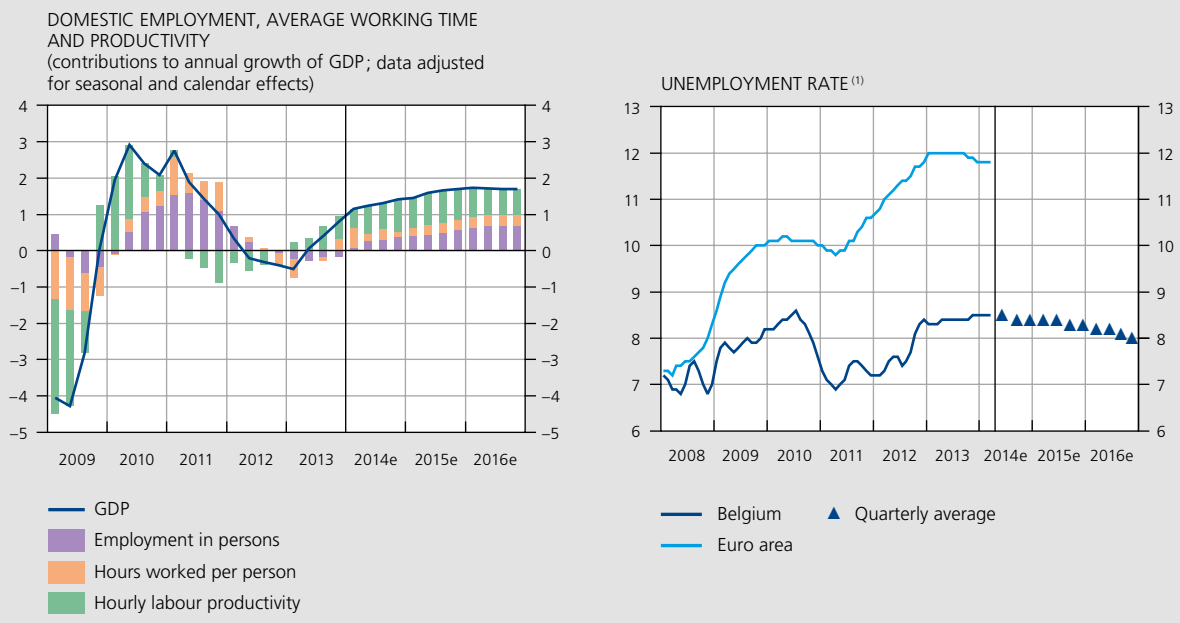
Taking account of the time lag between movements in activity and employment, on the one hand, plus the modest pace of the economic recovery in 2013, on the other, the number of people in work had fallen by 0.2 % in that year after having risen for three years in a row. In 2014, new net job creation is expected, averaging 0.3 % or 12 000 additional workers, which would totally offset the previous year's job losses. That expansion should strengthen in 2015 (0.5 %), and still more so in 2016 (0.7 %), making a cumulative total of 53 000 extra jobs.

CHART 5 PRIVATE INVESTMENT
(volume data)



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

CHART 6 LABOUR MARKET



Sources: EC, NAI, NEO, NBB.
(1) Harmonised unemployment rate in % of the labour force aged 15 years and over, data adjusted for calendar effects. Quarterly data over the projection period.

In 2014, hourly labour productivity is still expected to be the main variable for adjusting to demand, with an increase of 0.7 %, while hours worked per person (including self-employed workers) are forecast to rise by 0.3 % and maintain that growth rate in 2015 and 2016, thus regaining the pre-crisis volume, which is not the case if employees alone are considered. The hourly productivity gains are expected to be broadly similar up to the end of the projection period. The increasing growth in the total volume of labour from 2015 would thus be due more to job creation than to an increase in workers' hours.

In 2013, the increase in the labour force came to 15 000 persons, a larger rise than had been expected in the autumn forecasts. In the end, employment began to recover a little sooner – during the second half of 2013 – than had been foreseen during the previous forecasting exercise, and the number of unemployed job-seekers continued to rise, quarter-on-quarter, until 2014. As the activity rate is recovering owing to the favourable impact of the economic situation, and notably certain labour market reforms aimed at limiting early departure from the labour market by people reaching the end of their career, the labour force should increase by 29 000 persons in 2014. The annual expansion of the labour force in 2015 and 2016 is put at around 16 000 persons, with a fairly stable activity rate. We would stress that the population forecasts used were revised downwards in relation to the autumn forecasts owing to the expected decline in the contribution of net immigration.

From 2014, both self-employed workers and employees are expected to make a positive contribution to employment. The growth rate of the number of self-employed persons is set to edge upwards in 2015 and 2016, owing to a more favourable economic climate. While the branches sensitive to the economic cycle may still see a slight reduction in the number of employees in 2014, and the "public administration and education" branch is likely to lose more workers than in 2013, "other services" (including health, in particular) are expected to be the only activities to boost employment, with almost 10 000 additional workers. That pace is forecast to continue in 2015 and 2016. In those two years, branches sensitive to the economic cycle are forecast to take on around 4 000 and 11 000 more employees respectively. Conversely, the public sector should continue to cut jobs, though more slowly than in 2014. It is exceptional to see five consecutive years of declining employment in this sector, a phenomenon due mainly to natural wastage. Finally, jobs subsidised by the service voucher scheme, most of which are in branches sensitive to the economic cycle, should continue to support job creation, albeit to a lesser extent from 2014.

TABLE 4 LABOUR SUPPLY AND DEMAND

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

	2011	2012	2013	2014 e	2015 e	2016 e
			(percentage changes)			
Real GDP	1.8	–0.1	0.2	1.3	1.6	1.7
Volume of labour	2.1	0.2	–0.3	0.6	0.7	1.0
Domestic employment in persons	1.4	0.2	–0.2	0.3	0.5	0.7
			(changes in thousands of persons)			
Population of working age	45.3	21.9	14.8	13.2	14.6	12.8
Labour force	43.4	25.0	15.0	29.0	16.0	16.3
National employment	63.2	10.5	–9.5	11.9	21.5	31.0
Frontier workers	–0.1	1.1	0.2	0.0	0.0	0.0
Domestic employment	63.4	9.4	–9.7	11.9	21.5	31.0
Employees	53.7	0.5	–16.3	5.8	14.0	22.2
Branches sensitive to the business cycle	31.9	–6.0	–24.1	–1.7	4.1	11.1
Public administration and education	3.7	–0.6	–0.6	–2.5	–1.1	–0.1
Other services	18.1	7.1	8.4	9.9	11.1	11.2
Self-employed persons	9.7	8.9	6.6	6.1	7.4	8.8
Unemployed job-seekers	–19.8	14.4	24.5	17.1	–5.5	–14.8
p.m. Harmonised unemployment rate(1)	*7.2*	*7.6*	*8.5*	*8.6*	*8.5*	*8.2*

Sources: DGSEI, EC, FPB, NAI, NEO, NBB.
(1) In % of the labour force (15-64 years).

The number of job-seekers is forecast to rise by a further 17 000 units in 2014, to peak at 600 000, while the harmonised unemployment rate for persons aged between 15 and 64 years will show a further modest rise, at 8.6 %. It is not until 2015 that the number of job-seekers is expected to fall, slowly at first but then by 15 000 persons in 2016. The reduction in the harmonised unemployment rate is not expected until 2015, but should strengthen in 2016.

From an international perspective, however, it should be noted that the Belgian unemployment rate was 3.3 percentage points below the figure for the euro area in March 2014, whereas before the great recession the figures were similar.

4. Labour costs and prices

In 2014, labour costs will continue to reflect the freezing of real negotiated wages, in accordance with the draft inter-professional agreement for 2013-2014 imposed by the government. Wage moderation is expected to persist in 2015-2016, but modest real increases should progressively emerge, following the gradual appearance of tension on certain labour market segments against the backdrop of economic recovery. Nonetheless, those developments should be partly offset by the measures taken by the government to reduce labour costs. Thus, the measures taken in December 2012 and October 2013 (reduction in employers' social security contributions in 2013 and 2014) were confirmed and extended by the November 2013 Pact for Competitiveness and Employment, which also provides for additional cuts in charges amounting to around € 450 million from 2015 (additional cuts of a similar size are announced for 2017 and 2019). Nevertheless, part of this effort is reflected in reductions in payroll tax which are not taken into account in calculating labour costs according to the national accounts definition.

Furthermore, the Pact for Competitiveness and Employment also provided for a reduction in VAT on households' electricity with effect from 1 April 2014. By curbing inflation, and more particularly the health index, that measure delays the indexation of wages and therefore helps to reduce labour costs in 2014 and 2015. The projections therefore predict that the rise in the health index will continue to slow, with an increase of 0.7 % in 2014, after

TABLE 5 COST AND PRICE INDICATORS

(percentage change compared to the previous year)

	2011	2012	2013	2014 e	2015 e	2016 e
Labour costs in the private sector:						
Labour costs per hour worked	2.4	3.7	2.0	0.9	1.2	2.0
of which: Indexation	2.7	2.8	1.9	0.8	0.9	1.5
Labour productivity[1]	–0.2	–0.7	0.2	0.6	0.8	0.7
Unit labour costs	2.6	4.4	1.8	0.3	0.3	1.3
GDP deflator	2.0	1.9	1.6	1.0	1.4	1.7
HICP	3.4	2.6	1.2	0.9	1.3	1.6
Health index	3.1	2.7	1.2	0.7	1.2	1.7
Underlying inflation trend[2]	1.5	1.9	1.4	1.6	1.5	1.8

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

having fallen from 2.7 % in 2012 to 1.2 % in 2013. It is forecast to remain rather moderate at 1.2 % in 2015 and 1.7 % in 2016. Another point to be stressed is that the health index, like the national price index, is affected by methodological changes in 2013 and 2014. More details are available in the article "The new national consumer price index" in this Economic Review.

The health index profile, once account is taken of the specific characteristics and time lags in the application of the indexation mechanisms by the various joint committees, largely determines the rise in nominal labour costs, which are likely to decelerate significantly to 0.9 % in 2014, compared to 2 % in 2013, before speeding up modestly thereafter until the end of the projection period, reaching 1.2 % in 2015 and 2 % in 2016.

The small rise in hourly labour costs combined with the gradual recovery of labour productivity gains has a beneficial effect on the outlook for unit labour costs in the private sector. Thus, the increase in unit labour costs in the private sector dropped from a peak of 4.4 % in 2012 to 1.8 % in 2013, and is expected to fall to 0.3 % in 2014 and 2015 before climbing back to 1.3 % in 2016. Consequently, Belgian companies' cost competitiveness at the level of wages compared to that of Belgium's three main partner countries, namely Germany, France and the Netherlands, should tend to improve in 2014 and 2015, and to a lesser extent in 2016.

However, according to the projections, this very moderate rise in labour costs, especially in 2014 and 2015, will not be fully reflected in pricing because it will be partly negated by a stronger rise in gross corporate margins. Those margins shrank considerably between 2011 and 2013, and the economic recovery is likely to lead to a restoration of margins as well, which is not unusual in a period in which growth exceeds the potential level and the output gap therefore narrows. During the projection period, prices are therefore expected to rise by more than labour costs.

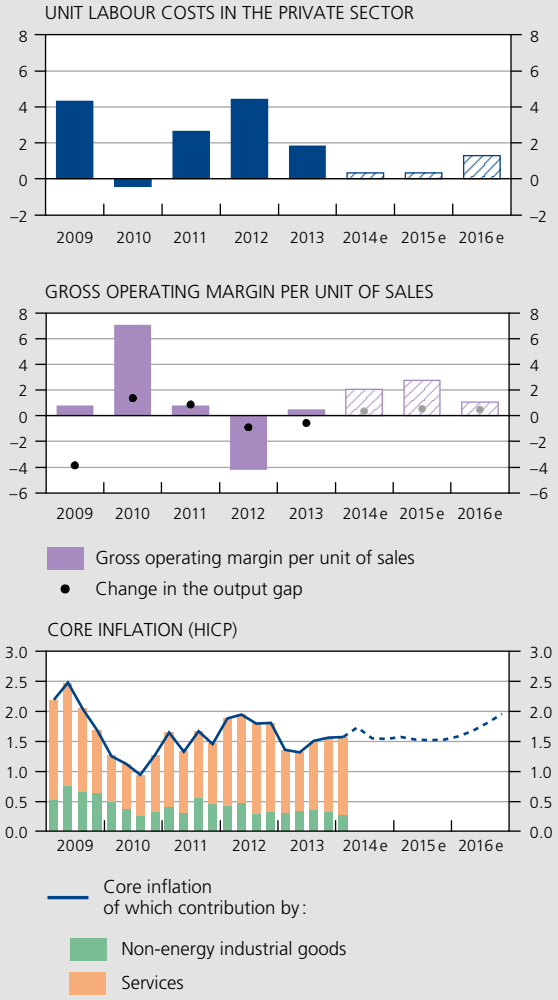
In this context, underlying inflation, which excludes food and energy prices and which had fallen to 1.3 % in mid-2013, but edged up again recently, is therefore unlikely to decline significantly in the coming quarters. In that respect, attention should be drawn to the downward rigidity of underlying inflation in Belgium.

More particularly, it is service prices that are the biggest factor in that rigidity, whereas the movement in prices of non-energy industrial goods has been smaller in recent years. That contrast is due in particular to the indexation of many service prices, but also to the fact that non-energy industrial goods face greater international competition, which tends to restrict the scope for increasing prices and margins.

Nonetheless, the limited movement in labour costs, due to the wage freeze and additional measures relating to the Pact for Competitiveness and Employment, should help to slow down the rise in core inflation during most of 2014 and 2015. From the end of 2015 and up to the end of the projection period, underlying inflation is expected

CHART 7 LABOUR COSTS, GROSS CORPORATE MARGIN AND CORE INFLATION

(percentage changes compared to the previous year)



Sources: EC, NAI, NBB.

to accelerate gradually, owing to the combined effect of the rise in intra-European import prices and labour costs, among other things, while the improvement in margins is likely to become more moderate.

Overall, inflation measured by the HICP is put at 0.9 % in 2014, compared to 0.7 % in the euro area, 1.3 % in 2015 and 1.6 % in 2016, against 1.2 % in 2013. These rates of price increases are much lower than in previous years, since inflation had reached 3.4 % in 2011 and 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. The current projections foresee a reduction of 5.2 % in 2014 compared to 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 for 2015 and 2016, with prices down on average by 2 % and 1 % respectively over the year.

These developments are due to petroleum product prices on the international markets and the movement in the euro against the dollar, on the one hand, and to the reduction in VAT on the consumer price of electricity. The price per barrel of Brent is thus expected to fall slightly over 2014 as a whole, the current projections assuming an average of $ 107 per barrel in 2014, compared to $ 109 in 2013. At the same time, the euro/dollar exchange rate is put at 1.38 as opposed to 1.33 in 2013. The lower price of Brent combined with a stronger euro accentuates the weakening of the oil price in euros in 2014 compared to 2013.

5. Public finances

5.1 Overall balance

According to the general government accounts published by the NAI in April 2014, the Belgian public deficit came to 2.6 % of GDP in 2013. In the macroeconomic context described above, the deficit is likely to remain at the same level in 2014, increasing to 2.8 % of GDP in 2015 and 2.9 % in 2016.

The deficits will occur mainly – and in 2014 even exclusively – at federal government level. Social security will again record a small surplus in 2014, but turn into a deficit from 2015. The accounts of the Communities and Regions are expected to end practically in balance again in 2014, but this subsector is likely to record a deficit in 2015 and in 2016. To ensure that the Communities and Regions contribute to the consolidation of public finances, the revenues transferred to them have been reduced, under the sixth State reform, by € 1.25 billion in 2015 and by € 2.5 billion in 2016. Finally, the local authorities' finances will remain close to balance throughout the whole projection period.

During the projection period, the economic situation should have an increasingly favourable influence on public finances. Interest charges should likewise have a beneficial impact on the budget balance in 2014 and 2015, while their effect is expected to become neutral in 2016. In 2014, non-recurring factors such as the revenue from the tax regularisation are likely to exert a significant favourable influence on the overall balance, although their effect will be slightly less than in the previous year. In 2015, the

TABLE 6 GENERAL GOVERNMENT ACCOUNTS[1]
(in % of GDP)

	2011	2012	2013	2014 e	2015 e	2016 e
General government						
Revenue	49.6	51.0	51.8	51.5	51.2	51.1
Fiscal and parafiscal revenue	43.6	44.8	45.6	45.7	45.6	45.5
Other	6.0	6.2	6.2	5.8	5.6	5.6
Primary expenditure	50.1	51.6	51.3	51.0	51.2	51.1
Primary balance	–0.5	–0.7	0.6	0.5	0.1	0.0
Interest charges	3.3	3.4	3.2	3.1	2.9	2.9
Financing requirement (–) or capacity	**–3.8**	**–4.1**	**–2.6**	**–2.6**	**–2.8**	**–2.9**
p.m. Effect of non-recurring factors	*–0.2*	*–0.4*	*0.5*	*0.3*	*0.0*	*0.0*
Overall balance per subsector						
Federal government	–3.5	–3.6	–2.5	–2.6	–2.2	–1.9
Social security	0.1	0.0	0.1	0.1	–0.2	–0.3
Communities and Regions	–0.3	–0.1	0.0	0.0	–0.4	–0.7
Local authorities	–0.2	–0.4	–0.2	0.0	0.0	0.0

Sources: NAI, NBB.
(1) According to the methodology used in the excessive deficit procedure (EDP).

disappearance of these temporary factors should be a key determinant of the increase in the deficit. Finally, the structural primary balance is expected to remain broadly unchanged in 2014, deteriorating thereafter.

It should be noted that these projections only take account of budget measures which have already been announced and are sufficiently detailed. These projections show that a very substantial consolidation programme will be needed to achieve a structurally balanced budget in 2016. That aim was put forward by the "Public Sector Borrowing Requirement" section of the High Council of Finance in its March 2014 opinion. It was used purely as a guide in Belgium's April 2014 stability programme, which stressed that future governments would have to decide on the budget path and its allocation among the various levels of power, and that they would have to take the measures necessary to achieve the objectives.

5.2 Revenue

After four consecutive years of growth, public revenues expressed as a percentage of GDP are set to fall by 0.4 % in 2014 and a further 0.2 and 0.1 % in 2015 and 2016 respectively.

In 2014, this change of trend will likely be due to non-fiscal and non-parafiscal revenues. The impact of temporary factors, which are down against the previous year, should also lower the volume of revenues. In contrast, structural fiscal and parafiscal measures are expected to be generally favourable to government revenues.

The decline in non-fiscal and non-parafiscal revenues in 2014, amounting to around 0.4 percentage point of GDP, is due mainly to the lower payments made by the financial sector in return for the aid and guarantees granted. In addition, the revenues that the State receives as a shareholder of various financial institutions, will be down sharply.

Whereas temporary factors had made a positive contribution towards government revenues in 2013 amounting to 0.3 % of GDP, they are likely to reduce those revenues by 0.2 % of GDP in 2014. On the one hand, the revenues anticipated from the tax regularisation are expected to be even more substantial than in 2013. On the other hand, two significant factors favourable to revenues in 2013 will no longer apply in 2014. The first concerned a transitional measure which had favoured the payment of substantial dividends in 2013 to avoid higher taxation of liquidation surpluses; that had raised around € 600 million at the time. The second concerned the priority processing of pre-completed tax returns for

TABLE 7 STRUCTURAL MEASURES AND FACTORS CONCERNING FISCAL AND PARAFISCAL REVENUES

(in € million, unless otherwise stated; changes compared to the previous year)

	2014 e	2015 e	2016 e
Taxes	1 622	977	–373
of which:			
Deduction for energy-saving investment	713	438	56
Taxes on goods and services	93	–107	0
Percentage change in the tax deduction for risk capital	227	561	–429
Measures to prevent tax evasion and to improve collection	250	0	0
Taxes on other incomes and on capital	421	135	0
Social security contributions	–132	–528	–79
Total	**1 490**	**449**	**–452**
p.m. Idem, in % of GDP	*0.4*	*0.1*	*–0.1*

Sources: Budget documents, NBB.

the assessment of personal income tax, which had led to a reduction in refunds in 2013.

Government revenues benefit from a package of structural measures in 2014. Apart from the continuing fight against the evasion of taxes and parafiscal levies, the most important measures concern the abolition of a major part of the tax expenditure in favour of household energy-saving investment, increases in excise duties, and the savings which should be achieved on the notional interest deduction as a result of the reduction in the reference interest rate. Various measures concerning capital and the income which it generates, notably the fairness tax – applicable to certain companies whose distributed profits exceed the basis of assessment for corporation tax – 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 reductions in social security contributions, reduce the amounts raised and compensate in part for the effect of the measures generating additional revenues.

The decline in the revenue ratio in 2015 should once again be due to the negative impact of temporary factors, as the amounts raised by the tax regularisation will not recur then. Non-fiscal and non-parafiscal revenues are also likely to continue falling, owing to factors such as the reduction in the remuneration paid by banks for guarantees granted by the State. The reduction in the reference interest rate used to calculate the notional interest deduction and the effect of terminating the allowance for tax expenditure on energy-saving investments should be favourable to government revenues. Conversely, the measures taken under the Pact for Competitiveness and Employment, which will take the form of a considerable reduction in social security contributions for instance, and the residual effect of the reduction in VAT on electricity will limit the generally positive impact of the structural measures on public revenues.

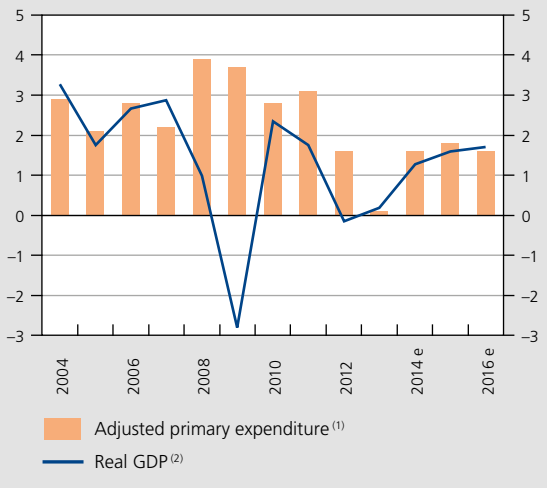
In 2016, the new fall in the revenue ratio will be due essentially to the rise in the reference interest rate used as the basis for calculating notional interest, as only a few other measures having an impact beyond 2015 have already been announced.

5.3 Primary expenditure

As a ratio of GDP, primary expenditure should decline to 51 % in 2014, before climbing back a little in the ensuing two years. That fall would be due in particular to the non-indexation of social benefits and civil service pay, expected in that year. Adjusted for the difference between actual indexation and inflation, but also for the impact of

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, and for the indexation effect. The latter is due to the difference between the actual indexation of public sector wages and social security benefits and the rise in the GDP deflator.

(2) Calendar adjusted data.

one-off and cyclical factors, the increase in expenditure is estimated at 1.6 % in 2014, slightly outpacing real GDP growth. The recent moderation of expenditure which had begun in 2012 and became more marked in 2013, should therefore lose some of its momentum.

In 2014, all government subsectors are forecast to record an increase in their primary expenditure. Following a reduction in 2013, the federal government and local authorities should see the virtual stabilisation of their adjusted expenditure. The increase in the expenditure of the Communities and Regions is expected to be slightly higher than GDP growth. Finally, social security expenditure is set to rise by one percentage point more than economic activity, an increase due mainly to pensions and health care.

It is naturally more difficult to estimate the pattern of primary expenditure expected in 2015 and 2016, since the corresponding budgets will only be drawn up by the incoming governments. With no change of policy, adjusted expenditure is expected to grow at much the same rate as economic activity, namely 1.8 % in 2015 and 1.6 % in 2016. These increases should be attributable to the sustained growth of social security expenditure, which will continue to increase as a result of the dynamics of benefits affected by population ageing.

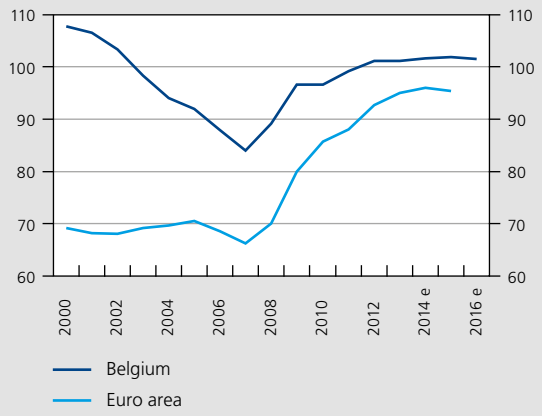
5.4 Debt

Since 2008, the debt ratio has risen steadily, reaching 101.1 % of GDP in 2012. In 2013, the public debt was more or less stable at 101.2 % of GDP.

In 2014, the general government debt is expected to increase by 0.5 percentage point of GDP to 101.7 % of GDP at the end of the year. Endogenous factors should have a negative impact on the debt ratio in 2014 amounting to around 0.3 percentage point of GDP. Their effect is determined partly by the difference between the implicit interest rate on the public debt and nominal GDP growth, and partly by the level of the primary balance. Although nominal GDP growth is expected to improve in 2014, it should remain below the implicit interest rate. Given the estimated level of the primary balance, at 0.5 % of GDP, it will not be possible to avoid the endogenous increase in the debt. The debt will also be driven higher, by around 0.2 percentage point of GDP, by exogenous factors, so called because they influence the debt but not the overall balance. The loans granted via the European Financial Stability Facility (EFSF) and the capital injection planned for the European Stability Mechanism (ESM) are likely to be significantly higher than the amount of the partial refund expected from one bank.

CHART 9 CONSOLIDATED GROSS DEBT OF GENERAL GOVERNMENT

(in % of GDP)



Sources: EC, NAI, NBB.

In 2015 and 2016, endogenous factors should have a positive impact on the debt ratio, with forecast nominal GDP growth then exceeding the implicit interest rate. However, owing to the impact of exogenous factors, the debt ratio is likely to continue rising in 2015 to reach 101.9 % of GDP. Conversely, in 2016, the debt ratio should record a fall. It is expected to decline very slightly, to 101.5 % of GDP, solely as a result of endogenous factors.

6. Risk factor assessment

The Bank's current growth forecasts are still similar to those of other institutions even though the OECD, for example, is clearly more optimistic for growth in 2015 whereas, in contrast, the IMF's estimate is lower. The wider range of estimates for subsequent years compared to 2014 illustrates the larger margins of uncertainty. In regard to inflation, the other institutions also expect to see a gradual rise. However, the expected pace of that increase varies: the Bank's forecast is totally in line with that of the EC and the Federal Planning Bureau, while the other institutions expect a slightly more modest increase in inflation in 2015.

The risks relating to the spring projections seem to be mostly tilted to the downside for both activity and inflation. The risks for growth stem from the international environment, though there are also some domestic factors. On this first point, owing to its trade relations the Belgian economy is, of course, heavily dependent above all on the recovery in the other euro area countries, especially Belgium's main trading partners. The fragility of the recovery in Europe,

TABLE 8 COMPARISON WITH ESTIMATES OF OTHER INSTITUTIONS

(in %)

Institution	Real GDP growth				Inflation (HICP)		
	Publication date	2014	2015	2016	2014	2015	2016
IMF	April 2014	1.2	1.2	1.3	1.0	1.1	
EC	May 2014	1.4	1.6		0.9	1.3	
OECD	May 2014	1.5	1.9		0.8	1.0	
Consensus Economics	May 2014	1.2	1.4		1.0	1.5	
Federal Planning Bureau	June 2014 (1)	1.4	1.8	1.7	0.7	1.1	1.5
NBB	**June 2014**	**1.3**	**1.6**	**1.7**	**0.9**	**1.3**	**1.6**

(1) Economic budget (June 2014) and Economic Outlook 2014-2019 (March 2014). The Federal Planning Bureau's inflation figures for 2014 and 2015 are based on the NICP, which may differ slightly from the HICP.

which is again evident from the low growth rates recorded by some countries in the first quarter of 2014, likewise remains a risk factor. Moreover, under-estimation of the scale of the slowdown in the emerging countries – or an incorrect interpretation of its temporary or permanent nature – and a heightening of the geopolitical tensions surrounding the conflict in Ukraine may also depress growth via various channels.

Turning to the domestic risk factors, attention should first be drawn to the competitiveness forecasts. They depend largely on the degree to which the current wage moderation is maintained after 2014, as foreseen in these projections, permitting a reduction in the wage gap in relation to the main partner countries. Another point to be borne in mind is that wage costs are only one aspect of the competitiveness gap. If the movement in Belgium's competitiveness were to prove less favourable than currently expected, which of course also depends on developments in the other countries, that could lead to a bigger loss of market shares, which would therefore result in weaker growth of exports and activity, even if its impact would be apparent mainly in the medium term.

In addition, the continuation of the labour market recovery is also a key factor. Although employment returned to positive growth a little sooner than expected in the autumn projections, the rise in the unemployment rate and the existing mismatch on the labour market, which may have become more acute following the recent crisis, remain a source of concern. There is a risk that the pace of the economic recovery may slow down as it becomes more difficult to fill vacant posts. In that case, bottlenecks could become apparent sooner on the labour market, and the rise in demand (domestic and foreign) could result to a greater extent in growing cost pressure rather than an increase in output.

In addition, supplementary credit constraints could hamper the investment revival in both businesses and households. Finally, it should be remembered that these projections obviously take no account as yet of such factors as future policy changes implemented by incoming federal and regional governments.

In regard to the inflation risks, pressure of competition may imply a slower restoration of corporate margins so that underlying inflation may record a smaller increase. Here, too, what happens in other countries is important: a slower increase in the prices of foreign firms competing with Belgian producers could restrain the expected rise in underlying inflation to a more normal level.

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	0.2	1.3	1.6	1.7
Contributions to growth:				
Domestic expenditure, excluding change in inventories	0.3	1.4	1.6	1.8
Net exports of goods and services	0.5	0.3	–0.1	–0.1
Change in inventories	–0.6	–0.3	0.0	0.0
Prices and costs				
Harmonised index of consumer prices	1.2	0.9	1.3	1.6
Health index	1.2	0.7	1.2	1.7
GDP deflator	1.6	1.0	1.4	1.7
Terms of trade	0.2	0.8	0.1	0.1
Unit labour costs in the private sector	1.8	0.3	0.3	1.3
Hourly labour costs in the private sector	2.0	0.9	1.2	2.0
Hourly productivity in the private sector	0.2	0.6	0.8	0.7
Labour market				
Domestic employment (annual average change in thousands of persons)	–9.7	11.9	21.5	31.0
Total volume of labour [1]	–0.3	0.6	0.7	1.0
Harmonised unemployment rate [2] (in % of the labour force)	8.5	8.6	8.5	8.2
Incomes				
Real disposable income of individuals	0.6	1.1	1.4	1.7
Savings ratio of individuals (in % of disposable income)	15.0	15.1	15.2	15.2
Public finances [3]				
Overall balance (in % of GDP)	–2.6	–2.6	–2.8	–2.9
Primary balance (in % of GDP)	0.6	0.5	0.1	0.0
Public debt (in % of GDP)	101.2	101.7	101.9	101.5
Current account (in % of GDP according to the balance of payments)	**–1.6**	**–0.8**	**–0.6**	**–0.5**

Sources: EC, DGSEI, NAI, NBB.

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

(2) In % of the labour force (15-64 years).

(3) According to the methodology used in the excessive deficit procedure (EDP).

Is government spending the key to successful consolidation ?

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Introduction

The financial crisis that erupted during 2007 and intensified in 2008, and the ensuing economic recession, caused a marked deterioration in the public finances of most of the advanced economies. That resulted in a sharp increase in the financing requirement and public debt in those countries, including Belgium. Since then, almost all countries have made a considerable effort to achieve fiscal consolidation in order to end the unsustainable developments. However, restoring sustainable public finances will entail additional efforts in most countries in the years ahead.

This article examines the budgetary instruments that can be used to continue consolidating public finances. In the process, it examines in depth the role of public spending. The situation in Belgium will be the focus of special attention, including via a comparison with the other euro area countries.

The first chapter of this article reviews developments concerning public finances and explains why the consolidation efforts must continue. The second chapter describes the impact of the various budgetary instruments on economic activity in both the short and long term. The third chapter focuses on the fiscal situation and the potential consolidation instruments in Belgium. The article ends with some conclusions.

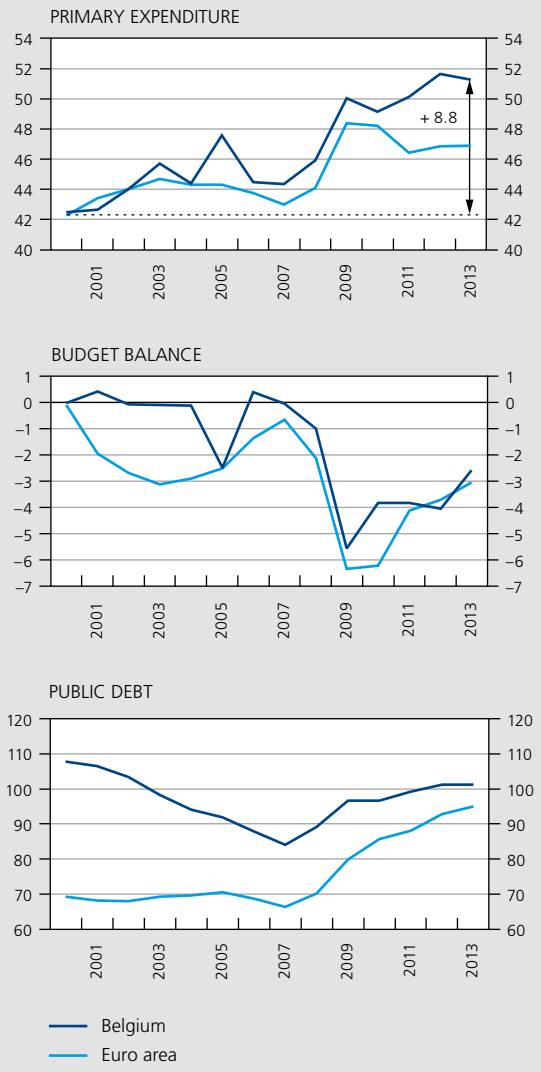
1. Recent developments and the current state of public finances

Since the start of the financial and economic crisis, most euro area countries have seen a substantial deterioration in their budget balance. The severe economic recession that began in late 2008 eroded government revenues while public spending ratios soared. At the same time, governments had to contend with a large increase in the amount of their debt, as they were forced to raise the money necessary to finance both the capital injections for the financial sector and the ballooning budget deficits.

Belgium likewise suffered a marked deterioration in its public finances as a result of the financial and economic crisis. The fiscal balance, which had been more or less in equilibrium since the start of the millennium, turned into a substantial deficit that reached 5.6 % of GDP in 2009. At the same time, the decline in the debt ratio which had begun in the mid-1990s came to an abrupt end.

The deterioration in public finances in the euro area countries led to the outbreak of the sovereign debt crisis in 2010. Some euro area countries then found it impossible to raise finance on the markets. To help the countries under stress and to safeguard the stability of the euro area, the other countries together with the IMF set up financial assistance programmes. This assistance was subject to the implementation of draconian fiscal austerity plans. Since then, not only the countries in

CHART 1 KEY AGGREGATES OF PUBLIC FINANCES
(in % of GDP)



Sources: EC, NAI, NBB.

question but the other euro area countries, too, have embarked on consolidation measures to restore sound public finances.

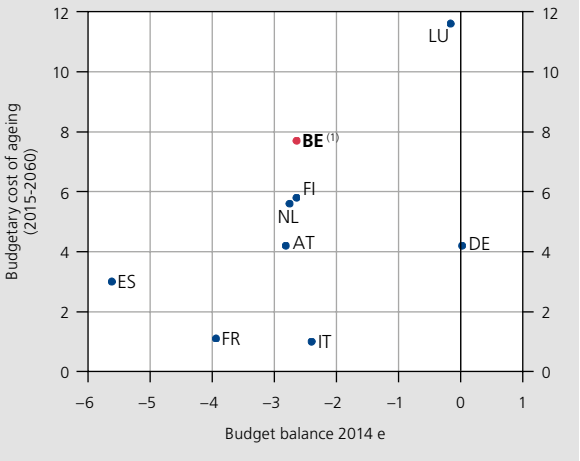
Measured by the movement in the structural primary balance – which excludes interest charges, one-off factors and cyclical effects – the fiscal consolidation for the euro area as a whole between 2010 and 2013 amounted to 3.3 percentage points of GDP, compared to 0.9 percentage point of GDP for Belgium. That suggests that, up to now, Belgium has pursued a relatively modest consolidation policy compared to the fiscal measures adopted elsewhere in Europe. It is also striking that revenue has risen considerably in Belgium, and that expenditure as a ratio of GDP has recorded a significant increase, making a negative contribution to fiscal consolidation. That contrasts with the situation in the euro area as a whole, where the revenue and expenditure levers were activated simultaneously to achieve substantial consolidation of public finances.

However, most euro area countries including Belgium still need to maintain their efforts to achieve a balanced budget and reverse the trend in their public debt. Moreover, the rise in ageing-related expenditure is a major challenge for the viability of public finances in the long term.

The budgetary cost of ageing is relatively high in Belgium compared to most other European countries. It is therefore essential to continue the consolidation of Belgian public finances and free up sufficient scope in the budget to cope with the impact of an ageing population.

The implementation of a programme geared to the consolidation of public finances entails choosing not only the instruments to be used but also the pace of the measures to be adopted. The next chapter therefore examines the impact on economic activity of fiscal consolidation based on measures adopted on both the

CHART 2 GOVERNMENT BUDGET BALANCE AND BUDGETARY COSTS OF AGEING
(in % of GDP)

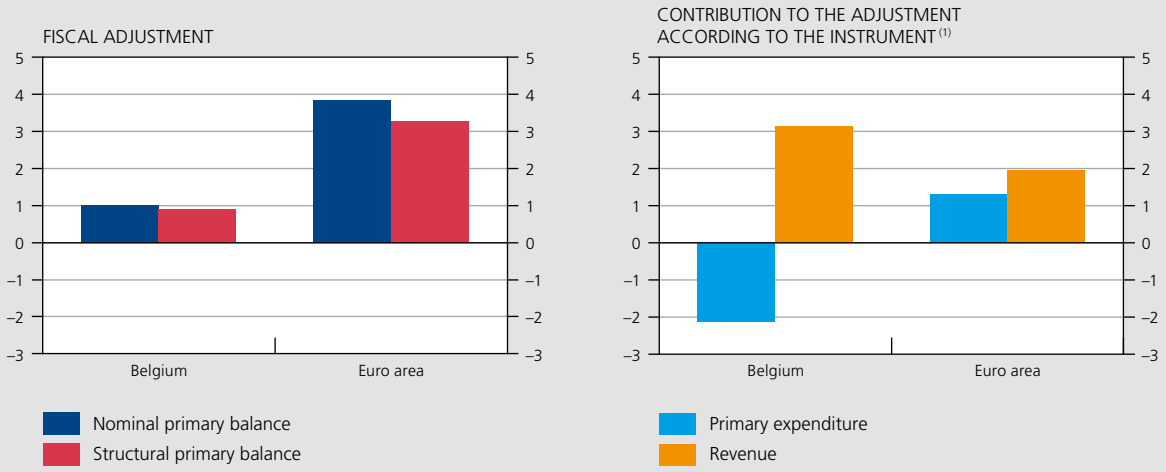


Sources: EC, NBB.

(1) The data used in this chart come from the EC's Fiscal Sustainability Report 2012. The SCA makes also an estimate of the budgetary cost of ageing for Belgium; this estimate is lower. The spread between those estimations is due to differences relative to the macroeconomic and demographic assumptions and the choice of expenditure categories.

CHART 3 SCALE AND COMPOSITION OF FISCAL CONSOLIDATION

(change between 2010 and 2013, in percentage points of GDP)



Sources: EC, NBB.
(1) Nominal data.

revenue and the expenditure side, in both the short and the long term.

2. Impact of fiscal consolidation on economic activity

The economic literature on the effects of fiscal consolidation is very extensive. However, it does not offer a clear answer to the question of the link between fiscal policy and economic activity. The impact in fact depends very much on circumstances, which may vary considerably over time and from one country to another.

It is crucial to distinguish here between the short-term impact and the long-term impact. Fiscal consolidation is generally detrimental to economic growth in the short term, while producing long-term benefits. Consequently, the pace at which the consolidation measures are implemented, namely the measures needed to guarantee the sustainability of public finances in the long term, is sometimes the subject of animated debate between economists and politicians.

2.1 Short-term impact

Most econometric models and empirical studies show that the fiscal multipliers – which indicate the extent to which a particular fiscal stimulus influences the growth of activity – have a positive sign in the short term. Generally, an expansionary fiscal policy can stimulate economic activity in the short term, while consolidation measures tend to apply the brakes.

However, the short-term multiplier effects vary according to the different instruments and circumstances. In order to illustrate the main factors that determine the scale of the fiscal multipliers, the results of the simulations made with the aid of the ECB's general dynamic equilibrium model are given below.

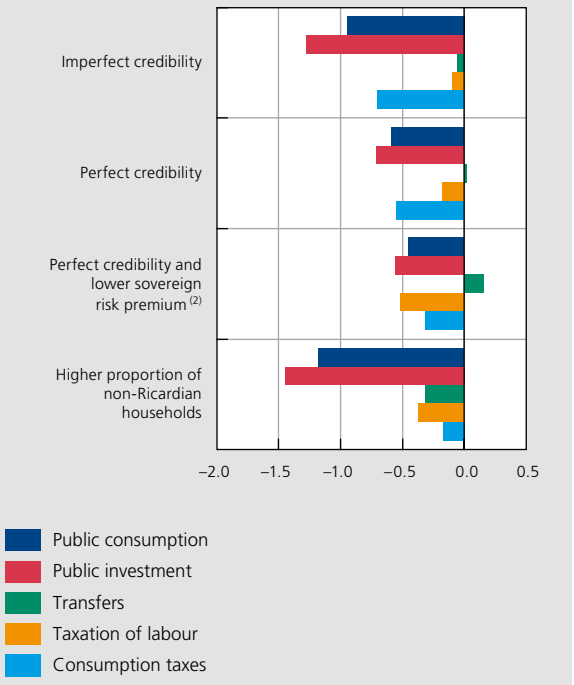
First, the impact of fiscal consolidation depends on the economic and monetary conditions in which it takes place. When consolidation is implemented in a small, open economy, the short-term impact is less than in the case of simultaneous consolidation in multiple countries; in the latter case, it has a bigger effect in restraining total demand. In particular, the simultaneity and scale of the consolidation programmes undertaken in a period of economic slowdown would cause a sharp decline in economic activity. A fixed exchange rate reinforces the negative effect of consolidation on growth, in contrast to a floating exchange rate system which tends to absorb shocks. The fiscal multiplier is also defined by the monetary policy stance. If central banks are able to adopt an accommodative policy, the consolidation is less detrimental to growth. Conversely, if interest rates are close to zero, central banks have little room for manoeuvre, and consolidation is generally more harmful to growth.

The initial budget position also determines the value of the fiscal multipliers. Thus, the negative impact of the consolidation measures on short-term economic growth is weaker – or even practically non-existent – the worse the position of public finances and the more worrying the situation is thought to be. In such circumstances, those measures may reduce the sovereign risk premium and the level of interest rates. That drives down the financing costs of not only the general government sector but also the private sector, and therefore stimulates investment. Moreover, the measures may trigger a fall in the savings ratio, e.g. because households reduce their precautionary savings, as the consolidation restore their confidence following a period of budgetary difficulties.

The credibility and permanence of fiscal consolidation are also essential to limit its negative short-term effect on economic activity. If the markets do not believe in the government's commitment to implement the stated measures successfully, the consolidation has a greater negative effect on economic activity in the short term than in a situation of perfect credibility. That perfect credibility exists if the markets are convinced that the consolidation measures announced will be fully implemented and permanent. In fact, perfect credibility causes households and businesses to anticipate future tax cuts enabled by the budgetary scope opened up by the consolidation efforts. That has a favourable impact on economic activity, attenuating the short-term contraction effects of the consolidation.

CHART 4 SHORT-TERM FISCAL MULTIPLIERS (1)

(simulations for the euro area as a whole according to the ECB's New Area-Wide Model)



Source: ECB.

(1) This concerns the change in GDP caused by a permanent adjustment to the fiscal instrument in question amounting to 1 % of GDP. In the short term, the budgetary scope made available by consolidation is used exclusively to moderate the public debt ratio. In the long term, that scope is used to cut taxes on earned incomes.

(2) This scenario presupposes a 30-basis-point reduction in the risk premium.

The scale of the short-term multipliers is also influenced by the degree to which households and businesses face liquidity or credit constraints. A larger proportion of non-Ricardian households – i.e. households which cannot smooth out their consumption over time in response to a decline in their disposable income resulting from certain consolidation measures – is reflected in higher negative fiscal multipliers. A reduction in transfers, such as social benefits, has a much more negative effect in this scenario, compared to other scenarios in which the effect of cutting transfers is virtually zero. Special attention must be paid to this aspect when consolidation is implemented during a crisis, when the proportion of such households tends to increase.

Finally, the short-term multiplier effects depend on the composition of the consolidation measures. Tax increases and transfer reductions are associated in the short term with much smaller multipliers than cuts in public consumption or public investment. In the short term, public consumption and public investment have a direct influence on GDP, whereas other public expenditure and taxation have an indirect effect via their impact on disposable income. In addition, savings can act as a buffer and soften the impact on consumption or investment of a decline in disposable income.

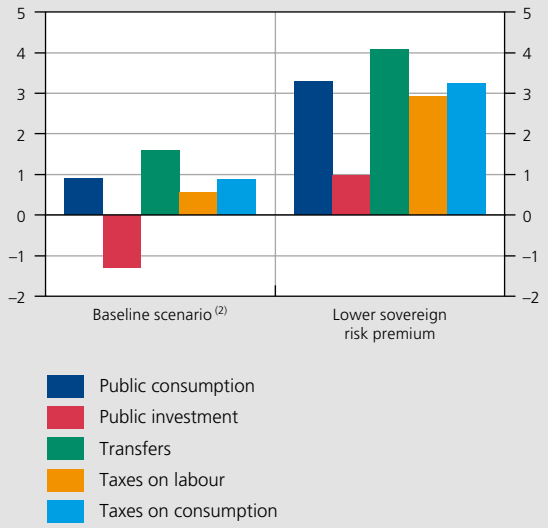
2.2 Long-term impact

Unlike the short-term effects, the long-term effects of fiscal consolidation ensuring the sustainability of public finances are undeniably positive. Thus, the reduction in interest charges resulting from a decrease in the public debt frees up more resources for productive public spending or for a reduction in the fiscal and parafiscal burden. These effects are heightened if the fiscal consolidation is accompanied by a decline in long-term interest rates, owing to a contraction in the supply of government securities placed on the market and a reduction in the risk premiums included in interest rates.

In a simulation based on the ECB's general dynamic equilibrium model, in which risk premiums remain constant

CHART 5 FISCAL MULTIPLIERS IN THE LONG TERM [1]

(simulations for the euro area as a whole according to the ECB's New Area-Wide Model)



Source: ECB.

(1) This concerns the change in GDP resulting from a permanent change in the fiscal instrument in question of around 1 % of GDP. In the short term, the budgetary scope created by consolidation is used exclusively to reduce the public debt ratio. In the long term, that scope is used to cut taxes on labour incomes.

(2) Imperfect credibility and fixed nominal short-term interest rate.

and the budgetary scope created by the consolidation programme is used to reduce the tax burden on labour, fiscal consolidation has a positive effect on GDP in the long term for almost all the fiscal instruments, except for a reduction in public investment. Cuts in public consumption and transfers, including social benefits, have a more positive impact on economic activity than tax increases.

If it is also assumed that the fiscal consolidation efforts lead to a reduction in sovereign risk premiums, the long-term benefits of the consolidation are much greater still. The reduction in public financing costs resulting from the decline in the long-term interest rate improves the public sector's fiscal position, expanding the scope for cutting the rate of tax on labour. The fall in interest rates also means a reduction in the financing costs of the private sector, leading to an increase in the capital stock.

