

Economic Review

June 2015



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ISSN 1780-664X

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Economic projections for Belgium – Spring 2015

Introduction

Since the cut-off date for the autumn forecasts published in December 2014, the external environment for the Belgian economy has substantially changed. For instance, oil prices have not bottomed out as expected, but have continued to fall even more steeply. Despite the upward trend since early spring, oil prices, both in US dollars and in euros, are now significantly cheaper than expected in the autumn forecasts on the basis of forward contracts on the international markets at that time. In addition, monetary policy has been eased further in the euro area as well as in some other regions. In January 2015, the ECB decided to expand the existing programme for the purchase of certain types of securities, by also acquiring public sector bonds from March 2015 onwards. The ECB plans to purchase private and public sector assets totalling € 60 billion per month altogether until September 2016, and in any case until the ECB Governing Council can observe a persistent change in the inflation trend, in line with its medium-term objective of keeping inflation below but close to 2 %.

Partly as a result of that new monetary policy stance and the expectations concerning it, important financial market movements have occurred. On the one hand, the euro has continued to depreciate sharply, especially from the beginning of 2015, so that its value in dollars for the first quarter of 2015, for example, was around 10 % below the figure assumed in the autumn forecasts. On the other hand, market interest rates have fallen further to exceptionally low levels, and that decline has also fed through to a greater extent than previously in the rates applied to household and business loans. At the same time, stock markets have surged since the beginning of this year, though the strong financial market recovery was followed

by a period of great volatility in early May when bond prices plummeted and equity prices underwent a limited correction, both in Europe and elsewhere. The euro has also appreciated slightly since mid-April. These recent developments may suggest that the financial markets' initial reaction to the ECB's quantitative easing was somewhat exaggerated, but they may also indicate a gradual rise in market expectations regarding future growth and inflation in the euro area compared to other regions. The recent movements in interest rates and the euro exchange rate, and their connection with monetary policy, are recounted in more detail in Box 1 of this article.

Growth prospects for the euro area have in fact improved since the autumn forecasts, as is evident, for instance, from the update of those estimates that the ECB published in March 2015. The latest quarterly statistics also confirm that the European economy is continuing to pick up. According to the first flash estimate, growth in the euro area strengthened further in the first quarter of this year; the first indications are that this is due partly to the strong growth of private consumption. In addition, European growth is becoming more broadly based: for example, the French and Italian economies which had virtually stagnated in the preceding quarters are now recording stronger growth, while in Cyprus the deep recession has ended. Conversely, in a number of smaller euro area countries such as Greece and in certain Baltic countries, there has been a further contraction in activity. The uncertainty surrounding the outcome of the negotiations with international creditors in the former case, and geopolitical tensions with Russia in the latter case, are undoubtedly contributory factors here.

The rather more vigorous recovery of the European economy should be viewed as a catching-up process,

linked to the sharp depreciation of the euro and positive confidence effects, with private consumption in particular being driven up relatively strongly by the favourable impact of lower oil prices on real household incomes. In contrast, the global growth outlook has not been revised upwards. In some major advanced countries, the growth rate has actually fallen significantly, while the deceleration in some emerging economies such as China has been sharper than expected. Moreover, international trade flows appear to be considerably less boosted by growth: the trade intensity of world growth is still remarkably low, as already stated in the autumn forecasts.

The domestic policy environment has hardly changed since the autumn projections, as the measures announced in the federal government agreement of October 2014 were almost fully included in those forecasts already. The minor changes mainly stem from new information on the precise implementation of certain measures. For instance, the activation policy for older unemployed persons and unemployed persons with employer top-up is being phased in more gradually than initially announced, so that the labour force and the unemployment rate do not suddenly increase in January 2015 as assumed in the autumn forecasts. Also, these estimates take account of higher-than-expected wage growth in 2016 on the basis of the draft interprofessional agreement dated January 2015, confirmed by the federal government. Finally, the temporary suspension of the indexation mechanisms was introduced later and in a different way from what had been anticipated in the autumn forecasts, but the estimated macroeconomic effects remain virtually unchanged. More generally, the labour cost moderation policy has also led to a significant relative improvement in competitiveness in these forecasts, in regard to the costs for Belgian firms exposed to international competition.

Against that backdrop, the current spring forecasts, finalised on 20 May 2015, also indicate that Belgium's recovery is strengthening and becoming somewhat more vigorous than in the autumn forecasts. The growth estimate has been raised slightly, primarily for 2015, to 1.2%, though that is due partly to the NAI's upward revision of some quarterly growth statistics for 2014. Next year, growth should gather pace as expected to around 1.5%, and in 2017 – for which estimates have been produced for the first time – economic activity is expected to accelerate a little further. It should be noted that estimates for later years inherently contain a substantial margin of uncertainty. The strengthening growth is supported mainly by rising net exports. That is due not only to the steady growth of Belgium's export markets according to the common technical and external assumptions underpinning the Eurosystem's estimates that are

described in Box 2 in the first section of this article, but is also connected with the improvement in competitiveness resulting from the wage moderation policy. Although, as stated in the December 2014 article on the latest autumn forecasts, that policy initially depresses domestic demand, in the long run it has a greater impact on growth via export expansion.

The economic recovery and the favourable impact of the slow rise in labour costs continue to be reflected in the labour market. Over the three years, from 2015 to 2017, around 94 000 additional jobs should be created. That is well in excess of the increase in the labour force, despite the further rise in the participation rate. The unemployment rate is therefore predicted to fall gradually to around 8% in 2017, although that is still higher than the average prevailing since the beginning of this century.

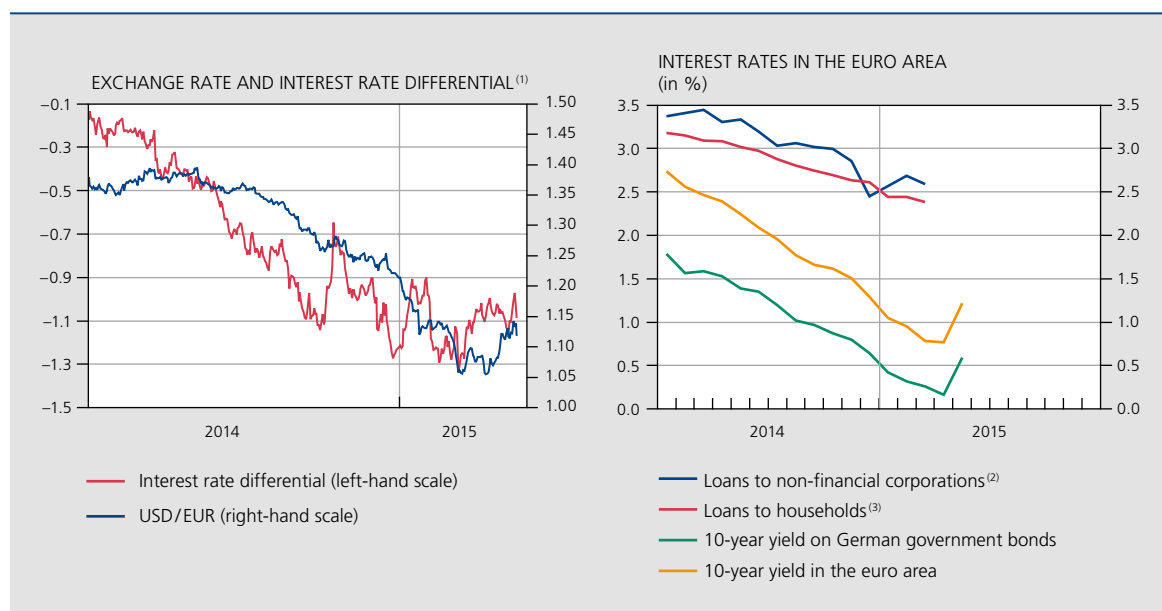
At the beginning of this year, inflation dipped to a low point, primarily owing to the steep fall in energy prices, but since April 2015 it has become positive again. According to the current forecasts, the average inflation rate this year will barely exceed the 2014 figure, but from 2016 it is expected to rise to around 1.5%. Owing to the strong fluctuations in the volatile components, with the negative impact of the lower oil prices gradually giving way to a positive contribution to inflation, the average rate differs somewhat from underlying inflation. That figure, which has already clearly risen in the past few months, is predicted to remain relatively high for the rest of this year, owing to the upward impact of the cheaper euro on import prices, which will be noticeable primarily in the prices of industrial goods. After that, underlying inflation subsides gradually to around 1% as a result of the very moderate rise in labour costs. The underlying inflation rate is not expected to rise again until 2017, mainly reflecting the increasing wage growth.

In regard to public finances, this year's budget deficit is expected to fall back below 3% of GDP, mainly thanks to lower interest charges and, to a lesser extent, the consolidation measures. According to the forecasts, the deficit will then decline further to around 2% of GDP in 2017, though it will still exceed the current nominal budget targets. Here it should be borne in mind that, in accordance with the Eurosystem rules for such projection exercises, the forecasts only take account of measures which have already been sufficiently specified by the government and have already been formally approved – or are very likely to be approved – on 20 May 2015, the cut-off date for the exercise. In addition, estimates of the budgetary impact of certain measures such as those concerning fraud prevention may differ from the amounts included in the budget.

Box 1 – The financial assumptions underpinning the projections and recent monetary policy measures

The projections presented in this article are based on financial assumptions that differ considerably from those underlying the previous projections published in December 2014. This box offers further information on the movement in two financial assumptions crucial to the projections, namely the euro exchange rate expressed in US dollars, and the level of the (longer-term) interest rates. Despite a steep rise from mid-April, both rates have recorded a marked fall in the past few months and are now at a much lower level than was assumed in the 2014 autumn forecasts. This downward trend in the first half of 2015 is actually part of a longer-term tendency, but is also clearly connected with the monetary policy environment, and above all with the recent further easing of policy in the euro area.

FINANCIAL ASSUMPTIONS



Sources: Bloomberg, ECB, Thomson Reuters Datastream.

(1) Differential between the one-year future interest rate on overnight interest rate swaps one year ahead in the euro area and in the US, in percentage points.

(2) Interest rate on loans to non-financial corporations with an initial rate fixation period of between one and five years.

(3) Interest rate on home loans to households with an initial rate fixation period over one year.

In that connection, January 2015 brought the announcement of new balance-sheet measures (the expanded asset purchase programme – EAPP) which have been implemented since March 2015. Of course, in accordance with the guidelines for these projections, those measures were not included in the December 2014 projections.

After two interest rate cuts, in June and September 2014, which had reduced the policy interest rates to an all-time low (and taken the deposit facility rate into negative territory), the said measures encouraged a further fall in market interest rates, and particularly in the yields on longer-term government bonds. Sovereign yields, which were already under pressure, partly because the ECB was expected to take such measures, declined further after the announcement of the programme and again when the purchases actually began in March 2015, and dipped to a historical low in the ensuing weeks. The steep fall in yields on government paper which, together with other market interest rates, form the benchmark for prices on other markets, were also reflected in bank lending interest



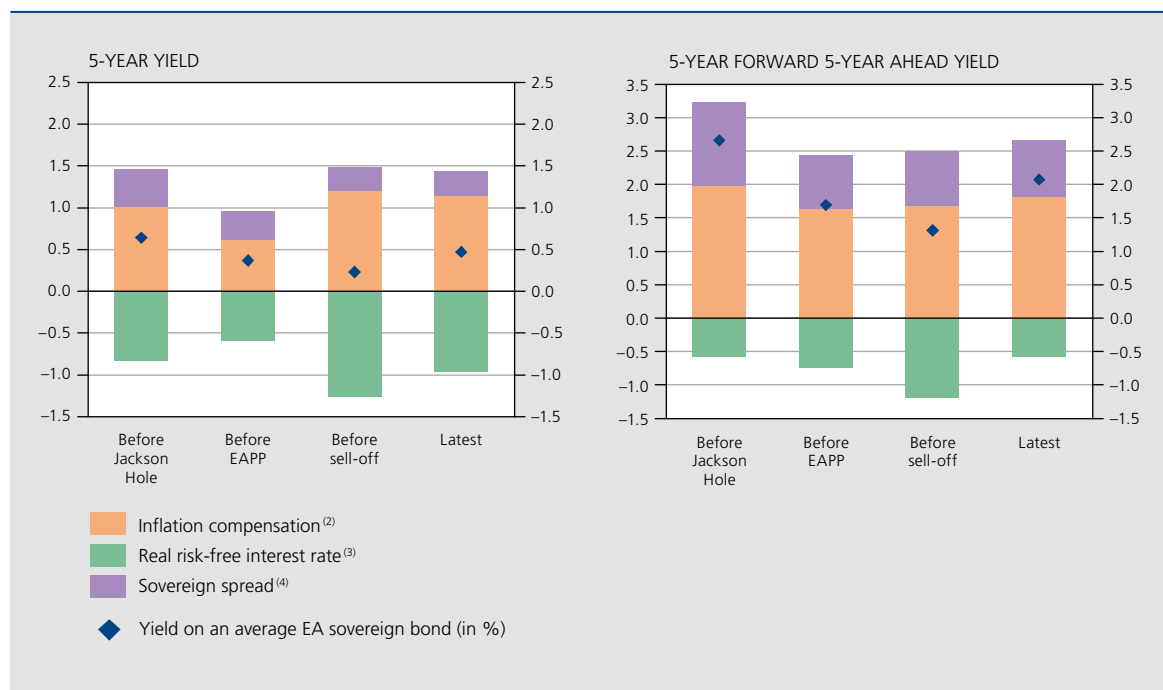
rates. The euro exchange rate was likewise strongly influenced by the euro area's monetary policy. The euro fell sharply (by 18 %) against the dollar between May 2014 and May 2015, owing to the ever-widening differences in interest rate expectations between the two currencies. That is due to the divergent monetary policy stance in the two economies, with expectations of a tightening of US monetary policy coinciding with anticipation of further accommodation in the euro area.

However, these tendencies concerning both yields and the exchange rate were interrupted around mid-April 2015. In the case of the exchange rate, a slight appreciation was accompanied by a narrowing difference between interest rate expectations for the euro area and those for the US, since expectations for the euro area increased slightly while those for the US were revised downwards.

At about the same time, euro area government bonds recorded an about-turn, and yields rapidly soared. While nominal yields increased during May, their composition changed considerably. Breaking down ten-year government bonds in the euro area into various terms and components may shed some light on the recent tendencies.

BREAKDOWN OF YIELDS ON TEN-YEAR GOVERNMENT BONDS IN THE EURO AREA ⁽¹⁾

(in percentage points, unless otherwise stated)



Sources: Bloomberg, ECB.

(1) Yield on a composite euro area government bond comprising all issuers in all rating categories. The yield is broken down as follows: Yield in the euro area = inflation compensation + real risk-free interest rate + spread between government bonds in the euro area and the risk-free interest rate.

(2) Inflation compensation derived from inflation swap rates.

(3) OIS interest rate adjusted for inflation compensation for the corresponding time horizon.

(4) Spread between the yield on euro area government bonds and the risk-free interest rate (OIS) for the corresponding term.

Before Jackson Hole: average in the week from 18-22 August 2014.

Before EAPP: average in the week from 12-16 January 2015.

Before sell-off: average in the week from 13-17 April 2015.

Latest: average in the week from 11-15 May 2015.



As already stated, expectations of further accommodative monetary policy measures on the part of the Eurosystem (as hinted by ECB President Mario Draghi in his speech at Jackson Hole in August 2014) and the ensuing announcement and launch of the EAPP were reflected in considerably lower nominal yields for both short- and long-term maturities. Since the downward trend in inflation expectations was also reversed following the announcement of the EAPP, that led to a significantly more negative real interest rate, generally favourable to growth prospects. The changes in the other determinants of euro area sovereign yields (namely the spread between the yield and the risk-free interest rate) were smaller and often concerned a rise in the negative differential between the real risk-free interest rate and the German Bund yield as a result of the relatively limited supply of Bunds compared to the amounts that the Eurosystem planned to purchase. Since inflation expectations were virtually static, the recent interest rate peak was due mainly to a rise in the implicit real interest rate, primarily in the longer-term segment.

The steeper increases in the longer-term segment appear to indicate that the nominal interest rate for shorter terms has remained firmly anchored, partly as a result of the ECB's forward guidance. It should also be noted that both the nominal and the real interest rate are still below the level prevailing in the summer of 2014. Moreover, the rise in the long-term yields could be due to less negative term premiums in the context of a market correction following a very sharp rise and/or better long-term growth prospects, which are also likely to be expressed in higher real interest rates in the future. In that sense, these developments should not necessarily be interpreted too negatively.

1. International environment and assumptions

1.1 World economy

The uneven, steady recovery of the global economy continued in 2014 and in early 2015. Activity expanded further in the advanced economies. Apart from the accommodative monetary policy, the positive impact of the lower oil prices, i.e. on real household incomes and private consumption, was a key supporting factor in most cases. However, world growth was depressed by weaker activity in a number of large emerging countries and in the oil-exporting countries. Within the group of advanced economies, there has been a recent shift in growth dynamics in favour of the euro area.

Following a strong revival in economic activity in the United States during 2014, activity dipped slightly in the first quarter of 2015 owing to a strong dollar and a number of temporary factors such as a fall in investment in the energy sector and adverse weather conditions. Nonetheless, growth in the United States remains robust compared to that in the other advanced countries. The recovery also continues to be reflected in the labour market, with steady growth of employment and a decline in unemployment. However, the moderate wage growth could still indicate some under-utilisation of the labour

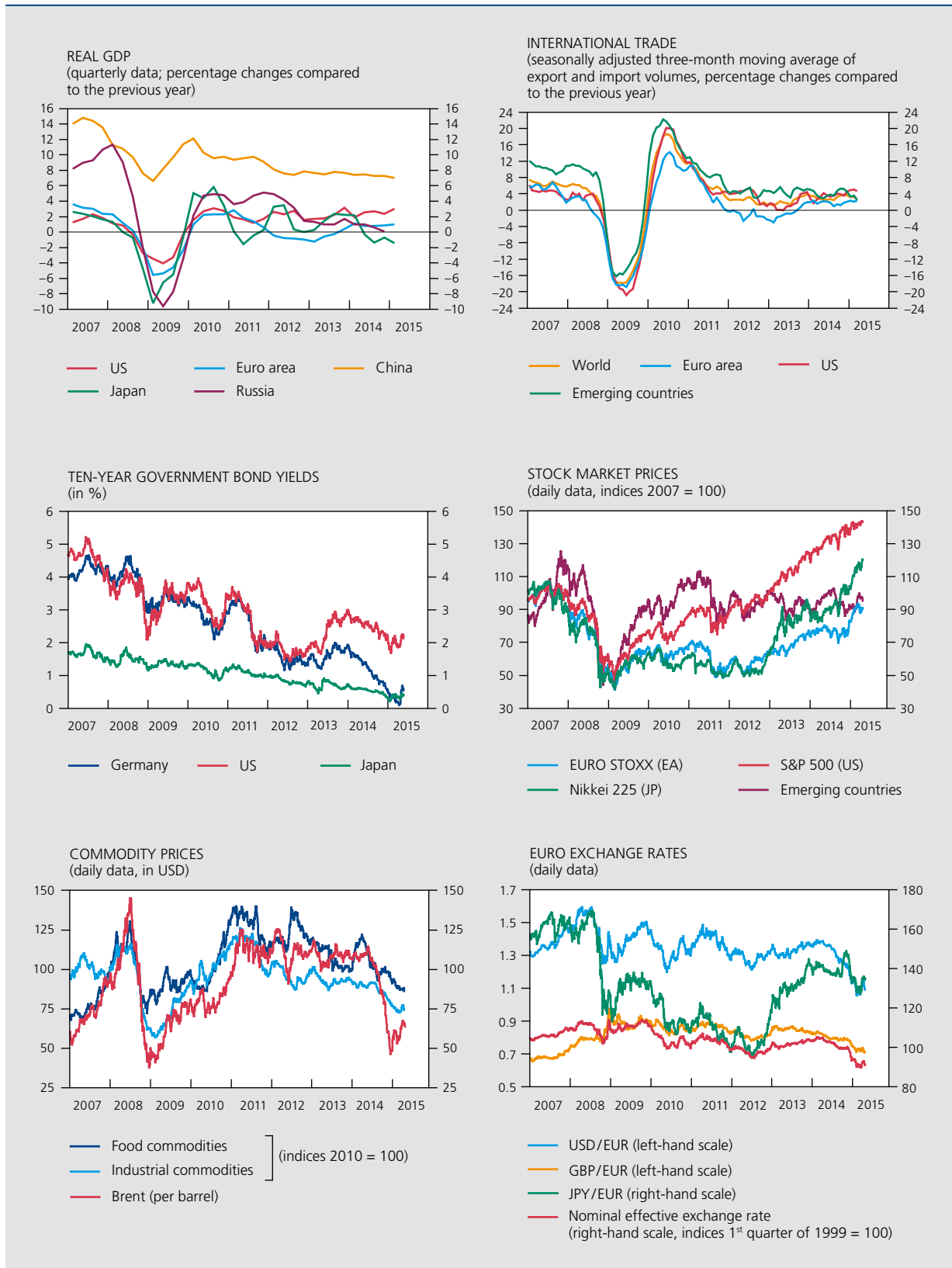
potential, reflected partly in the persistently large number of people involuntarily working part-time.

In Japan, economic growth remains very modest. After the sharper-than-expected fall in the second and third quarters following the April VAT increase, activity expanded again quarter-on-quarter at the end of last year, albeit to a limited degree. In the first quarter of 2015, consumer confidence and real wage increases bolstered private consumption, and there was a revival of investment expenditure in manufacturing industry, but the significant contribution from stock-building points to a fragile recovery. Against that backdrop, the government announced new stimulus measures which, together with the cheaper yen, are intended to support growth.

In the euro area, while the economic situation had remained intrinsically fragile for much of 2014, activity began to pick up again from the end of last year. The recovery strengthened further in the first quarter of this year, with initial estimates indicating quarterly growth of 0.4%. The euro area's economy benefited from a favourable environment, such as the extremely low level of interest rates and the euro depreciation, which were both encouraged by the extra policy accommodation offered by the ECB in the form of the said quantitative easing. The initial indications are that the strengthening growth is underpinned mainly by domestic demand and, more particularly, private consumption. Improving consumer confidence is

CHART 1

GLOBAL ECONOMIC ACTIVITY AND DEVELOPMENTS ON FINANCIAL AND COMMODITY MARKETS



Sources: CPB World Trade Monitor, OECD, Thomson Reuters Datastream.

also a factor. However, there has not yet been any strong, widespread revival in investment. In November last year, in order to tackle the persistently weak investment, the European Commission announced an Investment Plan for Europe, aiming to generate new investment totalling € 315 billion over the next three years.

The euro area's recovery is also becoming increasingly broadly based across the various Member States. Thus, growth in the so-called peripheral euro area countries was already picking up in 2014. The first quarter of 2015 brought a further considerable strengthening of economic activity in Spain, and the recovery also continued in Portugal. In addition, in the first quarter of 2015, activity in France, which had only risen very slightly in 2014, recorded a strong expansion. In Italy, too, where the economy had run out of steam in 2014, real GDP increased again in the first quarter. In contrast, in both Germany and the Netherlands, growth was somewhat slower in the first quarter, following vigorous expansion in the final quarter of 2014. However, in Greece, the economic recovery seen in the first three quarters of 2014 ground to a halt again. Activity in some Baltic countries was hit by the negative repercussions of the strained relations with Russia.

Inflation in the euro area, which had begun falling at the end of 2011, continued to decline in 2014. It eventually became negative in December as a result of the steep fall in oil prices, and in January it bottomed out when the HICP index was down by 0.6% year-on-year. After that it began rising slowly again. It is expected to remain low in the months ahead, and to gather pace from the end of the year. That increase is likely to be supported by the impact of the ECB's recent policy measures on demand, the influence of the euro's depreciation, and the expected gradual revival in oil prices in the coming years.

Although the situation on the labour market remains very weak in a number of countries, it has improved slightly in the euro area. In addition, the disparities between Member States are gradually diminishing since the recent expansion in employment is largely based on improvements in the countries with the highest unemployment rates, such as Spain, Portugal and Greece. Despite rising employment and falling unemployment rates, however, wage growth in the euro area is still limited except in Germany.

Economic activity in the emerging countries has continued to moderate although the situation varied greatly between countries and regions. While growth declined slightly in China last year, it gathered pace in India – although the favourable figures for India are due partly to methodological revisions in the underlying data. If that trend

continues this year, India will overtake China as the focal point of growth in the group of large emerging countries. In the context of declining growth figures and a persistent housing market correction, the Chinese authorities took measures to stimulate expansion. However, as the economy moves towards more sustainable development, that is very likely to be accompanied by a gradual growth deceleration. In some Latin American countries, the fall in commodity prices since the middle of last year has had an adverse impact on activity. While growth in Russia was likewise depressed by the steep fall in oil prices, the geopolitical tensions, international sanctions and financial market turmoil at the end of last year were also significant factors there.

By the beginning of 2015, the world trade revival from the middle of last year had already begun to lose momentum as a result of lower import volumes in the emerging countries, including China, Russia and the oil-exporting countries. Although world trade is expected to pick up as the economy recovers, it will probably do so more slowly than before the crisis.

On the financial markets, stocks have maintained their upward trend while exchange rates and interest rates have diverged more widely between the various countries and regions. In the advanced countries, equity prices surged again to reach record levels. Since the beginning of the year, European stocks have risen particularly strongly, boosted by positive news about the economic situation in Europe and the substantial liquidity creation. The yield on long-term government bonds in the advanced countries recorded a further sharp fall, notably on account of the highly accommodative monetary policy. Shorter-term yields actually became negative for a time in various European countries. Risk premiums on high-yield government bonds in the peripheral euro area countries also dropped to their lowest levels since the crisis, except in Greece where uncertainty over the political and financial situation resulted in a further tightening of financing conditions. However, May brought a period of greater volatility on the financial markets, with interest rates rising sharply and stock markets undergoing a modest correction.

Divergences in monetary policy also had a significant influence on the foreign exchange markets. Thus, particularly from the beginning of 2015, the euro depreciated further against the backdrop of the continued easing of monetary policy in the euro area, which contrasted with the expectation that monetary policy would shortly begin normalising, especially in the United States. Here, too, there was a correction in May with the euro rising against the US dollar, notably because the growth expectations

TABLE 1 PROJECTIONS FOR THE MAIN ECONOMIC REGIONS

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

	2013	2014	2015 e	2016 e
	Actual figures		Projections	
Real GDP				
World	3.3	3.4	3.5	3.9
of which:				
Advanced countries	1.3	1.8	2.3	2.5
United States	2.2	2.4	3.1	3.0
Japan	1.6	0.0	1.1	1.4
European Union	0.0	1.4	1.8	2.1
Emerging countries	4.9	4.6	4.4	5.0
China	7.6	7.4	7.0	6.8
India	6.9	7.2	7.6	7.9
Russia	1.3	0.6	-3.5	0.2
Brazil	2.5	0.2	-0.9	1.3
<i>p.m. World imports</i>	3.1	2.6	3.8	5.1
Inflation⁽¹⁾				
United States	1.5	1.6	0.4	2.2
Japan	0.4	2.7	0.5	0.9
European Union	1.5	0.6	0.1	1.5
China	2.6	2.0	2.5	3.0
Unemployment⁽²⁾				
United States	7.4	6.2	5.4	5.0
Japan	4.0	3.6	3.6	3.5
European Union	10.9	10.2	9.6	9.2

Source: EC.

(1) Consumer price index.

(2) In % of the labour force.

for the American economy were adjusted downwards after the weak first quarter, and the expected normalisation of monetary policy was postponed somewhat.

Since the middle of last year, commodity prices have fallen steeply, with oil prices recording a particularly dramatic decline. Despite a slight rise in oil prices at the beginning of this year, and more recently a rise in the price of industrial commodities, prices remain at a low level. Although the more general fall in commodity prices implies that demand factors have also played a role, the slump in oil prices was due mainly to supply factors, and particularly the expanding supply of unconventional oil and the OPEC decision not to cut the production quota. In general, it is therefore assumed that lower oil prices will have a positive impact on world growth via the effect on real household

incomes and corporate cost structures, which should offset the real loss of income for oil producers.

1.2 Estimates for the euro area

The Eurosystem's spring forecasts for the euro area are considerably more favourable than the latest autumn forecasts and are very similar to the March 2015 estimates by the ECB. This year, growth is expected to strengthen substantially to 1.5%, rising to around 2% in 2016-2017. The recovery will be supported by favourable external conditions, such as the cheaper euro and low interest rates, which are partly encouraged by monetary policy, including the said quantitative easing approved by the ECB Governing Council in January 2015. Economic growth

Box 2 – Assumptions adopted for the projections

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

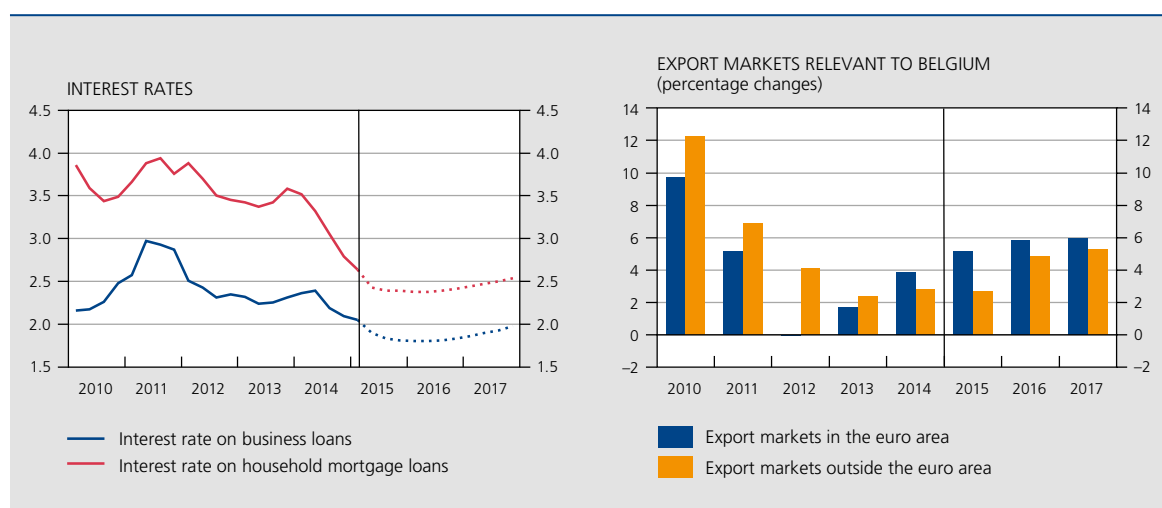
The projections assume that future exchange rates will remain constant throughout the projection period at the average levels recorded in the last ten working days before the cut-off date of the assumptions, i.e. 13 May 2015. In the case of the US dollar, the exchange rate then stood at \$ 1.12 to the euro. Although the euro has appreciated again since mid-April, it remains well below its 2014 average of \$ 1.33.

The assumptions concerning oil prices, which as usual take account of market expectations as reflected in forward contracts on the international markets, underwent a marked downward adjustment following the unexpectedly steep decline in prices that began in the autumn of 2014. However, according to the data from mid-May 2015, the price per barrel of Brent could gradually rise again over the projection period, from an average of \$ 63.9 in the second quarter of 2014 to over \$ 73 in the last quarter of 2017. Nevertheless, that is still well below the level reached in the first half of 2014.

The interest rate assumptions are also based on market expectations in mid-May 2015. The three-month interbank deposit rate remained at an exceptionally low level of roughly zero in the second quarter of 2015. The short-term interest rate is expected to stay at that low level for some time, and will only start to edge upwards at the end of the projection period to reach around 30 basis points by the end of 2017. The level of Belgian long-term interest rates, which rose strongly at the beginning of May, is likewise projected to increase gradually from 0.8% in the second quarter of this year to over 1.5% at the end of 2017. Despite the recent rise, the outlook for long-term interest rates was adjusted downwards quite sharply, compared to the assumptions for the latest autumn estimates.

INTEREST RATES AND VOLUME GROWTH OF EXPORT MARKETS

(in %)



Source: Eurosystem.

The predicted bank interest rates on business investment loans and household mortgage loans take account of the transmission generally apparent in relation to market rates. However, since the second half of 2014, that transmission appears to have improved somewhat, possibly on account of expectations concerning further injections of liquidity by the ECB and, in particular, the quantitative easing announced in January 2015. In comparison with the autumn forecasts, mortgage interest rates therefore also underwent a substantial downward adjustment for 2015, and particularly for 2016. The average mortgage interest rate is expected to remain around 2.4% in the second quarter of 2015, and would only rise very slightly towards the end of 2017. The average interest rate on business loans, which is closer to the short-term segment, is also relatively flat: it is expected to decline by a further 10 basis points this year, before rising slowly at the end of the projection period.

Global economic growth excluding the euro area has been downgraded very slightly for 2015 and 2016 since the December 2014 autumn projections. The trade intensity of that growth was again somewhat less than expected. However, that was more than offset by the fact that the stronger European economic revival is driving up demand for imports from the euro area, which accounts for more than half of Belgian exports. In all, the foreign markets relevant to Belgium look set to expand by well over 5% next year – which means an upward adjustment compared to the autumn forecasts – and should continue to grow in 2017.

The trend in Belgian exports is determined not only by the growth of those markets but also by the movement in market shares, and consequently by Belgium's competitiveness. The cost aspects of that competitiveness are affected by variations in the prices that competitors charge on the export markets. In 2015, competitors' prices on the export markets are set to rise by 3.5%, after having fallen in both 2013 and 2014. A more modest increase of around 2.0% is assumed for both 2016 and 2017. For 2015 and 2016, this means an upward adjustment compared to the autumn forecasts, which is of course largely due to the euro's depreciation in terms of the real effective exchange rate.

Overall, the adjustment of the assumptions compared to the latest autumn forecasts has a positive impact on Belgium's growth prospects.

EUROSYSTEM PROJECTION ASSUMPTIONS

(in %, unless otherwise stated)

	2015	2016	2017
	(annual averages)		
EUR/USD exchange rate	1.12	1.12	1.12
Oil price (US dollars per barrel)	63.8	71.0	73.1
Three-month interbank rate in euro	0.0	0.0	0.2
Yield on ten-year Belgian government bonds	0.9	1.2	1.5
Business loan interest rate	1.9	1.8	1.9
Household mortgage interest rate	2.5	2.4	2.5
	(percentage changes)		
Export markets relevant to Belgium (in volume)	4.2	5.5	5.7
Export competitors' prices	3.5	2.0	1.9

Source: Eurosystem.

will not only be stimulated by expanding exports but will also be reflected in a strong rise in domestic demand, and more particularly in private consumption and investment.

Inflation in the euro area reached a low point in January 2015, but has since climbed back, mainly as a result of rising oil prices. The forecasts point to a further rise in inflation to an average of 1.8 % in 2017. That is only partly due to the assumed reversal of the price pressure from volatile components such as the oil price, since underlying inflation – i.e. inflation excluding the volatile components – is also expected to rise during the projection period. That increase is attributable to strengthening demand and wage growth, but also to the delayed impact of the weaker euro, which makes imports more expensive.

The recent labour market recovery was stronger than might be expected on the basis of historical links between employment and economic growth. Wage moderation and the labour market reforms seem to be supporting that recovery and may have boosted the labour intensity of growth. In the coming years, employment should expand further, although that growth will be hampered towards the end of the projection period by supply shortages in certain countries where the unemployment rate has already dropped to a low level. For the euro area as

a whole, the unemployment rate should continue to decline to reach 10 % in 2017, which is 2 percentage points below the 2013 figure.

The average budget deficit in the euro area is projected to fall to 1.5 % of GDP in 2017. However, that improvement is due largely to the strengthening economic activity and the further decline in interest charges as a result of the exceptionally low level of interest rates. Fiscal policy is expected to be virtually neutral over the period considered.

2. Activity and demand

Since the second half of 2014, the Belgian economy has grown at a relatively constant, moderate pace corresponding to an annual growth rate of just over 1 %. The NAI's flash estimate, taken into account in the Bank's autumn forecasts for growth in the third quarter of 2014, has since been revised upwards very slightly to 0.3 %. According to the current quarterly statistics, quarterly growth was roughly the same for the final quarter of last year (0.2 %) and for the first quarter of 2015 (0.3 %), which is almost exactly in line with the autumn forecasts. The main factor supporting growth is the continuing expansion of activity in market services, while manufacturing activity declined slightly in the final quarter of last year. As regards the expenditure components, the strong growth of private consumption in the second half of the year was partly offset by a negative contribution from net exports, even after the adjustment for certain specific purchases of investment goods from other countries, which inflated both the import figures and business investment.

However, the Belgian economic recovery is more modest than that in the euro area, where growth was somewhat higher in the last two quarters. The Belgian recovery is also lagging behind the growth in the three main neighbouring countries. Although the first quarterly statistics always need to be interpreted with some caution, that seems to suggest that other countries are benefiting more from the improving situation in the euro area.

The still moderate pace of growth should also be seen in the context of the slow recovery of producer confidence. That confidence has gradually dwindled since the spring of last year, and – despite the limited improvement in the past few months – is still barely above its long-term average. The synthetic indicator of consumer confidence also weakened last year and did not show any marked improvement until the end of 2014. However, the element of the consumer confidence indicator that is significant for economic activity, and particularly for private consumption, namely the question

TABLE 2 EUROSYSTEM PROJECTIONS FOR THE EURO AREA

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

	2015 e	2016 e	2017 e
Real GDP	1.5	1.9	2.0
Household and NPI final consumption expenditure	1.9	1.6	1.6
General government final consumption expenditure	0.7	0.7	0.8
Gross fixed capital formation ...	1.9	3.5	3.9
Exports of goods and services ..	4.2	5.4	5.6
Imports of goods and services ..	4.8	5.8	5.9
Inflation (HICP)	0.3	1.5	1.8
Underlying inflation ⁽¹⁾	0.8	1.4	1.7
Domestic employment	0.9	0.9	1.0
Unemployment rate ⁽²⁾	11.1	10.6	10.0
General government financing requirement (-) or capacity ⁽³⁾ ...	-2.1	-1.8	-1.5

Source: ECB.

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

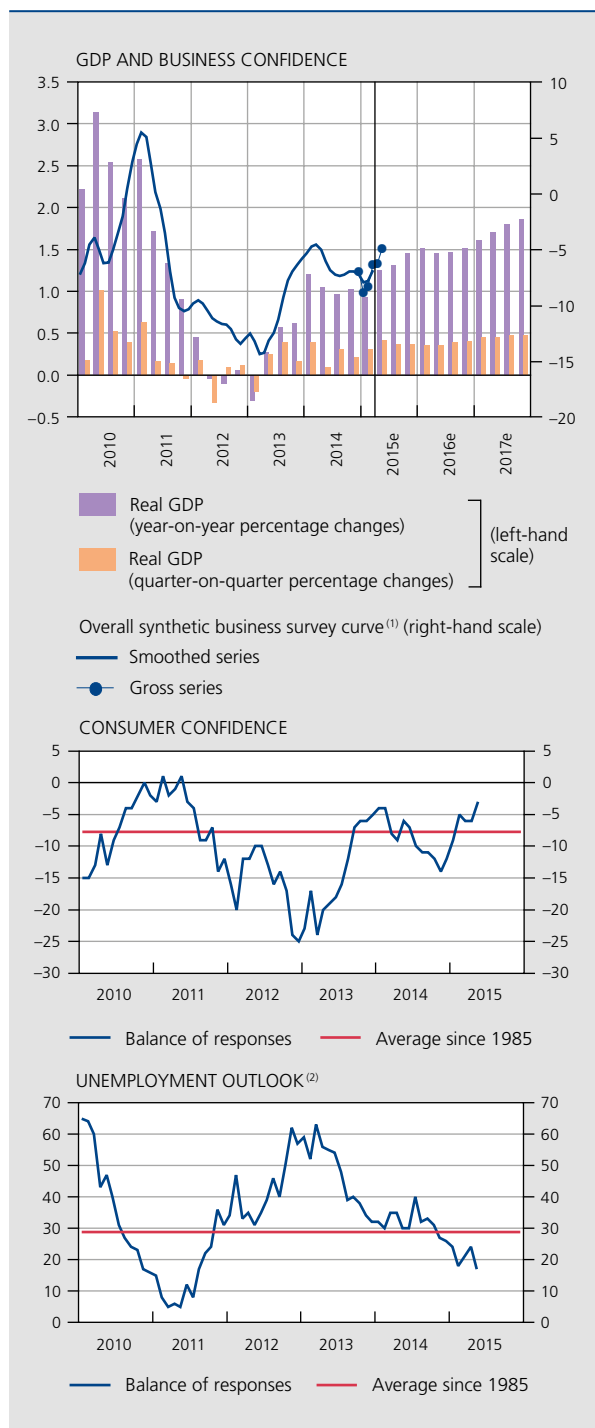
(2) In % of the labour force.

(3) In % of GDP.

about respondents' expectations regarding unemployment, has displayed a strong and almost constant tendency to improve since the beginning of 2013.

CHART 2 GDP AND CONFIDENCE INDICATORS

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



Sources: NAI, NBB.

(1) Non calendar adjusted data.

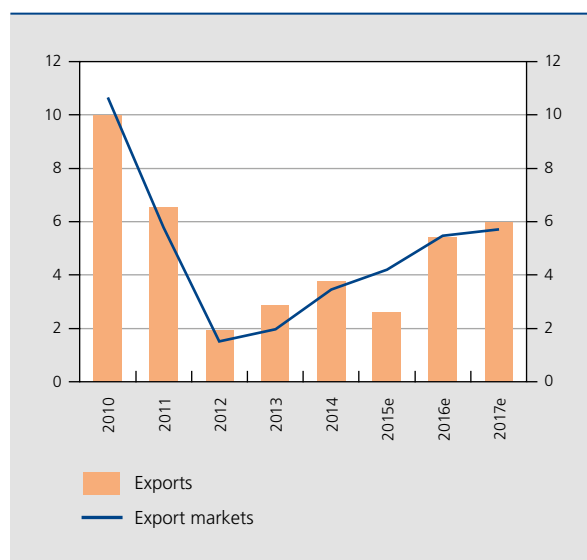
(2) In regard to the outlook for unemployment, a rise in the chart indicates a deterioration and a fall indicates an improvement.

The "nowcasting" models used at the Bank, such as the BREL model described in the June 2014 Economic Review, use confidence indicators of this type, but they also use other data which are available more frequently and sooner than the quarterly statistics for the purpose of short-term predictions. On the basis of those predictions, a slightly higher growth figure of 0.4% can now be expected for the second quarter of 2015 as well. According to the current forecasts, that rate of expansion should be maintained in the second half of the year, bringing annual growth to around 1.2% for 2015. In the following two years, activity is expected to accelerate gradually to reach 1.7% in 2017.

As regards the annual figures, the increased growth during the projection period is due largely to the rising contribution from net exports, since the favourable effects of labour cost moderation on competitiveness ultimately lead to stronger export growth. The contribution from domestic demand excluding changes in inventories is expected to be smaller this year, though this is largely related to the disappearance of specific transactions that boosted both imports and business investment in 2014. In 2016, that contribution is likely to remain unchanged at 1.3 percentage points, and should only go up slightly in 2017. Finally, changes in inventories have seriously curbed GDP growth in the three preceding years, with an average negative contribution of 0.8 percentage point. Although we cannot rule out the possibility that firms may reduce their stocks more slowly or build them up

CHART 3 EXPORTS AND EXPORT MARKETS

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



Sources: NAI, NBB.

faster in the near future, the technical assumption made for all quarters in the projection period is that changes in inventories would be neutral for growth, partly on account of the great statistical uncertainty surrounding this concept.

In 2015, the growth contribution of net exports is still around zero, which is slightly lower than in 2014. Nonetheless, Belgian exports will clearly gain from the improvement in cost competitiveness. In that connection, the impact of the very modest recent rise in labour costs will be further enhanced by the cost advantage of the cheaper euro, which supports direct or indirect exports to markets outside the euro area. The quarterly growth of Belgian exports is therefore accelerating in comparison with 2014, and is clearly outpacing the expansion of the export markets. On an annual basis, the strong growth of exports is far less obvious and actually falls short of last year's figure, owing to spillover effects resulting partly from the sharp decline in exports in the final quarter of 2014 according to the current statistical data. That spillover effect also explains why, on an annual basis, a loss of market share is still recorded in 2015. Moreover, imports will again be driven higher by additional major purchases of specific investment goods from other countries.

According to the forecasts, however, export growth will gain momentum in the ensuing two years and generate a positive and increasing growth contribution from net exports. Although it is assumed that the euro exchange rate remains unchanged from May 2015, and therefore has no further impact on the relative costs of firms within and outside the euro area, Belgian exports are further supported by gains in cost competitiveness attributable to the policy measures restricting labour costs. That also ensures that Belgian exporters will continue to expand their market share throughout the projection period, as they have done over the past four years. Since imports will rise somewhat more slowly, partly as a result of improved competitiveness, the growth contribution of net exports is positive in all quarters from the second half of 2015 onwards. However, according to the forecasts, the growth contribution will diminish slightly towards the end of the projection period since labour costs will begin to rise a little faster, particularly in 2017.

The fact that the growth of domestic expenditure, excluding changes in inventories, increases only slightly over the whole projection period masks divergent trends in the sub-components of domestic demand. The contribution of private consumption gradually declines and public consumption is also expected to record limited growth in the final two years, while the increase in investment accelerates.