Box 1 – Impact of a reduction in public expenditure on total factor productivity

Everaert *et al.* (2014) conduct an empirical analysis of the effects of fiscal policy on long-term output for a group of 15 OECD countries. The influence measured operates exclusively via the total factor productivity channel.

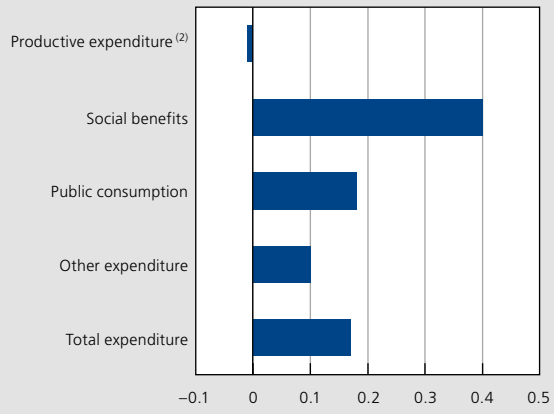
The chart below shows the effect of a reduction in public expenditure on long-term output in Belgium, where the budgetary scope created is used to reduce the general government deficit.

If no distinction is made between the various expenditure categories, cutting total public expenditure by one percentage point of GDP increases output in the long term by 0.2 % on average, all other things being equal. In fact, a reduction in the public deficit is associated in the long term with a more stable environment and less macroeconomic uncertainty. That encourages technological investment and efficiency, leading to a rise in general productivity.

However, cutting productive expenditure, such as spending on education, research and investment, would have a slightly negative effect on output in the long term. The positive impact on total factor productivity of a reduction in the public deficit is neutralised in this case by the specific influence inherent in the nature of such expenditure. Thus, cutting public expenditure on research, either directly or indirectly, depresses total factor productivity owing to a reduction in the corresponding private expenditure. Restricting expenditure on education hampers the acquisition of knowledge, and that also harms general productivity. Finally, a reduction in infrastructure investment also tends to hold back total factor productivity. Moreover, any change in public investment has a direct impact on

IMPACT ON LONG-TERM OUTPUT IN BELGIUM OF CUTTING PUBLIC EXPENDITURE BY ONE PERCENTAGE POINT OF GDP[1]

(in %)



Source : Everaert *et al.* (2014).

(1) The above calculation is based on a panel estimate of 15 OECD countries for the period 1970-2012 and on data taken from the budgetary variables for Belgium in 2012.

(2) Expenditure on education, research and investment.

the capital stock, and hence on long-term output. However, that effect is disregarded here because the authors are only examining the impact via the total factor productivity channel. The total impact of a cut in public investment is therefore more negative than it appears here.

In the other expenditure categories, a reduction has a positive effect on long-term output. The biggest effect results from cutting social benefits. If that category is reduced by one percentage point of GDP, long-term output rises by an average of 0.4 % via an increase in total factor productivity. In the case of public consumption and other expenditure, the increases come to 0.2 % and 0.1 % respectively.

3. Public expenditure in Belgium

The third chapter of this article examines the public expenditure situation in Belgium. It begins by analysing that expenditure over time before comparing it with data from other euro area countries. Next, it examines various specific expenditure categories, and comments on a medium-term simulation envisaging various scenarios for the movement in primary expenditure in Belgium. Finally, a study which forms the basis for some recommendations on the preferred instruments for further fiscal consolidation is presented.

3.1 Trend in primary expenditure in Belgium

Since the beginning of the millennium, public expenditure excluding interest charges – in other words, primary expenditure – has risen considerably in Belgium, increasing from 42.5 % of GDP to no less than 51.3 % in 2013. In all government sub-sectors, the growth of this expenditure in fact far exceeded trend GDP growth. As revenue increased on average at a pace more or less matching trend GDP growth during that period, the primary balance deteriorated. These dynamics are unsustainable : they imply either an increase in levies on the economy, or an expansion of the budget deficit and hence an increase in the debt.

TABLE 1 ADJUSTED PRIMARY EXPENDITURE PER GOVERNMENT SUBSECTOR [1] [2]

(deflated by the GDP deflator, percentage changes compared to the previous year)

	2008	2009	2010	2011	2012	2013	Average 2000-2013
Entity I	4.8	3.9	3.2	3.1	1.6	0.4	2.7
Federal government	5.5	3.6	4.5	2.6	–1.3	–1.7	2.4
Social security	4.5	4.1	2.7	3.2	2.8	1.3	2.8
Entity II	2.5	3.2	2.0	3.2	1.5	–0.5	2.4
Communities and Regions	3.1	3.4	1.8	3.0	0.8	–0.3	2.6
Local authorities	1.5	3.0	2.4	3.5	2.9	–0.9	2.0
Total	**3.9**	**3.7**	**2.8**	**3.1**	**1.6**	**0.1**	**2.6**
p.m. GDP in volume	*1.0*	*–2.8*	*2.3*	*1.8*	*–0.1*	*0.2*	*1.2*

Sources: NAI, NBB.

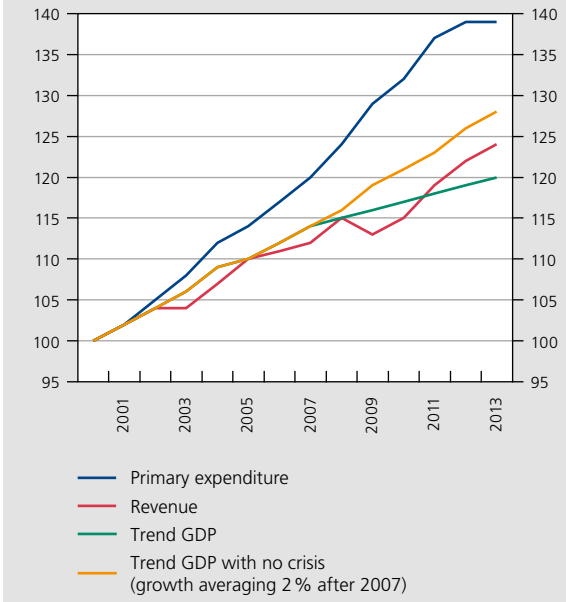
(1) The expenditure of the government sub-sectors does not include mutual transfers.

(2) Primary expenditure deflated by the GDP deflator and adjusted for cyclical, one-off or budget-neutral factors, and for the effect of indexation. This last effect results from the difference between actual indexation of civil service pay and social benefits and the movement in the GDP deflator.

In 2012, however, Belgium modified the path of its fiscal policy. In that year, expenditure growth was much more moderate than in the preceding ten years. In 2013, the

CHART 6 REVENUE AND PRIMARY EXPENDITURE [1] OF GENERAL GOVERNMENT AND TREND GDP

(deflated by the GDP deflator, indices 2000 = 100)

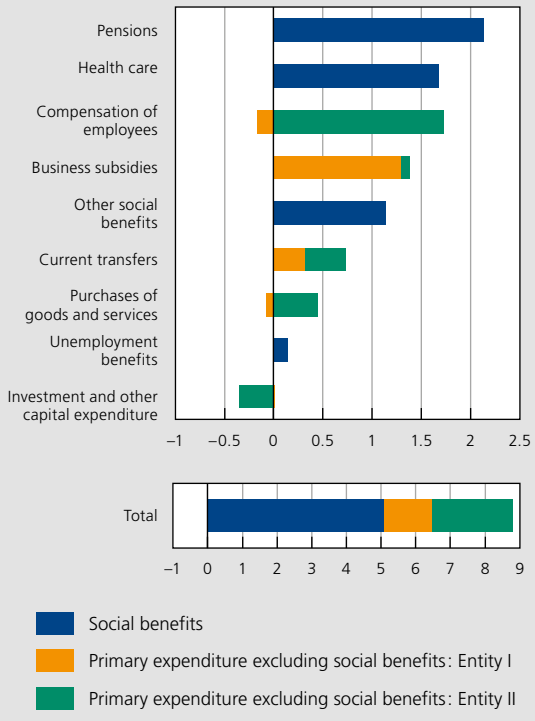


Sources: NAI, NBB.

(1) Adjusted for cyclical factors (according to the ESCB method) and one-off or budget-neutral factors, and for indexation effects.

CHART 7 PRIMARY EXPENDITURE PER CATEGORY AND PER ENTITY

(change between 2000 and 2013, in percentage points of GDP)



Sources: NAI, NBB.

(1) Entity I comprises the federal government and social security.

(2) Entity II comprises the Communities and Regions and the local authorities.

real growth of primary expenditure was virtually zero. This should be seen as the outcome of the recent consolidation efforts on the part of the federal government, the Communities and Regions, and the local authorities.

The expenditure categories recording the largest increases in recent years are social benefits, compensation of employees of the general government sector and subsidies. In fact, of the increase in primary expenditure between 2000 and 2013, an amount equalling 5.1 percentage points of GDP is due to social benefits, which have risen considerably faster than GDP. Expenditure on pensions and health care increased by 2.1 and 1.7 percentage points respectively. During this period, compensation of employees of the general government sector went up by 1.6 percentage points of GDP, an increase attributable entirely to the Communities and Regions and the local authorities. During the same period, business subsidies increased by 1.4 percentage points of GDP. That increase originated from the federal government and social security. In contrast, investment – the public expenditure regarded as the most productive – declined in relation to GDP, falling from 2 % in 2000 to 1.6 % in 2013. Only part of that fall – around half – can be explained by the influence of the electoral cycle on local authority investment.

3.2 Belgian public expenditure in a European perspective

Belgium is among the European countries with the highest public expenditure. As already stated, in 2013 Belgian primary expenditure amounted to 51.3 % of GDP, 4.4 percentage points above the euro area average.

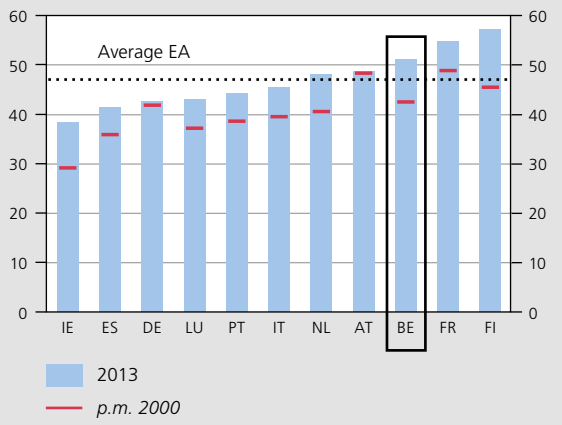
Comparison of primary expenditure per category reveals the budget headings on which Belgium spends more than the euro area average. As a percentage of GDP, Belgian government expenditure on general government sector wage bill, subsidies and social benefits exceeds that in the euro area. Conversely, intermediate consumption and public investment are slightly lower in Belgium.

3.3 Analysis of specific expenditure categories

This section presents a detailed analysis of expenditure on compensation of employees of the general government sector, subsidies and social benefits, these being the expenditure categories which have expanded strongly in recent years and for which Belgium spends more, on average, than the other euro area countries.

CHART 8 PRIMARY EXPENDITURE OF GENERAL GOVERNMENT

(in % of GDP)



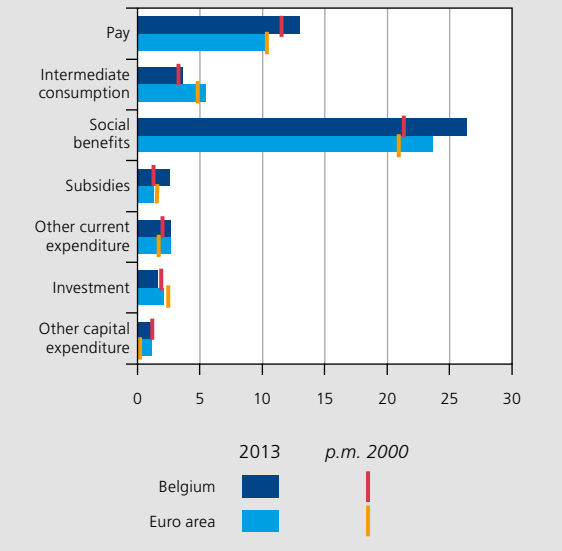
Sources: EC, NBB.

COMPENSATION OF EMPLOYEES OF THE GENERAL GOVERNMENT

The general government sector wage bill represents about a quarter of government expenditure in Belgium. The size

CHART 9 PRIMARY EXPENDITURE PER CATEGORY

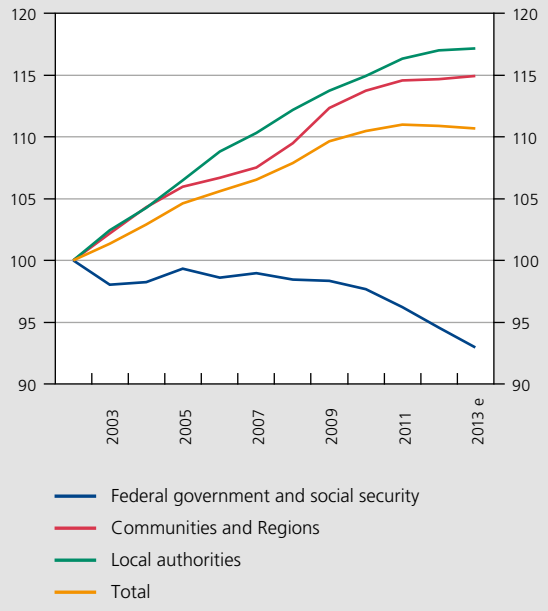
(in % of GDP)



Sources: EC, NBB.

CHART 10 PUBLIC SECTOR EMPLOYMENT

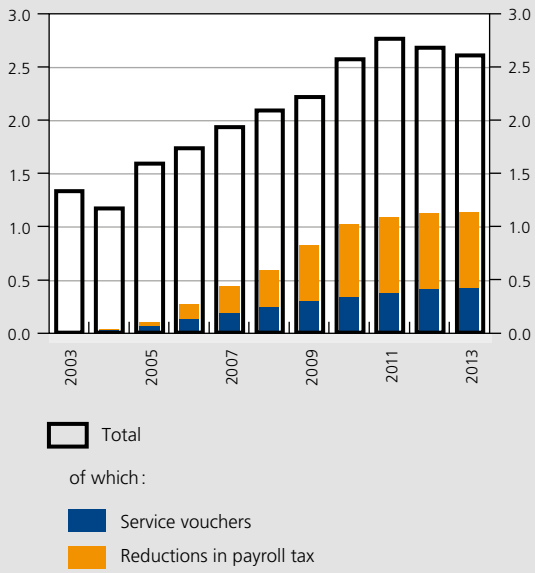
(annual averages, indices 2002 = 100)



Sources: NAI, NBB.

CHART 11 BUSINESS SUBSIDIES

(in % of GDP)



Sources: NAI, NBB.

of the wage bill depends both on the level of employment and the wages paid in the general government sector. The level of general government sector wages in Belgium differs only slightly from the private sector average, and is very similar to that paid in the public sector in many European countries[1]. Conversely, the number of civil servants per head of population seems to have risen here more significantly in recent years, and is higher than elsewhere in Europe. Therefore, any reduction in the wage bill in the context of fiscal consolidation must be achieved primarily by restricting public sector employment.

Public employment has not grown in all government sub-sectors. The Communities and Regions, like the local authorities, recorded stronger expansion of their staff during the past decade. In contrast, employment at federal level was down over the same period, essentially as a result of staff cuts in defence. Since 2011, the stabilisation of employment in the Communities and Regions and the local authorities has brought a slight fall in total public sector employment. That has limited the growth of the wage bill, though its level remains relatively high.

SUBSIDIES

Subsidies paid by government to businesses have risen considerably in recent years. That expenditure includes, for instance, investment grants to the SNCB, and expenditure relating to service vouchers and other activation measures targeting workers in certain risk groups. The reductions in payroll tax granted to businesses by the federal government, both the general reduction and that relating to shift work and night work, are also business subsidies in the sense of the national accounts. Although they have risen strongly in the past decade, these concessions have remained stable since 2010. The service voucher budget has risen steadily since the scheme was launched ten years ago.

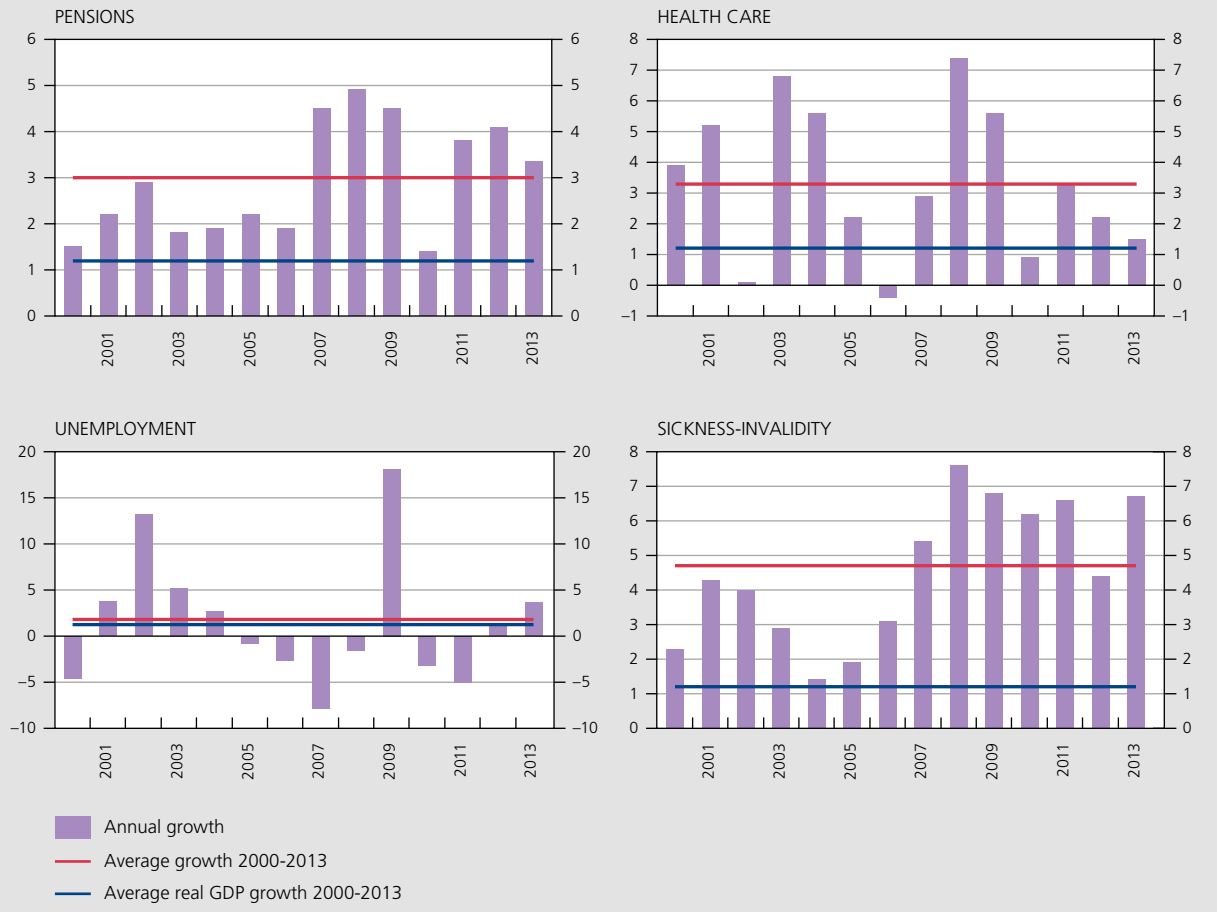
SOCIAL BENEFITS

Social benefits account for around half of public expenditure in Belgium. Pensions and expenditure related to health care services and care for the elderly are the main items. In the past decade, the volume of those social benefits and benefits paid to people in case of work incapacity due to sickness or invalidity has expanded very strongly, significantly outpacing GDP growth. Health care spending has risen more moderately in recent years, in contrast to pensions and sickness/invalidity benefits, which have continued to increase very rapidly.

(1) Eugène B. (2011).

CHART 12 SOCIAL BENEFITSS

(deflated by the GDP deflator, percentage changes compared to the previous year)



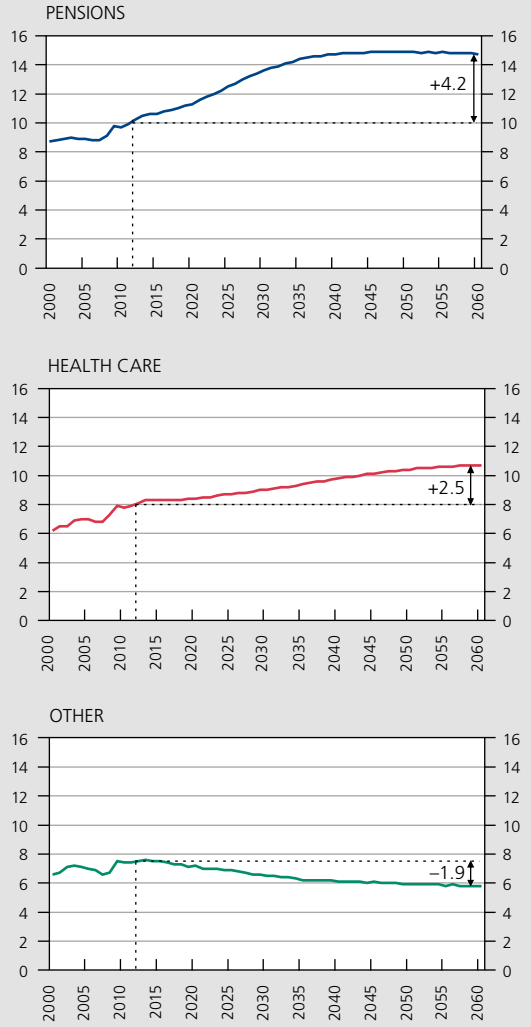
Sources: NAI, NBB.

If policy remains unchanged, the growth of social expenditure cannot be expected to slow down. In fact, the distortion of the age pyramid, due to population ageing, will push up the cost of social benefits considerably in the decades ahead. According to estimates by the Study Committee on Ageing which are naturally subject to a high degree of uncertainty, if the government does not take action then social expenditure will increase from 26.4 % to 31.2 % of GDP between 2013 and 2060, corresponding to a budgetary cost of 4.8 % of GDP. That growth is due entirely to the expected increase in expenditure on pensions, health care and care for the elderly, while the other social expenditure categories should decline overall.

These projections already allow for the expected effects of the recent pension reform, extending working life and delaying the actual age of retirement. The minimum conditions concerning age and length of career will thus be gradually increased: from 2016, it will be necessary to be 62 years old and to have worked for 40 years in order to qualify for early retirement. Although these measures help to soften the impact of ageing on public pension expenditure, the Study Committee on Ageing still expects a substantial rise in pension expenditure in the medium and long term. That shows the need to continue reforming the pension system. In that regard, the average length of working life will need to be further extended in view of life expectancy, specific career factors and the growth of the labour force. Those efforts will have to be supplemented by reforms of the health care system and the system of care for the elderly in order to keep that expenditure under control. The next few years will therefore provide an unmissable opportunity for resolutely addressing the ageing problem.

CHART 13 PROJECTION OF THE TREND IN SOCIAL EXPENDITURE WITH NO CHANGE OF POLICY

(in % of GDP)



Source : SCA.

3.4 Simulations relating to medium-term expenditure growth

The moderation of public expenditure will need to be maintained for quite a time to enable Belgium to respect its European commitments on the consolidation of public finances. That is clear from an exercise which, by way of pure illustration, develops three technical scenarios concerning the movement in primary expenditure. The first scenario is based on expenditure being frozen at its current nominal amount for 2013, implying a contraction in volume. The second assumes that expenditure is frozen in real terms. Finally, the third presents the likely picture without a change of fiscal policy. In all three cases, GDP and inflation are also estimated with no change of policy. This exercise is conducted in the current fiscal and para-fiscal framework.

In that context, each scenario leads to a budget balance which is then compared with the targets advocated for Belgium by the "Public Sector Borrowing Requirements" section of the High Council of Finance in March 2014, namely a structurally balanced budget in 2016 and a structural surplus of 0.75 % of GDP in 2017, in accordance with the medium-term objective laid down in connection with European governance. That last objective would correspond to a nominal surplus of 0.6 % of GDP in 2017. These targets were also included purely as a guide in the April 2014 stability programme, with a reminder that it would be up to future governments to decide on the budget path and its allocation among the various levels of power.

With revenues unchanged, the scenario in which nominal expenditure is held steady would lead to a budget surplus well above the target recommended for 2017. However, that would entail measures with a very high immediate return. The scenario in which expenditure is frozen in real terms would produce a balanced budget in 2017, which implies the need for additional revenue amounting to 0.6 % of GDP in this scenario. If primary expenditure were less strictly controlled, fiscal consolidation would need to be based to a greater extent on new revenues in order to achieve the medium-term objective for Belgium in 2017.

3.5 Recommended consolidation instruments

The study by Cournède et al. (2013) published by the OECD is an excellent general survey of the macroeconomic effects of various consolidation instruments. The analysis in that study enables the authors to make policy recommendations for various countries including Belgium, concerning the best instruments to use in order to achieve fiscal consolidation.

First, the authors analyse both the short-term and the long-term effects of various consolidation instruments on economic activity and income equality. They specifically examine whether the literature contains a consensus on the impact of a particular instrument. On the basis of that meta-analysis the authors divide the consolidation instruments into various categories ranging from largely positive to largely negative instruments in terms of their effect on both economic growth and income equality. If there is no consensus in the literature on a particular instrument, that instrument is not classified.

TABLE 2 SCENARIOS FOR THE GROWTH OF PRIMARY EXPENDITURE (1)

(average percentage changes compared to the previous year for the period 2013-2017, unless otherwise stated)

	Primary expenditure		Budget balance	Gap in relation to the target in 2017 (2)
	Real growth	Nominal growth	(in % of GDP)	
Freezing of nominal expenditure	–1.5	0.0	2.9	2.3
Freezing of real expenditure	0.0	1.5	0.0	–0.6
Projection of expenditure with no change of policy (1)	1.2	2.8	–2.8	–3.4

Sources: Budget documents, NBB.

(1) On the basis of the macroeconomic projections of the Federal Planning Bureau dated March 2014, which were used in the March 2014 opinion of the High Council of Finance.

(2) Objectives included in the April 2014 stability programme, based on the March 2014 opinion of the High Council of Finance.

TABLE 3 CONSOLIDATION INSTRUMENTS RECOMMENDED FOR BELGIUM

	Impact on economic activity		Impact on income equality		Classification	
	Short term	Long term	Short term	Long term	Short and medium term	Long term
Reduction in expenditure						
Pensions		++			1	2
Subsidies	–	++	+	+	2	1
Unemployment benefits	–	+	–		4	3-6
Sickness and invalidity benefits	–	+	––	–	8	7-9
Public sector labour costs and operating costs	––	+	–		11	3-6
Family allowances etc.	–	–	––	––	14	15-16
Public investment	––	––			15	13-14
Health care	––	–	–	––	16	13-14
Education	––	––	–	––	17	17
Increase in revenue						
Registration fees, inheritance taxes etc.	–		++	+	3	3-6
Eco-taxes	–	+	–		5	3-6
Current tax on property	–				6	7-9
Sale of goods and services	–	+	–	–	7	7-9
Personal income tax	–	––	+	+	9-10	10-12
Corporation tax	–	––	+	+	9-10	10-12
Tax on consumption (except environmental taxes)	–	–	–		12	10-12
Social security contributions	–	––	–	–	13	15-16

Source: Cournède *et al.* (2013).

On the expenditure side, in regard to a reduction in pensions, there is no consensus except concerning the long-term effect on economic activity. That effect is decidedly positive, the main reason being the increase in the labour supply which follows from the reduction in pension expenditure. The short-term impact of a cut in pension expenditure on economic growth and income equality depends on the specific way in which it is implemented. It is also important to note the significant difference between the short-term and long-term effects on economic growth of a reduction in public sector labour and operating costs. In the short term, the impact is very negative, whereas in the long term it becomes positive. The reason is that the decline in public consumption resulting from that reduction has a direct impact on GDP, but the negative Keynesian demand effects apply only in the short term. In the long term they disappear, so that cutting that expenditure ultimately has a positive effect on economic activity. Finally, the authors draw attention to the very negative short-term and long-term effects on economic activity and income equality of a reduction in expenditure on education. Cutting public investment also has a very negative impact on economic growth.

On the revenue side, the short-term and long-term effects of an increase in both personal income tax and corporation tax are similar. In the long term, the impact on economic growth is very negative. The impact on income equality is moderately positive in both the short and the long term. In theory, the effect on economic activity of an increase in personal income tax is ambiguous. Such an increase leads to a reduction in the proceeds of their labour for workers. Depending on whether the workers choose to do more work in order to preserve their net income (income effect) or to do less work since their free time becomes relatively less expensive (substitution effect), the impact on economic growth will be either positive or negative respectively. However, on the basis of empirical studies, there is a consensus whereby the substitution effect dominates, so that the effect on economic activity is negative. The impact on economic activity of an increase in social security contributions is comparable to the effect of an increase in personal income tax and corporation tax, but the effect on income equality is different. Increasing social security contributions generally has a negative effect on income equality since these contributions are often concentrated on labour incomes and, in many countries, are only payable on labour incomes up to a certain level. Moreover, an increase in both eco-taxes and income from the sale of goods and services – this essentially concerns the consumption costs of public goods and services – exerts a positive effect on economic growth in the long term. An increase in these consumption costs in fact leads to a reduction in inefficient use of the goods and services which, in the long term, may be beneficial for growth. An increase in eco-taxes in turn promotes sustainable production, and that has a positive impact on long-term output.

On the basis of this summing-up exercise, the authors then establish two rankings of consolidation instruments: one geared to both the short and the medium term, and the other focusing solely on the long term. The higher an instrument's position in the ranking, the better, or less damaging, it is for economic growth and income equality. A short- and medium-term cluster analysis is conducted to attribute weightings to the economic growth and income equality objectives. Belgium is placed in a group of countries where there is a little more emphasis on economic growth than on income equality, as these countries already have relatively high income equality compared to the other OECD countries. It is therefore considered that, for Belgium, the challenges mainly concern stimulating economic activity. In consequence, the impact of the various instruments on economic growth has a relatively greater influence on the ranking. In the long term, the two objectives have the same weighting for the ranking.

In the short- and medium-term ranking, cutting pension expenditure is in first place, followed respectively by cutting subsidies, increasing registration fees and inheritance taxes, and reducing unemployment expenditure. Right at the bottom of the ranking come public investment cuts, restrictions on health care spending and a reduction in expenditure on education. These are consolidation instruments that should preferably be avoided. In the long-term ranking, cuts in pension expenditure and reductions in subsidies swap places. The reason is that, for the long-term analysis, economic growth and income equality criteria are given the same weighting. These instruments are followed by cuts in unemployment expenditure, reductions in public sector labour and operating costs, increases in registration fees and inheritance taxes, and higher eco-tax revenues. Conversely, in the long term, the effect of cutting expenditure on education and public investment is detrimental to economic growth, and in the case of education it also harms income equality.

Finally, the consolidation need is estimated for each country and the authors examine which are the best instruments for achieving consolidation. In that regard, it is assumed that pension expenditure remains constant as a ratio of GDP, and that in itself already entails substantial reforms. Ideally, a country should only use instruments which are high up in the ranking, as they have the best effect on economic activity and income equality. Nonetheless, any given instrument must offer sufficient scope enabling it to be used to achieve the consolidation

objective. Here, the authors apply the following pragmatic rule: on the revenue side, a particular instrument offers some scope if at least a third of the OECD countries studied generate more revenue in relation to GDP with that instrument; on the expenditure side, there is scope for using an instrument if at least a third of these countries spend less as a percentage of GDP.

Taking account of the rankings and the scope of individual consolidation instruments, various instruments are recommended for Belgium. They are outlined in green in table 3. The recommended instruments with a green background are those about which there is little doubt. The other instruments outlined are subject to a little more uncertainty.

The conclusions for the policy to be implemented for Belgium are obviously interesting, but are still only a guide. Thus, according to this study, the recommended instruments about which there is hardly any doubt and for which there is some scope for implementing measures are as follows: cutting pension expenditure, subsidies, and unemployment benefits. In the long term, it is also recommended to reduce the public sector labour and operating costs. According to the approach followed in this study, moderating public expenditure would therefore be the key to successful consolidation of public finances in Belgium. The recommended instruments subject to a little more uncertainty in the short and medium term are as follows: sickness and invalidity benefits, eco-taxes, current taxes on property, and income from the sale of goods and services. In the long term, this concerns eco-taxes and sickness and invalidity benefits.

Conclusion

Owing to the deterioration in public finances resulting from the economic and financial crisis, and the rising costs associated with population ageing, fiscal consolidation is indispensable, both in Belgium and in most other euro area countries.

Although fiscal consolidation is generally detrimental to economic growth in the short term, in the long term it benefits economic activity. Fiscal consolidation efforts based on expenditure cuts have a more favourable impact on economic activity in the long term than consolidation based on an increase in public revenues, so long as the cuts do not concern the most productive expenditure such as investment. However, if the consolidation measures put an end to the uncertainty surrounding the sustainability of public finances, thus boosting confidence, then the short-term impact on economic activity may be limited.

The consolidation of public finances in Belgium must be based first on inhibiting the growth of primary expenditure. Since the start of the millennium, that expenditure has in fact risen sharply as a ratio of GDP. It is also higher than in most other euro area countries, particularly in regard to social benefits, general government sector wage bill, and subsidies. The moderation of the expenditure growth seen recently – resulting from the efforts made by the federal government, the Communities and Regions, and the local authorities – must therefore be reinforced to enable Belgium to meet its European commitments regarding the consolidation of its public finances. In view of the scale of the effort, the need to improve tax collection is probably unavoidable. Some scope for reducing the particularly high levies on labour incomes needs to be found.

Controlling public expenditure by improving the quality and efficiency of public intervention at all levels of power is therefore an important task. In addition, the contribution that the various types of expenditure make towards an increase in growth potential, sustainable development of the economy and the attenuation of social inequalities may also affect the choices made. From that point of view, expenditure intended to encourage participation in the labour market is very effective. Not only does work support the economy, it is also the best guarantee against poverty and social exclusion. Expenditure on investment and research and development, where Belgium does not perform well by international standards, must be protected or even stimulated as far as possible, in view of its beneficial impact on growth potential.

Finally, these efforts need to be supplemented by pension system reforms, further extending the average length of working life. In view of the time that it takes for these reforms to have an effect, it is important to define and adopt them as soon as possible. Moreover, measures must also be taken to maintain control over health care expenditure. That is the only way to ensure that the social protection system remains adequate and affordable.

Bibliography

Alesina A., C. Favero and F. Giavazzi (2012), *The output effect of fiscal consolidations*, NBER Working Paper 18336.

Alesina A. and S. Ardagna (2012), *The design of fiscal adjustments*, NBER Working Paper 18423.

Barrell R., D. Holland and I. Hurst (2012), *Fiscal consolidation : Part 2. Fiscal multipliers and fiscal consolidations*, OECD Economics Department Working Paper 933, ECO/WKP(2012)10, February.

Cournède B., A. Goujard and Á. Pina (2013), *How to achieve growth- and equity-friendly fiscal consolidation ? A proposed methodology for Instrument choice with an illustrative application to OECD countries*, OECD Economics Department Working Paper 1088, October.

de Callataÿ E. and F. Thys-Clément (eds) (2012), *The return of the deficit : Public Finance in Belgium over 2000-2010*, Leuven University Press.

EC (2012), *Fiscal Sustainability Report 2012,* Directorate-General for Economic and Financial Affairs, European Economy 8, December.

EC (2013), *Commission staff working document accompanying the 2014 Annual Growth Survey : Overview of progress in implementing country-specific recommendations by Member State,* SWD(2013)800 final, 13 November.

EC (2013), *Communication from the Commission,* Annual Growth Survey 2014, COM(2013)800 final.

ECB (2012), "The role of fiscal multipliers in the current consolidation debat*", Monthly Bulletin,* 82-86, December.

ECB (2013), "Growth effects of high government debt", *Monthly Bulletin*, 85-87, March.

Eugène B. (2011), "Public sector wages", NBB, *Economic Review*, 23-37, December.

Everaert G., F. Heylen and R. Schoonackers (2014), *Fiscal policy and TFP : Measuring direct and indirect effects*, submitted to *Empirical Economics.*

Hagemann R. P. (2012), *Fiscal consolidation : Part 6. What are the best policy instruments for fiscal consolidation ?,* OECD Economics Department Working Paper 937, ECO/WKP(2012)14, 10 January.

High Council of Finance, "Public sector borrowing requirements" section, (2014), *Opinion : Budget path in preparation for the stability programme 2014-2017,* March.

IMF (2014a), Fiscal Monitor, *Public Expenditure Reform : Making difficult Choices*, World economic and financial surveys, April.

IMF (2014b), *Belgium Staff Report for the 2014 Article IV Consultation,* IMF Country Report 14/76.

Laubach T. (2009), "New evidence on the interest rate effects of budget deficits and debt", *Journal of the European Economic Association*, Vol. 7(4), 858-885.

Molnar M. (2012), *Fiscal consolidation : Part 5. What factors determine the success of consolidation efforts ?*, OECD Economics Department Working Paper 936, ECO/WKP(2012)13, 10 January.

Nautet M. and L. Van Meensel (2011), "Economic impact of the public debt", NBB, *Economic Review*, 7-20, September.

Study Committee on Ageing (2013), *Annual Report*, July.

Sutherland D., P. Hoeller and R. Merola (2012a), *Fiscal consolidation : How much, how fast and by what means ?*, OECD Economic Policy Paper 01, 12 April.

Sutherland D., P. Hoeller and R. Merola (2012b), *Fiscal consolidation : Part 1. How much is needed and how to reduce debt to a prudent level ?*, OECD Economics Department Working Paper 932, ECO/WKP(2012)9, 10 January.

The new national consumer price index

J. Langohr [1]

Introduction

The new national consumer price index (NCPI) on which the health index is based came into effect in January 2014. As is usual every eight years, it underwent a major overhaul. This article presents the various methodological changes made, which mostly correspond to the adjustments announced at the end of 2013 and mentioned in the article "Measuring inflation: the stakes and the state of play" [2], published in the Bank's Economic Review in December 2013. The article also deals with the changes to the NCPI weighting scheme and the continuing differences in relation to the weighting scheme of the harmonised index of consumer prices (HICP).

1. What is new in 2014

1.1 A new basket of products

The new NCPI comprises 611 goods and services ("shopping basket" items), compared to 535 in the NCPI with base year 2004. Altogether, 31 products from the old index were removed, while 105 new products were introduced. The changes mainly concern the components "processed food", "non-energy industrial goods" and "services", whereas few changes were made to the categories "unprocessed food" and "energy".

As required by the HICP methodology, these changes are justified mainly by the aim of covering all products on which the average household's expenditure amounts to at least 0.1 % of total expenditure. Thus, some products have been eliminated, such as music CDs and DVD players: their share in consumption has fallen owing to the latest developments in technology. Instead, other products are now representative and have therefore been included, such as Blu-ray players and telecommunications packages (comprising telephony services, digital TV and the internet).

The new basket of goods and services is based on household expenditure according to the latest available household budget survey (HBS), which dates from 2012. That survey was conducted by the Directorate General of Statistics and Economic Information (DGSEI) covering 6 581 households compared to around 3 600 in previous editions. Moreover, the HBS methodology was modified in 2012 to improve its quality, to accord better with the needs of users and to speed up the transmission of the data. However, the results of the HBS were adjusted by the DGSEI so that they could be used for the purposes of the consumer price index [3].

1.2 A more flexible index

Up to December 2013, the NCPI was a fixed-base Laspeyres index, i.e. its weighting scheme remained the same so long as the base was unchanged. The base was changed every eight years, at the time of the major reform of the NCPI, although mini-reforms have been possible every two years since 2006, but without any change being

(1) The author would like to thank D. Cornille and C. Swartenbroekx for their contribution to this article.

(2) Langohr J. (2013), "Measuring inflation: the stakes and the state of play", Economic Review, NBB, December, 47-66.

(3) The main adjustments made by the DGSEI were:
- exclusion of life insurance as a savings-based investment;
- for other types of insurance (home, vehicle, travel, health), switch from a gross expenditure concept to a net expenditure concept (premiums paid less claims paid out), on the basis of the Assuralia 2011 figures;
- for expenditure relating to medical services, switch from a gross expenditure concept to a net expenditure concept (i.e. minus reimbursements) on the basis of the NIHDI figures for 2011;
- exclusion of items not forming part of monetary expenditure on household consumption, such as contributions to political associations, unions or professional associations, and fines.

TABLE 1 EXAMPLES OF NEW PRODUCTS AND PRODUCTS REMOVED FROM THE NEW NCPI (1)

	Examples of new products	Examples of products removed
Unprocessed food	Chicken fillets	Oysters Lobster
Processed food	Energy drinks Couscous Infant milk powder Pizza (frozen) Frozen salmon Australian wine	Pâté de campagne Pizza (fresh) Frozen cod fillets
Energy	Briquettes Wood pellets	Anthracite
Non-energy industrial goods	Hearing aids Cycle helmet Blu-ray player Food processor Tablet	Visiting cards Music CD External hard disk DVD player Corduroy trousers
Services	Car wash Flower delivery Menu of the day Telecommunications package Parking Sauna	DVD rental Launderette

Source : DGSEI.
(1) The table showing all the new products and those deleted may be found in the annex.

permitted in the weightings of the twelve main consumption basket categories.

The major reform in 2014 was not only the occasion to switch from an index with base 2004 = 100 to an index with base 2013 = 100, but was also the opportunity to make the transition to a Laspeyres chained index. The methodology of that index permits updating of the weighting scheme in January each year, both by an updating of the weightings of all items included in the basket and by the addition and deletion of products. Moreover, the chaining technique offers the opportunity to introduce any methodological improvements once a year.

In practice, the reference period of a chained index is regularly updated, permitting comparison of prices and quantities with an intermediate reference period rather than a fixed reference period. More specifically, the prices for twelve months in year t are compared with those for December in year t-1. A chain is then formed by multiplying these short-term indices by one another to obtain a long-term series which will itself be expressed in terms of a chosen reference year.

This important change of method addresses the problem of "weighting ageing" from which the NCPI formerly suffered. In fact, since its weighting scheme is fixed for a number of years and is based on household expenditure during an arbitrarily selected base year, an index with a fixed base becomes less representative the further the distance from the base year and the more consumption patterns change. For instance, in recent years the old NCPI gave excessive weight to energy and fixed telephony, because – as a result of changes in consumption patterns – these two expenditure items had become relatively less important in volume since 2004, and that was not reflected

in the NCPI consumption basket. In contrast, the HICP was already based on a chained methodology. A chained index therefore ensures that the index remains representative over time, by systematic use of recent weighting schemes. The adjustments to the NCPI weighting scheme which can be made each year if necessary will be based on the HBS (published every two years) or on the national accounts (published annually), the latter being the source used for the HICP weighting scheme.

The chained index also offers the advantage of flexibility when the methodology requires gradual adjustments, whereas in the past methodological changes could only be made every eight years at the time of the major reform. Other developments can also be taken into account, such as the entry of new names in the distribution sector, since it is now easier to update regularly the sample of sales outlets where the prices of the items are recorded.

1.3 A new average for a more accurate picture

For each product included in the consumption basket, a number of prices are recorded (for various brands and at various outlets). In the case of mass consumption goods, clothing, domestic electrical appliances and multi-media, the elementary aggregation of these price collections for each item is now performed with the aid of a geometric average (Jevons index) instead of an arithmetical average (Dutot index)[(1)].

This new method, which has already applied to the HICP since January 2013, can take account of the substitution effect. This refers to variations in the quantities consumed in response to price changes. Use of a geometrical average implies the assumption that the elasticity of substitution is equal to 1, i.e. that the quantities consumed vary in proportion to the price, whereas an arithmetical average implies the rather unrealistic assumption that the elasticity of substitution is zero, so that the quantities consumed are totally unconnected with prices. This change is all the more important in that it concerns goods with a price level which may vary greatly between brands and between shops.

Another advantage of the Jevons index is that the impact that price changes have on the index does not depend on the level of those prices, whereas the Dutot index accords greater importance to relatively expensive products (such as branded products) rather than cheaper products (such as white-label or private-label products). By taking greater account of the effects of substitution in favour of cheaper products, it can be assumed that inflation calculated on the basis of a geometrical average at an elementary level might be slightly lower than if it were based on the arithmetical average, particularly in a context of changes in the distribution sector, with growing market shares for discounters and private-label products which are generally more attractively priced. That effect is likely to be fairly small since the impact of the adoption of the geometric average on total inflation can be estimated at –0.03 percentage point according to the HICP in 2013.

1.4 Taking greater account of rent changes

The methodology used to measure the movement in private rents in the two consumer price indices was based on a survey of a sample of tenants. The survey procedure implied that the rent index primarily reflected indexations during the lease – based on the health index – rather than higher rent introduced when a new lease is signed, whereas this is a substantial source of rent increases.

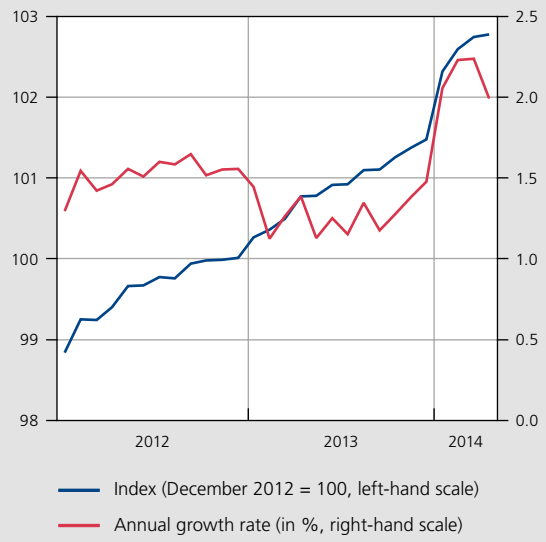
The changes made when the index was revised in January 2014, for both the NCPI and the HICP, in order to reflect the movement in rents more accurately consist in particular in compensating for and limiting non-responses to the survey used by targeting the survey more carefully, by means of addresses obtained on the basis of both the HBS and the statistical survey of incomes and living conditions (SILC) and the labour force survey (LFS). In future, the sample should become even more representative thanks to the aggregate data derived from leases recorded with the General Administration of the Patrimonial Documentation (GAPD) of FPS Finance; a request for data access was made to the Privacy Protection Commission, and duly granted.

In regard to the remaining non-responses, the bridged overlap method now makes it possible to reduce the distortion created, since the movement in unreported rents is now estimated on the basis of rents for other housing in the same category and province. The bridged overlap is also applied where one unit of accommodation is replaced by another in the sample.

Since, by further limiting the distortions associated with survey non-responses, the new method is better at reflecting rent increases made when a new lease is signed, it is logical to find that the private rent index surged in January 2014, when this new methodology was introduced. Private rent inflation increased from 1.5 % in December 2013 to 2.1 % in January 2014, exceeding the 2 % threshold for

(1) For more details on the statistical properties of the Jevons and Dutot indices, see ILO/IMF/OECD/UNECE/Eurostat/World Bank (2004), *Consumer Price Index Manual: Theory and Practice.*

CHART 1 ACTUAL RENTS OF TENANTS IN THE NCPI



Sources: DGSEI, NBB.

the first time since October 2009. Although the impact of the new methodology will be more particularly noticeable over the twelve monthly year-on-year changes in 2014, that does not necessarily mean it will be non-existent thereafter since the improved recording of rent increases imposed when a new lease is signed should have a structural effect on future movements in the private rent index.

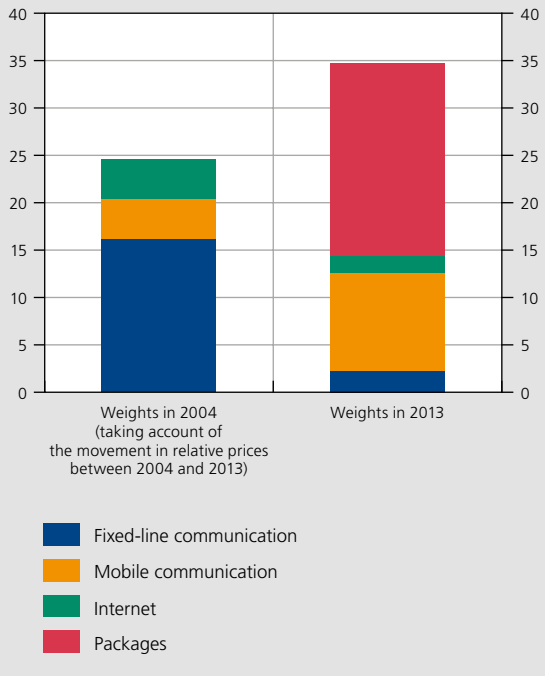
1.5 Modernisation of the recording of telecommunication service prices

The old methodology used to measure the movement in telecommunication prices had two main weaknesses: it took no account of changes in market share among the different suppliers and contracts, and also disregarded service package deals (comprising telephony, digital TV and the internet).

The adjustments made at the time of the major reform address the significant changes which have taken place on this market in recent years, in particular the sharp fall in expenditure on fixed telephony and the internet as individual products, with households increasingly opting for package deals. Moreover, while expenditure on mobile telephony has remained stable, the strong growth of consumption has been counterbalanced by the decline in prices. The overall weight of telecommunication services had implicitly diminished between 2004 and 2013 following the reduction in these tariffs. The updating of the weightings at the time of the switch to base 2013 = 100 made it possible to reflect the rise in consumption of mobile communications and package deals, which has more than offset the decline in terms of individual products of the internet and – above all – fixed telephony. This last item still accounted for two-thirds of telecommunication services in the NCPI in 2013.

While it was vital to update the weightings in order to reflect these movements and to reduce the weight of fixed telephony, for example, the updating also needed to be accompanied by a methodological reform to give a more accurate picture of these new realities. With that in view, the DGSEI established cooperation with the Belgian Institute of Postal Services and Telecommunications (IBPT) and the telecommunications sector. Thus, as in the case of gas and electricity, account is now taken of the consumption profile of each telecommunication service and of the number of customers for each operator and each representative tariff formula. The new methodology also makes it possible to take account of old contracts which are no longer actively offered on the market by suppliers, but which still apply to many consumers, often at less advantageous tariffs. The fact that these contracts were previously

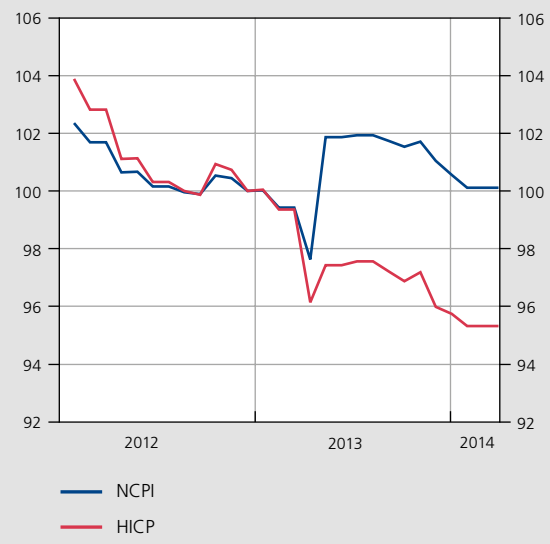
CHART 2 TELECOMMUNICATION SERVICE WEIGHTINGS
(per thousand)



Sources: DGSEI, NBB.

CHART 3 PRICES OF TELECOMMUNICATION SERVICES

(index December 2012 = 100)



Sources: DGSEI, NBB.

disregarded could therefore lead to underestimation of the movement in prices, particularly for mobile telephony, for which tariffs have fallen considerably.

The excessive weight of fixed telephony in the NCPI weighting scheme up to 2013 is reflected in the movement in the index of telecommunication services, where the 4.3 % jump from April to May 2013 is attributable to large increases in fixed telephony tariffs of around 7.5 %. At that time, they alone had had an impact of 0.1 percentage point on inflation according to the NCPI, given the continuing substantial weight of that expenditure. In contrast, in the HICP the telecommunication services category increased by only 1.3 % between April and May 2013, in view of the much lower weight of fixed telephony expenditure.

1.6 The other methodological changes

1.6.1 A new seasonal adjustment for travel

Since some holidays (Easter and Carnival) do not always fall in the same month each year, the method of seasonal adjustment applied up to 2013 was not always appropriate. From now on, econometric models, already used for the purpose of seasonal adjustment in the conjunctural statistics, and permitting estimation of the various components of an economic series, will therefore be used to make these adjustments. Although this improvement has only a limited impact on the year-on-year changes, as the influence of the seasons varies little from one year to the next, the level of the index does reflect these seasonal variations so that, in some specific cases, the latter could exert an influence on indexation mechanisms based on indices derived from the NCPI, such as the health index. The HICP does not include any seasonal adjustment for travel, so that is one of the remaining methodological differences between these two indices.

1.6.2 Treatment of fresh product prices

Previously, the methodology applied to the prices of seasonal fresh products, namely fruit, vegetables and seafood, involved attributing variable weights to the various items on a monthly basis according to the fluctuations in monthly expenditure that consumers devoted to these products. That technique implied that the index could vary from one month to the next following changes in the weights, whereas the prices of the items remained unchanged.

Moreover, these weights varying from month to month were determined in relation to a fixed reference year, whereas consumption of these products may differ from one year to the next, for instance according to weather conditions. Finally, these products are not the only ones for which the consumption pattern changes during the year. In fact, that applies to almost all products in varying proportions. Yet the weighting of all the other items is based on annual expenditure, as the changes in expenditure during the year are not relevant for measuring inflation. In the case of seasonal products, it is only availability that matters, and not changes in monthly expenditure. The new methodology therefore aims to limit the variation at the level of the monthly weighting coefficients and attribute a zero coefficient during months in which a product is not available on the market [1].

1.6.3 The method of introducing new products

When two products are no longer comparable from one month to the next, the bridged overlap technique is now used, whereby the movement in the price of the new product is estimated on the basis of the movement in prices of similar products. Since two products are rarely identical, and that prevents direct comparison between the prices of the old and new products, a price is therefore

(1) However, the new methodology does pose a problem if a product is only available for a month or two each year, but in large quantities. In that case, it is necessary either to extend the price observation period, if that is possible, or to remove the item. The first solution was chosen for fresh fish products (cod, salmon, sole and trout), which are no longer included in the seasonal basket, while the second option was selected for lobster and oysters, which have been removed from the NCPI consumption basket.

imputed for the month preceding the introduction of the new product, based on the movements in prices of similar products. In the case of all products except cars and PCs, the price of the new product used to be linked to that of the old one, eliminating the difference in price between the two, i.e. assuming that the price had not changed.

1.6.4 Abandonment of the concept of localities

Up to the end of 2013, the calculation of the NCPI was based on price collections in 65 localities. For most of the items, an index was calculated for each locality, and those partial indices were then aggregated into a single index for each item on the basis of the population figures.

That method was actually not very useful, since the DGSEI has recently demonstrated that prices fluctuate in practically the same way from one locality to another, as pricing policy has become more national following the strong expansion of retail chains. Moreover, this procedure is based on the rather unrealistic assumption that all goods are bought in the same proportions everywhere. However, certain goods and services only appear sporadically in certain localities, and that is reflected in a small number of collections per locality. For example, consumers purchase certain products, such as clothing, primarily in shopping centres which are often located outside the 65 localities. These factors cause the DGSEI to focus on the product rather than on the locality so that the latter concept has been abandoned. Moreover, this change will make it easier to introduce the methodology based on supermarket scanner data, planned for January 2015.

TABLE 2 NCPI WEIGHTING SCHEME

(per thousand)

	2004 weightings taking account of the movement in relative prices	2013 weightings	Difference due to updating of the weightings
Unprocessed food	85	78	–7
Meat	47	42	–5
Processed food	129	113	–15
Bread and cereals	35	29	–6
Tobacco	12	8	–4
Non-energy industrial goods	301	327	26
Clothing	39	49	10
Vehicle purchases	62	78	16
Newspapers, books, stationery	22	15	–7
Services	359	364	4
Actual housing rents	62	76	14
Telecommunication services	25	35	10
Recreational and cultural services	28	18	–10
Energy	126	118	–8
Fuel and lubricants	49	41	–7
Total	**1 000**	**1 000**	**0**

Sources: DGSEI, NBB.

2. What lessons can be drawn from the new weighting scheme?

2.1 Changes in the weightings compared to the basket with base year 2004 = 100

The new NCPI weighting scheme is based on the latest available HBS, namely that for 2012. In order to interpret correctly the real changes in relation to the old NCPI with base year 2004, it is necessary to exercise some caution. The official weightings for 2004 give a false picture of the actual contribution to total inflation made by changes in the price of a given product in recent years. Depending on the movement in relative prices, that contribution was bigger or smaller than during the base period. In the case of products for which prices increased by more than total inflation between 2004 and 2013, the implicit weighting coefficient for 2013 will be higher than the initial coefficient[(1)]. That applies to food items and more particularly to those relating to energy, which have thus implicitly gained in importance in the old index (i.e. without any explicit updating of the weightings). The opposite is seen in the case of services, and especially non-energy industrial goods, where price increases have fallen short of total inflation.

To assess the actual impact of the introduction of the new weightings on inflation, it is therefore necessary to compare those weightings with the implicit weightings in the old index at 2013 prices. Such a comparison shows the increasing inflation contributions of non-energy industrial goods and, to a lesser extent, services. These changes are in line with those at the time of the previous reform, which had already seen an increase in the importance of these two categories, which now account for 33 % and 36 % respectively of the basket of products, or more than two-thirds of the total on their own.

(1) Formally, the implicit weighting coefficients are calculated as the product of the initial weighting coefficient and the index of relative prices of the category, the latter corresponding to the ratio of the index for the category in question and the index for the total.

Clothing, vehicle purchases, rents and telecommunication services are the categories whose contributions have risen the most, while the categories "newspapers, books and stationery" and "recreational and cultural services" have declined considerably.

The inflation contribution of food (processed and unprocessed) is down by around 2 percentage points, which is logical since the importance of this type of product is known to decline as the standard of living rises. That finding, derived from the 2012 HBS, is also in line with a long-term trend, likewise evident at the time of the earlier reforms. More particularly, "meat" and "bread and cereals", together with "tobacco", are the categories whose weight has declined most significantly in household expenditure, according to the HBS.

The energy component will also have a smaller influence than at the end of the period of application of the old index, following the explicit weighting adjustment resulting from changes in consumption patterns according to the 2012 HBS. Energy products thus account for around 12 % of the new index, compared to 13 % at 2013 prices in the old index. Nevertheless, that is higher than the official weight for base year 2004, which was around 10 %, but that increase is therefore due solely to the movement in relative prices in the context of a sharp increase in energy costs during the period 2004-2013.

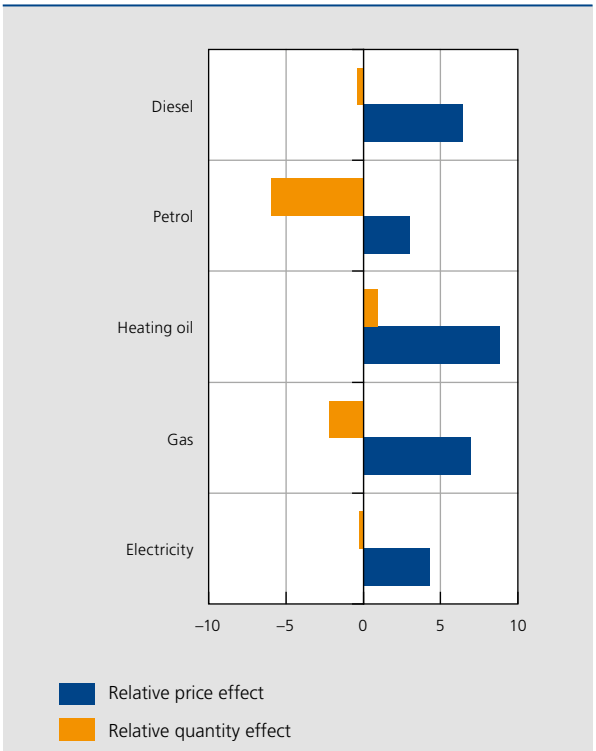
Between 2004 and 2013, the relative price effect had a positive influence on all energy categories, reflecting the fact that, during an episode of rising crude oil prices, the increase in the prices of these products outpaced total inflation. That effect was more marked for the "heating oil" category owing to its greater sensitivity to fluctuations in crude oil prices, the reason being that the excise duty is lower than on other petroleum products. The "gas" category, where prices were until recently closely linked to the fluctuations in oil prices, also exhibited a considerable positive relative price effect. The "electricity" category, though its price is less directly dependent on the crude oil price, likewise recorded a positive relative price effect, notably following increases in the distribution and transport tariffs.

Comparison of the 2004 weightings at 2013 prices and the new weightings shows that the updating of the basket has reduced the importance of the energy component by 0.8 percentage point. That reduction is due mainly to the intrinsic decline in consumption of fuel and lubricants according to the 2012 HBS. In fact, despite the sharp rise in oil prices, the weight of this category has only gone up by 3 per thousand in the new weighting scheme, compared to the 2004 figure, rising from 38 to 41 per thousand, whereas the relative price effect came to 10 per thousand. It is mainly petrol that weakened in importance compared to the old weightings expressed at 2013 prices, while the weighting of diesel remained constant, reflecting consumers' preference for the latter compared to petrol since 2004.

Since the "petrol" category accounts for almost the whole of the decline in the energy component's contribution to total inflation, there is hardly any change, so far as the health index is concerned, in the level of the contribution of energy products compared to the old weightings at 2013 prices. In regard to the transition from the old health index to the new one, the social partners meeting in the National Labour Council opted for the mathematical conversion coefficient, whereas in 2006 they had agreed on a ratio slightly different from the mathematical coefficient[1].

CHART 4 IMPACT OF THE REFORM ON THE WEIGHTING COEFFICIENTS OF ENERGY PRODUCTS

(per thousand)



Sources: DGSEI, NBB.

(1) For the transition from the health index with base 2004 to the index with base 2013, the conversion coefficient was set at 0.828, or the ratio between 100 and the average of the health indices of the year 2013 with base 2004 = 100.

2.2 Weighting differences between the NCPI and the HICP

Despite the January 2014 updating, the NCPI basket still differs considerably from that of the HICP which, as every year, was updated in January 2014. The differences are due to continuing methodological divergences between the two inflation measurements, particularly at the level of demographic coverage – inclusion in the HICP of expenditure by non-residents on Belgian territory, unlike the NCPI – and the statistical source, since the NICP weighting scheme is based primarily on the 2012 HBS, whereas that of the HICP is based on the 2012 national accounts. Moreover, an adjustment for the movement in relative prices in 2013 is made for the HICP but not for the NCPI.

The HICP thus attributes a significantly higher weight to processed food, and notably alcohol and tobacco, owing partly to the inclusion of expenditure by non-residents in Belgian territory, and partly to the usual underestimation of this type of expenditure in the HBS. In recent years, the "over-weighting" of these products in the NCPI due to "ageing" of the weightings had attenuated that difference.

The weighting differential for the energy product category persists, but became much smaller with the introduction of the new NCPI with base 2013, as the weight of fuel in the basket had fallen sharply. Nonetheless, a bigger weighting is still accorded to energy in the NCPI, the main reason being that, in the HICP, the weights were adjusted for the movement in relative prices in 2013 – which was negative for that component – in contrast to the NCPI.

In the case of non-energy industrial goods, the difference is due mainly to the "purchase of vehicles" category, which has a considerably higher weight in the NCPI since the latter adopts a "gross" approach, taking account of transactions between households, on the basis of the HBS, whereas the HICP takes a "net" approach based on registration data, excluding transactions between households.

In the case of services, while rents have a higher weight in the NCPI – owing to the estimated number of tenants and the average rental price, which vary according to the two indices – that is more than offset by the medical care and social protection categories, which have a much larger weighting in the HICP, owing to the statistical source. In fact, in the HBS (used for the NCPI), consumers such as the elderly and people living in communities (retirement homes) are under-represented owing to the procedures for this survey. However, the relative weight of expenditure relating to health in the basket of these consumers is fairly significant. The weight of the category "maintenance and repair of personal vehicles" is also greater in the HICP, as the latter includes the part paid by insurance, whereas the NCPI excludes it altogether.

TABLE 3 DIFFERENCES BETWEEN THE WEIGHTINGS OF THE HICP AND THE NCPI
(per thousand)

	HICP 2014	NCPI base 2013	Difference HICP-NCPI 2013	NCPI base 2004 (price update 2013)	Difference HICP-NCPI 2004
Unprocessed food	82.0	77.5	**4.4**	84.8	**–2.8**
Processed food	134.5	113.2	**21.3**	128.5	**6.0**
Energy	109.1	118.4	**–9.3**	126.0	**–16.9**
Electricity	28.1	31.8	**–3.7**	32.1	**–4.0**
Gas	22.8	23.5	**–0.6**	25.6	**–2.8**
Heating oil	15.3	19.6	**–4.2**	18.6	**–3.3**
Solid fuel	0.6	2.1	**–1.5**	1.1	**–0.5**
Transport fuel	42.2	41.4	**0.8**	48.6	**–6.4**
Non-energy industrial goods	278.9	327.2	**–48.3**	301.4	**–22.5**
Services	395.4	363.6	**31.8**	359.4	**36.0**
Total	**1 000.0**	**1 000.0**		**1 000.0**	

Sources: DGSEI, NBB.

2.3 Inflation according to the two indices: the divergences will persist

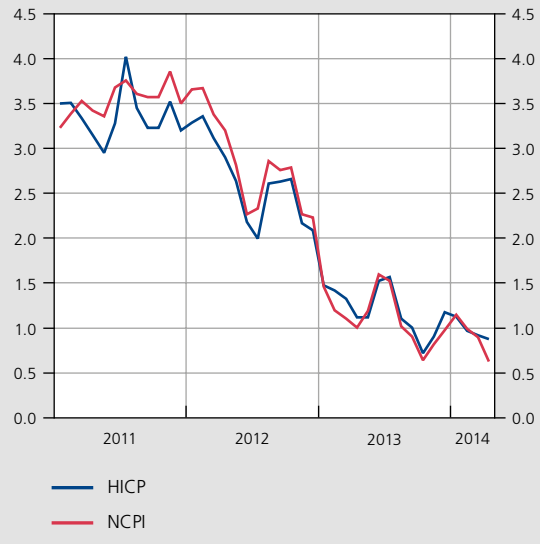
In 2011 and 2012, inflation had been higher according to the NCPI than according to the HICP, mainly because of the divergences in the weight of energy, which was then rising rapidly in price. In 2013, the reverse occurred owing to a fall in energy prices and the inclusion in the NCPI, from January 2013, of the effect of prices discounted in the sales. However, the impact of that was lessened somewhat by another methodological reform introduced at the same time, namely the "payment" approach for heating oil. Taking the moving average over the past twelve months rather than the price in the month for which the index is calculated had an upward effect, owing to the fall in the price of Brent denominated in euros.

Overall, the comparison of the two new weighting schemes indicates that inflation according to the HICP could continue to differ from the NCPI figure in 2014, leaving aside the effect of prices discounted in the sales. However, the gap should be smaller than previously, in view of the reduction in the weighting differential for the energy category, which was the main cause of divergence in recent years.

This diminishing gap was borne out by the inflation figures for the first three months of 2014, since the movement in prices on an annual basis came to 1.1 % in January, 1.0 % in February and 0.9 % in March, according to both the HICP and the NCPI. However, these figures conceal the compensatory effect of certain divergences between the fluctuations in the various categories, due to weighting differentials in those categories and to certain remaining methodological variations and the impact on the year-on-year change of the introduction of the various changes of method made to the NCPI when it underwent total reform. 2014 is in fact a transitional year in which inflation measured by the NCPI will still be influenced temporarily by the old base, since inflation is calculated by comparing the 2014 indices (after the reform) with those for the corresponding month in 2013 (before the reform, but converted in order to permit comparison). The effect of the winter sales may also have been a factor since it is reflected in full in the January HICP, whereas in the NCPI it is spread across the indices for the first six months of the year. In April, inflation according to the two indices diverged again, at 0.9 % according to the HICP and 0.6 % according to the NCPI, notably as a result of the effects of the reduction in VAT on electricity prices and the rise in tobacco prices.

CHART 5 INFLATION ACCORDING TO THE HICP AND THE NCPI

(percentage changes compared to the corresponding month of the previous year)



Sources: DGSEI, NBB.

3. Future developments

Since the switch to the index-chaining technique makes it easier to incorporate updates of the weighting scheme and methodological adjustments, the Index Committee working with the government will draw up a programme of work each year concerning the modifications proposed for the future, in order to ensure that the index is representative. The topics to be assessed and the programme of work will thus be determined by the Committee at the start of each calendar year.

The next important step, already planned for January 2015, is the incorporation of the supermarket scanner data. That reform, which will require the retail chains to submit statistics each week on product characteristics, turnover and prices of individual products, is intended to take better account of real consumer purchasing patterns. These data will make it possible to monitor practically all the goods actually bought, and to do so on the basis of the actual transaction prices and not just the advertised prices. The movement in prices will be measured on the basis of the products that consumers actually buy, instead of a sample of products deemed representative. Nevertheless, the use of supermarket scanner data will concern only part of the basket, namely around 22 %. Moreover, even for products to which this change will apply, additional price collections will be needed, notably in specialist stores such as bakers and butchers.

Conclusions

The January 2014 introduction of the new NCPI with base 2013 puts an end to the significant ageing of the index, whose weighting scheme no longer reflected real consumer purchasing patterns, and that had implications for the inflation figures. In addition, a number of methodological changes made at the time of that reform should provide a structural solution to some of the main weaknesses of the NCPI. Although the methodology of the NCPI was brought more into line with that of the HICP on that occasion, the two indices are likely to continue to diverge in view of the remaining differences, notably in the weighting scheme, though to a lesser extent than in recent years.

The most significant change is probably the switch to use of a chained index instead of a fixed base. That decision, which also implies that the major reform in 2014 was the last of its kind, will not only make it easier to carry out gradual methodological adjustments in the future, but also and above all to adjust the weighting scheme each year in order to constantly reflect new consumption patterns.

The improvements in measuring the movement in rents and prices for telecommunication services were also a priority in view of the weight of the former and the upheaval affecting the latter. Other adjustments are particularly welcome, such as those concerning the methodology of the household budget survey or the switch to the geometrical average for the aggregation of most prices of basket items at elementary level. This last change is particularly significant as it coincides with fundamental changes in the distribution sector, where market shares fluctuate widely between different types of distributor and brand. The use of the geometrical average specifically makes it possible to reflect the substitution effect, favouring cheaper outlets or cheaper brands. From that point of view, the use of retail chain scanner data, to be introduced in January 2015, should permit an even more accurate picture of these developments, and is therefore to be encouraged.

The switch to the geometrical average and the new methodology for telecommunication services is likely to have a downward effect on inflation according to the NCPI. In fact, that new methodology takes better account of changes in market shares, and accords greater weight to mobile communication, for which prices are falling, especially in relation to fixed telephony. Those effects are likely to be partly offset by the upward influence exerted by other changes, principally the new methodology for rents. While the other changes of method can be considered neutral or insignificant in terms of their influence on inflation, that is not true of the weighting scheme update, which also affects the movement in the NCPI.

The chaining of the index and the accompanying establishment of a work programme drawn up each year by the Index Committee now offers the opportunity to make gradual, continuous improvements in response to challenges which arise, such as the growth of internet trading. Moreover, some harmonisation with the HICP is still possible and desirable, notably to take account of movements in relative prices between the year of the source used for the weighting scheme and the updating of the scheme.

Annex

NEW BASKET ITEMS AND DELETED ITEMS

ECOICOP[1]	New items	Deleted items
01	**Food and non-alcoholic beverages**	
01.1.1.1	**Rice**	
01.1.1.1.02	Rice (in bulk)	
01.1.1.5	**Pizza and quiche**	
01.1.1.5.01	Pizza (frozen)	Pizza (fresh)
01.1.1.6	**Pasta and couscous**	
01.1.1.6.03	Couscous	
01.1.1.7	**Breakfast cereals**	
01.1.1.7.02	Muesli	
01.1.2.2	**Pig meat**	
01.1.2.2.04	Pork stir-fry	
01.1.2.4	**Poultry**	
01.1.2.4.03	Chicken breast	
01.1.2.7	**Charcuterie (cured, dried or smoked meat)**	
01.1.2.7.xx		Pâté de campagne
01.1.2.8	**Other meat-based preparations**	
01.1.2.8.09	Curried chicken salad	
01.1.3.2	**Frozen fish**	
01.1.3.2.02	Frozen salmon	Cod fillets
01.1.3.3	**Fresh seafood**	
01.1.3.3.xx		Lobster
01.1.3.1.xx		Oysters
01.1.3.4	**Frozen seafood**	
01.1.3.4.01	Frozen tiger prawns	
01.1.4.5	**Cheese**	
01.1.4.5.09	Cheese: soft cheese for spreading	
01.1.6.3	**Dried fruit and nuts**	
01.1.6.3.02	Mixed fruit and nuts	
01.1.7.3	**Dried and tinned vegetables and vegetable-based products**	
01.1.7.3.03	Tinned sweetcorn	White haricot beans in tomato sauce
01.1.7.3.xx		Split peas
01.1.8.2	**Jam, marmalade and honey**	
01.1.8.2.02	Honey	
01.1.8.2.03	Strawberry jam	
01.1.8.3	**Chocolate**	
01.1.8.3.06	Milk chocolate with praline filling	
01.1.8.4	**Confectionery**	
01.1.8.4.02	Chewing-gum	
01.1.9.1	**Sauces and condiments**	
01.1.9.1.03	Tomato ketchup	

Source: DGSEI.

(1) ECOICOP: European Classification of Individual Consumption by Purpose. This European classification of household consumption by purpose is the harmonisation at European level of the nomenclature of consumption expenditure produced by the United Nations.

NEW BASKET ITEMS AND DELETED ITEMS (continued 1)

ECOICOP[1]	New items	Deleted items
01.1.9.2	**Salt, spices and herbs**	
01.1.9.2.01	Salt	
01.1.9.2.02	Pepper (black)	
01.1.9.3	**Baby foods**	
01.1.9.3.02	Infant milk powder	
01.1.9.4	**Prepared dishes**	
01.1.9.4.01	Frozen meat dish	
01.2.2.2	**Soft drinks**	
01.2.2.2.05	Energy drink	
01.2.2.2.06	Sports drink	
01.2.2.3	**Fruit and vegetable juice**	
01.2.2.3.02	Mixed fruit juice	
02	**Alcoholic beverages and tobacco**	
02.1.1.1	**Liqueurs and spirits**	
02.1.1.1.04	Vodka	
02.1.1.2	**Alcohol-based refreshing drinks**	
02.1.1.2.01	Ready prepared cocktail	
02.1.2.1	**Wine (made from grapes)**	
02.1.2.1.05	Italian wine	
02.1.2.1.06	Chilean wine	
02.1.2.1.07	Australian wine	
02.1.2.1.09	Cava	
02.1.2.2	**Alcoholic drinks made from other fruits**	
02.1.2.2.01	Cider	
03	**Clothing and footwear**	
03.1.2.1	**Men's clothing**	
03.1.2.1.12	Bathing trunks	Sports jacket
03.1.2.1.xx		Corduroy trousers
03.1.2.2	**Women's clothing**	
03.1.2.2.08A	Blazer	Suit (winter)
03.1.2.2.08B	Synthetic trousers (summer)	Suit (summer)
03.1.2.2.16	Bra (push-up)	Bermuda shorts (summer)
03.1.2.2.xx		Nightdress
03.1.2.3	**Clothing for children and infants**	
03.1.2.3.08	Skirt (F – 8 to 12 years)	
03.1.2.3.09	Socks (G – 28-33)	
03.1.3.1	**Other items of clothing**	
03.1.3.1.01	Cycle helmet	
03.1.4.1	**Cleaning of clothing**	
03.1.4.1.xx		Launderette
03.1.4.2	**Repair and hire of clothing**	
03.1.4.2.01	Clothing repairs	

Source: DGSEI.

(1) ECOICOP: European Classification of Individual Consumption by Purpose. This European classification of household consumption by purpose is the harmonisation at European level of the nomenclature of consumption expenditure produced by the United Nations.

NEW BASKET ITEMS AND DELETED ITEMS (continued 2)

ECOICOP[1]	New items	Deleted items
03.2.1.1	**Men's footwear**	
03.2.1.1.02	Casual shoes	
04	**Housing, water, electricity, gas and other fuel**	
04.3.1.0	**Supplies for maintenance and repair of the dwelling**	
04.3.1.0.03	Acrylic paint	
04.3.1.0.05	Woven wallpaper	
04.3.1.0.08	Silicon	
04.4.1.0	**Water supply**	
04.4.1.0.01	Water (consumption)	Water consumption (incl. sewage treatment)
04.4.3.0	**Waste water collection**	
04.4.3.0.01	Water (sewage treatment)	
04.5.4.9	**Wood and other solid fuel**	
04.5.4.9.01	Briquettes	Anthracite
04.5.4.9.02	Wood pellets	
05	**Furnishings, household equipment and routine household maintenance**	
05.1.1.1	**Indoor furniture**	
05.1.1.1.07	Bedframe	
05.1.1.1.08	**Indoor furniture**	
05.2.0.1	**Furnishing fabrics and curtains**	
05.2.0.1.03	Blinds	
05.2.0.3	**Table linen and towels**	
05.2.0.3.03	Bath towel	
05.3.1.1	**Refrigerators and freezers**	
05.3.1.1.03	Refrigerator: low model	
05.3.2.1	**Food preparation equipment**	
05.3.2.1.01	Food processor	
05.3.2.3	**Irons**	
05.3.2.3.01	Iron with steam generator	Steam iron
05.4.0.1	**Glassware and crockery**	
05.4.0.1.02	Water glass	
05.4.0.1.03	Porcelain plate	
05.5.1.2	**Repair and hire of machinery and equipment**	
05.5.1.2.01	Hire of garden tools and equipment	
05.5.2.1	**Small, non-powered tools**	
05.5.2.1.03	Step ladder	
05.5.2.2	**Miscellaneous accessories for the house and garden**	
05.5.2.2.04	Exterior lighting	
05.6.1.1	**Cleaning and maintenance products**	
05.6.1.1.03	Concentrated washing powder	
05.6.1.1.07	Liquid detergent for WC	
05.6.1.1.08	Window-cleaning liquid	
05.6.1.1.09	Softener	
05.6.1.1.10	Anti-limescale product	

Source: DGSEI.

(1) ECOICOP: European Classification of Individual Consumption by Purpose. This European classification of household consumption by purpose is the harmonisation at European level of the nomenclature of consumption expenditure produced by the United Nations.

NEW BASKET ITEMS AND DELETED ITEMS (continued 3)

ECOICOP[1]	New items	Deleted items
05.6.1.2	Other small non-durable household goods	
05.6.1.2.05	Scourer	
05.6.1.2.06	Squeegee sponge	
05.6.1.2.07	Paper towels	
06	Health	
06.1.3.1	Eyeglasses and contact lenses	
06.1.3.1.01	Eyeglasses (plastic)	Eyeglasses (glass)
06.1.3.2	Hearing aids	
06.1.3.2.01	Hearing aid	
06.1.3.9	Other paramedical services	
06.1.3.9.02	Nursing care	
06.2.3.9	Andere paramedische diensten	
06.2.3.9.xx		Verpleegkundige verzorging
06.3.0.0	Hospital services	
06.3.0.0.03	Two-bed room (BIM)	Common ward (VIPO)
06.3.0.0.xx		Common ward
07	Transport	
07.2.1.3	Accessories for personal vehicles	
07.2.1.3.02	Bicycle lights	
07.2.2.4	Lubricants	
07.2.2.4.01	Coolant	
07.2.3.0	Maintenance and repair of personal vehicles	
07.2.3.0.05	Bicycle repair	
07.2.3.0.06	Car wash	
07.2.4.2	Parking facilities and parking meters	
07.2.4.2.01	Parking	
08	Communications	
08.3.0.4	Combined telecommunication services	
08.3.0.4.01	Telecommunication packages	
09	Recreation and culture	
09.1.1.2	Video equipment	
09.1.1.2.02	Blu-ray player	DVD player
09.1.1.2.xx		DVD recorder
09.1.3.1	Personal computers	
09.1.3.1.02	Tablet	
09.1.3.1	Accessories for personal computers	
09.1.3.1.xx		External hard disk
09.1.3.3	Computer software	
09.1.3.3.01	Software	
09.1.4.1	Pre-recorded recording media	
09.1.4.1.02	Blu-ray disc	Music CD
09.1.4.1.xx		Educational CD-ROM

Source: DGSEI.

(1) ECOICOP: European Classification of Individual Consumption by Purpose. This European classification of household consumption by purpose is the harmonisation at European level of the nomenclature of consumption expenditure produced by the United Nations.

NEW BASKET ITEMS AND DELETED ITEMS (continued 4)

ECOICOP[1]	New items	Deleted items
09.2.2.1	**Musical instruments**	
09.2.2.1.01	Guitar	
09.3.1.1	**Games and hobbies**	
09.3.1.1.04	Game	Word game
09.3.1.2	**Toys and party goods**	
09.3.1.2.04	Toy dining set	
09.3.2.2	**Equipment for camping and open-air recreation**	
09.3.2.2.01	Rucksack	
09.3.3.2	**Plants and flowers**	
09.3.3.2.xx		Hypericum
09.3.3.2.xx		Solidago
09.3.3.2.xx		Cyclamen
09.3.4.2	**Pet-related products**	
09.3.4.2.05	Cat litter	
09.3.4.2.06	Dog shampoo	
09.4.1.1	**Recreational and sporting services (for spectators)**	
09.4.1.1.03	Day trips (amusement park)	Day trips (amusement park etc.)
09.4.1.2	**Recreational and sporting services (for participants)**	
09.4.1.2.04	Hire of inflatable castle	DVD hire
09.4.2.2	**Museums, libraries and zoological gardens**	
09.4.2.2.01	Day trips (other)	Day trips (amusement park etc.)
09.5.1	**Books**	
09.5.1.0.xx		Tourist guide
09.5.1.0.xx		Defining dictionary
09.5.3.0	**Miscellaneous printed matter**	
09.5.3.0.01	Greetings cards	Visiting cards
09.5.4.1	**Stationery**	
09.5.4.1.02	Paper (A4 size)	
09.5.4.9	**Writing and drawing materials**	
09.5.4.9.03	Pencil	
11	**Hotels, restaurants and cafés**	
11.1.1.1	**Restaurants and cafés**	
11.1.1.1.07	Menu of the day	
11.1.1.1.08	Spaghetti	
11.1.1.1.09	Steak tartare	
11.1.1.1.10	Vol-au-vent	
11.1.1.1.16	White wine	Aperitif

Source: DGSEI.

(1) ECOICOP: European Classification of Individual Consumption by Purpose. This European classification of household consumption by purpose is the harmonisation at European level of the nomenclature of consumption expenditure produced by the United Nations.

NEW BASKET ITEMS AND DELETED ITEMS (continued 5)

ECOICOP[1]	New items	Deleted items
12	Miscellaneous goods and services	
12.1.1.2	Ladies' hairdressing	
12.1.1.2.01	Haircut	
12.1.1.3	Personal care services	
12.1.1.3.02	Sauna	
12.1.2.1	Electrical personal care appliances	
12.1.2.1.02	Toothbrush (electric)	
12.1.3.1	Non-electrical appliances for personal care	
12.1.3.1.01	Replacement blades for a safety razor (H)	
12.1.3.1.02	Toothbrush (manual)	
12.1.3.2	Personal hygiene and beauty products	
12.1.3.2.08	Liquid toilet soap	
12.1.3.2.09	Cotton buds	
12.1.3.2.10	Incontinence pads	
12.1.3.2.11	Bath oil	
12.1.3.2.12	Foam bath	
12.1.3.2.20	Roll-on deodorant	
12.3.1.1	Jewellery	
12.3.1.1.02	Necklace	
12.4.0.3	Home care services	
12.4.0.3.01	Mass catering for the elderly	
12.7.0.4	Other costs and services	
12.7.0.4.02	Advertisement	
12.7.0.4.03	Flower delivery	

Source: DGSEI.

(1) ECOICOP: European Classification of Individual Consumption by Purpose. This European classification of household consumption by purpose is the harmonisation at European level of the nomenclature of consumption expenditure produced by the United Nations.

Employees : too expensive at 50 ? The age component in wage-setting

Y. Saks

Introduction

The rate of employment for people in Belgium aged 55 and over stands at 40 % [(1)], or 9 percentage points below the European average and 10 points below the target the Belgian authorities wish to achieve by 2020.

In common with other EU countries, the rate of employment has taken an upward path in recent years but has risen more quickly in Belgium (by 14.5 percentage points, compared with an increase of 12.1 points between 2000 and 2012 for the entire 55-and-above group), even though the country started off with a significantly low level (25 %, compared with 36.8 % in the EU). While the rate of employment for male employees aged 55 and over rose by almost 11 points during this period, the rate of increase for female employees in the same age group was even higher (nearly 18 percentage points), particularly due to the raising of the statutory pension age, as a result of a gradual increase from 60 to 65 between 1998 and 2009.

As the work-age population grows older, the labour demand for this age group poses a crucial economic and social challenge. As the relative wage cost is often singled out as the reason for the lower employment participation rate, this article seeks to verify the basis for this claim.

Our analysis shows that population ageing creates a potential problem for corporate competitiveness in terms of costs and labour availability and for the sustainability of public finances.

(1) Annual average in 2012.

1. Ageing of the population and employees

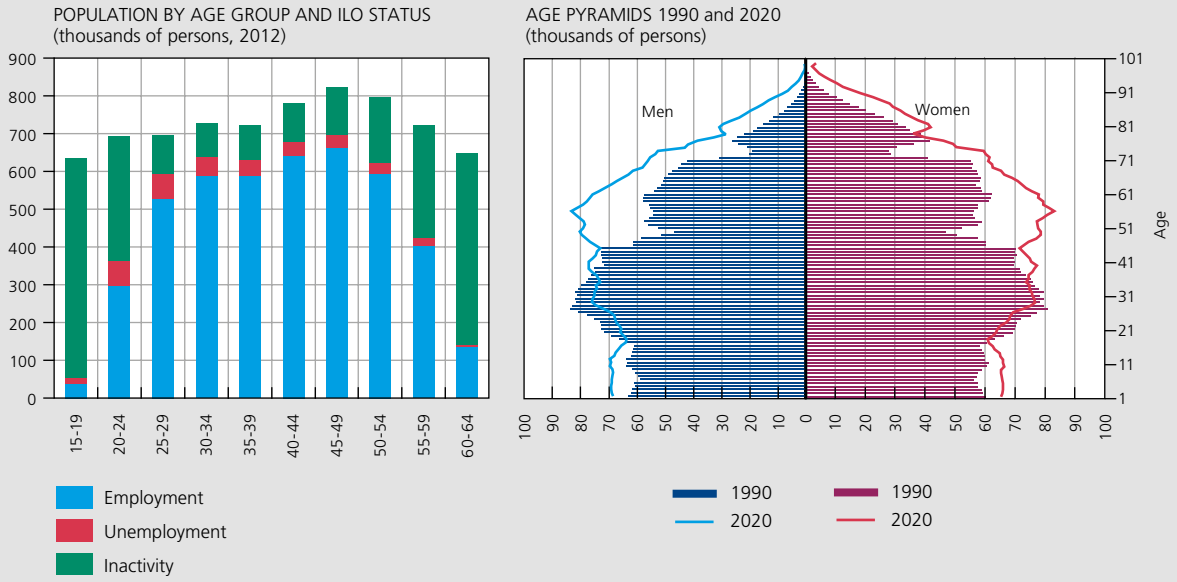
The situation for the various working population age groups presents a contrasting picture. Over eight out of 10 people are employed within the 30 to 44 age group but this percentage declines in the older age groups. The rate of employment is about 75 % for the 50-54 age group and 56 % for the 55-59 one, while barely one in five people is employed in the 60-64 age group.

The size of the different cohorts is extremely variable. The age pyramid helps to illustrate the demographic challenge Belgium will have to rise to, by comparing the age and gender-specific structure of Belgium's population in 1990 with what it is expected to be in 2020.

The pyramid shows the relevance of the baby-boom generation, born between 1946 and 1965. Back in 1990, these were adults within the 25-44 year-old range : age groups with the highest rate of employment. A large percentage of these people will have stopped working by 2020, while the youngest members of the group will then belong to the 50-and-above group, where the rate of employment is currently much lower. In the very near future, a higher number of people aged 55 and over will therefore have to be actively involved in the labour market, otherwise the Belgian economy will suffer even more from the impact of skills shortages already hampering the development of new economic activities in certain regions.

The ageing of the population can already be seen in the age structure of employees in companies.

CHART 1 LABOUR MARKET PARTICIPATION AND THE DEMOGRAPHIC CHALLENGE

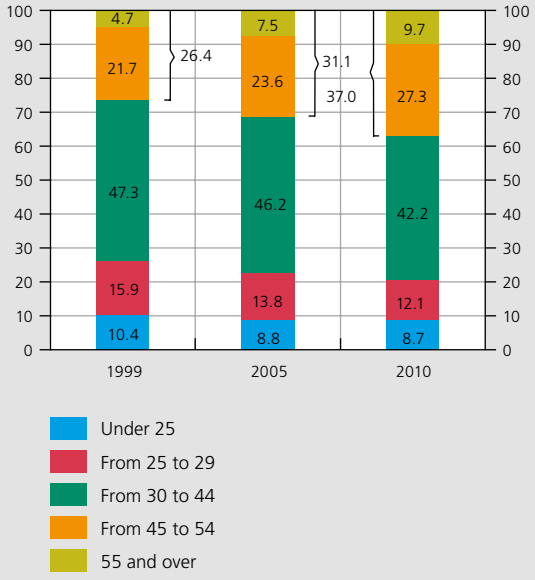


Sources : DGSEI, FPB.

A representative sample of private sector companies showed that the 45 to 54 and 55-and-above age groups accounted for 21.7 and 4.7 % respectively of staff in 1999 but the figures rose to 23.6 and 7.5 % in 2005 and to 27.3 and 9.7 % in 2010. The average employee age in the private sector therefore saw a more-than-two-year increase between 1999 and 2011. A similar pattern was reported in the public sector.

CHART 2 CHANGES IN AGE STRUCTURE OF EMPLOYEES IN THE PRIVATE SECTOR

(%)



Source : DGSEI (SES).

That is the situation for stocks of workers while entries and exits of employees also show contrasting age profiles. An examination of all recruitments[1] in 2012, with the private and public sectors combined, shows that 46 % of new hires belong to the 20-29 age group, while the proportion for the 55-and-above group is not even 3 %. A decreasing monotonic relationship is observed as people age. The hiring rate is cut in half between the 45-49 year-olds and the 50-54 year-olds, from 8.1 to 4.2 %, seemingly indicating a change in the recruitment behaviour of firms, which are recruiting a lot less employees from the 50-and-above group.

Consequently, the recruitment rate for older staff is low in Belgium, in an international comparison as well. A recent OECD study (2014) reports that the hiring rate for 55-64 year-olds is much lower than the rate for 25-54 year-olds

(1) The approach to this concept is based on people of working age having found employment within the last three months or less, according to labour force surveys. No distinction is made in this case between employment on a salaried or self-employed basis.

in all European countries but Belgium scores the lowest of all the 24 economies compared.

The exit age profile for employment is completely different from the recruitment one. People in the youngest age groups figure prominently among exits, primarily because they are proportionally more often in fixed-term-contract jobs, including temporary employment. Job losses affecting 20-29 year-olds account for 28 % of the total (while they represent only 19 % of all employees) but increase sharply starting from 55 years of age to account for over 25 % of the total.

These patterns are fairly stable over time. Recruitment in the three highest age groups (45-49 year-olds) was on the rise during the period from 1999 to 2012, as in the case of 50-54 year-olds but to a lesser degree. Conversely, the labour force surveys show that recruitment among 55 to 64 year-olds remains very low (there were roughly 5 000 new recruits among this age group throughout the entire country in 2012 : these statistics are therefore close to the reliability limit). Nor is there any trend increase reported for hiring rates within the latter group.

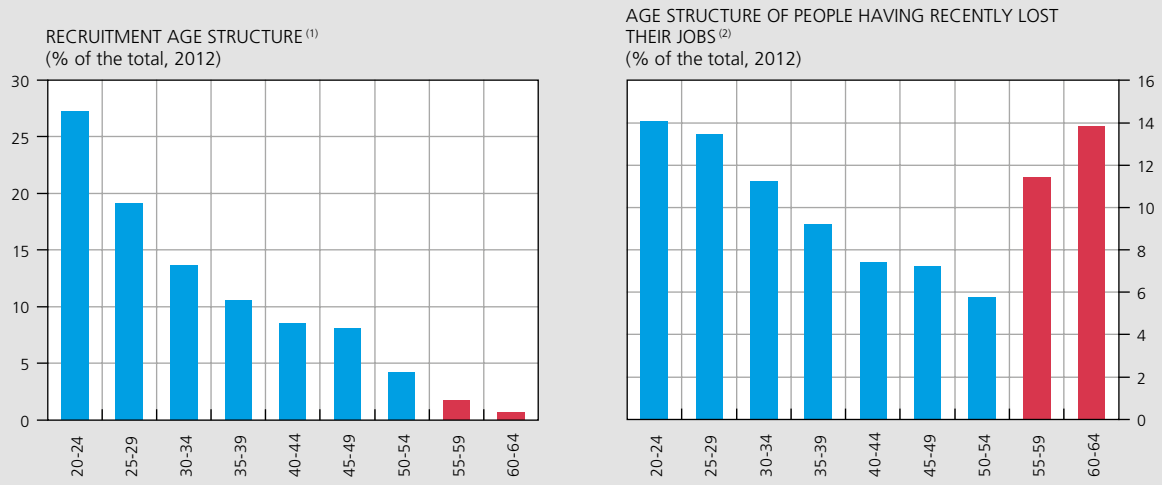
The higher employment rate for older employees, particularly in the case of the 55-and-above group, is therefore the outcome of a higher level of job retention for these people, as any employees in this age group losing their jobs still find it difficult to find new positions. This observation is important at the start of a period when there will be a need to involve a higher percentage of older employees, whose employability has to be facilitated, and ensure a match between labour costs and productivity.

In common with most other European countries, Belgium introduced a series of earlier retirement measures at the end of the last century. These schemes still play a key role in labour market exits prior to the statutory pension age. In the past, people's entitlement to use these schemes was regarded as being beneficial to staff and employers alike. Access to the paths to an early exit from the labour market has gradually been made more difficult in recent years as a result of raising the age and career conditions for entitlement, applicable in particular to the pre-pension system (renamed "unemployment with employer top-up", along with a new strategy of helping these people back into work) and its counterpart for the former employees of smaller firms (scheme for older unemployed people exempt from seeking work).

Similarly, previously confined to the under-50s, monitoring of unemployed people's availability for work was extended to people over 55 as from 1 January 2013 and will apply to 58-year-olds in 2016.

An estimate of the percentage of people in the 50-64 age bracket availing themselves of a labour market exit scheme prior to their statutory pension age can be made

CHART 3 RECRUITMENTS AND EXITS BY AGE GROUPS



Source : EU (LFS).
(1) People having found work within three months or less.
(2) Job loss during the year covered by the survey or the previous year, on all grounds, including termination of temporary contracts, retirement, early retirement, etc.