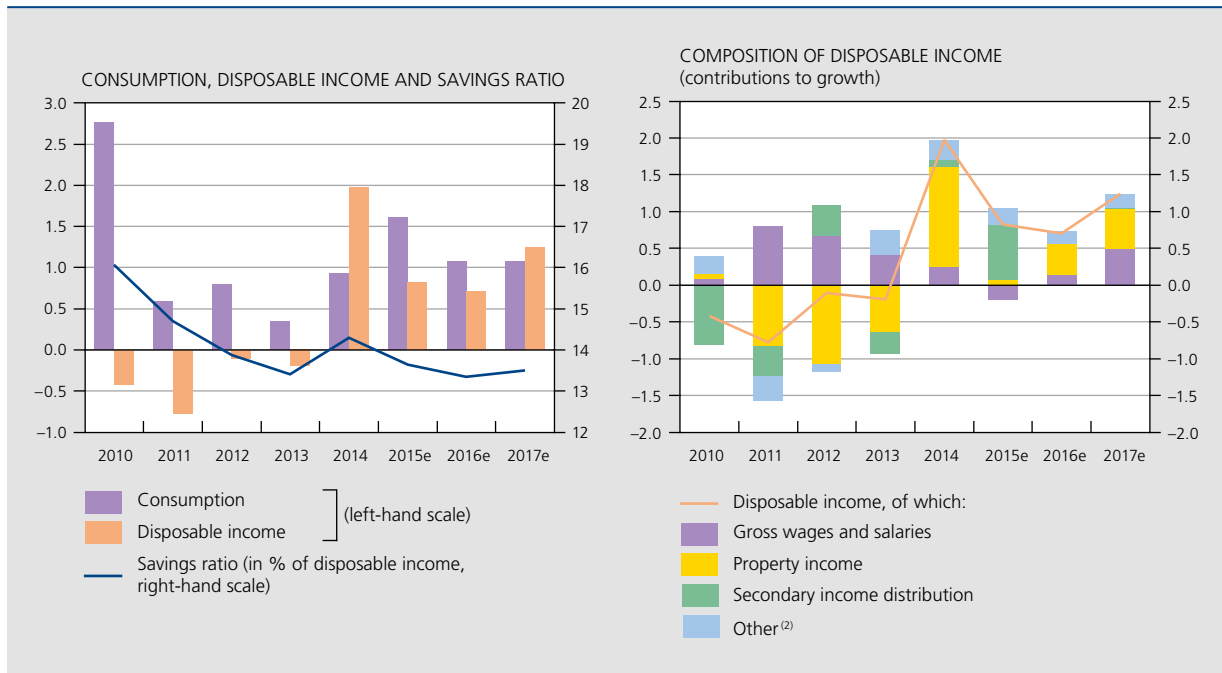
In the second half of 2014, private consumption expanded relatively strongly, with quarterly growth averaging 0.6%. The said improvement in the outlook for unemployment, which boosted confidence, is part of the reason. Another decisive factor is the favourable impact of the sharp fall in oil prices on real household incomes. However, according to the current forecasts, that high growth rate for private consumption will gradually subside to a much lower pace of around 0.2% per quarter, and will only edge upwards again during 2017.

This deceleration in household consumption is due mainly to the movement in household incomes, and more specifically the income from labour and replacement benefits which are less likely to be allocated to savings than property incomes. Despite rising employment and the (small) increase in contractual pay in 2016, the real growth of labour incomes is negative in 2015 and extremely modest in 2016 owing to the temporary suspension of the indexation mechanisms. It is not until 2017, when the indexation mechanisms gradually start operating again, that labour incomes are expected to rise faster than in 2013 and 2014. Taking account of the usual inertia in consumption patterns, however, households will only gradually adapt their consumption in line with that income growth, so that the savings ratio falls further to a historical low. Consequently, the downward trend that was interrupted last year by the very sharp rise in property incomes that are typically saved to a relatively greater extent, will continue until 2016. In the final year of the projection period, the household savings ratio then rises slightly, primarily on account of the growing importance of property incomes in a context of rising interest rates.

The forecasts also point to a slow real rise in investment in housing. In 2014, that investment recorded modest positive year-on-year growth for the first time after two successive years of contraction. According to the forecasts, it will continue rising slowly over the projection period, with growth being further underpinned by the very low nominal mortgage interest rate. The reform of the housing bonus that – certainly in the Flemish Region – will ultimately have a significant financial impact on households, should have only a relatively limited influence on the trend growth of investment. At the end of the projection period, despite the gradual recovery, the volume of investment in housing will still be around 8% below the level prevailing before the great recession.

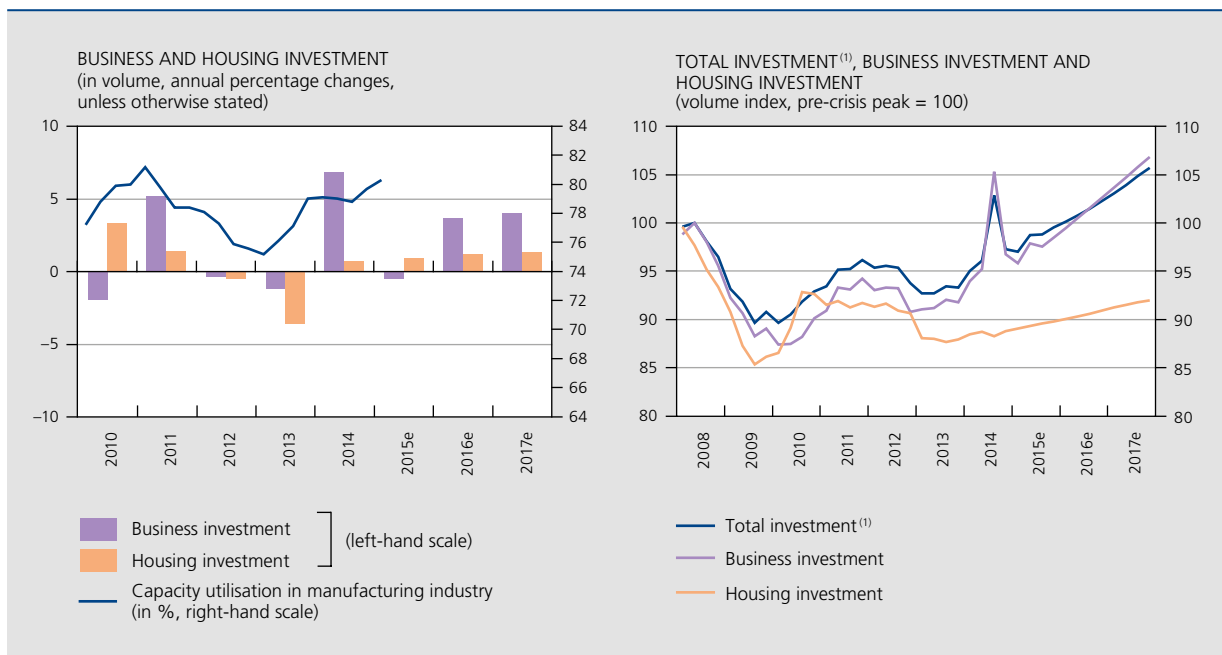
The main reason for the small decline in the volume of business investment in 2015 is that the previously mentioned specific factors which boosted investment (and imports) last year have largely disappeared. Without those specific factors, the volume of business investment

CHART 4 HOUSEHOLD CONSUMPTION AND DISPOSABLE INCOME⁽¹⁾
 (volume data, percentage changes compared to the previous year, unless otherwise stated)



Source: NBB.
 (1) Data deflated by the household consumption expenditure deflator.
 (2) 'Other' comprises the gross operating surplus and gross mixed income (of self-employed persons).

CHART 5 PRIVATE INVESTMENT



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

TABLE 3 GDP AND MAIN EXPENDITURE CATEGORIES

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

	2013	2014	2015 e	2016 e	2017 e
Household and NPI final consumption expenditure	0.3	0.9	1.6	1.1	1.1
General government final consumption expenditure	1.1	1.0	1.2	0.6	0.8
Gross fixed capital formation	-2.1	5.1	0.7	2.7	3.2
general government	-4.3	4.2	8.1	-0.4	1.2
housing	-3.5	0.8	1.0	1.2	1.3
businesses	-1.2	6.9	-0.4	3.7	4.1
<i>p.m. Domestic expenditure excluding change in inventories</i> ...	0.0	1.9	1.3	1.3	1.5
Change in inventories ⁽¹⁾	-0.7	-1.0	-0.1	0.0	0.0
Net exports of goods and services ⁽¹⁾	1.0	0.2	0.0	0.2	0.3
Exports of goods and services	2.9	3.8	2.6	5.4	6.0
Imports of goods and services	1.7	3.6	2.6	5.3	5.8
Gross domestic product	0.3	1.1	1.2	1.5	1.7

Sources: NAI, NBB.

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

would rise at a relatively constant pace corresponding to annual growth of around 4%. The substantial cash reserves, expanding operating surplus and low interest rates in combination with easier financing conditions promote the investment revival. Moreover, the capacity utilisation rate in manufacturing industry has exceeded the long-term average for some time now. Rising demand will therefore increasingly trigger investment in expansion. The escalating impact of that on investment growth will only be offset to a very limited degree by the assumed rise in interest rates from the beginning of 2016.

In regard to public expenditure, the public consumption growth rate is expected to slow down from next year as a result of the consolidation measures, notably staff cuts, and will fall to an unusually low level, clearly below the growth rate of private consumption. This year, public investment is set to record a large volume increase, partly because of the accelerated construction of schools in the Flemish Region; that will be followed by a modest decline in 2016 and moderate growth in 2017.

3. Labour market

In 2014, labour productivity increased quite sharply, which is not unusual in the first phase of an economic recovery. The volume of labour therefore expanded only slightly: the rise in employment was largely offset by a marked fall in the average number of hours worked. Although

the forecasts indicate that productivity will rise further, albeit at a very modest pace, economic growth is likely to receive more support from the use of labour over the projection period.

The growth of the volume of labour is therefore expected to strengthen in 2015 and to be maintained in the subsequent two years. The average number of hours worked per person is forecast to increase at a relatively constant pace, although the wide fluctuations in 2014 will continue to have a significant impact on annual growth in 2015. As a result of the very mild winter, the average working time in the first quarter was much higher than normal, particularly in construction. In the second quarter, adverse weather conditions produced the opposite effect. Finally, in the fourth quarter, strikes significantly reduced the hours worked per person. Overall, employment during the period 2015-2017 is set to increase by 94 000 units. Demand for labour is not only influenced by the accelerating expansion of activity but also by the fact that the wage cost moderation policy makes this production factor relatively cheaper.

In that context, and in contrast to previous years, the biggest contribution to this increase is expected to come from paid employment in the sectors sensitive to the business cycle. The heavily subsidised "other services" sector (primarily health care and social services) is also likely to make a considerable contribution. It should be noted that the rate of employment expansion under the service voucher

CHART 6 DOMESTIC EMPLOYMENT, WORKING TIME AND PRODUCTIVITY

(contributions to annual GDP growth, in percentage points; data adjusted for seasonal and calendar effects)



Sources: NAI, NBB.

scheme, concentrated mainly in the private market sector, will slow down, as the number of vouchers redeemed – after eleven years of strong growth – has no longer risen since 2013. That is due partly to the gradual saturation of

demand (service vouchers are used by almost one in five households), an effect that is augmented by the increase in the cost to users, and partly to recruitment difficulties as the staff turnover rate is high. In the civil service and education sector, staffing levels will decline throughout the projection period as a result of non-replacement of some staff lost through natural wastage; that should reduce staff costs in the various echelons of government. In contrast, self-employed activity is likely to make a positive contribution to employment growth as it has done in the past. One noteworthy point is the rise in the number of pensioners who have used the additional scope for combining a pension with earned income, and have embarked on a self-employed activity in recent years.

Although the population of working age has stopped growing, the rising participation rate continues to expand the labour force. However, that growth will not keep pace with employment, so that unemployment will decline, and the fall will accelerate over the reporting period. On an annual basis, the number of unemployed job-seekers is forecast to average 562 000 in 2017, which is 35 000 fewer than in 2014. That should be reflected in the harmonised unemployment rate which is set to fall from 8.5% of the labour force in 2014 to 7.9% in 2017.

The rise in the participation rate over the projection period is due partly to the end-of-career measures introduced by the present government and its predecessor: raising the minimum age for early retirement, imposing stricter age

TABLE 4 LABOUR SUPPLY AND DEMAND

(calendar adjusted data; change in thousands of persons compared to the previous year, unless otherwise stated)

	2013	2014	2015 e	2016 e	2017 e
Population of working age	12.0	7.5	8.4	7.4	1.7
Labour force	11.5	31.6	17.2	21.4	20.1
National employment	-13.0	17.6	23.9	30.6	39.5
Frontier workers	-0.7	-0.1	0.0	0.0	0.0
Domestic employment	-12.4	17.7	23.9	30.6	39.5
Self-employed persons	6.7	7.2	7.9	8.9	9.4
Employees	-19.1	10.6	16.0	21.8	30.1
Branches sensitive to the business cycle	-23.4	0.0	9.2	15.2	23.7
Public administration and education	2.2	0.6	-3.9	-3.2	-3.4
Other services	2.1	10.0	10.7	9.7	9.8
Unemployed	24.5	14.0	-6.7	-9.2	-19.4
<i>p.m.</i> Harmonised unemployment rate ⁽¹⁾	8.4	8.5	8.5	8.3	7.9

Sources: EC, NAI, NBB.

(1) In % of the labour force (aged 15 years and over).

conditions for the scheme concerning unemployment with employer top-up (formerly the pre-pension scheme), abolishing the status of older unemployed persons, raising the age limits in regard to availability for the labour market for new unemployed persons with employer top-up, etc.

4. Prices and costs

These spring forecasts allow for very modest labour cost growth. In both 2015 and 2016, hourly labour costs are predicted to rise more slowly than last year, when their growth had already decelerated sharply. Labour costs are not expected to gather momentum until 2017. In view of the estimated labour productivity, this means that labour costs will remain virtually unchanged in 2015-2016, as they did last year, and increase by almost 1 % in the final year of the projection period.

The labour cost projections for the period 2015-2016 are greatly influenced by the federal government's measures to improve the competitiveness of the Belgian economy, e.g. by reducing labour costs. One of the main factors behind wage moderation is the temporary suspension of the indexation mechanisms and its indirect impact on inflation.

The introduction of a 2 % indexation suspension from May 2015 – by freezing the smoothed health index, calculated as the average of the health index over the past four

months – has a direct effect on labour costs. Although there is still some indexation as a result of the specific characteristics of the mechanisms used, the effect on wage growth will be very small. In view of the expected movement in the health index, the suspension will continue until the first quarter of 2017. After that, indexation will be resumed in the same way as before. Wages are unlikely to rise immediately; the effect of the indexation will be gradual, varying according to the numerous systems laid down by the joint committees.

Real collectively agreed wages are likely to remain frozen in 2015, in line with the provisions of the central agreement for 2015-2016 adopted by the government. In contrast, gross wages can increase by a maximum of 0.67 % in 2016. These pay increases comprise an initial instalment of 0.37 %, subject to employers' social security contributions, and a second instalment of no more than 0.3 %, which is exempt from additional levies. After three years with no real increase in the pay scales, it can be assumed that this scope will be fully utilised, especially as there are likely to be tensions in various labour market segments as the economy picks up. That factor could also lead to direct pay increases at company level, recorded in the wage drift.

In 2016, a new cut in employers' social security contributions should reduce labour costs by 0.4 percentage point. That measure forms part of a package of reductions in charges amounting to some € 960 million, which also includes payroll tax reductions. Since the latter are

TABLE 5 PRICE AND COST INDICATORS
(percentage change compared to the previous year, unless otherwise stated)

	2013	2014	2015 e	2016 e	2017 e
Labour costs in the private sector					
Labour costs per hour worked	2.4	0.8	0.3	0.6	1.6
of which indexation	1.9	0.8	0.2	0.2	0.5
Labour productivity ⁽¹⁾	0.2	0.9	0.3	0.6	0.7
Unit labour costs	2.2	-0.1	0.0	0.1	0.9
Underlying inflation ⁽²⁾	1.4	1.5	1.5	1.3	1.4
Energy prices	-4.6	-6.0	-7.2	2.5	1.0
Food prices	3.6	0.8	1.5	1.9	1.9
HICP	1.2	0.5	0.6	1.5	1.5
Health index	1.2	0.4	0.8	1.2	1.4

Sources: EC; FPS Employment, Labour and Social Dialogue; NAI; NBB.

(1) Value added in volume per hour worked by employees and self-employed persons.

(2) Measured by the HICP excluding food and energy.

considered as “wage subsidies”, that part of the package is not taken into account in calculating labour costs according to the national accounts definition, and is therefore also excluded from the assessment of the trend in the wage gap. Employers’ contributions should have a slightly negative impact on labour costs in 2015, mainly as a result of the fall in the contribution to the Business Closure Fund and the normalisation of the number of redundancy payments following the effect of the substantial corporate restructurings in 2014.

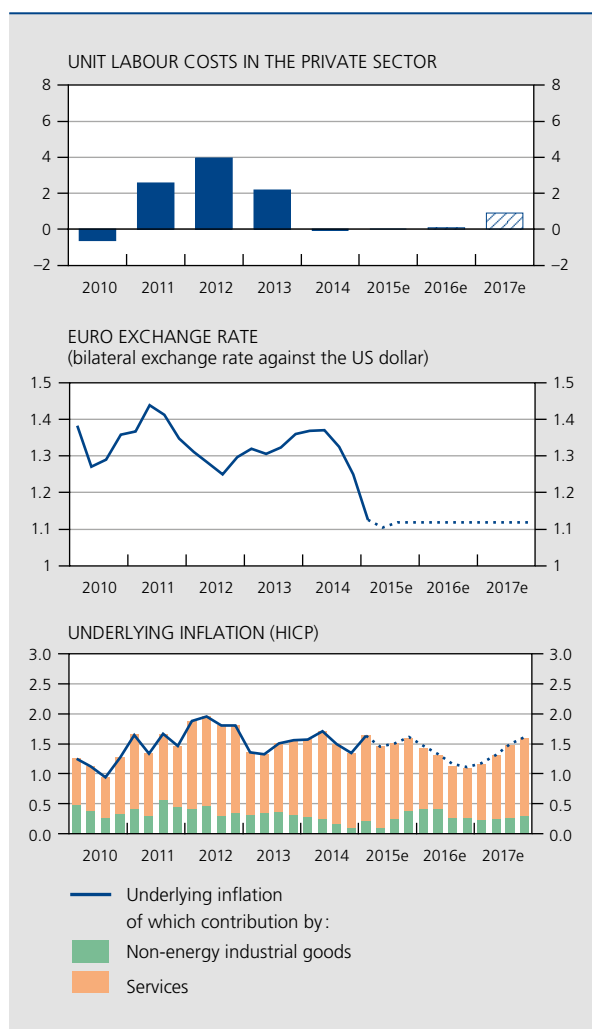
The collectively agreed wage increases for 2017 are as yet unknown since the negotiations on the future interprofessional agreement will not start until the end of 2016, on the basis of the wage gap in relation to neighbouring countries reported at that time by the

Central Economic Council (CEC). At the end of 2014, the CEC had estimated the labour cost handicap at 2.9%. The acceleration in labour costs predicted in the current projections does not anticipate the outcome of the next interprofessional agreement. Apart from assuming that the indexation freeze will end, this prediction allows for negotiated increases amounting to roughly 1%, in view of the scope for growth which will presumably result from the gradual reduction in the cumulative wage gap since 1996 (expressed as hourly labour costs in the 1996 law). In all, the rise in nominal hourly labour costs should ease considerably, dropping from 2.4% in 2013 to 0.8% in 2014, and then amounting to 0.5% in 2015 and 0.6% in 2016, after which the growth rate will accelerate somewhat to 1.6% in 2017.

In principle, the very modest rise in labour costs should gradually be reflected – after some time – in prices, and more specifically in underlying inflation which excludes the prices of the volatile components, namely food and energy. In the shorter term, however, the recent sharp depreciation of the euro will drive up underlying inflation, because the cheaper euro means higher import prices, pushing up inflation in the case of imports or goods comprising imported intermediate inputs. Since that is less applicable to the services sector, the main upward pressure on prices is seen in non-energy industrial goods. For that reason, underlying inflation – which has already risen sharply to an average of more than 1.6% in the first four months of 2015 – will continue to hover around that level for the rest of the year. Then, once the exchange rate effect has faded away, the impact of the virtually flat labour costs would become more apparent, according to the projections, causing underlying inflation to decline to just over 1% by the end of 2016. In 2017, domestic cost pressure then increases again as a result of stronger wage growth, and that is gradually reflected in rising underlying inflation.

It should nevertheless be added that, in Belgium, underlying inflation has so far remained relatively high compared to that in the euro area and in the main neighbouring countries, primarily because of the more persistent price rises in the service sector. Furthermore, the transmission of (labour) costs into prices depends on the degree of competition on the markets, and is not necessarily symmetrical, certainly in view of downward price rigidities. This asymmetry, combined with the existence of various indexation mechanisms in pricing that cause some prices to adapt only slowly to declining inflation, could potentially explain the relatively persistent underlying inflation. According to the current inflation forecasts, the factors which have recently maintained underlying inflation at a high level will therefore gradually give way to the

CHART 7 LABOUR COSTS AND UNDERLYING INFLATION
(percentage changes compared to the previous year, unless otherwise stated)



Source : NBB.

downward influence of the very modest domestic cost pressure.

Headline inflation is determined not only by underlying inflation but also by the movement in the prices of the volatile components, namely energy and food. Primarily as a result of the slump in energy prices, inflation has remained clearly below the underlying inflation trend in the recent period, and was actually negative from December 2014 to March 2015. The impact of the lower price of Brent crude oil was further reinforced by the cut in the VAT rate on electricity, from 21 % to 6%. That measure was implemented in April 2014 under the Pact for Competitiveness and Employment, and had a negative effect on electricity prices up to April 2015.

Taking account of the rising oil price according to the assumptions presented in Box 2, the negative impact of energy prices on headline inflation should gradually diminish and turn into a positive contribution from 2016. Together with the expected steeper rise in food prices, that will lead to a marked increase in inflation despite the initially flat and then declining underlying inflation trend: this year, inflation will be barely any higher, on average,

than last year, but from 2016, the annual average will rise to 1.5 %. The health index, which is calculated as the national consumer price index excluding alcohol, tobacco and motor fuel, will also increase from 0.8 % in 2015 to 1.4 % in 2017.

5. Public finances

5.1 General government balance

According to the data published by the NAI in April 2015, the Belgian government recorded a deficit of 3.2 % of GDP in 2014. In the macroeconomic context described above, that deficit is likely to drop to 2.7 % of GDP in 2015, declining further to 2.4 % of GDP in 2016 and 2 % of GDP in 2017.

The improvement in the overall balance is due largely to the decline in interest charges, since it is likely that maturing government loans can be refinanced at interest rates favourable to the government. The consolidation measures introduced by the federal government and the

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

	2014	2015 e	2016 e	2017 e
General government				
Revenue	51.1	50.7	50.4	50.3
Fiscal and parafiscal revenue	44.7	44.6	44.3	44.2
Other	6.4	6.1	6.1	6.1
Primary expenditure	51.3	50.7	50.2	49.9
Primary balance	-0.2	0.1	0.2	0.4
Interest charges	3.1	2.7	2.5	2.3
Net borrowing (-) or net lending	-3.2	-2.7	-2.4	-2.0
<i>p.m. Effect of non-recurring factors</i>	<i>0.4</i>	<i>0.2</i>	<i>-0.1</i>	<i>0.0</i>
Overall balance per subsector				
Federal government	-2.6	-2.1	-2.0	-1.5
Social security	-0.1	0.0	0.0	0.0
Communities and Regions	-0.3	-0.4	-0.3	-0.2
Local authorities	-0.3	-0.2	-0.1	-0.2
Debt	106.6	107.0	107.6	106.8

Sources: NAI, NBB.

(1) These figures include the advances on the regional additional percentages on personal income tax although, according to the methodology of the ESA 2010, those advances are regarded as purely financial transactions and the regional additional percentages are only taken into account at the time of collection.

governments of the Communities and Regions should also help to improve the budget balance. Those measures are designed to cut government spending. As a result, primary expenditure should fall as a percentage of GDP, but government revenue is also likely to decline.

The deficits are concentrated mainly on the federal government. Social security should balance its budget since it receives a grant from the federal government for that purpose. The Regions and Communities and local authorities are projected to record small deficits.

It should be noted that these projections only take account of budget measures which have already been announced and are specified in sufficient detail. They disregard the influence of decisions yet to be taken, e.g. in producing the budgets for 2016 and 2017. The April 2015 stability programme aims at restoring a structural budget balance by 2018. These projections reveal that the attainment of that objective will require additional consolidation measures.

5.2 Revenue

Public revenues expressed as a percentage of GDP are projected to fall by 0.4 percentage point in 2015 and by a further 0.3 and 0.1 percentage point respectively in 2016 and 2017. This means that the decline in revenues that began in 2014 will persist.

The contraction of revenues in 2015 is due mainly to the reduction in the income that the State receives from various financial institutions and a fall in the direct taxation of individuals. The latter revenues are depressed both by the relatively weak rise in the wage bill and by a series of measures. This concerns both structural measures, such as the increase in the fixed business expenses deductible via the payroll tax, and temporary factors such as the end of the anticipation effect relating to the measure concerning liquidation gains or the delayed assessments which had driven up revenues in 2014. The tax regularisation revenues are also expected to decline steeply. Conversely, corporation tax will benefit from the cut in the notional interest deduction for companies, as a result of the reduction in the reference interest rate. In addition, the restriction on the use of the notional interest system by the banks and the tax levied on some intermunicipal structures should contribute to the growth of these revenues. Finally, capital taxes are subject to divergent influences, the downward effect of the gradual ending of the tax regularisation being offset by the early collection of taxes on pension savings and by the catch-up effect of the delayed collection of inheritance taxes in the Flemish Region.

The persistently modest wage increases and the new rise in the fixed business expenses allowance will have a very marked negative impact on fiscal and parafiscal revenues in 2016. Those factors reinforce the substantial effect of the return to a rate of personal income tax collection more in line with the past. A general decline in social security contributions is also foreseen as a result of the measures taken to cut employers' contributions in order to improve firms' competitiveness and revive employment. Only the corporation tax revenues are forecast to rise, thanks to improved corporate profitability and the new reduction in the reference interest rate for calculating the tax allowance for risk capital. Indirect taxes are also expected to benefit from the VAT measures and the reintroduction of the ratchet system for diesel, whereas non-fiscal and non-parafiscal revenues will remain relatively stable.

In 2017, the restrictive wage policy will continue to depress tax revenues, albeit to a lesser extent than in previous years. Most revenues, both fiscal and parafiscal, are predicted to remain almost stable in relation to 2016.

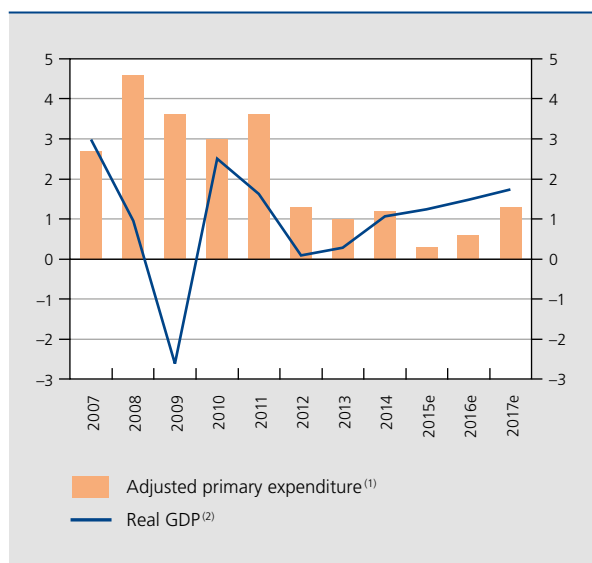
5.3 Primary expenditure

Primary expenditure is set to decline considerably in relation to GDP in 2015 and in the two subsequent years. Nominal public expenditure would grow more slowly than economic activity. Primary expenditure is expected to fall from 51.3 % of GDP in 2014 to 49.9 % in 2017.

That decline reflects the government's economy measures introduced after the elections on 25 May 2014. The main effect is attributable to the index jump which seriously curbs the growth of social benefits and wages in 2015 and 2016, and to some extent in 2017 as well, for each government sub-sector. In addition, the federal government aims to prune its operating expenses by reducing its purchases of goods and services and cutting its workforce. It has also decided to scale down its subsidies to public enterprises and its development cooperation budget. Furthermore, the growth of social security expenditure will be moderated by a range of measures to cut the rise in health care spending to a maximum of 1.5%. Finally, the Communities and Regions have also adopted economy measures, e.g. in regard to subsidies and education.

After adjustment for the influence of one-off and cyclical factors and for the indexation effect, real primary expenditure is projected to record a modest 0.3% rise in 2015, which is 1 percentage point below real GDP growth. In 2016 and 2017, the adjusted expenditure is likely to increase slightly faster by 0.6 and 1.3% respectively, but will still be outpaced by real GDP growth. This moderation,

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 or fiscally neutral factors, and for the effect of indexation. The latter is due to the difference between, on the one hand, the actual indexation (or the theoretical figure for 2015 and 2016, in keeping with the approved suspension of the indexation mechanisms) of public sector wages and social security benefits and, on the other hand, the rise in the GDP deflator.

(2) Data adjusted for calendar effects.

attributable partly to the restrictions on social benefits and the government wage bill as a result of the index jump, should enhance the consolidation tendency apparent in public finances in recent years.

5.4 Debt

The debt ratio has risen steadily since 2008, reaching 106.6% of GDP at the end of 2014. In 2015, the public debt is projected to rise further to 107% of GDP.

That rise is due to endogenous factors which drive up the debt ratio by 0.4 percentage point of GDP. That increase results from relatively low nominal GDP growth, which is expected to be weaker than the implicit interest rate on the public debt, combined with a primary balance of 0.1% of GDP.

The exogenous factors, so called because they influence the debt but not the overall balance, are forecast to push up the debt slightly, by 0.1 percentage point of GDP. That is due partly to the expected increase in lending by the *Vlaamse Maatschappij voor Sociaal Wonen* and the *Vlaams Woningfonds*, the new repayment by KBC amounting to 0.1% of GDP, and the planned capital

reduction by the mixed (public and private) management of the electricity and gas distribution networks in Flanders in favour of Flemish municipalities. Debt management will have virtually no impact on the debt ratio, as the effect of the substantial issue premiums will be offset on the one hand by a relatively high coupon interest payment in relation to market interest rates, and on the other hand by losses recorded as a result of cancellation of interest rate swaps and other derivatives.

In 2016, the public debt is set to increase further to 107.6% of GDP, owing to exogenous factors relating to the management of the public debt. In 2017, the debt ratio is projected to fall to 106.8% as a result of endogenous factors, as the expectation is that nominal GDP growth will exceed the implicit interest rate on the public debt while the primary balance should be slightly positive. That should set the public debt on a downward path again for the first time since the eruption of the financial crisis.

6. Risk factor assessment

The current spring forecasts confirm the gradual recovery scenario and comprise a small upward revision compared to the autumn estimates, partly as a result of cheaper oil and the euro's depreciation. They are also in line with the estimates of the other institutions: as regards economic growth, they deviate only very slightly from those of the Federal Planning Bureau and the European Commission (EC). Of the latest estimates, only those produced by the OECD predict stronger growth. The inflation estimates exhibit somewhat larger divergences: the other institutions expect inflation to increase more slowly, perhaps because these spring forecasts assume that the oil price will rise more steeply by 2017, compared to the assumptions used by the other institutions. But this relatively close convergence of the macroeconomic estimates should not detract attention from the great uncertainty which inevitably surrounds such projections.

In that connection, there are still downside risks concerning the external environment. For instance, a further heightening of geopolitical tensions could depress European growth. In addition, there is still a risk that the deceleration in growth in China and other emerging countries will be sharper and longer lasting than is currently expected according to the international assumptions. Finally, there is still uncertainty over the sustainability of the recovery in some advanced countries, as was recently evident from the relatively weak first quarter recorded by the US and British economies. On the other hand, it is always possible that the euro area's recovery could turn

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

Institution	Publication date	Real GDP growth			Inflation (HICP, unless otherwise stated)		
		2015	2016	2017	2015	2016	2017
IMF	April 2015	1.3	1.5	1.5	0.1	0.9	1.1
Consensus Economics	May 2015	1.3	1.6		0.3	1.6	
EC	May 2015	1.1	1.5		0.3	1.3	
Federal Planning Bureau	May 2015 ⁽¹⁾	1.2	1.6	1.7	0.2	1.2	1.2
OECD	June 2015	1.3	1.8		0.0	1.3	
NBB	June 2015	1.2	1.5	1.7	0.5	1.6	1.6

(1) Economic Outlook 2015-2020. The inflation figures are derived from the NCPI which may differ slightly from the HICP.

out to be more vigorous, either because the still relatively cheap euro has a bigger impact on net exports or via the more beneficial influence of confidence effects on private consumption and investment.

Turning to the financial markets, when the estimates were finalised it was still unclear whether calm had been restored following the period of severe volatility in May. Further interest rate rises or a further appreciation of the euro could hamper the recovery. In addition, the outcome of the negotiations between Greece and the international creditors remains a source of uncertainty.

Attention should also be drawn to the way in which the recent government competitiveness-enhancing measures were included in the projections. As was already the case

in the autumn forecasts, and as explained in detail in Box 1 of the relevant article in the December 2014 Economic Review, it is assumed that the slower growth of nominal wages will feed through into prices to a significant extent, albeit after some delay. If this happens more slowly or more quickly, to a greater or to a lesser extent than expected, or if the economic agents such as employers, investors and foreign customers for Belgian exports do not respond to lower wages and prices in the way that these projections assume, economic activity, employment, the budget balance or inflation could deviate from these spring projections.

Finally, it must be remembered that these estimates naturally take no account of any new measures that the government may take in the future.

Annex

PROJECTIONS FOR THE BELGIAN ECONOMY: SUMMARY OF THE MAIN RESULTS

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

	2014	2015 e	2016 e	2017 e
Growth (calendar adjusted data)				
Real GDP	1.1	1.2	1.5	1.7
Contributions to growth:				
Domestic expenditure, excluding change in inventories	1.9	1.3	1.3	1.5
Net exports of goods and services	0.2	0.0	0.2	0.3
Change in inventories	-1.0	-0.1	0.0	0.0
Prices and costs				
Harmonised index of consumer prices	0.5	0.6	1.5	1.5
Health index	0.4	0.8	1.2	1.4
GDP deflator	0.6	0.9	1.0	1.4
Terms of trade	0.5	1.0	-0.3	-0.2
Unit labour costs in the private sector	-0.1	0.0	0.1	0.9
Hourly labour costs in the private sector	0.8	0.3	0.6	1.6
Hourly productivity in the private sector	0.9	0.3	0.6	0.7
Labour market				
Domestic employment (annual average change in thousands of persons)	17.7	23.9	30.6	39.5
Total volume of labour ⁽¹⁾	0.3	0.7	0.9	1.1
Harmonised unemployment rate (in % of of the labour force aged over 15)	8.5	8.5	8.3	7.9
Incomes				
Real disposable household income	2.0	0.8	0.7	1.2
Household savings ratio (in % of disposable income)	14.3	13.6	13.3	13.5
Public finances				
Primary balance (in % of GDP)	-0.2	0.1	0.2	0.4
Overall balance (in % of GDP)	-3.2	-2.7	-2.4	-2.0
Public debt (in % of GDP)	106.6	107.0	107.6	106.8
Current account				
(according to the balance of payments, in % of GDP)	1.4	1.4	1.4	1.6

Sources: EC, DGS-ADS, NAI, NBB.

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

The relationship between economic growth and employment

K. Burggraeve
G. de Walque
H. Zimmer

Introduction

The question of the relationship between economic growth and employment is highly relevant in the recent economic context dominated by the great recession, in which Belgium stood out from some of its partners thanks to a certain degree of labour market resilience. This article takes stock of how that relationship has changed over time, through various recession episodes, and of the underlying trends in gross domestic product (GDP), the volume of labour, and productivity.

The article begins by describing the respective movements, in Belgium, in the variables that explain the pattern of GDP, both through the various economic cycles and in a long-term perspective. The first section sets out the accounting relationships between activity and employment, while the second section analyses the detailed breakdown of GDP. Next, the third section explains the long-term trends in each element of that breakdown, making it possible to address issues such as the job intensity of growth. The fourth section examines the development of the various branches of activity and their contribution to the changes mentioned above.

After that, the fifth section of the article examines more particularly the quantification of the relationship between growth and employment throughout the business cycle and during various successive cycles. Here, the analysis only considers the cyclical components of

the variables concerned. At that level, it endeavours to measure the sensitivity of the cyclical component of employment to the output gap in Belgium, to compare it with the sensitivity observed in other developed economies, and to verify whether it is stable over time or whether there is any asymmetry between expansion and recession episodes. Finally, in the sixth section, this empirical study along the business cycle is extended to a sectoral breakdown and the total volume of labour rather than employment in terms of persons. The conclusion attempts to place the salient findings of the study in perspective while identifying a number of ideas worth exploring.

1. Relationship between activity and employment

1.1 Accounting relationships

GDP represents all goods and services produced and supplied in the economy during a given period. Among other things, that output (Y) has to meet the needs of the total population (P), only some of whom, namely the labour force (A), take part in the production process. In an economy with under-employment, that labour supply is larger than the needs of the production system so that the labour force is sub-divided into workers (E) and unemployed persons (U).

In accounting terms, GDP is broken down as follows:

$$Y = \frac{Y}{TH} \cdot \frac{TH}{E} \cdot E \quad (1)$$

of which $TH = E \cdot H$ = total hours worked in the economy

H = average hours worked per worker

Y/TH = hourly labour productivity

Simplifying by employment E , it emerges that GDP (Y) depends on two factors: the volume of labour used (TH), which is equal to employment in persons (E) times the average hours worked (H), i.e. a quantitative aspect, on the one hand, and apparent hourly labour productivity (Y/TH), or a qualitative aspect, on the other. All other things being equal, and leaving aside capital and technical progress, if productivity outpaces economic growth, the volume of labour diminishes.

The relationship between employment and activity is central to "Okun's law". In principle, these two variables have to move in the same direction. In periods of expansion, the production system needs more workers to satisfy demand, so that employment rises and unemployment falls. But although one additional worker potentially reduces the numbers unemployed by one, the unemployment rate (U/A) will not show a decline proportionate to the growth in employment, the main reason being the

specific dynamics of the labour force. Those dynamics are determined by the demography of the total population and by the labour market participation rate, which is itself influenced in particular by the prevalence of working women, institutional factors such as compulsory education, retirement age and rules regarding unemployment exclusion, and by the business cycle specific to the labour force. Chart 1 offers a general view of the relationships outlined here.

1.2 Historical pattern of activity and employment

Chart 2 compares economic growth with employment growth over a long period. It clearly reveals a positive correlation between them. However, the peaks and troughs in the economic cycle do not coincide with those corresponding to the growth of employment. In general, it takes some time before fluctuations in demand affect the growth of employment. This response time has not been stable over the past fifty years and depends on such factors as the depth of the recession, its origin, its expected duration, and recourse to flexibility instruments on the part of employers.

The adjustment of production capacity in line with the changing outlook for activity is an expensive process and one that takes time. Before dismissing workers (or recruiting additional staff), firms respond first to a decline (or increase) in activity by exploiting their intensive production margin (average working time and/or hourly productivity).

By using various organisational methods such as adjusting overtime, switching to part-time working, or temporary lay-offs, firms can align their use of labour more closely with the needs of production (internal quantitative adjustment). In a scenario in which adverse economic conditions persist, if these margins have been used up and the financial resilience of firms is no longer assured, redundancies are unavoidable (external quantitative adjustment). In addition, in view of the procedures to be respected, job losses under collective redundancy programmes take some time to have an effect; in practice, several months may elapse between the announcement of collective redundancies and the actual job losses; that contributes to the time lag.

In the opposite scenario of an economic upturn, it is only once the flexibility levers available to firms have been used and the growth of demand is confirmed that firms take on additional labour; that recruitment procedure also takes some time.

CHART 1 DIAGRAM OF THE ACCOUNTING RELATIONSHIPS BETWEEN ACTIVITY AND EMPLOYMENT

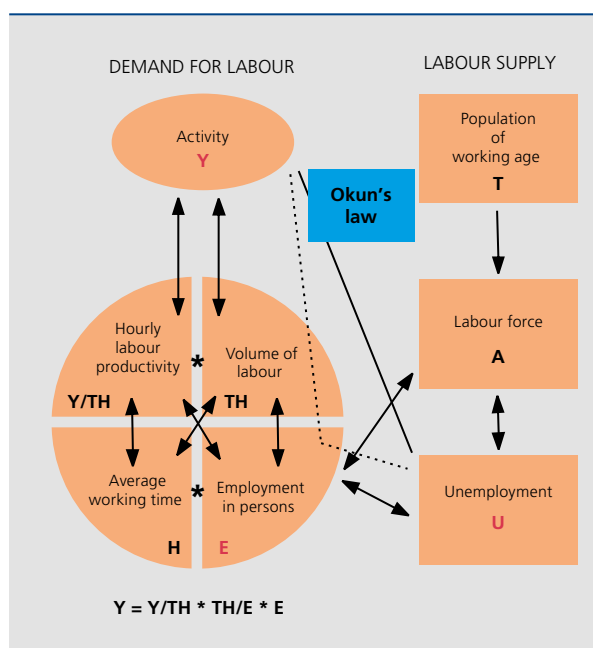
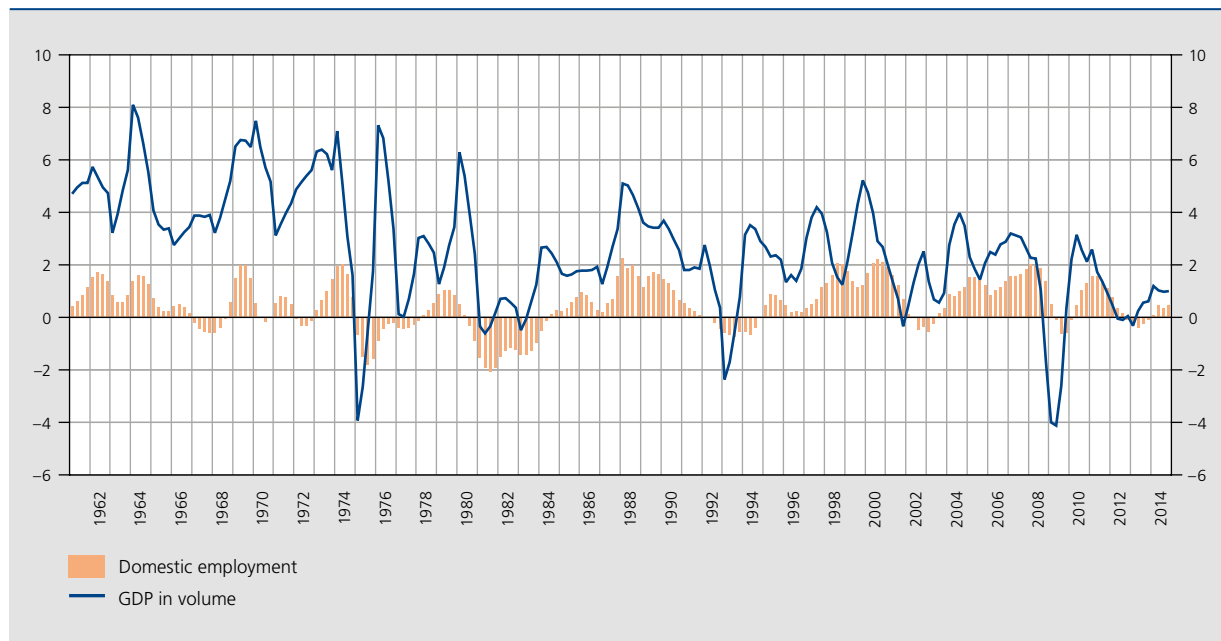


CHART 2

HISTORICAL PATTERN OF EMPLOYMENT AND ECONOMIC GROWTH

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



Sources: NAI, OECD.

2. Breakdown of GDP growth

The change in GDP can be attributed to three factors, namely changes in employment, average working time (hours worked per worker) and hourly productivity (GDP per hour worked, or apparent productivity). The relative contribution of each of these factors is not stable over time. The delayed response by employment and the duration of that response can be illustrated by fixing the level of the workforce at the time of the pre-recession GDP peak and observing the moment when employment starts to fall and the duration of that fall. Chart 3 demonstrates this for the five recession episodes in Belgium between 1970 and 2014:

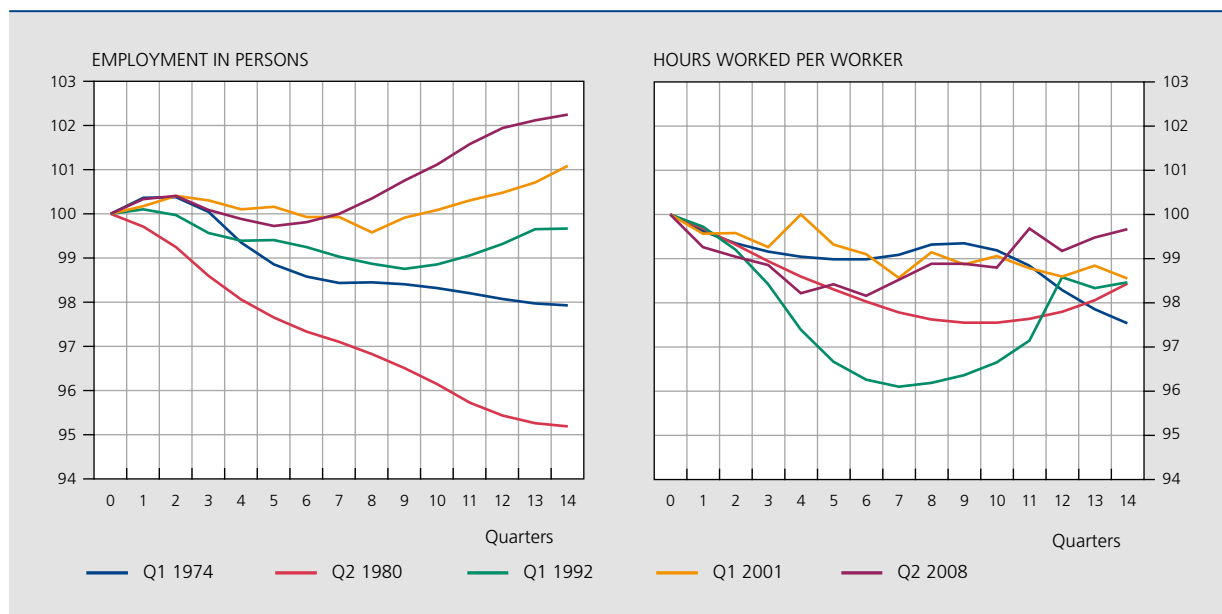
- at the time of the first oil shock in the 1970s, three quarters elapsed before employment responded to the decline in activity. Once the net job losses set in, they were significant for a year and persisted at a slower rate for some time;
- during the 1980-1981 episode which followed the second oil shock, employment responded immediately and strongly. Job losses persisted over a period of more than three years;
- the next recession which began in 1992 generated much more modest job losses, with an almost immediate but fairly slow contraction and a recovery in the tenth quarter (i.e. after two years);

- at the time of the 2001 episode, the decline in real activity was relatively small. It took three quarters for net job losses to appear, and the losses were modest in comparison with other economic crises;
- finally, in the great recession, employment followed the downward trend in activity after a lag of three quarters. Quarter-on-quarter employment growth therefore became negative at the beginning of 2009. Compared to the pre-recession peak in activity, net job losses were on a much smaller scale than in previous episodes, particularly in regard to the decline in real activity. Owing to the sovereign debt crisis in the euro area, employment began falling again in Belgium between 2012 and 2013 (beyond the 14-quarter horizon covered by chart 3).

The flexibility available to firms explains why the time taken for employment to respond to changes in GDP may be shorter in terms of hours worked than in the number of persons employed. At the time of the first oil shock, the decline in hours worked perpetuated a fall that had begun long before 1974, and reflected a downward trend in average working time. During the second oil shock, average hours thus declined in parallel with employment. However, they picked up slightly sooner than employment. In the early 1990s, the hours worked fell more steeply than employment but the situation recovered

CHART 3 RESPONSE BY DOMESTIC EMPLOYMENT IN PERSONS AND AVERAGE HOURS PER WORKER DURING ECONOMIC RECESSION EPISODES

(data adjusted for seasonal and calendar effects; indices, respectively levels of employment and hours corresponding to the pre-recession peak in GDP in volume, = 100)



Sources: NAI, OECD, NBB.

after seven quarters. The priority use of the intensive margin (average working time) was particularly evident at the time of the recession in the early 2000s and in 2008-2009. However, the average hours declined relatively slowly in the early 2000s, while the hours worked per worker were adjusted more rapidly at the start of the great recession. At that time, the decline in the pace of work was spread over four quarters.

The use of temporary lay-offs and the crisis measures adopted in 2009 are regularly cited to explain the relative stability of employment in Belgium despite the seriousness of the 2008-2009 crisis. People laid off temporarily remain on the firm's staff register even if they do not work on the days in question. While the level of temporary lay-offs was historically high and, starting from a low base, their number increased dramatically in 2009, the additional measures taken at the time (referred to as "crisis" measures) had only rather limited success. At the height of the recession, more than 200 000 manual workers were recorded as temporarily laid off, whereas the similar system developed for clerical workers (known as "staff suspension owing to lack of work for firms in difficulty", a system which has since been retained) affected no more than 8 000 people in 2010. Moreover, the crisis time-credit scheme whereby an employer recognised as in difficulty could offer individual full-time workers a

time-credit in the form of a 50 % or 20 % reduction in their work, concerned fewer than 3 000 people.

In fact, recourse by Belgian firms to temporary lay-offs for manual workers is largely structural; between 1992⁽¹⁾ and 2014, there was only one quarter in which the numbers concerned came to less than 100 000 (on average), namely the third quarter of 2000. This is a long-standing instrument in Belgium. Right from the start, the National Placement and Unemployment Office established in 1935 (as the forerunner to the National Employment Office) made provision for a form of temporary lay-offs for manual workers, although there was no legal framework at that stage⁽²⁾.

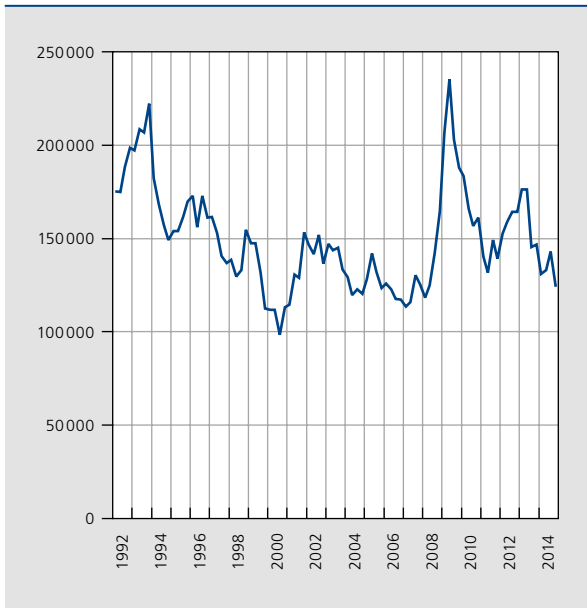
The gap between the change in the total volume of labour and the change in real activity corresponds to the mechanical adjustment of apparent hourly productivity. Chart 5 below presents the growth rates of the intensive and extensive margins over the period 1980-2014, in

(1) Start of the series expressed in number of payment recipients (physical units).
 (2) In 1954, the various options for suspension of an employment contract (such as the lack of work owing to economic reasons, bad weather or force majeure) were put on a legal basis without any restrictions on access per sector of activity. However, there is a special scheme for the construction sector. As time went by, new rules on temporary lay-offs came into force (compulsory notification to the NEO, monitoring procedures, level of replacement benefits, etc.), some being applicable to all sectors while others applied only to the construction sector.

CHART 4

TEMPORARY LAY-OFFS

(manual workers, physical units, taking all reasons together⁽¹⁾, seasonally adjusted quarterly averages)



Sources: NEO, NBB.

(1) Economic reasons represent around 70 % of all reasons (on average over the period 1999-2014).

order to study their behaviour throughout the economic cycle. Historically, hourly productivity has acted as a shock absorber, both during cyclical downturn phases when productivity growth has weakened, and during recovery phases when growth is stronger, and firms give priority to restoring their margins. However, although the growth of hourly productivity is pro-cyclical, it has almost always remained positive until the outbreak of the great recession. Conversely, as expected in view of the subsequent relatively limited fall in individual hours, it is thus hourly productivity that has been hardest hit by the decline in activity.

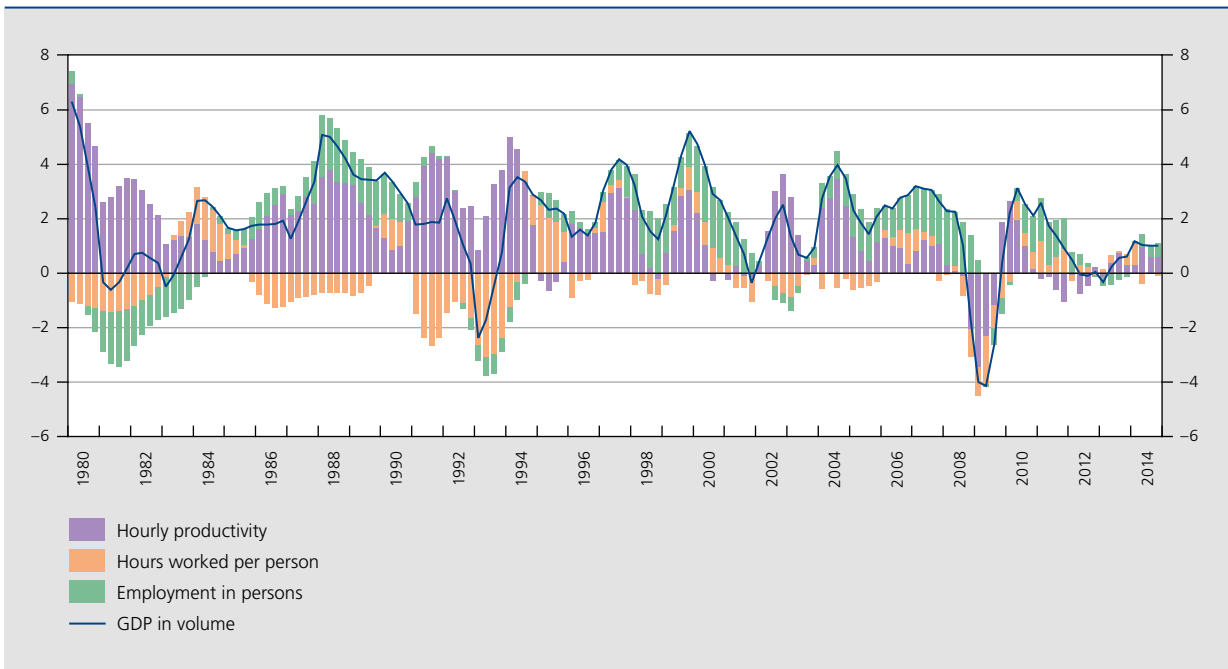
To protect jobs, firms may accept a decline in hourly productivity, while employees may agree to a cut in the hours worked, and hence in their income. For employers, the fear that – in a situation of mismatches on the labour market and population ageing – they might be short of skilled staff once the economy picks up has therefore outweighed the fear of a temporary loss of profitability due to a reduction in hourly labour productivity.

At the time of the great recession, labour hoarding initially limited the job losses in a context of sound corporate fundamentals, but the further decline in GDP in 2012 caused

CHART 5

BREAKDOWN OF GDP GROWTH

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



Sources: NAI, OECD, NBB.

the number of workers to fall more steeply in 2013 than in 2009. The main reason was that the labour retention systems did not act as a buffer to the same extent as in 2008 and 2009. The length of the crisis and the hesitant exit from it eroded the financial capacity of some firms, so that workforce adjustments were inevitable. In addition, the conditions governing recourse to temporary lay-offs for economic reasons were tightened as an accountability contribution was introduced. Thus, the number of people temporarily laid off declined in 2013 to approach its long-term average.

3. Productivity and job intensity of growth: long-term analysis

Productivity fluctuates in line with the business cycle around a medium- to long-term trend. It is essential to distinguish between trend gains in productivity and their cyclical variations. By taking average growth rates per decade, table 1 endeavours to capture the change in the trend component.

Expressed as average annual growth rates, hourly productivity gains dropped from 4.2 % in the 1970s to 0.9 % in the 2000s, before collapsing to 0.1 % over the period 2010-2014. This trend in productivity gains mirrors that in GDP. In the 1970s, the annual growth of GDP averaged 3.4 %, then dropped to around 2 % in the 1980s and 1990s. This growth rate then slowed in the 2000s and 2010s, averaging no more than 1 % in recent years. The other component of GDP, namely the volume of labour, recorded negative growth in the 1970s and 1980s, then edged upwards to 1 % in the recent period.

The difference between the average annual growth rates for hourly productivity and productivity per worker reflects

the change in the average working time. That has diminished over the years owing to various factors, such as a decline in the number of contract hours, the increase in the rate of part-time working, development of the use of time-credit, but also the change in the structure of employment within the economy (see below).

If the job intensity of growth is defined as the ratio between the expansion of employment and the change in activity, that indicates the reciprocal of the growth of productivity per worker. In fact, the job intensity of growth is clearly pursuing an upward trend. In parallel with the movement in annual GDP growth, between the 1970s and the 2000s, the average annual growth of employment increased from 0.2 to 0.9 % (0.6 % in 2010-2014). Thus, without any breakdown between the trend and the cycle at this stage, activity growth of 1 % in the 1970s did not create any jobs in the economy, whereas it created 0.3 % extra jobs in the 1990s and 0.6 % in the most recent period. However, in order to study the sensitivity of employment to growth (elasticity), it is necessary to focus solely on the cyclical component of the series, an exercise that will be conducted in section 5.

The job intensity of growth also varies according to the nature of the activity. It is relatively high in the service branches whereas it is lower, or even negative, in industry, given the steady rise in productivity in that branch (see below). At the level of the economy as a whole, job intensity depends on the structure of the activity, and its pattern may be influenced by the gradual shift towards a service economy.

In a context of continuing computerisation of occupations, this rise in job intensity may appear contrary to some predictions concerning the possibility of many "human" jobs being taken over by robots. In the economic debate

TABLE 1 AVERAGE ANNUAL GROWTH RATES OF THE COMPONENTS OF ACTIVITY
(annual averages, in %)

	1970-1980	1980-1990	1990-2000	2000-2010	2010-2014 ⁽¹⁾
GDP	3.4	2.0	2.2	1.5	1.0
Employment	0.2	0.2	0.6	0.9	0.6
Volume of labour	-0.8	-0.1	0.2	0.6	1.0
Productivity per person	3.2	1.8	1.7	0.6	0.4
Hourly productivity	4.2	2.1	2.0	0.9	0.1

Sources: NAI, OECD.

(1) The results for this shorter period are influenced by the effects of the great recession and the sovereign debt crisis.

on the subject, supporters of the “maximalist” approach go quite far, since they consider that the automation of jobs will no longer apply only to routine tasks but will also increasingly affect occupations involving cognitive and non-routine tasks. The study by Frey and Osborne (2013) applies a probability of automation to hundreds of jobs in the United States. Occupations featuring a high degree of creativity, social skills, perceptive qualities and manipulation are less at risk. The same exercise was conducted by the Bruegel Institute (Bowles, 2014) for European countries. It shows that, for Belgium, 50 % of occupations are at risk. However, the findings of this type of research need to be viewed with caution since they are surrounded by an obvious degree of uncertainty and the analysis does not specify the time scale of the potential changes: the definition of current occupations could change in the meantime. Indeed, the disappearance of some occupations and the emergence of new ones (which could actually result from these technological changes) is nothing new and is central to Schumpeter’s ideas.

4. Influence of the changes in structure of activity

4.1 Trend in employment in the branches of activity⁽¹⁾

Employment does not react to cyclical fluctuations in the same way in all branches of activity. The market branches, or those sensitive to the business cycle, comprise agriculture, construction, industry and market services⁽²⁾. Non-market services include general government and education, health, social work and other non-market service activities.

Non-market services recorded steady growth of employment up to the end of 2011, i.e. including at the height of the great recession. Since 2012 the growth rate has slowed in a context of fiscal consolidation. In contrast, changes in employment in market services closely reflect the changes in activity, and the number of persons in work there declined in 2009. Finally, job losses have persisted in industry since 2002, and that trend was accentuated during the great recession. This “structural” decline partly reflects the reorganisation of the production process in

(1) In the current NAI series (ESA 2010), the breakdown of employment by branch of activity begins in 1995.

(2) Trade; repair of motor vehicles and motor cycles; transport and storage; hotels and restaurants; information and communication; financial and insurance activities; real estate activities; specialist, scientific and technical activities, and administrative and support service activities.

(3) Agriculture and construction were not included.

industry: functions previously performed in-house by firms in the branch have been relocated or outsourced to service companies in order to secure greater flexibility and better cost control.

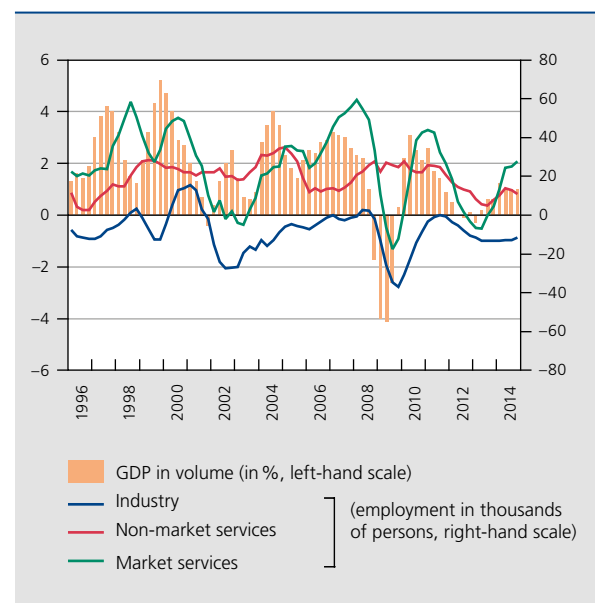
In 2014, industrial jobs averaged 12 % of total employment, as against 19 % in 1995, while market services accounted for the largest share with 46 % (compared to 41 % almost 20 years earlier) and non-market services 35 %, or more than a third⁽³⁾.

Job losses during the great recession were therefore limited not only by the use of traditional flexibility instruments but also by the resilience of some branches to fluctuations in activity, particularly non-market services, which are generally largely subsidised by the government.

The proportion of non-market sector jobs is relatively high in Belgium. Since 1995, the expansion of employment in Belgium has come mainly from net creation of jobs financed entirely or largely by the government. This concerns extra staff in public authorities and education, but also and primarily workers employed in “human health and social work” and in the service voucher system among private employers. Altogether, it is estimated that seven out of ten jobs created between 1995 and 2014 are largely financed by the government.

CHART 6 GROWTH OF ACTIVITY AND EMPLOYMENT BY BRANCH OF ACTIVITY

(data adjusted for seasonal and calendar effects, change compared to the corresponding quarter of the previous year)



Source: NAI.

The shift to the service economy is one of the factors behind the fundamental trend in total productivity and average working time.

4.2 Working time in the branches of activity

The average working time is generally lower in services than in industry. At the end of 2014, employees worked an average of 388 hours per quarter in industry, compared to 361 in market services and barely 341 in non-market services. In addition, the non-market sector – like industry – is seeing a downward trend in average hours per person. The low point in industry in 2009 was due to the strong adjustment of employees' working hours in response to the crisis. The number of hours worked has still not returned to its previous level.

These marked differences in level are due to the larger proportion of part-time workers in services, especially in the non-market sector. In 2013, according to the results of the labour force survey (LFS), over a third of workers in non-market services worked part time. In market services, around a quarter of employees work reduced hours, whereas in industry only one in ten workers is not employed full-time. The change in the structure of employment, with an increased share of branches with a high rate of part-time work, has therefore depressed the total average working time in the economy.

The over-representation of women in certain branches of activity is a factor here, as two-thirds of jobs in non-market services are filled by women; more than 40 % of women in the workforce work part time. That ratio has doubled since the early 1980s. In the case of male workers, only around one in ten works reduced hours, but that figure has increased five-fold since the early 1980s. In all, the rate of part-time working has risen from 8 % to almost 25 % over the same period. Factors behind this trend are the rise in the labour market participation rate of women, the extension of working life among older workers, and the greater involvement of men in family responsibilities.

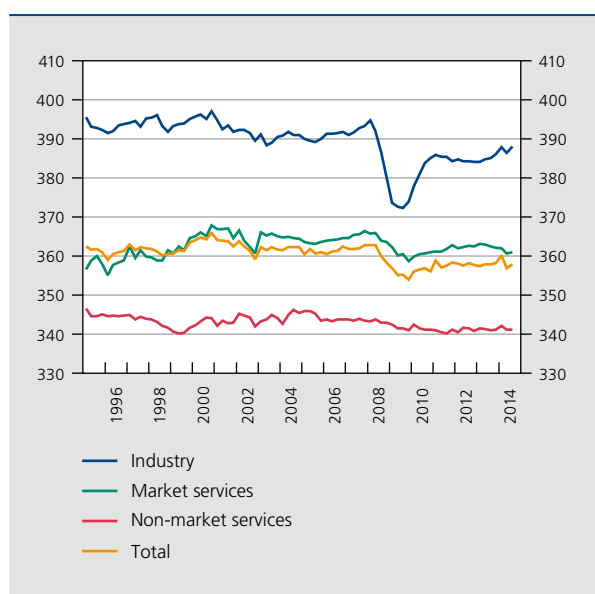
4.3 Productivity in the branches of activity

Changes in the relative weight of the branches of activity in the economy are also part of the reason for the trend in average labour productivity. In practice, it is not feasible to obtain a measure of the output of all economic activities since some are non-market activities⁽¹⁾. In their case, value added is estimated in the national accounts as the sum of the costs⁽²⁾. The measure of productivity is then biased since any change in the wage bill is passed on in full to the change in value added. For that reason, chart 8

(1) The selling price does not cover 50 % of the production costs.

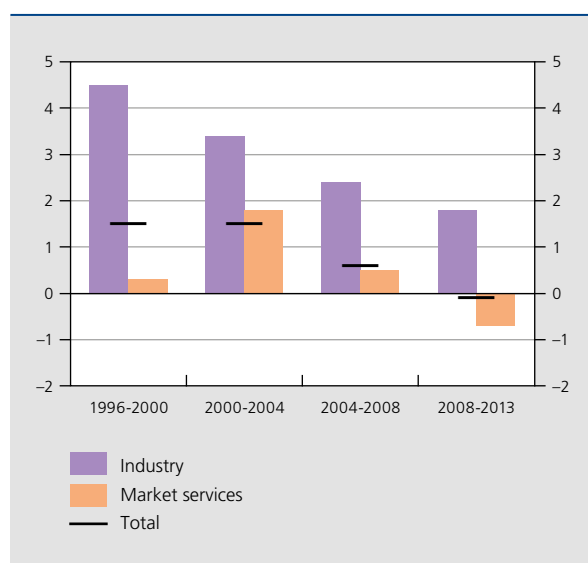
(2) Intermediate consumption, compensation of employees, other taxes on production net of subsidies and fixed capital consumption.

CHART 7 AVERAGE HOURS WORKED PER EMPLOYEE, BY BRANCH OF ACTIVITY
(level per quarter, data adjusted for seasonal and calendar effects)



Source: NAI.

CHART 8 AVERAGE ANNUAL GROWTH OF HOURLY PRODUCTIVITY BY BRANCH OF ACTIVITY⁽¹⁾
(annual averages, in %)



Sources: NAI, NBB.

(1) Based on detailed annual accounts, for which the most recent year available is 2013. Estimated volume of hours for self-employed workers before 1999.

only compares the trend in productivity for industry and market services.

The level and growth of productivity have always been lower in services than in industry. In industry, the average annual growth of hourly productivity dipped from 4.5 % in 1996-2000 to 1.8 % over the recent period encompassing the great recession. In market services, the average annual growth of productivity surged between 2000 and 2004, notably as a result of increased capital intensity, and particularly that relating to investment in ICT (Federal Planning Bureau, 2007), though without surpassing the growth rate in industry. In telecommunications, the average annual growth rate between 2000 and 2004 exceeded 10 %, while it was above 5 % in trade activities over the same period. In financial and insurance activities, that growth exceeded 5 % in the latter half of the 1990s. After that, the average annual growth rate in market services declined, and even became negative between 2008 and 2013. Thus, the initially promising developments could not prevent the downward trend in the growth of productivity gains for the economy as a whole.

5. Estimate of the relationship between activity and employment

As explained in section 3 above and as illustrated in table 1, the growth rates of GDP, employment, and total hours worked follow non-linear, divergent long-term trends. This implies that, in order to study – and above all, measure – the relationships between these variables throughout the business cycle, it is essential to distinguish between the cycle and the trend. That breakdown may operate, for example, for the variables central to chart 1, constituting Okun's law (1962). Okun's law represents the empirical regularity that Okun observed in the relationship between unemployment and real GDP:

$$U_t - U_t^* = \alpha(Y_t - Y_t^*) + \varepsilon_t^{uy}, \alpha < 0 \quad (2)$$

where U_t represents the unemployment rate, Y_t the neperian logarithm of real GDP, and U_t^* and Y_t^* the trend value of those variables. The difference between the observed value of a variable and its trend value is that variable's cyclical component, or the gap relating to that variable. The coefficient α therefore describes the sensitivity of the cyclical component of the unemployment rate to a 1 % change in the cyclical component of GDP. Equation (2) above is commonly used to estimate the percentage increase (namely $-1/\alpha$) in real activity above its long-term trend necessary to generate a 1 percentage point fall in unemployment compared to the long-term equilibrium.

That relationship can be deemed to originate from two other empirical relationships found, namely the positive correlation between the cyclical component of employment and that of GDP, and the negative correlation between the cyclical component of employment and that of the unemployment rate:

$$E_t - E_t^* = \beta(Y_t - Y_t^*) + \varepsilon_t^{ey}, \beta > 0 \quad (3)$$

$$U_t - U_t^* = \gamma(E_t - E_t^*) + \varepsilon_t^{ue}, \gamma < 0 \quad (4)$$

with ⁽¹⁾: $\gamma = \alpha/\beta$ and $\varepsilon_t^{uy} = \varepsilon_t^{ue} + \gamma\varepsilon_t^{ey}$

where E_t represents the neperian logarithm of employment expressed in persons.

There are various ways of making this distinction between trend and cycle. There is a degree of consensus in favour of the method popularised by Hodrick and Prescott⁽²⁾. One advantage of that method is that it can explicitly take account of medium/long-term changes in the trend, unlike a growth rate analysis which implicitly presupposes a constant linear trend. This breakdown is illustrated in chart 9 for GDP and for employment.

The difference between the trend and the gross series gives the cyclical component expressed as a percentage deviation from the trend. By construction, it is stationary, oscillating around 0. The joint observation of the cyclical components of employment and real GDP is highly informative:

- employment is evidently a delayed pro-cyclical variable, i.e. it lags slightly behind GDP. That characteristic is more obvious than in chart 2, expressed as an annual growth rate. It is also evident that its movements throughout the business cycle are equivalent in amplitude to around two-thirds of the movement in GDP;
- the closeness of the relationship between employment and GDP may change from one cycle to the next. Let us take the example of the recent double-dip recession in 2008-2010 and 2011-2012. At the time of the financial crisis, the cyclical component of employment produced a delayed and extremely moderate reaction, both in the growth phase and in the contraction phase occurring around 2008. In contrast, at the time of the "aftershock" sovereign debt crisis, employment reacted at the same time as economic activity and in exactly the same proportion.

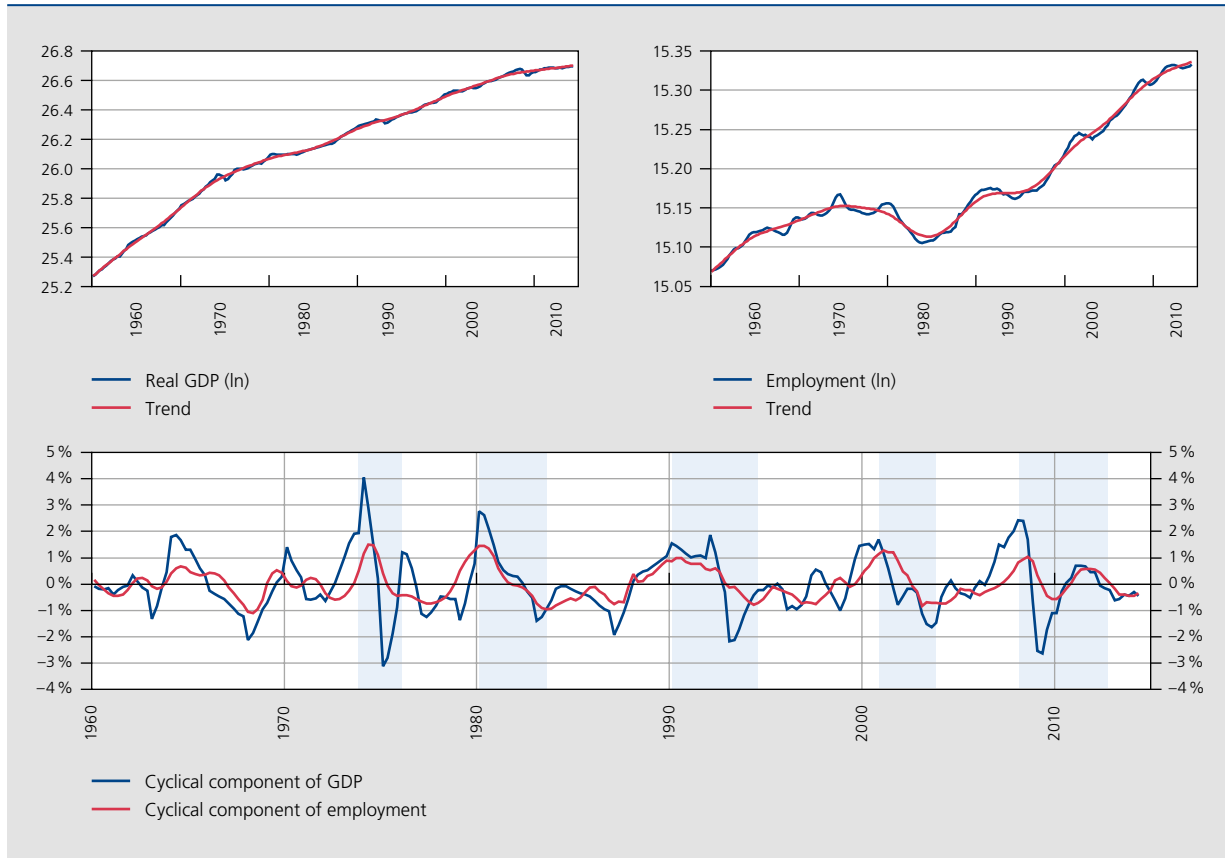
(1) If the term on the right of equation (4) is replaced by equation (3), that gives an expression equivalent to equation (2). The restrictions mentioned in the text require the estimated system to be consistent with the breakdown envisaged.

(2) The method itself was devised by the mathematician Edmund Whittaker in 1923. It uses a coefficient of penalty λ for the first difference from the trend. That coefficient is usually set at 1600 for quarterly variables, which is what applies here.

CHART 9

TREND AND ECONOMIC CYCLE IN THE CASE OF REAL GDP AND EMPLOYMENT

(neperian logarithm in the upper charts and percentage deviation from the trend in the lower chart. The grey areas correspond to periods of recession)



Sources: OECD, own calculations.

5.1 Estimates for different economies

It must be clearly understood that there can be no question of verifying expressions (2) to (4) from one quarter to the next. For the purposes of the econometric estimation of the coefficients of these equations, namely α , β and γ , it is therefore preferable to use a dynamic specification. By introducing dynamics, it is possible to take account of the fact that the employment cycle lags slightly behind the cycle of real economic activity, as observed above.

$$U_t - U_t^* = \alpha_0 + \alpha_1(Y_t - Y_t^*) + \alpha_2(Y_{t-1} - Y_{t-1}^*) + \alpha_3(Y_{t-2} - Y_{t-2}^*) + \varepsilon_t^{uy}; \alpha = \alpha_1 + \alpha_2 + \alpha_3 \quad (5a)$$

$$E_t - E_t^* = \beta_0 + \beta_1(Y_t - Y_t^*) + \beta_2(Y_{t-1} - Y_{t-1}^*) + \beta_3(Y_{t-2} - Y_{t-2}^*) + \varepsilon_t^{ey}; \beta = \beta_1 + \beta_2 + \beta_3 \quad (5b)$$

$$U_t - U_t^* = \gamma_0 + \gamma_1(E_t - E_t^*) + \gamma_2(E_{t-1} - E_{t-1}^*) + \gamma_3(E_{t-2} - E_{t-2}^*) + \varepsilon_t^{ue}; \gamma = \gamma_1 + \gamma_2 + \gamma_3 \quad (5c)$$

with $\gamma_3 = \left[\frac{\alpha}{\beta} - \gamma_1 - \gamma_2 \right]$

The following tables only present the sum of the coefficients associated with the various lags of the explanatory variable, i.e. only the coefficients α , β and $\gamma^{(1)}$, for ease of interpretation⁽²⁾.

In order to place the value of the elasticities α , β and γ obtained for Belgium in relation to those of other developed economies, the system of equations (5) was also estimated for some euro area countries (Germany, Spain, Finland, France, Ireland, Italy and the Netherlands), the euro area as a whole, Denmark and the United Kingdom, and the United States. As far as possible, the estimate was based on long quarterly series from the first quarter of 1960 to the second quarter of 2014. However, for some countries the data are not available for the whole period, so that the estimated coefficients are not always entirely comparable. That is the case, in particular, for Ireland

(1) The statistical significance tests also concern the sum of all the partial slope coefficients for each relationship examined.

(2) By estimating the three equations in a single system simultaneously it is possible to impose the theoretical restriction $\gamma = \alpha/\beta$ on the coefficients, whereas that is not necessarily the case if the equations are estimated independently.

TABLE 2 ESTIMATION OF THE ELASTICITY OF UNEMPLOYMENT TO GDP, EMPLOYMENT TO GDP AND UNEMPLOYMENT TO EMPLOYMENT FOR TWELVE DEVELOPED ECONOMIES

Country	Period	Elasticity of unemployment to GDP		Elasticity of employment to GDP		Elasticity of unemployment to employment	
		α	R ²	β	R ²	γ	R ²
Germany	91Q3-14Q2	-0.273** (0.023)	0.505	0.304** (0.024)	0.427	-0.898** (0.065)	0.785
Belgium	60Q3-14Q2	-0.401** (0.020)	0.559	0.512** (0.023)	0.568	-0.783** (0.037)	0.692
Denmark	66Q3-14Q2	-0.348** (0.019)	0.636	0.567** (0.024)	0.599	-0.614** (0.032)	0.686
Spain	76Q3-14Q2	-0.903** (0.044)	0.754	1.302** (0.052)	0.766	-0.694** (0.033)	0.831
Finland	75Q3-14Q2	-0.418** (0.017)	0.715	0.637** (0.020)	0.771	-0.656** (0.025)	0.884
France	66Q3-14Q2	-0.281** (0.013)	0.560	0.462** (0.016)	0.710	-0.608** (0.028)	0.740
Ireland	90Q3-14Q2	-0.387** (0.031)	0.611	0.872** (0.043)	0.648	-0.444** (0.035)	0.848
Italy	60Q3-14Q2	-0.144** (0.014)	0.273	0.318** (0.021)	0.346	-0.453** (0.040)	0.456
Netherlands	60Q3-14Q2	-0.354** (0.018)	0.505	0.468** (0.022)	0.500	-0.756** (0.035)	0.829
United Kingdom	60Q3-14Q2	-0.302** (0.015)	0.656	0.491** (0.019)	0.547	-0.615** (0.028)	0.830
Euro area	70Q3-14Q2	-0.348** (0.013)	0.804	0.571** (0.016)	0.772	-0.609** (0.021)	0.846
United States	60Q3-14Q2	-0.467** (0.014)	0.849	0.824** (0.017)	0.832	-0.567** (0.019)	0.909

Sources: OECD, own calculations.

** indicates a deviation significantly different from zero at the 5% threshold, * indicates a deviation significantly different from zero at the 10% threshold, () standard deviations

and Germany and, to a lesser extent, for Denmark, the euro area, Spain and Finland. The estimation periods are reported systematically in table 2.

As expected, table 2 shows that the strongest relationship is between unemployment and employment, as the former merely mirrors the latter via the distorting filter of the job supply, so that the correlation is not perfect. On this subject, it is interesting that the elasticity γ (unemployment-employment) is particularly high in Belgium⁽¹⁾. This is probably due to the system of unemployment benefits with no time limit (at least until recently); as a result of that system, within the population of working age, the numbers joining or leaving the labour force are relatively few, which implies a relatively non-cyclical job supply.

The column showing the elasticity of employment to GDP indicates that employment is more sensitive to fluctuations

in economic activity in the United States (0.82) than in the euro area (0.57). In the core European countries, namely Belgium, the Netherlands, France and the United Kingdom, that elasticity is very uniform, hovering around 0.5.

In principle, a country with a flexible (rigid) jobs market typically has a high (low) elasticity of employment to GDP. For most countries in the sample, the ranking is not too surprising, with the notable exception of Spain which emerges as the champion in terms of job market flexibility⁽²⁾, and Germany at the other end of the spectrum. Until the recent reforms, the Spanish employment market

(1) The figure for Belgium is 0.8, only exceeded by Germany at 0.9. However, the figures calculated for Germany are not entirely comparable owing to a much shorter estimation period.

(2) The fact that the estimated elasticity is significantly greater than one for this country is troubling, and indicates that the labour market is to say the least atypical.

exhibited a marked division between highly protected jobs, on the one hand, and fixed-term or agency jobs offering employers massive flexibility. Presumably, the latter cushion shocks in either direction and are responsible for the great sensitivity of employment to the economic cycle. The very low sensitivity of German employment to economic activity may seem surprising, but it is necessary to bear in mind that the sample is much shorter than for the other countries since it begins in 1990, i.e. just as the country embarked on the process of reunification. Apart from Spain, it is the United States and Ireland that clearly have the most dynamic labour market (since the 1990s). They are followed by the Scandinavian countries and, finally, the old European countries, with Italy trailing behind with a job market particularly insensitive to the economic cycle.

5.2 Robustness of the estimate of the relationship between employment and GDP

Before going any farther in this international comparison, it is appropriate to question the robustness of these estimates. The robustness of these estimated elasticities can first be assessed with the aid of a binary variable D_{85} , which takes the value 0 before the first quarter of 1985 and the value 1 from that date onwards. It thus allows the period observed

to be divided into two more or less equal halves. That date also corresponds to a spate of labour market liberalisation measures in various economies. The employment-GDP relationship presented in the above system of equations (5b) is re-estimated by allowing the partial slope coefficients to change in the second half of the estimation period:

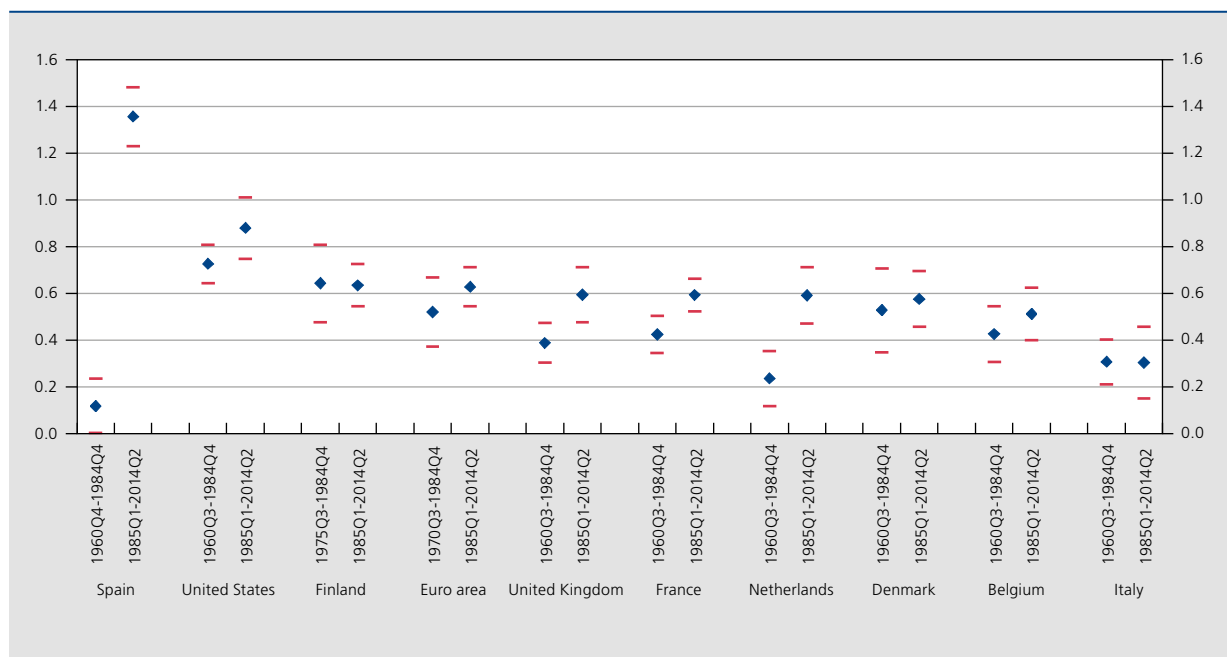
$$E_t - E_t^* = \beta_0 + \beta_1(Y_t - Y_t^*) + \beta_2(Y_{t-1} - Y_{t-1}^*) + \beta_3(Y_{t-2} - Y_{t-2}^*) + D_{85} [\beta_4(Y_{t-1} - Y_{t-1}^*) + \beta_5(Y_{t-1} - Y_{t-1}^*) \beta_6(Y_{t-2} - Y_{t-2}^*)] + \varepsilon_t^{ey} \quad (6)$$

with $\beta = \beta_1 + \beta_2 + \beta_3$ and $\beta_{D85} = \beta_4 + \beta_5 + \beta_6$

The coefficient β indicates the elasticity of employment to GDP during the first half of the period examined, while the sum of $\beta + \beta_{D85}$ gives that same elasticity during the second half of the period⁽¹⁾. The results obtained for the ten economies with a sufficiently large sample are set out in chart 10. There are two lozenges corresponding to each country, representing β and $\beta + \beta_{D85}$ respectively, while the red lines above and below correspond to the confidence interval of 95 % around these estimates. Overlapping confidence intervals should be interpreted as meaning that there is no statistically significant structural change at the 5 % threshold

(1) It could be said that by considering only the sum of the partial slope coefficients, we are only testing an overall structural change, but it is perfectly possible that, although this overall coefficient did not change after 1985Q1, the dynamics were affected, i.e. the relative weight of GDP and GDP after a lag of one or two quarters. This study does not address that type of structural change.

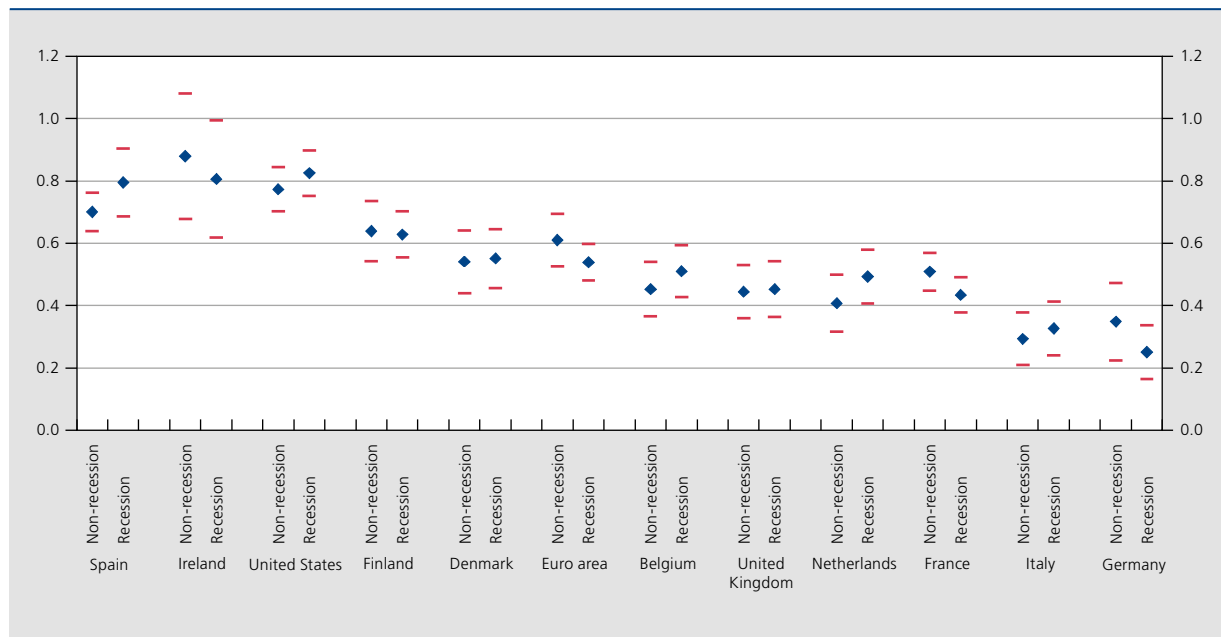
CHART 10 TEST FOR A STRUCTURAL CHANGE IN THE EMPLOYMENT-GDP RELATIONSHIP AROUND 1985Q1
(the red lines correspond to confidence intervals of 95 % on either side of the estimated elasticities, represented by the lozenges)



Sources: OECD, own calculations.

CHART 11 TEST ON THE EFFECT OF RECESSIONS ON THE ELASTICITY OF EMPLOYMENT TO GDP

(the red lines correspond to confidence intervals of 95 % on either side of the estimated elasticities, represented by the lozenges)



Sources: OECD, own calculations.

in the employment-GDP relationship. The countries are ranked in descending order of employment-GDP elasticity estimated for the second half of the period observed.

In general, the estimated elasticity of employment to GDP is slightly greater for the second half of the sample. However, that difference is not significant for six out of ten countries, the exceptions being Spain, the Netherlands, France and the United Kingdom. The specific case of Spain is readily explained by Francoism, a degree of labour market liberalisation and the pursuit of European integration. The case of France has already been highlighted by Blanchard and Cohen (2004); it corresponds to the easing of constraints on the labour market and on job security. The Netherlands also introduced fundamental labour market reforms following the crisis of the 1980s; the reforms were apparently more drastic than those in the United Kingdom during the Thatcher era⁽¹⁾.