TABLE 1 EARLY LABOUR MARKET EXITS FOR PEOPLE AGED 50 TO 64[1]

(men and women, as a percentage of the corresponding population)

	50-54 years old		55-59 years old		60-64 years old		Total 50-64 years old	
	2000	2013	2000	2013	2000	2013	**2000**	**2013**
Pensions	1.3	1.0	3.8	3.3	41.7	29.0	**14.4**	**10.2**
Unemployed with employer top-up, exempt from seeking work	1.3	0.0	7.2	3.7	13.0	12.3	**6.6**	**4.9**
Older unemployed not seeking work	8.1	0.0	11.1	2.5	5.3	8.2	**8.2**	**3.3**
Full-time time credit and career break	0.3	0.1	0.3	0.2	0.0	0.0	**0.2**	**0.1**
Invalidity	5.7	7.7	7.5	9.6	6.4	8.9	**6.5**	**8.7**
Total	**16.6**	**8.9**	**29.8**	**19.2**	**66.5**	**58.4**	**35.8**	**27.2**

Sources: DGSEI-FPB, NIHDI, NEO, NPO, SdPSP.

(1) Estimated totals, calculated on the basis of a mixture of data not necessarily related to the same period or recorded at different times. As pension data for the year 2000 could be affected by double counting in the case of careers in more than one sector, it was assumed that the percentage of mixed careers in the sum of all the pensions was identical to that for 2013. The aggregate figures thus obtained are only of an indicative nature. Moreover, they are not necessarily consistent with the number of inactive people according to the harmonised statistics featured in the labour force surveys, as a gainful activity is sometimes allowed on top of benefits being received.

by aggregating the following categories: the number of retired people, unemployed not seeking work with employer top-up, elderly unemployed people exempt from seeking work, elderly employees taking a full career break or receiving a full time-credit, and those on invalidity benefit. In 2013, 27 % of people aged 50 to 64 were covered by one or another early exit scheme. In most cases, it was a question of a pension (roughly 10 %), followed by invalidity (about 9 %).

However, the percentage is significantly down on the year 2000, when the various schemes were being used by nearly 36 % of people aged 50 to 64. The trend is perceptible for all the schemes taken into consideration, apart from invalidity. Expressed as a percentage, the fall was the greatest for the scheme covering elderly unemployed people and for pensions.

The main determining factor for the 50-54 year-olds is the abolition of the option of qualifying for the scheme for older unemployed not seeking work. All in all, solely 9 % of people belonging to this age group took advantage of one of the various exit schemes in 2013, compared with 16.6 % in 2000.

In the 55 to 59 age group, solely the percentage of those on invalidity benefit increased, a trend that is more than offset by a fall in the proportion of unemployed people with employer top-up and, above all, the percentage of elderly unemployed. All in all, the share represented by the various schemes has fallen from about 30 to 19 % in this age group.

Conversely, use of the unemployment with employer top-up scheme has fallen only very slightly amongst 60 to 64 year-olds, while the relative significance of the elderly unemployed and invalidity schemes has increased considerably. On the other hand, the proportion of pensioners has declined sharply. Accordingly, roughly 58 % of the 60-64 year-olds availed themselves of one of the different schemes under consideration in 2013, compared with 66 % in 2000.

This data confirm the need to have tight controls over the possibility of early retirement in Belgium, as its impact on the labour market participation of potential beneficiaries is clearly apparent. Therefore, as a result of the rather generous early withdrawal paths, the large number of labour market exits and the low levels of recruitment within these age groups, the estimated professional career length is shorter in Belgium than in the "best-performing" European countries, mainly the Scandinavian countries, the Netherlands and Germany. These countries have all applied extensive reforms to their early labour market exit schemes. Some have also revised the regulations governing their pension schemes in particular index-linking the normal retirement age to life expectancy or intensifying the financial penalty in the event of early retirement.

2. Wage and age

Covering a representative sample of private-sector firms employing at least 10 people, Structural Earnings Surveys (SES) form the basis for analysing the relationship between age and wage in Belgium and various EU countries.

A wage pressure indicator is defined as the ratio of the average monthly wage of 50-59 year-old employees to 30-39 year-old employees.

Wage pressure measured in this way is much greater in Portugal and Italy but it is also high in Belgium, Luxembourg and Spain while much more moderate in the Scandinavian countries and the Netherlands. The United Kingdom stands out even more, as the wages of 50-59 year-old employees are lower than those in the 30-39 category.

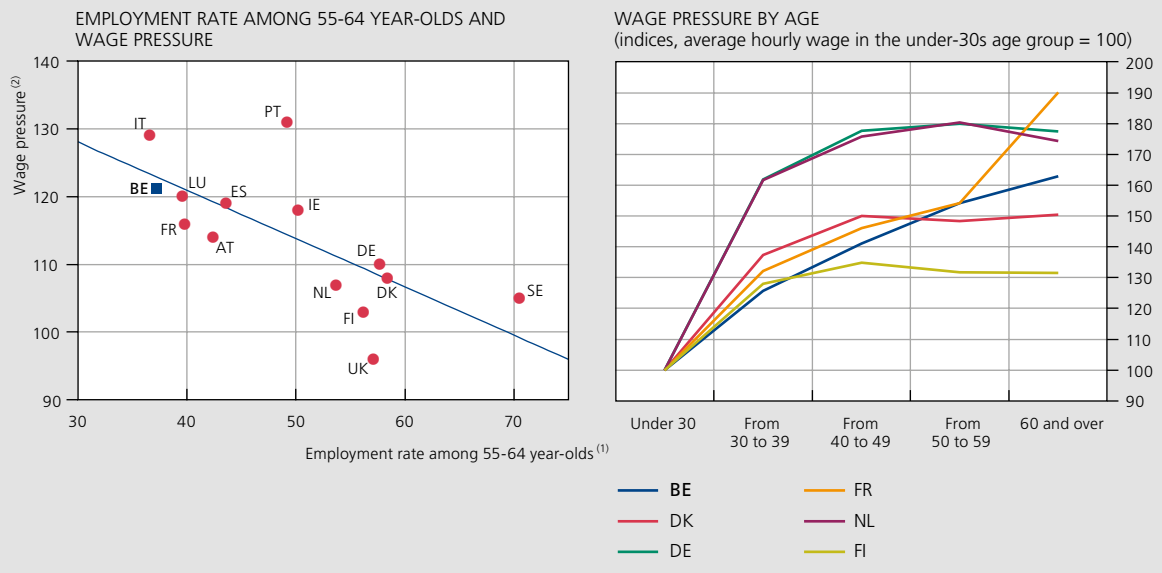
A bivariate relationship shows a negative correlation between the wage pressure rate according to age and the rate of employment among people aged 55 and over. In other words, a flatter wage structure goes hand in hand with a higher rate of employment amongst older employees according to this dataset relating to the EU15 countries. This observation may not yield any causal conclusion but employees aged 55 and over might presumably be ousted for relative cost reasons. The financial factor obviously does not rule out the impact of other mechanisms.

Consequently, wage profiles are linked to the age factor in all European countries to some extent [1] but the remuneration profile is seen to be continuing to rise for the over-50s in Belgium, whereas it flattens out until the date of retirement in the Scandinavian countries, the Netherlands and Germany. However, this development might be attributed to some extent to composition effects: as the early retirement systems continue to be more generous and, accordingly, more frequently used in Belgium and France than in other countries under review, there could be a process of (self-) selection for people staying on at over 50 years of age, with solely the biggest earners continuing to work, while the others make wide use of the early retirement options. This situation has to change, with the early exit opportunities becoming fewer and fewer. A mechanical flattening of the wage pressure curve may therefore be expected in due course.

The social dialogue should take this question into account in order to encourage employees to stay on longer but without unduly affecting business costs. It will be up to the public authorities to facilitate agreements on curbing wage

(1) The European Directive 2000/78/EC of 27 November 2000 establishing a general framework for equal treatment in employment and occupation prohibits any form of discrimination based on religion or belief, disability, age or sexual orientation in an employment relationship. Several sectors in Belgium have age-specific wage scales on the basis of collective agreements. All these legislative texts have had to be amended in order to abolish the age criterion.

CHART 4 PROFESSIONAL CAREER AND WAGE PRESSURE BY AGE IN VARIOUS EU COUNTRIES



Source: EC (LFS, SES).
(1) Ratio of 55-64 year-old employees to the overall population in this age category (%).
(2) Ratio of the average monthly wage of 50-59 year-old employees to 30-39 year-old employees, with the wage level of the latter group being equal to 100.

cost growth at the end of careers, while continuing to attach great value to seniority and experience (as a reflection of higher productivity), by reducing social security contributions, where appropriate.

2.1 Employer-size effect

The Belgian component of the SES shows that, in terms of averages, wages increase in line with the size of the employer. This refers to the hourly wages of full-time employees. Even when made conditional on employees' characteristics and the branch of activity, the "size" effect continues to apply.

There are various explanations for this. Larger firms are reported to be in a better position to hire skilled staff. Their higher average level of profitability, thanks in particular to their market power, makes them able to offer better wages than smaller companies. These large firms are also said to find it more difficult to monitor the activities of staff, who are therefore better paid to ensure they work hard enough.

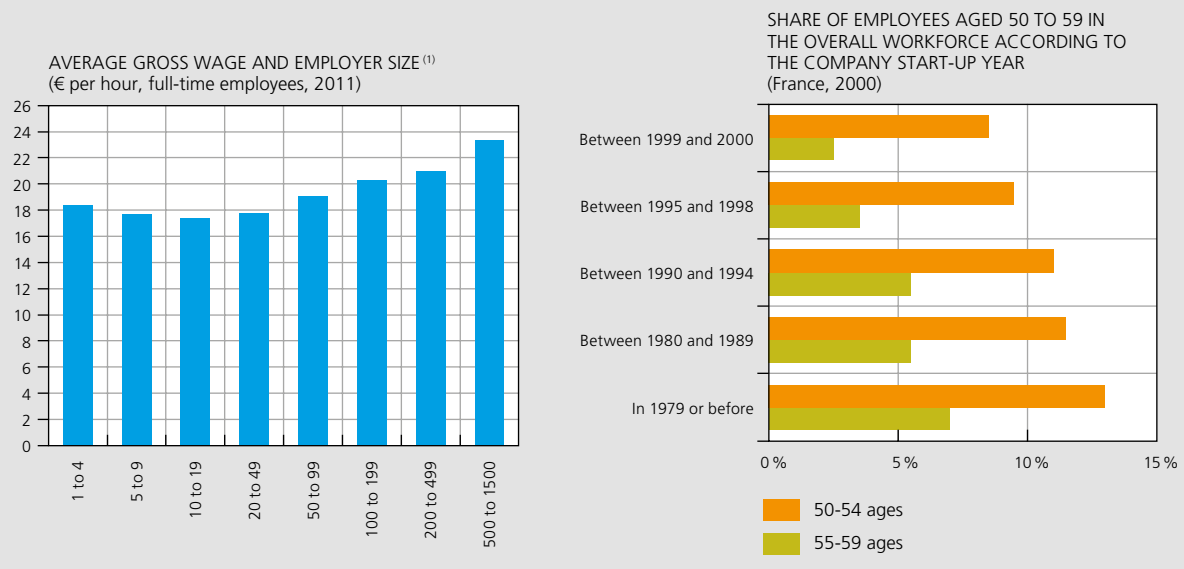
The firm start-up date and its size also have a bearing on each other. Older firms generally tend to be larger and comprise more employees in the 50-and-above group. Similarly, smaller companies tend to be more recent and have a younger workforce on average. How old employees are depends not only on the company's history, start-up date and hiring and firing policy but also on its field of activity (expanding or declining). The data in the right-hand panel of chart 5 applies to France (Aubert and Crépon, 2003) as the Belgian microdata in the SES does not include the start-up dates of companies.

2.2 The branch-of-activity effect

The aggregate wage statistics show significant differences depending on the branch of activity. Wages are lower than the average in the hotel and catering business, construction and transport, while being higher in the financial services, scientific and technical services and the energy sector.

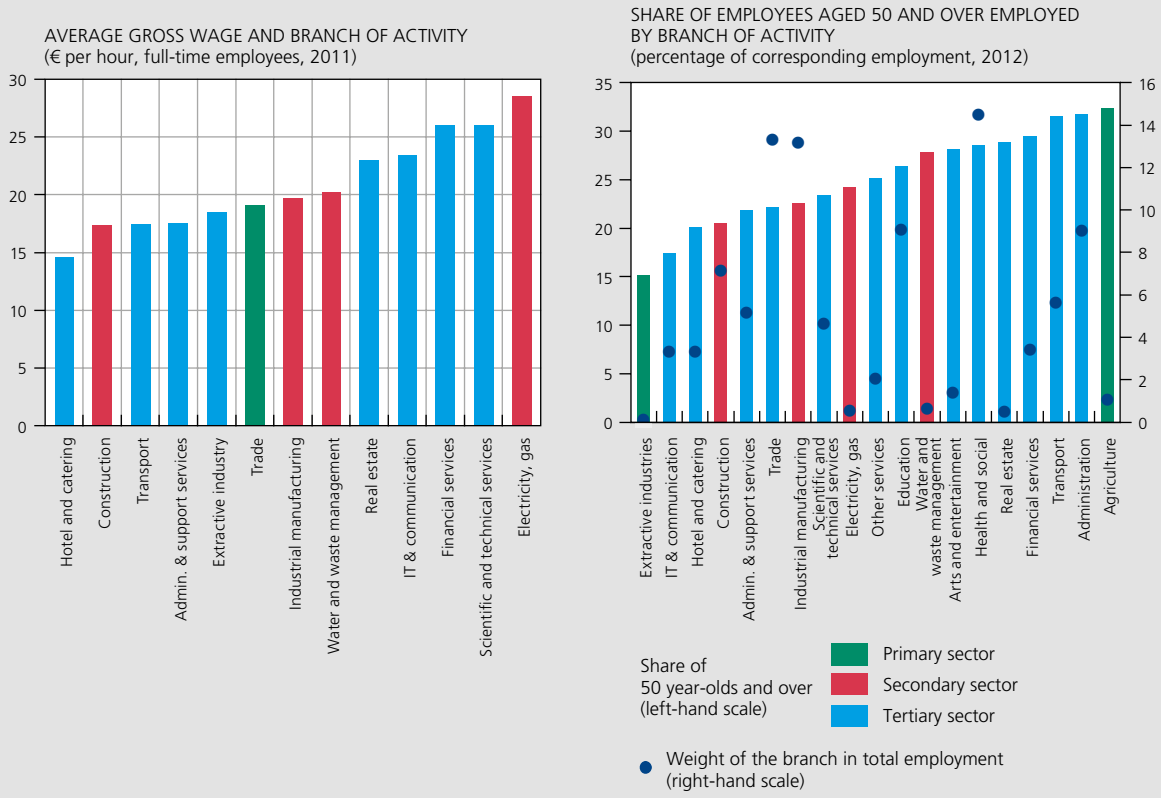
These contrasts are partly ascribed to the staff profile: the proportion of employees with lower educational attainments is higher in the hotel and catering business than in financial services firms and the energy sector. However, even when made conditional upon the characteristics of staff, the dissimilarities between branches remain significant. Hence other factors are involved, including the unobserved characteristics of the workforce (competence, risk aversion, for example) and profitability gaps between sectors, as reflected to some extent in wage levels.

CHART 5 WAGE-DETERMINING FACTORS: EMPLOYER-SIZE EFFECT



Sources: DGSEI (SES), INSEE.
(1) Number of employees in a local unit.

CHART 6 WAGE-DETERMINING FACTORS: BRANCH-OF-ACTIVITY EFFECT



Sources: DGSEI (SES), EC (LFS).

The ranking of branches of activity by the number of employees aged 50 and over working there is inconsistent with their being ranked according to the average wage level. In other words, the composition in terms of age explains only a small percentage of the wage differences reported among the branches.

The 50-and-above group is primarily active in non-market services, such as administration or health and social work and also in the transport sector, real estate and financial services but relatively less involved in computer technology and communications, the hotel and catering business, construction and retail trade.

This breakdown of employees in the 50-and-above group is partly explained not only by the working conditions and hard work involved (hotel and catering, construction) but also by the fast-paced technological developments making some of the expertise acquired obsolete. This also reflects the impact of restructuring within the various fields of activity.

2.3 Worker-profile effects: level of education and experience

Higher educational attainments open up more career opportunities, theoretically allowing people to carry out more productive activities and also reflected in better wages. The wage of a highly-qualified young person (under 25, having gained a higher education qualification) living in Belgium is 13 % higher than a young unskilled person (who did not complete secondary school). A young medium-skilled person (holding a higher secondary education qualification) earns 2 % more on average than a young unskilled person.

Education level gaps tend to widen as workers get older. In the case of 30 to 44 year-old men, their hourly wage is higher than that of unskilled men of the same age, by 73 and 8 % respectively, depending on whether they are highly-skilled or semi-skilled. The increase is particularly big for people with a high level of education, which results in more skills being required and valued in a modern economy.

This positive relationship between educational attainment and wage levels may be explained in particular by the human capital or signal theory. The human capital theory holds that the knowledge and skills people build up, primarily through their studies, boost their productive capacity, whereas the signal theory claims earning qualifications mainly enables employees to highlight characteristics that are not immediately observable (hard-working, talent, intelligence, etc.). These two theories therefore fail to agree on why employers are prepared to pay an education-related wage premium. The first theory suggests education boosts wages because it is seconded by greater productivity, while the second one believes it acts as a kind of "filter" for employers but is not in itself a key factor for determining the productivity differences between employees. The two effects probably exist alongside each other.

At aggregate level, women are seen to be less well paid than men, mainly because they are employed in lower-paying sectors and they break off their careers more frequently than men owing to family commitments. If it is not a statistical problem (the relevant groups being small ones), the chart also illustrates the "glass ceiling" the highest-qualified women come up against: their final earnings are seen to stall compared with their male counterparts, unlike the situation for the low- and semi-skilled.

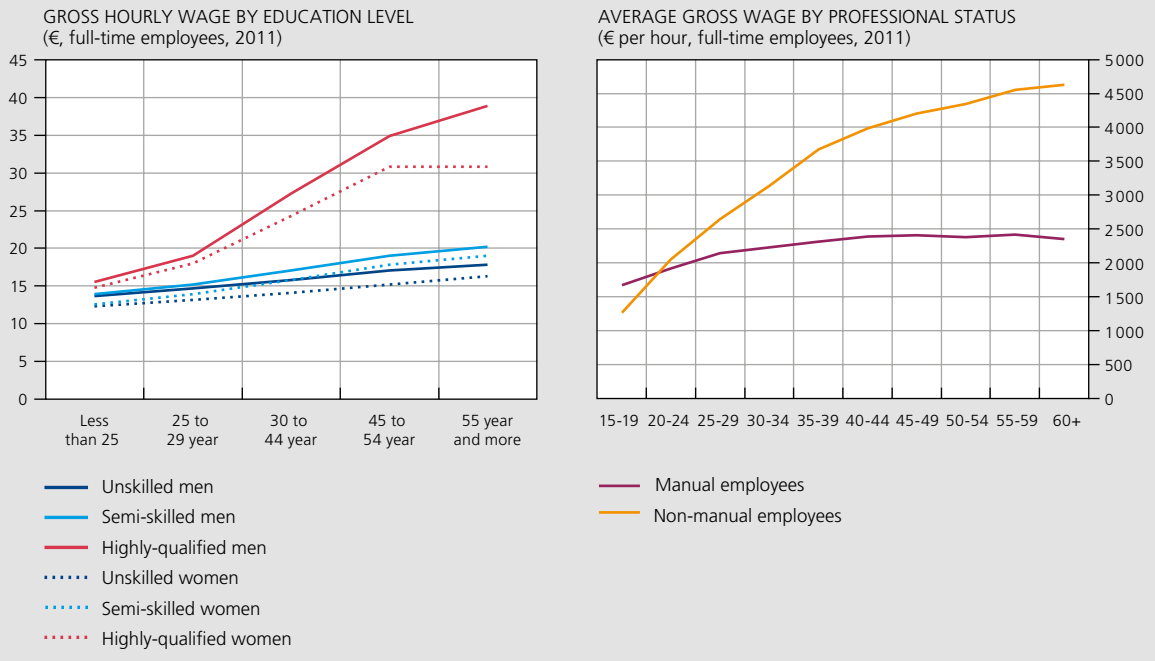
Wages increase as people get older across all categories. According to the human capital theory, this rise is based on the experience of employees and hence their productivity, while also reflecting the extent to which the people in question have changed their jobs and duties during their professional careers.

The increase might also be based on incentive purposes. According to the deferred payments theory, employers strive to keep people working for their businesses and keep them motivated by opting for an in-service wage profile that is steeper than the productivity profile. At the start of their careers, young employees therefore seem to be under-paid on average, whereas the final earnings tend to exceed productivity.

2.4 The seniority and professional-status effects

Experience with the same employer, or seniority, is also valued. The reward of seniority reflects the firm-specific experience built up and the match quality. In other words, seniority is an endogenous variable to some extent because the more the match is appreciated by both parties, the less likelihood there is of changes of employer.

CHART 7 WAGE-DETERMINING FACTORS : EDUCATION, EXPERIENCE



Source : DGSEI (SES).

It is impossible to make a distinction between the effects of experience, seniority and the age of the employee simultaneously, without any additional assumption because these three values show a similar trend if the person stays with the same employer.

The social dialogue in Belgium is based on joint committees that differ for manual workers and clerical employees. These authorities are called upon to settle a series of issues and apply the outcomes to all firms that fall within their sphere. Collective agreements establishing occupational classifications and the corresponding wage scales for employees generally provide for wage changes to be based on the clerical employee's seniority, whereas no such adjustment is made for manual workers, except in the case of short-term seniority (less than six months, between six months and one year and over one year).

At aggregate level, this is reflected in age-specific wage profiles being clearly different for manual and non-manual employees. The slow growth of manual employees' wages is also a reflection of their lower educational achievements on average and the experience they have acquired being less valued in their types of occupation.

Estimates according to which experience (approximated by the age of the employee minus the length of the latter's studies, taking account of the employee's higher qualifications) and seniority (for which precise data is available) are separated show that it is above all experience (and therefore age) that explains the difference between the earnings of manual and non-manual employees, with seniority having a more comparable effect for both statuses.

The distinction made between manual and non-manual statuses goes right back to the beginning of Belgian labour law. The statutory criterion for distinguishing between the manual employee and non-manual employee is based on the type of work carried out, with an individual being described as a manual or non-manual employee according to whether the work involved is primarily intellectual or otherwise. This criterion was quite relevant at the time when the legislation was introduced but the social and economic context has changed over time, making its application increasingly difficult. This difficulty is exacerbated by the increasing complexity of occupations as a result of the many areas where technological progress has been achieved in recent decades.

This distinction has been gradually erased from labour laws in most of the other European countries. The negotiations surrounding this issue in Belgium were particularly long-drawn-out. The Constitutional Court announced in July 2011 that the inconsistency of the rules governing notice and unpaid first day of sick leave, depending on whether the employee is described as manual or non-manual, was discriminatory and violated the Constitution. The Court judgment catalysed the bargaining process. The compromise reached in the end was expressed in the Law of 26 December 2013 on the introduction of a single status. The legislation came into force on 1 January 2014, with the new provisions creating a dismissal and resignation system that was exactly the same for all employees, whether their occupation be manual or intellectual, while respecting past "entitlements" for both employees and employers in order to ensure a smooth transition from the old system to the new one. Compared with the previous situation, periods of notice have been lengthened significantly for manual employees and reduced slightly[1] for non-manual employees.

As we have seen, the wages of manual employees increase a lot less according to seniority than is the case with clerical employees. The current law does not call into question these different wage scale developments.

3. Productivity and age

3.1 Age and performance

A recent study by Mazzonna and Peracchi (2012) considered the link between age and four components of cognitive functioning (orientation, memory (immediate and delayed recall), verbal fluency[2], numeracy), by making a distinction between people still working and people who take (early) retirement[3], based on SHARE (Survey on Health, Ageing and Retirement in Europe) data[4]. Wide disparities are seen between the two groups: the scores for people still working are systematically higher for almost all the components tested. The scores are also seen to decline slightly with age, for people still employed as well, particularly in the case of memory and verbal fluency. The decline is more noticeable in the case of retired people.

The scores tend to confirm that the rate of cognitive decline increases after stopping work.

(1) In due course, when the new system has been fully phased in, the periods of notice for non-manual workers will be significantly shorter compared with the situation prior to 1 January 2014, particularly for employees with long seniority.

(2) This is an assessment of verbal proficiency, tested, typically, by asking the person to specify within a certain time all the names belonging to one class (fruit or animals) that come to mind or all the names starting with a letter chosen by the examiner.

(3) This group of people who have taken (early) retirement also includes unemployed people because in most countries the unemployment option is used as form of early retirement from the labour market.

(4) This is a survey carried out amongst a sample representative of Europeans aged 50 and over and more than 11 countries (AT, BE, CH, DE, DK, ES, FR, EL, IT, NL and SE). The waves used are those for 2006 and 2008.

Two conclusions are implied by this finding. First of all, early labour market exit schemes are even more costly than at first sight. A labour market exit involves a loss of human capital, given that people would be less encouraged to nurture the capital acquired during their working lives. Second, the loss would occur not just when a person stops working but would increase the longer the person is retired.

According to other findings, the losses in terms of human capital are on average less for people with higher educational attainments, although there is a wide range of individual situations.

3.2 Measuring productivity in terms of employees' contributions to a firm's productivity

Psychometric tests do not take good account of people's experience, collaborative aspects and the social skills that play a key role in productivity at work, nor do they reflect the fact that the type of activities to be carried out change during a professional career. Rather than approximating the individual productivity of employees via such tests, all that can be done is to measure aggregate productivity. This way of addressing this issue was used for the first time by Hellerstein *et al.* (1999).

(1) Across countries, the national regulatory framework also plays a role: this may be more or less conducive to the job mobility of employees (regulations for dismissals, the transferability of seniority and rights built up under the second-pillar pension schemes, etc.)

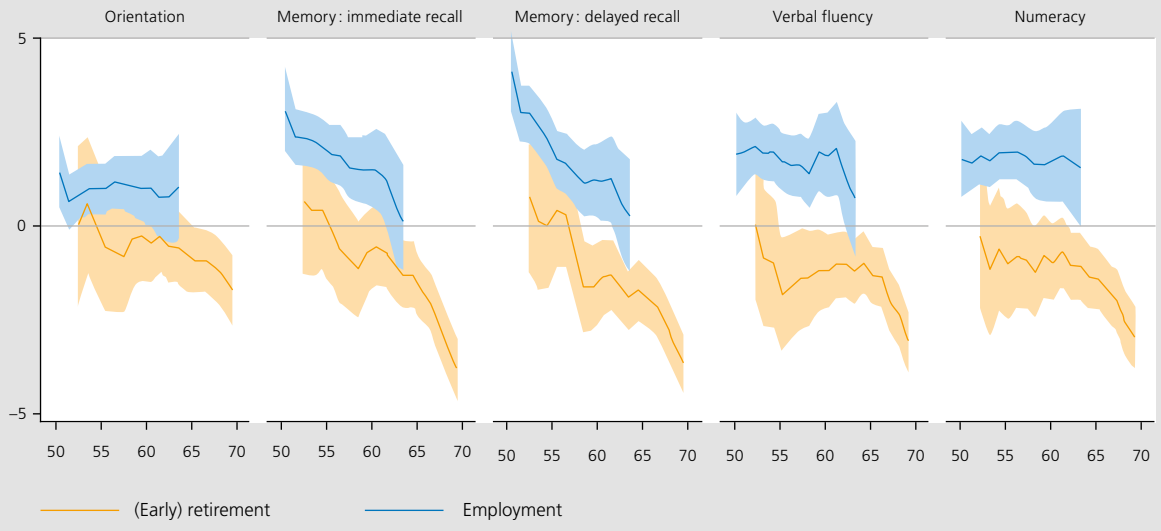
The productivity of each employee is supposed to make an impact on the firm's overall productivity and vice versa. An attempt is therefore made to establish a link between the shares represented by categories of employees belonging to the workforce of firms and the economic performance of these businesses. The categories considered in order to investigate age-based productivity are the different age groups. The idea is to find out if an above-average proportion of employees from a certain age group within a firm does or does not mean that the firm's apparent productivity is above average.

A firm's productivity depends on many factors (capital intensity, branch of activity, etc.), hence one of the difficulties will be making a distinction, among the productivity-determining factors, between the effect of the staff age structure and the impact of other factors.

The simple correlation between a firm's productivity and staff age structure does not go far enough. If, for example, the productivity of firms employing a lot of elderly employees is seen to be higher on average, does this mean that elderly wage earners are more productive? Or that there are more elderly employees in firms that are more productive, for other reasons? The other productivity-determining factors have to be controlled for in one way or another in order to be able to answer this question.

The differences amongst firms in the same country[1] are the result of several factors, including their start-up dates,

CHART 8 AVERAGE SCORE PER AGE ACCORDING TO EMPLOYMENT STATUS



Source: Mazzonna and Peracchi (2012), on the basis of SHARE data.

their human resources policies and various cyclical variations they have had to contend with owing to their line of business or location.

Some declining sectors are characterised by low productivity and a rather elderly workforce but this is mainly because they are old sectors rather than because of a technical decline in productivity owing to the workforce getting older. A firm incurring several negative shocks generally tends to recruit less people and indeed even to lay people off, thus automatically leading to an ageing of the on-site workforce, which will be more of a consequence than a cause of lower productivity.

To sum up, caution has to be exercised when selecting estimation methods, owing to the potentially endogenous nature of the breakdown by staff age, the age pyramid of a firm reflecting the history of its recruitments and dismissals since its inception.

3.2.1 Econometric research findings

The Cataldi, Kampelman and Rycx (2011) findings below were obtained on the basis of data similar to those used in the previous charts.

The table shows the estimations for three different specifications. For each one, an estimate is made of the productivity, measured according to the firm's value added divided by the number of hours worked and the average hourly wage, controlling for the characteristics of the staff (gender, level of education, type of contract, occupation) and the firm (branch of activity, size, availability of a firm-specific collective agreement).

In the context of the three specifications, the number of employees aged over 50 is seen to have an impact (negative sign) on a firm's aggregate productivity, whereas the proportion of young employees has no effect in the two cases relative to the reference age group, comprising 30-49 year-olds in this case. However, these productivity estimates remain precarious[1], as the impact is statistically significant only for two of the three specifications (fixed effects and dynamic model).

The wage-related estimations are unanimous: the average wage levels for employees are significantly less high for people aged under 30 and significantly higher for the over-50s than that of the reference category, suggesting that wages paid to younger employees are not actually as high as their productivity levels, whereas the opposite is true for the 50-and-above group.

Using different data, a recent study by Vandenberghe *et al.* (2012), reaches similar conclusions. To sum up, the above-average relative unit wage cost for those in the 50-and-above group puts them in a weak position within their firms.

3.2.2 Limits to the approach

The main limit to this approach is related to the robustness of the estimates and their ability to correct the biases owing to the potentially endogenous nature of the staff age structure.

(1) Moreover, the explanatory power of these models continues to be very low: the productivity of firms is very heterogeneous and variables available to researchers explain only a tiny percentage of these differences.

TABLE 2 ESTIMATION RESULTS ACCORDING TO THREE ECONOMETRIC METHODS[1]

(for productivity and hourly wage)

Estimation method / specification	*Fixed effects*[2]		*GMM*[3]		*Dynamic*[4]	
Dependent variable	Productivity	Wage	Productivity	Wage	Productivity	Wage
Share of employees						
Under 30	0.03	–0.15***	0.00	–0.16***	0.02	–0.13***
	(0.04)	(0.02)	(0.10)	(0.04)	(0.04)	(0.02)
Over 50	–0.12**	0.15***	–0.03	0.13***	–0.09**	0.13***
	(0.05)	(0.02)	(0.14)	(0.05)	(0.05)	(0.02)

Source: Rycx, Cataldi and Kampelmann (2011).

*** significant at 1%, ** significant at 5%, * significant at 10%, ( ) standard deviations

(1) Both the model explaining productivity and the one explaining wages comprise other explanatory variables not featured in the table, such as capital, branch of activity, size of the firm, other staff characteristics (i.e. education, gender, type of contract.), etc.

(2) Individual effects (for each firm) are treated as parameters and eliminated by estimating the model in first differences.

(3) Generalised Method of Moments.

(4) Dynamic model: comprising a lagged dependent variable amongst the explanatory variables.

The Hellerstein approach highlights, for all firms and employees, average productivity and wage cost profiles rather than individual profiles. Consequently, even though the findings pointed to insignificant productivity/labour cost differences for the 50-and-above group (as in the case of studies about the Netherlands, for example), this gap could nonetheless create a problem for some categories of employees in this age group (the unskilled, for example) or for certain sub-groups of firms (such as those undergoing major technological changes).

Productivity and wage costs are estimated for individuals who have a job. A large percentage of the over-50s are inactive or unemployed. A selection (and/or self-selection) process may therefore have prompted these people to leave the labour market. Taking account of this process would probably result in a productivity estimate that is even less favourable for this age group.

4. Economic policy lessons

4.1 Macroeconomic options

Employees aged 50 and over, as a socio-professional group, share three characteristics: 1) the length of their remaining professional career is shorter; 2) compared with younger employees their human capital is comparatively more specific to their employer and/or their occupation; 3) their productivity is possibly on the decline, even though, as we have seen, there is a lot of discussion about this question.

The literature refers to the "end-of-game" effect and the "entitlement" effect.

The limited span of a professional career continues to be an incontrovertible fact, creating an "end of game" effect that has a negative impact on the labour demand for older employees. Employers are less prepared to offer an employment contract to an older person, because the costs of hiring and training the employee are not age-sensitive, whereas the return on investment is on average lower for an older employee (because that person will theoretically remain within the company for a shorter time). The legislative authority can do little about the recruitment costs. Applying further penalties for the dismissal of employees in the 50-and-above group is not a solution as the "end of game" issue remains, and, as the failure of the Delalande contribution[1] in France has shown, is more inclined to imply less older people being recruited, insofar as older employees and the youngest ones are interchangeable.

Conversely, the legislative authority can try to reduce the differentiation of inter-age group dismissal costs that have a negative effect on recruitment *a priori*. In the Belgian situation, seniority's significance for wages and, consequently compensation in lieu of notice, creates a significant differentiation in the age-specific dismissal costs.

In order to reduce the impact of the "end-of-game" effect, another option is to raise the statutory pension age, even though other determining factors are involved here. Any measures for actually extending the professional career, particularly as a result of tightening up the eligibility conditions for the early retirement provisions, by definition delays this "end-of-game" effect.

The "end-of-game" effect also explains why training efforts decline with the age of employees in all countries. Irrespective of age, training measures in Belgium are seen to be significantly lower than in the case of the country's partners.

An older unemployed person has relatively fewer opportunities to find another job not only because of labour demand factors ("end-of-game" effect) but also because of supply effects. Consequently, older employees generally stay in their jobs for a long time and part of the experience built up is specific to their (former) employer. The gap between the reservation wage (the one the person would like to have) and what is on offer from employers is therefore wider for older employees. This situation is referred in terms of the "entitlement" effect.

The portion of earnings attributable to the career-related deferred payment incentive scheme has an impact on this discrepancy. Seniority-related wage developments undeniably reinforce this "entitlement" effect. This "insider" protection system works against older job-seekers.

The legislative authority may curb this "entitlement" effect by adjusting the poorly designed regulations. Consequently, in the case of the pension system (particularly in the public sector), the calculation of the pension by reference to the X final years of a career is a boon to older employers continuing to work, but it reinforces the "entitlement" effect as the job-seeker will be less inclined to accept a lower-paying job at the end of a career. Similarly, as unemployment benefits are based on the last wage earned, some job-seekers may be reluctant to take on a less-well-paid position, for fear of receiving lower benefits if they are laid off once more. This is why compensation

(1) Introduced in 1987, the Delalande contribution had to be made by any employer dismissing an employee aged over 50 who was also employed under an open-ended contract (outside the probation period). The proceeds of this special contribution were paid into the unemployment insurance system. The scheme was completely abolished in 2007.

paid by the community as a whole if job-seekers accept jobs that pay less than their previous ones, irrespective of their age, is an option for helping older employees back into work. This kind of scheme mainly benefits older job-seekers without discriminating against young people.

4.2 Company-level measures: training, experience management, working conditions, organisation of work

Firms are increasingly aware of the working population ageing issue and are starting to create structural measures seeking to curb the risk of age-related obsolescence of skills and work more effectively with an age-diverse workforce.

The employability of older employees is a responsibility shared between the company and the staff themselves. Vocational training is one way of tackling age-related obsolescence of skills but it is no silver bullet solution. Its effectiveness depends upon being directly related to the employee's "project", so that, for example, the person's skills can keep pace with the technological developments affecting the individual's occupation or the employee can prepare for a change of occupation.

Studies show that if these conditions are not available older people show comparatively little interest (Higher Council for Employment – 2012), and a frequently cited German study (Zwick and Göbel, 2013) demonstrates that training measures are no guarantee of longer job retention. The training delivery method also has to be age-appropriate and geared to people's initial training level. It is inadvisable to favour an "academic" format for poorly-educated people, even though this is still often the norm, owing to cost factors and for the sake of convenience. Similarly, focusing training measures on low-skilled people aged over 50 is too late for this qualification group (OECD, 2014).

There is obviously a lot of scope for progress to be made in this area by Belgium-based companies, as from an international perspective participation in vocational training continues to be low in the country, irrespective of the employee's age or initial level of training.

Ergonomic improvements to workplaces go a long way to offsetting the effects of age (senses-ageing – mainly sight and hearing –, working quickly, etc.), in order to ensure employees continue to do their present jobs in the best possible conditions.

Thought should be given to job mobility, having people switch to less physically-demanding occupations if appropriate. This requires forward-looking management of needs and skills by firms and effective cooperation between departments in charge of work organisation and training. Similarly, mentoring projects may help in the inter-age skills transference process.

Starting from 1 January 2013, any employer employing over 20 people is required to prepare an older workers employment plan covering all firm-specific measures designed to increase or maintain the pool of jobs for those in the 45-and-above group. This applies in particular to measures related to the factors discussed here: not only training, working conditions and organisation, but also skills validation and employee health.

Ergonomic improvements, changes of function and training support may be funded by the public authorities, subject to certain conditions, for example via the Occupational Experience Fund.

The number of employees aged 50 and over continues to be very low in Belgium. Admittedly, employers in all countries are reluctant to take on older employees but not only because of the costs. Employers are also concerned about how these people will fit in with the existing teams, particularly if the lines of command are populated by younger people. Even if age is not a neutral factor, blatantly discriminatory patterns of behaviour need to be penalised.

Labour demand for older employees is also penalised by corporate wage policies that continue to be based to a large extent on age and seniority criteria, particularly in the case of wage earners with clerical employee status. The wage-cost subsidy that is available, reduced contributions for the "older employees target group", applies to people in the 54-and-above group. The institutional agreement under the 6th State Reform provides for "target group" policies to be transferred to the Regions, hence it will be up to the regional authorities to decide on the advisability and effectiveness of such a scheme for reducing the wage bill for older employees and boosting their rate of employment.

In any event, representatives of employers and employees have a key role to play in bringing labour legislation up to date, and this continues to be a major area of work for the future.

Bibliography

Aubert P. and B. Crépon (2003), "La productivité des salariés âgés : une tentative d'estimation", *Économie et Statistique*, 368.

Cataldi A., S. Kampelmann and F. Rycx (2011), *Does It Pay to Be Productive? The Case of Age Groups*, DULBEA Working Papers, 11-10.RS.

Conseil supérieur de l'emploi (2012), *Rapport 2012 : Pour un vieillissement actif*, Bruxelles.

Hellerstein J., D. Neumark and K. Troske (1999), "Wages, Productivity, and Worker Characteristics : Evidence from Plant-Level Production Functions and Wage Equations", *Journal of Labor Economics*, 17(3).

Mazzonna F. and F. Peracchi (2012), "Ageing, cognitive abilities and retirement", *European Economic Review*, 56(4).

OCDE (2014), Vieillissement et politiques de l'emploi : France 2014 : *Mieux travailler avec l'âge*, mars.

Saint-Paul G. (2009), *Does the Welfare State Make Older Workers Unemployable?*, CEPR Discussion Papers, 7490.

SPF Emploi, Travail et Concertation sociale (2012), Fonds de l'expérience professionnelle : *Rapport annuel 2011*, Bruxelles.

Vandenberghe V. (2011), "Boosting the Employment Rate of Older Men and Women", *De Economist*, 159(2).

Vandenberghe V., F. Waltenberg and M. Rigo (2012), "Ageing and employability. Evidence from Belgian firm-level data", *Journal of Productivity Analysis*, 40 (1).

Zwick T. and C. Göbel (2013), "Are personnel measures effective in increasing productivity of old workers?", *Labour Economics*, 22.

Using BREL to nowcast the Belgian business cycle : the role of survey data

Ch. Piette
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Introduction

The design of appropriate macroeconomic – and, in particular, fiscal and monetary – policies requires accurate knowledge of ongoing cyclical developments. However, national accounts data that can inform policy-makers typically come with some delays. The first, so-called "flash" estimates for real quarterly GDP growth usually only become available long after the reference quarter has ended. For the EU countries, the official Eurostat data on quarterly GDP are released some seven weeks after the end of that quarter, while earlier publications by certain national statistical institutes – such as for the UK, Spain and Belgium – still take about one month. In addition, these flash GDP estimates are prone to subsequent revisions.

However, in the course of the reference quarter, several indicators are published that contain information on the current state of the economy. These indicators include both "hard" and "soft" data usually with a monthly frequency. The former range from important production or business statistics, such as industrial production or turnover according to VAT returns, that are used for the compilation of the Belgian national accounts, to specific information on certain expenditure categories such as car sales or building starts. The latter pertain to data contained in various business cycle surveys that are mostly also available on a monthly basis. The surveys provide synthetic indicators of business or consumer confidence but the actual survey questions contain more detailed information on specific issues including demand expectations, hiring intentions, saving capacity or even investment plans.

Short-term business cycle analysis or forecasting then boils down to extracting the relevant information from those hard and soft monthly – or higher-frequency – data. Golinelli and Parigi (2007) show that models using this information generate better forecasts of GDP for shorter horizons than those that do not take account of the information that becomes available in the course of the reference quarter.

Central banks and international organisations alike now routinely use specific models for this purpose. These models generally take into account a mixture of hard and soft data. While hard data, such as industrial production, are typically more closely related to GDP, survey-based data present two important advantages. First, they usually become available earlier. Second, while hard data may be revised in subsequent data releases, this is in principle not the case for survey results.

This article focuses on the role of survey data in predicting Belgian economic developments in the short run. We use and briefly present the BREL nowcasting platform that uses **BR**idge equations with predictors selected on the basis of an **EL**astic net procedure and is one of the National Bank of Belgium's forecasting tools (Piette, 2014). The remainder of the article is organised as follows. Section 1 briefly reviews the literature. The second section gives a concise overview of the existing infra-annual surveys on the economic situation in Belgium that may be used for short-term economic forecasting. Section 3 introduces the model and section 4 assesses the relevance of survey data, in particular, for short-term GDP projections taking into account the specific data release calendar. This latter analysis is repeated in section 5 for other important

macroeconomic aggregates and in section 6 for the euro area GDP. The final section presents the conclusions.

1. Short-term forecasting models and predictor selection : a brief review of the literature

While estimating and analysing short-term economic fluctuations has always been high on the agenda of policy-making institutions, the literature on nowcasting and short-term economic forecasting has grown substantially in recent years. Different approaches are followed.

One distinction is between the so-called partial and joint models. The former class of models consists of single-equation approaches that typically aim at estimating quarterly GDP growth using a set of predictors that mostly include monthly or higher-frequency data. As the explanatory variables need to be aggregated to a quarterly frequency and are usually only partially available, missing observations are forecast using satellite models. These partial approaches have a long tradition in central banks and international organisations and are usually referred to as "bridge models".

Joint models are multivariate dynamic models, in which the dependent variable and the set of independent variables that are used as predictors are essentially estimated jointly with a view to making full use of the joint dynamics of the variables considered. Practical applications mostly take the form of dynamic factor models and, to a much lesser extent, vector autoregressive (VAR) models. Central banks increasingly use such models in addition to bridge models to make short-term projections. As regards Belgium, the earliest example of a dynamic factor model that was used by the National Bank of Belgium was developed by Van Nieuwenhuyze (2006) and this Belgian model was also included in Barhoumi *et al.* (2008). The model was used in conjunction with and as a cross-check for other short-term forecasting tools in a cross-country comparison exercise for the euro area. More recently, a joint dynamic factor model for Belgium and the euro area was constructed by de Antonio (2014). This model is now being used, together with BREL, referred to in section 3, as well as other tools, in the context of the National Bank of Belgium's analyses and forecasts of short-term economic developments.

Apart from the technical aspects, the key difference between the joint and partial approaches is of a conceptual nature. Joint models are better suited to assess the specific impact of each new piece of information (Bańbura *et al.*, 2013). New data for any of the predictors can be easily compared to the value forecast by the model and the impact of the "news" or "surprise" component of the data release on the dependent variable can then be quantified. As such, these models help to interpret the data flow. Results are often presented as a timeline of forecast updates linked to data releases. Partial models, on the other hand, typically offer more simplicity and flexibility and, in that connection, can be tailored more easily to the specific data release calendar, as we do in this article.

In principle, both approaches can be combined to the extent that factors summarising large datasets can be part of bridge equations. The "bridging with factors" approach was pioneered by Giannone *et al.* (2008). Barhoumi *et al.* (2008), as well as Angelini *et al.* (2011), show that it can help to improve the forecast accuracy for predicting euro area GDP or that of individual euro area countries compared to traditional bridge models.

In all models, the selection of appropriate predictors is key. Clearly, including those indicators that are the most likely to provide advance information on real GDP or other macro aggregates, in other words those with the highest predictive power, is quintessential. On the other hand, incorporating less informative indicators entails an excess volatility that could affect the model's predictive accuracy. When dealing with numerous potential predictors, it is therefore worthwhile to resort to selection procedures that strike an appropriate balance between informative content and selectivity. To this end, in the BREL framework, we follow the approach suggested by Bai and Ng (2008), which consists in using the elasticnet regression in order to identify the most relevant indicators, and latter refined by Bessec (2013) in order to account for the fact that the potential predictors are not released simultaneously.

This selection algorithm, which will be discussed in greater detail in section 3, reveals the importance of survey data in forecasting. Bessec (2013) shows that survey indicators, like financial variables, are more likely to be picked up by the selection algorithm when the forecast is made for longer horizons, for which hard indicators – such as industrial production data – have not yet been released. Bańbura and Rünstler (2011) also put forward that property of survey indicators, showing that, due to the publication lags of hard indicators, they contribute to a larger extent to the earlier forecasts. Their contribution is nevertheless reduced when more informative predictors, in particular those that pertain to real activity, can be taken into account. The benefits from the timeliness of survey indicators were also investigated by de Antonio (2014) who, using Belgian data, also emphasised their intrinsic predictive quality. In other words, survey data keep some

informative content with regard to the prediction, even when publication lags are neutralised. Finally, another finding in the literature is that it is worthwhile to also use the disaggregated survey results, based upon the replies to individual questions, rather than just the synthetic indicators (e.g. Bec and Mogliani, 2013).

2. Existing survey data on the business cycle in Belgium

The National Bank of Belgium has a long tradition of conducting business cycle surveys. Two monthly surveys in particular, regarding business (or producer) and consumer sentiment, provide highly relevant and timely information on the cyclical conditions in the Belgian economy. In the context of the Joint Harmonised EU Programme of Business and Consumer Surveys, both of these surveys are harmonised at the European level, as regards the minimum set of questions, the possible replies, as well as the aggregation of these replies into a summary indicator per question. While the European Commission calculates composite sentiment indicators according to a harmonised methodology, in order to facilitate international comparisons, participating national institutions are free to summarise survey information into own synthetic indicators, and, in principle, to add additional survey questions.

Apart from the aforementioned business and consumer sentiment survey, the National Bank of Belgium also conducts other surveys, including the Bank Lending Survey, a survey on production capacity utilisation and another on investment plans in the manufacturing industry as well as a series of *ad-hoc* surveys. However, all of these surveys have a lower frequency (mostly quarterly or twice-yearly) and, hence, are somewhat less suited for now-casting or short-term economic projections. In addition, investment plans indicated in the replies to the investment survey tend to significantly overestimate actual investment.