The above observations are unaffected if account is taken of a possible change in the relationship between employment and GDP in the mid-1980s. After 1985, the 95 % confidence intervals show that there is no statistical difference in this elasticity between Belgium, Denmark, France, Finland, the United Kingdom and the euro area as a whole. Finally, as regards the elasticity of employment to

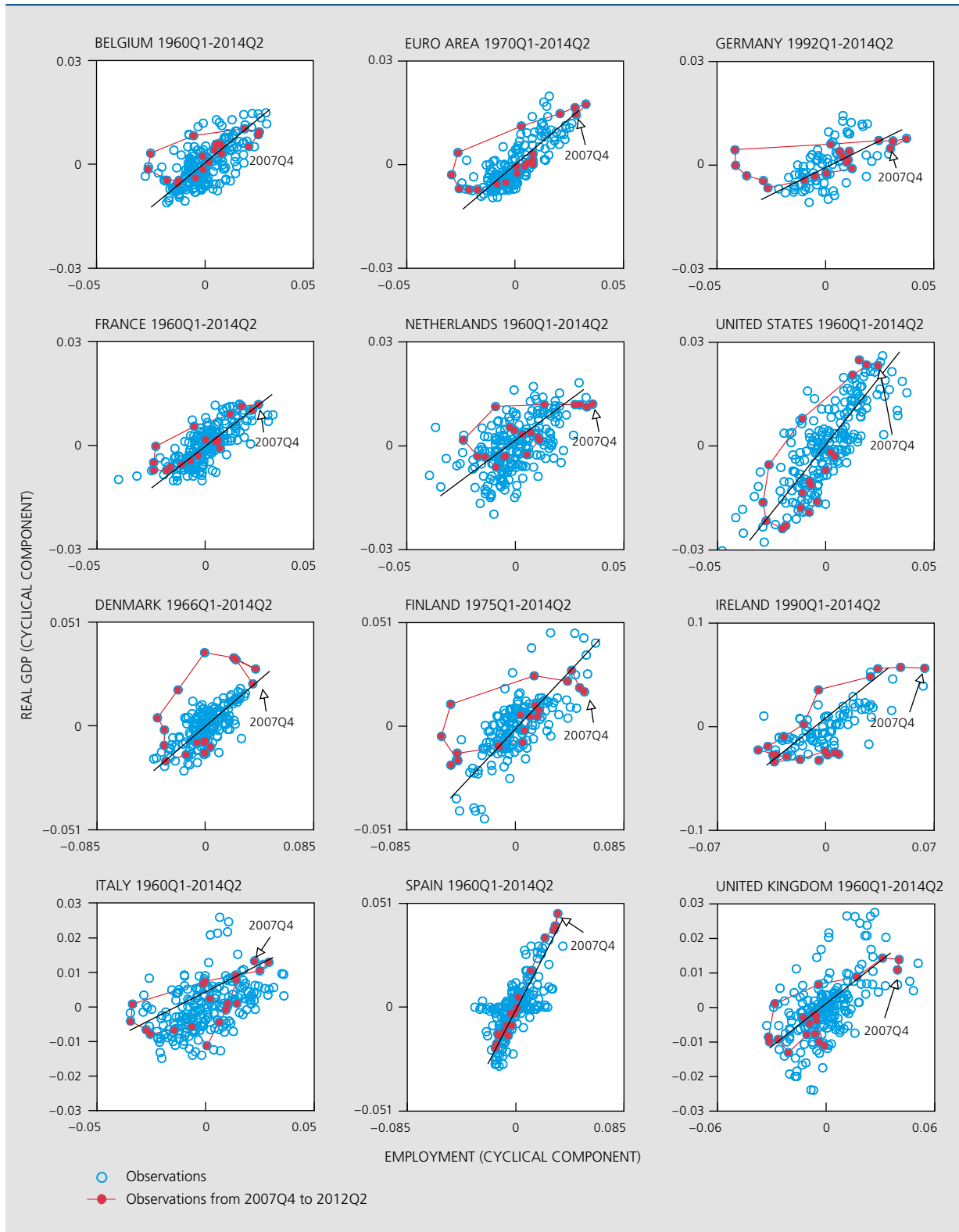
GDP, Belgium is particularly similar to Denmark, another small, very open economy which was also hard hit by the second oil shock. That comparison may appear flattering, since Denmark is the country with “flexible security”, but it is also fallacious since it is valid only for the relationship between employment and GDP. If the level of the unemployment rate and the average duration of unemployment are considered, those two parameters are much lower in Denmark.

A second robustness test can be conducted at the level of the symmetry of the relationship between employment and growth according to whether or not the economy is in recession. For that purpose, we consider five economic crisis episodes:

- 1973Q3-1976Q1: first oil crisis;
- 1980Q1-1983Q3: second oil crisis;
- 1990Q2-1994Q3: banking crisis in Finland and Sweden (1990-1993) and EMS crisis (1992-1993);
- 2001Q1-2003Q2: technology stocks crisis and repercussions of the New York terrorist attacks on the air transport sector and others;
- 2008Q1-2012Q4: financial crisis and sovereign debt crisis.

(1) If longer series had been available for Ireland, a marked structural change would also have been identified for that country, which undertook fundamental structural reforms from the late 1980s and especially in the early 1990s.

CHART 12 SCATTER DIAGRAMS FOR THE CYCLICAL COMPONENTS OF EMPLOYMENT AND REAL GDP, SHOWING OBSERVATIONS RELATING TO THE LATEST RECESSION



Sources: OECD, own calculations.

These periods are somewhat arbitrary in that the recession episodes may vary from one economy to another. However, they were chosen to be long enough so that each sub-period offered an adequate degree of freedom and so that each one covered the interval between the peak and the trough for every country. The test follows exactly the same procedure as the previous one, The only difference is that, in equation (6), the binary variable D_{85} is replaced by a binary variable $D_{recession}$ which takes the value 1 in the quarters included in the above list of recessions and the value 0 elsewhere. The result is shown in chart 11.

A quick glance is enough to confirm that the relationship between employment and growth is not generally affected by crisis episodes. It is not surprising that the business cycle has no influence here, since Okun's law and its corollaries express a long-term relationship. However, each recession phase is different, being caused by different types of shock, and it is conceivable that the relationship between employment and GDP may be affected temporarily from one crisis or one country to another. In particular, at the time of the recent "great recession" various countries, including Belgium, made much of their policies aimed at preserving jobs. Did they actually work? Chart 3 above has already given an illustration for Belgium, while chart 12 tries to extend the analysis to all twelve economies under review.

For each economy considered, the chart presents a scatter diagram illustrating the statistical relationship between the cyclical component of real GDP, on the x axis, and the cyclical component of employment, on the y axis. For each country, a scatter plot emerges with a positive slope, synthesised by the ordinary least squares regression line passing through it, with a slope equal to the elasticity calculated in table 2 above. These blue scatter plots look fairly homogenous, but that impression disappears if the plots corresponding to the last recession are highlighted. For all the countries included here, those observations take the form of a spiral, i.e.:

- at first, the employment-GDP relationship appears to be greatly attenuated, with GDP falling (movement towards the left) and employment not responding (the movement is almost horizontal). That movement towards the left edge of the scatter plot is initiated from an area close to the regression line;

- after several quarters of weak or zero reaction, employment declines, often at a time when the fall in GDP has ceased, triggering a vertical downward movement;
- once it stops falling, employment stabilises while GDP edges very gradually back up towards its central trend, causing a return to the right, towards the centre of the scatter plot;
- this to and fro movement is typical of the first crisis period. The aftershock crisis in the form of the sovereign debt crisis has a very different profile. This time, employment contracts at the same time as GDP, along a slope identical with the slope of the regression line, or even more steeply.

Does this visual observation correspond to a statistically significant change in the slope? Are these phenomena also apparent in other recession episodes? To answer those questions, we need to conduct a new test on structural change, this time, separately for each recession⁽¹⁾. For the twelve economies considered, the elasticity of employment to GDP is re-estimated with a binary variable for each recession episode described above, namely the variables D_1 , D_2 , D_3 , D_4 and D_5 . That gives the following expression⁽²⁾:

$$E_t - E_t^* = \beta_0 + \beta_1(Y_t - Y_t^*) + \beta_2(Y_{t-1} - Y_{t-1}^*) + \beta_3(Y_{t-2} - Y_{t-2}^*) + \sum_{i=1}^5 [\beta_{1Di} D_i(Y_t - Y_t^*) + \beta_{2Di} D_i(Y_{t-1} - Y_{t-1}^*) + \beta_{3Di} D_i(Y_{t-2} - Y_{t-2}^*)] + \varepsilon_t^{ey} \quad (7)$$

with: $\beta = \beta_1 + \beta_2 + \beta_3$ and $\beta_{Di} = \beta_{1Di} + \beta_{2Di} + \beta_{3Di}$ ($i = 1, 2, 3, 4, 5$)

D_i : binary variable taking the value 1 in the quarters corresponding to the recession i ($i = 1, 2, 3, 4, 5$), and the value 0 elsewhere.

The estimated coefficient β gives the sensitivity of employment to economic activity outside recession periods, while the coefficients β_{Di} estimate the extent to which crisis i affects that elasticity. If they deviate significantly from 0, that implies that this recession did actually change the relationship between employment and GDP. Table 3 offers more information concerning chart 11. For the twelve economies considered, it contains the results of the estimated deviations of the employment-GDP elasticity compared to non-recession periods. The figures marked with one asterisk correspond to coefficients significantly different from 0 at the 10% threshold, while those marked with two asterisks are significantly different at the 5% threshold. The countries were ranked from the one with the smallest number of recession episodes associated with a significant change in elasticity to the one with the largest number. The following points emerge from observation of this table:

(1) Not forgetting the structural change identified in 1985 for the four countries concerned.

(2) For completeness, it must also be pointed out that, for the economies which saw a significant structural change in the relationship between employment and GDP in the mid-1980s (see chart 10), an additional binary variable is included in the regression to take account of that factor.

- chart 11 shows that, taking all crisis episodes together, there is no statistically significant impact on the elasticity of employment to GDP in any country. Conversely, a horizontal reading of table 3 indicates that if the recessions are considered individually, some of them seem to be associated with an employment-GDP elasticity significantly different from the figure estimated for non-crisis periods as a whole. Depending on the recession and the country, the elasticity is sometimes increased and sometimes reduced;
- Belgium and Germany both recorded a considerable increase in the elasticity of employment to GDP at the time of the 2001 recession and a (smaller) reduction in that elasticity during the last recession;
- France seems to be the country with the least constant relationship between employment and GDP;
- a vertical reading of the table reveals that, for any given recession episode, economies may see a considerable change in the elasticity of employment to GDP, but the sign is never the same for all countries, except in

- the most recent crisis. In fact, there is apparently a consensus concerning the “great recession” in that the elasticity declines significantly (at the 10 % threshold) for seven out of twelve economies, the other five producing no significant change. That confirms the visual impression left by the “spirals” in chart 12;
- the economies in which there was no significant reduction in the relationship between employment and GDP during the last crisis are either the ones where that relationship is extremely robust, such as the United States and Denmark, or the peripheral euro area countries which were more seriously affected by the financial crisis and the sovereign debt crisis.

As already stated, this decline in the elasticity of employment to GDP during the last recession must certainly not be interpreted as a permanent structural change since, during the period from the first quarter of 2008 to the last quarter of 2012, the employment-GDP relationship becomes very flat at first, reverting to its original form or

TABLE 3 DEVIATIONS IN THE ELASTICITY OF EMPLOYMENT TO GDP FOR EACH RECESSION EPISODE COMPARED TO NON-RECESSION PERIODS

Country	Period	Recession episodes					R ²
		73Q3-76Q1	80Q1-83Q3	90Q2-94Q3	01Q1-03Q3	08Q1-12Q4	
United States	60Q3-14Q2	0.012 (0.080)	0.000 (0.070)	0.155 (0.160)	-0.008 (0.154)	0.153 (0.108)	0.855
Denmark	66Q3-14Q2	-0.056 (0.199)	0.052 (0.153)	0.102 (0.153)	-0.014 (0.247)	0.023 (0.096)	0.675
Italy	60Q3-14Q2	-0.148 (0.103)	-0.074 (0.107)	0.526** (0.138)	-0.102 (0.222)	0.019 (0.110)	0.450
Spain	76Q3-14Q2	0.284** (0.134)	-0.118 (0.364)	0.006 (0.102)	-0.0036 (0.277)	0.067 (0.120)	0.858
Ireland	90Q3-14Q2	n.	n.	0.440** (0.225)	-0.174 (0.327)	0.083 (0.154)	0.705
Germany	91Q3-14Q2	n.	n.	0.117 (0.155)	0.405** (0.145)	-0.173** (0.073)	0.573
Euro area	70Q3-14Q2	-0.125 (0.092)	-0.057 (0.110)	0.271** (0.071)	0.043 (0.119)	-0.198** (0.061)	0.847
Belgium	60Q3-14Q2	0.091 (0.110)	0.192* (0.116)	0.071 (0.101)	0.423** (0.177)	-0.153* (0.092)	0.660
Netherlands	60Q3-14Q2	0.039 (0.123)	0.359** (0.095)	0.163 (0.124)	-0.030 (0.146)	-0.245** (0.067)	0.624
Finland	75Q3-14Q2	-0.248 (0.197)	-0.212 (0.169)	0.232** (0.066)	-0.398** (0.191)	-0.240** (0.061)	0.867
United Kingdom	6073-14Q2	-0.188* (0.112)	0.135 (0.100)	0.170 (0.104)	-0.394* (0.207)	-0.249** (0.090)	0.703
France	6073-14Q2	-0.123** (0.057)	-0.218** (0.121)	0.151* (0.069)	0.047 (0.102)	-0.204** (0.058)	0.810

Sources: OECD, own calculations.

** indicates a deviation significantly different from zero at the 5 % threshold, * indicates a deviation significantly different from zero at the 10 % threshold, () standard deviations

even becoming more marked when the second recession follows the first. It is as if, during the initial crisis, firms had withstood the blow fairly well and protected jobs by drastically reducing the hours worked and productivity. That was possible so long as the firms' financial health was sufficiently good. Conversely, when the recession returned in 2011, bankruptcies were more numerous⁽¹⁾ and firms responded immediately, not just by ending recruitment but also by making workers redundant. This bears out the observations made earlier.

6. Some sectoral estimates for Belgium

Following the international comparison exercise which enabled us to place Belgium in relation to other developed economies, it is interesting to go back to a sectoral analysis like the one in section 4 above. The data series available for the main economic sectors (value added and employment) are considerably shorter, not starting until the first quarter of 1995. The economic sectors considered are agriculture, construction, manufacturing, market services and non-market services. In addition, agriculture, construction, manufacturing and market services are aggregated in a "sector sensitive to the business cycle" or a "market sector", as opposed to non-market services.

(1) In Belgium, bankruptcies were around 25 % higher in the period 2011-2012 than in 2008-2009.

This sectoral exercise is also an opportunity to take another look at the relationship between the volume of hours and economic activity. We have already said that the hours worked are used partly as an adjustment variable to remedy the lack of response by employment in terms of persons throughout the economic cycle. What does that mean exactly? Use of the data on total hours worked, available for the main Belgian economic sectors, makes it possible to consider a system of equations very similar to the system (5a)-(5b)-(5c) set out above. This time, it is a system of equations which can be used to estimate the relationships between the cyclical components of real value added (Y) and employment in persons (E) and in volume of hours worked (TH):

$$E_t - E_t^* = \beta_0 + \beta_1(Y_t - Y_t^*) + \beta_2(Y_{t-1} - Y_{t-1}^*) + \beta_3(Y_{t-2} - Y_{t-2}^*) + \varepsilon_t^{ey}; \beta = \beta_1 + \beta_2 + \beta_3 \quad (8a)$$

$$TH_t - TH_t^* = \eta_0 + \eta_1(Y_t - Y_t^*) + \eta_2(Y_{t-1} - Y_{t-1}^*) + \eta_3(Y_{t-2} - Y_{t-2}^*) + \varepsilon_t^{thy}; \eta = \eta_1 + \eta_2 + \eta_3 \quad (8b)$$

$$E_t - E_t^* = \theta_0 + \theta_1(TH_t - TH_t^*) + \theta_2(TH_{t-1} - TH_{t-1}^*) + \theta_3(TH_{t-2} - TH_{t-2}^*) + \varepsilon_t^{eth}; \theta = \theta_1 + \theta_2 + \theta_3 \quad (8c)$$

The system of equations is estimated subject to the restriction $\theta_3 = \beta/\eta - \theta_1 - \theta_2$, so that $\theta = \beta/\eta$, which ensures that the system is consistent, when viewed as a breakdown of the relationship between employment and value added into a relationship between the volume of hours to value added and a relationship between employment to the

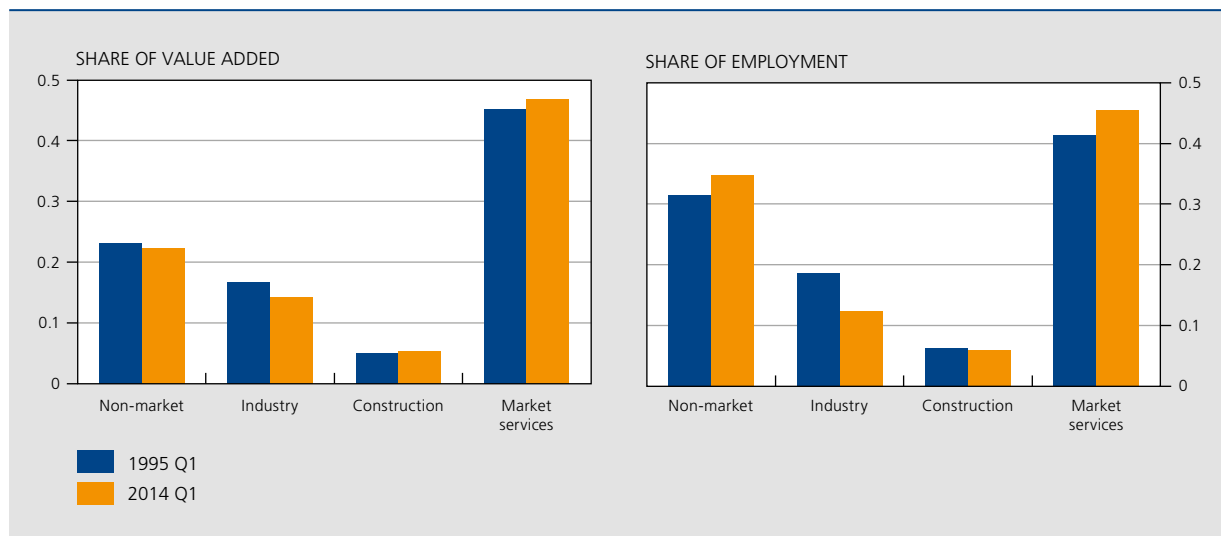
TABLE 4 ESTIMATED ELASTICITIES OF EMPLOYMENT TO VALUE ADDED, HOURS TO VALUE ADDED, AND EMPLOYMENT TO HOURS IN THE MAIN SECTORS OF ACTIVITY IN BELGIUM

Sector	Elasticity of employment to value added		Elasticity of hours to value added		Elasticity of employment to hours	
	β	R ²	η	R ²	θ	R ²
Agriculture	0.000 (0.009)	0.017	0.076 (0.102)	0.147	0.061 (0.079)	0.058
Construction	0.369** (0.040)	0.415	0.523** (0.048)	0.565	0.704** (0.072)	0.530
Industry	0.451** (0.037)	0.521	0.676** (0.045)	0.718	0.670** (0.051)	0.880
Market services	0.617** (0.048)	0.602	0.873** (0.057)	0.630	0.713** (0.052)	0.837
Sector sensitive to the business cycle	0.619** (0.038)	0.676	0.921** (0.046)	0.773	0.668** (0.040)	0.901
Non-market services	0.282** (0.049)	0.178	0.408** (0.063)	0.291	0.687** (0.089)	0.662

Sources: NAI, own calculations.

** indicates a deviation significantly different from zero at the 5 % threshold, * indicates a deviation significantly different from zero at the 10 % threshold, () standard deviations

CHART 13 BREAKDOWN OF VALUE ADDED AND EMPLOYMENT BETWEEN THE MAIN SECTORS OF ACTIVITY IN BELGIUM BETWEEN 1995Q1 AND 2014Q1



Source : NAI.

volume of hours. The estimate results are presented in table 4.

This table shows that the cyclical component of employment is twice as sensitive to the cyclical movement in value added in the market sector compared to the non-market sector, confirming the impression obtained from chart 6 above. A more detailed breakdown within the sector sensitive to the business cycle produces the following findings:

- as expected, agriculture is highly atypical with employment hardly sensitive at all to value added. This confirms that, in this sector, labour is needed to produce the output but the volume of that output will ultimately depend on climatic conditions and global agricultural markets. This sector represents only a very marginal share of the economy, namely 0.6 % of total value added and 1.4 % of employment;
- otherwise, construction is the sector where employment is least sensitive to value added, just behind industry, whereas employment in market services is the most sensitive to fluctuations in economic activity;
- it is noticeable that the elasticity of total hours to value added is roughly one and a half times the elasticity of employment to value added ($1/\theta$). That ratio is extremely robust, both in international comparisons (not shown here) and between economic sectors, except for agriculture. The hours per worker are therefore more sensitive to cyclical variations and, as one might expect, do not appear to be a lagged variable, unlike employment; that confirms the descriptive analysis in chart 5 above.

At this point, it could be interesting to link the cyclical analysis to the longer-term picture. While the contribution to value added by each of the main economic sectors was very stable over the period 1995-2014, the apportionment of jobs between the sectors was much less constant, as mentioned above and illustrated in chart 13 below. Employment is very clearly shifting from the industrial sector to the market and non-market service sectors, in equal shares. If that trend continues, we cannot expect the reallocation of economic activity between the sectors to result in any change, in the medium-long term, in the elasticity of employment to GDP at the level of the Belgian economy as a whole. The elasticity in the industrial sector is in fact the average of the elasticities of the market and non-market service sectors (see table 4). However, that would no longer be true if the deindustrialisation were to take place in favour of one services sector rather than the other.

7. Conclusion

The essential finding of this study is that the growth of productivity has tended to slow down over the past three decades. After allowing for that fundamental tendency, examination of the picture for the whole business cycle shows that the relationship between employment and growth appears broadly stable over time and is generally unaffected by recessions. In Belgium in particular, it is estimated that, in terms of deviation from their respective trends, a 1 % rise in GDP brings a 0.5 % increase in

employment. These figures are in line with the European average. However, it must be pointed out that this stable relationship between employment and growth may conceal a variation in job “quality”, as part-time jobs are constantly expanding.

The downward trend in productivity is accompanied by a shift to the tertiary sector of the economy, i.e. workers are switching from the manufacturing sector to the market and non-market services sectors. That shift to the services sector is part of the reason for the decline in productivity and the fall in the average working time. If that trend persists, it should not in principle affect the relationship between employment and economic activity across the business cycle, since the estimated employment-value added elasticity for the manufacturing sector is the average of that same elasticity calculated for market and non-market services.

Although the relationship between employment and GDP is very stable across the business cycle, it is nevertheless noteworthy that, at the time of the recent financial crisis, in the twelve economies studied, there was at first a general tendency to protect jobs. However, that tendency soon ended and normality was restored; if employment is struggling to pick up, that is essentially because of the weakness of the economic recovery.

Finally, focusing on the volume of hours worked rather than the number of persons in work shows very clearly that firms prefer to respond to fluctuations in the economy by adjusting the intensive margin of the production factor labour.

Having established these findings, we must draw the necessary conclusions for economic policy. First, if the problem identified is indeed a downward trend in productivity, the solution lies in effective structural policies on education, innovation and investment in intangible assets and innovative technologies in cutting-edge sectors. Next, what kind of employment market do we want? Although an increase in the reaction of employment to economic growth would mean that workers would enjoy the benefits of an economic upturn sooner, it would mean more job losses in a recession. Is that desirable in view of the cost of unemployment in terms of destruction of human capital and wealth in general? Also, if we limit fluctuations in employment too much by using the margin of working time, is there not a risk of penalising first-time participants⁽¹⁾, by delaying recourse to them in a recovery phase and taking on fewer of them in a recession period⁽²⁾? It is likewise important to remember that there is an intrinsic equality problem in the cyclical fluctuation in employment since, all other things being equal, the least-skilled workers will be the first to be affected by the recession, be it in terms of jobs or hours worked. Finally, the study establishes the link between employment and growth across the business cycle, but the question of an efficient labour market also involves structural unemployment and how to absorb it. That complex problem requires the activation of numerous levers at the level of both labour market institutions and the taxation of production factor incomes.

(1) And outsiders in general.

(2) On this subject, it is interesting that, at the time of the last recession when employment was initially protected in all the economies, the outcome was a large rise in unemployment among young people, while those over the age of 50 were significantly less affected.

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Decomposition of the dynamics of sovereign yield spreads in the euro area

B. De Backer

Introduction

Sovereign yield developments in the euro area have attracted considerable attention over the last few years. At the height of the sovereign debt crisis, long-term sovereign yields in some EU Member States had climbed to levels not seen since the beginning of the Economic and Monetary Union (EMU). In 2012, they reached more than 6% in Italy and Spain, about 14% in Portugal and as much as 40% in Greece. The surge of sovereign yields in some of the Member States was all the more remarkable as it occurred within the context of the EMU. Given a single monetary policy in the euro area and the common implied expectations on future policy rates, cross-country differences in sovereign yields reflect country-specific risk premiums. Spreads over the German Bund, a crucial measure of sovereign riskiness, surged from relatively low levels before the crisis (about 15 basis points on average) to several dozens or hundreds of basis points in 2012, depending on the countries. The strong decline in sovereign yields and spreads that followed in the euro area after the first indication of the outright monetary transaction (OMT) programme in July 2012 was equally unprecedented. In the space of about two years, long-term sovereign yields and spreads halved compared with the peak they had reached in 2012. By April 2015, following additional non-conventional monetary policy measures, yields had also fallen to historically low levels. In Italy and Spain for instance, 10-year sovereign yields stood at about 1.3%. For core countries, short- to medium-term maturity sovereign yields have even dropped to unequalled negative values, reflecting the willingness of investors to pay to lend funds to certain sovereigns (liquidity and safety premium). This contrasts with the high risk compensations demanded in 2012.

The impact of these developments not only concerned sovereign debt markets. Different economic sectors were affected by the sovereign debt crisis. In addition to the public sectors in the respective countries that had to cope in general with rising borrowing costs, banks saw their funding conditions tighten. Adverse bank-State feedback loops emerged in some Member States as (direct or indirect) sovereign assistance to banks increased, raising sovereign credit risk to which banks are exposed (through their holdings of sovereign debt, for instance). Besides, in most Member States, households and non-financial corporations, the so-called “real economy”, were confronted with a tightening of (price and non-price) credit conditions, reflected among others in increased margins on new bank loans. The funding conditions in these sectors remain a cause for concern in the euro area since, in early 2015, households and non-financial corporations were still confronted with significant risk premiums. Even though some convergence has been observed since 2014, there is still some cross-country heterogeneity in borrowing costs in the euro area, partly reflecting disparate risk premiums in a context of fragmentation of capital markets inherited from the sovereign crisis. For instance, bank lending rates in Italy and Spain are currently about 4 percentage points over the ECB’s main monetary policy rate, while these spreads stood at only about 2 percentage points in 2007.

This article aims at analysing the contributions of different factors to sovereign spreads throughout the crisis, following a macrofinancial approach. Rather than focusing on sovereign yields, the determinants of divergent developments in sovereign spreads in the euro area are analysed. These spreads are still significant for several euro area Member States and, thus, continue to represent

risks priced by markets. Distinguishing the contributions of the various shocks that could influence risk premiums is important in order to understand the dynamics of sovereign spreads and to be able to influence these premiums through monetary or government policy action. Therefore, the interactions between financial markets and key macroeconomic factors should be duly considered. But there are other factors that are more specific to financial markets, such as redenomination risk. Likewise, liquidity risks and changes in global risk aversion could also influence sovereign spread dynamics. In section 1 of the article, developments of sovereign yields and spreads are discussed. The second section focuses on the consequences of the sovereign debt crisis for the borrowing and funding costs of different sectors of the economy, i.e. the government, banks, households and non-financial corporations. Different types of risk in sovereign bond markets are identified and analysed in the third section. These factors are used as inputs in the macrofinancial analysis in section 4, where we decompose sovereign spreads into a fundamental economic component and a non-fundamental component. The impact of the different (unconventional) monetary policy measures on yield spreads is illustrated as well. Finally, the conclusion gives a brief summary of the main findings of the analysis.

1. Developments in euro area sovereign bond markets

From a historical perspective (see chart 1), three phases can be distinguished in euro area sovereign debt market developments since the early 1990s (Cœuré, 2012): a first phase preceding the creation of the EMU in 1999 that was characterised by the trend-wise convergence of sovereign yields and spreads relative to German Bunds, a subsequent phase of stability in euro area sovereign bond markets that started with the establishment of the EMU and continued until the banking crisis, and, finally, a phase marked by the increased volatility and the divergence of yields and spreads during the financial and sovereign debt crises. Most recently, following the announcement and the implementation of different non-conventional monetary policy measures, and in particular the expanded asset purchase programme (APP), euro area bond markets are entering a new regime, characterised by negative yields in many euro area countries and incomplete convergence of yields and spreads.

The convergence of yields and spreads (and the general downward tendency of yields) observed during the first phase started after the European Exchange Rate Mechanism (ERM) crisis in 1993 triggered by speculative attacks against European currencies. Following this

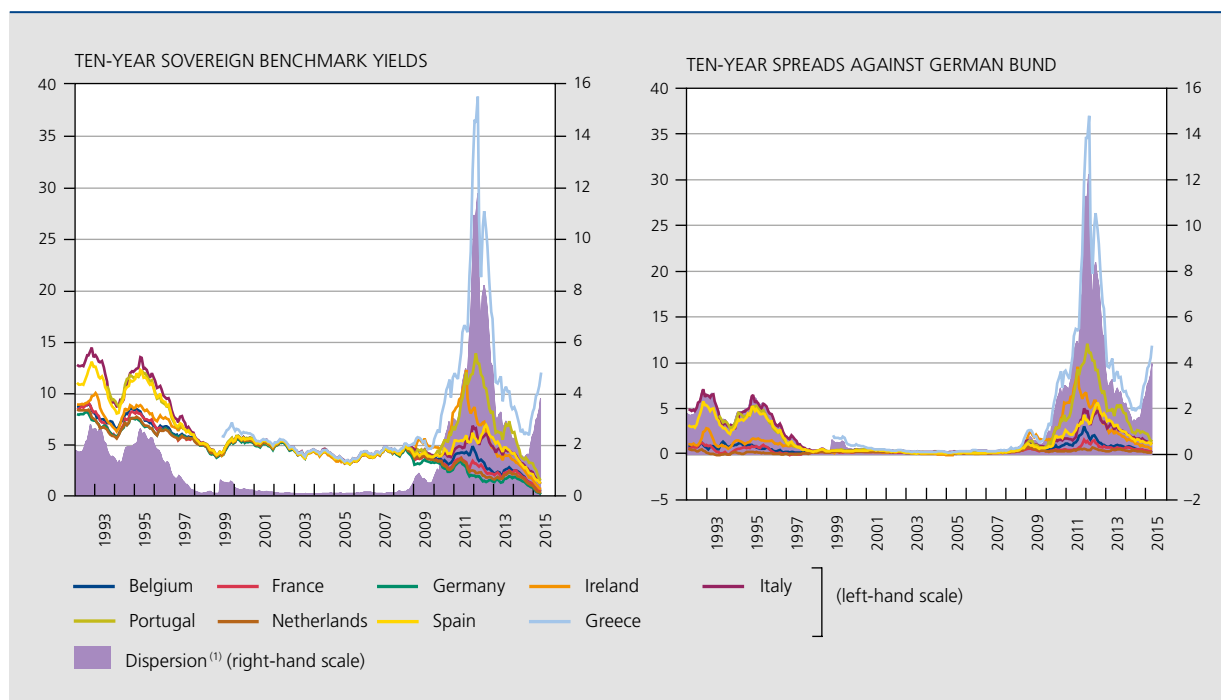
crisis, many of the ERM members aligned monetary and macroeconomic policies to enhance the credibility of the ERM peg and in a further stage also to meet the convergence criteria stipulated in the Maastricht Treaty. In this phase, the convergence of sovereign yields was driven primarily by the gradual reduction of exchange rate (and sovereign) risks and the gradual convergence of inflation expectations. In Belgium for instance, a strong franc policy (*politique du franc fort*) strictly pegging the Belgian franc to the German mark was introduced at the beginning of the 1990s and the Belgian government gradually stepped up fiscal efforts to meet the entry criteria for the EMU.

In the second phase, sovereign yields were relatively stable and spreads against the German Bund remained low (about 15 basis points on average). However, the low level (and the stability) of the spreads did not reflect the persistent differences in macroeconomic and fiscal fundamentals of some euro area Member States. The discrepancy between the strong convergence in sovereign yields on the one hand and the persistent differences in macroeconomic fundamentals on the other could have been an indication of a certain leniency of financial markets as regards fiscal positions of sovereigns *inter alia* (Bernoth *et al.*, 2012; Cœuré, 2012; ECB, 2014a) or, similarly, of a low degree of risk aversion inherited from a long period of low macroeconomic volatility during the Great Moderation (or the “Goldilocks economy” as described by Alan Greenspan in the 1990s).

The third phase, encompassing the financial and sovereign debt crises, saw initially a strong increase in sovereign yields especially in peripheral Member States to levels exceeding those in force before the EMU. Accordingly, sovereign spreads displayed a high degree of dispersion across Member States reflecting the heterogeneity of sovereign risks and the fragmentation of financial markets in the euro area. These developments were initially observed to some extent in 2008 and 2009 during the financial crisis as a consequence of increasing risk aversion and liquidity risk but then developed fully during the sovereign crisis as a result of a surge in (perceived) sovereign credit risk. However, the sovereign debt crisis was also characterised by contagion risks and, in particular, by a redenomination risk (the risk that a euro asset will be redenominated into another, possibly devalued, legal currency). Since the summer of 2012, the situation has nevertheless improved and sovereign yields in most euro area Member States have dropped, mainly due to the ECB non-conventional monetary policy actions, such as the announcement of the OMT programme and expanded APP, and (recent) low inflation expectations. At the beginning of 2015, following their downward trends – except in Greece –, yields stood at a historically low

CHART 1 DEVELOPMENTS IN EURO AREA SOVEREIGN DEBT MARKETS

(in %, monthly averages, 1992M1-2015M4)



Source: Thomson Reuters Datastream

(1) Standard deviation of the cross section of sovereign yields or spreads for each month.

level and short- to medium-term maturity yields were even negative for several Member States.

2. The relation between sovereign debt market developments and the economy

Sovereign yield developments can exert a strong impact on the real economy through their effects on different economic segments or sectors. This section briefly discusses the different channels through which sovereign yield changes are linked to the “funding costs” of the public sector, the banking sector, households and non-financial corporations.

2.1 The implicit interest rate on government debt

A first, direct, effect of changes in yields (or yield spreads) is that they may impact on the refinancing cost of public debt and possibly in the longer term on the servicing cost and sustainability of public debt. The debt accumulation equation implies that the public debt ratio – as measured

by government debt in percentage of GDP – is sustainable if the primary deficit remains limited with respect to GDP and the debt servicing cost is smaller than (or equal to) the nominal growth rate of GDP. The persistence of high debt servicing costs over a prolonged period could thus lead to increased debt accumulation through a “snowball effect” and result in a potentially unsustainable level of indebtedness.

However, sovereign yield developments are not transmitted automatically to public debt servicing costs as public authorities can temporarily mitigate the impact of yields on total funding costs by either postponing/advancing borrowing in financial markets or modifying the maturity structure of their debt. For instance, when long-term yields are rising, governments can lower their funding requirement by postponing some government spending or shorten the maturity structure of their debt by issuing new debt in short maturity buckets. Moreover, the total financing cost of public debt does not just depend on the interest charges on newly issued debt but also on the cost of debt issued previously. This implies that sovereign yield developments are often smoothed out in the cost of servicing debt. Consequently, it is not surprising to observe that implicit interest rates on government debt of

most euro area Member States generally rose only slightly around 2008 and 2011 as a result of the successive financial and sovereign debt crisis (see chart 2). In euro area peripheral states, however, implicit rates reacted more than in core countries to sovereign debt market tensions in 2011. Given the persistence of the sovereign debt crisis, some of these peripheral states (such as Italy, Portugal and Spain) could visibly not avoid refinancing their debt at a high rate in 2011 and probably afterwards. It should also be noted that declining implicit rates on Greek, Irish and Portuguese debt from 2012 onwards do not reflect the sovereign debt tension but rather the efforts consented by the international community to finance these states at low cost (through adapted programmes).

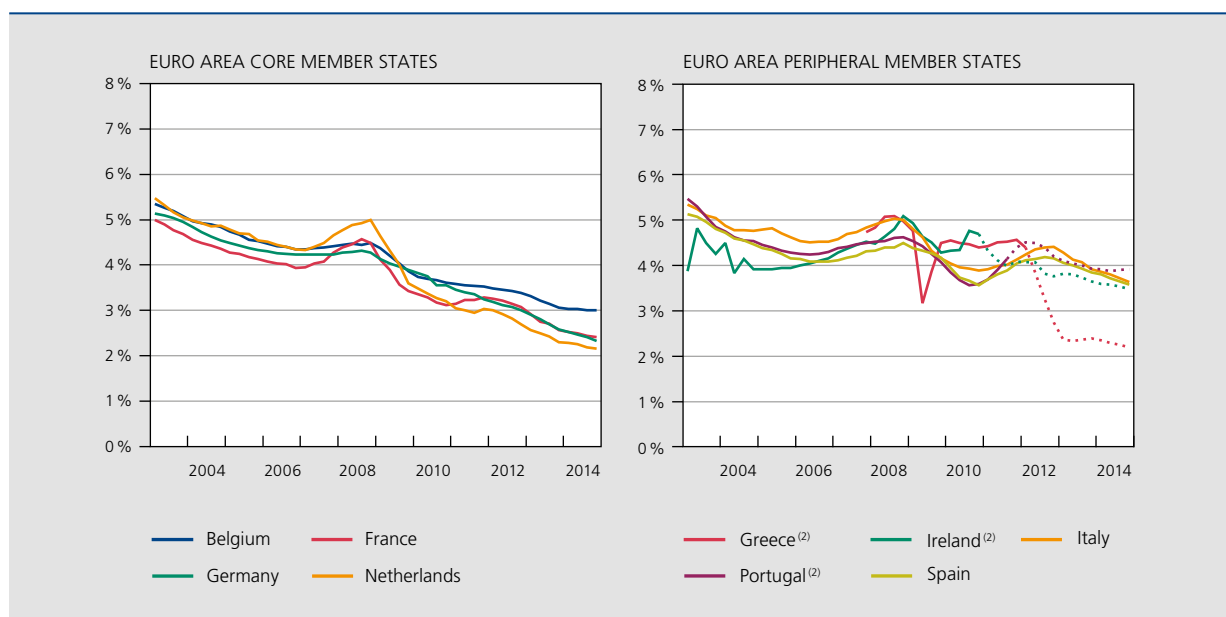
The costs of public debt servicing in the euro area thus reacted to sovereign yield developments during the crisis, although these reactions were relatively limited compared with changes in yields registered in the secondary market. In Italy and Spain for instance, from the beginning of 2011 to mid-2012, 10-year sovereign yields increased by almost 3 percentage points whereas the implicit interest rates on the government debt rose by about half a percentage point. The impact on implicit rates could nevertheless have been more adverse with a longer sovereign debt crisis or in the absence of financial assistance for some states.

2.2 The link with private sector funding costs through the lens of the bank lending survey

Various channels are at work when considering the transmission of the sovereign debt crisis to banks, households and non-financial corporations. One of them, the bank lending channel, defined here as operating when banks modified their loan supply in response to the sovereign crisis, was particularly important and can be better understood thanks to the euro area bank lending survey (BLS). According to the BLS, two mechanisms were relevant in the debt crisis context: the direct exposure of banks to sovereign debt and the value of banks' sovereign collateral. The first refers to the holding of sovereign debt by banks, which directly exposes their balance sheets to sovereign risk and which could therefore affect their riskiness and in turn their funding costs. In this respect, it should be noted that the average share of euro area sovereign debt in euro area banks' assets amounted to about 8.5% in the years 2009-2011 (the beginning of the sovereign debt crisis)⁽¹⁾. The second refers to the impact of the sovereign debt crisis on financing costs through the fall in value of sovereign bonds that banks can use as collateral

(1) The average share over the period 2009-2011 of euro area sovereign debt (loans and securities other than shares) amounted to about 8.5% of MFIs' assets in Belgium, France, Germany, Greece, Italy, the Netherlands, Portugal and Spain. Balance sheet items figures are taken from the statistical data warehouse of the ECB, MFIs excluding ESCB reporting sector.

CHART 2 IMPLICIT INTEREST RATES ON GOVERNMENT DEBT IN THE EURO AREA ⁽¹⁾
(2003Q1-2014Q4, unless otherwise stated)



Source: EC.

(1) Actual interest payments cumulated over four quarters divided by the initial stock of consolidated sovereign debt. Debt data were linearly interpolated on the basis of end-of-year observations.

(2) Dotted lines represent the implicit rates of states that have been under a financial assistance programme. Data for Greece from 2007Q4-2014Q4.

in liquidity transactions with the ECB or the wholesale market. In addition to these two mechanisms, banks can also be affected by “other effects” of the sovereign debt crisis, such as weaker explicit or implicit government guarantees.

In the BLS, banks were asked to assess the impact of sovereign debt market developments on changes (over the past three months) in their funding conditions, credit standards and margins, and to differentiate the impact according to the mechanisms mentioned above. The results indicate that the majority of euro area banks reported – for the two mechanisms and the other effects – on average a deterioration in their funding conditions at the end of 2011 and throughout 2012 as a consequence of the sovereign debt crisis (see chart 3). The impact of the sovereign debt crisis was probably also sizeable in 2010 and throughout 2011 but the *ad-hoc* question was introduced for the first time in the BLS for the period covering the last quarter of 2011. From the second quarter of 2013 onwards, however, following the easing of the tensions on sovereign debt markets, banks started reporting a more and more pronounced easing of their funding conditions. The survey furthermore indicates that, as a consequence of the sovereign debt crisis, euro area banks significantly tightened credit standards on loans to households and non-financial corporations and widened margins on them. As was the case for banks’

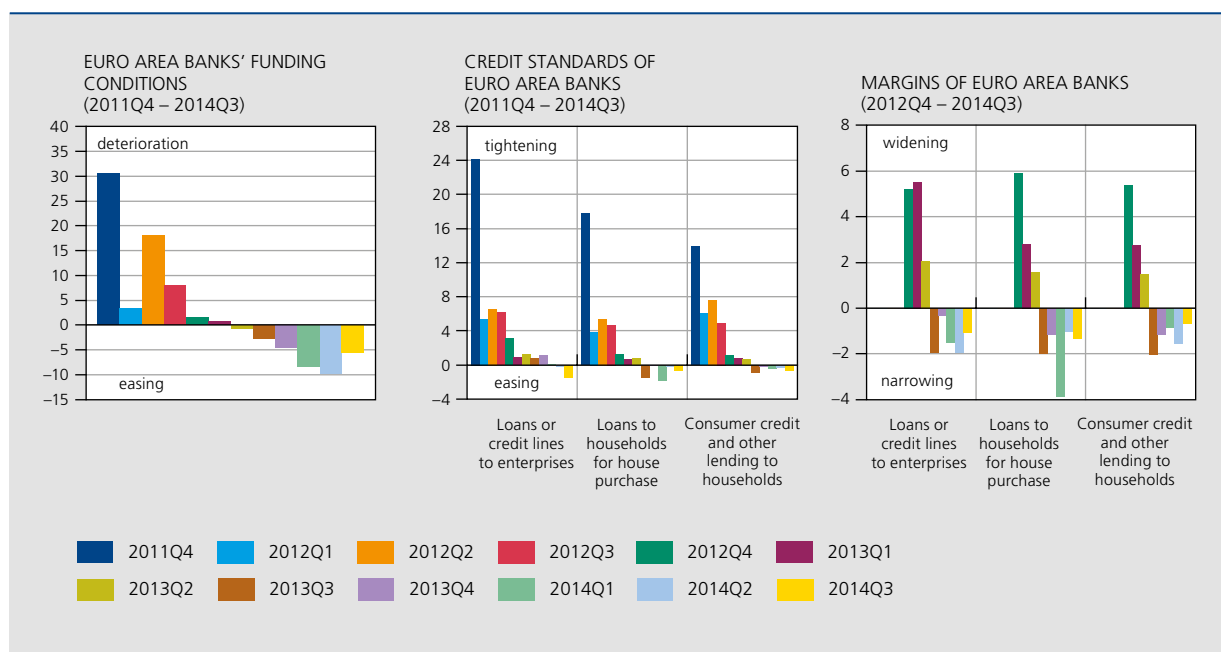
funding conditions, the impact of the sovereign debt crisis on credit standards and margins for households and non-financial corporations then slightly eased towards the end of 2013. The BLS also indicates that the direct exposure and collateral mechanisms were more important than the “other effects”.

Hence, in addition to affecting sovereigns, the public debt crisis also affected banks, households and non-financial corporations, though the most recent bank lending surveys indicate some easing of the impact. In section 2.3, we show however that the margins of the banking sector on loans to households and non-financial corporations remain at relatively high levels, and we take a new look at them by decomposing them into different risk premiums.

2.3 Decomposition of banks’ margins on loans to households and non-financial corporations

The impact of the sovereign debt crisis on households’ and non-financial corporations’ bank retail rates was felt not only through the banking sector’s funding costs but also through substitution effects. Sovereign yield developments in general influence other types of interest

CHART 3 BANK LENDING SURVEY: IMPACT OF THE SOVEREIGN DEBT CRISIS ON BANKS’ FUNDING CONDITIONS, CREDIT STANDARDS AND MARGINS FOR BANK LOANS TO HOUSEHOLDS AND NON-FINANCIAL CORPORATIONS⁽¹⁾



Source: ECB (bank lending survey).

(1) *Ad-hoc* question on the impact of the sovereign debt crisis on banks’ funding conditions. The question was first included in the survey in 2012. Net percentages defined as the difference between the sum of the answers “contributed considerably/somewhat to a deterioration/tightening/widening” and the sum of the answers “contributed considerably/somewhat to an easing/narrowing”. Averages of the three possible channels: direct exposure, value of sovereign collateral, other effects.

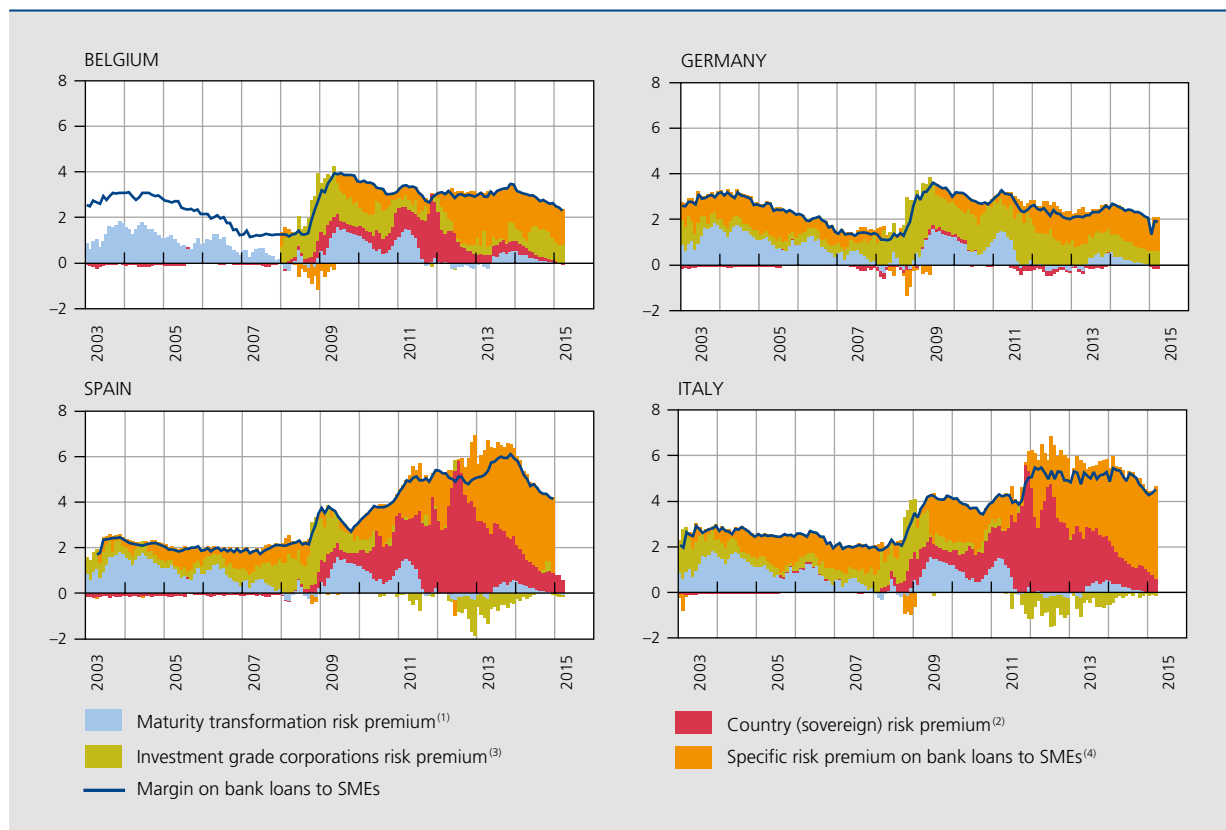
rates, including bank lending rates. For instance, banks can decide to reduce their credit supply to households and non-financial corporations in order to invest more in sovereign bonds when sovereign yields increase relative to retail lending rates. This portfolio rebalancing should then push up bank lending rates as well, implying that they could be influenced by sovereign yields. However, bank lending rates in the euro area do not necessarily move in line with euro area sovereign yields and generally tend to be higher than sovereign yields. This imperfect correlation and average positive discrepancy point to the presence of specific risk premiums in bank lending rates (in addition to the risk premiums already included in sovereign yields). In this section, we make a (rough) approximation of banks' margins – defined as the difference between bank lending rates and the ECB's main refinancing operations (MRO) rate –, which makes it possible to highlight the roles played by different risk channels.

Focusing on non-financial corporations, margins between bank lending rates on loans granted to (small and medium-sized) enterprises, measured as the rates on small long-term loans⁽¹⁾, and the monetary policy rate can be decomposed into four spreads that we interpret here as risk premiums (see Box 1): a maturity transformation premium, a sovereign (or "country") premium, a premium on loans to investment grade (IG) non-financial corporations (rated Baa or better) and finally a premium on loans to all (not necessarily IG) non-financial (small and medium-sized) corporations.

Four countries are considered in this article as representative of either core euro area Member States (Germany and to a lesser extent Belgium) or peripheral states (Italy and

(1) A specific bank interest rate for SMEs is not available as such. Therefore, we approximate it by taking the rate on small (up to € 1 million) long-term (initial rate fixation period of more than 5 years) new business loans granted to non-financial corporations. These loans are the most susceptible to be granted to SMEs. We use MIR (MFI interest rate) data.

CHART 4 DECOMPOSITION OF BANK LENDING SPREADS ON LOANS GRANTED TO SMEs
(in %, 2003M1 – 2015M3)



Sources: Barclays Capital, Thomson Reuters Datastream, ECB.

(1) Difference between five-year swap rates for Euribor six-month (before Aug. 2005) or five-year OIS rates (since Aug. 2005) and MRO rates of the ECB.

(2) Difference between five-year sovereign yields and five-year swap rates.

(3) Difference between yields on IG corporations of about five years (average for maturities between four and six years) and five-year sovereign yields. Data missing for Belgium before 2008. The observations in February 2015 were used as first estimates for March 2015.

(4) Difference between new business MIR rates on loans up to € 1 million and with initial rate fixation period over five years (approximation of SME bank loan rates) and yields on IG corporations of about five years. Spanish data were smoothed using a moving average over seven months.

Spain). Changes in bank lending margins and the decomposition into the four above-mentioned spreads are illustrated in chart 4. At the end of 2008 and at the beginning of 2009, margins widened in all four countries considered due to a rise in the maturity transformation risk premiums as well as in risk premiums of IG corporations. The former occurred as short-term rates fell following the ECB's cuts in the MRO rate while longer-term market rates remained relatively constant, at least initially. The latter reflected the general re-pricing of corporate credit risk and the flight-to-safety phenomenon in the context of the financial crisis which diverted investment away from corporate bonds towards safer assets.

From the end of 2008 and until mid-2012, premiums associated with sovereign risk (or country risk premiums) increased in Italy and Spain, leading to a further widening of margins and fragmentation of euro area financial markets. Clearly, the increase in country risk premiums reflected the difficulties that the Italian and Spanish governments faced during the sovereign debt crisis. In these two countries, the spread between yields on IG corporate and sovereign bonds could even be slightly negative as markets regarded corporate bonds as "safer" than government bonds. In Belgium, the country risk premium increased between the beginning of 2009 and the end of 2011 but the bank loan margin nevertheless fell slightly (due to diminishing risk premiums of IG corporations following a search-for-yield phenomenon). In Germany, the country premium remained very small throughout the crisis.

Considering the statistical analysis presented in Box 1, the link between margins on bank loans and country premiums can be estimated by means of standard econometric regressions. According to a counterfactual analysis on the

basis of these regressions, it appears that bank lending margins would have been significantly smaller if the sovereign premiums had remained low (with no sovereign debt crisis), except in Germany where they would have been unaffected given the low country risk premiums.

Country risk premiums for Belgium, Italy and Spain started to decline in 2012 amid the easing sovereign debt market tensions and the spread between yields on IG corporate and sovereign bonds remained small, implying that the cost of issuing debt through IG corporate bonds had come down as well. However, bank lending margins remained relatively high, partly reflecting the lack of any viable alternative funding sources, such as corporate bonds, for a substantial fraction of euro area non-financial corporations. Margins on bank loans were supported by the widening spread between bank lending rates to all non-financial corporations and corporate bond yields. Besides, non-financial corporations' bank borrowing costs are nowadays still significantly higher than yields on sovereign or corporate bonds, something which does not facilitate the flow of credit towards the real economy. In order to tackle this issue, the ECB started targeted longer-term refinancing operations (TLTROs) at the end of 2014 to encourage banks to lend more to corporations (and households). Furthermore, at the beginning of 2015, it announced plans to launch the expanded APP which is expected to influence credit flows to the real economy (and thus bring inflation back below, but closer to, 2 %) mainly through a portfolio rebalancing channel. Since the announcement and implementation of these measures, margins on bank loans to non-financial corporations seem to have fallen further in the four countries considered; a more in-depth analysis on a larger dataset is nevertheless required before being able to make an assessment of the final impact of these measures.

Box 1 – Decomposition of the margins on bank loans to SMEs and the role of sovereign risk

We decompose bank loan margins into four spreads, in line with Illes and Lombardi (2013). More precisely, the decomposition takes the following form:

$$R_{lending} - R_{MRO} = [R_{OIS} - R_{MRO}] + [R_{sov} - R_{OIS}] + [R_{Baa} - R_{sov}] + [R_{lending} - R_{Baa}].$$

On the left-hand side of the equation, we measure the bank lending margin $[R_{lending} - R_{MRO}]$ by the difference between the interest rate on bank loans granted to (small and medium-sized) enterprises – as approximated by the rate on small long-term loans – or households ($R_{lending}$) and the ECB's main refinancing operations rate (R_{MRO}). We interpret the spreads on the right-hand side as risk premiums. The first component $[R_{OIS} - R_{MRO}]$ is



understood to be a maturity transformation risk premium measured as the difference between the long-term overnight index swap rate, R_{OIS} (a 5-year interbank market rate), and the MRO rate (typically associated with a 1-week maturity)⁽¹⁾. The second component $[R_{sov} - R_{OIS}]$ is the country risk premium measured as the difference between the sovereign yield (R_{sov}) and the interbank market rate, both with five-year maturities. The third component $[R_{Baa} - R_{sov}]$ refers to the IG risk premium, which is measured as the difference between yields on IG (Baa rated or better) non-financial corporations bonds (R_{Baa}) and the sovereign yield, both with five-year maturities⁽²⁾. It represents the additional risk premium obtained on an investment in the (IG) corporate sector relative to an investment in sovereign bonds. The last component $[R_{lending} - R_{Baa}]$ is a bank loan risk premium, measured as the difference between the bank lending rate on small (up to € 1 million) long-term (more than 5 years) loans to non-financial corporations and the yields on IG non-financial corporation bonds. It represents the additional premium charged by banks for lending to firms not necessarily well-rated, the lack of alternatives to bank credit for small and medium-sized enterprises and the bank monitoring costs for these enterprises⁽³⁾.

Although the four risk premiums add up to the margin on the bank lending rate (see chart 4), the movements of specific risk premiums do not always correspond to changes in the total margin. For instance, the country risk premiums started to come down in 2012 while the margins remained broadly stable in Belgium, Italy and Spain. Often, in order to estimate the link between bank margins and the country risk premiums in a more structural way, the literature resorts to a simple but standard regression analysis (Cordemans and de Sola Perea, 2011, ECB, 2013, Gambacorta *et al.*, 2014, Neri, 2013, Arnold and van Ewijk, 2013). The regressions we use for margins on bank lending rates for loans to non-financial corporations or households take the following form:

$$R_{lending} - R_{MRO} = \alpha + \beta[R_{OIS} - R_{MRO}] + \gamma[R_{sov} - R_{OIS}] + \delta \Delta \ln[GDP].$$

This model explains the margin on bank lending rates by a constant (α), the maturity transformation risk premium, the country (sovereign) risk premium and the year-on-year growth rate of real GDP which serves as a business cycle indicator, proxying for different types of credit risk among non-financial corporations and/or households. The parameters β and γ measure the pass-through of the retained premiums (respectively the maturity transformation and the sovereign risk premium) to bank lending margins, while the coefficient δ measures the impact of changes in GDP growth on the bank lending spread.

According to the estimation results presented below, the two risk premiums considered are only imperfectly passed on by banks to interest rate margins to households and non-financial corporations (the coefficients β and γ are smaller than one). It nevertheless appears that, on the basis of the significant and positive values of the parameters, margins would react significantly to changes in country risk premiums. One exception here is Germany in the case of non-financial corporations where the parameter does not seem to be significant; the German coefficient of the country risk premium γ is also less significant for households. The economic effects of the sovereign risk premiums seem to be important: in Belgium for instance, the estimation results imply that, *ceteris paribus*, a rise of 1 percentage point in the country premium would raise the margin on the bank lending rate to non-financial corporations and households by respectively 60 and 55 basis points on average. The results for the other countries are similar (with the exception of Germany). Besides, the GDP growth rate coefficients in the four countries under consideration are negative and significant, which suggests that margins on bank loans are higher during downturns in the business cycle (possibly because of greater credit risk). Moreover, the R-squared figures indicate an acceptable precision. Depending on the country and the sector, between 40% and 76% of the variation of the margins is explained.

(1) The difference also reflects a marginal credit risk of prime banks which is often neglected. See the article in the ECB Monthly Bulletin on the measurement of risk-free rates in the euro area (ECB, 2014b).

(2) Five-year maturity bond yields on corporate bonds are not available as such from the Barclays Capital database that we use. We thus take the mean of rates on bonds whose maturity is, on the one hand, from four to five years and, on the other, from five to six years.

(3) Given that long-term bank lending rates cover maturities above five years while we consider only five-year IG corporate bonds, a marginal maturity transformation premium cannot be avoided.



REGRESSION ANALYSIS OF THE BANK LENDING RATES

(estimation by ordinary least squares, data in %, 2003M1-2014M12)

	α	β	γ	δ	R ²
Results for non-financial corporations ⁽¹⁾⁽³⁾					
Belgium	2.18***	0.75***	0.60***	-0.17***	56 %
Germany	2.14***	0.60***	0.61	-0.07***	53 %
Italy	2.44***	0.40***	0.74***	-0.09***	67 %
Spain	2.74***	0.04	0.68***	-0.13***	76 %
Results for households ⁽²⁾⁽³⁾					
Belgium	2.07***	0.59***	0.55***	-0.19***	40 %
Germany	2.07***	0.60***	0.97**	-0.07***	47 %
Italy	2.19***	0.69***	0.47***	-0.09***	58 %
Spain	3.15***	0.18	0.58***	-0.18***	68 %

Sources: Barclays Capital, Thomson Reuters Datastream, ECB, own computations.

(1) Spanish data were smoothed using a moving average over seven months.

(2) MFI new business rates on household loans for house purchases with maturity over five years, weighted with new business volumes.

(3) Significant at 1 %: ***; 5 %: **; 10 %: *.

Using this model, one can carry out a counterfactual analysis to estimate the impact of the sovereign debt crisis on the margins. More specifically, we compute risk premiums that would have been observed in the absence of a sovereign debt crisis (counterfactuals). This situation is simulated by setting country risk premiums to zero from 2009 onwards. It should however be noted that this exercise suffers from limitations owing to the simplicity of the model. For instance, the lack of feedback effects from the sovereign crisis to the GDP growth rate is not captured. This kind of exercise can nevertheless serve as a first approximation to illustrate the (direct) impact of the sovereign crisis on bank lending margins.

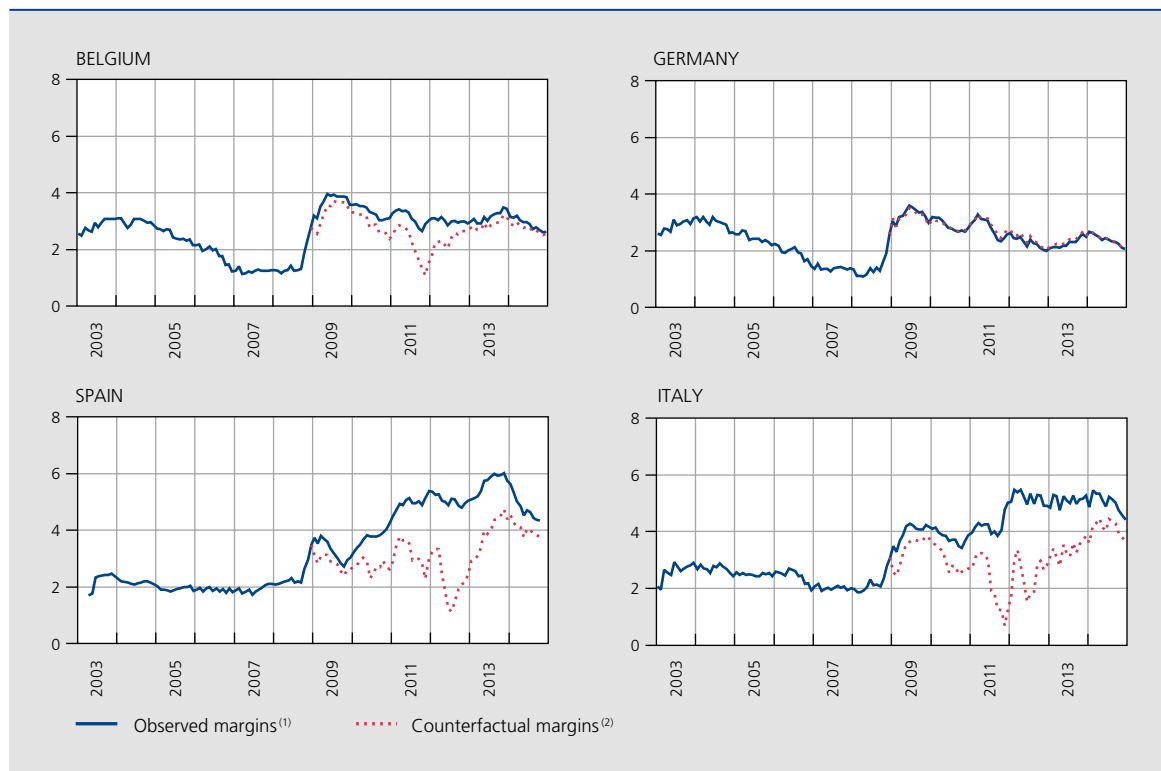
Focusing on non-financial corporations, it seems that the margins would have been significantly smaller under the scenario where sovereign risk premiums remained nil after 2009. The differences between the observed values and the counterfactuals are the greatest in 2011 and 2012. In Belgium in particular, this difference reached a maximum in November 2011 as a consequence of the government crisis. According to the simulations on the basis of this simple model, the Belgian margin on bank lending rates would have been almost two percentage points lower in November 2011 if we had disregarded the country risk premium. By contrast, there would hardly have been any difference for Germany between the observed values and the counterfactuals given the small country risk premium.

It should also be noted that counterfactuals for the margins on bank loans started to increase as from the beginning of 2012 (Belgium), or mid-2012 (Italy and Spain) and got closer to the observed values. This suggests that the margins on bank lending rates observed today are no longer primarily due to country risk premiums but rather to corporations/credit premiums (as is also indicated by the decomposition of margins presented in the main text).



COUNTERFACTUAL ANALYSIS OF SME LOAN BANK MARGINS, EXCLUDING COUNTRY RISK PREMIUMS AFTER 2009

(in %, 2003M1 – 2014M12)



Sources: Thomson Reuters Datastream, ECB, own computations.

(1) Difference between new business MFI rates on loans up to € 1 million and with initial rate fixation period over five years (approximation of SME bank loan rates) and the MRO rates of the ECB. Spanish data were smoothed using a moving average over seven months.

(2) Margins that would have been observed in the absence of a sovereign debt crisis, estimated according to the regressions in the box by setting country risk premiums to zero from 2009 onwards.

3. Risk indicators and developments in euro area sovereign spreads

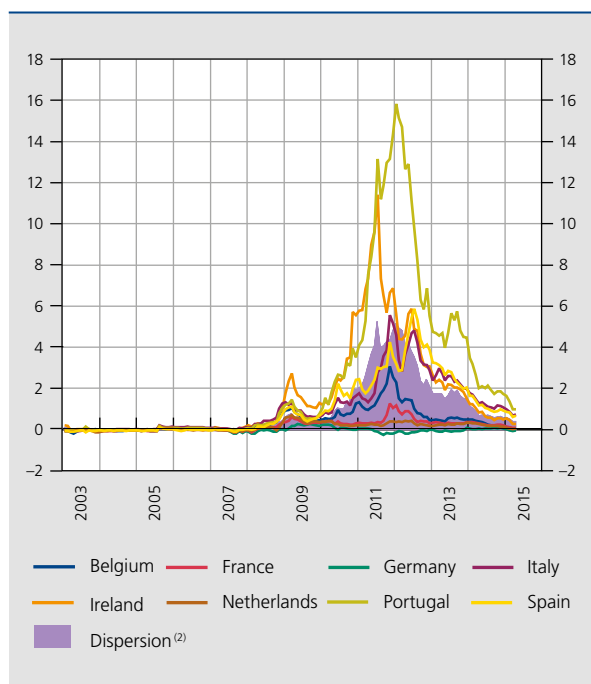
In order to understand the transmission of sovereign debt tensions to the real economy, the driving factors of the country (sovereign) risk premiums are analysed. In this section, we focus on the identification of some indicators representative of these factors. As in the previous section, country premiums are defined as the spreads between sovereign yields and the virtually risk-free overnight index swap (OIS) rate on the interbank market of the same (5-year) maturity.

In the initial phase of the crisis in 2008-2009, corresponding to a global financial crisis, country risk premiums (or sovereign spreads) in the euro area were mainly affected by liquidity risk and risk aversion. A premium for liquidity risk is present in sovereign bond yields since investors

are generally more inclined to invest in deeper bond markets and charge premiums for the risk of having to reduce the price of a security to sell at a given moment. Besides, market risk aversion determines the price of different risks and so modulates the importance of risk premiums (including liquidity risk). This liquidity risk can be better understood by several indicators, including the spread between the Euribor and OIS rates (or the difference between non-guaranteed and guaranteed interbank market rates) which widened sharply after the collapse of Lehman Brothers. Additionally, it can also be illustrated by the difference in yields on different types of government-guaranteed bonds, by definition entailing similar credit risk but potentially different liquidity risks (such as the difference between bond yields on the government-owned bank Kreditanstalt für Wiederaufbau (KfW) and yields on German Bunds; see Monfort and Renne, 2014). The global rise in risk aversion is reflected among other things

CHART 5 RECENT DEVELOPMENTS IN EURO AREA SOVEREIGN SPREADS⁽¹⁾

(in %, monthly averages, 2003M1-2015M4)



Source: Thomson Reuters Datastream.

(1) Difference between five-year sovereign yields and five-year swap rates for Euribor six-month (before Aug. 2005) or five-year OIS rates (since Aug. 2005).

(2) Standard deviation of the cross section of sovereign spreads for each month.

by the rise in implied volatility indicators on the financial markets, such as the VIX index based on the implied volatility of the S&P 500 index.

We focus on the period 2010-2012 of the sovereign debt crisis since spreads reached much higher levels than during the financial crisis (chart 5). We illustrate the importance of fundamental economic variables for sovereign credit risk and show that sovereign spreads were also affected by redenomination risk, although risk aversion and liquidity risk continued to be present as well.

3.1 Credit risks during the sovereign debt crisis

Over the period 2010-2012, sovereign credit default swap (CDS) spreads – a broad measure of sovereign default risk – increased considerably. This re-pricing of sovereign credit risk could be due to the slowdown of the economy and the worsening of the fiscal position of sovereigns and was concomitant with the large burden imposed on public finances by the bank bail-outs and/or the reinforced debt guarantees.

Fundamental economic variables are prime indicators of sovereign credit risk since they testify to the robustness of an economy in general and to public debt sustainability more particularly. As such, one of the representative variables of sovereign credit risk is sovereign debt as a percentage of (annual) GDP. For the four countries shown in chart 6, the correlation between debt ratios and sovereign spreads is positive over the period 2008Q1-2014Q4, this being the case especially in Belgium, Italy and Spain, whereas the correlation is also positive but less pronounced in Germany. Therefore, the rise in public debt ratios seems to have affected sovereign spreads since 2008 and should thus be taken into account in a more comprehensive assessment of the determinants of sovereign spreads.

However, correlations do not imply a direct causal relationship and should be supplemented with additional analysis. Consequently, in order to estimate the fundamental component of spreads (in section 4 below), we focus on the crisis period and consider a series of economic variables, including the public debt ratio as well as other fundamental variables such as GDP growth.

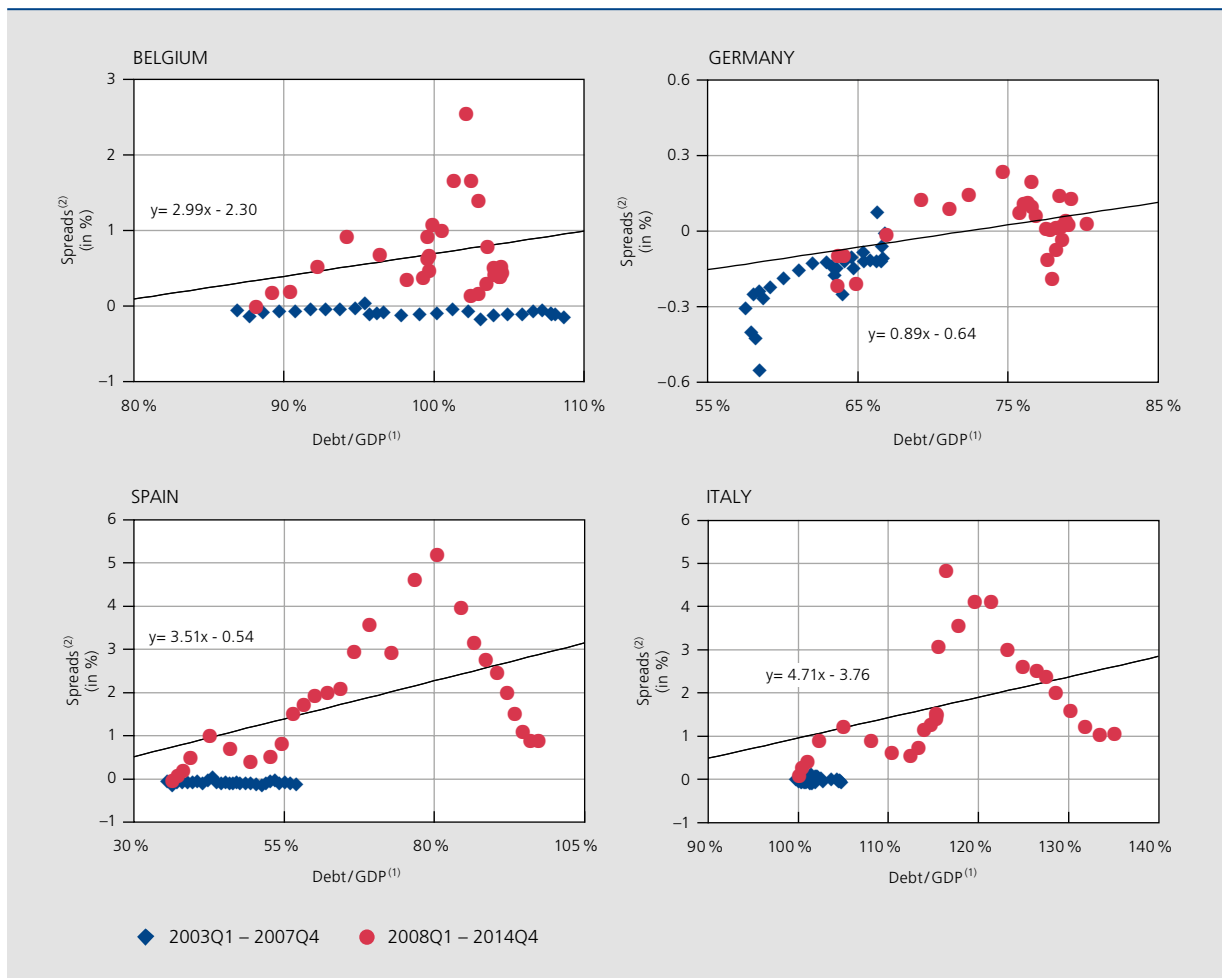
3.2 Contribution of redenomination risk to contagion in the euro area

During the sovereign debt crisis, the dynamics of sovereign spreads in the euro area were also seriously affected by the emergence of the contagion phenomenon in the sovereign debt markets. This can be seen by the especially strong positive correlations over the period 2010-2012 between sovereign yields of the different euro area peripheral Member States⁽¹⁾. On the contrary, negative correlations could be observed over the same period between on the one hand a certain number of core Member States (typically Germany) and on the other the periphery (Italy, Spain) or even Belgium. This contagion phenomenon was primarily supported by the “redenomination risk”, which refers to the risk that euro assets could be redenominated into another (possibly devalued) legal currency, i.e. the risk of a country leaving the monetary union. This risk became relevant for the first time at the end of 2011 when Greece had to deal with serious financial troubles. The situation largely contributed to speculation about a possible “Grexit”, or even a possible break-up of the euro area itself.

Intra-euro-area redenomination risk is hard to measure. Various attempts have resorted to surveys, the pricing of fictitious securities betting on a Member State leaving the

(1) See Boeckx and Dewachter (2012).

CHART 6 GOVERNMENT DEBT OVER GDP AND CORRELATION WITH SOVEREIGN SPREADS
(2003Q1-2014Q4)



Sources: Thomson Reuters Datastream, ECB.

(1) End-of-year data for the debt/GDP series, linearly interpolated.

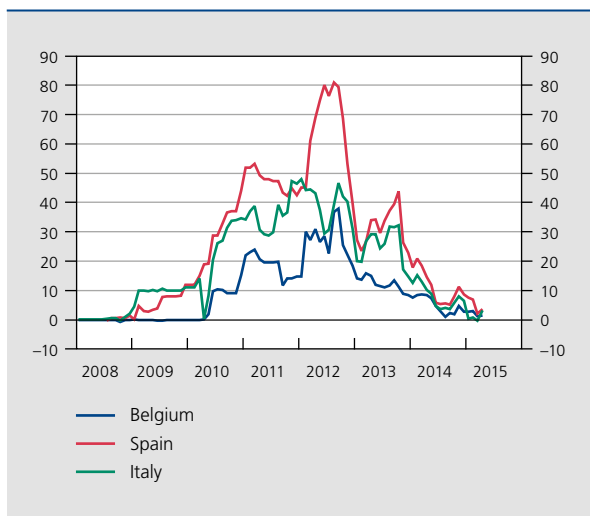
(2) Difference between five-year sovereign yields and five-year swap rates for Euribor six-month (before Aug. 2005) or five-year OIS rates (since Aug. 2005).

euro area before a certain date or indicators based on the number of Google searches for key words like “euro break-up”. Another, more reliable, approach to measure redenomination risk is based on modelling the dynamics of sovereign interest rates and will be used in the next section. Besides, there is a simple and accurate (since it is based on actually exchanged assets) indicator comparing CDS spreads on sovereign bonds for contracts denominated in euros and in US dollars. Intuitively, the holder of a euro-denominated CDS just after default assumes an additional risk since the euro could be scrapped and replaced by a national currency that is immediately devalued. If this risk is considered real by markets, spreads on CDS contracts denominated in euros tend to be lower than those on CDS contracts denominated in dollars. During the sovereign debt crisis, the difference, called “quanto CDS spreads” (De Santis, 2015), seemed greater for euro area peripheral

Member States than for Germany, for instance, since the redenomination risk concerned the periphery more. In order to obtain a measure of the intra-euro-area redenomination risk (and not a measure of redenomination risk with respect to the dollar), we consider the difference in quanto CDS spreads of various countries with Germany.

According to this approach, redenomination risks in Belgium, Italy and Spain seemed to be weak, or even insignificant, before 2010 (see chart 7). They nevertheless appeared to increase significantly during the sovereign debt crisis to reach a peak in mid-2012, just before the official announcement of the OMT programme in September. Nowadays, redenomination risks seem to have come back down to much lower levels for all three considered states, in spite of the troubles at the beginning of 2015 over Greece’s difficulty in repaying its debt.

CHART 7 REDENOMINATION RISK INDICATORS: QUANTO CDS SPREADS AGAINST GERMANY⁽¹⁾
(basis points, monthly averages, 2008M1-2015M4)



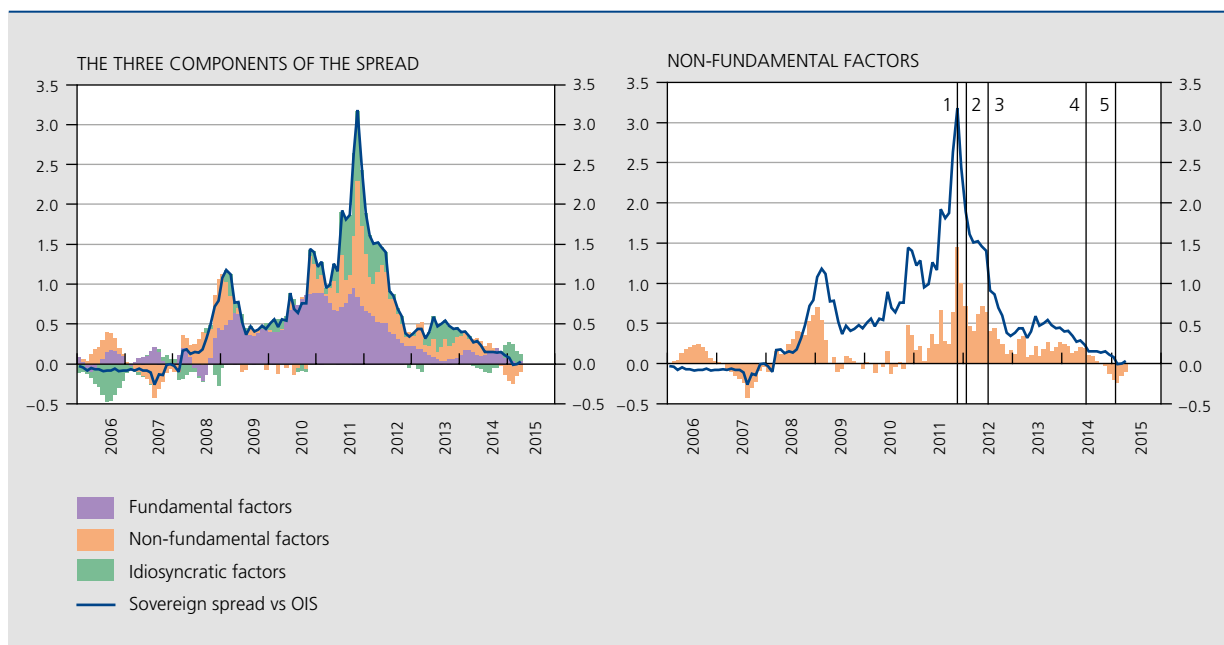
Source: Thomson Reuters Datastream.
(1) Difference between five-year CDS spreads on senior bonds between contracts denominated in dollars and in euros, and difference with Germany.

Considering the different factors that have influenced the dynamics of sovereign spreads throughout the crisis, the next section aims at estimating their quantitative impact on spreads by considering three types of factors: fundamental economic factors (such as debt over GDP and GDP), non-fundamental factors (such as redenomination risk), and idiosyncratic, country-specific factors.

4. Decomposition of sovereign spreads: the role of fundamental and non-fundamental factors and the effects of monetary policy

In this section, we decompose the dynamics of euro area sovereign spreads since the beginning of the financial crisis using an econometric macrofinancial modelling approach and briefly discuss the effects of some monetary policy measures. The spreads considered here are taken relative to the market rate (OIS rate) of the same maturity and therefore correspond to the country risk premiums discussed in section 2. As a consequence, we obtain spreads for each of the euro area countries, including for Germany. The model used in the analysis is a standard multi-country

CHART 8 HISTORICAL DECOMPOSITION OF SOVEREIGN SPREADS: BELGIUM*
(in %, 2006M1-2015M4)



Sources: Bloomberg, IMF, Thomson Reuters Datastream, own computations.
* Historical decomposition of five-year sovereign spreads (with respect to OIS rates). See Dewachter *et al.* (2014).
(1) 11/2011: Resignation of Italian and Greek Prime Ministers, Greek referendum, Belgian political crisis.
(2) 12/2011 & 02/2012: VLTROs.
(3) 09/2012: Announcement of OMT programme.
(4) 06/2014: Announcement of TLTROs (with other measures).
(5) 01/2015: Announcement of expanded APP.

macrofinance affine yield curve model. Specifically, it includes both macroeconomic and financial variables and, in line with the empirical literature and financial theory, allows these variables to endogenously interact and influence sovereign spreads while precluding arbitrage opportunities in sovereign bond markets (see Box 2).

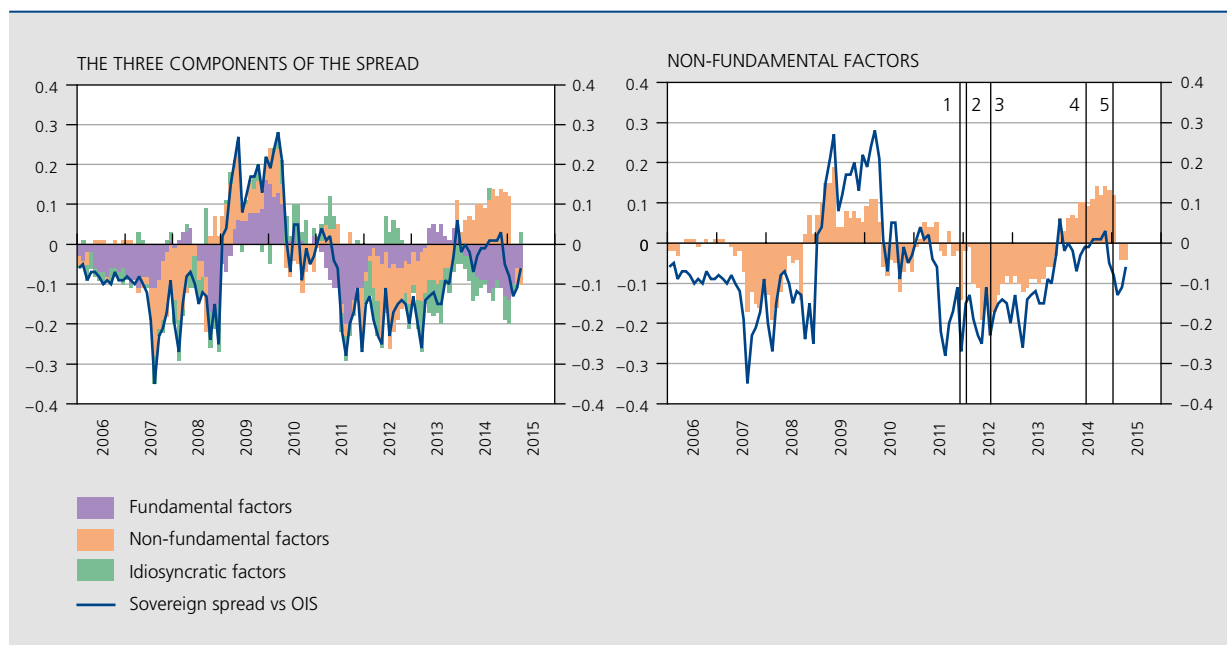
On the basis of the affine term structure model, historical decompositions can be used to analyse the contributions of the different macroeconomic or financial shocks to the dynamics of the sovereign yield spreads over time. As mentioned above, in order to perform this decomposition, we divide the explanatory factors into three categories: (a) fundamental economic factors (such as GDP or public debt over GDP); (b) non-fundamental factors (mainly redenomination risk); and (c) country idiosyncratic factors not related to the two previous categories (domestic political uncertainty for instance).

According to the decompositions of 5-year sovereign spreads in Belgium (chart 8), Germany (chart 9), Italy (chart 10) and Spain (chart 11), both the fundamental and non-fundamental shocks appear to have generally been driving sovereign spreads in the four countries

throughout the crisis. According to the model, even if the fundamental component seems to have been overall more important for all countries (it seems to have explained more than 50 % of sovereign spreads on average in each country), not only macroeconomic and fiscal variables but also other, non-fundamental, factors would appear to have played a significant role in the dynamics of sovereign spreads. As a result, non-fundamental risks could have increased sovereign risk premiums and thus hampered the smooth transmission of monetary policy to households and non-financial corporations through the mechanisms presented in section 2. Besides, the contributions of idiosyncratic shocks seem to have been significant only at times. In Belgium for instance, the impact of idiosyncratic shocks on the spreads would have been especially large in the second half of 2011, at the height of the government crisis, but would have rapidly disappeared following the formation of a government at the beginning of December 2011.

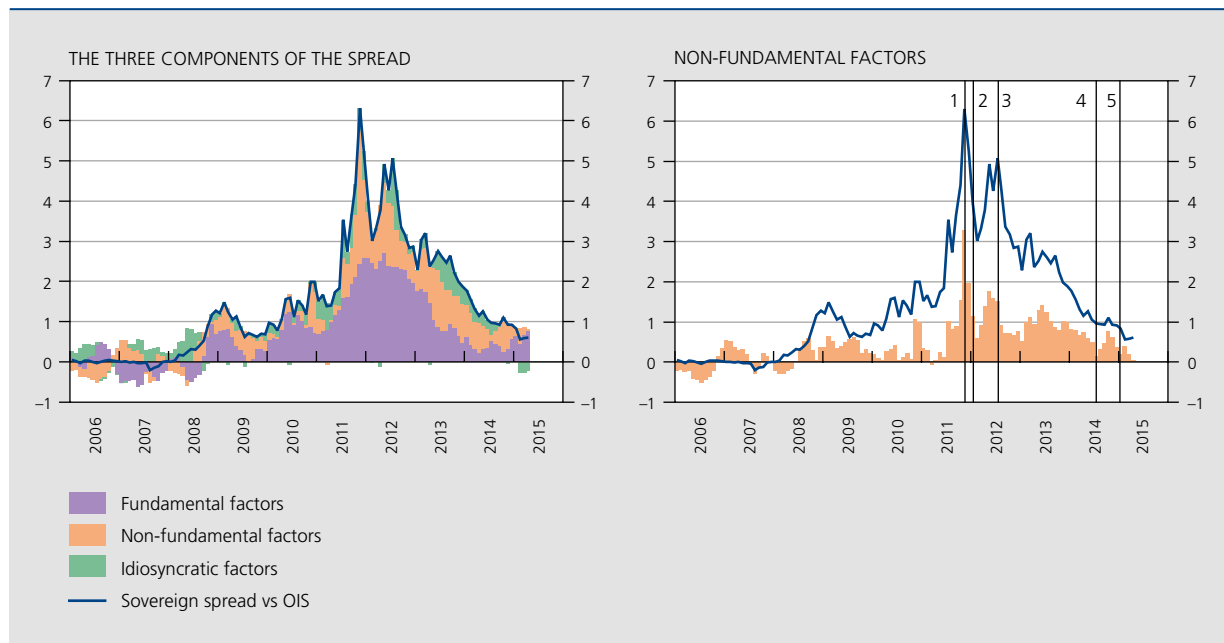
The relative importance of fundamental and non-fundamental shocks in the sovereign yield spreads nevertheless varied across countries and over time. From 2008 and up till broadly the end of 2011, mainly fundamental

CHART 9 HISTORICAL DECOMPOSITION OF SOVEREIGN SPREADS: GERMANY*
(in %, 2006M1-2015M4)



Sources : Bloomberg, IMF, Thomson Reuters Datastream, own computations.
* Historical decomposition of five-year sovereign spreads (with respect to OIS rates). See Dewachter *et al.* (2014).
(1) 11/2011 : Resignation of Italian and Greek Prime Ministers, Greek referendum, Belgian political crisis.
(2) 12/2011 & 02/2012 : VLTROs.
(3) 09/2012 : Announcement of OMT programme.
(4) 06/2014 : Announcement of TLTROs (with other measures).
(5) 01/2015 : Announcement of expanded APP.

CHART 10 HISTORICAL DECOMPOSITION OF SOVEREIGN SPREADS: ITALY *
(in %, 2006M1-2015M4)



Sources: Bloomberg, IMF, Thomson Reuters Datastream, own computations.

* Historical decomposition of five-year sovereign spreads (with respect to OIS rates). See Dewachter *et al.* (2014).

(1) 11/2011: Resignation of Italian and Greek Prime Ministers, Greek referendum, Belgian political crisis.

(2) 12/2011 & 02/2012: VLTROs.

(3) 09/2012: Announcement of OMT programme.

(4) 06/2014: Announcement of TLTROs (with other measures).

(5) 01/2015: Announcement of expanded APP.

economic shocks seem to have contributed to the increase of sovereign spreads in Belgium, Italy and Spain. In the latter two countries, fundamental components at the end of 2011 accounted for up to slightly less than 3 percentage points of sovereign spreads which were (largely) fluctuating at about 4 percentage points. Over this period, sovereign bond markets seem thus to have reflected the deteriorating economic situations in the three countries. Concurrently, with the non-fundamental components of sovereign spreads remaining relatively muted (at least until November 2011), the monetary policy of the ECB was mainly focusing on liquidity provisions to the financial sector, which it addressed with both standard and non-standard monetary policy measures, such as cuts in its key interest rates and two very long-term refinancing operations (VLTROs) conducted in December 2011 and February 2012.