The remainder of this section briefly discusses the exact contents of the business and consumer sentiment surveys. We focus on the detailed questions that may provide an input for BREL. The reader is referred to the Bank's website [1] and De Greef and Van Nieuwenhuyze (2009) for a more extensive discussion on the surveys as well as more information on the exact definition of the Bank's synthetic indicators in particular.

The business sentiment survey was launched in 1954 at the request of several professional federations. It is conducted on a monthly basis for a representative panel of about 6 000 businesses. Four different industries are covered (manufacturing, business-related services, construction and trade) and results are published at the industry level. The survey is actually also conducted for a fifth industry – civil engineering and roadworks – but the replies for that industry are not taken into account in the global sentiment indicator, as its developments are thought to be less cyclical (given that they are more dependent on government activity).

The survey questions [2] generally focus on sales or activity, (total and export) orders, prices and employment and, for each of these topics, address three different dimensions: a factual reporting of current developments, the respondent's appreciation of these developments and the respondent's expectations for the future. Only three qualitative replies can be given for each question: one positive, one neutral and one negative. The aggregation procedure is the balance approach: the average reply for each question is simply the difference between the percentages of positive and negative replies. Only about half of the questions are taken into account for the construction of the National Bank of Belgium's synthetic indicator of business sentiment.

In the early 1970s, a specific consumer sentiment survey was also introduced. Unlike its business sentiment counterpart, this survey is not organised using a fixed panel of respondents. Each month, a different sample of 1 600 households are interviewed. Apart from respondent identification questions (sex, age, employment situation, income and education level), a total of 17 questions are asked 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 again qualitative with the exception of the two questions on past and future price developments, for which an inflation rate is asked. Only four questions are used in the construction of the National Bank's consumer sentiment indicator. All of these are forward-looking and pertain to the respondent's outlook, over the next twelve months, for the general economic situation, the unemployment level, his or her household's own financial position and capacity to save.

Replies to the survey questions are part of the dataset that is used in our estimations. For the business sentiment survey, we consider all questions, irrespective of whether they are taken into account for the National Bank of Belgium's

(1) http://www.nbb.be/pub/stats/surveys/opinions.htm?l=en
(2) The specific questions are included in Annex Table 1 that describes our dataset.

composite indicator of business sentiment or not. We also include the survey replies for the civil engineering and roadworks industry; while activity and sentiment in this industry may be less related to the "private-sector" business cycle, GDP also reflects government (consumption and) investment and, hence, these survey replies may contain information on GDP developments. For the consumer sentiment survey, we restrict our analysis to the four questions that are used in the synthetic consumer sentiment indicator. In both cases, we only put replies to individual questions and not the synthetic indicators in the dataset.

3. Forecasting GDP using BREL

3.1 Model description

The National Bank of Belgium uses different models and approaches to produce short-term economic projections. This paper is anchored to the recently created BREL model (Piette, 2014). It relies on standard bridge models that relate a quarterly macroeconomic aggregate (Y_t), e.g. real GDP growth compared to the previous quarter[1], to a set of monthly predictors that are converted to a quarterly frequency ($X^{Q}_{i,t}$). In its most general form, it is specified as an autoregressive-distributed lag model (ADL):

$$Y_{t+h} = \mu + \sum_{j=1}^{p} \rho_j Y_{t-j} + \sum_{i=1}^{n} \sum_{j=0}^{q} \beta_{i,j} X^{Q}_{i,t-j} + \varepsilon_t$$

where p is the number of autoregressive terms, n is the number of predictors, and q the number of lagged explanatory variables included in the equation. The parameters of the equation, i.e. the constant μ, the autoregressive parameters ρ_j and the coefficients $\beta_{i,j}$, can be estimated by means of a simple ordinary least-square regression. The lead parameter (h) can be either equal to 0, for predicting the value of Y in the current quarter, or to an integer equal to 1 or more for the subsequent periods.

One particular and well-known problem when using such bridge models in real time, e.g. in a policy environment, is the ragged-edge nature of the dataset of predictors. Typically, forecasts for the current quarter need to be made when only part of the monthly predictors ($X_{i,m}$) for that quarter are available. This is the case, for instance, when in mid-February an estimate of GDP growth in the first quarter is already required: at the very best, only monthly values for January will be available for some predictors. Hence, the model needs to be complemented by a tool that provides forecasts for these missing observations for the monthly predictors in order to aggregate them to quarterly numbers.

To this end, monthly predictor series are prolonged, where necessary, using a satellite model, which takes the form of a simple univariate autoregressive process:

$$X_{i,m} = \Phi_0 + \sum_{j=1}^{l} \Phi_j X_{i,m-j} + \eta_m$$

where l stands for the number of autoregressive parameters[2].

The predictors are chosen among a large set of hard and soft data that can be considered as business cycle indicators. The selection procedure is based upon an algorithm that uses the elastic-net regression approach pioneered by Zou and Hastie (2005) and applied in the context of short-term forecasting using a large set of indicators by Bai and Ng (2008). This statistical technique makes it possible to find the most relevant explanatory variables and rank them according to their predictive power from an unrestricted linear regression model that can include a very wide set of variables[3]. To the best of our knowledge, a similar procedure has only been applied to bridge models by Bulligan *et al.* (2012). Furthermore, we apply this selection algorithm following the approach suggested by Bessec (2013) in order to take into account the ragged data edges. To this end, the dataset is transformed so as to accurately reflect the situation in terms of data availability at the time the forecast is made. In practice, if observations of potential predictors for certain months at the end of the dataset are missing, the corresponding observations in previous quarters are replaced by their estimates based upon the aforementioned autoregressive models. Altering the dataset in this manner before running the elastic-net regression ensures that the selection is not purely based upon in-sample explanatory power when all observations are available (which may not help the forecaster when they are not) but essentially also takes account of the goodness of the fit of the autoregressive models used to generate missing observations.

This technical modification is required to duly reflect the data release calendar. As soft data are typically available earlier but are likely to be less closely correlated with the dependent variable, it avoids a selection bias towards hard data in particular: their typically higher in-sample

(1) Adjusted for seasonal and calendar effects.

(2) As a general rule, for every monthly predictor considered, we select the number of lags that minimises the autoregressive model's Schwartz information criterion, with a maximum of 12 lags.

(3) As opposed to standard regression models, the number of explanatory variables in the elastic-net regression can even be higher than the number of observations.

predictive power overstates their usefulness in a real-time forecasting environment.

3.2 Dataset and data release calendar

Our dataset covers a period spanning from the first quarter of 1995 to the last quarter of 2012 and comprises a broad range of indicators of different types. The annex table offers a detailed overview. Apart from the balances taken from the replies to the individual questions in the aforementioned producer and consumer sentiment surveys conducted by the National Bank of Belgium (type : SURVEY), we consider three other data types :

– HARD : this category includes various hard data such as industrial production indices constructed by Statistics Belgium and turnover statistics reported in VAT declarations, as well as new car registrations, several labour market statistics (among which the work volume of temporary workers is thought to reflect cyclical changes quite quickly) and permits for new buildings ;

– FINANCIAL : this category brings together a limited set of financial data, including Belgian and European stock market indices, short- and long-term interest rates, oil and other commodity prices, the EUR/USD exchange rate, as well as the gold price ;

– INTERNATIONAL : this category comprises both survey and hard data pertaining to the external environment. We include the EC's confidence indicators for the euro area and Belgium's main trading partners (Germany, France and the Netherlands), as well as certain industrial production and trade indices, also for advanced and emerging economies.

We specifically exclude certain hard data from the dataset as they are typically revised often and/or to a large extent. Hence, the initial vintage may give wrong information on the business cycle. This is the case, in particular, for the monthly statistics on Belgian imports and exports.

In the econometric estimations, all indicators with the exception of those that can take zero or negative values (e.g. survey indicators) are expressed in natural logs. Those for which a unit root was detected are included in first differences so as to make them stationary. Moreover, like GDP growth, all predictors are adjusted for seasonal effects and, wherever necessary, also for differences in the number of working days.

For the GDP estimates that are discussed in the remainder of this section and in the subsequent section, the full dataset is used. We did not take the synthetic Belgian producer and consumer sentiment survey indicators into account as those are simply linear combinations of the balances of the replies to individual survey questions. However, the estimates for other macroeconomic aggregates – discussed in section 5 – are carried out on a restricted dataset. A pre-selection is made to focus only on the indicators that we deem relevant for the variable to be estimated. In the case of value added in the manufacturing industry, for instance, we obviously do not include indicators from the producer sentiment survey or turnover statistics that pertain to industries other than manufacturing and we also exclude data on new building permits and certain financial indicators. All indicators in the INTERNATIONAL group, on the other hand, are kept in the dataset as external developments are actually likely to influence manufacturing activity in Belgium. We do exclude these latter indicators for the estimates of other aggregates such as value added in construction and the services sector as the direct impact of international developments on these aggregates is likely to be more limited.

For each of the macroeconomic variables considered, GDP or the other aggregates, six different estimates are made to take into account data availability at different points in time. We consider, in particular, six stylised "data availability scenarios" that replicate in a simplified manner the standard data release calendar in Belgium and, hence, the actual dataset that can be used in real time by the forecasters. Broadly speaking, survey data pertaining to a given month are generally available at the latest towards the end of that month and the same holds for all financial data considered here. Certain "early" hard data (e.g. on the labour market situation or pertaining to new car registrations) typically become available in the following month. However, the majority of the hard data are only released in the month after that. This adds up to the six different data scenarios that are detailed in Table 1 and range from the beginning of the quarter considered (no data on that quarter are available) to two months after the end of the quarter considered (a first vintage of all data relative to that quarter is available). In this way, our estimation framework takes due account of the different release dates for the different data types.

Scenario 5 generally corresponds to the situation in which the first flash estimates of GDP growth are produced by statistical agencies and by the National Accounts Institute in particular. These flash estimates have to be made before certain source data, notably the most relevant hard data, for the final month of the quarter are available, which may partly explain the rather frequent and sometimes significant revisions to these first quarterly estimates.

TABLE 1 DATA AVAILABILITY SCENARIOS FOR FORECASTING QUARTER Q

	Survey and financial data until	"Early" hard data[1] until	Hard data until
Scenario 1: 3 months before the end of Q	3rd month of Q – 1	2nd month of Q – 1	1st month of Q – 1
Scenario 2: 2 months before the end of Q	1st month of Q	3rd month of Q – 1	2nd month of Q – 1
Scenario 3: 1 month before the end of Q	2nd month of Q	1st month of Q	3rd month of Q – 1
Scenario 4: end of Q	3rd month of Q	2nd month of Q	1st month of Q
Scenario 5: 1 month after the end of Q	1st month of Q + 1	3rd month of Q	2nd month of Q
Scenario 6: 2 months after the end of Q	2nd month of Q + 1	1st month of Q + 1	3rd month of Q

(1) Including, in particular, data on the labour market and new car registrations.

It is important to stress that our estimates take account of the current data vintage. We could not reconstruct series on the basis of the first data vintages, either for the dependent variable(s) or for those indicators – in particular certain hard indicators – for which some data points are likely to have been revised since their first release.

3.3 Predictive performance

Chart 1 reports the root mean square forecast errors (RMSFE)[1] from a series of recursive forecasts produced by BREL for quarterly GDP growth in Belgium, carried out over the period from the first quarter of 2004 to the fourth quarter of 2012. The bridge equations are estimated for each of the six data scenarios described in the previous sub-section, always using the top-ranked predictors, as selected via the aforementioned procedure, for that specific data scenario using the observations from the whole sample period. In line with the benchmark approach in the literature, we measure accuracy in this paper by comparing the estimates to the current national accounts data, i.e. not to the first data release. This implies that statistical data uncertainty that exists at the time of this first data release will also be reflected in the reported forecast errors as the focus is on the capacity to predict final national accounts data.

In addition, we look at the relevance of including more predictors by sequentially increasing the number of independent variables considered in the equation, in line with the ranking, starting from the top-ranked predictor up to the predictor(s) that came in 10th place. As the selection procedure sometimes results in ties, the cut-off rank may be (and in most cases is) somewhat smaller than the actual number of predictors used in the bridge equation.

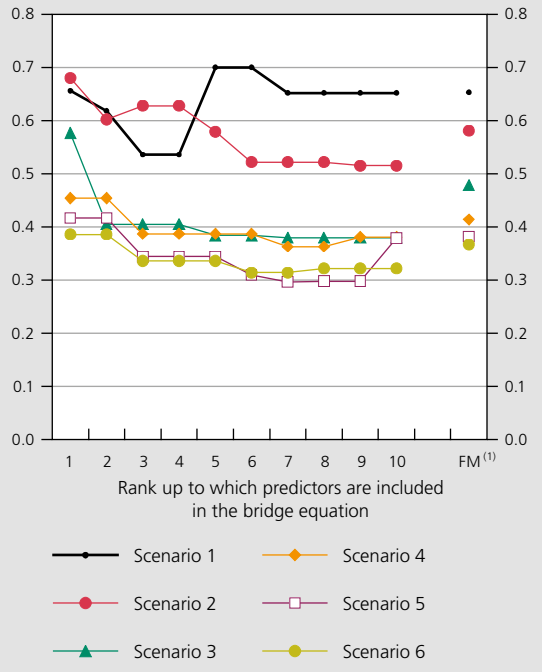
As expected, the predictive power of the bridge equations significantly improves when more data become available. Clearly, accuracy is poor when there are no

(1) For a series of forecasts for a variable Y generated over T periods, the RMSFE is defined as:

$$RMSFE = \sqrt{\frac{1}{T}\sum_{t=1}^{T}\left(\hat{Y}_t - Y_t\right)^2}$$

CHART 1 FORECAST ERRORS FOR QUARTERLY GDP GROWTH AS A FUNCTION OF THE DATA SCENARIO AND THE NUMBER OF VARIABLES INCLUDED IN THE BRIDGE MODEL

(RMSFEs in percentage points; simulations performed over the period 2004Q1-2012Q4)

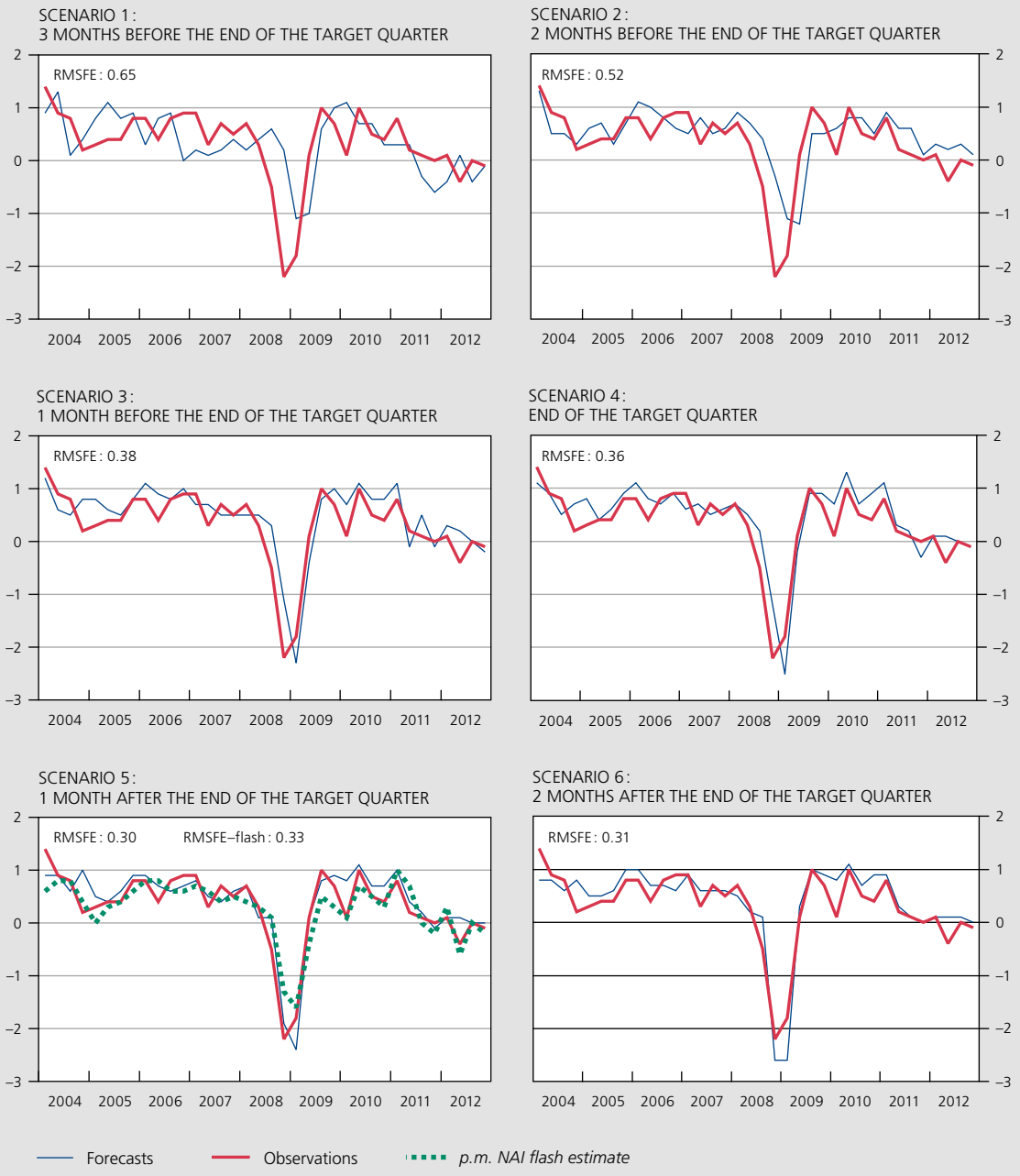


(1) FM: factor model using all available predictors.

specific data for the quarter under consideration. The RMSFE is relatively large for the earliest scenario but already drops considerably as soon as the first – survey and "early" hard – data for the quarter considered become available (scenarios 2 and 3). The accuracy of the estimates further improves by the end of the quarter under consideration, with the RMSFE in scenarios 4 to 6 falling to about half of that in the earliest estimates used here. Quite remarkably, the accuracy of the estimates in scenario 5, which corresponds to the flash estimate of the National Accounts Institute in terms of timing and data availability, is very much in line with – and actually slightly lower than – that of these first official quarterly national accounts statistics. Measured over the same period, the latter exhibit a RMSFE of around 0.33 percentage points compared to the current national accounts data, while the

CHART 2 ACCURACY OF BREL GDP FORECASTS USING PREDICTORS UP TO THE SEVENTH RANK

(percentage changes compared to the previous quarter)



Sources : NAI, NBB.

average error of the specified equation for data scenario 5 is marginally below 0.3.

Chart 1 also shows that forecasting accuracy clearly depends on the number of variables included in the bridge equations. However, accuracy gains are far from uniform and generally seem to become significantly smaller once the cut-off point for the ranking is raised to 5 or 6. At some point, they even become negative on average, suggesting that including more predictors actually worsens forecast performance. As a benchmark for our results, we also ran a factor model (FM) that makes use of all explanatory variables considered in the dataset by grouping them using the principal components method (Stock and Watson, 2002)[1]. The idea is to use the factors to capture the main "co-movements" in the business cycle that drive the monthly indicators, which are also likely to explain developments in GDP. For all data scenarios, the errors of this latter model are clearly higher than the ones for the bridge equations that use only a limited number of predictors. This confirms that selecting the appropriate predictors enhances accuracy.

Across data scenarios, the errors are on average the smallest for the model using predictors that were ranked up to seventh place. This corresponds to twelve predictors in scenario 1, eight predictors in scenarios 2 and 4, eleven predictors in scenario 3 and seven predictors in scenarios 5 and 6.[2] Chart 2 gives an overview of the goodness of fit for these specifications.

It should be stressed that, while estimates were made in a recursive manner, the selection procedure for the predictors was run over the entire 2004-2012 period. An alternative exercise that also makes the selection itself recursive not surprisingly gives somewhat less accurate results with the RMSFE only dropping to about 0.4 in scenarios 5 and 6, which nevertheless remains close to the errors made using the factor model with all predictors.

4. Selection results: which predictors are important?

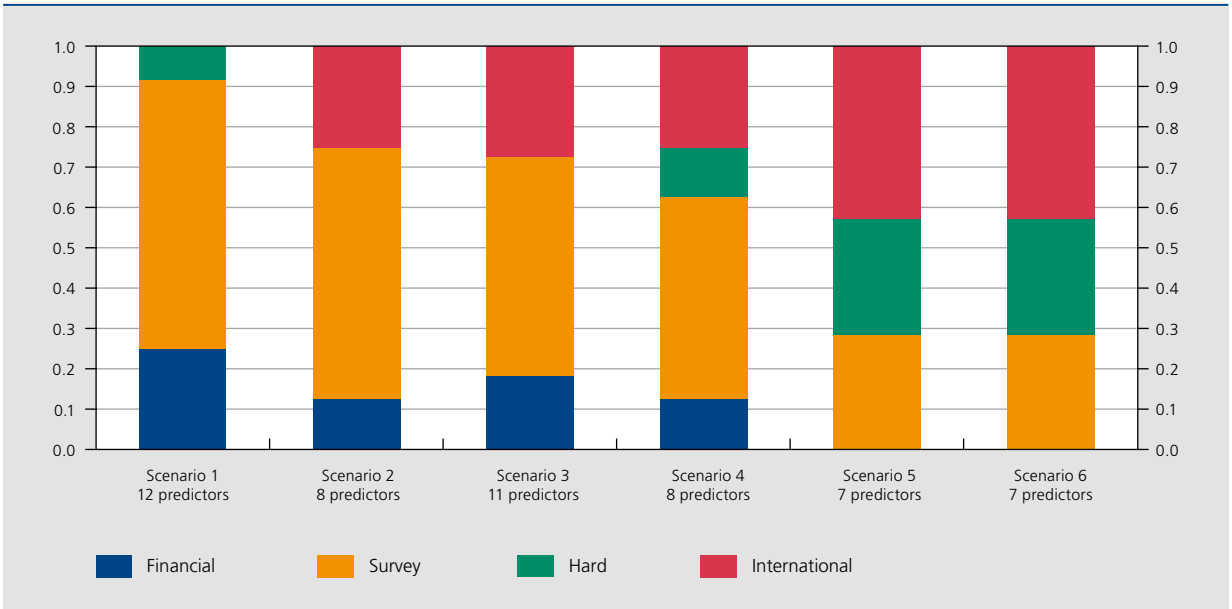
In this section, we specifically assess the importance of different types of indicators for the short-term real GDP estimates. As indicated, we distinguish between international data, hard data, financial data and survey data and will evaluate the role of the latter in particular. In line with the findings of the previous section, the model that uses predictors ranked up to the seventh place is our benchmark. As indicated, the selection algorithm is run over the entire 2004-2012 period.

(1) The factor model we used to produce the results reported in Chart 1 takes account of the non-synchronous data release in the same way as for the standard bridge model. That is, missing observations are filled in by means of the same univariate autoregressive models.

(2) As indicated above, the number of predictors used in the bridge model is most of the time larger than the ranks that appear on the x-axis of Chart 1 due to the fact that the selection procedure may sometimes result in ties and give the same rank to two – or more – predictors

CHART 3 IMPORTANCE OF DIFFERENT DATA TYPES FOR EACH DATA SCENARIO IN THE GDP ESTIMATES

(percentages, share in the number of predictors up to the seventh rank)



The empirical results are summarised in chart 3 and table 2 and are broadly in line with expectations. Clearly, the importance of each type of data strongly depends on the exact time when the estimate has to be made. Survey data are especially important for estimates before or during the target quarter (data scenarios 1 to 4), when hard data are not yet or only scarcely available. However, survey data continue to play a (more limited) role for *ex-post* estimates, even when all relevant hard data have become available.

As regards the first estimate before the start of the quarter (data scenario 1), i.e. when no specific data pertaining to that quarter are available, two-thirds (8 out of 12) of the selected predictors come from the two surveys conducted by the National Bank of Belgium. However, the top predictors are two financial indicators – the stock price index and the commodity price level in international markets – that seem to have a leading character with respect to GDP growth in the next period. Among the survey indicators, the assessment or the expectations regarding price developments seem to play an important role in this early data scenario. The assessment of activity, exports and employment expectations in trade, manufacturing and civil engineering and roadworks, as well as the indicator regarding

TABLE 2 BEST PREDICTORS FOR BELGIAN GDP GROWTH, ACCORDING TO THE DATA AVAILABILITY SCENARIO

(rankings under the seventh position are not reported; selection performed over the entire sample period)

Rank	Variable	Category	Rank	Variable	Category
Scenario 1: 3 months before the end of the target quarter					
1	Brussels All Shares Index	Financial	7	Civil engineering and roadworks: employment expectations	Survey
2	Commodity import prices in international markets, excluding energy	Financial	7	Civil engineering and roadworks: trend in number of contracts concluded	Survey
3	Business-related services: price expectations (with 1 lag)	Survey	7	Consumer survey: saving expectations of households (with 1 lag)	Survey
3	Trade: trend in prices (with 1 lag)	Survey	7	Euro Stoxx Broad Index	Financial
5	Trade: assessment of sales	Survey	7	Production in construction	Hard
5	Manufacturing: trend in export orders	Survey	7	Trade: trend in prices	Survey
Scenario 2: 2 months before the end of the target quarter					
1	Industrial production in the emerging economies	International	5	Manufacturing: demand expectations	Survey
2	Consumer survey: unemployment expectations	Survey	6	Business-related services: activity expectations	Survey
3	Commodity import prices in international markets, excluding energy	Financial	6	Civil engineering and roadworks: demand expectations	Survey
3	Industrial production in the advanced economies	International	6	Consumer survey: outlook for the financial situation of households	Survey
Scenario 3: 1 month before the end of the target quarter					
1	Manufacturing: trend in export orders	Survey	7	Industrial production in the euro area	International
2	Consumer survey: unemployment expectations	Survey	7	Manufacturing: demand expectations	Survey
2	Commodity import prices in international markets, excluding energy	Financial	7	Industrial production in the emerging economies	International
2	Industrial production in the advanced economies	International	7	Brussels All Shares Index	
5	Construction: trend in prices	Survey	7	Business-related services: general demand expectations	Survey
5	Construction: price expectations	Survey			
Scenario 4: end of the target quarter					
1	Consumer survey: unemployment expectations	Survey	3	Work volume of temporary workers	Hard
1	Industrial production in the emerging economies	International	3	Manufacturing: trend in export orders	Survey
3	Industrial production in the euro area	International	7	Commodity import prices in international markets, excluding energy	Financial
3	Manufacturing: demand expectations	Survey	7	Construction: trend in prices	Survey

TABLE 2 BEST PREDICTORS FOR BELGIAN GDP GROWTH, ACCORDING TO THE DATA AVAILABILITY SCENARIO (continued)

(rankings under the seventh position are not reported; selection performed over the entire sample period)

Rank	Variable	Category	Rank	Variable	Category
	Scenario 5: 1 month after the end of the target quarter				
1	Industrial production in the euro area	International	3	Work volume of temporary workers	Hard
1	Trade in goods in the emerging economies	International	6	Total turnover	Hard
3	Consumer survey: unemployment expectations	Survey	7	Manufacturing: demand expectations	Survey
3	Industrial production in the emerging economies	International			
	Scenario 6: 2 months after the end of the target quarter				
1	Industrial production in the euro area	International	3	Total turnover	Hard
1	Trade in goods in the euro area	International	6	Manufacturing: demand expectations	Survey
3	Trade in goods in the emerging economies	International	6	Production of intermediate goods	Hard
3	Consumer survey: unemployment expectations	Hard			

the savings expectations in the consumer survey also help to some extent in explaining future GDP developments.

Moving further along the data release calendar, survey data continue to have an important contribution to GDP estimates. In data scenarios 2 to 4, survey replies are among the most relevant predictors for the now-cast of GDP growth together with certain financial indicators and data on international developments. In the absence of hard data, they constitute the only available information directly connected to the economic developments within the period. Survey data continue to be important for the estimates when certain hard indicators, such as industrial production and VAT turnover data, are released for the first month of the quarter, as in scenario 4. This suggests that the combination of one actual observation and two autoregressive forecasts for these data does not suffice for the hard data to provide enough information on the activity developments in activity within the quarter under consideration.

Several survey data show up in a consistent manner across these three data scenarios. This is the case for the expectations on the development of unemployment in the consumer survey, which is the most relevant indicator in scenario 4, and demand indicators for the manufacturing industry (demand expectations and/or reported trend in export orders). In the former case, the statistical relationship most likely runs through private consumption (as will be shown in section 5), that accounts for about half of GDP, while the predominance of the demand indicators for the manufacturing industry may suggest that business cycle swings are more important – or show up earlier – in that industry. The latter observation is consistent with the "overweighting" of this industry in the National Bank of Belgium's synthetic indicator (De Greef and Van Nieuwenhuyze, 2009). Finally, two particular indicators from the survey results for the construction sector, as well as indicators pertaining to the assessment of or expectations regarding activity and demand in the business-related services industry also contribute to explaining some of the current-quarter variation in GDP. As regards construction, the selected indicators do not relate to developments in activity or demand, as those selected for the other industries, but to recent and expected price developments. One possible interpretation is that price developments in the construction industry might reflect general economic developments better than the respondents' assessments of actual and expected activity in that industry.

The presence of survey data on the civil engineering and roadworks industry in the earliest GDP estimates (data scenarios 1 and 2) seems to be somewhat at odds with the exclusion of this industry from the National Bank of Belgium's synthetic producer sentiment indicator. However, GDP is also to a large extent determined by government expenditure. Sentiment in this industry may be a good proxy for government expenditure and, in particular, government investment when no direct observations on this are available.

The significance of survey data declines somewhat after the quarter considered has ended (data scenarios 5 and 6). Hard data on temporary work and the production of intermediate goods and, remarkably, international indicators (trade and industrial production) begin to play a more important role in explaining short-term developments in

Belgian GDP. However, even when, in principle, the full set of hard data is available for the considered quarter, *ex-post* GDP estimates continue to be anchored to certain survey results, and in particular the unemployment expectations in the consumer sentiment survey and the demand expectations in manufacturing. While hard data such as those on industrial production and turnover according to VAT data are explicitly used by the National Accounts Institute for compiling quarterly GDP figures, this suggests that the mapping from those hard data to final national accounts statistics is far from perfect and certain survey results help to deal with data gaps.

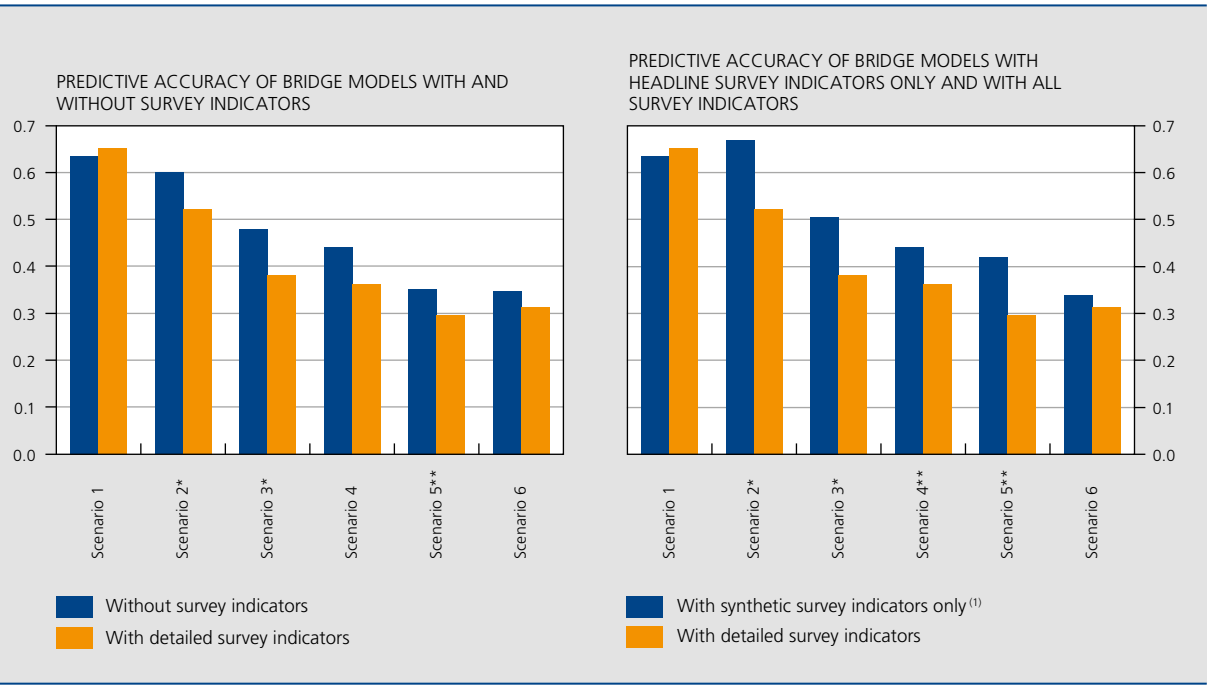
The same may be true for the number of hours worked by temporary workers, among the top 5 most relevant predictors at the time when the National Accounts Institute produces the first flash estimate of quarterly GDP (data scenario 5). Its release typically precedes by one month that of the other hard data, on production and turnover, and the predictive power for GDP is in all likelihood attributable to the fact that firms typically use temporary work as a "buffer" to absorb activity shocks. As a result, the movements exhibited by this indicator evidently constitute a good proxy for changes in economic activity. The presence of industrial production indices for the euro area and the emerging economies in the estimations for the last data scenario reflects the fact that the Belgian business cycle is determined to a large extent by external developments, notably through the trade channel.

An alternative, more synthetic gauge of the importance of survey data can be obtained by comparing the model's performance on the basis of the full dataset, as described in section 3.2, to its accuracy if no survey data are included in the dataset. As shown in Chart 4, the same pattern emerges: excluding survey data from the short-term projections would worsen forecast accuracy in all data scenarios after the start of the quarter (i.e. as soon as the first batch of survey data for that quarter become available). The difference is significant according to the Diebold-Mariano (1995) test at the 10 % significance level for scenarios 2 and 3 and at the 5 % level for scenario 5. The latter result suggests that, at the time the National Accounts Institute prepares the first flash estimate of quarterly GDP, survey data still contain very relevant information.

Finally, one can also look at the model's accuracy if only the headline survey data, i.e. the National Bank of Belgium's monthly synthetic business and consumer sentiment indicators, are taken into account. We find that using the full set of survey data again improves predictive accuracy in all scenarios from 2 to 6, with the difference

CHART 4 CONTRIBUTION OF SURVEY DATA TO SHORT-TERM GDP ESTIMATES: A SYNTHETIC VIEW

(RMSFE in percentage points; based on bridge models with the 7 top-ranked predictors; simulations performed over the period 2004Q1-2012Q4)



(1) Only using the headline consumer and producer sentiment indices.
Note: one or two stars indicate a significance level of 10 % and 5 % respectively for the Diebold-Mariano test statistic.

being statistically significant for all but the last data scenario. Clearly, restricting the dataset to headline survey indicators implies a loss of information.

5. A broader use of BREL: which predictors for other macro aggregates?

The analysis carried out in the preceding section for GDP can be easily extended to other important macroeconomic aggregates. In this section, we look at the indicator selection for three supply-side variables (value added in the manufacturing, construction and market services industries), the most important demand component, i.e. private consumption, as well as employment. As indicated previously, these estimates are made using a restricted dataset. Further details are given in the annex table. Empirical results regarding the most relevant predictors for each of the aggregates considered in this section are detailed in tables 3, 4 and 5. Due to space considerations, these tables, the content of which is similar to that of table 2, are presented in a more concise format.

5.1 Supply-side aggregates

The results obtained for value added in the manufacturing industry show a prevalence of predictors that pertain to the international environment at the different stages of the data release calendar. The indicator on industrial production in the advanced economies published by the CPB, in particular, is chosen by the selection procedure in each of the six data release scenarios. Trade volumes in the euro area and in other advanced countries also become important predictors in the later data scenarios. The fact that indicators linked to the international environment show up among the most informative to forecast value added in the Belgian manufacturing industry is not surprising. It reflects that industry's heavy involvement in international trade, which makes it relatively more dependent on external developments. The indicator on the trend in export orders, which was also selected for GDP in some data scenarios, appears to be the most relevant survey indicator for this aggregate.

When more observations for Belgium-specific hard indicators become available, the work volume of temporary workers, which is released earlier, is the first to be picked up by the selection procedure, followed by the production of intermediate goods.

As far as value added in construction is concerned, the selection procedure tends, at the beginning of the quarter, to favour indicators related to the assessment made by the respondents regarding their short-term prospects in activity (order books) or in prices. When more observations for survey data become available, four indicators stand out clearly: apart from the assessment of order books, also the trends in activity and prices from the construction survey, as well as the trend in activity from the civil engineering and roadworks survey have good predictive power. These variables remain at the top of the ranking even in the presence of observations for the hard indicators, as the latter turn out to have more limited predictive power.

As for value added in services, consumers' expectations about unemployment, employment and activity expectations in business-related services, as well as the intention of placing orders in trade businesses appear systematically at the top of the best-ranked predictors, whenever the forecast is carried out in the course of the current quarter (i.e. starting from scenario 2). However, when they are available, the turnover in services and the work volume of temporary workers are found to be the best predictors for value added in that sector.

5.2 Private consumption

The predictor selection for private consumption by and large confirms the leading properties of the unemployment expectations taken from the consumer survey. This indicator had already been singled out as one of the most relevant for GDP developments, in particular for early estimates. Among the indicators taken from the trade survey, the lagged trend in prices performs the best. Also for private consumption, the work volume of temporary workers is a key indicator in the later data scenarios. Finally, when all three monthly observations for turnover in retail trade are available, this indicator shoots up to the top of the ranking. This does not come as a surprise since the same data are used to compile private consumption in the quarterly national accounts.

5.3 Employment

As for employment in the private sector[1], the predictions rely mainly on survey indicators, even in the presence of a sufficient number of hard indicators after the end of the target quarter. The only hard indicator that is somewhat important in the list of the best predictors is the number of job-seekers in the case of the pure out-of-sample forecast (scenario 1). In our interpretation, this merely reflects

(1) We focus on salaried private-sector employment only as public-sector employment obviously exhibits a less cyclical pattern.

TABLE 3 BEST PREDICTORS FOR VALUE ADDED IN THE THREE MAIN INDUSTRIES, ACCORDING TO THE DATA AVAILABILITY SCENARIO

(predictors that appear at least once in the top seven of the ranking in one of the six scenarios; rankings under the seventh position are not reported; selection performed over the entire sample period)

	Data availability scenario					
	1	2	3	4	5	6
VALUE ADDED IN MANUFACTURING						
Financial indicators						
Import prices of energy raw materials in international market	5		7			
Commodity import prices in international market, excluding energy	1	7				
Survey indicators						
Manufacturing: trend in export orders			2	4	5	
Manufacturing: trend in the production rate				4		
Manufacturing: demand expectations			5			
Manufacturing: trend in prices (with 1 lag)	7					
Hard data						
Production of intermediate goods					6	6
Work volume of temporary workers	3		4	6		
Indicators related to the international environment						
Industrial production in the euro area				3	3	1
Industrial production in the advanced economies	3	1	1	1	1	2
Trade in goods in the advanced economies					2	2
Trade in goods in the euro area				2		2
Consumer confidence in France	6	6			6	7
Industrial production in France		4				7
Trade in goods in the emerging economies		3			6	
Industrial production in the emerging economies (with 1 lag)			3			
Industrial production in the emerging economies		2				
Consumer confidence in the euro area	2					
Lagged dependent		**5**	**5**	**7**	**4**	**5**
VALUE ADDED IN CONSTRUCTION						
Survey indicators						
Construction: assessment of order books	3	1	1	1	1	1
Construction: trend in activity			5	2	2	2
Construction: trend in prices			1	3	3	3
Civil engineering and roadworks: trend in activity				3	3	3
Construction: price expectations		3	4			
Civil engineering and roadworks: assessment of order book		5	6			
Civil engineering and roadworks: trend in prices			6			
Civil engineering and roadworks: trend in number of contracts concluded		4				
Consumer survey: unemployment expectations		5				
Civil engineering and roadworks: demand expectations		7				
Civil engineering and roadworks: trend in number of tenders (with 1 lag)		7				
Construction: assessment of order books (with 1 lag)	1					
Civil engineering and roadworks: trend in number of contracts concluded (with 1 lag)	2					
Civil engineering and roadworks: trend in amount of work to be done (with 1 lag)	4					
Civil engineering and roadworks: trend in number of tenders	4					
Construction: employment expectations (with 1 lag)	4					
Hard data						
Permits for new residential buildings (in m^2)				6	3	6
Production in construction				7	7	6
Work volume of temporary workers	4					
Lagged dependent		**1**	**3**	**3**	**3**	**3**

TABLE 3 BEST PREDICTORS FOR VALUE ADDED IN THE THREE MAIN INDUSTRIES, ACCORDING TO THE DATA AVAILABILITY SCENARIO (continued)

(predictors that appear at least once in the top seven of the ranking in one of the six scenarios; rankings under the seventh position are not reported; selection performed over the entire sample period)

	Data availability scenario					
	1	2	3	4	5	6
VALUE ADDED IN MARKET SERVICES						
Survey indicators						
Business-related services: employment expectations		2	1	1	2	3
Consumer survey: unemployment expectations	4	1	4	1	4	3
Trade: intentions of placing orders		2	1	4	4	3
Business-related services: activity expectations	6	2	3	5	6	6
Business-related services: trend in employment			7	5	6	6
Business-related services: trend in activity		6	5			
Consumer survey: outlook for financial situation of households	2	6	7			
Business-related services: general demand expectations	1		7			
Consumer survey: outlook for saving of households (with 1 lag)	2					
Business-related services: price expectations (with 1 lag)	5					
Trade: demand expectations	6					
Trade: trend in sales (with 1 lag)	6					
Hard data						
Work volume of temporary workers					1	1
Turnover in services				1	2	2
Lagged dependent		**5**	**5**	**5**		

TABLE 4 BEST PREDICTORS FOR PRIVATE CONSUMPTION, ACCORDING TO THE DATA AVAILABILITY SCENARIO

(predictors that appear at least once in the top seven of the ranking in one of the six scenarios; rankings under the seventh position are not reported; selection performed over the entire sample period)

	Data availability scenario					
	1	2	3	4	5	6
Survey indicators						
Consumer survey: unemployment expectations	2	3	3	2	3	4
Trade: trend in prices (with 1 lag)	3	2	2	3	3	5
Trade: employment expectations (with 1 lag)		6	6	5	6	7
Trade: assessment of sales			4	4	6	
Trade: assessment of the level of stocks	6	3		5	6	
Consumer survey: outlook for the financial situation of households				5	6	
Consumer survey: unemployment expectations (with 1 lag)		3	4	5		
Trade: price expectations (with 1 lag)	1					
Trade: trend in prices	3					
Trade: demand expectations (with 1 lag)	6					
Hard data						
Work volume of temporary workers					1	1
Turnover in retail trade					5	1
Registration of new private cars (with 1 lag)			6	5	6	5
Registration of new private cars		6	6	5	6	
Turnover in hotels and restaurants					6	
Turnover in hotels and restaurants (with 1 lag)	6	6				
Harmonised unemployment rate (with 1 lag)	3					
Lagged dependent		**1**	**1**	**1**	**1**	**1**

TABLE 5 BEST PREDICTORS FOR PRIVATE-SECTOR SALARIED EMPLOYMENT, ACCORDING TO THE DATA AVAILABILITY SCENARIO

(predictors that appear at least once in the top seven of the ranking in one of the six scenarios; rankings under the seventh position are not reported; selection performed over the entire sample period)

	Data availability scenario					
	1	2	3	4	5	6
Survey indicators						
Manufacturing: assessment of total order book		1	1	1	1	1
Manufacturing: employment expectations	2	3	2	2	2	2
Civil engineering and roadworks: price expectations	2		2	4	4	4
Manufacturing: demand expectations (with 1 lag)		7	5	4	4	4
Civil engineering and roadworks: trend in amount of work to be done			5	4	4	4
Trade: demand expectations			5	4	4	4
Trade: intentions of placing orders			5	4	4	4
Civil engineering and roadworks: trend in prices		3		4	4	4
Civil engineering and roadworks: trend in number of contracts concluded (with 1 lag)		7		4	4	4
Manufacturing: trend in orders from the domestic market (with 1 lag)	5		5			
Manufacturing: assessment of export order book		1				
Manufacturing: trend in orders from the domestic market	2	6				
Manufacturing: demand expectations	1					
Civil engineering and roadworks: trend in number of contracts concluded	5					
Hard data						
Production of capital goods (with 1 lag)		7				
Turnover in manufacturing (with 1 lag)		7				
Unemployed job-seekers (with 1 lag)		7				
Unemployed job-seekers	5					
Lagged dependent		**3**	**2**	**2**	**2**	**2**

a certain degree of persistence in the labour market developments since this variable can be seen as a substitute to the lagged dependent when the latter is not yet available (because, in our simulations, it is only included as of the second data scenario).

Remarkably, the selection procedure tends to choose an indicator related to developments in activity, i.e. the assessment of total order books in manufacturing, over one more directly connected to employment, i.e. employment expectations in that same industry. It can, however, be argued that there is a strong causal link between developments in activity and in employment. As the former usually precede the latter, this might explain why indicators related to activity perform better when it comes to providing early information on employment developments. Even though services contributed strongly to job creation over the sample period according to the national accounts statistics, no indicator from the survey in business-related services was included in the selection. Finally, while the unemployment expectations in the consumer survey clearly help to explain GDP and private consumption growth, they do not seem to have any predictive power for employment growth.

6. Can Belgian survey data contribute to estimating euro area GDP?

It is a widespread view that Belgian survey data, in particular the global business confidence indicator, can provide advance information on business cycle developments in the euro area as a whole. Intuitively, its strong trade connections with three of the euro area's largest economies (Germany, France and the Netherlands) and its industrial specialisation in intermediate goods may account for a leading character of the Belgian business cycle with respect to those of its main neighbours and, by extension, other European countries. This intuition was confirmed by Vanhaelen *et al.* (2000) who, using formal statistical methods, showed that turning points in the Belgian business confidence indicator lead those for the euro area.

Furthermore, compared to other business surveys carried out elsewhere in the euro area, the Belgian survey indicators have the additional advantage of being released relatively early, like the German IFO or the PMI indicators compiled by Markit Economics, which make them even more useful for real-time forecasting. For this reason, Camacho

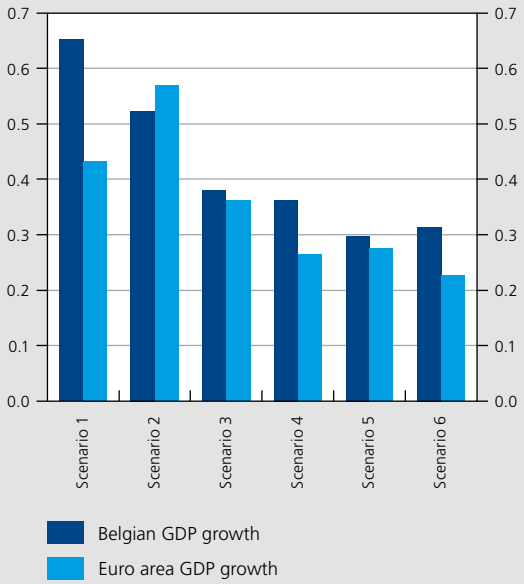
and Perez-Quiros (2010) incorporate the National Bank of Belgium's overall business confidence indicator in their short-term forecasting model for euro area GDP growth.

In this section, we use the BREL framework to investigate whether the Belgian survey data are useful for predicting euro area GDP, opting for the same approach as the one we followed for Belgian GDP. We start from a similar set of pre-selected potential indicators that includes the same variables from the various NBB surveys, along with their counterparts from the surveys in the other 17 euro area countries. In addition, the dataset also comprises some hard data, i.e. industrial production indices and unemployment rates for the euro area and the other individual euro area countries, as well as the CPB trade and production series for the main economic areas. We have also taken certain financial series into account[1]. All in all, after removal of those series with insufficient time coverage[2], the dataset we use in this exercise consists of 316 potential predictors. As for Belgian GDP, we limit the selection up to the seventh rank. Remarkably, the bridge models selected for the euro area GDP produce on average more accurate forecasts than those used for the Belgian GDP, in particular when hard data can be used, that is, starting from the fourth data scenario.

The selection results reported in table 6 suggest that, at least in the early data scenarios, Belgian survey indicators do indeed provide some information on the business cycle in the euro area. The indicator regarding demand expectations in the Belgian manufacturing sector is again selected as having some predictive power, for euro area GDP growth too. It is picked up in two data scenarios, i.e. when the prediction is made one month before the end and at the end of the target quarter. The indicator on employment expectations from the Belgian manufacturing survey is also selected in one data scenario, i.e. when the forecast is made at the end of the first month of the target quarter.

CHART 5 ACCURACY OF GDP FORECASTS PRODUCED BY BREL FOR BELGIAN AND EURO AREA GDP

(RMSFEs in percentage points; based on bridge models with the 7 top-ranked predictors; simulations performed over the period 2004Q1-2012Q4)



It should be stressed, however, that, according to the results we obtained, survey data from various other countries also help to explain euro area GDP growth in the early data scenarios. In addition, Belgian or other survey data do not provide the 'best' advance information: the industrial production index and, to a lesser extent, the unemployment rate in Spain seem to be the most consistent early indicators. Finally, when hard data become available, the best predictor for euro area GDP growth appears to be industrial production in the euro area as a whole. This result is obviously in line with prior expectations.

(1) Namely the same financial indicators as those listed in Annex table 1, with the exclusion of the Belgian-specific series (i.e. the ten-year government bond yield, and the Brussels All Shares Index)

(2) We used only series with monthly observations available from January 1996 to December 2012.

TABLE 6 BEST PREDICTORS FOR EURO AREA GDP GROWTH, ACCORDING TO THE DATA AVAILABILITY SCENARIO

(rankings under the seventh position are not reported; selection performed over the entire sample period)

Rank	Variable	Category	Rank	Variable	Category
	Scenario 1: 3 months before the end of the target quarter				
1	French construction survey: employment expectations	Survey	6	Spanish trade survey: employment expectations	Survey
2	Spanish manufacturing survey: assessment of total order book	Survey	7	Finnish consumer survey: unemployment expectations	Survey
3	Euro Stoxx Broad Index	Financial	7	French construction survey: assessment of order book	Survey
3	Harmonised unemployment rate in Spain	Survey	7	French construction survey: assessment of order book (with 1 lag)	Survey
3	Portuguese manufacturing survey: assessment of total order book	Hard	7	Spanish construction survey: trend in activity (with 1 lag)	Survey
	Scenario 2: 2 months before the end of the target quarter				
1	Industrial production in Spain (with 1 lag)	Hard	4	Dutch construction survey: price expectations	Survey
2	French construction survey: employment expectations (with 1 lag)	Survey	4	Euro Stoxx Broad Index (with 1 lag)	Financial
2	Slovenian manufacturing survey: price expectations	Survey	4	Latvian manufacturing survey: employment expectations	Survey
4	Belgian manufacturing survey: employment expectations	Financial			
	Scenario 3: 1 month before the end of the target quarter				
1	Industrial production in Spain	Hard	6	Dutch manufacturing survey: employment expectations	Survey
2	Harmonised unemployment rate in Spain	Survey	6	French construction survey: employment expectations (with 1 lag)	Survey
2	Industrial production in Spain (with 1 lag)	Hard	6	Greek manufacturing survey: assessment of total order book	Survey
2	Slovenian manufacturing survey: price expectations	Hard	6	Harmonised unemployment rate in the euro area	Survey
5	Belgian manufacturing survey: demand expectations	Survey	6	Portuguese manufacturing survey: demand expectations	Survey
6	Austrian trade survey: demand expectations	Survey	6	Spanish manufacturing survey: assessment of total order book	Hard
6	Dutch construction survey: price expectations	Survey			
	Scenario 4: end of the target quarter				
1	Industrial production in Spain (with 1 lag)	Hard	6	Harmonised unemployment rate in Spain	Hard
2	Belgian manufacturing survey: demand expectations	Survey	7	French construction survey: employment expectations (with 1 lag)	Survey
2	Harmonised unemployment rate in the euro area	Hard	7	Greek manufacturing survey: assessment of total order book	Survey
2	Industrial production in Spain	Hard	7	Industrial production in the euro area	Survey
2	Trade in goods in the euro area	Hard	7	Slovenian manufacturing survey: price expectations	Hard

TABLE 6 BEST PREDICTORS FOR EURO AREA GDP GROWTH, ACCORDING TO THE DATA AVAILABILITY SCENARIO (continued)
(rankings under the seventh position are not reported; selection performed over the entire sample period)

Rank	Variable	Category	Rank	Variable	Category
	Scenario 5: 1 month after the end of the target quarter				
1	Industrial production in the euro area	Hard	4	Industrial production in Spain (with 1 lag)	Hard
2	Harmonised unemployment rate in Spain	Hard	4	Trade in goods in the emerging economies	Hard
2	Harmonised unemployment rate in the euro area	Hard	4	Trade in goods in the euro area	International
4	Industrial production in Spain	Hard			
	Scenario 6: 2 months after the end of the target quarter				
1	Industrial production in the euro area	Hard	5	Industrial production in Spain (with 1 lag)	Hard
2	Harmonised unemployment rate in the euro area	Hard	5	Trade in goods in the euro area	Hard
3	Harmonised unemployment rate in Spain	Hard	7	Greek manufacturing survey: assessment of total order book	Survey
3	Industrial production in Spain	Hard			

Conclusion

National accounts data are not available in real time. Even the earliest vintages of quarterly data are only released one month or more after the end of the quarter considered. In addition, they are often revised in subsequent vintages. Hence, policy institutions that monitor the cyclical situation of the economy need to turn to higher-frequency data. Of those, the so-called hard data pertain to actual observations that are related to parts of the production process (industrial production, turnover or value added statistics, etc.) or certain demand components (car sales, new building starts, etc.). While such monthly data are published earlier than the national accounts, they also come with significant delays and are sometimes revised. Data from specific monthly business cycle surveys are typically available at an earlier stage but may obviously be affected by the respondents' subjective assessments.

Policy institutions now routinely use tools that can extract information from these hard and survey data in order to have a timely and accurate understanding of the cyclical conditions in the economy. Different models are used with dynamic factor models and bridge models among the most popular. In this paper, we use BREL, a new nowcasting platform that is one of the National Bank of Belgium's tools for short-term projections of GDP and other macroeconomic aggregates. BREL uses an indicator selection algorithm that can take into account different scenarios of data availability. We consider, in particular, different specifications for six data scenarios for the estimates of a quarterly aggregate, ranging from the day just before the start of the quarter to two months after the end of the quarter. We consider a very broad dataset and specifically look into the importance of survey data for the projections in each of these six data scenarios.

Different conclusions can be drawn from our empirical results. First, BREL provides reasonably accurate estimates of Belgian quarterly GDP: the average error obviously declines when more information becomes available and is, already towards the end of the quarter, not very different from that of the first flash estimate by the National Accounts Institute. Second, survey data clearly help to predict Belgian GDP developments. In line with the intuition, their importance is greater in the course of the quarter that has to be estimated, i.e. when no or very few actual hard data are already available. However, even after the quarter has ended and hard data are out for most or all months in the quarter, certain survey data continue to be selected by the model as relevant predictors of GDP. This latter result suggests that they capture some of the relevant information that is not covered by the range of intra-quarter hard data, because of problems related to either their statistical quality or their exhaustiveness. Third, forecasters should go beyond the synthetic survey indicators: results for individual survey questions are shown to contribute to the GDP estimate. While the exact selection differs according to the data scenario considered, a limited number of specific survey indicators, including, in particular, indicators of demand in the manufacturing industry, as well as unemployment expectations in the

consumer survey appear to have a greater predictive power for GDP. Moreover, we also present some preliminary evidence that our results on the role of survey data for short-term projections, do not only hold for GDP but also for supply-side aggregates, private consumption and employment. Finally, we also find indications that Belgian survey data can provide some advanced information on GDP developments in the euro area, but this property is not specific to the Belgian indicators.

Our results illustrate specifically that two of the drawbacks of intra-quarter hard data, a lack of timeliness and, to a lesser extent, quality and exhaustiveness, can be addressed by making appropriate use of survey data. We show, in particular, that at the time when the first estimate of GDP is made by the National Accounts Institute, two individual survey indicators still contain relevant information in addition to that included in the then available hard data. One dimension that is not explicitly covered in this article is the importance of revisions in the hard data. While we have excluded Belgian trade figures from our dataset, as they are subject to the largest revisions, our empirical results are based upon the current and not the initial vintage of other hard data. Our initial observations suggest that, in the particular case of Belgium, these revisions tend to be rather small.

Annex

PREDICTORS TAKEN INTO ACCOUNT IN THE SELECTION PROCEDURE

Variable	Source	Data category	Used as a potential predictor for					
			GDP	V.A. in manufacturing	V.A. in construction	V.A. in market services	private consumption	private-sector salaried employment
A. NBB's producer sentiment survey								
Manufacturing industry								
Trend in the production rate	NBB	Soft	X	X				X
Trend in orders from the domestic market	NBB	Soft	X	X				X
Trend in export orders	NBB	Soft	X	X				X
Trend in prices	NBB	Soft	X	X				X
Assessment of total order book	NBB	Soft	X	X				X
Assessment of export order book	NBB	Soft	X	X				X
Assessment of the level of stocks of finished products	NBB	Soft	X	X				X
Employment expectations	NBB	Soft	X	X				X
Demand expectations	NBB	Soft	X	X				X
Price expectations	NBB	Soft	X	X				X
Construction								
Trend in activity	NBB	Soft	X		X			X
Trend in orders	NBB	Soft	X		X			X
Trend in equipment	NBB	Soft	X		X			X
Trend in employment	NBB	Soft	X		X			X
Trend in prices	NBB	Soft	X		X			X
Demand expectations	NBB	Soft	X		X			X
Assessment of order book	NBB	Soft	X		X			X
Employment expectations	NBB	Soft	X		X			X
Price expectations	NBB	Soft	X		X			X
Trade								
Trend in sales	NBB	Soft	X			X	X	X
Trend in prices	NBB	Soft	X			X	X	X
Assessment of sales	NBB	Soft	X			X	X	X
Assessment of the level of stocks	NBB	Soft	X			X	X	X
Demand expectations	NBB	Soft	X			X	X	X
Intentions of placing orders	NBB	Soft	X			X	X	X
Employment expectations	NBB	Soft	X			X	X	X
Price expectations	NBB	Soft	X			X	X	X
Business-related services								
Trend in activity	NBB	Soft	X			X		X
Trend in employment	NBB	Soft	X			X		X
Trend in prices	NBB	Soft	X			X		X
Assessment of activity	NBB	Soft	X			X		X
Activity expectations	NBB	Soft	X			X		X
General demand expectations	NBB	Soft	X			X		X
Employment expectations	NBB	Soft	X			X		X
Price expectations	NBB	Soft	X			X		X

PREDICTORS TAKEN INTO ACCOUNT IN THE SELECTION PROCEDURE (continued 1)

Variable	Source	Data category	Used as a potential predictor for					
			GDP	V.A. in manufacturing	V.A. in construction	V.A. in market services	private consumption	private-sector salaried employment
Civil engineering and roadworks								
Trend in activity	NBB	Soft	X		X			X
Trend in number of tenders	NBB	Soft	X		X			X
Trend in number of contracts concluded	NBB	Soft	X		X			X
Trend in amount of work to be done	NBB	Soft	X		X			X
Trend in prices	NBB	Soft	X		X			X
Assessment of order book	NBB	Soft	X		X			X
Demand expectations	NBB	Soft	X		X			X
Employment expectations	NBB	Soft	X		X			X
Price expectations	NBB	Soft	X		X			X
B. NBB's consumer survey								
Economic situation in Belgium (forecasts for the next twelve months)	NBB	Soft	X		X	X	X	
Unemployment in Belgium (forecasts for the next twelve months)	NBB	Soft	X		X	X	X	X
Financial situation of households (forecasts for the next twelve months)	NBB	Soft	X		X	X	X	
Saving of households (forecasts of saving for next twelve months)	NBB	Soft	X		X	X	X	
C. Hard data								
Turnover at constant prices (based on VAT returns)								
Manufacturing	NAI (1)	Hard	X	X				X
Construction	NAI (1)	Hard	X		X			X
Retail trade	NAI (1)	Hard	X			X	X	X
Hotels and restaurants	NAI (1)	Hard	X			X	X	X
Business services	NAI (1)	Hard	X			X		X
Total services	NAI (1)	Hard	X			X		X
Total turnover	NAI (1)	Hard	X					X
Industrial production index								
Manufacturing	SB	Hard	X	X				X
Construction	SB	Hard	X		X			X
Energy	SB	Hard	X	X				X
Capital goods	SB	Hard	X	X				X
Intermediate goods	SB	Hard	X	X				X
Durable consumer goods	SB	Hard	X	X				X
Non-durable consumer goods	SB	Hard	X	X				X
Total industrial production, excluding construction	SB	Hard	X	X				X

Note: SB = Statistics Belgium.
(1) Using data from the FPS Finance, Statistics Belgium and the NBB.

PREDICTORS TAKEN INTO ACCOUNT IN THE SELECTION PROCEDURE (continued 2)

Variable	Source	Data category	Used as a potential predictor for					
			GDP	V.A. in manufacturing	V.A. in construction	V.A. in market services	private consumption	private-sector salaried employment
Registration of new private cars	SB	Early hard	X			X	X	
Work volume of temporary workers	Federgon	Early hard	X	X	X	X	X	X
Unemployed job-seekers	NEO	Early hard	X	X	X	X	X	X
Harmonised unemployment rate	EC	Early hard	X	X	X	X	X	X
Permits for new residential buildings (in m^2)	SB	Hard	X		X			
Permits for new non-residential buildings (in m^2)	SB	Hard	X		X			
D. Financial data								
Ten-year government bond yield; Belgium	Th. R.	Financial	X					
3-month Euribor	Th. R.	Financial	X					
Brussels All Shares Index	Th. R.	Financial	X					
Euro Stoxx Broad Index	Th. R.	Financial	X					
Crude Oil-Brent Dated Free on Board	Th. R.	Financial	X	X				
Import prices of energy raw materials in international market	HWWI	Financial	X	X				
Commodity import prices in international market, excluding energy	HWWI	Financial	X	X				
Exchange rate or the euro against the U.S. Dollar	Th. R.	Financial	X	X				
Spot price of gold (Standard & Poor's GSCI)	Th. R.	Financial	X					
E. International indicators								
Trade in goods (average of exports and imports of goods)								
Euro area	CPB	Hard	X	X				
Advanced economies	CPB	Hard	X	X				
Emerging economies	CPB	Hard	X	X				
Industrial production index								
Euro area	EC	Hard	X	X				
Advanced economies	CPB	Hard	X	X				
Emerging economies	CPB	Hard	X	X				
Germany	EC	Hard	X	X				
France	EC	Hard	X	X				
Industrial confidence indicator								
Euro area	EC	Soft	X	X				
Germany	EC	Soft	X	X				
France	EC	Soft	X	X				
Netherlands	EC	Soft	X	X				
Consumer confidence indicator								
Euro area	EC	Soft	X	X				
Germany	EC	Soft	X	X				
France	EC	Soft	X	X				
Netherlands	EC	Soft	X	X				

Note: SB = Statistics Belgium; Th. R. = Thomson Reuters.

Bibliography

Angelini E., G. Camba-Mendez, D. Giannone, L. Reichlin and G. Rünstler (2011), "Short-term forecasts of euro area GDP growth", *Econometrics Journal*, 14, C25–C44.

Bai J. and S. Ng (2008), "Forecasting economic time series using targeted predictors", *Journal of Econometrics*, 146, 304-317.

Bańbura M., D. Giannone, M. Modugno and L. Reichlin (2013), *Now-casting and the real-time data flow*, ECB Working Paper Series 1564.

Bańbura M. and G. Rünstler (2011), "A look into the factor model box: Publication lags and the role of hard and soft data in forecasting GDP", *International Journal of Forecasting*, 27 (2), 333–346.

Barhoumi K., S. Benk, R. Cristadoro, A. Den Reijer, A. Jakaitiene, P. Jelonek, A. Rua, G. Rünstler, K. Ruth and Ch. Van Nieuwenhuyze (2008), *Short-term forecasting of GDP using large monthly datasets – A pseudo real-time forecast evaluation exercise*, NBB Working Paper 133.

Bec F. and M. Mogliani (2013), *Nowcasting French GDP in real-time from survey opinions: information or forecast combinations?*, Banque de France, Document de travail 436.

Bessec M. (2013), "Short-term forecasts of French GDP: a dynamic factor model with targeted predictors", *Journal of Forecasting*, 32, 500–511.

Bulligan G., M. Marcellino and F. Venditti (2012), *Forecasting economic activity with higher frequency targeted predictors*, Banca d'Italia, Temi di Discussioni 847.

Camacho M. and G. Perez-Quiros (2010), "Introducing the Euro-Sting: Short-Term Indicator of Euro Area Growth", *Journal of Applied Econometrics*, 25, 663–694.

De Antonio Liedo D. (2014), *Nowcasting Belgium*, NBB Working Paper 256.

De Greef I. and Ch. Van Nieuwenhuyze (2009), "The National Bank of Belgium's new business survey indicator", *Economic Review*, NBB, 31–51, June.

Diebold, F. X. and R. S. Mariano (1995), "Comparing Predictive Accuracy", *Journal of Business & Economic Statistics*, 13 (3), 253–263.

Giannone D., L. Reichlin and D. Small (2008), "Nowcasting: the real-time informational content of macroeconomic data releases", *Journal of Monetary Economics* 55, 665–676.

Golinelli R. and G. Parigi (2007), "The use of monthly indicators to forecast quarterly GDP in the short run: an application to the G7 countries", *Journal of Forecasting*, 26 (2), 77–94.

Piette Ch. (2014), *Forecasting Belgium's GDP using Targeted Bridge Models*, mimeo.

Stock J.H. and M.W. Watson (2002), "Macroeconomic Forecasting Using Diffusion Indexes", *Journal of Business & Economic Statistics*, 20 (2), 147–162.

Vanhaelen J.-J., L. Dresse and J. De Mulder (2000), *The Belgian industrial confidence indicator: Leading indicator of economic activity in the euro area?*, NBB Working Paper 12.

Van Nieuwenhuyze Ch. (2006), *A generalised dynamic factor model for the Belgian economy – Useful business cycle indicators and GDP growth forecasts*, NBB Working Paper 80.

Zou H. and T. Hastie (2005), "Regularization and Variable Selection via the Elastic Net", *Journal of the Royal Statistical Society*, Series B, 67 (2), 301–320.

Financial integration and fragmentation in the euro area

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Introduction

Recent decades have witnessed a rapid and intensive process of economic and financial integration throughout the world. Financial integration has outpaced integration via international trade (Lane and Milesi-Ferretti, 2003; UNCTAD, 2012), partly as a result of capital liberalisation, deregulation and financial innovation. Between 1970 and 2006, cross-border financial assets increased six-fold as a percentage of global GDP (Lane and Milesi-Ferretti, 2008), doubling between 1996 and 2006 (Schindler, 2009). In the euro area, the integration process was even more intensive as a result of the Single Market and, subsequently, the single currency and the ensuing policy and regulation. In fact, financial integration should be seen as a fundamental pillar of a monetary union, essential to safeguard the adequate transmission of monetary policy in all countries of that union. The need to ensure financial integration is confirmed in the Eurosystem's mission statement: "We in the Eurosystem have as our primary objective the maintenance of price stability for the common good. Acting also as a leading financial authority, we aim to (…) promote European financial integration" [(1)].

However, the financial and economic crisis which emerged in August 2007 and spread in 2008 and 2009 brought the global integration process to a halt: together with the decline in international trade, international (interbank) capital flows dried up. In the euro area, the institutional framework and the degree of integration achieved at that time could not prevent the countries of the monetary union from experiencing similar developments: the financial integration process, which had hitherto been most evident on the interbank and bond markets, largely retreated behind national borders. During the sovereign debt crisis, this home bias became more marked, leading to a reversal in net capital flows within the euro area; as a result, countries that were net importers of capital adjusted their external positions. This financial fragmentation phase also threatened the efficiency of monetary policy, forcing the Eurosystem to adopt unconventional measures (Cœuré, 2014).

The literature traditionally highlights the advantages of financial integration, as integration opens the way to smoother market operation and therefore engenders efficiency gains. At the same time, increased financial integration may accentuate fragility and instability if markets operate imperfectly – e.g. in the case of extreme exposure to risks, moral hazard, liquidity shortages, imperfect institutional structures or underestimation of risks. Consequently, it is possible for financial integration to give rise to extreme situations, such as sudden stops. Indeed, recent events have demonstrated this potential duality, both at global level and in the euro area, where legal and institutional reforms have facilitated financial integration leading, in practice, to a strong increase in capital flows between countries. As a result, from its establishment up to 2007, the euro area witnessed rapidly growing financial integration, evident in terms of both volume and prices. During that period, absolute cross-border exposures, particularly in the banking sector, increased considerably, causing a significant rise in net exposures at the country-specific level, partly as a result of the current account

(1) See the ECB website (http://www.ecb.europa.eu/ecb/orga/escb/html/mission_eurosys.en.html).

imbalances facilitated by financial integration. In terms of prices, integration was reflected in a strong convergence of financial asset prices, especially interest rates.

The imperfections in the institutional framework and the marked repricing of risks which accompanied the start of the crisis reversed the trend towards growing financial integration; at the international level, that triggered a process of financial disintermediation, with a reversal of capital flows and serious financing problems for some countries in the euro area. Although those countries tackled some of their macroeconomic and financial imbalances, they still have a substantial net external debt, and there remains considerable fragmentation of bank interest rates along national borders.

This article deals with these questions, first by defining the concept of financial integration and examining its costs and benefits. Next, it considers recent developments in the financial integration and fragmentation process within the euro area from two angles – namely in terms of volumes and prices. It thus attempts to identify certain structural/underlying factors in the ongoing fragmentation of the financial markets. The article concludes with a description of the policy measures applied in recent years to halt the fragmentation process and permit a return to financial integration, albeit in a different and more robust form than that seen in the first ten years of the third stage of EMU.

1. Financial integration: definitions

Financial integration can be defined from an institutional and legal point of view (*de jure*) or on a factual basis (de facto). According to Baele *et al.* (2004), a financial market is integrated *de jure* if "all potential market participants with the same relevant characteristics:

- face a single set of rules when they decide to deal with [a given set of] financial instruments and/or services;
- have equal access to the above-mentioned set of financial instruments and/or services; and
- are treated equally when they are active in the market."

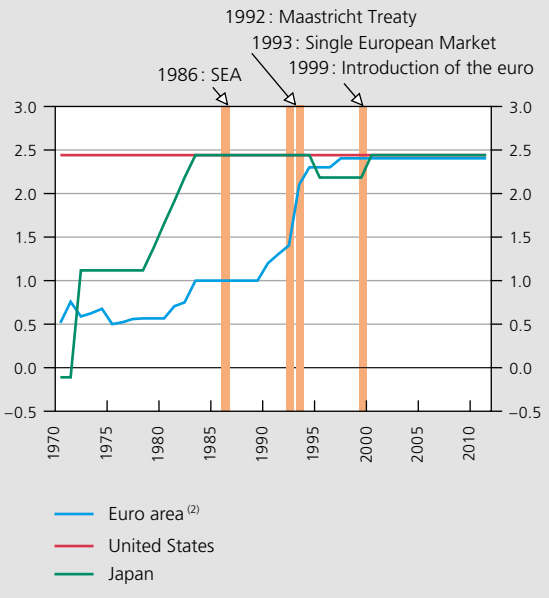
The *de jure* criteria are relevant for analysing policy because they indicate the extent to which national policies facilitate (or impede) cross-border capital movements. In principle, de *jure* financial integration could therefore be regarded as a precondition for *de facto* financial integration, and the two types of criteria are likely to be closely linked.

(1) Previously, in 1972, the collapse of the Bretton Woods system had already led to an easing of restrictions on capital mobility at a more global level.

In the European context, and especially in the euro area, *de jure* financial integration between countries increased with the more general process of economic integration in the European Union and EMU. Progress towards a Single Market in the European Union accelerated in the 1980s and 1990s[1]. In 1985, the Delors Commission proposed almost 300 measures for completing the Single Market, which led to the signing of the Single European Act (SEA) in 1986. As a result of that Act, the European Single Market was established at the beginning of 1993, with cross-border freedom of movement for persons, goods, services and capital. The launch of the Single Market coincided with the Maastricht Treaty that determined the basis of the single currency as the next stage in European integration. The creation of the monetary union (which took effect in 11 Member States in 1999) was a major milestone on the road to more integrated financial markets, eliminating the exchange rate risk within the euro area.

Since then, European policy has continued to aim at a more open, integrated market. One example of a significant achievement was the creation of the Single Euro Payments Area (SEPA), that has helped to reduce the cost of transferring money in euros between euro area countries by 90 % since 2001 (EC, 2006).

CHART 1 ***DE JURE*** **FINANCIAL INTEGRATION: CHINN-ITO INDEX**[1]



Sources: Chinn and Ito (2006), Eurostat.
(1) Index between –2.5 (closed capital markets) and 2.5 (totally open capital markets).
(2) First 12 EMU Member States, excluding Luxembourg. GDP-weighted average.

These institutional measures made the euro area into a closely integrated financial market from a legal point of view, with a level of integration comparable to that in the United States and Japan. That perception is supported by various indicators of *de jure* integration, such as the Chinn-Ito index, which aims to measure the intensity of capital controls, in so far as that intensity is connected with the existence of other restrictions on international transactions as well as restrictions on the balance of payments financial account[1]. When that index is applied to the euro area Member States, it shows the progress towards the Single (financial) Market and the growing openness to global financial markets. In tandem with the process leading to the introduction of the single currency, the euro area countries achieved a degree of openness comparable to that of the most open economies in the world.

However, the fact that a country has adopted measures to facilitate financial integration does not necessarily mean that capital will actually flow in and out of the country, nor does it say anything about the degree to which that will happen. Many other variables play a role, relating primarily to the financial market situation, risk perception, etc. *De jure* integration can therefore be seen as a necessary condition, but one that is not sufficient for *de facto* integration.

De facto measures of financial integration can be divided into volume indicators – which measure international capital flows and the stock of cross-border financial assets and liabilities – and price indicators, which measure integration on the basis of a comparison of risk-adjusted yields on different markets.

Over the last decades, according to volume indicators, the financial integration of the main economies has increased considerably, although that trend has certainly not been uniform over time, as is evident from the volatility and the drying up of international capital flows during the financial crisis[2]. Measured through the stock of external assets and liabilities, financial integration increased since 1999 most strongly in the euro area, namely from 164 % of GDP to 405 % of GDP in 2013Q3. During that period, the financial openness of the United States and Japan also more than doubled. That trend is attributable mainly to financial liberalisation, whereby capital controls were gradually lifted more or less entirely (*de jure* integration). In addition, the development of new financial instruments and trading platforms and more intensive trade flows between economies also fostered integration. The financial integration evident in the euro area was given an additional boost since 1999 by the introduction of the single currency, partly due to the resulting closer trade links between the euro area Member States, and partly as a result of the elimination of the exchange rate risk within the monetary union (see Lane, 2010; Waysand *et al.*, 2010).

In general, the level of financial integration differs strongly between the various economies. A high degree of financial integration is often associated with a large financial (banking) sector (in % of GDP), high output per capita, and great trade openness (Lane and Milesi-Ferretti, 2008). Thus, the relatively substantial weight of the banking sector in Europe explains why financial openness there roughly doubles the level in the United States. For the same reason, the outstanding amount of external assets and liabilities in the United Kingdom in mid-2013 amounted to 1 341 % of GDP.

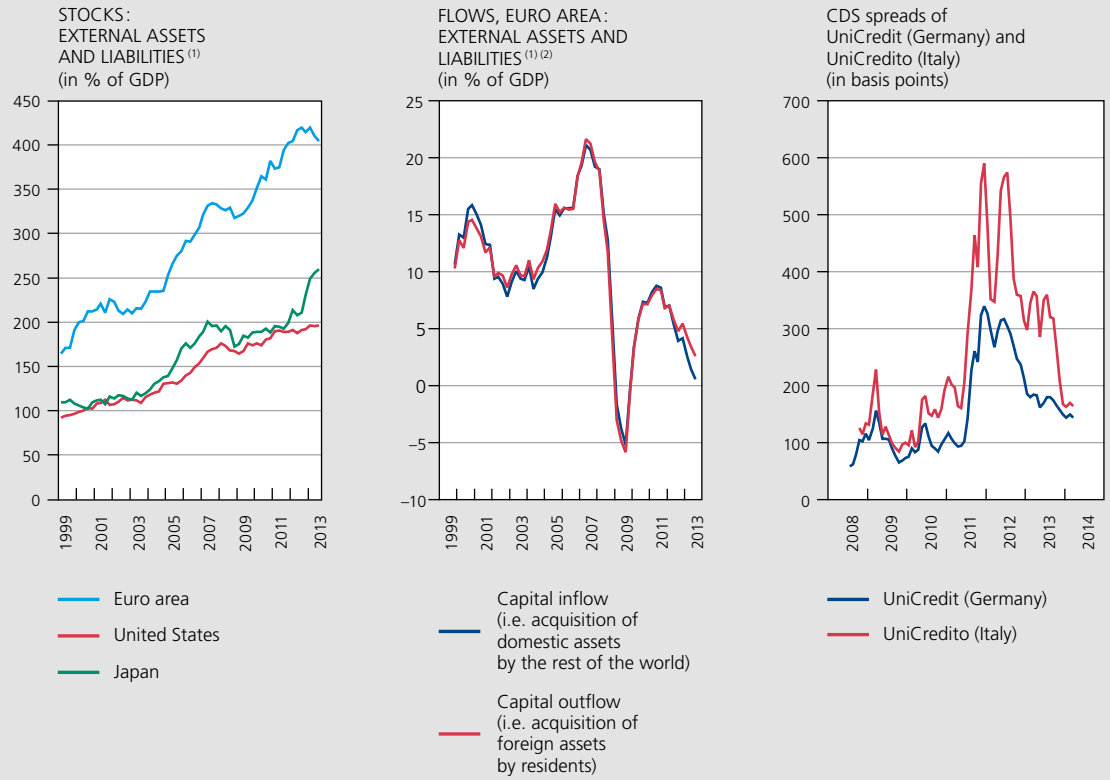
However, an analysis based on international capital flows reveals that financial integration in the euro area has declined since the financial crisis. During the crisis, international capital flows were highly volatile and exhibited a boom/bust profile. There was an international slowdown in (gross) capital flows which, together with the deteriorating macroeconomic fundamentals, must also be seen against the backdrop of a general repricing of risks by the financial system worldwide. In the euro area, the average annual capital inflow and outflow, which up to 2007 amounted to roughly 13 % of GDP, shrank to less than 5 % of GDP thereafter. In 2009 there was actually a period of financial regression, with net sales of foreign claims by euro area residents and net sales of claims on euro area counterparties by non-residents.

Price indicators (such as interest rates) confirm the weakening of *de facto* financial integration apparent on the basis of capital flows. Since the outbreak of the financial crisis, the yields on financial products which, in principle, present comparable risks have in fact diverged. This issue will be discussed in more detail in section 3.3 of this article, but it is illustrated here by the credit default swap (CDS) spreads on bonds issued by UniCredito bank in Italy as opposed to those of HypoVereinsbank in Germany, which has been part of the same UniCredit group since 2005. During the financial crisis, and especially at the peak of the sovereign debt crisis, there was a significant divergence between these CDS spreads. Although there are objective reasons which explain why the market took a different view of the risks associated with these two

(1) Chinn and Ito (2006). The index is based on data from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER), offering information on the extent and nature of the regulations on transactions recorded on the external account for a broad cross-section of countries.

(2) Given the importance and size of capital flows, a deceleration in those flows is also regarded as a decline in financial integration (McKinsey Global Institute, 2013), even if these flows cause a further rise in the stock of assets and liabilities. It should be noted that changes in the stock of external assets and liabilities are attributable not only to capital flows but also to revaluation effects (fluctuations in exchange rates and prices).

CHART 2 FINANCIAL INTEGRATION: *DE FACTO* INDICATORS



Sources: BIS, EC, Thomson Reuters Datastream, ECB.

(1) Excluding financial positions/flows within the economic areas. For Japan and the US on the basis of the national financial accounts (flow of funds); for the euro area, on the basis of the balance of payments of the euro area as a whole.

(2) Four-quarter cumulated flows.

parts of the same banking group (e.g. differing exposures to the Italian and German government respectively, and the different legal framework applicable to the two entities), that divergence nevertheless seems attributable to (deeper) disruptions in the *de facto* financial integration in EMU.

2. Benefits and costs of financial integration

The trend towards increasing financial integration in the leading economies in recent decades is underpinned to some extent by the considerable benefits of financial integration which are also pointed out by the economic literature:

– better capital allocation: in financially integrated economies there are no capital restrictions, and thus capital can move freely towards projects offering the highest potential return. According to the models underlying neoclassical growth theory (see for example Mankiw *et al.*, 1992), this should cause capital to flow from capital-abundant economies with low productivity to capital-poor economies with high productivity until the marginal return on capital is equalised. That process generates faster growth in the economies receiving the capital until convergence is reached.

– risk-sharing: financial integration can loosen the link between expenditure (consumption and investment) and income, both on a time and country dimension. In other words, countries can record a current account surplus or deficit, enabling them to cushion the impact on expenditure of shocks affecting their national income. In addition, the expanding choice of investment opportunities (abroad) increases the diversification of the financial assets of residents, making their consumption less volatile and less sensitive to shocks affecting domestic income (Jappelli and Pagano, 2008).

– other advantages: increased financial integration is also often accompanied by greater development of the domestic financial sector and markets, heightening

competition and cutting the costs of financial intermediation (Levine, 2001). In a monetary union, a higher level of financial integration also promotes the smooth and uniform transmission of monetary policy, and vice versa. Finally, in less stable economies, the openness of the capital markets exposes domestic policy to external market discipline, which could foster increased stability (Obstfeld, 1998).

These advantages should thus ensure that strong financial integration is accompanied by higher growth of investment and activity and lower volatility, particularly for consumption. However, there is no consensus on this in the empirical literature. Eichengreen (2001) and Kose *et al.* (2006) have reviewed the empirical studies. They conclude that, alongside the extensive literature stressing the advantages of financial integration, some studies are unable to demonstrate the theoretical benefits and, on the contrary, they indicate that financial openness can actually have a detrimental effect on prosperity and economic stability. The recent financial crisis and earlier balance of payments crises, which were often specific to fast-growing emerging economies, have indeed revealed that increasing financial integration is no panacea.

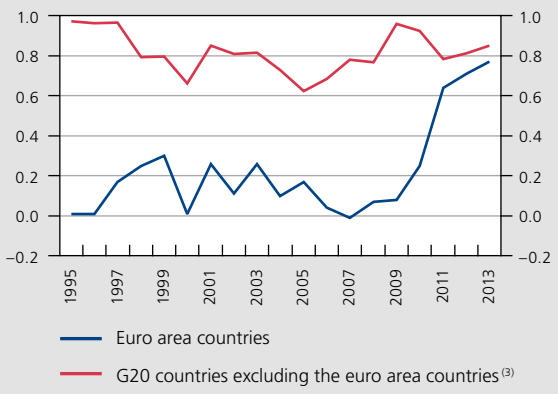
Part of the theoretical literature confirms that financial integration may also have considerable disadvantages. They are generally caused by market failures, such as incomplete financial markets (Stiglitz, 2004), which feature a lack of transparency, asymmetric information and transaction costs. Disadvantages may also emerge sooner in the absence of a sound institutional framework and adequate supervision over the financial sector in particular (Edison *et al.*, 2002), given the importance of that sector in channelling foreign resources to the real economy. The main potential disadvantages mentioned in the literature are:

– sub-optimal capital allocation: in practice, market imperfections mean that capital is not always allocated in the optimum way, and – contrary to theoretical predictions – the flow is sometimes reversed (namely from capital-poor to capital-abundant economies), as in the case of capital flowing from China to the United States (known as the "Lucas paradox"; Lucas, 1990). Some authors point out that this is because the financial sector in China is less developed than that in the United States (Caballero *et al.*, 2008). Trade distortions may also cause capital to flow towards activities in which countries have no comparative advantage (Eichengreen, 2001). Although capital flows may stimulate investment and growth in the short term, the effect on long-term growth depends on the type of investment being funded. Concentration and excess investment in certain activities may inhibit long-term growth, e.g. if strong investment in branches geared to the domestic market (such as construction) does not lead to a corresponding increase in the country's export potential, resulting in ever-increasing (external) imbalances.
– volatile capital flows: international capital flows often behave in a pro-cyclical manner, particularly capital flows based on short-term instruments. In the case of a (growing) external imbalance, this can lead to highly volatile capital movements with the risk of a "sudden stop" (Calvo, 1998) caused by an abrupt change in the risk perception regarding the economic fundamentals, so that the country is forced to correct its external deficit, possibly at the expense of economic growth. The composition of the capital flow can in itself indicate the risk of a sudden stop, e.g. if there is a large share of short-term debt[(1)]. In such cases, if investors have asymmetric information on economic fundamentals, that can lead to herding behaviour (Banerjee, 1992), further exacerbating the sudden stop.
– other disadvantages: while a larger financial sector has various advantages, it also has its drawbacks, as became apparent at the time of the financial crisis. A larger financial sector is in fact often accompanied by increasingly complex financial products, implying a contagion risk. In addition, there is a greater chance of institutions which are "too big to fail", so that their behaviour reflects moral hazard. Finally, large and volatile capital flows may hamper monetary policy. For example, they may generate rapid monetary expansion (if the inflow is not sterilised), leading to inflationary pressure and real exchange rate appreciation, which could further exacerbate the external imbalances.

Before the financial crisis, and even before the introduction of the euro, the euro area economies displayed a considerable degree of risk-sharing in the sense that national savings and investments in the various countries were disconnected, as is evident from the low correlation coefficient between these two aggregates (<0.3). This risk sharing was far less active among the other G20 countries. The euro area countries thus enjoyed a significant advantage of financial integration, namely the opportunity to record a current account deficit or surplus (savings < investment or savings > investment), breaking the link between investment and domestic savings. In the euro area, countries with a relatively low per capita GDP generally recorded an external deficit, financed largely by the economies with an external surplus, which stimulated

(1) Debt financing generally proves far more volatile than, say, capital flows based on direct investment. Moreover, in the case of the latter, there is a lower risk of inappropriate allocation since the investor is more closely involved in the project. Consequently, this type of investment is less sensitive to asymmetric information between residents and non-residents (Kirabaeva and Razin, 2010).

CHART 3 CORRELATION[1] BETWEEN NATIONAL SAVINGS[2] AND TOTAL INVESTMENT[2] IN EURO AREA COUNTRIES AND THE G20



Sources: IMF, NBB.

(1) According to Feldstein and Horioka (1980), a high (low) correlation indicates low (high) capital mobility between countries.

(2) In gross terms and at current prices, in % of GDP.

(3) Argentina, Australia, Brazil, Canada, China, India, Indonesia, Japan, Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom and United States.

economic growth in the deficit countries and was in line with the usual convergence mechanisms.

Since the financial crisis, however, this risk-sharing has declined sharply, as indicated by the much closer correlation between investment and savings across the various countries of the euro area. Thus, the "Feldstein-Horioka paradox" also applies to the euro area. Feldstein and Horioka (1980) reported a close correlation between savings and investment within national borders and interpreted it as defective risk-sharing and limited capital mobility between countries[1]. Measured in that way, risk-sharing between the euro area economies is indeed currently close to the modest level found for the G20 countries (excluding the euro area countries), which raises concerns given that, owing to the single currency, a monetary union requires adequate risk-sharing via the goods, labour and capital markets.

(1) In this context, a lack of risk-sharing between economies is reflected in a balanced current account, and hence the absence of net capital flows between countries. It should be noted that this does not necessarily imply defective financial integration if the latter is measured according to the (gross) flow or the outstanding amount of external financial assets and liabilities. This indicates the need to analyse both net and gross capital flows: see chapter 3 of this article.

(2) The total outstanding assets and liabilities of the euro area as a whole, as recorded in the statistics on the international investment position (balance of payments), concern the financial positions in relation to countries which are not part of the euro area (extra-euro area). The external positions of euro area countries in relation to one another (intra-euro area) therefore cannot be derived directly from the euro area's balance of payments. However, they can be calculated by totalling the national figures and deducting the aggregate for the euro area. As for some countries no historical series for the international investment position are available, the intra-euro area positions were calculated in this article as the difference between the sum of the external assets and liabilities according to the national financial accounts (where these are recorded by analogy with the international investment position) and the external assets and liabilities for the aggregate of the euro area according to the international investment position.

3. Developments in the euro area

This chapter takes a more detailed look at financial integration in the euro area, on the basis of both volume criteria – distinguishing between gross and net capital flows – and price indicators (interest rates). Gross capital flows and the corresponding positions indicate the absolute level of financial integration in the euro area. These data can also be used to investigate the structure of integration in terms of both sectors and financial instruments. Net capital flows are also relevant because they are linked to macroeconomic imbalances, particularly the current account balance. They thus shed light on the interaction between macroeconomic imbalances and financial integration. They also indicate the potential risks associated with financial integration. A change in these flows, especially a change of direction, may in fact force an economy to make substantial, abrupt adjustments. Finally, integration can also be assessed on the basis of a comparison between the risk-adjusted returns, as any discrepancies are a sign of a lack of integration (fragmentation).

3.1 Gross capital flows

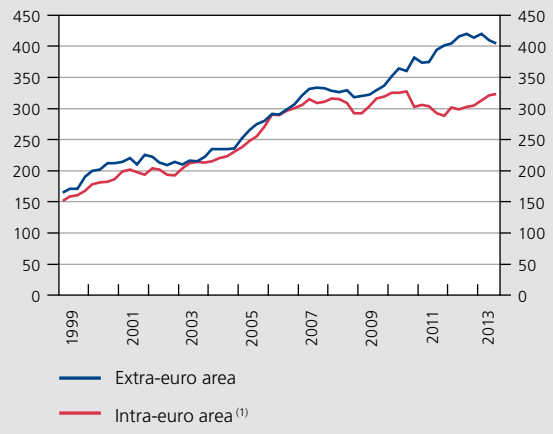
Apart from the increase in the assets and liabilities of the euro area as a whole in relation to the rest of the world (extra-euro area), financial flows among partners in the euro area (intra-euro area) also recorded substantial growth[2]. Financial integration increased particularly strongly during the initial years of monetary union: between 1999 and 2007, financial openness doubled both externally and within the euro area.

However, from 2007 onwards, and hence from the start of the financial crisis, financial integration in the euro area stalled, in contrast to the integration in relation to counterparties outside the euro area, which, after stagnating for two years (in 2008 and 2009), expanded further. The stabilisation in the euro area was linked to the increased uncertainty and loss of confidence between lenders and borrowers, particularly on the interbank market. Within the euro area, risk repricing mainly had implications for the deficit countries, which could no longer count on net flows of funding from the other euro area countries; that led to a rebalancing of current account balances within the euro area and depressed gross capital flows, as is evident from the reduction in (financial) risk-sharing between the euro area countries.

Developments in financial integration are largely driven by the financial sector (the banks), in view of the role of that sector as an (international) financial intermediary. The expansion of the international assets of the banks is an

CHART 4 TOTAL OUTSTANDING EXTERNAL ASSETS AND LIABILITIES OF THE EURO AREA COUNTRIES

(in % of GDP)

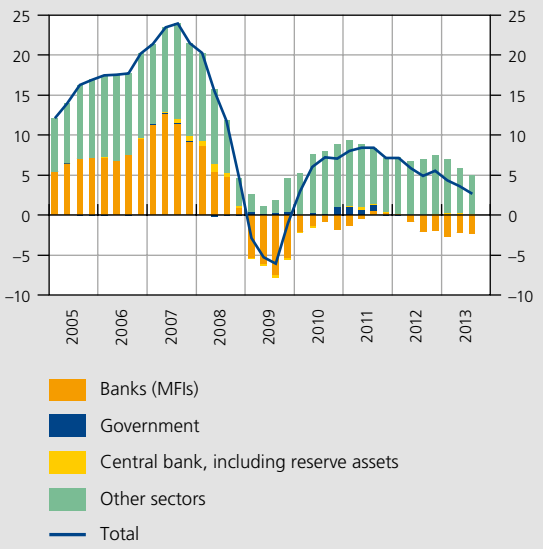


Sources: EC, ECB, NBB.

(1) Intra-euro area positions calculated as the difference between the total external assets and liabilities of the euro area member states according to their respective national accounts and the external assets and liabilities of the euro area as a whole according to the balance of payments.

CHART 5 TRANSACTIONS IN EXTERNAL ASSETS (1), EURO AREA

(in % of GDP)



Source: ECB.

(1) Transactions in external assets outside the euro area (purchase "+", sale "–"), four-quarter cumulated flows.

amplified reflection of developments in financial integration in the economy as a whole. The substantial weight of the banking sector in international capital flows is evident from the sector-specific breakdown of the capital flows of the euro area (i.e. the formation of external assets by residents). During the period preceding the financial disintegration (from 2005 to 2008), the banks accounted on average for around 45 % of the formation of external assets, mainly as a result of the growing importance of cross-border institutions and a more international financing structure (OECD, 2011). Subsequently, the banks drove the decline in financial integration. Since 2009, they have constantly reduced their external assets while the other sectors have continued to accumulate foreign assets at a rate that, as a percentage of GDP, is virtually the same as before the crisis.

The international banking statistics (BIS) also confirm the strong growth and subsequent reduction in external assets by the banks, in relation to countries both within and outside the euro area. While external exposures on other euro area countries had increased between 2000 and 2007Q3 by € 4 100 billion (or 226 %), over the period from 2007Q3 to 2013Q2 they declined by € 1 700 billion (or 22 %). For the exposures outside the euro area, this increase and reduction amounted to € 7 200 and € 1 900 billion respectively. Combined with a virtually continuous further expansion in assets issued by residents, this indicates that the banks in the euro area are refocusing on their home markets.

The strong deleveraging trend in the financial sector and the associated reduction in external assets and liabilities are attributable to both temporary and structural factors. First, the (temporary) liquidity shortage caused by the financial crisis led banks to sell international assets in order to restore their liquidity position. The suddenly increased risk aversion also prompted a reduction of exposures on countries/sectors and specific market segments beset by solvency problems. One of the more structural factors concerns the change in regulations (including the strengthening of the capital position), which generally caused banks to place less emphasis on international expansion when redefining their business models.

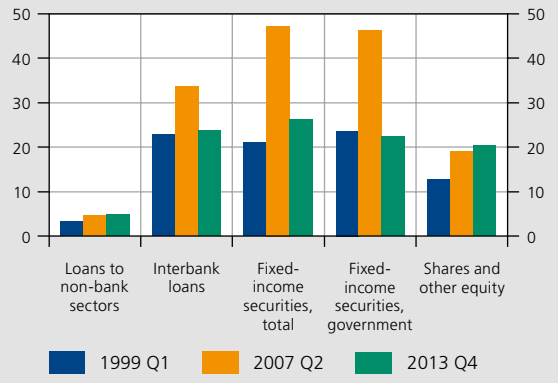
The financial integration in the euro area brought about by banks is not equally advanced in all markets, as is evident from the geographical breakdown of bank claims on the euro area by type of financial instrument (1).

Financial integration in the euro area – measured on the basis of the share of non-domestic claims in total claims on the euro area – displays considerable divergences. Integration is farthest advanced on the interbank market and on the

(1) This analysis is based on monthly bank balance sheet data on a territorial basis, compiled for the purpose of the ECB's monetary policy (Balance Sheet Items). These statistics are therefore not consolidated at banking group level, which means that the external positions include transactions with parent companies, subsidiaries or branches of resident banks established in other countries.

CHART 6 BANKS[1] IN THE EURO AREA: SHARE OF CLAIMS ON OTHER EURO AREA MEMBER STATES[2]

(in % of the banks' total claims on the euro area for each instrument category)



Source: ECB.