From the end of 2011, however, non-fundamental shocks in general, and redenomination risk in particular, appear to have contributed substantially to developments in sovereign spreads. Their contributions seem to have reached two peaks which show up more or less clearly on the charts depending on the countries:

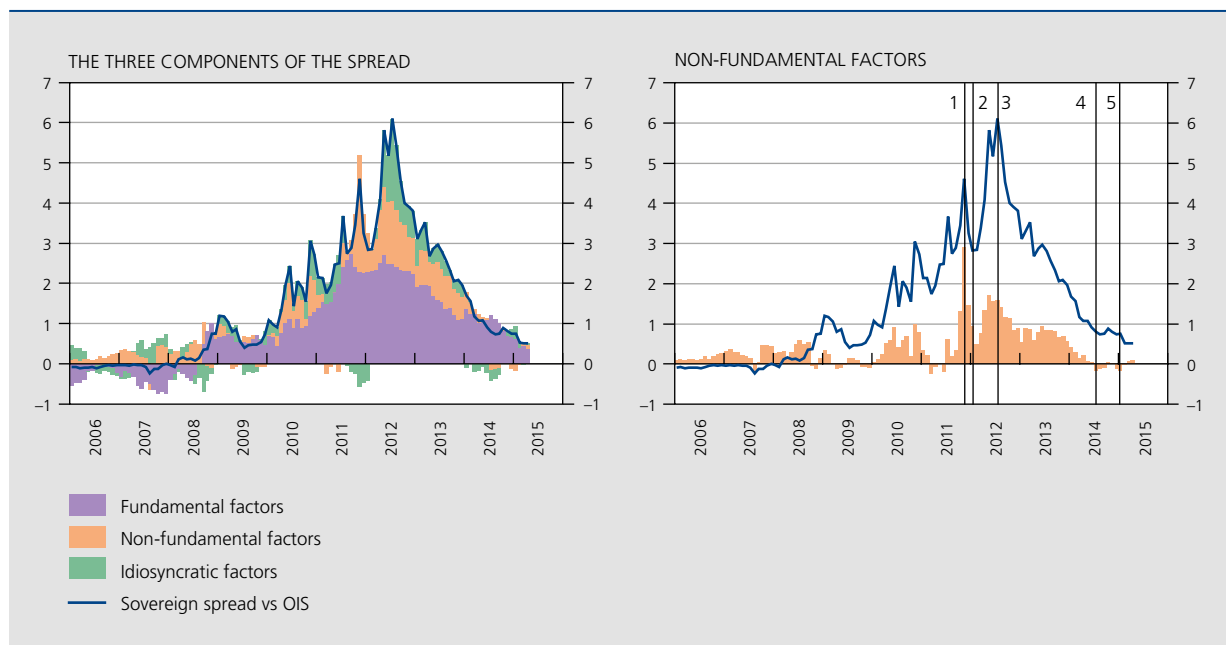
November 2011 and the summer of 2012. The first peak of non-fundamental risks, noticeable in Belgium, Italy and Spain – where these risks explained respectively 46 %, 52 % and 63 % of sovereign spreads –, is concomitant with extreme tensions related to a possible Greek referendum (to approve the Troika's conditions for a loan agreement) and the resignation of the Greek and Italian Prime Ministers. The second estimated peak of the non-fundamental components reached in the summer of 2012, particularly visible in the case of Italy and Spain (more than for Belgium), was mainly due to a sharp rise in redenomination risk. It also coincides with the high quanto CDS spreads observed at the time (see section 3.2). The summer of 2012 was marked by the difficulties in Greece to form a government after the elections in May, contributing to fears about a possible Grexit and, by contagion, a possible euro area break-up. More specifically, non-fundamental factors seem to have accounted for about 150 basis points in Italy and Spain in the summer of 2012 out of about respectively 500 and 600 basis points for the total sovereign spreads (and for about 60 out of 150 basis points in Belgium). Not surprisingly, the German sovereign spreads and their non-fundamental component were negative in 2012 as

a result of the flight to safety of investors. Given the importance of non-fundamental (redenomination) risks, the ECB announced its intention to tackle redenomination risk in July 2012 (Draghi, 2012) and, in September 2012, it set up the OMT programme. On the basis of this programme, the ECB is ready to intervene and address severe distortions in government bond markets by buying (possibly unlimited amounts of) sovereign bonds in secondary markets from euro area Member States requesting financial assistance through the European Stability Mechanism and respecting the imposed adjustment programme. As it considerably helped reduce redenomination risk, the effects of the OMT announcement corresponded to a decline in the estimated non-fundamental components of about 60 basis points in Spain and around 30 basis points in Belgium and Italy between September and November 2012. On the contrary, the German non-fundamental component became less negative (and increased by 9 basis points over the same period).

By mid-2014, sovereign spreads had narrowed considerably and their non-fundamental components seemed to have dissipated in Belgium, Italy and Spain. The smaller

spreads appeared to be mainly supported by fundamental economic factors. Nevertheless, the transmission of ECB monetary policy to households and non-financial corporations still had to be fully restored, as can for instance be assessed by the then relatively high margins on bank loans (analysed in section 2) or the low credit flows to the real economy. Consequently, the ECB announced in June 2014 that it would conduct TLTROs starting in September 2014 aiming at encouraging banks to lend to non-financial corporations and households (excluding loans for house purchases). Moreover, in January 2015, the ECB regrouped and supplemented its securities purchase programmes with purchases of sovereign bonds under the so-called expanded APP the goal of which is to bring inflation back on a path consistent with achieving rates below, but close to, 2% over the medium term. We observe that since the announcement and implementation of these non-standard measures, sovereign spreads continued to fall in Belgium, Italy and Spain. The non-fundamental component in Italy also continued to decrease, while it remained essentially close to zero in Spain and reached negative figures in Belgium. In April 2015, the non-fundamental components were estimated to be very small for each of the countries analysed.

CHART 11 HISTORICAL DECOMPOSITION OF SOVEREIGN SPREADS: SPAIN *
(in %, 2006M1-2015M4)



Sources : Bloomberg, IMF, Thomson Reuters Datastream, own computations.
* Historical decomposition of five-year sovereign spreads (with respect to OIS rates). See Dewachter *et al.* (2014).
(1) 11/2011 : Resignation of Italian and Greek Prime Ministers, Greek referendum, Belgian political crisis.
(2) 12/2011 & 02/2012 : VLTROs.
(3) 09/2012 : Announcement of OMT programme.
(4) 06/2014 : Announcement of TLTROs (with other measures).
(5) 01/2015 : Announcement of expanded APP.

Box 2 – Affine yield curve model used for the decomposition of sovereign spreads

The econometric modelling approach used to decompose sovereign spreads into fundamental, non-fundamental and idiosyncratic components belongs to the class of “macrofinancial” affine yield curve models. This class of models has become the benchmark model to study the yield curve dynamics in the context of no-arbitrage restrictions. In this class of models, both macroeconomic variables and financial factors are taken into account to the extent that they affect the yield curve. Macroeconomic and financial variables affect the yield curve either because (1) they have an impact on the expectations of future short-term (monetary policy) interest rates or because (2) they affect the risk premium. Against this background, several macroeconomic variables are included in the model consistently with the conjecture that certain macroeconomic variables, e.g. output and inflation, can affect monetary policy (and future short-term policy rates), while others are believed to affect the risk premiums, e.g. debt ratios.

Under financial theory, the model is also presented as being “arbitrage-free”, implying that it generates yield curves that do not contain arbitrage opportunities between sovereign bonds of different maturities.

Formally, the model can be represented as follows:

$$S_{i,t} = A + B Y_t + \varepsilon_t,$$

$$Y_t = \mu + \Phi Y_{t-1} + \vartheta_t,$$

where $S_{i,t}$ is a vector containing sovereign yields or yields spreads of different maturities for country i at time t , Y is a vector describing the economic state (state vector), containing the economic and financial variables described below, ε is a measurement error term and ϑ contains the residuals of the second system of equations of the model. The dynamics of the state vector, which implicitly also models expectations in the economy, are assumed to follow a vector autoregressive (VAR) model and the structural macroeconomic and financial shocks hitting the economy are identified on the basis of a Choleski decomposition. Given the macrofinancial dynamics of the state vector, the model imposes a no-arbitrage rule by restricting the loadings A and B in the yield equations such that the final yield curve representation is consistent with the absence of arbitrage opportunities. The model is explained in more detail in Dewachter *et al.* (2014).

The specific model in this section contains thirteen variables (stacked in the vector Y), divided into three categories, i.e. the fundamental, non-fundamental and idiosyncratic components of sovereign spreads, discussed in section 4. The variables included in each component are as follows:

- **Fundamental economic factors:** these are the observed economic variables that should normally contribute most to sovereign spread movements (Afonso *et al.*, 2012; Borgy *et al.*, 2012; Caggiano and Greco, 2012; Maltriz, 2012; von Hagen *et al.*, 2011). Some variables are conjectured to affect yields through monetary policy and expectations on future short-term policy rates, namely:
 - the year-on-year growth of a general indicator of economic perspectives (economic sentiment indicator measured at European level);
 - the year-on-year growth of real GDP (national);
 - year-on-year Inflation (national);
 - two factors accounting for the monetary policy stance. These factors (level and slope) are extracted from a principal component analysis of the OIS term structure.

Besides these variables, the model also includes public debt in percentage of GDP which is believed to be linked to the credit risk premium. Lastly, risk aversion is represented by the VIX index (Bekaert *et al.*, 2013) which approximates the expected volatility in financial markets (in the next 30 days).



- Non-fundamental factors: these factors affect sovereign spreads in the euro area but are not directly linked to observed economic variables. These factors thus represent contagion and/or redenomination risk. More specifically, we single out three of them:
 - redenomination risk: the risk that a euro asset could be converted into another (possibly devalued) legal currency. In other words, it represents the risk that a euro area Member State leaves the monetary union. We include it in the model via two variables. Given that redenomination risk is reflected in common movements of euro area spreads (and contributes to the contagion phenomenon), these two variables are based on a principal component analysis. In the current model, the first two factors of the euro area spreads are used as redenomination variables⁽¹⁾;
 - residual liquidity risk (flight to safety): we consider the difference between yields on KfW bonds guaranteed by the German government and yields on German Bunds. Since the credit risk is the same in both cases, the observed differences in yields between these bonds mainly stem from differences in liquidity between the two markets and hence reflect liquidity risk;
 - political risk measured at the European level: the fraction of sovereign spreads explained by this factor represents common movements of spreads that are due to a European-wide political risk. More specifically, the index is based on the number of newspaper articles regarding policy uncertainty (see Baker *et al.*, 2015).
- Idiosyncratic factors: the contributions of these factors to spreads are specific to each country and not linked to the fundamental or non-fundamental factors. For instance, idiosyncratic factors could refer to domestic political developments or troubles caused by strikes or social tension. They are included in the model as two factors extracted with the help of a principal component analysis based on the sovereign spreads of a given country.

(1) These two principal factors explain 83 % of the total variation in the euro area sovereign spreads and an interpretation of their meaning is possible. The first corresponds to the general level of sovereign spreads in the euro area. The second makes it possible to distinguish movements in spreads in the euro area core Member States from movements in the periphery. The first is thus high when spreads are high everywhere in the euro area and the second is high when the difference between spreads in core countries and those in the periphery is high.

Conclusion

In this article, we have analysed recent developments in sovereign yields and spreads in the euro area. Specifically, we have illustrated that the unprecedented sovereign yield and spread movements in the euro area during the (sovereign debt) crisis may have had implications for different sectors of the economy. In particular, the sovereign debt crisis pushed up implicit interest rates on government debt especially in (peripheral) countries that faced strong tensions on their sovereign bond markets, tightened banks' funding conditions and increased the costs of bank loans to households and non-financial corporations. Regarding the private sector more precisely, movements in country (sovereign) risk premiums were concomitant with an increase in banks' margins on loans to households and non-financial corporations especially over the period 2011-2013 in Italy and Spain, and to a lesser extent in Belgium.

Subsequently, a macrofinancial affine term structure model was used to gain a better understanding of

the relative contributions of different shocks to these country (sovereign) yield spreads. Given that a modelling approach is required to be able to quantify these contributions, the estimation results must be interpreted cautiously and should be corroborated by additional robustness checks. The model nevertheless estimates that sovereign yield spreads in Belgium, Germany, Italy and Spain were to a large extent influenced by their fundamental component. Therefore, shocks to fundamental factors such as GDP growth or public debt in percentage of GDP remain the most important drivers of sovereign spreads. Additionally, during the sovereign debt crisis, the redenomination risk became important and, consequently, the importance of non-fundamental components increased, which is consistent with the indications of an independent measure of redenomination risk (quanto CDS spreads). This non-fundamental risk component was strong in the summer of 2012 when fears about a possible Grexit or euro area break-up were running high. Since 2012, however, the non-fundamental components of sovereign spreads seem to have declined

in Belgium, Italy and Spain, following the announcement of the ECB's OMT programme. Nonetheless, in order to enhance the functioning of the monetary policy transmission mechanism, the ECB launched, respectively in June 2014 and in January 2015, a TLTRO programme and an expanded APP. These measures helped reduce the non-fundamental components of sovereign spreads and, in a context of low inflation, short- to medium-term nominal sovereign yields reached negative figures in some euro area Member States.

In contrast with non-fundamental risks, fundamental economic risks seem to remain important for the yield spreads. Considering developments in Italy and Spain for instance, the model indicates that the largest share of the sovereign spreads observed in April 2015 is explained by the fundamental components. As a result, sovereign spreads could still narrow if fundamental economic factors were to improve structurally with possibly derived effects on borrowing costs of households and non-financial corporations.

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Analysis of policies for restoring sound Belgian public finances

P. Bisciari
B. Eugène
W. Melyn
R. Schoonackers
P. Stinglhamber
L. Van Meensel
S. Van Parys

Introduction

As in almost all advanced countries, the financial crisis and subsequent economic recession have combined to hit public finances in Belgium hard, with the fiscal deficit widening smartly and debt levels surging. The Belgian government had to step in and devise a strategy to help the country return to sustainable public finances, by eliminating the fiscal deficit and getting the government debt ratio back on a downward path. The government has now put in place a proportion of the measures needed to achieve these objectives, but more still needs to be done.

This latest period of fiscal consolidation in Belgium was preceded by two earlier ones, the first in the 1980s and the second in the 1990s. This article discusses the key characteristics of all three periods, identifying consolidation episodes first, then moving on to economic, political and institutional contexts in the second section and briefly breaking down the main measures in the third. Section four delves deeper into the range of instruments used to implement consolidation policies and identifies their effects, while section 5 highlights how consolidation policies have affected the development of government debt and interest rates, and the article ends with a number of conclusions.

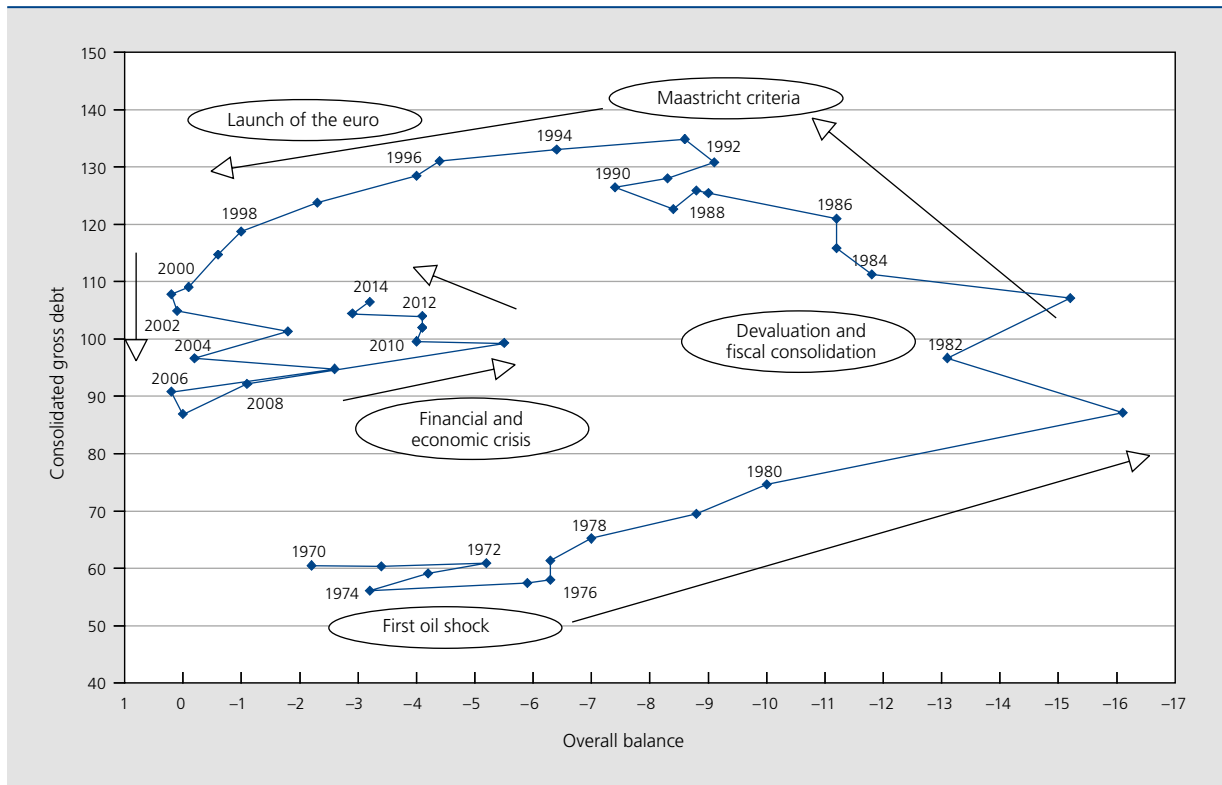
1. Developments in Belgian public finances and defining consolidation periods

Belgium's public finances have been on a rollercoaster ride over the past decades. The aftermath of the first oil shock in the early 1970s and the economic slowdown that followed caused the country's budget deficit to surge, partly on the back of sharply higher government spending. By 1981, the deficit had reached an excessively high level at 16.1 % of GDP.

In the early 1980s, Belgium faced significant macroeconomic imbalances, and 1982 saw the start of macroeconomic policies aimed at restoring the global competitiveness of the Belgian economy and returning to healthier public finances. In the event, these policies succeeded in slashing the fiscal deficit but were unable to keep government debt from steadily rising.

On 7 February 1992, the Maastricht Treaty was signed, looking ahead to the creation of a monetary union in Europe by the end of that decade. Countries aspiring to join the currency union had to fulfil a set of macroeconomic criteria, including for public finances. The fiscal deficit could not exceed 3 % of GDP, and government debt had

CHART 1 AN OVERVIEW OF BELGIAN PUBLIC FINANCES
(% of GDP)



Sources: NAI, NBB.

to be below 60 % of GDP, or be moving in that direction sufficiently quickly. Wanting to be among the first group of countries to join the currency union from the very start, Belgium took measures to reduce its fiscal deficit below the threshold value and to get its debt on a downward trajectory. It succeeded: around the turn of the century, the Belgian government rode a favourable business cycle towards a balanced budget, and it sustained this balanced budget in subsequent years, steadily reducing its government debt as a percentage of GDP.

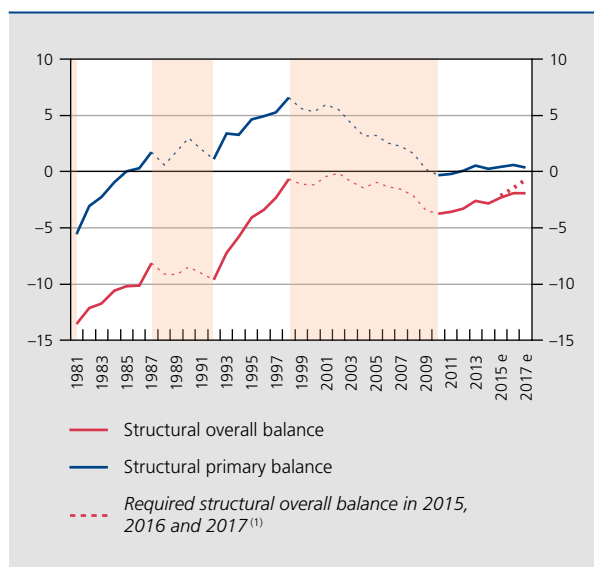
In 2008 and 2009, however, the financial crisis erupted and the economic recession that followed caused a further slippage in Belgian public finances: the fiscal deficit shot up and government debt rose as a result. By the end of 2009, Belgium was subject to a European excessive deficit procedure (EDP), and it has been taking measures to reduce its deficit ever since. To date, these measures have failed to restore a budget balance or to curb the inexorable rise in government debt.

This article defines the periods of restructuring of Belgian public finances by the development of the government's overall structural balance, i.e. the nominal balance

adjusted for cyclical influences and non-recurring factors. From these figures, a picture of three consolidation periods emerges⁽¹⁾, much as expected. Starting in 1982 and ending in 1987, the first of these periods is marked by a structural improvement in the budget balance of 5.4 percentage points of GDP. The second period of consolidation came just before Belgium's entry into the currency union and ran from 1993 to 1998. It saw the structural fiscal deficit go down by 9 percentage points of GDP. The latest and our third period of consolidation followed the financial and economic crisis, and started in 2011. Between 2011 and 2014, the budget balance structurally improved by 0.9 percentage point of GDP. According to the Bank's latest projections, which factor in measures already decided, this improvement is set to continue. It is expected to reach 1.8 percentage points of GDP over the whole 2011-2017 period. However, additional consolidation measures will have to be adopted in order to meet the federal government's target of a structural

(1) For the period up to 1994, for which the National Accounts Institute does not provide statistics in keeping with the ESA 2010 methodology, a retropolation was carried out on the basis of the growth rates included in the national accounts according to ESA 95. In addition, key non-recurring factors were identified based on an in-depth analysis of detailed information about implementation of the budgets.

CHART 2 CONSOLIDATION PERIODS BY DEVELOPMENT OF THE STRUCTURAL BALANCE (% of GDP)



Sources: EC, NAI, NBB.

(1) An improvement in the structural overall balance of 0.7% of GDP per annum, as recommended in March 2015 by the Public Sector Borrowing Requirement section of Belgium's High Council of Finance.

budget balance by 2018, as recommended by the Public Sector Borrowing Requirement section of Belgium's High Council of Finance.

2. Fiscal consolidation efforts: setting the context

In terms of the context in which these fiscal restructuring periods started, a number of significant similarities and differences emerge. What follows is a review of the elements that made up the economic background and the political and institutional circumstances.

2.1 Economic context

The three periods of fiscal consolidation started when Europe was in recession. For Belgium, these consolidation periods began at economically less-than-favourable points in time, as the output gap started all three periods in negative territory. And it stayed that way throughout each period, implying that these efforts combined with under-utilisation of production factors, making for pro-cyclical fiscal policies.

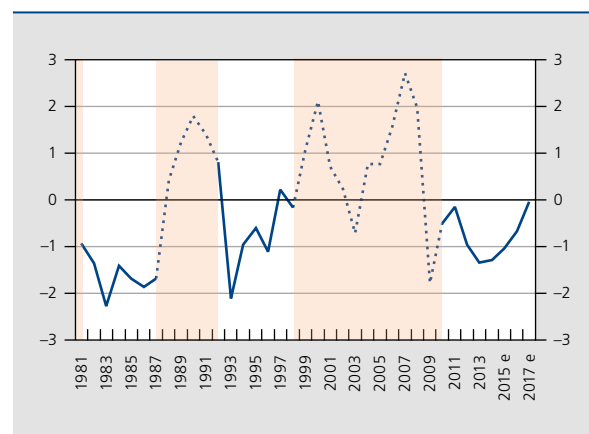
In all three periods, Belgium's macroeconomic conditions showed imbalances, albeit that these differed slightly

from one period to the next. In 1981-82, for instance, all macroeconomic variables were unfavourable: flat economic growth, job losses, high inflation and a current account deficit. In 1992-1993, the euro area's weak growth was exacerbated in Belgium by a fresh deterioration in competitiveness, but inflation was under control and the country was building current account surpluses. In 2009, Belgium slid into a severe recession caused by the international financial crisis, which had wreaked havoc with its key credit institutions in 2008. However, inflation remained fully under control and the balance of payments had reached a state of virtual equilibrium.

Every time it started restructuring, Belgium was under great fundamental pressure from the financial markets. In 1981-82 and 1992-93, this pressure on the Belgian franc affected the exchange rate with the German mark, while the most recent period has seen the pressures affect government bonds and equities issued by financial services providers, given the introduction of the euro as the single currency. There has been some let-up since 25 November 2011, when the newly formed federal government announced agreement on economic and fiscal aspects. In the years before the adjustments, long-term interest rates were significantly lower for the latest consolidation period than in the 1993-1998 period and even further below levels recorded between 1982 and 1987.

There were also marked differences in the starting fiscal position. In 1992, for instance, government debt stood at well over 130% of GDP, while it was limited to 87% of GDP in 1981 and was flirting with 100% of GDP by 2010. The trend was upwards in all three periods, primarily because of the size of the deficits. The 1981 deficit was significantly larger than those in 1992 and 2010.

CHART 3 OUTPUT GAP IN BELGIUM (% of potential GDP)



Sources: EC, NAI, NBB.

TABLE 1 ECONOMIC CONTEXT

Criteria	1982-1987	1993-1998	2011-2017
Initial economic situation			
Global economic cycle	Recession	Recession	Aftermath of economic crisis / severe recession
Situation in Belgium	Macroeconomic imbalances	Loss of competitiveness	Same for global economic cycle
Inflation	7.6 % (1981)	2.4 % (1992)	2.2 % (2010)
Long-term interest rates	13.4 % (1981)	8.7 % (1992)	3.3 % (2010)
Financial pressure	Speculation against the BEF	EMS crisis	Government debt crisis
Initial fiscal position (in % of GDP)			
	In 1981	In 1992	in 2010
Debt	87.1	130.8	99.5
Overall balance	-16.1	-9.1	-4.0
Fiscal and parafiscal pressure	39.1	39.3	42.3
Primary expenditure	52.6	42.8	48.9
	Steep increase in 1970s	Subdued rise since the end of the 1980s	Steep increase since 2000
Social security benefits	22.3	21.4	23.9
Government investment	5.2	2.2	2.3
Developments during fiscal consolidation periods			
Potential growth ⁽¹⁾	1.7	2.1	1.0
Ageing population effect	Minor	Stronger	Stronger still

Sources: EC, OECD, NAI, NBB.

(1) Average of percentage changes on previous year.

Although the current consolidation drive would appear to require less of an effort than the previous two, some aspects are proving just as much of an obstacle as the problems experienced in those days.

The first key obstacle is potential growth: at 1 %, this is about half of what was attainable in the previous two consolidation periods.

The second hurdle is the effective tax rate. At the beginning of the current consolidation period, this was around 3 percentage points of GDP higher than at the start of the 1980s and 1990s consolidation periods, and recent increases pushed it up to an unprecedented high of nearly 45 % of GDP in 2014, which is very steep compared with other European countries. The margin for any tax increases would appear to have become exceedingly tight, although this does not preclude a tax shift to relieve the fiscal and parafiscal pressure on labour.

At the start of the current consolidation period, primary expenditure was somewhere between the historically high

levels of the 1980s and the lower levels of the 1990s. And so the consolidation in the 1980s was all about cutting primary expenditure, while it focused on revenues in the 1990s. The current set of adjustments suggests some margin of manoeuvre at the expenditure end, but there is significant pressure at the level of social security benefits, while easy savings on investment spending are ruled out – as there is hardly any.

Between 1982 and 1987, the government was able to make deep cuts in public sector investment spending, which was still extremely high in 1981. The record levels of the early 1980s never returned and fresh cost-cutting in this type of spending will never generate the same result. What is more, the government had best leave investment spending untouched or even step it up as much as feasible, as such spending enhances growth potential.

Social security benefits were only slightly higher in 2010 than in the early 1980s and 1990s, although the ageing population is increasingly making its impact felt.

Ageing-related social spending, in particular on pensions and health care, is expected to go up further in 2017.

By contrast, the wage share of GDP has remained stable in the current consolidation period while the sharp declines of the two previous periods weighed down revenues, as wages are subject to higher taxes than other sources of income.

2.2 Political and institutional context

Significant similarities and differences can also be noted in the political and institutional arena.

2.2.1 European governance and fiscal targets

In the last two consolidation periods, budget adjustments in Belgium were encouraged by the European governance framework. By contrast, there was no such thing in 1981 – just pressure from peers, international institutions such as the IMF and the financial markets. In 1992, it was the Maastricht criteria that cast the die for Belgium's government: it needed to cut its overall balance to below 3 % of GDP by 1997 if it was to join the monetary union, 1997 being the year in which eligibility for the euro area was reviewed. As for the ongoing period, Belgium was subject to an excessive deficit procedure between December 2009 and June 2014, at a time of tighter rules under the Stability and Growth Pact in the shape of the Six Pack, the Two Pack and the Fiscal Compact (the budgetary section of the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union).

This tighter European governance framework comes with ever more binding targets prescribed for governments. In the 1980s, when no European governance was in place, the Belgian government of the day aimed at a reduction to a net borrowing requirement of 7 % of GDP, only to push the date back to 1989. This budgetary principle on a cash basis was the main objective of Belgium's fiscal policies in the 1980s. In the 1990s, it was the overall general government balance in the national accounts that became key, as this featured in the Maastricht Treaty's convergence criteria. Unlike the net borrowing requirement, the general government's overall balance is not influenced by purely financial operations, such as privatisation proceeds. Criteria for the current period have become even tighter: future targets are defined by ESA 2010, while those for the 1990s were governed by ESA 1979. More particularly, the European governance framework now prescribes an improvement in the structural balance to help achieve equilibrium in the medium term, effectively preventing governments from achieving the fiscal targets through

temporary measures. In addition, the Maastricht criteria put greater focus on reducing debt at a satisfactory pace when countries were looking to qualify for the euro. Debt criteria are also in place in this latest consolidation period, with those countries with the highest debt ratios required to make bigger structural fiscal efforts than others.

2.2.2 Federal elections and terms of office

The three consolidation periods started fairly early in the terms of office of the federal governments of the day, and were marked by a degree of stability. For the 1982-1987 period, the first consolidation programme was approved in March 1982, shortly after the November 1981 elections. And in the 1993-1998 period, the government did not draw up its first real consolidation plan until its April 1993 budget review, even if it had been taking fiscal measures since 1992. Parliamentary elections had in fact been held in November 1991, but policy-makers had been caught up in the fourth State reform negotiations, finally agreed in September 1992. In the current consolidation period, early fiscal measures were introduced straight after the new government took office in November 2011, but it had only reached agreement on these long after the parliamentary elections of 13 June 2010, because of the time it had taken to form a new government. This overall trend – of structural reforms and key fiscal measures being introduced as soon as a government agreement is in place – was confirmed in the 2015 budget of the coalition formed following the May 2014 parliamentary elections.

The three periods differed in terms of the parliamentary methods that federal governments adopted to have their fiscal measures and economic reforms approved. Whereas the 1982-1987 government opted to draw on special powers and also used Framework Laws in the 1993-1998 period, the current consolidation is based on traditional parliamentary procedures (Programme Laws).

2.2.3 State reforms and the role of Entity II

At the institutional level, these consolidation exercises took place against a backdrop of increased federalism, as the Communities and Regions gradually gained in political, economic and fiscal stature. The fiscal consolidation programmes also came after State reforms. The special Law on institutional reform of 8 August 1980 confirmed an institutional agreement, and with the decks thus cleared, a new government was quickly formed after the November 1981 elections to take on its budgetary duties. In 1993, the Saint Michael Accord was followed by fiscal consolidation, and in 2011 negotiations about the economic and fiscal aspects started straight after the agreement on the sixth State reform in October 2011.

Entity II, which includes the Communities, Regions and local government, has contributed to the consolidation of public finances in all three of these periods, albeit to a limited degree. The local authorities, whose finances had gone off the rails, implemented adjustments in the 1980s, with municipalities and provinces ordered to make sure their own normal budgets were in balance by 1988. This was all the harder as the federal government had meanwhile reduced the budget available for municipalities (*Gemeentefonds/Fonds des communes*). That said, the federal government had stepped in to take on the debts of Belgium's larger cities (by way of the Assistance Fund for the Financial Recovery of Municipalities) while the Regions, which became responsible for municipality finances after the 1988 State reform, had taken on the debts of other towns and smaller cities.

By contrast, in the 1990s and in 2010, it was the Communities and Regions that contributed to fiscal consolidation. As from 1994, formal collaboration agreements were signed between the federal government and the regional governments, on the recommendation of the Public Sector Borrowing Requirement section of Belgium's High Council of Finance, created as part of the special law of 16 January 1989 on the funding of the Communities and Regions. Each of the Regions received tailored recommendations on deficit ceilings to stabilise the ratio of debts to revenues by the end of the Special Finance Act's transition period, namely the year 2000. The new legislation also provided for the Communities and Regions to take on part of the federal government debt.

More recently, the special law of 6 January 2014 reforming funding of the Communities and the Regions, enhancing their fiscal autonomy and funding new powers and authorities specified various explicit contributions by the Communities and Regions to the consolidation of public finances. The December 2013 collaboration agreement set out the core aspects of the Fiscal Compact, and so set a formal stamp on practices in place, namely that federal government and the governments of the Communities and Regions reach collaborative agreements on fiscal targets. The agreement specifies that these annual fiscal targets be distributed across the various echelons in both nominal and structural terms, based on a recommendation by the High Council of Finance's Public Sector Borrowing Requirement section. This distribution will have to be approved by the Consultative Committee and its decision incorporated when the stability programme is updated.

3. Key measures

3.1 Key measures: 1980s

3.1.1 Background

Restoring macroeconomic equilibrium was the top priority of the government installed after the November 1981 elections, and its stability programme as approved in early 1982 chiefly comprised measures to bolster the competitiveness of the Belgian economy. Its drive started off with an 8.5% devaluation of the Belgian franc in February 1982⁽¹⁾. Meanwhile, price controls were imposed and the wage moderation seen in 1981-1982 included a real-terms wage freeze. The government introduced tax incentives such as a stimulus to subscribe to share issues, special coordination centres and a capital spending deduction. Parafiscal incentives included various reductions and exemptions for employers' contributions to social security – e.g. the Maribel scheme, which started in July 1981. The scheme involved a reduction in employers' contributions on blue-collar wages in specific sectors, and was offset by higher indirect taxes. The government also made its first budgetary adjustments to help reduce the fiscal deficit.

From March 1984, the government gradually shifted its focus to public finances, and its early 1982 target of scaling back the budget deficit to around 7% of GNP was pushed back a year, from 1985 to 1986, albeit that the delay was linked to a multi-annual restructuring plan. In 1985, the next government decided to push back the return to a net borrowing requirement of 7% of GNP to 1989, and approved the Sainte-Anne Plan agreed in May 1986 to boost the credibility of its commitment. Additional measures were taken in 1987.

Undoubtedly, the period's symbolically most important budgetary measure was the threefold suspension of automatic indexation ('index jumps') envisaged in the March 1984 multi-annual plan; these took place in April 1984, January 1985 and June 1987. The plan extended wage restraint on the part of employees, but not to the benefit of the corporate world, as companies were to transfer all gains from the measure in the shape of a wage restraint levy. Meanwhile, waiving automatic indexation helped the authorities to reduce the salaries of their own employees as well as the greater proportion of social security benefits, and a new social security levy was now also imposed on the earned incomes of the self-employed.

(1) Other parity changes within the EMS also reflected back on the exchange rate of the Belgian franc in the period, in particular the revaluations of the German mark and the Dutch guilder.

3.1.2 Primary expenditure-focused measures

Throughout the 1982-1987 period, Belgium imposed cutbacks on most federal government primary expenditure. No formal percentage had been agreed, but budget circulars were designed to keep any increases in this expenditure at or below the rate of inflation.

In addition to the indexation waiver, the federal government cut its wage bill by curbing employment at ministries, schools and in the armed forces. It achieved its aims through various measures, for instance by selectively not filling job openings through natural wastage, by encouraging part-time work and through early retirement arrangements in education. Other measures also served to reduce expenditure on employment in education, such as the downward revision of staff education norms. By 1986, available resources for research were cut, and thus also those for researchers.

Government investment, operating expenses, grants to public enterprises and subsidies to private ones were all slashed. To a degree, this was offset by plans to support the public sector with significant amounts of one-off spending, specifically in 1981 and 1983.

Austerity measures also hit the whole range of social security benefits. Between 1982 and 1990, the 'welfare adjustment' was suspended, the link between benefits and the national consumer price index levelled off from October 1983 and most social security benefits were subject to the suspension of automatic indexation from 1984. In addition, some benefits were capped, reflecting a more rigorous approach.

Retirement and survivors' pensions did not escape a specific set of measures, albeit that their effects were tempered by raising the minimum levels and guaranteed income for older people.

Various initiatives aimed to keep health care spending under control: in addition to the index jumps, there was only partial indexation of doctors' fees, the daily cost of hospital care only moved in line with inflation, with certain exceptions, the number of beds at hospitals and care and retirement homes fell, patient fees for long-term hospital stays increased, so-called 'comfort medicines' were no longer reimbursed and recognition criteria for widows, disabled people, pensioners and orphans were tightened up. Sick pay and disability benefits were equally subject to limits.

Specific austerity measures related to child benefit were a fixed deduction from April 1982 and the discontinuation in 1983 of the 13th and 14th month for employees

receiving normal, grade-one child benefit. In 1984, limits were imposed on grants of increased child benefit.

For unemployment benefits, the government introduced a distinction between single people and those living together among unemployed people who are not heads of households, and cut to subsistence levels any unemployment benefits to those in cohabiting households if they had been unemployed for more than two years. At the same time, it tightened up procedures governing exclusions to the right to receive unemployment benefits, for instance by cutting such benefits in cases of repeat or unusually lengthy periods of unemployment.

The federal government also reduced its transfers to local authorities, and particularly those channelled through the budget available for municipalities (*Gemeentefonds/Fonds des communes*). In their turn, the local authorities also scaled back spending: salaries declined thanks to the index jumps, but also because municipalities pruned their workforces, in both administration and education. Investment expenditure also came down.

3.1.3 Revenue-focused measures

The federal government had planned to collect more fiscal revenues. Some VAT rates – e.g. a special tax on luxury products – and excise duties were increased, in particular to fund the Maribel scheme. Withholding tax was raised from 20% to 25% in 1984 and was designated as the final levy. The government also reduced fiscal spending benefiting companies, in 1986 scrapping corporation tax deductibility for some social benefits and tightening up controls on a number of inappropriate coordination centre advantages. In terms of non-fiscal revenues, universities increased fees after facing cutbacks in their transfers from the federal government.

In terms of social security, the government also licked its finances into shape by raising social security contributions. Quite aside from the wage restraint levy, which helped it profit from the index jumps, the government launched multiple initiatives to raise social security contributions, far outstripping the agreed contribution cuts (of which Maribel was the most important). The most significant changes were a broadening of the definition of what constitutes a salary, on which contributions are then levied, (double holiday allowances, end-of-year bonuses, profit-sharing etc.), the increase and subsequent scrapping from 1981 of the pay ceiling, higher employers' contributions and individual social security contributions (health contributions, special contribution imposed on those with high incomes, single households and those without children, etc.), while the self-employed also faced increased social security contributions.

Lastly, the local authorities bolstered their own revenues by adding higher local surcharges to personal income tax rates.

3.2 Key measures: the 1990s

3.2.1 Background

The federal government formed in March 1992 put forward a convergence programme in June of the same year that aimed to curb the fiscal deficit to 3% of GDP by 1996, to qualify Belgium for the third phase of Economic and Monetary Union. The 1993 initial budget already included a few measures, but things really kicked into gear in April 1993, when the budget review resulted in the approval of a significant consolidation programme. The efforts came thick and fast, with the approval of a general plan for employment, competitiveness and social security in November 1993 and supplementary measures resulting from the various stages of drafting and reviewing the federal budget. When presenting its statement about its general policies in September 1994, the government set a target of a primary surplus of over 6% of GDP after 1996. Parliamentary elections were moved forward to the spring of 1995, to facilitate the approval of any supplementary measures and so achieve these fiscal targets. In their June 1995 government agreement, the coalition formed after the elections endorsed these fiscal targets and the working methods to be applied to a number of standards. These targets, including the intention to sustain this large primary surplus, were adopted in the December 1996 convergence programme. The government also put in place a number of Framework Laws in 1996 to facilitate reforms in areas such as employment, competitiveness, budget and social security.

With the consolidation of public finances starting just as the business cycle deteriorated and competitiveness weakened, these fiscal policies were put in a longer-term perspective. At the end of July 1993, the Ecofin Council agreed to widen the EMS fluctuation bands from 2.25% to 15% for members aspiring to the currency union. Over time, this softened the speculation against some currencies, including the Belgian franc, and ensured their link to the German mark as a monetary policy objective.

In the absence of an agreement between the social partners, the government sought to restore competitiveness by imposing a number of wage restraint measures. Its Global Plan for Employment, Competitiveness and Social Security, dating from November 1993, froze real wages for the 1995-1996 period and proposed the introduction of a health index as a benchmark for indexation of wages,

benefits, income in the professions, bonuses and rents – rather like the national consumer price index but without tobacco, alcohol, petrol and diesel. The 1996 version of the plan also introduced a so-called ‘wage norm’ that limits the risk of nominal labour costs rising faster in Belgium than in the country’s three main trading partners – Germany, France and the Netherlands. Corporations saw their competitiveness enhanced by the Maribel *bis* scheme in July 1993 and by a series of selected reductions in employers’ social security contributions. Priority groups were singled out, such as young job-seekers, companies better at redistributing work and the low-skilled, specifically by introducing a reduction in employers’ contributions on low-paid jobs. The scheme was extended in the second half of the decade and the Maribel scheme expanded in 1997 to meet EU legislation. One Maribel scheme focused on job creation in the non-market sector.

Between 1993 and 1998, fiscal policies were designed to satisfy the dual objective of improving the overall balance and reducing debt. To address the latter, the government partly or wholly privatised various state-owned companies such as the public credit institutions and Belgacom, while also realising gains on the sale of the Bank’s gold reserves.

To help improve the overall balance, the federal government identified three targets as early as 1992, targets that had to be complied with in all areas within its sphere of influence. First, fiscal revenues had to keep pace with GNP; second, any increases in the federal government’s primary expenditure needed to be limited to the level of inflation. Lastly, an annualised financial equilibrium was defined for social security spending, subject to the limitation that federal government subsidies had to remain the same in nominal terms.

3.2.2 Primary expenditure-focused measures

To actually achieve its own target of frozen primary expenditure in real terms, the federal government stepped up the number of initiatives. Subsidies to state-owned companies were kept at the same nominal levels for several years, as were resources for the armed forces. Primary expenditure of ministries and public service institutions was frozen in real terms, and cuts in operating expenses would have brought it down in real terms. Lastly, the introduction of the health index helped to curb public employees’ pay.

In addition to the health index’s general effect in as much as it applied to social security benefits, numerous measures were put in place to help curb this type of expenditure.

Private sector pensions, for instance, were reformed in 1997, with the effect of the reforms becoming more noticeable over time. The key change was the gradual lengthening of careers from 40 to 45 years and the gradual increase in the retirement age taken into account in pension calculations for women in compliance with the EU Directive on the progressive implementation of the principle of equal treatment for men and women in matters of social security.

In health care, a real growth target of 1.5% was introduced – but rarely observed – in the 1995-1999 period. Moreover, the target was repeatedly eased, as a number of priority areas were kept out of its scope altogether, such as programmes for the chronically ill and the expansion of palliative care. The purpose of yet other measures was to improve patient access to health care, but many others served to reduce demand – e.g. raising patient contributions to medical fees and scrapping restitution payments on some medicines – or tried to curb it by addressing volumes – e.g. by imposing university intake restrictions on medical students, encouraging mergers between hospitals etc. – and funding methods for health care providers, hospitals and nursing homes.

Stricter controls on unemployment were introduced, abuses were sanctioned more harshly and programmes were launched to get more people back into the workforce. Meanwhile, the government raised the age for early retirement but failed to stop the rise in the number of non-job-seeking older unemployed.

3.2.3 Revenue-focused measures

The 1993-1998 recovery period's symbolically most important budgetary measure revolved around fiscal revenues.

In the area of personal income tax, this entire period saw the government stick to its decision to suspend the indexation of most tax bands, following on from its initial budget for 1993. Following the April 1993 budget review, it introduced a supplementary crisis contribution, levied on both personal income tax and corporation tax, including withholding tax, in the form of a levy of 3 additional centimes. Fiscal expenditure on long-term savings was also curbed.

On the corporation tax front, various measures were introduced to curb or scrap fiscal expenditure, with a range of tax breaks made more rigorous or deactivated altogether – e.g. notional withholding tax for the coordination centres, capital spending deduction, etc. The government also took the opportunity to correct improper use of tax laws, for instance by changing the system of fixed foreign

tax credit (FFTC), finally taxed income and losses carried forward, as well as introducing a clause on abuse of law. Electricity producers also saw taxes increase.

A range of indirect tax measures generated additional revenues, either benefiting the federal government directly or acting as alternative sources of social security funding, cushioning the fall in revenues from lower employers' contributions. In 1994, the VAT rate was raised from 19.5% to 20.5%, and in 1996 to 21%. Excise duties went up, in particular on products not in the health index, i.e. fuels, alcohol and tobacco. In addition, the energy sector was hit by a charge on heating oil, a levy on energy consumption and excise-offsetting levies on diesel cars.

In terms of alternative funding, extra levies were imposed on income from securities and property to help refinance social security. Withholding tax on fixed-income securities grew steadily from 10% to 15%, while taxes on stock market transactions were raised from 0.35% to 1% and property taxes on second homes and rental properties went up by 25%.

Social security revenues were boosted by the introduction of new contributions and increases in existing ones, the most notable of these measures being the special social security charge of April 1994. The self-employed saw charges on professional income raised. In addition, taxes were levied on social security benefits, such as the so-called 'solidarity contribution' on pensions. Also in the 1990s, the federal government introduced new targeted taxes on group insurance premiums, company cars and student contracts, while employees' social contributions were raised by one percentage point as early as July 1992.