(1) Monetary financial institutions (MFIs) excluding the central bank. Non-consolidated (territorial) data.

(2) Claims held on euro area countries other than the member state where the bank is resident.

market of fixed-income securities (which includes government bonds). The home bias is most marked in the case of equities and, above all, lending to the non-bank sector.

The start of the financial crisis in 2007 marked a turning point in the increasing financial integration trend on the market in interbank loans and fixed-income securities. While the share of non-domestic claims in total claims on the euro area in these markets had risen to 34 % and 47 % respectively in 2007Q2, it subsequently declined to 24 % and 26 % respectively in 2013Q4.

The weakening of the integration process within the euro area was particularly clear on the market in government paper. The share of foreign government bonds in the total bond holdings of the banks in relation to the euro area had risen steadily from the launch of the euro so that, by mid-2006, it equalled the proportion of domestic securities in the banks' portfolio; however, that share subsequently contracted sharply. According to the latest available data, the integration on this market is now back to the level prevailing at the beginning of 1999, when the third stage of EMU was launched.

It is particularly on the market in government paper that the greater home bias may be a problem because it increases the feedback between national governments and their domestic banking sector. It may also hamper the monetary transmission process in the euro area, possibly leading to a divergence in interest rates for households and businesses in the euro area[1]. These interest rate differences, which are examined in more detail in section 3.3 of this article, may have a strong impact on the real economy owing to the lack of financial integration on the retail credit market.

The decline apparent since the crisis in the relative share of foreign claims on the interbank market and on the market in fixed-income securities is attributable to a fall in the absolute positions on other countries (down by an average of 5 % year-on-year, as opposed to year-on-year growth of more than 10 % before the crisis), while claims on residents in these markets continued to expand in absolute terms. Thus, the foreign positions on these markets are the most susceptible to a boom/bust pattern.

3.2 Net capital flows and imbalances

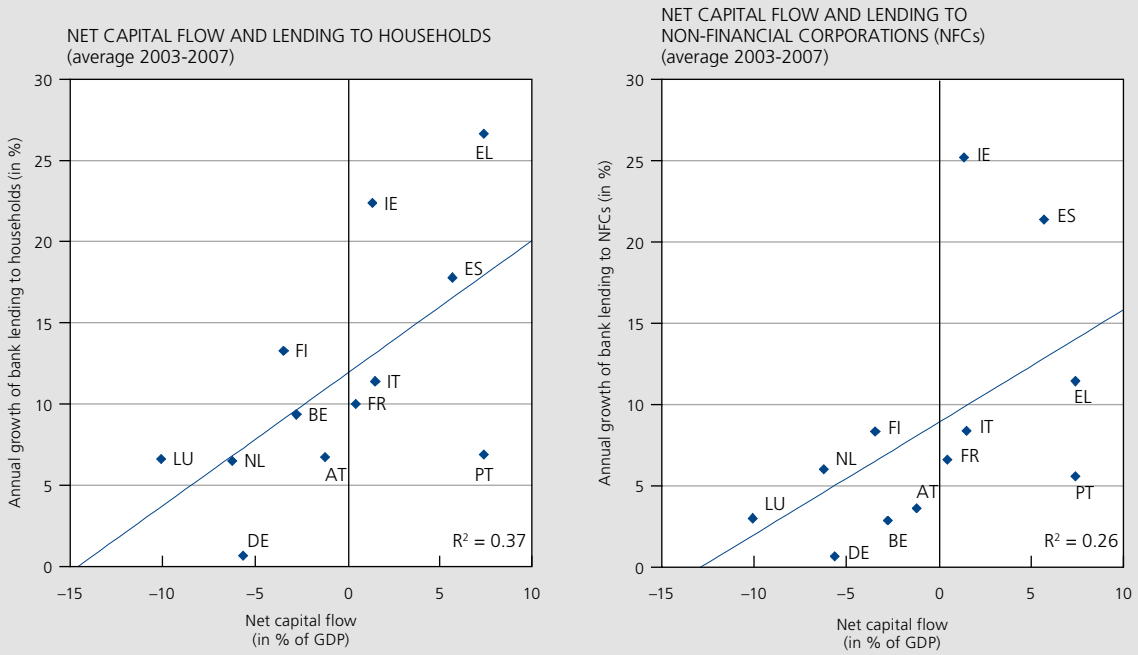
The marked increase in financial integration and risk-sharing between the euro area economies up to the time of the financial crisis also resulted in large current account imbalances between 2003 and 2007, channelling substantial net capital flows into the deficit countries.

This inflow often underlies favourable financing conditions in the deficit countries, and offered banks in those countries the opportunity to allow their lending to grow faster than domestic savings. A strong conversion of capital inflows into domestic credit is a sign of increased financial fragility and perhaps excessively easy credit, with the risk of leverage-driven booms, notably in the real estate sector. Such credit booms often also prelude financial crises (see for example Gourinchas and Obstfeld, 2012).

Between 2003 and 2007, a substantial net capital inflow coincided with extremely strong growth of domestic lending in a number of euro area countries (such as Greece, Spain and Ireland). During that period, the net capital inflow clearly went hand in hand with lending to corporations and households. The significant net capital inflow (and hence strong credit growth) in those countries thus implied the risk of leading to unproductive investment, which could raise doubts over the external imbalances. According to Reinhart and Reinhart (1998), capital inflows are indeed often associated with a reduction in credit quality and rapid price increases for

(1) In general, the interest rate on government paper may influence retail interest rates via three different channels: namely via prices, liquidity and balance sheets. A higher interest rate on government paper can lead to higher retail interest rates because (i) the government interest rate is seen as the implicit benchmark for retail loans (price channel), (ii) the banks face higher financing costs because government bonds are seen as less valuable collateral for refinancing operations (liquidity channel), and (iii) downward valuations on government bonds have an impact on the banks' capital base (balance sheet channel). In the event of a home bias, these channels will cause national retail interest rates to reflect the national government's funding costs.

CHART 7 NET CAPITAL FLOW[1] AND DOMESTIC CREDIT GROWTH[2]



Sources: ECB, NBB.
(1) Financial account balance of the balance of payments.
(2) Lending by the resident banking sector (including securitised loans) to residents.

financial assets or property. The risk of inefficient allocation is present especially in the case of an underdeveloped financial sector and weak regulation.

The fragility of the deficit countries in the euro area and the concern over their external imbalances became clear when, as a result of the financial crisis, a widespread risk repricing took place on the financial markets.

A breakdown of the financial account of the balance of payments into official and private capital flows (see Box), revealing how countries finance their external imbalance (i.e. the current and capital account balance), shows a marked withdrawal of private capital from both programme and deficit countries[1] (see also Boeckx, 2012).

(1) For the purposes of this article, the euro area countries were divided into three groups: programme, deficit and surplus countries. The programme countries comprise the countries that accepted a macroeconomic reform programme in exchange for loans to the government (Greece, Portugal, Ireland and Cyprus). The surplus countries are Germany, the Netherlands, Belgium, Finland, Austria and Luxembourg, on the basis of a positive current account balance, on average, over the period 2005-2013. The other seven euro area countries (excluding Latvia) are classed as deficit countries, with the proviso that the programme countries also recorded a current account deficit during this period. In this analysis, Spain is also included among the deficit countries since the financial assistance that the country received (via the ESM) and the programme to be carried out were intended for the banking sector, and not for the government.

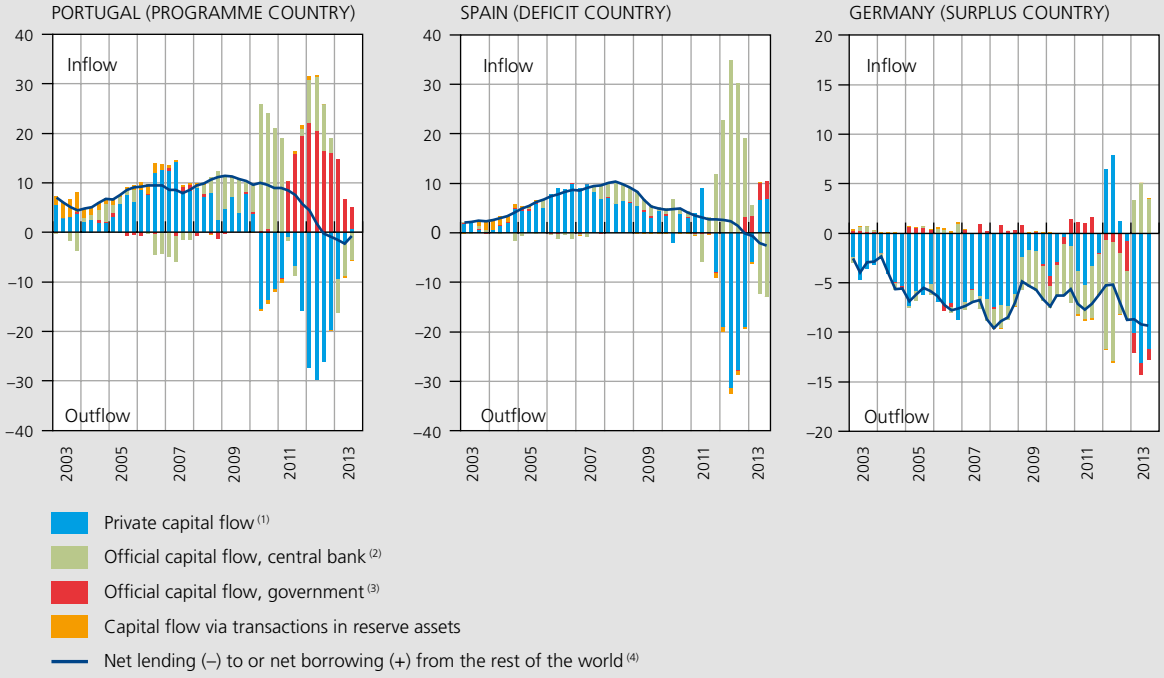
Before the financial crisis, the external deficit in these countries was almost entirely funded by private capital flows, but after the financial crisis erupted in 2007 those flows dried up; in the case of the programme countries, there was actually a mass withdrawal of private capital from mid-2010, when concerns over their public finances became acute. The same occurred in the deficit countries, albeit at a later stage in the sovereign debt crisis, namely around the end of 2011.

These developments were accompanied by a reduced outflow of private capital from the surplus countries, of which Germany is the largest. At the beginning of 2012, Germany actually recorded a net inflow of private capital for a short time, mostly as the "counterpart" to the withdrawal of capital from the peripheral countries.

Such a sudden stop, which in the past had mainly affected emerging economies, is normally accompanied by an immediate adjustment of the external balance of the deficit countries, to a level in line with the new private funding flow. That adjustment is often accompanied by a deep recession and financial instability (particularly

CHART 8 NET INFLOW AND OUTFLOW OF CAPITAL: FINANCING SOURCES ACCORDING TO THE FINANCIAL ACCOUNT OF THE BALANCE OF PAYMENTS [1]

(in % of GDP, four-quarter cumulated flows)



Sources: ECB, NBB.

(1) Net capital flows calculated as the difference between the financial account balance of the balance of payments and the official capital flows (via the central bank and the government, including transactions in reserve assets).

(2) Net capital flows which the central bank records under "other investment" (mainly loans and deposits) in the balance of payments.

(3) Net capital flows which the government records under "other investment" (mainly loans and deposits) in the balance of payments.

(4) As indicated by the financial account balance. Net lending to the rest of the world is recorded as a net capital outflow (–) and net borrowing from the rest of the world is recorded as a net capital inflow (+).

as a result of the abrupt deleveraging process in the banking sector). In the case of a monetary union, the absence of the exchange rate instrument means that such an adjustment also requires considerable flexibility in prices on the labour and product markets, so that the external balance can be improved by an increase in competitiveness.

In order to avoid instability, official financing took the place of private financing. This official financing occurred on the one hand via the Eurosystem's liquidity-providing operations and on the other via the new institutional architecture at the level of the EU and the euro area, enabling governments to assist one another.

Although financing via the Eurosystem is inherent in the operation of the monetary union, whereby banks can obtain funding via their central bank at the ECB's main refinancing rate in return for provision of appropriate collateral, it is not automatic. To meet the increased demand for funding, the Governing Council of the ECB decided, via various measures, to increase its provision of liquidity, much of which was being taken up by the deficit and programme countries. In so doing, the ECB acted as a financial intermediary between the surplus and deficit countries. The large cross-border flows of central bank money – which were offset by changes in the credit provision of the Eurosystem – are expressed in the TARGET2 balances that the national central banks hold with the ECB. Those balances are named after the payment system settling cross-border bank payments in the euro area.

The changes to the institutional architecture triggered a flow of funding supported by governments which was provided more or less successively via the bilateral assistance to Greece (Greek loan facility), the EFSM (European Financial Stability Mechanism) the EFSF (European Financial Stability Facility) and the ESM (European Stability Mechanism).

At first, it was mainly the Eurosystem that took on the role of financier; only later, namely with the entry into effect of the programme financing, was the role also assigned to the governments of the euro area countries together with the IMF and the EC. It should be noted that the two forms of financing are close substitutes for one another from the point of view of funding the external deficit, and that the Eurosystem can, for example, phase out its role as an intermediary when the programme financing is increased. However, they differ in that financing via the Eurosystem is addressed to the banking sector, while the public funding flows to the governments[1]. In addition, the Eurosystem financing is not subject to any explicit conditionality, in contrast to the programme financing. Indirectly, these official funding sources also had a stabilising effect on the surplus countries as, without these interventions, the private sector in the surplus countries would probably have suffered greater capital losses when liquidating their positions in the deficit countries.

The conditionality imposed on countries under the programme financing, including the correction of their external imbalances, was effective. Together, the programme countries, whose external deficit had risen to an average of 11.5 % of their combined GDP in 2008,

(1) In the case of the ESM, however, this financing can also operate via the banking sector (subject to the entry into effect of the single supervisory mechanism (SSM).

Box – Recording and interpretation of capital flows in the balance of payments

In this article, the volume measures of financial integration are based largely on the information on international capital flows and external positions available from the statistics on the balance of payments (flows) and the international investment position (stocks). A good understanding of these concepts is crucial for gaining an insight into developments in financial integration. This Box therefore offers background information on their method of calculation and the way in which the data should be viewed within the balance of payments as a whole. It also examines more closely how the newly created assistance mechanisms (the EFSF, the ESM) affected these aggregates during the crisis in the euro area.

INTERNATIONAL CAPITAL FLOWS ON THE BASIS OF THE FINANCIAL ACCOUNT OF THE BALANCE OF PAYMENTS

In this article, international capital flows are derived from the financial account of the balance of payments. That account comprises all cross-border transactions in financial assets (capital outflow ("-") if the assets increase) and liabilities (capital inflow ("+") if the liabilities increase). If the financial account shows a positive balance, that indicates a net capital inflow.

According to the balance of payments recording principles, the total of its sub-accounts is zero[1], and the financial account balance is necessarily the opposite of the balance of the current and capital account[2].

Balance of Payments = Current Account (CA) + Capital Account (KA) + Financial Account (FA) = 0

$$CA + KA = - FA$$

A surplus on the current and capital account must lead to the formation of external financial assets or the reduction of external liabilities (net capital outflow and hence a negative financial account balance). Conversely, a deficit has to be financed by selling external assets or taking on new external liabilities (net capital inflow and hence a positive financial account balance).

(1) Any remaining discrepancies are recorded under "errors and omissions", a heading separate from the sub-accounts, thus ensuring that the balance of payments has a total balance of zero.

(2) The capital account, which records capital transfers (e.g. capital transfers related to the EU budget and debt forgiveness), generally shows a small balance so that the balance of the two accounts is sometimes presented in simplified form by means of the current account balance.

While the balance of payments records cross-border capital flows, the international investment position (IIP) reflects the stock of external assets and liabilities. The net IIP (NIIP) is calculated as the difference between the stock of financial assets and liabilities and thus gives the total net external assets or liabilities of a country. Conceptually, the IIP corresponds exactly to the financial account of the balance of payments, as changes in the positions are equal to the total of the flows of the balance of payments and the revaluation effects on the outstanding assets and liabilities. The following points therefore concern both capital flows and external positions.

BREAKDOWN OF THE FINANCIAL ACCOUNT INTO PRIVATE AND OFFICIAL CAPITAL FLOWS

With the current balance of payments methodology (BPM5 [1]), the financial account can be broken down by sector and by financial instrument. The sectors comprise the central bank, the government, the banks (MFIs) and other sectors (non-bank private sector). The financial instruments are grouped according to the "functional" classification and include direct investment [2], portfolio investment (equities and fixed-income securities), financial derivatives, other investment (mainly deposits and loans), and reserve assets (foreign currency, monetary gold, etc.).

The financial account therefore shows the financial instruments whereby resident sectors lend to or borrow from the rest of the world. The financing method is relevant, since some capital flows, more particularly short-term flows, are more volatile than others (OECD, 2011) and therefore could signal whether the financing of the current account balance is sustainable.

Although the overall balance of payments is always in balance, with the financial account balance offsetting the current account balance, it is nevertheless common to refer in some cases to an imbalance on the balance of payments. This then concerns a sub-set of headings for which the total is not equal to zero, giving rise to a compensatory balance under the other headings. It is usual to add the current and capital account together with a number of financial account headings in order to examine the size of the balance on the other financial account headings.

Thus, under a fixed exchange rate system, it is common to add up all the headings except the central bank's reserve assets ("overall balance"). In this case, a balance of payments deficit (net capital outflow) is recorded if the balance of the headings "above the line" has to be offset by the sale of reserve assets (net capital inflow). The overall balance then indicates the size of the "official transactions in reserve assets" that the central bank has to conduct in order to maintain the exchange rate, in view of the pressure exerted by the shortage of funding for the current account balance.

In the case of a floating exchange rate (which applies to the euro as a whole), the reserve assets are not actively used to cover a shortfall in funding for the current account, and thus there is no point in separating this heading. Exchange rate adjustments then ensure that the current account balance of the euro area is restored to equilibrium with the available flow of finance. However, this equilibrium mechanism does not operate at the level of the individual euro area countries, so that they can maintain a current account balance that deviates from the market financing, e.g. if official funding is available. In the balance of payments, these transactions are recorded under "Other investment" (mainly loans) of the central bank and the government.

In regard to the euro area countries and in the case of the central bank, this heading includes mainly, but not exclusively, the claims/liabilities recorded by the NCBs on the ECB (essentially the TARGET2 balances). For the government, they consist mainly, but not exclusively, of the assistance that the Member States grant one another, e.g. via the EFSF and the ESM.

(1) According to the methodology described in the Balance of Payments Manual, Fifth Edition (see IMF 1993 and 2004). However, from the last quarter of 2014, the ECB will switch to BPM6, which the IMF (IMF, 2009) presented as the new standard.

(2) Direct investment includes all financial transactions with entities in which the foreign investor has a stake of at least 10 % of the capital. It can also be broken down into equities and reinvested profits, and other capital (e.g. inter-company loans).

In this article, the private net capital flow is equal to the difference between the balance on the financial account of the balance of payments and the official capital flows (other investment of the government and the central bank, including the reserve assets).

RECORDING IN THE BALANCE OF PAYMENTS OF FINANCIAL ASSISTANCE GRANTED VIA THE EFSF AND THE ESM

The recording in the balance of payments of loans granted by the EFSF and the ESM [1] requires special attention. In the case of the recipient member state, these transactions increase the official net liabilities of the government; the part of the public debt that was previously funded on the capital market (recorded under "portfolio investment") is now replaced by a loan from the EFSF/ESM (recorded under "other investment").

Since both the EFSF and the ESM resort to capital market bond issues for granting loans, the counterpart to this official financing is recorded in the private capital flows of the lender countries in so far as the sectors of those countries have subscribed to those bonds. The impact on the net official capital flow of the lender countries is different for the EFSF and ESM. In the case of the EFSF, which is not regarded as a separate institutional sector but as a foreign financial institution (Eurostat, 2011), the funding obtained via that facility is attributed in accounting terms ("rerouted") to the guarantor governments. This takes the form of a loan (in accounting terms) by the EFSF to the guarantor government, which in turn passes on the loan to the government seeking assistance. Although that increases the gross debt of the guarantor government, the impact on the government's net financing in the balance of payments is zero, as the debt to the EFSF is offset by a claim on the recipient government. In the case of the ESM, which is recognised as a foreign institutional sector (Eurostat, 2013), the loan is recorded directly as a loan from the ESM to the recipient Member State, so that the account of the guarantor government is unaffected. In contrast to the EFSF, however, the ESM has its own capital, fully paid in the sum of € 80 billion by the guarantor governments. This share in the capital creates an official net claim in the balance of payments for the guarantor governments.

The official net financing that the programme countries receive from the EFSF and the ESM therefore creates no corresponding net claim for the lender governments except for their share in the capital of the ESM. However, this does not mean that the governments bear no risk, because in the event of default their guarantees will be invoked: in the case of the EFSF, they amount to 120 % and 165 % respectively of the EFSF issues, depending on whether they were issued before or after October 2011. In the case of the ESM issues, the guarantees amount to 140 % [2]. However, these "contingent liabilities" are not recorded in the balance of payments.

(1) Since 1 July 2013, the permanent ESM has taken over the role of the EFSF. The sole responsibility of the EFSF is now to deal with the loans which it had granted to Ireland, Portugal and Greece totalling € 192 billion. The EFSF had a lending capacity of € 440 billion, as opposed to € 500 billion for the ESM. However, the amount granted jointly by the EFSF and the ESM must not exceed € 500 billion. Securities issued by the EFSF and the ESM to fund the loans benefit from an (over) guarantee provided by the euro area Member States not resorting to financing; that is beneficial for the credit quality of the issues. By 1 April 2014 the EFSF and the ESM had jointly granted € 242 billion to Ireland, Portugal, Greece, Spain and Cyprus.

(2) The guarantee is shared among the countries according to their respective shares in the ECB capital.

succeeded in cutting that deficit considerably, and from 2013 their current account actually showed a small surplus. In this way, these countries brought their external balance in line with the available private capital flow.

Going forward, the enhanced macroeconomic surveillance in the EU, with the macroeconomic imbalance procedure (MIP) as an important component, will prevent any future derailment of the countries' external balances, and that should reduce the risks of sudden stops. The EC scoreboard adopts for the current account thresholds of $< -4\,\%$ and $> 6\,\%$ of GDP.

However, for the programme and deficit countries, the correction of the current account is not necessarily always a good thing. Usually, a rapid correction further depresses economic activity, though that depends on the composition of the adjustment. Initially, the correction of the current account in the deficit countries was based on weak domestic demand (especially investment

demand), with potential downward pressure on inflation. It is highly questionable whether the correction is sustainable in that way, because a permanent improvement requires a stronger competitive position and a structural expansion of the export sector. The latter is happening to some extent in certain countries, as is evident from their accelerating export growth. Furthermore, the adjustment of the external balances in the deficit countries also weighs on inflation in the euro area as a whole, obliging the Eurosystem to conduct an accommodative monetary policy.

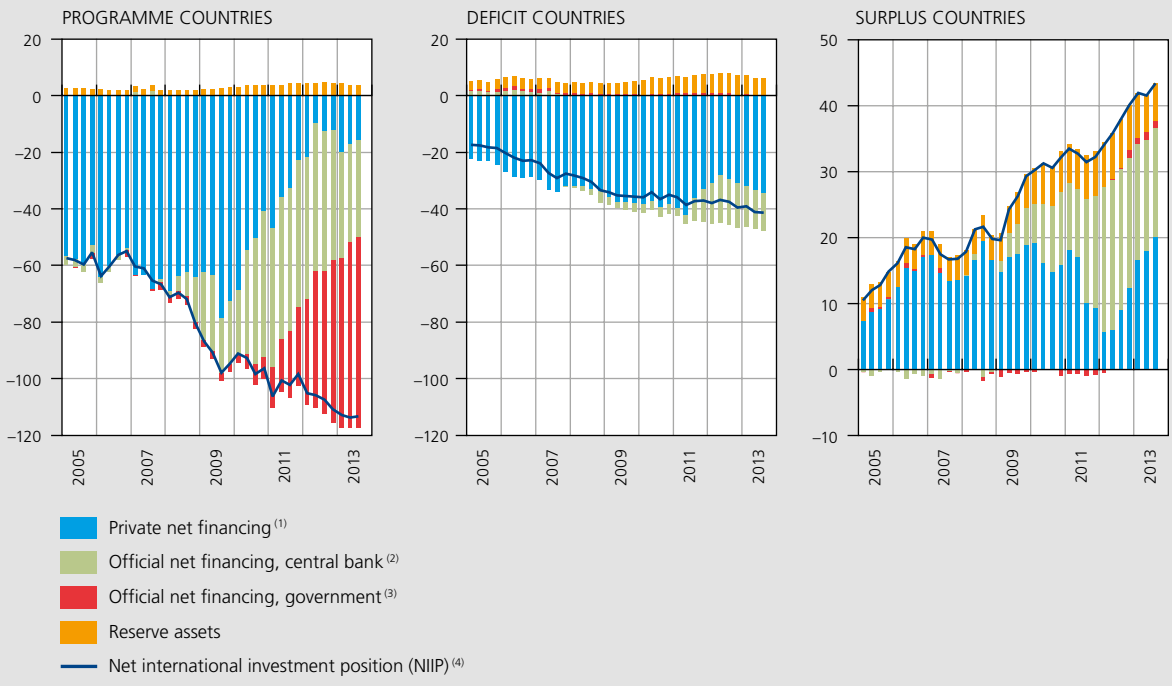
Despite the improvement in the external balance, the net external debt of the deficit countries has continued to grow. In fact, a reduction in the net external liabilities requires either a positive current account balance or positive revaluation effects. Their history of external deficits has left the deficit countries with a substantial net external debt (see Van Nieuwenhuyze, 2013, for the relevance of that debt), which in the case of the programme countries has risen to over 100 % of their combined GDP. Here, too, the MIP applies a threshold value, namely –35 % of GDP. It is rather unrealistic that, in the absence of positive revaluation effects[1], these countries can rapidly bring their net debt ratio down to that level, as it would require them to record relatively substantial current account surpluses for several years. The latter seems not accord with the future structural equilibrium level of the external accounts of those countries.

Although the period of large external deficits has ended, with some countries exiting their programme, the former deficit countries still carry a substantial net external debt and therefore remain subject to a refinancing risk. A breakdown of the net external liabilities (net international investment position, NIIP) by type of financing – by analogy with the breakdown of the financial account of the balance of payments – reveals that, since the financial crisis, this debt has been funded to an ever diminishing degree by private finance, so that

(1) Substantial positive valuation effects could result from an increase in the value of the financial assets of those countries and/or a reduction in the value or writing off (restructuring) of their debts.

CHART 9 NET EXTERNAL POSITION: BREAKDOWN BY TYPE OF FINANCING

(in % of GDP)



Sources: ECB, NBB.

(1) Outstanding net financing calculated as the difference between the NIIP and the outstanding official net financing (other investment of the central bank and the government, including the reserve assets).

(2) Net position that the central bank records under "other investment" in the IIP statistics.

(3) Net position that the government records under "other investment" in the IIP statistics.

(4) According to the IIP statistics. Positive (negative) values indicate outstanding net claims on (net liabilities to) the rest of the world.

it is the governments and the central banks that are exposed to the credit risk [1].

In the case of the programme countries, the net external liabilities, amounting to 113 % of GDP, are currently financed almost entirely via official sources; in the third quarter of 2013, that share exceeded 100 % of their combined GDP. Since the end of 2012, programme financing has been the slightly dominant source of funding for the programme countries, closely followed by Eurosystem financing. In the case of the deficit countries, a substantial part of the net external liabilities is still financed officially (by the Eurosystem).

For the surplus countries, this means that the private sector has less exposure to those countries, and that has in particular enhanced the stability of their financial sector. Of the total net claims of the surplus countries, more than 40 % now consists of official claims, particularly claims which the national central banks hold on the ECB (TARGET 2 balances). As described in the Box, the net claims of the governments in the surplus countries have not increased significantly. However, that does not mean that those governments are not incurring any credit risk. To ensure that the EFSF/ESM functions smoothly, they have granted substantial guarantees which could be invoked in the future in the event of a default. However, these guarantees are not illustrated in chart 9.

Since a fundamental correction of the net external debt is rather unlikely in the short term and in view of the current level of (private) financial integration in the euro area, the official financing needs to be maintained in the short term and renewed if necessary. In the longer term, it is vital to restore confidence so as to revive private financing and enable the outstanding amount of official funding to be scaled down. Increased financial integration in the euro area is therefore essential for the sustainability of the external positions. The concluding section will return to this issue, after the price aspect of financial integration has been examined in the next section.

3.3 Interest rates

Apart from volumes, prices or their equivalent – yields or interest rates – are another way of measuring financial integration. The no arbitrage characteristics of an integrated market imply that interest rate differentials between countries reflect expected exchange rate fluctuations and differences in risk premia for the various instruments. In a genuine monetary union, where, by definition, exchange rates are not expected to change, the interest rates on two financial assets with similar characteristics (in regard to liquidity risk and credit risk, for example) ought to be the same.

It is therefore desirable for this aspect of financial integration to be fulfilled in a monetary union: monetary policy decisions implemented on the basis of a single key interest rate for all Member States must be transmitted in the same way to the real economy throughout the union. If differences between the interest rates on two financial instruments are due solely to the issuer's country of origin – and not to fundamental risk factors – that indicates fragmentation and distortion in the transmission of monetary policy. This section examines the price aspect of financial integration in various financial market segments in the euro area, focusing primarily on developments since the start of the crisis. For that purpose, we look at trends and developments in benchmark rates and bank interest rates in the various countries, and examine whether or, if so, to what extent, monetary policy decisions are transmitted to the interest rates of various euro area countries.

BENCHMARK RATES

The first stage in the monetary transmission mechanism concerns the transmission of the policy interest rate to benchmark rates. We first analyse the trends on the interbank market and the sovereign debt markets, given that interest rates on those markets form the reference for pricing contracts on other financial markets, such as the corporate bond or retail banking market. Interbank rates and sovereign bond yields in the various monetary jurisdictions depend on the level of the policy interest rate set by the respective central banks and how that rate is expected to change; they therefore depend on the specific characteristics of the jurisdiction concerned, and in particular its (implicit) inflation target, potential growth and position in the economic cycle. That is why, prior to 1999, the differences in the policy interest rate – which primarily reflected divergent actual and expected real growth and/or inflation between countries – were one of the main reasons for the differences between benchmark rates. The risk premia associated with those benchmark rates, e.g. on account of the exchange rate risk, also played a part in the divergences apparent between countries before the introduction of the euro. The process leading to the third stage of EMU, involving adherence to the convergence criteria laid down by the Maastricht Treaty, also implied a significant convergence in the benchmark interest rates. In addition, the introduction of the single

(1) In view of the due dates of the EFSF and ESM loans, this risk could persist for a long time. For instance, the latest dates for repayment of the loans granted by the EFSF to Portugal, Ireland and Greece are currently 2040, 2042 and 2050 respectively. For the ESM loans to Spain and Cyprus the dates are 2027 and 2030 respectively.

currency eliminated the devaluation risk, removing the second key factor behind the divergence between interest rates on instruments from various euro area countries.

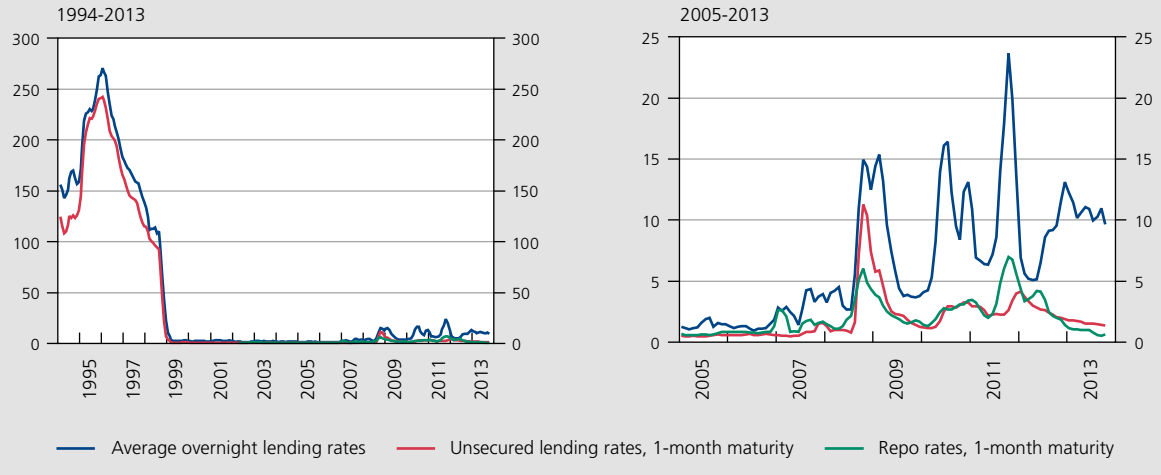
This sequence of events is clearly apparent on the interbank markets: the divergences between countries as measured by the standard deviation were significant before 1996 but diminished considerably in the run-up to EMU. Divergences remained negligible from the introduction of the euro in 1999 to the initial turbulence on the financial markets in 2007. From 2007, and particularly from the last quarter of 2008, a heightened risk perception in a climate of extreme uncertainty in the financial sector contributed to a fragmentation of the money markets along national borders. Various factors may have been behind this. For one thing, banks may be better informed about the situation of banks in their home country, so that their decisions on lending differ from those of their foreign counterparts. Also, as the crisis unfolded, the situation of public finances began to be linked ever more closely with the risk associated with the banks, so that the vulnerability of the fiscal position in certain countries also contributed towards higher financing costs for their national banking systems[1]. This second effect seems to be the reason why the dispersion between secured interbank interest rates at the height of the sovereign debt crisis in 2011 and 2012 was more important than that of unsecured interest rates. In fact, government bonds are often used as collateral for secured loans on the interbank markets, which means that a credit risk linked to a specific government reduces the value of the collateral available to the banks, and thus restricts their access to funding. That effect was heightened by the strong preference for the home market in the government bonds held (see section 3.1), exacerbating this risk of correlation between the public sector and the banking system in each country.

Apart from their effect on the banks' portfolios and their funding costs, government bond yields are a fundamental element in the monetary transmission mechanism since they generally act as the benchmark for prices of other fixed-income securities in each country. Furthermore, the effects of the crisis in the euro area were reflected primarily in government bond yields. It is therefore relevant to examine the movement in those yields when analysing financial integration in the euro area. Like interbank interest rates, government bond yields in the euro area diverged at the beginning of the 1990s as a result of the aforesaid nominal differences and the disparities in the various governments' solvency characteristics. In the years prior to the introduction of the euro, yields showed a marked tendency to converge and differences between countries became much smaller. That trend was confirmed after 1999 as a result of the convergence of inflation risks and the elimination of the exchange rate risk in

(1) The "sovereign-bank loop", or the link between the financing costs of banks and governments, operates in both directions via various channels. In the case of feedback from government to banks, if a national government is in a vulnerable fiscal position it could be unable to support the banks, potentially leading to losses – at least in terms of market value – on the banks' portfolios of government bonds. In the case of feedback from the banks to the government, a financial sector in a critical situation can place a serious financial burden on public finances. The mere impression that a banking sector is vulnerable is enough to drive up risk premia for the government.

CHART 10 FRAGMENTATION ON EURO AREA MONEY MARKETS

(standard deviation between countries, in basis points)



Source: ECB.

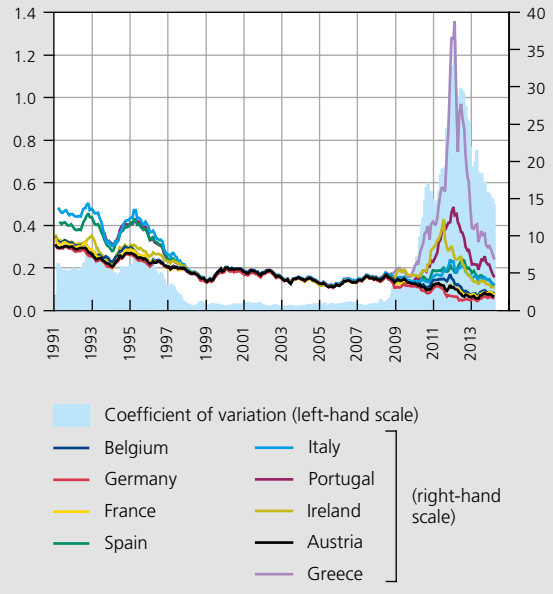
the context of the Monetary Union. However, between 1999 and 2008, the wide variations in solvency between governments were accompanied by exceptionally similar yields on government bonds in the euro area countries, despite the no bail-out clause. This suggests that, during the first ten years of the euro, the pricing of risk was most probably not efficient, leading to excessive convergence in the yields of the various euro area sovereigns.

That finding is in stark contrast to the outbreak of the financial and economic crisis, and particularly the sovereign debt crisis in the euro area, which caused an increased risk perception among investors, who retreated behind their national borders. The outflow of capital from the countries seen as riskier was accompanied by a surge in the yields on the sovereign bonds of those countries. From mid-2011, fears that the single currency could be reversed – initially associated to a very small group of countries – contributed to a widening divergence of yields along national borders: while some governments were forced to exit the financial markets, others regarded as safe havens saw their financing costs fall sharply as a result of the capital inflow.

In the face of this situation, and in order to prevent these distortions on the interbank market and the markets in sovereign debt from jeopardising the singleness of monetary policy in the euro area, the ECB took a number of unconventional measures which helped to alleviate the effects of the fragmentation of interbank rates and sovereign bond yields. The measures intended to facilitate financing for banks included the provision of liquidity on favourable terms, two programmes for the purchase of covered bonds, and the extension of the list of eligible collateral, which eased the banks' financing problems despite the deterioration in their assets. More specifically aimed at countering the disruption of the monetary policy transmission mechanism, two programmes were devised to address the unjustified divergences in sovereign bond yields. Under the Securities Markets Programme (SMP), the Eurosystem purchased government securities on the secondary markets between 2010 and 2012 to restore the smooth operation of certain market segments, in order to safeguard the transmission of monetary policy. The SMP was terminated when the ECB introduced the outright monetary transactions (OMT) programme, which similarly addresses distortions in the monetary transmission mechanism, particularly in the light of the perception that sovereign bond yield differentials were also fuelled by an increase in the redenomination risk, i.e. the risk that a country might leave the euro area. The increase in yields in some countries more severely affected by the crisis and, as a mirror image, the decline in yields in countries regarded as safe havens, were therefore both considered excessive and not entirely justified by the economic fundamentals[1]. Consequently, the aim of the OMTs was to eliminate the redenomination risk to prevent "destructive scenarios with potentially severe challenges for price stability in the euro area" (ECB, 2014).

CHART 11 FRAGMENTATION ON EURO AREA SOVEREIGN BOND MARKETS

(ten-year bond yields and coefficient of variation, in %)



Source: Thomson Reuters Datastream.

Other European and national authorities also adopted various economic, structural and institutional measures as the crisis intensified. Key European measures were a strengthening of economic governance in the EU and steps towards the creation of a banking union. Together with the OMT programme, those measures succeeded in reducing the fragmentation on the money markets and sovereign bond markets by restoring confidence in certain market segments. That greatly reduced the divergence of benchmark yields between countries, particularly from the summer of 2012, although the spread remained very wide compared to that prevailing before the crisis (and in some cases, even compared to the pre-euro period).

BANK LENDING RATES

Since benchmark markets have an impact on the banks' financing costs and on the value of their portfolio, they are a key factor in determining the interest rates that

(1) For more information on this point, see Dewachter *et al.* (2014, forthcoming in the *Journal of Banking and Finance*).

banks apply to their customers. The developments in interbank rates and sovereign bond yields, and particularly the convergence and subsequent divergence seen since the introduction of the euro, may therefore have been reflected in other financial markets, including retail markets. In a monetary union, the efficient transmission of monetary policy to all countries and markets is a fundamental feature of financial integration within the union. Against that backdrop, it is therefore appropriate to examine developments in bank interest rates in each country as the final stage in the transmission of monetary policy.

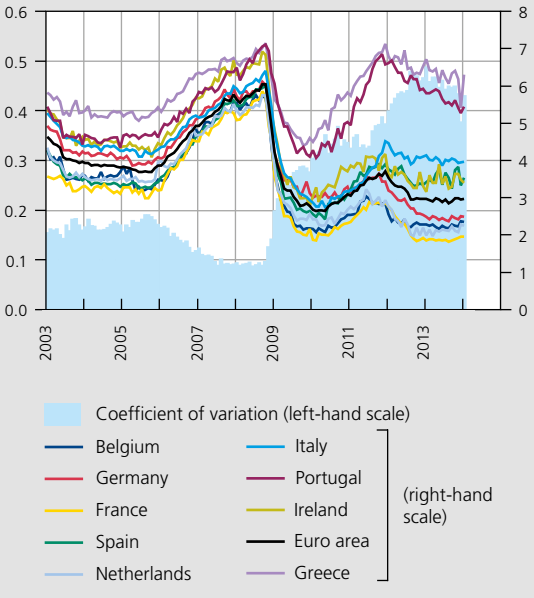
In order to assess the extent to which price conditions on retail banking markets became fragmented following the divergences on the reference markets, and the factors causing that fragmentation, we shall proceed to analyse the trends in retail interest rates. This article focuses in particular on developments in bank interest rates before – and, especially, during – the crisis. More particularly, it looks at the interest rate on bank loans to non-financial corporations (NFCs), for two reasons. First, bank loans are still the principal source of credit for the non-financial private sector in the euro area, while the level of financing raised via other financial intermediaries or directly on the markets is relatively low, particularly for small and medium-sized firms. Second, the analysis focuses on the cost of borrowing for NFCs (as opposed to households) because that is a fundamental determinant of corporate investment and hence economic growth. It should be noted that the bank lending rate for non-financial corporations varied more widely than the rate on loans to households for house purchase because a larger proportion of loans to NFCs is unsecured or not backed by collateral [1], so that changing risk perceptions have a bigger impact on the rates charged to NFCs.

As in the reference markets, the dispersion between bank lending rates [2] as measured by the coefficient of variation between countries stood at low levels between 2003 (the beginning of the series of harmonised data for the countries) and the end of 2008. During the economic expansion between 2006 and the summer of 2007, the dispersion diminished. Following the collapse of Lehman Brothers, the divergences began to increase. In the summer of 2011, when the sovereign debt crisis intensified and spread to a large number of countries, discrepancies between bank lending rates in different countries actually increased further, reaching a peak between August 2012 and August 2013, a period in which the fragmentation of benchmark markets had begun to turn around. During 2013, the dispersion between retail interest rates applied in the various countries began to diminish, albeit to a lesser extent than the aforesaid reduction in divergence on sovereign bond markets, and the discrepancy was still very substantial at the beginning of 2014. As a result, NFCs in some euro area countries face short-term borrowing costs comparable to those prevailing in the first half of the 2000s, even though the policy interest rate is currently close to the zero lower bound. Following the 400 basis point cut in the rate on the main refinancing operations between August 2008 and January 2014, the bank lending rate on short-term loans to NFCs declined by more than 300 basis points in some countries (such as Germany, the Netherlands, France and Belgium), while interest rates in the countries hardest hit by the crisis (Spain, Italy, Portugal and Greece) fell by only 165 basis points on average over the same period.

Such large variations in the pass-through of the reduction in the policy interest rate suggest problems in the transmission of monetary policy to bank lending rates, so that the easing of monetary policy had little effect in the countries that, in view of their economic situation, were most

CHART 12 FRAGMENTATION OF BANK LENDING RATES IN THE EURO AREA

(Short-term cost of borrowing indicator for non-financial corporations [1] and coefficient of variation, in %)



Source : ECB.

(1) Calculated as a weighted average of the interest rates on loans up to one year (including long-term loans at floating rates and an initial interest rate fixation period up to one year) and overdraft facilities granted by banks to non-financial corporations (cf. ECB, 2013).

(1) Since June 2010, around 30 % on average of new bank loans to NFCs in the euro area are secured or backed by collateral (data from the ECB's survey of Monetary Financial Institutions' Interest Rates (MIR survey)).

(2) The bank interest rates used here are from the ECB's MIR survey with harmonised methods for all euro area countries. The series, published monthly, begins in January 2003.

in need of it. In fact, that defective pass-through may have been due to genuine problems in the monetary policy transmission mechanism, or it may have reflected other poorly identified factors. In that case, a simple analysis of the movements in bank lending rates without taking proper account of the underlying characteristics of the respective banks and economic conditions could lead to an incomplete assessment of the transmission mechanism.

To gain a better insight into the factors behind these variations in the transmission of benchmark rates to retail rates from one country to another, it seems useful to examine the link between the bank lending rate (expressed as the difference in basis points between the cost of borrowing indicator of NFCs up to one year and the three-month interest rate on overnight interest rate swaps, averaged over the period in question [1]) and a factor connected with the financial health of the banking sector – the Tier 1 capital ratio – on the one hand, and a macroeconomic factor – non-performing loans (NPL) – on the other.

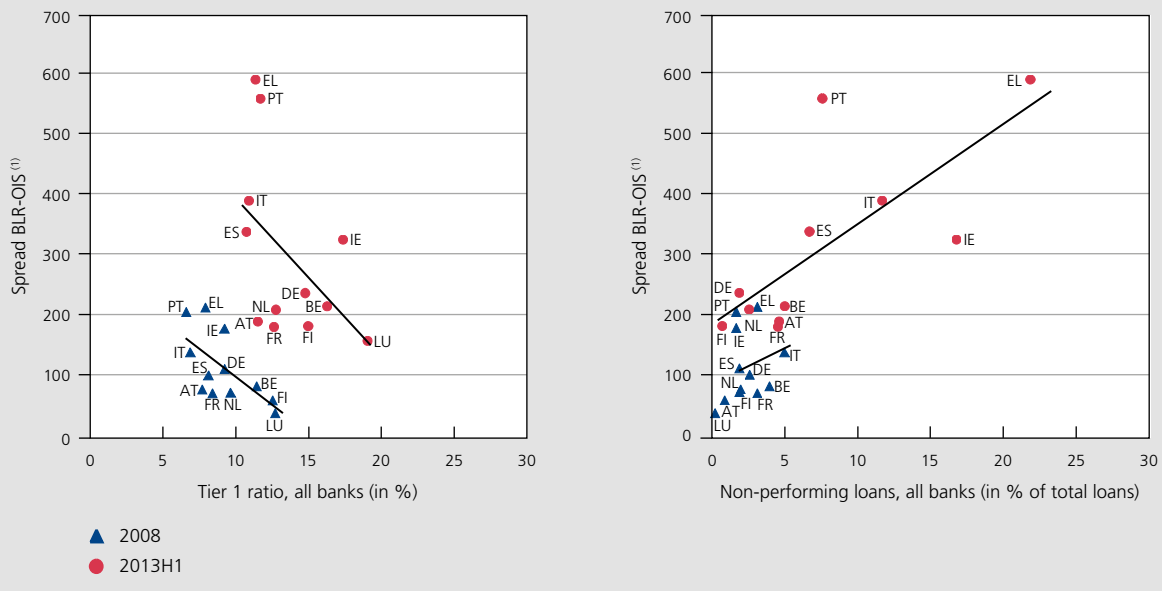
In regard to the first of these factors, the chart shows how the level of capitalisation of the national banking system has a negative correlation with the bank lending rate. Between 2008 and the first half of 2013, there was a steep rise in the Tier 1 capital ratios owing to the recapitalisation of the banks following the crisis, but this was associated with a strong increase in the variations between countries: although the differences in the level of capitalisation between national banking sectors were already considerable in 2008 (ranging from 6.6 % to 12.7 %), they grew even larger in the ensuing years so that, in the first half of 2013, they ranged between 10.7 % and 19.1 %. The observed negative correlation implies that better capitalised banks charge lower interest rates on new loans. Moreover, that link became stronger during the crisis, with a steeper curve (indicating that a deterioration in bank capitalisation caused the bank lending rate to rise more sharply in 2013 than before the crisis) but a lower R-squared. Weaker banks, with a low level of capitalisation or higher financial leverage, find it harder and more expensive to access funding. The fact that the bank lending rate became more sensitive to the financial soundness of the national banking system may indicate that banks in those countries need to boost their profits and thus improve their capital position, or rearrange their risk-weighted assets.