3.3 Key measures: the 2010s

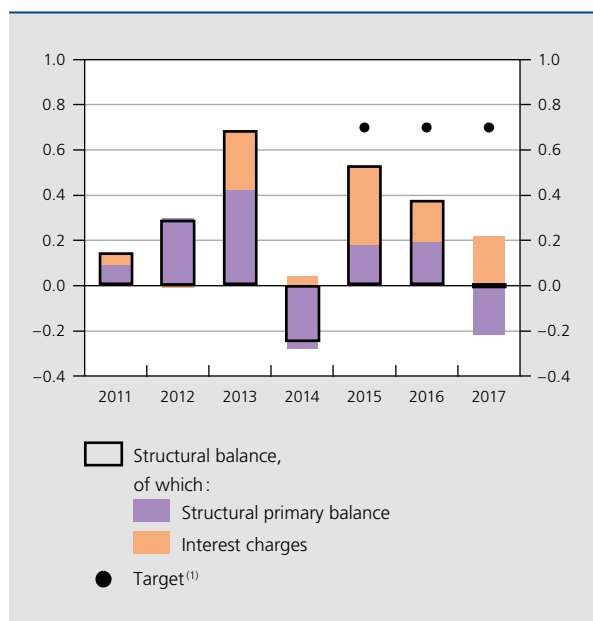
3.3.1 Background

The financial crisis and its economic repercussions had hit Belgian public finances so hard that the Ecofin Council opened an excessive deficit procedure for Belgium by the end of 2009. The Council recommended getting the budget deficit down to below 3% of GDP by 2012 by implementing structural improvements amounting to 0.75 percentage point of GDP per annum in the 2010-2012 period. Not long after, the Public Sector Borrowing Requirement section of Belgium's High Council of Finance put forward the same target figure and recommended that the budget balance be restored by 2015. Subsequent governments committed to consolidating their budgets but repeatedly pushed back the return to a balanced budget.

The consolidation period that started in 2011 breaks down into two quite distinct sub-periods, in which the country was governed by two different federal majorities. The 2011-2013 period saw an improvement in the structural balance by 1 percentage point of GDP, mainly on the back of higher revenues. The year 2014 saw budget efforts stall on the traditional loss of rigour in the run-up to parliamentary elections, which this time coincided with regional and European elections. The second sub-period starts in 2015 and is marked by falling primary expenditure. Quite a number of measures proposed for the second sub-period have yet to be fleshed out.

Once again, fiscal policies in this era should be considered against the larger backdrop of macroeconomic targets set for the European Union as a whole. These targets include a higher employment rate, an increase in R&D investment, a reduction in environmental pressures, better education indicators, and lower levels of poverty and social exclusion. These EU targets have been translated into national ones and closely aligned with further fiscal consolidation, which in Belgium has brought major challenges such as addressing the problem of an ageing population and bolstering competitiveness. Successive federal governments have established fundamental pension reforms aimed at reducing the ageing bill in the longer term, and introduced measures to cut labour costs.

CHART 4 DETERMINANTS OF THE DEVELOPMENT OF THE OVERALL STRUCTURAL BALANCE OF BELGIUM
(changes relative to previous year, in percentage points of GDP)



Sources: EC, NAI, NBB.

3.3.2 Primary expenditure-focused measures

The measures put forward by the federal government in December 2011 comprised a rigorous control of operating expenses, a slowdown in the growth of the health care budget, cuts in subsidies to state-owned companies and curbs on tax incentives for energy-saving investment. During the term of this government, eligibility conditions for unemployment benefits became stricter and were made more degressive.

A new austerity wave initiated by the new government installed in October 2014 started to make significant inroads into the federal government's primary expenditure levels and social security from 2015. Austerity savings include across-the-board cuts in public sector pay, purchases of goods and services, and investment. A new 'index jump' should keep in check social security benefits and the overall public sector wage bill. Other significant savings are targeting the health care budget, which saw its real growth target limited to 1.5%, and sick pay and disability benefits, while a range of restrictions were put into place for unemployment benefit entitlements and time-credit schemes.

The Communities and Regions, as well as local authorities, also approved various austerity measures, most of these related to all possible types of primary expenditure.

3.3.3 Revenue-focused measures

Key measures to boost revenues were taken in terms of personal income tax and taxes on company profits, indirect taxation and taxes on other types of income and assets.

Personal income tax benefited from the termination of the flat-rate reduction in the Flemish Region, and other regional measures are expected to boost this category of revenues going forward, by means of less generous tax rebates on mortgage interest for instance. At federal level, the range of personal income tax measures targeted non-cash benefits such as company cars and homes made available to employees free of charge. Tougher measures to combat fraud also boosted fiscal and parafiscal revenues. By contrast, taxes on earned income were depressed by other factors during the same period, e.g. the general reduction in employers' contributions to social security and a higher flat-rate reduction for professional costs.

Taxes on company profits were most affected by the changes made to the system of notional interest deduction. In 2012, this rate was limited to 3%, and to 3.5%

for SMEs, after which the reference rate was calculated on the basis of the third quarter of the year preceding the relevant tax year, allowing a lock-in of the interest cuts that had taken place in the course of 2012. In addition, limits were imposed on deduction transfer and on the deduction's tax base, in particular for banks. Various other measures benefited revenues, such as those combating fraud, higher taxes on company cars, taxes on gains realised on the sales of shares, the fairness tax and taxes levied on utility companies. A number of measures were to prove rewarding at the end of the consolidation period, such as the transparency tax and a new liquidation bonus system, i.e. early collection of after-tax profit at smaller companies, with this being put into a special liquidation reserve.

Measures targeting taxes on goods and services focused on excise duties, particularly on tobacco but also on alcohol and diesel, as well as the excess charge utility companies pay for keeping nuclear energy on stream. Other taxes were also either ratcheted up, such as those on stock market transactions and life insurance, or implemented, such as tax on credit institutions. Moves on VAT, by contrast, cancelled each other out, with rate cuts on electricity and on some tour operator products offset by VAT newly imposed on specific activities by notaries, bailiffs and lawyers, while VAT rates for pay TV were raised and VAT levies on electronic services and plastic surgery imposed. VAT revenues were also boosted by higher excise duties.

A range of other measures helped push up revenues: withholding tax on numerous financial products was gradually raised from 15 % to 25 % and taxes on savings deposits charged at financial institutions were also increased. Early collection of taxes on pension savings should also provide a boost, while other significant factors included temporary measures such as those governing the liquidation bonus and tax regularisation.

In 2017, non-fiscal and non-parafiscal revenues should be almost back at their 2010 levels. Meanwhile, they should benefit from higher contributions from banks in the shape of dividends, guarantee payments for interbank lending and contributions to the Belgian resolution fund. Only the contributions to the deposit guarantee scheme are likely to be much higher in 2017 than they were in 2010.

4. Impact of the various policy instruments

4.1 General picture

During the three major consolidation periods – in the 1980s, 1990s and from 2010 – other instruments were consistently preferred as a means of achieving fiscal consolidation.

In the 1980s, the government made deep cuts in its primary expenditure, which fell by more than 7 percentage points of GDP between 1981 and 1987. During the same period, government revenues made a slight contribution to the recovery, while interest charges rose further due to the growing debt ratio.

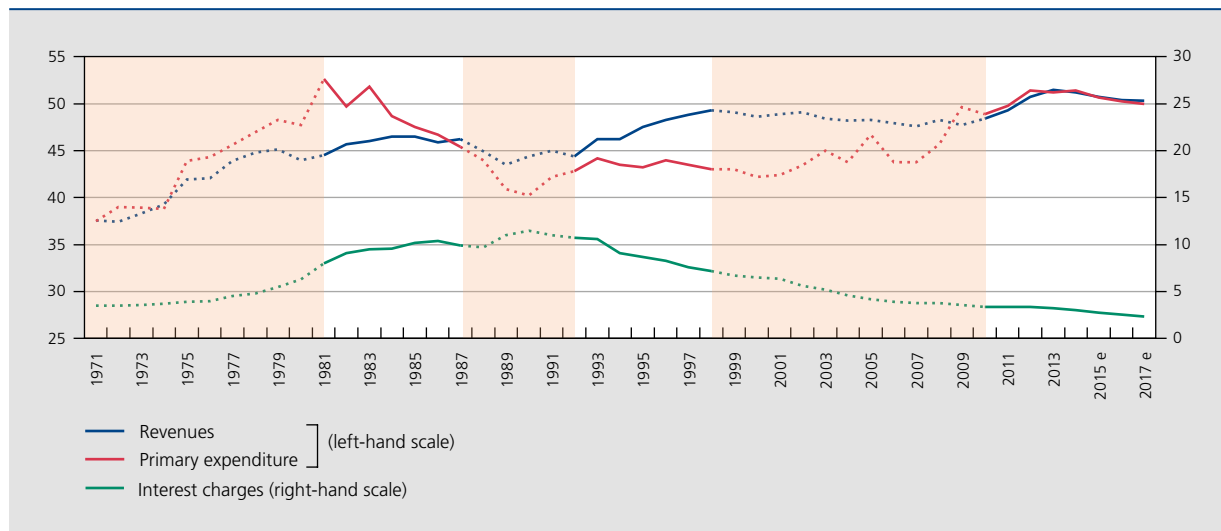
Virtually the reverse situation occurred in the 1990s. The restrictive fiscal policies were this time based chiefly on an increase in revenues, which went up by 5 percentage points of GDP between 1992 and 1998, while primary expenditure remained virtually flat. At the same time, interest charges fell by 3.5 percentage points thanks to a fall in both interest rates and the debt ratio, which together made a major contribution to the improvement in the overall balance in this period.

The observed and anticipated developments in the present period of consolidation are less clear-cut. At the start of the period, government revenues were the favoured instrument for restructuring public finances, and rose by 3 percentage points of GDP between 2010 and 2014. At the same time, primary expenditure grew further, putting even more pressure on the overall balance. However, the austerity measures implemented by the present federal government are expected to reverse this dual trend, with the emphasis henceforth on lower spending in combination with virtually flat revenues. Interest charges fell further thanks to the low interest rate environment, though at a slower pace due to the rising debt level.

4.2 Revenues

The three consolidation periods share a number of characteristics as regards government revenues. Levies on income from employment increased each time, for example, especially at the start of the period, albeit to differing degrees. Even clearer was the fact that taxes on capital and the income they generated, including corporation tax, were used as the main lever to improve the national accounts in all three consolidation periods. Revenues from indirect taxation, by contrast, show a different and more

CHART 5 REVENUES, PRIMARY EXPENDITURE AND INTEREST CHARGES
(% of GDP)



Sources: NAI, NBB.

subdued development: falling in the early 1980s and rising more or less steadily in the two following periods. Finally, non-fiscal and non-parafiscal revenues, even in the best case, made no significant contribution to the consolidation efforts.

4.2.1 Levies on employment

Levies on employment consist principally of income tax – mainly payroll tax, pre-payments, tax assessments and local tax surcharges – and employees’ and employers’ social security contributions.

At the start of the 1980s, the increase in levies was accompanied by a fall in the wage share of GDP. The consolidation was therefore based at least in part on measures that helped to boost those revenues. These measures did not lead to higher income tax revenues, which actually fell slightly over the period despite the raising of local government taxes. By contrast, they did lead to an increase in social security contributions of 2.5 percentage points of GDP between 1981 and 1987, the waiving of automatic indexation – also known as ‘index jumps’ – on three occasions being the most symbolically important measure. That in turn led to an increase in employers’ contributions, as the proceeds were paid out in the form of a wage restraint levy. As already stated, several contributions were also raised or introduced.

There was another notable increase in levies on income from employment in 1993, amounting to 0.8 percentage

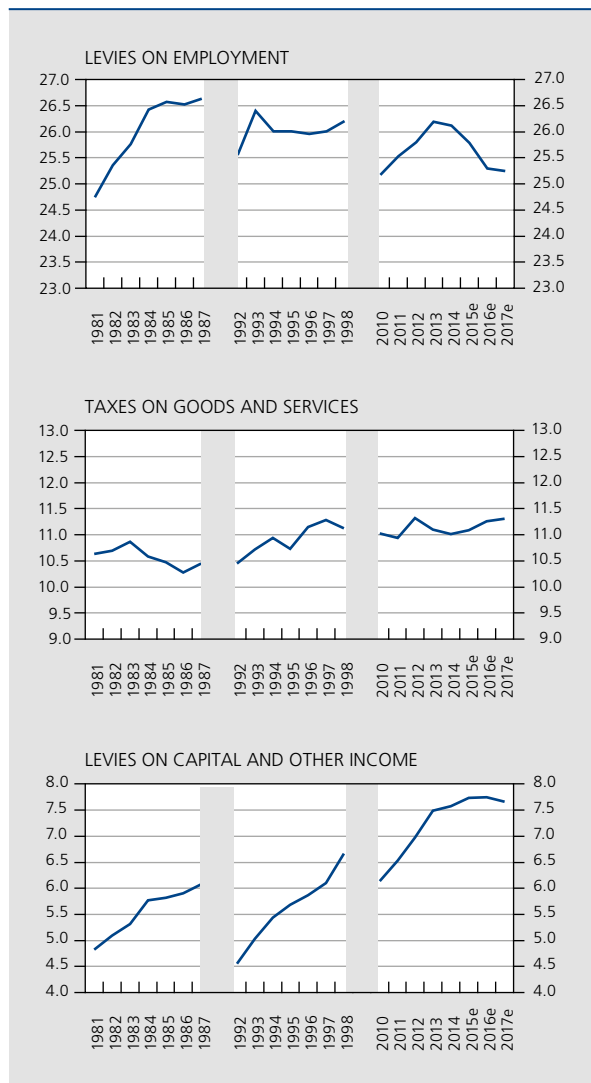
point of GDP over one year. A large number of measures contributed to this sharp increase, including the suspension of indexation of most tax bands, the introduction of the supplementary crisis contribution and, to a lesser extent, the curtailing of tax relief on long-term savings. This enabled income tax revenues to be maintained in the ensuing years, despite a sharp deterioration in the wage share of GDP. By contrast, social security contributions were trending downwards as the impact of cuts in employers’ contributions intended to safeguard competitiveness and boost employment proved greater than the effect of introducing the special social security contribution.

Moving to the current period, levies on income from employment increased again between 2011 and 2013 before stabilising, and are expected to fall by 2017. These movements, which have a largely parallel effect on income tax and social security contributions, stem both from the trend in the wage share of GDP and from measures already discussed extensively earlier.

4.2.2 Taxes on goods and services

The changes in tax rates on goods and services – with VAT and excise duties as the main components – were less pronounced. They also made no contribution to the consolidation in the 1982-1987 period, but played a bigger role in the 1990s. Their contribution in the current period is just in positive territory.

CHART 6 FISCAL AND PARAFISCAL REVENUES
(% of GDP)



Sources: NAI, NBB.

Between 1982 and 1987, indirect taxes were boosted by measures to raise VAT and excise duties under the Maribel scheme, which began in July 1981. The effect of these increases was however cancelled out by falling consumption and housing investment. The rates were raised yet again thereafter and the tax base was widened, albeit to a limited extent, so that the reduction in the share taken by domestic demand in GDP led to a fall in taxes on goods and services expressed as a percentage of GDP.

The 1993-1998 period saw a clear increase in indirect tax revenues, totalling 0.7 percentage point of GDP. This was despite a reduction in the share of private consumption and housing investment and reflected a series of measures taken on VAT, excise duties and other indirect taxes.

The present consolidation has thus far been characterised by fluctuating revenues from indirect taxation, though the general trend is still upwards. These developments are largely related to the irregular development of the share of the tax base in GDP, though taken over the period as a whole this has been stable. The measures taken on excise duty and other indirect taxes explain the slight upward trend.

4.2.3 Levies on capital and other income

The levies on capital and other income made the biggest and most regular contribution in the three consolidation periods considered here. These levies comprise tax on company profits plus a wide array of contributions, particularly withholding tax and property tax as well as registration fees, inheritance tax and gift tax.

During the 1982-1997 period, these levies rose by 1.3 percentage points of GDP, driven by an increase in their two main components. Taxes on company profits rose by 0.6 percentage point of GDP thanks to the recovery in corporate profitability and the impact of numerous measures to limit fiscal expenditure at the end of the period. By contrast, other measures served to curtail these revenues, including the reduction in corporation tax from 48 % to 45 % in 1982 and then to 43 % in 1987, as well as a number of tax incentives developed at the start of the period, such as the legislation on coordination centres. Levies on other income and on capital rose overall by 0.7 percentage points of GDP, partly due to the increase in withholding tax in 1984.

This category of revenues made an even bigger contribution in the 1993-1998 period, which saw their share in GDP rise from 4.5 % in 1992 to 6.7 % in 1998. This sharp increase was due almost entirely to corporation tax, which rose by 1.8 percentage points of GDP. Corporation tax revenues were boosted by the greater share of corporate earnings in GDP, partly as a result of the lowering of employers' social security contributions plus a host of other measures, such as the increase in the nominal tax rate from 39 % to 40.17 % in 1993, due to a rise in the supplementary crisis contributions and various measures to broaden the tax base. Taxes on other income and on capital also increased slightly during this period, by 0.3 percentage points of GDP, mainly due to higher revenues from withholding tax on income from immovable assets, inheritance tax and gift tax as well as a number of other duties.

In the current period, taxes on capital and other income are expected to reach 1.6 percentage points of GDP. This increase is once again attributable chiefly to corporation

tax revenues, which are likely to rise from 2.5 % of GDP in 2010 to 3.6 % of GDP in 2017 due to the restrictions imposed on the notional tax relief on interest payments and the influence of other measures already mentioned. Additionally, since the financial crisis, companies have switched from tax prepayments to payment based on tax assessments. This had a temporary negative effect on tax revenues in 2009 and 2010, as assessment-based tax payments take place later. The taxes on other income and on capital have also increased thanks to the various measures already mentioned, which it is estimated will lift returns by 0.4 percentage point of GDP between 2010 and 2017.

4.3 Primary expenditure

The fiscal consolidation in the 1980s related largely to primary expenditure. This period saw reductions in public sector pay, investment and other capital expenditure, bringing down primary expenditure by a total of more than 7 percentage points of GDP between 1981 and 1987. In the subsequent consolidation periods, by contrast, less use appears to have been made of the expenditure lever. Savings on certain items were at least offset by higher spending in other categories, because overall primary expenditure remained stable between 1992 and 1998, and is projected to rise slightly during the current consolidation period.

A number of key categories are highlighted in the following sections, namely social security expenditure, public sector pay and investment.

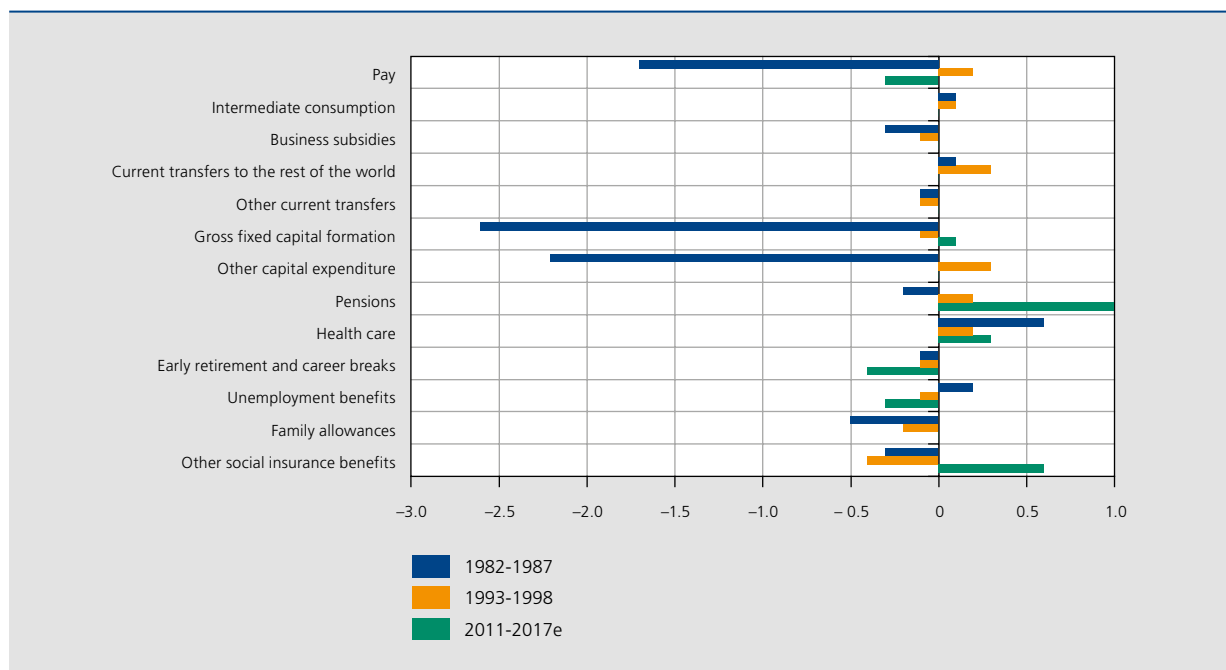
4.3.1 Social security expenditure

Social security spending represented half of all primary government expenditure in Belgium in 2014, or 25 % of GDP. That is 4 percentage points of GDP more than in 1980. This difference alone is enough to explain the increase in total primary expenditure over the period.

The main drivers of the rise in social security spending are higher pension benefits, in turn caused by the growing number of pensioners due to ongoing population ageing. The share of over-65s in the Belgian population has increased from 14 % in 1980 to a projected 18 % in 2016. In the 1980s, however, the growth in pension payments did not keep pace with the increase in the older population, mainly because of the waiving of automatic indexation on three occasions during the first consolidation period. The discrepancy has been reduced during the most recent consolidation period, however, thanks to the addition of top-up payments to pensions from the so-called 'welfare adjustment'.

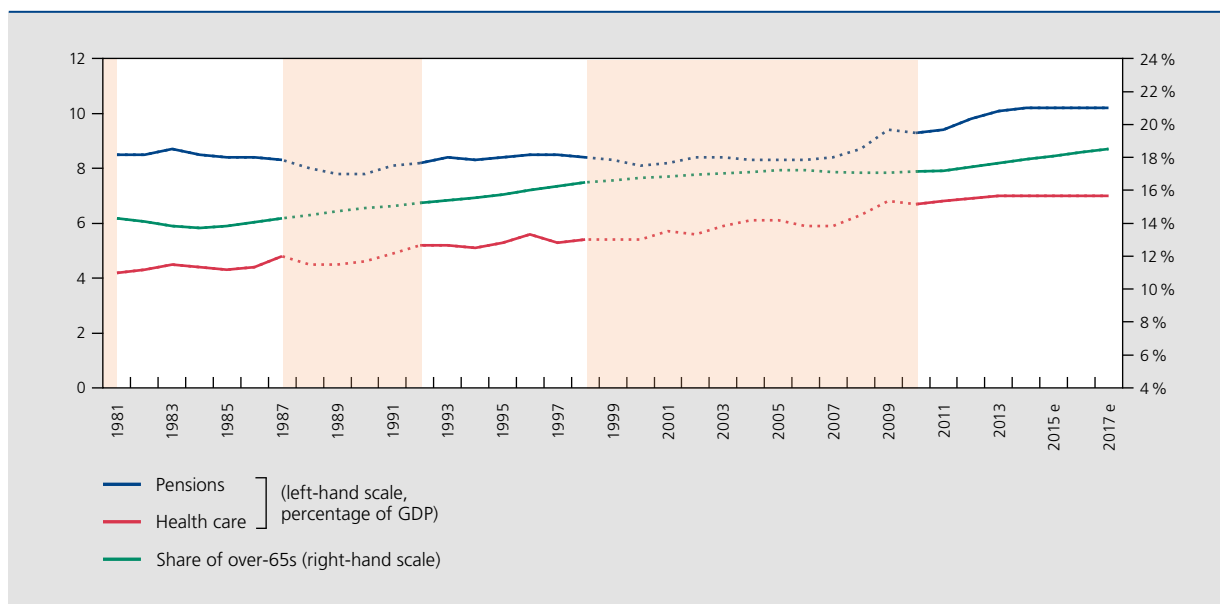
Population ageing also influenced spending on health care, taking it from 4.1 % of GDP in 1980 to a projected

CHART 7 TREND IN PRIMARY EXPENDITURE DURING THE PERIODS OF FISCAL CONSOLIDATION (% of GDP)



Sources: NAI, NBB.

CHART 8 SOCIAL BENEFITS AND POPULATION AGEING



Sources: FPB, NAI, NBB.

7% in 2017. However, we would again point out the mitigating effect of the waiving of indexation on three occasions and the resultant temporary wage freeze, which became evident from 1984. Health care spending evidently did increase outside the consolidation periods.

Other social security spending shows a downward trend over the whole period since 1980, and especially during the consolidation periods. The three 'index jumps' meant that this downturn was most pronounced during the first restructuring period. Generally speaking, other social security expenditure has shown a declining trend, occasionally interrupted by more or less pronounced cyclical changes. These movements are most likely driven by demographic or cyclical factors, over and above the impact of policy measures to mitigate spending.

Demographic developments have led to an overall reduction in child benefit. The low birth rate means the number of children in the Belgian population is falling: at present, 23% of the population are aged below 20, compared with 28% in 1980. Child benefit budgets fell more sharply in the 1980s than the number of beneficiaries and allocated budgets. The cause was the repeated decision to waive automatic indexation as well as specific containment measures implemented in the 1980s. Another explanation is shrinking family size in a system where the amount of child benefit increases with the child's rank. The extension of compulsory education to age 18 in 1983 had the opposite effect, causing child benefit to rise.

During the present period, child benefit is projected to remain fairly stable relative to GDP.

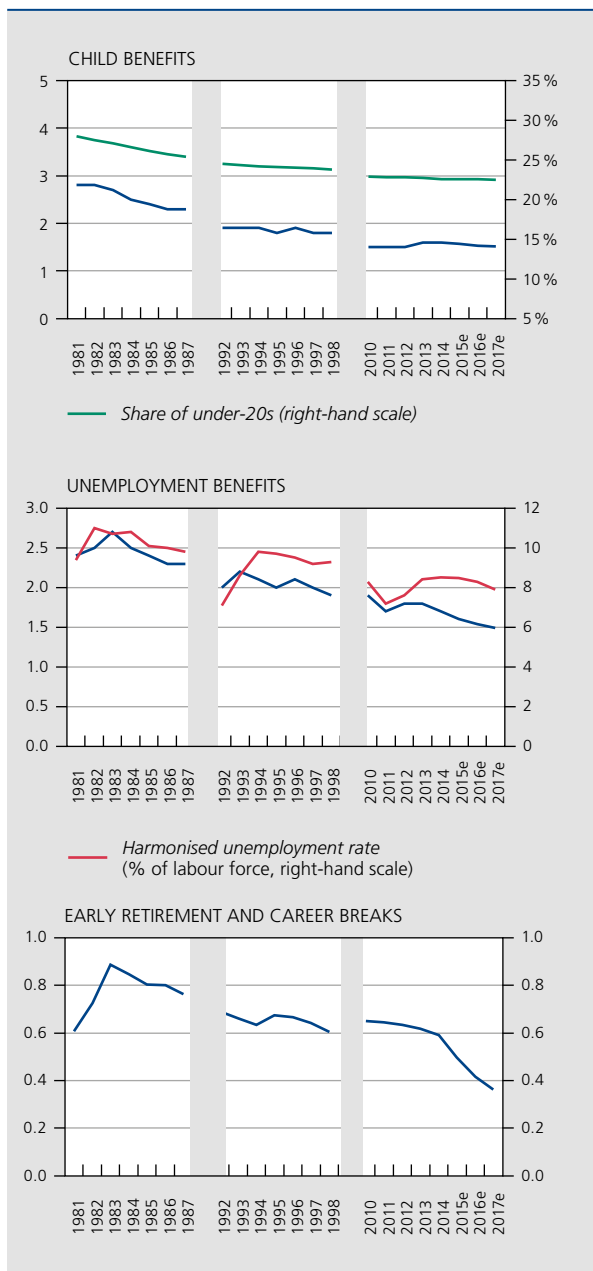
Unemployment benefits today represent only a limited share of social security spending. That share fluctuates considerably from year to year, depending on the state of the economy, but over the period as a whole, we observe a downward trend in the wake of the falling unemployment rate and restrictive measures that also have an impact on benefits.

The trend in sick pay and disability benefits is more irregular. After falling substantially due to both structural effects (increased proportion of working women and relative increase in white-collar workers compared with blue-collar workers) and restrictive measures, benefits are projected to rise once again to reach the levels seen in the early 1980s, namely 1.7% of GDP, by 2017.

The budget for early retirement and career breaks has also fallen over the last 30 years, from a peak of 0.9% of GDP in 1983 to a projected 0.6% of GDP in 2017. This trend demonstrates the will to keep employees in work for as long as possible. The measures to restrict early retirement benefits have also had an impact, especially since the 1990s, and more recently also the action to curtail time-credit schemes. In the 1982-1987 period, the relative weight of both categories of social security benefits increased, following the launch of the career break system in 1985 and because early retirement was encouraged

CHART 9 CHILD BENEFIT, UNEMPLOYMENT BENEFIT, EARLY RETIREMENT AND CAREER BREAK BENEFITS

(% of GDP, unless otherwise stated)



Sources: NAI, NBB.

at the start of the period with the aim of redistributing employment in favour of young people.

4.3.2 Public sector pay

The pay of public sector workers fell significantly between 1982 and 1987, and increased slightly in the 1993-1998 period. During the current period, it first rose slightly, then began to fall, a trend which is projected to continue until 2017.

Public sector pay fell during the first consolidation period, despite an increase in public sector employment. This illustrates the mitigating effect of the freeze on real wages, followed by the threefold disapplication of wage indexation ('index jumps'). Encouraging part-time work may also have contributed to the increase in employment measured in number of persons. Public sector pay increased during the second period due to the general overhaul of pay scales in the early 1990s, which was spread over several years. On the other hand, restrictive fiscal policies put downward pressure on public sector employment. People who retired during this period were less often replaced through recruitment. In fact, the volume of work also fell due to the encouragement of part-time working. The abolition of compulsory military service in 1994 also played a role, as thousands of military personnel disappeared from the public sector employment statistics within a short space of time. Public sector employment, especially at federal level, has fallen slightly in the most recent period, helping to temper the trend in pay. This mitigating effect is likely to be reinforced in 2015 and beyond by the austerity measures announced by the new federal, regional and local governments.

4.3.3 Public investment

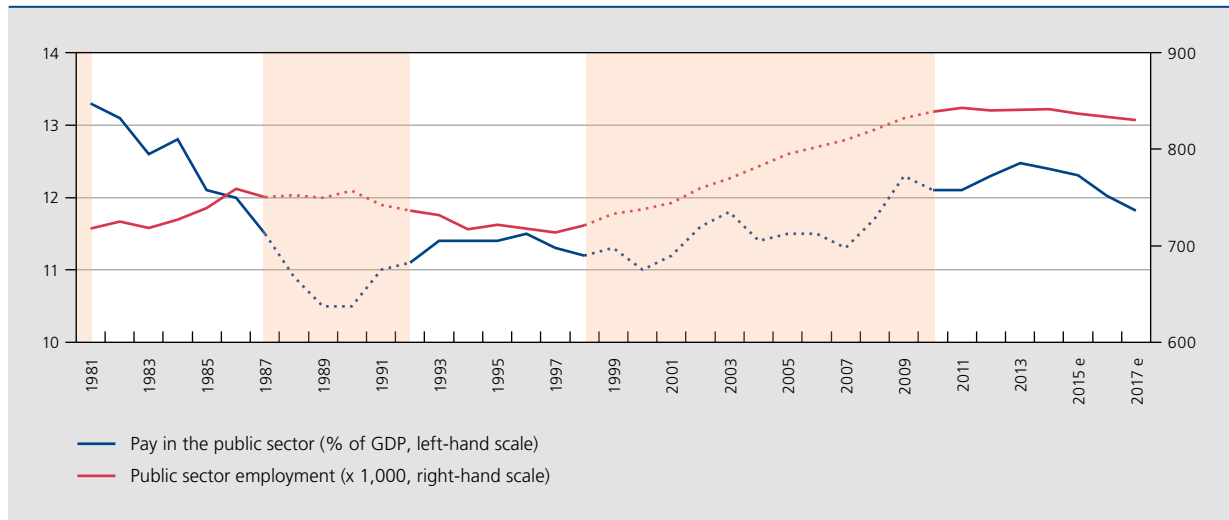
Public sector investment has fallen substantially as a share of GDP over the entire observation period. After peaking at 5% of GDP in 1980, it stood at just 2% in 2014. The biggest fall occurred during the fiscal consolidation in the 1980s. Investment is a form of expenditure that is relatively easy to scrap in times of restructuring. Since the end of the 1980s, the level of investment has fluctuated between 2% and 2.5% of GDP, a very low level which leaves little scope for further cutbacks.

4.4 Government debt

Measures were also taken during the different consolidation periods which had a direct impact on government debt without influencing the overall government balance. Factors that influence the level of debt but not the overall balance are also referred to as exogenous factors.

During the reconstruction period in the 1990s, the government took a number of measures to reduce the debt ratio with a view to joining the currency union. As an example, the government embarked on a series of privatisations of state-owned companies, which together raised 2.6% of GDP. At federal level, these actions included the whole or partial privatisation of some formerly public credit institutions (ASLK/CGER in 1993 and 1997,

CHART 10 PAY AND EMPLOYMENT IN THE PUBLIC SECTOR

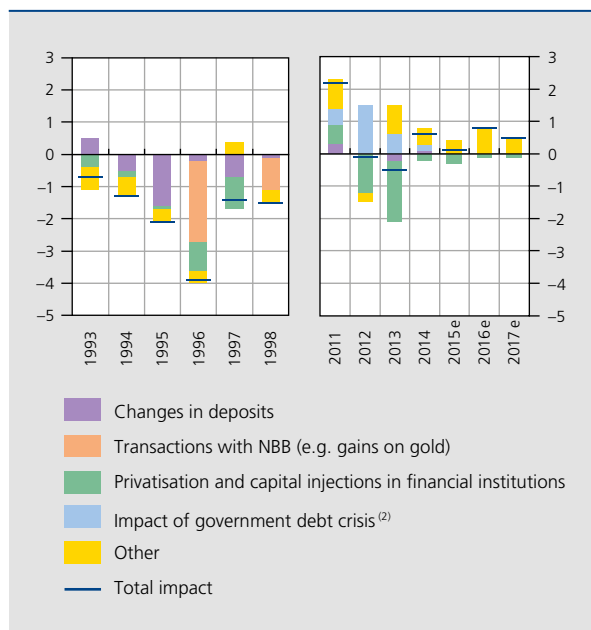


Sources: NAI, NBB.

the *Nationaal Instituut voor Landbouwkrediet/Institut national du crédit agricole* (agricultural loans) in 1995 and 1996, and the *Nationale Maatschappij voor Krediet aan de Nijverheid/Société nationale de crédit à l'industrie*

(lending to industry) in 1995), the partial privatisation of the national telecommunications operator Belgacom in 1996 and the privatisation of part of the portfolio of the National Investment Company in 1994. At regional level, the Flemish government sold shares in investment company GIMV in 1997. And at local level, part of the stake in Gemeentekrediet, a bank specifically set up to finance local authority investment, was sold off in that same year. The federal government also decided to reduce its deposit holdings, thus cutting the amount of Treasury borrowing needed. During the 1993-1998 period, deposit exposure fell by 2.6 % of GDP. The National Bank of Belgium also made significant gains in 1996 and 1998 from selling gold for foreign currency. These gains were largely used by the State to pay down the foreign currency debt. These transactions led to a reduction in government debt of 2.5 % and 1.5 % of GDP, respectively, in 1996 and 1998.

CHART 11 IMPACT OF EXOGENOUS FACTORS ON GOVERNMENT DEBT⁽¹⁾
(% of GDP)



Sources: NAI, NBB.

(1) The consolidation period in the 1980s is left out of consideration here due to a lack of detailed data.

(2) Direct impact of loans to other members of the euro area (bilateral loans to Greece and loans via the EFSF) and of capital injections into the ESM.

During the restructuring period that began in 2010, the exogenous factors mainly stemmed from the aftermath of the financial crisis and the government debt crisis in Europe. Most of the capital injections in financial institutions took place in 2008 and 2009, though as late as 2011 the government bought Dexia Bank Belgium (subsequently re-named Belfius) from Dexia for 1.1 % of GDP⁽¹⁾. From 2012, the government was able to start recouping a portion of the capital used to support financial institutions at the height of the crisis. KBC Bank, for

(1) In the 2014 national accounts, which were published by the National Accounts Institute (NAI) on 17 April 2015, 0.2 % of GDP was recorded as a capital transfer, with a direct negative impact on the overall government balance. Furthermore, the capital injection into Dexia in 2012, amounting to 0.8 % of GDP, was not treated as an exogenous factor, but as a capital transfer.

example, repaid an amount equivalent to 1 % of GDP to the federal government in 2012, followed by 0.4 % of GDP to the Flemish regional government in 2013 and 0.1 % of GDP in 2014 and subsequent years. The federal government also sold its stake in BNP Paribas Fortis (0.8 % of GDP) in 2013, as well as the bulk of its interest in Royal Park Investments (0.2 % of GDP). The European sovereign debt crisis drove up debt in the 2011-2014 period. The support provided to Greece via bilateral loans, and to Greece, Ireland and Portugal through the European Financial Stability Facility (EFSF) between 2011 and 2014, combined with the injection of capital into the ESM since 2012, pushed up government debt by a total of 2.8 % of GDP over the period.

5. Impact of the restructuring policies

5.1 Impact on government debt

At first sight, the restructuring policies appear to have been successful in reducing Belgian government debt only during the consolidation period in the 1990s. Between 1992 and 1998, government debt fell from 130.8 % to 118.6 % of GDP, whereas in the 1981-1987 period,

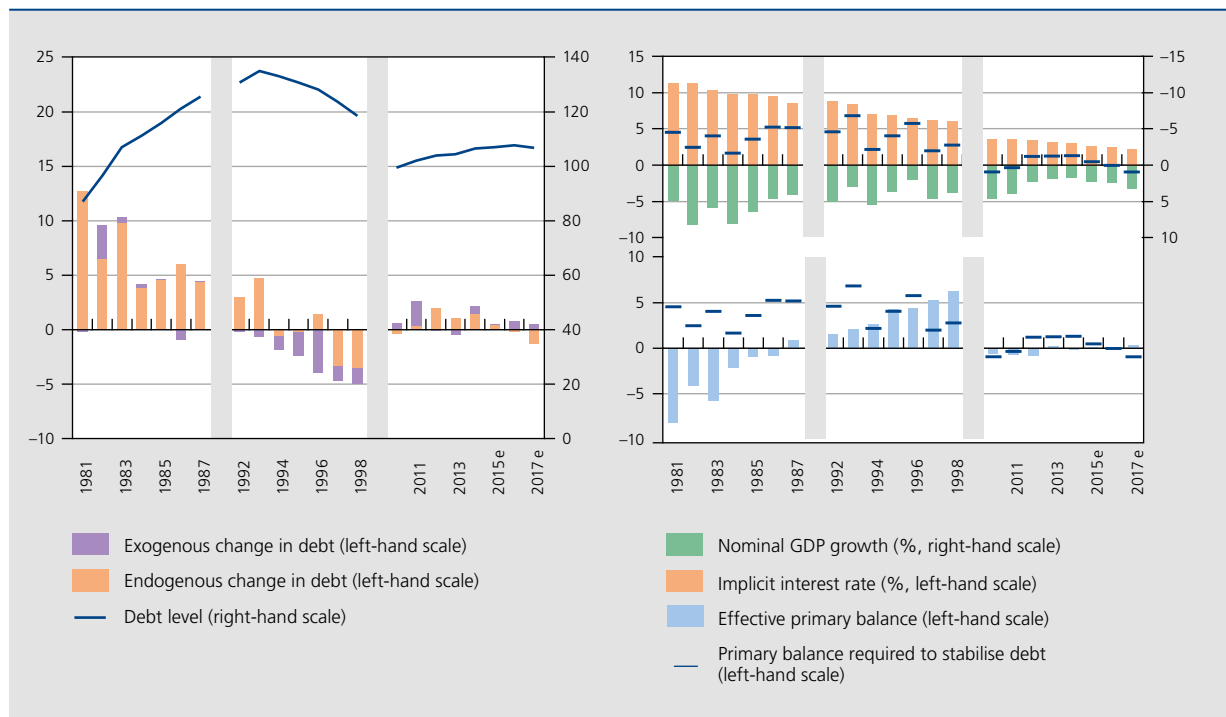
notwithstanding major restructuring efforts, it continued to rise substantially, from 87.1 % to 125.5 % of GDP, and in the 2010-2017 period it is projected to go up from 99.5 % to 106.8 % of GDP.

Breaking down the factors into exogenous and endogenous factors and further analysing the latter category presents a more complete picture of the development of government debt.

In the 1980s, government debt was driven up mainly by endogenous factors, determined on the one hand by the difference between the implicit interest on the debt and the growth in nominal GDP, and on the other by the level of the primary balance. During the period under consideration, the implicit interest rate on the debt averaged 10 %, substantially higher than the average nominal growth in GDP of 6 %, while the government's primary balance was in deficit. The high interest rates meant that government debt – via the budget balance – rose more quickly than nominal GDP, in turn pushing up the debt ratio.

Halting an interest snowball such as this – leaving aside the exogenous factors – requires a positive primary balance. It was not until the mid-1990s that the government managed to achieve sufficiently high primary surpluses to

CHART 12 DETERMINANTS OF THE DEVELOPMENT OF GOVERNMENT DEBT
(% of GDP, unless otherwise stated)



Sources: NAI, NBB.

neutralise the interest snowball and reverse the endogenous trend in government debt to set it on a downward path. The government was helped by the falling implicit interest rate on government debt which, thanks to the growth in economic activity, meant that the primary surplus required to stabilise the debt was lower. Exogenous factors also contributed to the reduction in the debt ratio in this period.

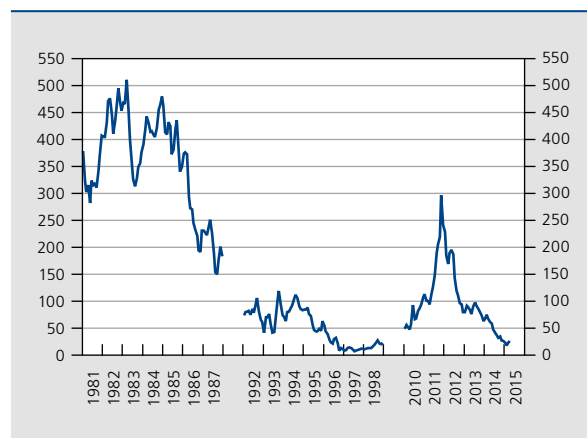
The present consolidation period, with the exception of the initial phase, has been characterised by only limited growth in nominal GDP. As a result, even with historically low implicit interest rates on government debt, a slight primary surplus is needed in order to stabilise the debt ratio. Partly because of the weak economy, the consolidation policies put in place have proven insufficient to improve the primary balance to the level needed to stabilise the debt ratio. Exogenous changes caused by the financial and government debt crises have driven up the debt ratio further, and stabilisation is not expected to be achieved until 2016, supported by an upturn in economic activity.

5.2 Impact on yield spreads on government loans

Long-term yields on government bonds have fallen significantly worldwide since the early 1980s. In Belgium, they have dropped from around 12 % in 1980 to 0.4 % in April 2015. This can be attributed in part to the consolidation of Belgium's public finances, though other factors are also important. First, there was the Great Moderation, a period of greater macroeconomic stability which lasted from the end of the 1980s until 2006 and was characterised by falling inflation, positive and relatively stable economic growth and the belief that the economic cycles were more under control. Second, there was the global savings surplus which arose at the end of the 1990s. Finally, yields came under pressure in the wake of the financial and economic crisis due to the introduction of unconventional monetary policy measures, the fall in potential growth and the flight to safe assets. However, it is worth noting that during the government debt crisis, which intensified during 2011, yields on Belgian government debt went up temporarily.

The trend in yield spreads on long-term government loans issued by euro area countries relative to German Bunds means that the influence of global factors can be largely eliminated. National budgetary indicators have always played a role in the analysis of these spreads, together with other factors such as the liquidity of the various markets and external indicators such as the trade balance and current account balance.

CHART 13 DEVELOPMENT OF YIELD SPREADS BETWEEN BELGIAN LONG-TERM GOVERNMENT BONDS AND GERMAN BUNDS DURING CONSOLIDATION PERIODS
(in basis points)



Sources: IMF, Thomson Reuters Datastream.

During the consolidation periods studied in this article, there was a clear narrowing of the yield spread between long-term Belgian government loans and German Bunds. The timing of this narrowing differed from period to period, however. For example, the spread only began to narrow substantially towards the end of the 1982-1987 consolidation period, while between 1993 and 1998 it narrowed substantially around the middle of the period due to the convergence of government bond yields in the run-up to the launch of the third phase of Economic and Monetary Union. Finally, in the current consolidation period, the spread at first widened in the wake of the government debt crisis, from around 50 basis points in early 2010 to a peak of almost 300 basis points at the end of 2011. This spread then began to narrow rapidly from early 2012, to stand at around 20 basis points in the current year. These observations suggest that it is highly likely that the fiscal consolidation policies have contributed to reducing the spreads.

Conclusions

In this article, we have analysed Belgian policies for restoring sound public finances since the early 1980s. For this purpose, three consolidation periods were identified based on the development of the structural overall balance.

The first period began in 1982 and lasted until 1987, and began at a time of recession and major imbalances in the Belgian economy, including a substantial government deficit. The major fiscal consolidation efforts that ensued

were based on a sharp reduction in public expenditure and a limited increase in government revenues. The onset of the second period, which ran from 1993 to 1998, was also characterised by recession. The consolidation that took place during this period was achieved mainly through an increase in revenues combined with a reduction in interest charges. The third consolidation period followed the financial and economic crisis and began in 2011. This period was initially characterised by an increase in government revenues, but since 2015 the emphasis has shifted onto cutting expenditure. There has also been a further reduction in interest charges over this period.