Similar findings apply in the case of the correlation between bank lending rates and borrower risk. By assessing borrower risk in terms of non-performing loans (as a

(1) By taking the spread between the bank interest rate and a risk-free benchmark rate, it is possible to abstract from variations in the level of the policy interest rate between the periods considered.

CHART 13 DETERMINANTS OF HETEROGENEITY BETWEEN BANK LENDING RATES IN THE EURO AREA

(spreads in basis points)



Sources: Thomson Reuters Datastream, ECB (MIR survey and consolidated banking data).
(1) Spread between the short-term cost of borrowing indicator for non-financial corporations and the three-month rate on overnight interest rate swaps (OIS).

percentage of total loans), we find that a larger proportion of non-performing loans is closely linked to larger spreads of bank lending rates[1], particularly following the crisis. During the crisis, there was a considerable increase in the variation between countries in the percentages of non-performing loans. At the same time, the regression line became somewhat steeper but the R-squared of the relationship became smaller.

The close link evident between the level of bank lending rates and these two types of factors seems to indicate that the transmission of monetary policy is influenced by the economic and financial situation in each country, particularly since the start of the crisis. In order to conduct a more structural analysis of the reasons for the wide differentials between bank lending rates in the euro area countries, we estimate an econometric model that eventually incorporates these two types of risk. The analysis is conducted for four euro area countries which recorded divergent bank lending rates during the crisis (Belgium, Germany, Italy and Spain), via vector error correction models (VECMs), which are often used to model the effects on bank interest rates[2]. Models of this type enable us to estimate the long-term relationship between benchmark rates and bank lending rates. This method also models the short-term response of bank lending rates to changes in the benchmark rate, and the adjustment towards the new long-term equilibrium. This section concentrates mainly on the estimated long-term relationship between the variables.

The analyses were conducted with the aid of the indicator of short-term borrowing costs for non-financial corporations (CBI), already mentioned: that indicator is calculated as a weighted average of the interest rates on loans with a maturity of up to one year (including long-term loans at variable interest rates with the rate initially fixed for less than one year) and on overdraft facilities granted by banks to non-financial corporations. The three-month interest rate on overnight interest rate swaps (OIS), an approximation of the expected overnight interest rate for the next three months, serves as the benchmark short-term risk-free interest rate. We estimate the VECMs with the aid of a simple two-stage methodology defined in Lütkepohl and Krätzig (2004). The estimated equation is as follows:

$$\Delta cbi_t = \alpha_{cbi}(cbi_{t-1} - \beta ois_{t-1} - \gamma) + \sum_{i=1}^{n} \delta_{cbi,t-i} \Delta cbi_{t-i} + \sum_{i=1}^{n} \theta_{cbi,t-i} \Delta ois_{t-i} + u_{cbi,t}$$

in which cbi is the cost of borrowing indicator and ois is the market interest rate taken as the benchmark (three-month OIS), the α-coefficient represents the speed of adjustment towards the long-term equilibrium, β is the degree of transmission of the market interest rate in the long term, γ is a constant in the long-term equation reflecting the spread, δ and θ measure the short-term dynamics and u is the error term. A β-coefficient equal to 1 indicates a complete pass-through from market rates to bank lending rates in the long term. The term in brackets is the equation of cointegration, which is the long-term relationship between the interest rates, while the rest of the equation shows the short-term dynamics. The number of lags (n) used in each model is selected according to the Schwarz information criterion.

First, we apply this model to the pre-crisis period, between January 2004 and August 2008. That enables us to observe the operation of the monetary transmission mechanism in each country "in normal times", and when the divergence between rates was small. Table 1 shows the estimated long-term coefficient for the money market interest rate. Column 1 reveals that, before the crisis and on the basis of the simple model described above, transmission to the bank lending rate was largely complete and was similar for the five countries analysed: the long-term coefficient of the OIS rate was between 0.91 and 1.25, that is, very close to 1. For Spain, the coefficient of more than 1 indicates a more than complete pass-through, which means that in the long term the bank rate would rise or fall by more than the original change in the market interest rate. The adjustment towards the long-term equilibrium (α, not shown in the table) was estimated to be faster in Belgium and Germany than in Spain and Italy, whereas the estimates of the constant γ (not included in the table) diverge between the countries considered, ranging from low in Spain to high in Germany and Italy.

By extending the same analysis to the entire sample period (up to January 2014), it is possible to examine whether the crisis and the fragmentation apparent in other markets led to a structural change in the link between market interest rates and bank lending rates in each of the countries. Column 2 in table 1 shows that the transmission of the market rate in all the countries considered was hampered, although to widely varying degrees: for Belgium and Germany, the long-term coefficient on the benchmark rate declined slightly but remained high and relatively close to 1. Thus, in some countries less hard hit by the crisis, the simple model in which the bank lending rate is linked only to the short-term market interest rate can account for the behaviour of the bank rate during the crisis. In contrast, in the countries where the crisis had a more important impact, the decline in the long-term

(1) High borrower risk may also imply that the bank already has risky assets on its balance sheet. This would also increase its financing costs, and therefore drive up the interest rate offered on loans.
(2) See for instance ECB (2009), Cordemans and de Sola Perea (2011).

TABLE 1 LONG-TERM PASS-THROUGH FROM THE MARKET INTEREST RATE TO BANK LENDING RATES

(standard errors are shown in brackets)

	Bivariate, pre-crisis	Bivariate, entire sample period	All factors, entire sample period
Belgium	1.01	0.75	0.94
	(0.07)	(0.04)	(0.05)
Germany	0.92	0.79	0.83
	(0.04)	(0.04)	(0.02)
Italy	0.91	0.47	0.96
	(0.08)	(0.17)	(0.02)
Spain	1.25	0.31	1.23
	(0.07)	(0.14)	(0.04)

Source: own calculations.

pass-through was much more acute: in Italy it was down from 0.91 to 0.47, while in Spain it dropped from 1.25 to 0.31. The estimated link between the benchmark rate and the bank rate therefore appears to have been broken in the countries which were under greater stress[1]. In Belgium and Germany, the speed of the adjustment towards the long-term equilibrium slowed considerably, while it became insignificant in Spain and Italy. The constant included in the long-term equation increased in all countries, but the rise was much greater for Italy and Spain.

A more detailed analysis may help to determine the factors behind this change in the long-term pass-through of the market interest rate. To that end, and in view of the said close link between, on the one hand, the financial health of a country's banking sector and its macroeconomic situation and, on the other hand, the bank lending rate, we estimate a model with two variables representing these two main risks. Since this model is estimated at a monthly frequency, the unemployment rate is added as an indicator of the economic vulnerability of each country and as an approximation of the risk associated with the borrowers. An unweighted monthly average of five-year credit default swap (CDS) premia for the banks established in each of the countries considered is also included, to approximate the perceptions relating to the financial health of the national banking system and, hence, the financing costs that banks face (on average) in each country. It is worth remembering that the CDS premia for banks are closely correlated with government bond yields as a result of the sovereign-bank loop. The close link between the banks and the government also implies that our analysis will be unable to determine the significance of banking risk versus sovereign risk in setting the bank lending rate[2]. To some extent, the same reservation applies to the identification of the other variables: in fact, the unemployment rate shows a strong positive correlation with the health of the financial sector in Italy and Spain[3], which implies that a strict interpretation and differentiation of the effects of each type of risk is not necessarily possible.

These two variables are included in the error correction term (the long-term relationship) and in the short-term dynamics. A dummy variable is also included in the crisis period (from September 2007)[4]. As in the case of the simple model, the emphasis is on the estimated equation for the cost of borrowing indicator, which stands as follows:

$$\Delta cbi_t = \alpha_{cbi}(cbi_{t-1} - \beta ois_{t-1} - \zeta unemp_{t-1} - \eta cds_{t-1} - \gamma) + \sum_{i=1}^{n}\delta_{cbi,t-i}\,\Delta cbi_{t-i} + \sum_{i=1}^{n}\theta_{cbi,t-i}\,\Delta ois_{t-i} + \sum_{i=1}^{n}\mu_{cbi,t-i}\,\Delta unemp_{t-i} + \sum_{i=1}^{n}\omega_{cbi,t-i}\,\Delta cds_{t-i} + u_{cbi,t}$$

The long-term coefficients of market interest rates (β) obtained from the estimated equation by using all risk factors for the entire sample period are shown in column 3 of table 1. As a result of the inclusion of the risk factors, the estimated long-term pass-through of the market interest rate returns to a level comparable to that prevailing before the crisis, which therefore shows that, strictly speaking, the fall in the market interest rate was in fact fully transmitted to the bank rate even in the countries hardest hit by the crisis, but that the presence of financial and economic risks drove up bank rates and thus masked the 'full' transmission. The speed of the adjustment towards the long-term equilibrium increased to a level comparable to that prior to the crisis in Germany, and higher in Belgium, Spain and Italy, so that all the α-coefficients of the various countries were more similar.

Table 2 shows the long-term coefficients of CDS premia for banks (η) and the unemployment rate (ζ). The problems in the banking sector were a major significant factor for the banks in determining interest rates in Germany and Italy, while they were apparently less relevant in Belgium, and of no importance in Spain. The CDS premia for banks in

(1) In the case of Italy and Spain, that conclusion is reinforced by the insignificance of several of the estimated coefficients.

(2) In this connection, Al-Eyd and Berkmen (2013) conclude that "the information in sovereign risk appears to be captured in financial sector risk and bank bond spreads", since the coefficients of the sovereign risk variables are not significant in their analysis if the variables for the financial sector risk are included.

(3) However, the correlation is negative for both Germany and Belgium.

(4) Inclusion of the crisis variable in a bivariate model for the entire sample period does not alter the finding that the transmission of monetary policy was seriously impeded in Spain and Italy during the crisis.

Spain only have a significant, major impact on bank rates if the analysis is performed by excluding unemployment from the model. This could mean that the CDS premia for banks largely reflect the credit risk associated with the deterioration in the macroeconomic situation in Spain, as explained above. In regard to the macroeconomic risk, the unemployment rate was a relevant variable for determining the price of credit for non-financial corporations in Belgium, Spain and – especially – Italy, whereas it appeared less significant in Germany. Apart from the scale of the economic decline in the various countries and the increase in borrower risk, that may be attributable to the fact that a weak macroeconomic situation has a more pronounced effect on a fragile banking system than on a sound one.

In order to illustrate the economic relevance of these factors for bank lending rates, two counterfactual scenarios are calculated for each country on the basis of the estimated model for the entire sample period, including the two risk factors. In the first scenario, it is assumed that the CDS premia for banks remain unchanged at their August 2008 level, prior to the intensification of the financial crisis. In the second scenario, it is the unemployment rate that remains constant at the August 2008 level. All other variables (benchmark interest rate and either financing stress or the macroeconomic risk indicator) behave according to the observations, so that an implicit bank lending rate can be calculated.

Despite the simple structure of the model, it is possible to draw some cautious conclusions from these counterfactual scenarios. First, it seems that the CDS premia for banks had a greater influence at the height of the sovereign debt crisis (between 2011 and 2012), while unemployment was a bigger factor in the high bank lending rate towards the end of the sample period, particularly in 2013, owing to the higher unemployment figures recorded at that time. Second, the increase in the CDS premia (reflecting both the credit risk and the ensuing rise in banks' financing costs) had a relatively minor influence on the bank rate payable by non-financial corporations in Belgium and Germany, in contrast to Italy where the impact was substantial. According to this model, the estimated financial health does not seem to have played a major role in determining the high bank rate in Spain. In fact, the model indicates that rising unemployment was the main factor contributing to the high level of Spanish bank rates; this result can be attributed to the steep rise in unemployment and the relatively large long-term effect of unemployment on interest rates. The level of unemployment also had a significant influence on the Italian bank rate, and a (more moderate) impact on the interest rates charged by Belgian banks. The level of unemployment also influenced the bank rate in Germany, though the effect was the opposite of that seen in other countries because German unemployment has been falling since June 2009. If the unemployment rate had remained unchanged, the German bank rate would therefore have been higher, on average, since 2011 [(1)].

TABLE 2 LONG-TERM COEFFICIENTS OF RISK FACTORS
(standard errors are shown in brackets)

	Bank CDS	Unemployment
Belgium	0.11 (0.05)	0.15 (0.10)
Germany	0.27 (0.06)	0.07 (0.03)
Italy	0.20 (0.03)	0.23 (0.02)
Spain	0.03 (0.03)	0.16 (0.01)

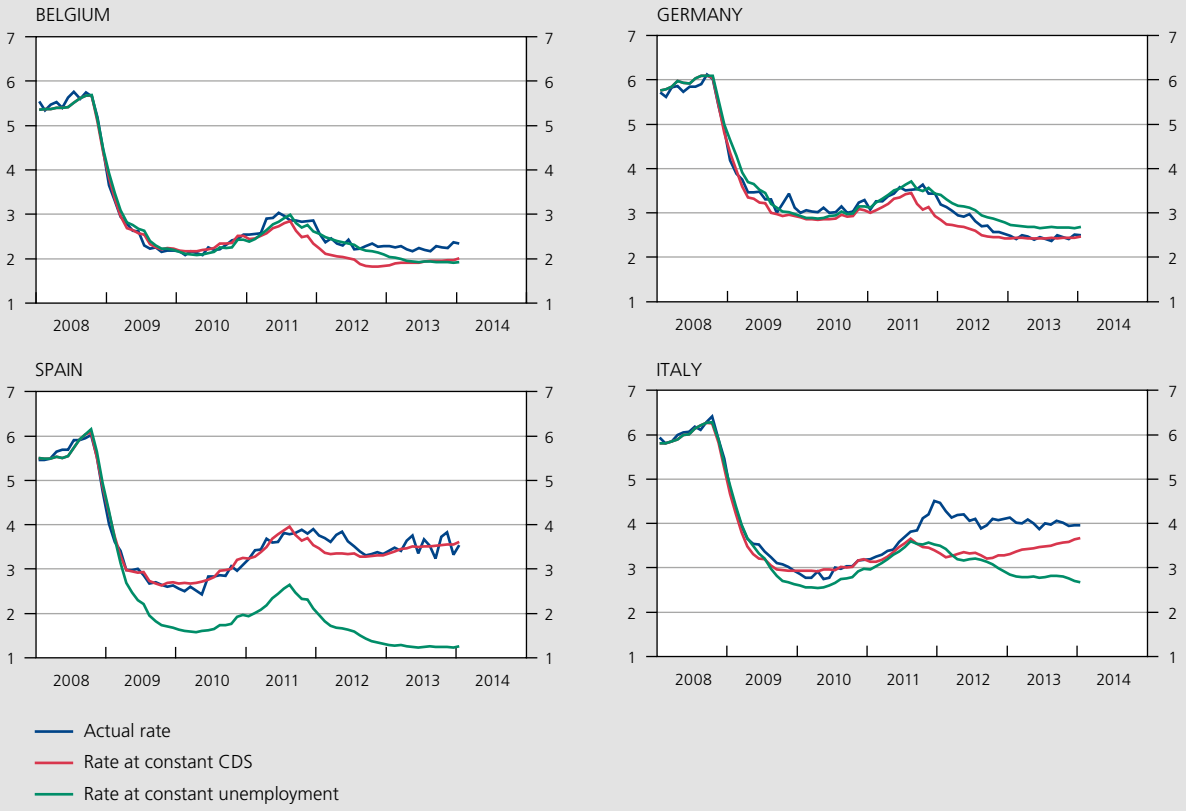
Source: own calculations.

The findings described here are in line with those of Al-Eyd and Berkmen (2013). They confirm that, without controlling for factors such as bank credit risk and financing costs, the long-term transmission of market rates to bank rates was weakened during the crisis for the countries most seriously affected. In contrast to our results, they do not find that the real economy (measured on the basis of the PMI and indices of economic uncertainty) had any impact on the bank rate. The ECB (2013) draws conclusions similar to ours, which also indicate that sovereign bond yield spreads and macroeconomic and credit risk had a significant influence on bank rates in Italy and Spain, but not in France or Germany. In contrast to our findings, it seems that bank risk has no major influence on determining the interest rate, although that may be due to the inclusion of sovereign bond yield spreads in the regressions: as already stated, the sovereign-bank loop makes it difficult to distinguish between the two effects.

Overall, the results of those analyses and this article seem to suggest defective transmission of monetary policy decisions to bank rates. That is not necessarily due to problems in the transmission mechanism itself, but may be because the determination of the interest rate in some countries was greatly influenced by the serious deterioration in the financial system's soundness (and risk perception) and the national macroeconomic situation.

(1) Given the simplicity of the model, several caveats apply to these initial results. A more full and detailed analysis is required to truly and fully identify the contribution of the different shocks.

CHART 14 IMPACT OF BANK CDS SPREADS AND UNEMPLOYMENT ON BANK LENDING RATES: COUNTERFACTURAL SCENARIOS
(in %)



Sources: Thomson Reuters Datastream, ECB, own calculations.

Conclusions

It is evident from the analysis of the cross-border capital flows and analysis of benchmark rates and bank lending rates that the process of financial integration between the euro area countries during the initial years of monetary union went into reverse from 2007, and that reversal intensified after 2011. In view of the accumulation of large macroeconomic imbalances and substantial interbank and debt positions in an imperfect institutional framework, financial integration in the euro area proved unstable in the context of a financial crisis. Those factors were at the root of a reappraisal of the risks, causing cross-border capital flows to dry up during the recent crisis. The resulting home bias fuelled the vicious circle between governments and banks: their risk perceptions became excessively interlinked, thus exacerbating the fragmentation in the euro area.

The European authorities responded to this situation by taking action to maintain financial integration, and also adopted measures to establish a more sustainable form of financial integration in the future. That is desirable for at least two reasons. First, in a monetary union, financial integration facilitates the efficient transmission of monetary policy decisions to the various market segments of the union. Next, in the context of large external imbalances, it is vital to reactivate cross-border private financial flows in order to ensure that the imbalances can be funded on a sustainable basis. The European Union authorities intervened on two fronts. In the short term, they created financing mechanisms to ease the immediate pressure on funding and, with a longer term perspective, they adjusted the institutional framework to foster a more complete and sustainable form of financial integration in the euro area countries.

The first set of measures include the funding provided by both the Eurosystem and the European assistance mechanisms, the EFSF and the ESM. In addition, the ECB launched two programmes for the purchase of securities (SMP and OMTs) in order to counteract impediments to the monetary policy transmission mechanism and particularly the redenomination risk.

The strengthening of economic governance and the creation of the banking union are measures for the longer term. These initiatives could help to restore and improve financial integration in the euro area, respectively by addressing the underlying macroeconomic causes of the decline in financial integration, and by creating an institutional framework that fosters sound financial integration.

The introduction of the European Semester, which strengthens fiscal policy supervision, and the enhanced surveillance of internal and external macroeconomic imbalances with the launch of the macroeconomic imbalance procedure, are important steps which ought to prevent the accumulation of excessive imbalances in the future. Together with other elements that reinforce the "economic pillar" of EMU, such as the 2020 strategy, they should ultimately restore sustainable economic growth, which is an essential precondition for attracting international investors and encouraging financial integration from the demand side.

Currently, most of the countries in difficulty have largely corrected their flow imbalances, as is evident from the reversal of their current account balances, facilitating a return to the markets. However, this article shows that substantial stock imbalances still persist. A return to financial integration would help to contain the associated refinancing risk and thus ensure that the net external debt of those countries can be financed in a sustainable way.

On the supply side, the creation of the banking union, transferring national supervision and bank resolution to the European level, could lead to more efficient financial integration since it will internalise the negative externalities associated with cross-border capital flows. The establishment of the single supervisory mechanism (SSM) will also permit better identification of the risks, and should safeguard cross-border banking/financial flows and hence integration. Finally, elements of cross-border risk-sharing, such as the creation of the single resolution mechanism (SRM), will encourage *de facto* integration when it is most needed. The current legislation defines a common resolution fund financed by all banks. Ideally, the SRM should also be supported by a reliable backstop in order to guarantee its credibility and ensure that it can cope with systemic shocks.

These efforts to create a genuine banking union are an important step forward in the institutional framework of the euro area, and are expected to promote and improve financial integration. Nevertheless, integration could ultimately benefit from a more broadly defined financial union (including capital markets and non-bank financial intermediation), which would be an even better guarantee of the free and efficient allocation of capital within the Monetary Union. In addition, EMU could also benefit from deeper integration, to prevent financial integration from outpacing the integration in other areas and thus to prevent it becomes self-defeating.

Bibliography

Al-Eyd A. and S. P. Berkmen (2013), *Fragmentation and Monetary Policy in the Euro Area*, IMF Working Paper 13/208, October.

Baele L., A. Ferrando, P. Hördahl, E. Krylova and C. Monnet (2004), *Measuring financial integration in the euro area*, ECB Occasional Paper 14.

Banerjee A. V. (1992), "A simple model of herd behaviour", *The Quarterly Journal of Economics*, 107 (3), 797–817.

Boeckx J. (2012), "What is the role played by the Eurosystem during the financial crisis", NBB, *Economic Review*, September, 7–29.

Caballero R., E. Farhi and P. Gourinchas (2008), "An equilibrium model of global imbalances and low interest rates", *American Economic Review*, vol. 98 (1), 358–393.

Calvo A. G. (1998), "Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops", *Journal of Applied Economics*, vol. 1 (1), 35–54.

Chinn M. D. and H. Ito (2006), "What Matters for Financial Development? Capital Controls, Institutions, and Interactions", *Journal of Development Economics*, vol. 81 (1), October, 163–192.

Cœuré B. (2014), *Current challenges for the conduct of monetary policy in the euro area*, Speech at the Conference ECB and its Watchers, Frankfurt, Germany, 12 March.

Cordemans N. and M. de Sola Perea (2011), "Central bank rates, market rates and retail bank rates in the euro area in the context of the recent crisis", NBB, *Economic Review*, June, 29-55.

Dewachter H., L. Iania, M. Lyrio and M. de Sola Perea (2014), "A macro-financial analysis of the euro area sovereign bond market", forthcoming in the *Journal of Banking and Finance*.

Draghi M. (2012), *Introductory statement to the press conference*, Frankfurt, Germany, 6 September.

EC (2006), *Commission Staff Working Document on the impact of Regulation (EC) 2560/2001 on bank charges for national payments*, SEC (2006) 1783, Brussels, 18 December.

ECB (2009), "Recent developments in the retail bank interest rate pass-through in the Euro Area", *Monthly Bulletin*, August, 92–105.

ECB (2013), "Assessing the retail bank interest rate pass-through in the euro area at times of financial fragmentation", *Monthly Bulletin*, August, 75–91.

Edison H.J., R. Levine, L. Ricci and T. Slok, (2002), "International Financial Integration and Economic Growth", *Journal of International Money and Finance*, vol. 21 (6), November, 749–776.

Eichengreen B. J. (2001), "Capital Account Liberalization: What Do Cross-Country Studies Tell Us?", *World Bank Economic Review*, vol. 15 (3), 341–365.

Eurostat (2011), *New decision of Eurostat on deficit and debt: The statistical recording of operations undertaken by the European Financial Stability Facility*, Press release 13/2011, 27 January.

Eurostat (2013), *Decision of Eurostat on deficit and debt: Statistical classification of the European Stability Mechanism*, Luxembourg, 31 January.

Feldstein M. and C. Horioka (1980), "Domestic Saving and International Capital Flows", *Economic Journal*, vol. 90 (358), June, 314-329.

Gourinchas P.-O. and O. Jeanne (2007), *Capital Flows to Developing Countries: The Allocation Puzzle*, NBER Working Paper 13602.

Gourinchas P.-O. and M. Obstfeld (2012), "Stories of the Twentieth Century for the Twenty-First", *American Economic Journal*: Macroeconomics, vol. 4 (1), 226–265.

IMF (1993), *Fifth edition of the IMF's Balance of Payments Manual*.

IMF (2004), *Revision of the Fifth Edition of the IMF's Balance of Payments Manual.*

IMF (2009), *Sixth edition of the IMF's Balance of Payments Manual.*

IMF (2013), "Fragmentation, the monetary transmission mechanism, and monetary policy in the euro area", *Euro area policies 2013 Article IV consultation*, Selected issues paper, IMF Country Report 13/232, July.

Jappelli T. and M. Pagano (2008), *Financial market integration under EMU*, CEPR Discussion Paper 7091.

Kirabaeva K. and A. Razin (2010), *Composition of Capital Flows: A Survey*, NBER Working Paper 16492.

Kose M. A., E. Prasad, K. Rogoff and S.J. Wei (2009), "Financial Globalization: A Reappraisal", *IMF Staff Papers*, vol. 56 (1), 8–62.

Lane P. R. and G. M. Milesi-Ferretti (2003), *International financial integration*, IMF Working Papers 03/86.

Lane P. R. and G. M. Milesi-Ferretti (2008), "The Drivers of Financial Globalization", *American Economic Review* vol. 98 (2), 327–332.

Lane P. R. (2010), *International Financial Integration and the External Positions of the Euro Area Countries*, OECD Economics Department Working Papers 830.

Levine R. (2001), "International financial liberalization and economic growth", *Review of International Economics*, vol. 9, 688–702.

Lucas R. (1990), "Why Doesn't Capital Flow from Rich to Poor Countries?", *American Economic Review*, vol. 80, 92–96.

Lütkepohl H. and M. Krätzig (2004), *Applied time series econometrics*, Cambridge University Press, U.K.

Mankiw N.G., D. Romer and D. Weil (1992), "A Contribution to the Empirics of Economic Growth", *Quarterly Journal of Economics*, 107 (2), 407–438.

McKinsey Global Institute (2013), *Financial Globalization: Retreat or Reset*, Global Capital Markets, March.

Obstfeld M. (1998), "The Global Capital Market: Benefactor or Menace?", *Journal of Economic Perspectives*, 12 (Fall), 9–30.

OECD (2011), "Getting the most out of international capital flows", *OECD Economic Outlook*, Vol. 2011/1, Chapter 6.

Reinhart C. and V. Reinhart (2008), *Capital Flow Bonanzas: An Encompassing View of the Past and Present*, CEPR Discussion Papers 6996.

Schindler M. (2009), "Measuring Financial Integration: A New Data Set", *IMF Staff Papers*, Vol. 56, 222–238.

Stiglitz J. (2004), "Capital-Market Liberalization, Globalization, and the IMF", *Oxford Review of Economic Policy*, Vol. 20 (1), 57–71.

Unctad (2012), *Development and Globalization: Fact and Figures*, UNCTAD/WEB/GDS/DSI/2012/2, April.

Van Nieuwenhuyze Ch. (2013), "Debt, assets and imbalances in the euro area: An aggregate view", in Winkler B., A. van Riet and P. Bull (eds.), *A flow of funds perspective on the financial crisis*, Vol. II, Palgrave Macmillan.

Waysand C., K. Ross and J. de Guzman (2010), *European Financial Linkages: A New Look at Imbalances*, IMF Working Paper 09/295.

Summaries of articles

Economic projections for Belgium – Spring 2014

The article presents the Bank's new macroeconomic projections. For the first time, and in accordance with the change in the publication of the euro area projections by the ECB, the projection period includes the year t+2, in this case 2016. It should be stressed that the uncertainty around the central projection increases substantially for later years, inter alia because it is an unchanged policy scenario.

These Spring 2014 projections were produced in a context of a further recovery in the global economy and in the euro area, notwithstanding the remaining short-term volatility. The Eurosystem projections for the euro area point to activity growth firming and inflation picking up slowly over the 2014-2016 period. As to Belgium, the Autumn 2013 projections are by and large confirmed with only a minor upward revision to 1.3 % for annual activity growth in 2014. Growth is projected to strengthen further to about 1.6 %-1.7 % in the two following years, and domestic demand should become the driving factor with the positive contribution from net exports disappearing as of 2015. Very moderate wage cost growth, a strong euro and declining energy prices are curbing inflation despite a recovery in profit margins. Headline inflation is projected to reach an exceptionally low level in 2014, partly as a result of an indirect tax cut, but is set to rise gradually over the projection horizon, reaching 1.6 % in 2016 (with core inflation rising to 1.8 % in 2016).

While net job losses still amounted to some 10,000 in 2013, the labour market has picked up a bit earlier than envisaged in the Autumn 2013 projections. It is projected to strengthen further over the projection horizon although, taking into account the expected growth in the labour force, job creation will only be sufficient to reduce the unemployment rate from 2015 onwards.

By unchanged policy, the government deficit is projected to remain at 2.6 % of GDP this year as in 2013 and drift upwards in the 2015-2016 period, while staying marginally below the 3 % of GDP threshold. Government debt would remain larger than GDP throughout the projection period.

JEL codes : E17, E25, E37, E66

Key words : Belgium, macroeconomic projections, Eurosystem

Is government spending the key to successful consolidation ?

The financial crisis that erupted during 2007 and intensified in 2008 and the ensuing economic recession led to a serious deterioration in the public finances of most advanced economies. That resulted in a sharp increase in the fiscal deficit and public debt in those countries, including Belgium.

Since then, almost all countries have made considerable efforts to achieve fiscal consolidation in order to end the unsustainable developments. However, restoring sustainable public finances will entail additional efforts in most countries in the years ahead.

This article examines the budgetary instruments that can be used to continue consolidating public finances. In the process, it examines in depth the role of public spending. It describes the impact of the various budgetary instruments on economic activity in both the short and long term. Special attention is given to the fiscal position and potential consolidation instruments in Belgium.

JEL codes: H3, H5, H6

Key words: Fiscal consolidation, government expenditure, fiscal multipliers, fiscal policy

The new national consumer price index

The new national consumer price index (NCPI) on which the health index is based came into effect in January 2014. It underwent full revision, as it does every eight years. This brings to an end the significant obsolescence of the index, in which the weighting scheme increasingly failed to reflect real consumer behaviour, a fact which had implications for the inflation figures. On this occasion, various methodological adjustments were introduced, most of them corresponding to the changes announced previously during 2013. The most important innovation is the switch to the use of a chained index instead of a fixed base. That decision will make it easier not only to implement gradual methodological improvements in future, but above all to adapt the weighting scheme annually and thus regularly reflect observed changes in consumption habits.

The set of changes will influence the inflation figures according to the NCPI and the inflation gap between that and the harmonised index of consumer prices (HICP). Although the NCPI methodology has been brought closer to that of the HICP, the two indexes are likely to continue to display divergent movements owing to the remaining methodological differences, particularly between the weighting schemes, though the effect will be smaller than in recent years.

JEL codes: E31, E64

Key words: Consumer price index, HICP, inflation

Employees: too expensive at 50? The age component in wage-setting

As the population ages, the labour demand for older workers has become a major social and economic challenge. Wage profiles are linked to age in all European countries to a varying extent but the remuneration path is seen to be continuing to rise for the over-50s in Belgium, whereas it flattens out until the date of retirement in the Scandinavian countries, the Netherlands and Germany. Wages keeping pace with increasing seniority is not economically problematic if this reflects a higher level of productivity. As labour productivity cannot be observed directly, an assessment is made of how age variation among companies' employees affects firms' output. The econometric results for Belgium show that a higher percentage of employees aged 50 and older generally tends to weigh on corporate profitability. This does not have to be the case: their productivity can be boosted as a result of more training efforts, measures that aim at adjusting workplaces, including ergonomics, and a better organisation of work.

JEL codes: J14, J24, J31

Key words: Wages, productivity, ageing, seniority

Using BREL to nowcast the Belgian business cycle : the role of survey data

The article assesses the usefulness of indicators taken from surveys carried out by the National Bank of Belgium for predicting Belgian GDP and other important quarterly macroeconomic aggregates. To this end, the authors use the recently created BREL now-casting platform that consists of targeted bridge models for different data availability scenarios. BREL is based upon an elastic-net regression approach that takes into account the ragged-edge nature of the data set. The results of their empirical analysis suggest that survey data clearly help to predict Belgian (but also European) macroeconomic developments, in particular for earlier estimates, when the relevant hard data, notably firms' turnover and industrial production, are not yet available. They also show that forecast accuracy is higher when using disaggregated survey results, rather than just the headline consumer confidence and business sentiment indicators. In this connection, demand expectations in the manufacturing industry and the unemployment expectations in the consumer survey consistently feature among the best predictors for real GDP growth.

JEL codes : C22, C82, E37

Key words : Now-casting, bridge models, Belgium, business cycle

Financial integration and fragmentation in the euro area

The article examines developments in euro area cross-border capital flows, together with benchmark rates and bank lending rates, and shows that the process of financial integration among euro area countries over the first years of the monetary union went temporarily into reverse, starting in 2007 and intensifying after 2011. This development was characterised by an increasing home bias in the banking sector, a reversal of net capital flows within the euro area, and diverging interest rate developments across national borders. This fragmentation process creates distortions in the monetary policy transmission mechanism in the euro area and weakens the sustainability of the net external positions built up in the past. The article also presents the policy responses to deal with these developments, from the initial substitution of private by official cross-border capital flows and measures to restore monetary transmission in all market segments, to longer-term measures (e.g. banking union) that should contribute to a deeper and more robust form of financial integration in the euro area.

JEL codes : E43, E44, F34, F36

Key words : Financial integration, fragmentation, euro area, capital flows, bank lending rates

Abstracts from the Working Papers series

247. The BIS and the Latin American debt crisis of the 1980s, by P. Clement, I. Maes, December 2013

The Latin American debt crisis, which broke out in August 1982, was the first global financial crisis in the postwar period. While the crisis started in the «periphery», it constituted a threat to the «core» of the world economy, as the banking system was under severe pressure. Alongside the IMF, the BIS played an important role in coordinating the international response to the crisis. Moreover, a lot of work at the BIS in the second half of the 1970s had aimed at restraining the debt build-up. Discussions on the rising debt levels were highly influential in shaping the BIS view of financial stability, with the «macroprudential» concept at its core. However, in the analysis of the debt build-up, the role of financial innovations was not really captured. The authors focus on the Latin American debt crisis, discussing first the debt build-up, different initiatives to restrain lending and the BIS role in the management of the crisis. They then turn to the ensuing efforts to strengthen the financial system and the emerging BIS approach to financial stability.

248. The relationship between slack resources and firms' exporting behavior, by I. Paeleman, C. Fuss, T. Vanacker, December 2013

The authors use a unique longitudinal dataset that tracks the exporting behavior of Belgian manufacturing firms between 1997 and 2009. They ask how slack resources, including financial and human resource slack, influence firms' exporting behavior. Their findings suggest that both types of slack resources have an inverted U-shaped relationship with the decision to export. This implies that higher levels of slack resources positively influence the likelihood of firms exporting, but too much slack negatively influences this likelihood. After controlling for the decision to export, they find no significant relationship between slack resources and export intensity. Nevertheless, they do find an inverted U-shaped relationship between slack resources and export diversity. Overall, this study provides new insight into how different types of slack resources influence different aspects of firms' exporting behavior.

249. The role of financial frictions during the crisis: An estimated DSGE model, by R. Merola, December 2013

After the recent banking crisis in 2008, financial market conditions have turned out to be a relevant factor for economic fluctuations. The paper provides a quantitative assessment of the impact of

financial frictions on the U.S. business cycle. The analysis compares the original Smets and Wouters model (2003, 2007) with an alternative version augmented with the financial accelerator mechanism à la Bernanke, Gertler and Gilchrist (1996,1999). Both versions are estimated using Bayesian techniques over a sample extended to 2012. The analysis supports the role of financial channels, namely the financial accelerator mechanism, in transmitting dysfunctions from financial markets to the real economy. The Smets and Wouters model, augmented with the financial accelerator mechanism, is suitable to capture much of the historical developments in U.S. financial markets that led to the financial crisis. The model can account for the output contraction in 2008, as well as the widening in corporate spreads and supports the argument that financial conditions have amplified the U.S. business cycle and the intensity of the recession.

250. Bank reactions after capital shortfalls, by C. Kok, G. Schepens, December 2013

The paper investigates whether European banks have capital targets and how deviations from the target impact their equity composition and activity mix. Using quarterly data for a sample of large European banks between 2004 and 2011, the authors show that there are notable asymmetries in banks' reactions to deviations from optimal capital levels. Banks prefer to reshuffle risk-weighted assets or increase asset holdings when being above their optimal Tier 1 ratio, whereas they rather try to increase equity levels or reshuffle risk-weighted assets without changing asset holdings when being below target. At the same time, focusing instead on a unweighted equity ratio target, the authors find evidence of deleveraging and lower loan growth for undercapitalized banks during the recent financial crisis, whereas in the pre-crisis periods banks primarily reacted to deviations from their optimal target by adjusting equity levels.

251. Why firms avoid cutting wages: Survey evidence for European firms, by Ph. Du Caju, Th. Kosma, M. Lawless, J. Messina, T. Rõõm, December 2013

The rarity with which firms reduce nominal wages has been frequently observed, even in the face of considerable negative economic shocks. The paper uses a unique survey of fourteen European countries to ask firms directly about the incidence of wage cuts and to assess the relevance of a range of potential reasons for why they avoid cutting wages. Concerns about the retention of productive staff and a lowering of morale and effort were reported as key reasons for downward wage rigidity across all countries and firm types. Restrictions created by collective bargaining were found to be an important consideration for firms in euro area countries but were one of the lowest ranked obstacles in non-euro area countries. The paper examines how firm characteristics and collective bargaining institutions affect the relevance of each of the common explanations put forward for the infrequency of wage cuts.

252. The distribution of debt across euro area countries: The role of individual characteristics, institutions and credit conditions, by O. Bover, J.M. Casado, S. Costa, Ph. Du Caju, Y. McCarthy, E. Sierminska, P. Tzamourani, E. Villanueva, T. Zavadil, December 2013

The aim of the paper is twofold. First, the authors present an up-to-date assessment of the differences across euro area countries in the distributions of various measures of debt conditional on household characteristics. They consider three different outcomes: the probability of holding debt, the amount of debt held and, in the case of secured debt, the interest rate paid on the main mortgage. Second, they examine the role of legal and economic institutions in accounting for these differences. They use data from the first wave of a new survey of household finances, the Household Finance and Consumption Survey, to achieve these aims. They find that the patterns of secured and unsecured debt outcomes vary markedly across countries. Among all the institutions considered, the length of asset repossession periods best accounts for the features of the distribution of secured

debt. In countries with longer repossession periods, the fraction of people who borrow is smaller, the youngest group of households borrow lower amounts (conditional on borrowing), and the mortgage interest rates paid by low-income households are higher. Regulatory loan-to-value ratios, the taxation of mortgages and the prevalence of interest-only or fixed-rate mortgages deliver less robust results.

253. Micro-based evidence of EU competitiveness: The CompNet database, by CompNet Task Force, March 2014

Drawing from confidential firm-level balance sheets in 11 European countries, the paper presents a novel sectoral database of comparable productivity indicators built by members of the Competitiveness Research Network (CompNet) using a newly developed research infrastructure. Beyond aggregate information available from industry statistics of Eurostat or EU KLEMS, the paper provides information on the distribution of firms across several dimensions related to competitiveness, e.g. productivity and size. The database comprises so far 11 countries, with information for 58 sectors over the period 1995-2011. The paper documents the development of the new research infrastructure, the construction of the database, and shows some preliminary results. Among them, it shows that there is large heterogeneity in terms of firm productivity or size within narrowly defined industries in all countries. Productivity, and above all, size distribution are very skewed across countries, with a thick left-tail of low productive firms. Moreover, firms at both ends of the distribution show very different dynamics in terms of productivity and unit labour costs. Within-sector heterogeneity and productivity dispersion are positively correlated to aggregate productivity given the possibility of reallocating resources from less to more productive firms. To this extent, the authors show how allocative efficiency varies across countries, and more interestingly, over different periods of time. Finally, they apply the new database to illustrate the importance of productivity dispersion to explain aggregate trade results.

254. Information in the yield curve: A macro-finance approach, by H. Dewachter, L. Iania, M. Lyrio, March 2014

The authors use a macro-finance model, incorporating macroeconomic and financial factors, to study the term premium in the U.S. bond market. Estimating the model using Bayesian techniques, they find that a single factor explains most of the variation in bond risk premiums. Furthermore, the model-implied risk premiums account for up to 40 % of the variability of one- and two-year excess returns. Using the model to decompose yield spreads into an expectations and a term premium component, they find that, although this decomposition does not seem important to forecast economic activity, it is crucial to forecast inflation for most forecasting horizons.

255. The single supervisory mechanism or "SSM", part one of the Banking Union, by E. Wymeersch, April 2014

The Regulation on the Single Supervisory Mechanism mandates the European Central Bank to exercise prudential supervision on the banks located in the Euro area, whether directly by the Bank's own services for the significant banks, or indirectly by the national prudential supervisors but under the general guidance of the ECB for the less significant banks. The paper gives a detailed analysis of the new regime, its scope, the consequences for the existing supervisory systems, especially the home-host attribution of competences and the cooperation between the ECB and the national supervisors, the consequences for the non-euro Member States and for the third country jurisdictions. This regime is likely to substantially modify the existing supervisory landscape. It is the first step towards the Banking Union and is to be followed by legislative instruments on Bank Recovery and Resolution Directive, the Regulations on a Single Resolution Mechanism and

on Deposit Guarantee Schemes. These three measures should allow dealing with defaulting banks without calling on the taxpayers.

256. Nowcasting Belgium, by D. de Antonio Liedo, April 2014

The paper proposes a method that takes into account the calendar of European and Belgian intraquarterly data releases to automatically update GDP growth expectations or nowcasts in real-time. The role of surveys is well known in the nowcasting literature, but this is the first paper that has attempted to isolate quality from timeliness as independent properties that can be expressed in function of the model parameters. The modeling framework allows for the incorporation of different kinds of survey data directly in levels and features a parsimonious specification of the GDP revision process which does not impose strict assumptions regarding the rationality of the statistical agency. The results in the empirical section emphasize the quality of survey data, which allows the model to produce accurate real GDP growth nowcasts for Belgium three months prior to the publication of the official flash estimate.

257. Human capital, firm capabilities and productivity growth, by I. Van Beveren, S. Vanormelingen, May 2014

The paper determines the relative importance of technical efficiency and reallocation for aggregate productivity growth in a small open European economy. To this end the authors use a dataset containing all Belgian firms active in the private sector, both services and manufacturing. They observe at the firm level a number of factors that have been shown to be drivers of productivity differences across firms. More precisely, they have information on human capital such as the level of education and the amount of on-the-job training received by the employees. Moreover they observe the international activities of the firms such as imports and exports. This allows them to make a careful analysis of the micro foundations of aggregate productivity growth by applying the decomposition introduced by Petrin and Levinsohn (2012). The outcome of this exercise provides them not only with a better understanding of the slowdown of productivity growth in Europe over the past decades, but also give an indication on the role of different productivity drivers in this process.

258. Monetary and macroprudential policies in an estimated model with financial intermediation, by P. Gelain, P. Ilbas, May 2014

The authors estimate the Smets and Wouters (2007) model augmented with the Gertler and Karadi (2011) financial intermediation sector on US data by using real and financial observables. Given the framework of the estimated model, they address the question whether and how standard monetary policy should interact with macroprudential policy in order to safeguard real and financial stability. For this purpose, monetary policy is described by a flexible inflation targeting regime using the interest rate as instrument, while the macroprudential regulator adopts a tax/subsidy on bank capital in a countercyclical manner in order to stabilize nominal credit growth and the output gap. The authors look at the gains from coordination between the central bank and the macroprudential regulator under alternative assumptions regarding the degree of importance assigned to output gap fluctuations in the macroprudential mandate. The results suggest that there can be considerable gains from coordination if the macroprudential regulator has been assigned a sufficiently high weight on output gap stabilization, i.e. the common objective with monetary policy. If, on the other hand, the main focus of the macroprudential mandate is on credit growth, the macroprudential policy maker can reach better outcomes, while the central bank does worse, in the absence of coordination. Therefore, whether and to which extent monetary policy gains from coordination

with the macroprudential regulator depends on the relative weight assigned to output fluctuations in the macroprudential mandate. A counterfactual analysis further confirms the effectiveness of the countercyclical macroprudential tax/subsidy in containing the amplification effects triggered by a financial shock, and suggests that having a macroprudential regulatory tool at work could have successfully avoided the massive drop in credit such as the one observed at the onset of the Great Recession.

Conventional signs

e	estimate
e.g.	exempli gratia (for example)
i.e.	id est (that is)
p.m.	pro memoria

List of abbreviations

Countries or regions

BE	Belgium
DE	Germany
IE	Ireland
EL	Greece
ES	Spain
FR	France
IT	Italy
LU	Luxembourg
NL	Netherlands
AT	Austria
PT	Portugal
FI	Finland
EA	Euro area
EU15	European Union of 15 countries, before the 2004 enlargement
CH	Switzerland
DK	Denmark
SE	Sweden
UK	United Kingdom
JP	Japan
US	United States

Others

AREAER	Annual Report on Exchange Arrangements and Exchange Restrictions
BIM	Beneficiary of an enhanced intervention
BIS	Bank for International Settlements
BNRC	Belgian National Railway Company
BPM	Balance of Payments Manual

CBI	Cost of Borrowing Indicator
CD	Compact Disc
CDS	Credit Default Swaps
CPB	Centraal Planbureau (the Netherlands)
DGSEI	Directorate General for Statistics and Economic Information Belgium
DVD	Digital Video Disc
EC	European Commission
ECB	European Central Bank
ECOICOP	European Classification of Individual Consumption by Purpose
EDP	Excessive deficit procedure
EFSF	European Financial Stability Facility
EFSM	European Financial Stability Mechanism
EMU	European and Monetary Union
ESCB	European System of Central Banks
ESM	European Stability Mechanism
EU	European Union
EUR	Euro
Federgon	Federation of HR service providers
FM	Factor model
FPB	Federal Planning Bureau
FPS	Federal Public Service
G20	Group of Twenty
GAPD	General Administration of the Patrimonial Documentation
GDP	Gross domestic product
GSCI	(former) Goldman Sachs Commodity Index
HICP	Harmonised index of consumer prices
HBS	Household budget survey
HWWI	Hamburgisches WeltWirtschaftsInstitut
IBPT	Institute of Postal Services and Telecommunications
IBS	International Banking Statistics
IFO	Institute for Economic Research
IIP	International investment position
IMF	International Monetary Fund
INSEE	National Institute of Statistics and Economic Studies (France)
IT	Information technology
LFS	Labour Force Survey
MFI	Monetary Financial Institutions
MIP	Macroeconomic Imbalance Procedure
MIR	Monetary Financial Institutions interest rates
MSCI	Morgan Stanley Capital International
NAI	National Accounts Institute
NBB	National Bank of Belgium
NCB	National central bank
NCPI	National consumer price index
NEO	National Employment Office

NFC	Non-financial corporations
NIHDI	National Institute for Health and Disability Insurance
NIIP	Net international investment position
NPI	Non-profit institutions
NPL	Non-performing loans
NPO	National Pension Office
OECD	Organisation for Economic Cooperation and Development
OIS	Overnight index swap
OMT	Outright Monetary Transactions
PC	Personal computer
PMI	Purchasing Manager's Index
RMSFE	Root mean square forecast errors
ROM	Read-only memory
SB	Statistics Belgium
SCA	Study Committee on Ageing
SdPSP	Public Sector Pensions Service
SEA	Single European Act
SEPA	Single Euro Payments Area
SES	Structural Earnings Surveys
SHARE	Survey of Health, Ageing and Retirement in Europe
SILC	Statistical survey of incomes and living conditions
SMP	Securities Markets Programme
S&P	Standard and Poor's
SRM	Single Resolution Mechanism
SSM	Single Supervisory Mechanism
Target 2	Trans-European Automated Real-time Gross settlement Express Transfer system 2
UNCTAD	United Nations Conference on Trade and Development
USD	US dollar
VECM	Vector error correction model
VA	Value added
VAR	Vector autoregressive
VAT	Value-added tax
VIPO	Specific social statute for the group Widowers, Invalids, Pensioners, Orphans

National Bank of Belgium
Limited liability company
RLP Brussels – Company number: 0203.201.340
Registered office: boulevard de Berlaimont 14 – BE-1000 Brussels
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Publisher

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Cover and layout: NBB AG – Prepress & Image

Published in July 2014