The analysis of the restructuring policies since the early 1980s shows that fiscal consolidation programmes consistently begin in periods of low economic activity. They

are also always accompanied by structural reforms. This led in each case to a recovery in competitiveness and higher employment. Attention was also devoted to the affordability of the social security system, not least through pension reforms.

Major restructuring efforts are being made in the present consolidation period, but these are still relatively limited compared with the previous two restructuring periods. It should be noted here, however, that today's fiscal consolidation is taking place in more difficult circumstances, with weaker potential growth, heavy fiscal and parafiscal pressure, low public sector investment and the rising costs of population ageing. Finally, additional measures need to be taken as part of the ongoing fiscal consolidation in order to restore a structural budget balance.

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Deflation in Japan, Abenomics and lessons for the euro area

J. Boeckx
P. Butzen
N. Cordemans
S. Ide

Introduction

Seven years on from the global financial crisis, which started with the subprime crisis and the collapse of Lehman Brothers in the United States, the euro area economy appears not to have quite recovered: a subdued upturn followed a deep recession, with the sovereign debt crisis then tripping the euro area into a second recession. Over the recent period, growth has languished way below pre-crisis levels, suggesting that the euro area economy has all but stalled. In addition, inflation has been low and in some cases even turned negative.

These twin forces of economic stagnation and low inflation/deflation have long been features of the Japanese economy. After a breakneck macroeconomic expansion in the 1980s, Japan faced a bursting real estate and financial asset bubble, followed by a long period of persistently slow growth, known as the 'lost decade'. Moreover, by the end of the 1990s, Japan had got locked into a deflationary climate. While the country never went into a deflationary spiral, the nightmare scenario the literature had warned about, policies proved inadequate to get economic growth and inflation to take off. Since 2013, Shinzo Abe's government has nevertheless been working to put an end to this situation by implementing a comprehensive and robust programme, dubbed Abenomics.

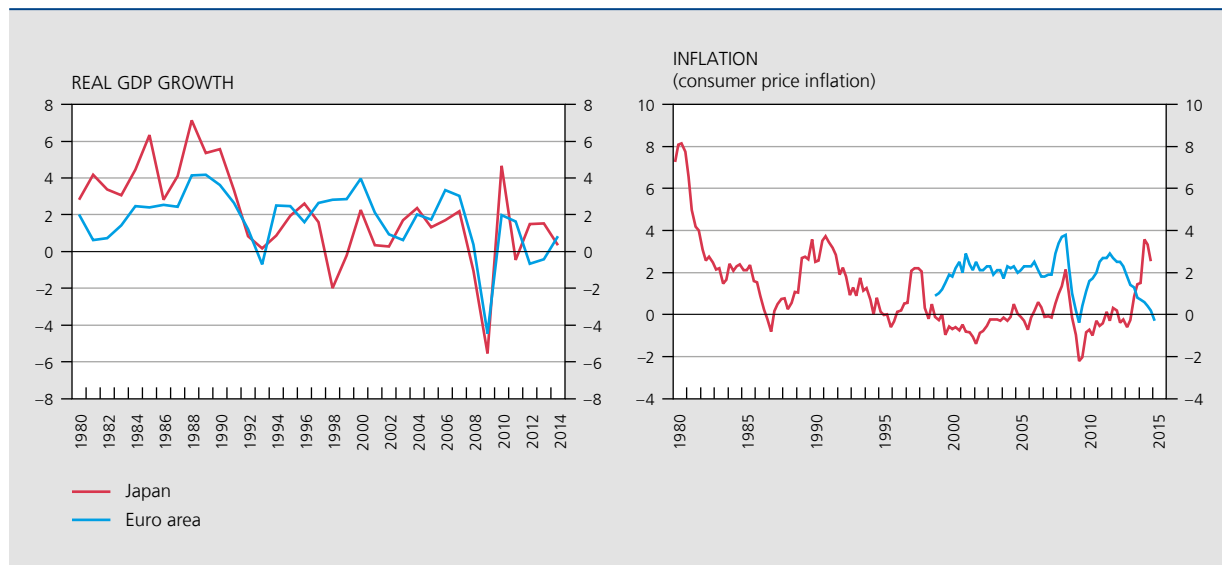
This article proposes to showcase the similarities identified between the situation in Japan over the last two

decades and the one the euro area currently finds itself in. Factoring out the features specific to these economies and the different types of financial crises they faced, the article attempts to identify the lessons that the euro area can draw from the Japanese experience.

The article starts with a review of the Japanese economy between 1990 and 2013, covering three key themes: the bursting of the asset price bubble and the onset of a long balance sheet recession, deflation and the role of monetary policy, and, lastly, the country's transition to a new macroeconomic equilibrium struck at a lower level of inflation, but with economic growth around its potential level. This new equilibrium suggests that the cost of deflation is restrained. A major flaw of this equilibrium, however, is that it does not allow for monetary policy to be fully effective at stabilising the economy in the event of negative shocks. In order to return to equilibrium with positive inflation and higher potential growth, the Japanese government started its Abenomics policies in 2013. These are discussed in the second section. The article ends on a number of lessons that today's euro area can draw from the Japanese experience. A period of low inflation would potentially wreak more havoc in the euro area than it has in Japan, but the range of policy measures adopted since the crisis erupted have reduced this danger. That said, the euro area policy mix needs to be carefully calibrated, with appropriate demand policies and structural reforms put in place.

CHART 1 ECONOMIC GROWTH AND INFLATION IN JAPAN AND THE EURO AREA

(% change compared with the corresponding period of the previous year)



Sources: OECD, EC, Thomson Reuters Datastream.

1. The Japanese economy between 1990 and 2013

1.1 Balance sheet recession and financial sector troubles

This section recounts the run-up to the financial crisis of the early 1990s, the balance sheet recession that followed and the way in which the Asian crisis forced the Japanese authorities to finally face up to and address the problems besetting the banking sector.

The second half of the 1980s was a time of unbridled expansion for the Japanese economy. A self-reinforcing cycle of highly favourable macroeconomic conditions, rising asset prices and excessive lending fuelled a build-up of financial imbalances – with the expansionary monetary policy bias and gradual liberalisation of domestic capital markets also chipping in. After all, the 1985 Plaza Accord and the subsequent appreciation of the Japanese yen to help reduce the current account surplus to more acceptable levels had left the Japanese central bank with little choice but to slash policy rates to offset a more expensive currency and bolster domestic demand. Meanwhile, the liberalisation of the country's capital markets in the 1980s saw Japanese companies increasingly turn to corporate bonds for their funding, at the expense of bank loans. In their search for an alternative use of their resources, banks increased their exposure to the housing market and

brought extra competition into mortgage lending, hitherto virtually the exclusive domain of the *jusen*⁽¹⁾. Faced with fiercer competition between mortgage lenders, the *jusen* expanded to other sectors of the property market by providing loans to project developers and construction companies, collateralised by their property holdings.

From May 1989, the Bank of Japan raised interest rates a number of times to help cool the economy; in 1990, the Finance Ministry advised the financial sector to curb its lending to the property sector. Both policy actions sparked significant corrections in property and equity prices.

Recessions that follow periods of significant leveraging and exceptional increases in asset prices typically hit hard, both financially and in real terms, and their repercussions take longer to clear than ordinary recessions. Reinhart and Rogoff (2014) argue that balance sheet recessions tend to last longer and have a more far-reaching impact. The biggest challenge for policy-makers is to recognise and adequately address a balance sheet recession in real time. Koo (2009, 2013), for instance, notes that Japan's policy-makers needed some time to make a full diagnosis of the economic ills affecting the country and to come up with the right treatment. The wrong policy approach could nip any recovery in the bud, causing a lengthy period of slow growth and low inflation.

(1) Subsidiaries created by the banks in the 1970s to provide mortgage lending and encourage home ownership.

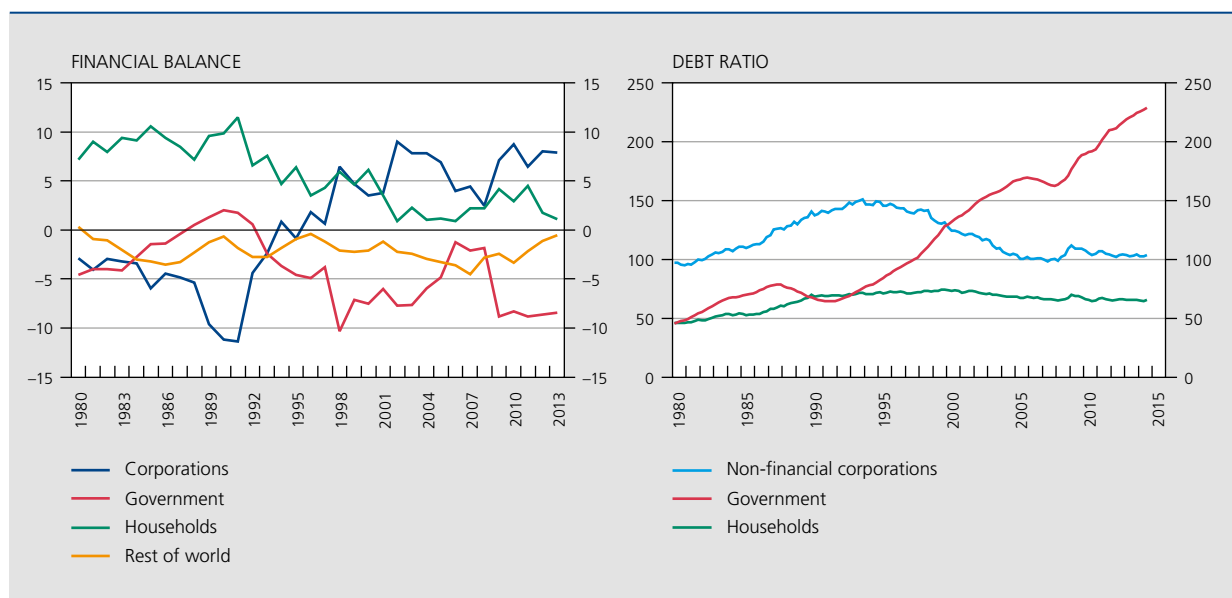
Capturing financial balances in Japan, the chart below shows a surplus in the household sector in the 1980s, which largely served to finance corporate deficits. However, after the crisis in the early 1990s, corporations were also starting to record financial surpluses, turning the country's private sector as a whole into a net saver. Disregarding the external sector, the government then becomes the only sector that can absorb such a savings surplus. In the 1980s, non-financial corporations in particular were leveraged to the hilt, often collateralised by property assets, while household debt ratios were also up, albeit to a lesser extent. Deleveraging became a post-crisis priority for corporate Japan, rather than fresh investment spending. This process took until 2005 to complete: in that year, corporate debt finally stabilised, but corporations have remained net savers and built sizeable cash positions. If the Japanese economy is to recover any further, the corporate sector will have to start dis-saving, and Abenomics (see section 2) should play a crucial role in this respect by boosting expected profitability (Kang, 2014). Rising levels of corporate investment should lessen the pressure on the government as the engine for economic growth.

If the private sector as a whole deleverages, expansionary fiscal policies are required to ensure that recessions do not drag on for a long time or even worsen. Where adequate fiscal stimulus is lacking, recession may well deepen into depression – as happened in the United States in the 1930s. One major constraint, of course, is

the sustainability of public debt, and the euro debt crisis made it painfully clear that the relevant sustainability level is what the financial markets judge to be sustainable. Meanwhile, Japan's economy has been receiving fiscal support from the government for 22 years. Public deficits have become par for the course, with government spending as a percentage of GDP consistently up while revenues have remained virtually unchanged since 1990. Japan's government debt ratio has risen to over 230 % of GDP after two decades of slow growth, persistent deflation and government deficits. Section 2.2 discusses the sustainability of Japanese government debt in greater detail.

In the United States – which in 2008 also faced a balance sheet recession – the Administration immediately switched to highly expansionary fiscal policies to absorb reduced demand from the private sector. These expansionary policies were gradually phased out as the private sector started to chip in again to economic growth. US public debt initially shot up, but soon stabilised as the economic recovery gathered momentum. In the euro area, a joint approach under the European Economic Recovery Plan gave rise to fiscal stimulus measures upon the outbreak of the financial crisis. The sovereign debt crisis in Greece and rapid contagion to other vulnerable euro area Member States – which lost access to capital markets and needed financial assistance – induced rapid budgetary consolidation in these countries.

CHART 2 JAPAN: FINANCIAL BALANCE AND DEBT RATIO BY SECTOR
(in % of GDP)



Sources: Bank of Japan, BIS, Thomson Reuters Datastream.

Fiscal stimulus is not the only way to prop up economic growth; external demand may also serve as a driver. However, in crises on a global scale – such as the most recent financial crisis – this route offers only limited relief, unless accompanied by improved competitiveness. The effectiveness of monetary policy is hampered in the event of reduced interest rate elasticity of credit demand: even when (real) interest rates are very low, heavily leveraged private sectors will not take on any new debt but rather continue to deleverage, which is obviously made easier by lower interest rates. A balance sheet recession is typically marked by an absence of loan demand, rather than a shortage in the supply of credit. That said, monetary policies have a key role to play in removing any obstacles to the supply of credit and bank loans by offering banks liquidity that they cannot find elsewhere. In a situation such as this, the central bank acts as the lender of last resort and cushions the blows rained on the banks by the financial crisis. In addition, expansionary monetary policies can help to facilitate the deleveraging process in other sectors through demand-supportive policies.

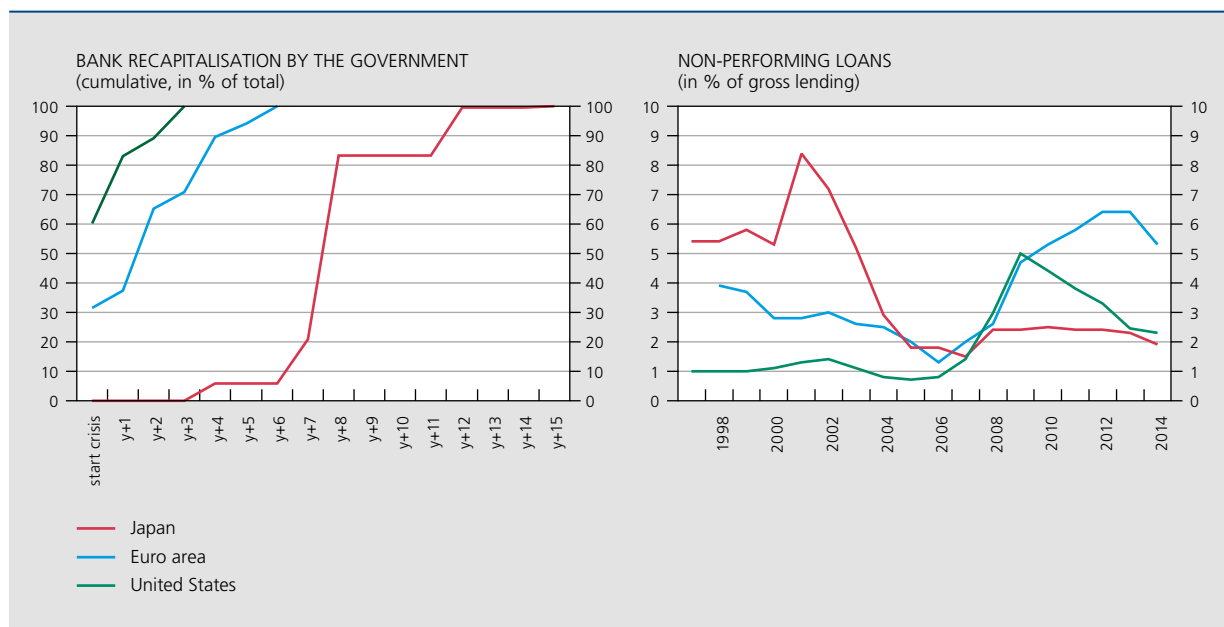
The emergence and bursting of a bubble in the property and equity markets invariably tend to hit the banking sector hard. In the early 1990s, both Japan’s regulator and its banks underestimated the extent of the problems (Hoshi and Kashyap, 2014) and it was not until the 1997 Asian crisis triggered a systemic banking crisis that both banks and the government were compelled to act. Recognition

of the problem of non-performing loans (NPLs), recapitalisation by the government, redrawing and effectively enforcing the rules, including an efficient resolution framework – all ultimately helped to resolve the systemic banking crisis. The damage to the real economy had been done by the ongoing problems vexing the banking sector, causing a lengthy spell of economic stagnation.

The 1991-1996 period was characterised by regulatory forbearance and denial of the problems, for which Nelson and Tanaka (2014) cite three reasons. First, the total extent of non-performing loans was underestimated, as banks themselves reported these loans to the regulators applying a very narrow definition of non-performing loans as well as valuation principles based on historical losses and defaults. Secondly, the key players underestimated the macroeconomic impact of the financial crisis: both the banking sector and the regulators assumed that the economy would quickly turn around and make the problem fade away. Lastly, Nelson and Tanaka feel that the legal framework was not equipped to facilitate prompt recapitalisation or resolution of failing banks.

Against this backdrop, the banks continued to roll over loans to Japanese corporations, and lending to the construction and property sectors climbed right up to 1998. This phenomenon of putting off the recognition of losses by continuing to lend to essentially failing companies – which were by now looking at a highly reasonable interest

CHART 3 GOVERNMENT RECAPITALISATION AND NON-PERFORMING LOANS



Sources: Eurostat, Bank of Japan, US Treasury, World Bank, Thomson Reuters Datastream, own calculations.

burden, thanks to the Bank of Japan's easy monetary policy – is known as 'evergreening' and 'zombie lending' (Cabellero *et al.*, 2008). The whole process was reinforced by the high degree of cross-shareholdings between banks and relationship-based shareholdings (averaging 40 % in 2003) between companies and banks (IMF, 2003). All of this merely fed into persistently slow economic growth, as it left fewer funding opportunities for more profitable companies or projects.

The Asian crisis of 1997 triggered a systemic banking crisis as a number of key financial institutions went bust and the interbank market dried up. Post-crisis, the government embarked on a recapitalisation of the country's banks and devised policies to address non-performing loans, with an in-depth asset review producing wider recognition of NPLs and compulsory provisioning to absorb any losses. It was not until 2001 that Japan launched a comprehensive strategy (Matsubayashi, 2015), built on two key elements: making it compulsory for banks to sell on NPLs within three years, recognise their losses or demand repayment through the courts – more often than not resulting in the bankruptcy of the borrower/company; and selling any remaining non-performing loans to the Resolution and Collection Corporation (RCC), a subsidiary of the state-owned Deposit Insurance Corporation. RCC's remit was not just to acquire the NPLs but also to restructure the borrowers, many of them being construction and property companies.

Chart 3 shows the banking regulator's late response which had a devastating effect on the real economy. Following an early and limited recapitalisation of the *jusen* in 1995, banks were not recapitalised by the Japanese government until 1998-1999. Such recapitalisation has often proven necessary to rebuild confidence in the banking sector and enable it to fully resume its intermediation role. Non-performing loans peaked in 2001 as the regulators were forced to recognise them. The resolution obligation eventually paid off and non-performing loans stabilised at acceptable levels from 2004.

Unlike the overcautious Japanese, when their time came the Americans moved at speed to recapitalise their banking sector and wind down non-performing loans. The US stress tests under the Supervisory Capital Assessment Program (SCAP) in the spring of 2009 proved decisive and the swift policy response allowed the banking sector to slot back into its intermediation role relatively quickly. Euro area Member States took a more gradual approach to their bank recapitalisations than the United States, but acted more forcefully than Japan. A crucial step was the comprehensive assessment of banks' assets in the run-up to the single supervisory mechanism (SSM). Not until 2013

did the share of non-performing loans in the euro area's total bank loan books start shrinking, though.

1.2 Disinflation and deflation

The overheating of the Japanese economy and the surge in asset prices towards the end of the 1980s did not bring sharply higher inflation – a situation that persuaded the Bank of Japan to continue its expansionary monetary policies well after the emergence of the bubble and not to raise its discount rate until May 1989, its first policy rate increase in nearly nine years.

After the bubble burst, Japan went through a period of gradual disinflation in the early 1990s. Halfway through the decade – in 1995 according to the GDP deflator and in 1999 according to the consumer price index – disinflation turned into moderate deflation. With the exception of 2008, when global energy and food prices surged, inflation in Japan did not move back into positive territory until the end of 2013.

1.2.1 Determinants of low inflation: negative output gap and falling inflation expectations

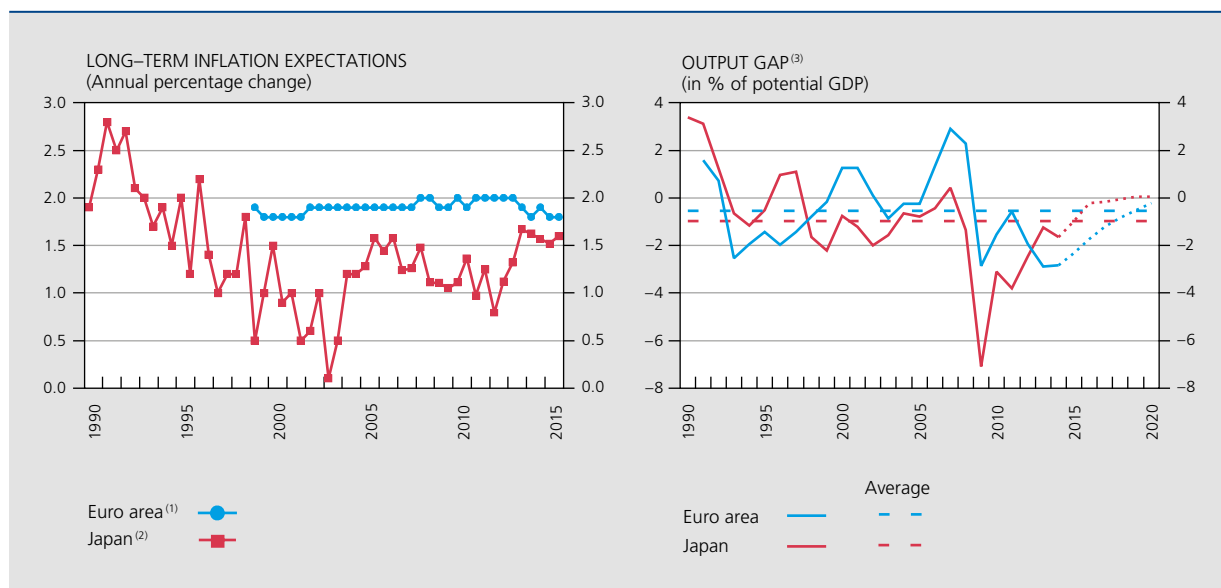
To study the factors underpinning the long period of deflation in Japan, we have drawn on the theoretical analysis framework of a forward-looking new-Keynesian Phillips curve (see Galí, 2008). This specific Phillips curve currently holds sway in monetary theory and would appear – for Japan at least – to offer an empirically sound description of aggregate price dynamics (see Sanchez, 2006 or Muto, 2006). The standard forward-looking new-Keynesian Phillips curve postulates that current inflation (π_t) depends on inflation expectations ($E_t\pi_{t+1}$), on a proxy of real marginal costs such as the output gap (Gap_t) and on a number of other factors such as external price shocks (u_t):

$$\pi_t = \beta E_t \pi_{t+1} + \alpha Gap_t + u_t$$

This relationship reflects the idea that current inflation is largely determined by corporations' price-setting behaviour, which depends on their expectations for demand and future costs as well as their marginal costs, in particular wages. Marginal costs, in turn, depend on where an economy is in its business cycle, as reflected in the difference between real and potential production. The higher the inflation expectations, the higher today's inflation. And the higher real output is in relation to potential output, the more marginal costs will tend to increase.

Long-term inflation expectations for Japan – i.e. those with a horizon of between six to ten years – gradually

CHART 4 CAUSES OF DISINFLATION AND DEFLATION IN JAPAN



Sources: Consensus Economics, Thomson Reuters Datastream, IMF, ECB.
 (1) Five-year inflation expectations, derived from the ECB's Survey of Professional Forecasters (SPF).
 (2) Inflation expectations for a six to ten-year horizon, published by Consensus Economics.
 (3) Projections from 2015.

edged down between the early 1990s and the first half of the 2000s. After hitting absolute lows of nearly 0% in April 2003, they picked up again a little to move back between a range of 0.8% to 1.7%. As this article will explain, the downward trend in inflation expectations in Japan in the 1990s was mainly due to monetary policy. Unlike Japan in this review period, the euro area has been looking at extremely stable inflation expectations since 1999, moving in a very narrow range of between 1.8% and 2%.

Like inflation expectations, the Japanese output gap contracted sharply in the early 1990s, moving into negative territory mid-decade and staying predominantly negative since then. No consensus explanation for these developments has emerged, though two specific factors have been put forward. The first is a straightforward one: that Japan was repeatedly buffeted by demand shocks: the collapse of the asset price bubble in the early 1990s, the financial crisis in Japan and the Asian currency crisis in 1997, the dot.com bubble in the United States in the early 2000s, and the great recession in 2008.

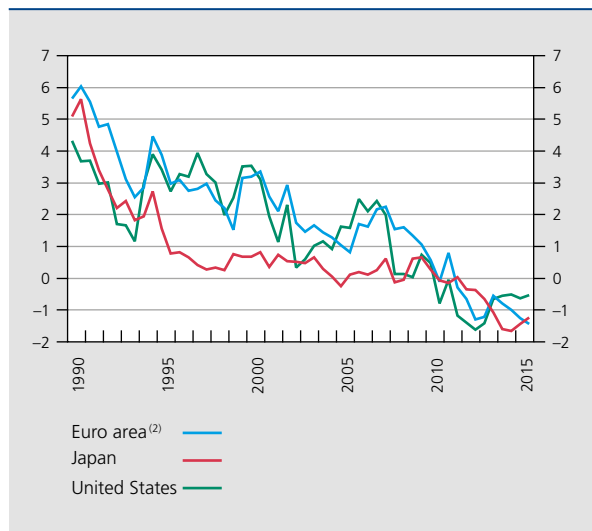
The second factor is the fall in the real equilibrium interest rate, which was accompanied by a contraction in the working age population (Ikeda and Saito, 2012) and the decline in potential output (Watanabe, 2012, in Nishizaki *et al.*, 2014). This lower equilibrium interest rate is said to

have prevented the central bank from pursuing monetary policies that were sufficiently accommodating to help stabilise production around its potential level. Constrained by the zero lower bound on nominal interest rates, the central bank cannot keep lowering policy rates to levels sufficiently below the real equilibrium interest rate to bolster economic activity. Meanwhile, its stimulation capacity is restricted even more by falling inflation expectations and actual inflation (see above), effectively causing real interest rates to rise. Quite possibly, a deflationary phenomenon may become self-reinforcing and set off a deflationary spiral.

Ever since the bubble burst, the Bank of Japan has found it difficult to engineer a sufficiently expansionary course on five-year real interest rates, generally agreed to be the most relevant to consumption and investment decisions. Compared with the monetary stimulus provided by the European Central Bank or the Federal Reserve in the context of the great recession, the Bank of Japan's monetary stimulus programme since the mid-1990s has in fact been relatively moderate despite comparable – and sometimes even lower – nominal interest rates.

Other contributory factors to disinflation and later to deflation in Japan since the early 1990s included the removal of customs barriers, which boosted competition in the Japanese goods and services markets (Kamada

CHART 5 FIVE-YEAR REAL INTEREST RATES⁽¹⁾
(in %)



Sources: Consensus Economics, Thomson Reuters Datastream.

(1) Nominal interest rates deflated by average inflation expectations in the period.

(2) Data for Germany before 1999. Average yields for the five most important AAA-rated countries in the euro area at 30 June 2013 (Germany, Finland, France, the Netherlands and Austria) from 1999.

and Hirakata, 2002), cheap imports from emerging Asian economies such as China, and the appreciation of the yen against other major currencies, the US dollar in particular (Ito and Mishkin, 2006).

1.2.2 The role of monetary policy

Milton Friedman famously observed that “inflation is always and everywhere a monetary phenomenon”, and the medium- to longer-term price level dynamics typically reflects monetary policy. This would suggest that deflation is primarily caused by inadequate monetary policies. More specifically, the underlying decline in inflation expectations may be theoretically attributed to the reduction of the inflation target by the central bank, or, alternatively, to the lack of credibility of that inflation target (Nishizaki *et al.*, 2014).

In the case of Japan, where an inflation target was adopted only very recently, falling long-term inflation expectations and persistent deflation would appear to be mostly down to the Bank of Japan not being forceful and credible enough in combating deflation. This lack of confidence is believed to reflect the Bank of Japan’s interpretation of price stability, its communication strategy and its implementation of monetary policy. The Bank of Japan was granted independence at the end of the 1990s, which is also believed to have contributed to its relatively conservative attitude.

No definition of price stability

In the mid- and late 1990s, the Bank of Japan took a critical attitude towards the various price indices that were available and was ambiguous about the way it measured and interpreted price stability. Despite being urged to adopt an inflation target by politicians and academics alike (Ito and Mishkin, 2006), Japan’s central bank would have none of it, even though this has proven to be instrumental in anchoring inflation expectations.

In May 1994, for instance, BoJ Governor Yasushi Mieno argued that it was not advisable to single out any specific price index, while in 2000 Governor Masaru Hayami defined price stability as neither deflationary nor inflationary, arguing that it was inappropriate to put a number on it (Nishizaki *et al.*, 2014). Eventually, in March 2001, the Bank of Japan announced it would assess price stability on the basis of the consumer price index excluding fresh food, and that it would adopt accommodating monetary policies until the growth of this index stabilised at a level above zero (Ito, 2004). No further details were given. By 2006, the Bank of Japan finally explained that it would interpret price stability in the medium and long term as an increase in the consumer price index (CPI) of between 0 and 2%, and target a median of 1%. After adopting a clearer objective of 1% in February 2012, it was not until January 2013 that the Bank of Japan announced an overall inflation target of 2%.

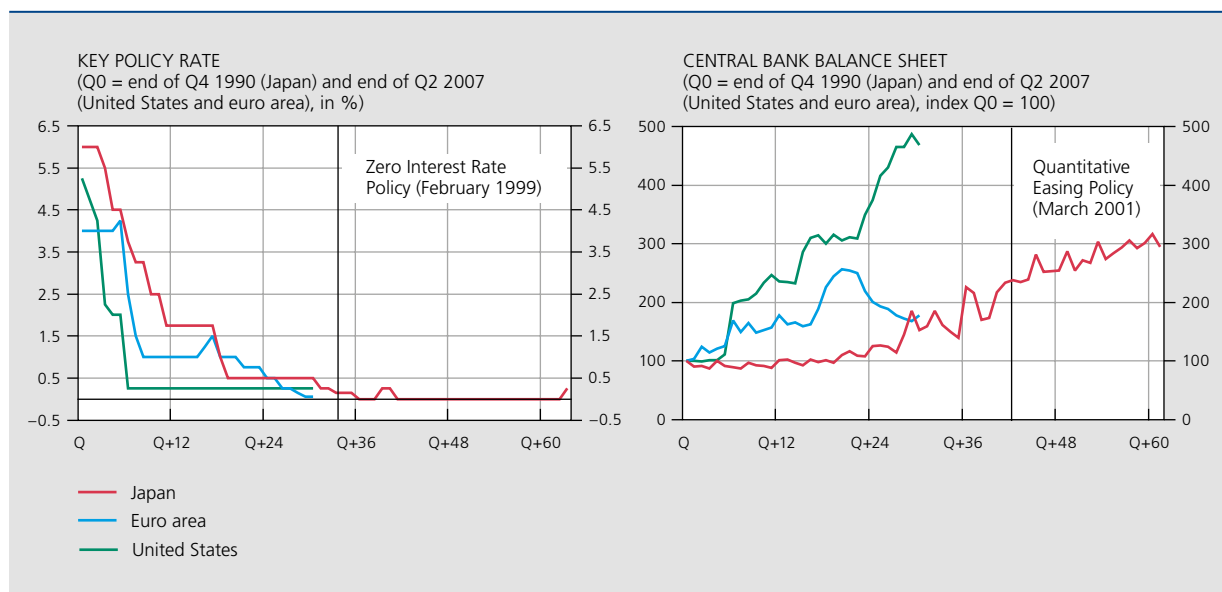
Ambiguous communication

Although committed to price stability and seeking to dispel the fear of deflation, the Bank of Japan was not always unequivocal about its ability or determination to combat it. In the early 2000s, Governor Masaru Hayami even denied that Japan was in a state of deflation, while at the same time pointing out that deflation could be a good thing as it was the result of technological innovation and progress in the distribution networks. Dismissing the need for an inflation target, he insisted that inflation was not the solution to the economic challenges facing the country (Hayami, 2000). The Bank of Japan long balked at the introduction of unconventional monetary policy measures and did not join the fight against deflation until very late. The game-changer would appear to have been the appointment of Governor Toshihiko Fukui, who succeeded Governor Hayami in 2003 (Ito, 2004).

Monetary policy measures

In 1991, the Bank of Japan adopted accommodating monetary policies at a time when land prices had started to fall but inflation still exceeded 3%. However, monetary

CHART 6 POLICY RATES AND CENTRAL BANK BALANCE SHEETS



Source: Thomson Reuters Datastream.

policies after the collapse of the bubble are generally agreed to have been rather restrictive (Ito and Mishkin, 2006).

The central policy rate was lowered from 6% in June 1991 to 0.15% in February 1999, the month in which the Bank of Japan adopted its zero interest rate policy (ZIRP). However, as early as the spring of 2000, Governor Hayami announced that the zero interest rate policy was about to end, and in August 2000 the Bank of Japan effectively raised its target interest rate by 25 basis points after having first reduced it to zero, despite persistently negative inflation and fierce resistance from politicians and academics (Ito and Mishkin, 2006). In March 2001, following a further deterioration in economic activity, the Bank of Japan resumed its zero interest rate policy. It is not clear whether Japan's central bank should have adopted a zero interest rate policy sooner; but the fact is that policy rates were cut much more swiftly in the euro area and the United States during the recent crisis.

Also in March 2001, the Bank of Japan embarked on a policy of quantitative easing (QE), although it had long resisted any type of additional monetary easing (Ito and Mishkin, 2006). It stopped focusing on the overnight rate, but rather opted to target the net current accounts it held for commercial banks and started buying both government and private sector-issued securities. The Bank of Japan may have expanded and extended its quantitative easing policy several times, but the programme always

remained relatively modest. Between March 2001 and March 2006, the month in which it ended QE, the Bank of Japan increased its balance sheet by a mere 25%. This compares with a Federal Reserve balance sheet that more than trebled between mid-2007 and mid-2012 against the backdrop of the great recession. As for the European Central Bank, it expanded its balance sheet by around 150% in the same period.

The role of independence

The Bank of Japan did not become independent and fully responsible for monetary policies until April 1998. On that date, it received its mandate to ensure price stability, whereas its previous remit had been to help maximise potential economic growth (Ito, 2004). Gaining independence appears to have set the Bank of Japan on a conservative course, which may have eroded its credibility on avoiding deflation. Late independence seems to have inspired in its officials a bias towards too low rather than too high inflation, and some even argue that independence came at the worst possible time (Ito and Mishkin, 2006).

Critics of Japanese monetary policy typically argue that more aggressive and coherent policies in the early 1990s could have nipped deflation in the bud or avoided it altogether. By contrast, its defenders believe that the Bank of Japan's measures actually precluded any further collapse in economic activity and the emergence of a deflationary spiral.

1.2.3 Avoiding a deflationary spiral

While deflation in Japan turned out to be a widespread and unexpected phenomenon, it remained moderate but persisted for a long time. This suggests that the Japanese economy has evolved structurally to a new equilibrium.

Widespread and unexpected

Japanese deflation affected a wide range of goods and services (Nishizaki *et al.*, 2014). As evidenced by the GDP deflator falling faster than the consumer price index, it was mainly domestic in nature and hardly reflected external shocks related to commodity price trends. Neither did it result from positive productivity shocks, which would have logically led to higher production growth. In fact, deflation was primarily down to weak aggregate demand, making it potentially malignant (Ito and Mishkin, 2006).

Another aspect of Japan's deflation that may have had macroeconomic repercussions was its unexpectedness. Neither before it emerged nor when it first reared its head in the mid-1990s or at the start of the 2000s did Consensus Economics' inflation expectations ever point to a lengthy period of negative prices.

An unexpected drop in general price levels adds to the repayment burden in real terms of debt with fixed nominal interest rates, and translates into a shift in purchasing power from debtors to creditors. Debtors typically show a greater propensity to spend than creditors, and shifts such as these can depress aggregate demand and feed into the deflationary trend. This phenomenon, with deflation getting in the way of repayment and becoming a self-reinforcing cycle, is labelled debt deflation (Irving Fisher, 1933). In a deflationary context eroding debtors' balance sheets, banks may also become less willing to lend, even more so if they are looking to wind down their own debts and see their asset values fall. The financial accelerator may then kick in and weaker balance sheets of economic agents prompt a deterioration of the financing conditions imposed on the latter group. This would normally happen when asset prices slump, but may be exacerbated by a fall in general price levels.

Although unexpected inflation of goods and services can, in theory, have a certain impact, there is little evidence that the unexpected deflation of goods and services added to Japan's macroeconomic troubles after the bubble burst or contributed to the economic stagnation of the 1990s. But even if it did, the economic repercussions of the higher Japanese debt in real terms do not compare to the Great Depression in the United States in the 1930s. Although a financial accelerator phenomenon seems to

have emerged in Japan, it would seem to be chiefly due to falling asset prices (Fushi *et al.*, 2005).

Subdued

Deflation in Japan has generally been below 1%. In view of the repeated shocks that hit the Japanese economy and the modest monetary policy impetus, legitimate questions can be asked about the long-term nature of the price falls and the absence of any deflationary spiral. The explanation breaks down into three elements.

A first key element is the nominal flexibility of the Japanese economy and, more specifically, of wages, typically more rigid than prices. Japan has displayed a downward flexibility of nominal wages that allows real wages to adapt at a time of deflation, with corporations able to sustain their margins without cutting staff numbers. As employment is not affected, purchasing power is better maintained at the macroeconomic level, which in turn supports aggregate demand and curbs the negative output gap.

In general, most countries display a downward rigidity in nominal compensation (Kuroda and Yamamoto, 2014), typically explained by the negative effect of nominal wage cuts on workers' morale, a key element of productivity. In Japan, by contrast, nominal wages have been fairly flexible since 1998, believed to reflect wage cuts in nominal terms for so-called regular employees coupled with the increasing share of non-regular employees in the overall workforce (Kuroda and Yamamoto, 2014). Such flexibility is also facilitated by the fact that regular employees receive a substantial part of their pay in the form of bonuses, which tend to be more flexible than wages (Ito and Mishkin, 2006). Nominal wage flexibility may well have kept Japan's unemployment rate relatively low, i.e. consistently below 5.5%.

A second element is weaker potential growth against a backdrop of a trend decline of population and, more importantly, its ageing, which has reduced the working age population over the past two decades. Of course, a lower working age population implies fewer workers in the economy and lower potential growth. All other things being equal, the negative output gap remained relatively subdued, relieving some of the pressure on prices.

A final element is the clear upturn in government consumption and sustained private consumption, both of which were supportive of aggregate demand in the context of a balance sheet adjustment. Sustained private consumption may seem odd in an environment of negative wealth effects after the bubble burst, but Japanese households apparently opted to save less. Meanwhile,

more government spending offered fundamental support against the significant falls in private sector investment that clearly depressed growth from the early 1990s. This element shows the importance of sound coordination of monetary and fiscal policies at a time of low inflation and monetary policy restricted to extra stimulus.

Prolonged

Deflation in Japan is a prolonged affair and has been a fact of economic life for over 15 years. In fact, it may well be argued that it has stopped being a temporary cyclical phenomenon and has taken on the guise of a fundamental economic development (Nakaso, 2014).

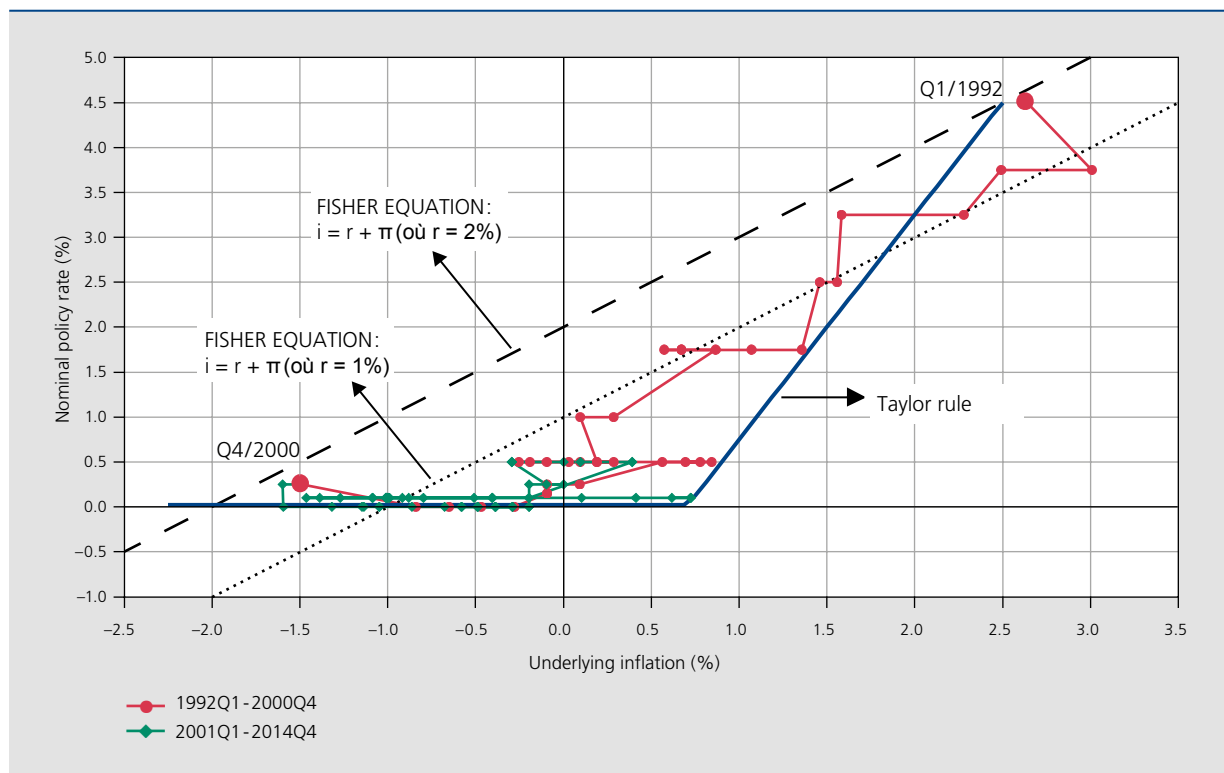
From this perspective, between the early 1990s and early 2000s Japan's economy went from an equilibrium of high nominal interest rates and relatively high inflation, to a new one of nominal interest rates close to zero and a deflationary environment, and has largely stayed around this new equilibrium since. Chart 7 is based on Bullard's analysis (2010), which suggests that the US economy was moving towards a similar deflationary equilibrium in the aftermath of the great recession. Bullard (2010) postulated a model around two possible equilibrium situations

for any economy: one in which inflation moves around the target set by the central bank and one in which inflation is negative, but nominal interest rates equal zero, i.e. a situation that also still ensures positive real interest rates.

The equilibrium points meet where the straight line representing the Fisher equation – which defines nominal interest rates as real interest rates plus the inflation rate – intersects with the curve reflecting the Taylor rule, which describes how monetary authorities adjust nominal rates in response to changes in the inflation rate. Around the inflationary equilibrium, the slope of the Taylor rule-derived curve is greater than the Fisher equation, as an adjustment of nominal rates causes a change in real rates. The Taylor curve becomes a horizontal line when a zero nominal interest rate is recorded: after this, it is no longer possible to respond to lower inflation by cutting policy rates.

At the top right equilibrium point, inflation has reached its target and there is no reason why nominal interest rates or the level of inflation would change in the absence of any shocks. Should inflation edge down relative to its target, the central bank might respond by lowering nominal interest rates more than proportionally. If it exceeds the

CHART 7 POLICY RATES AND UNDERLYING INFLATION



Sources: Thomson Reuters Datastream, own calculations.

target, nominal rates can be raised more than proportionally, and any temporary imbalances will thus be adjusted through changes in real interest rates. This more or less reflects the Japanese economy in the first quarter of 1992: nominal rates at around 4.5 % with inflation at 2.5 % and potential growth at 2 %.

At the bottom left equilibrium point, nominal interest rates have hit their lowest possible levels – the central bank has lost the ability to stimulate the economy any further – and inflation is way below target and turning negative. Whether it edges up or down at this stage, inflation will remain far removed from its central bank target and nominal policy rates will be kept at zero – in fact, monetary policy has become passive. As the effective real interest rate reaches equilibrium, the economy will still grow around its potential, albeit that this has now fallen in the wake of demographic and productivity trends. Monetary policy has thus proven to be neutral in the long term: with time, the growth of real variables decouples from that of nominal variables such as inflation or nominal interest rates.

The transition from the first to the second equilibrium would seem to take place when the slope of the Taylor rule curve dips below one. In that event, the central bank is no longer able to implement a proportional response to a drop in inflation below its target and the economy is more likely to switch to the second equilibrium. The

Bank of Japan's relatively cautious monetary policy may be interpreted as too subdued a response to low inflation outcomes, with the effective real interest rate not being lowered sufficiently or swiftly enough.

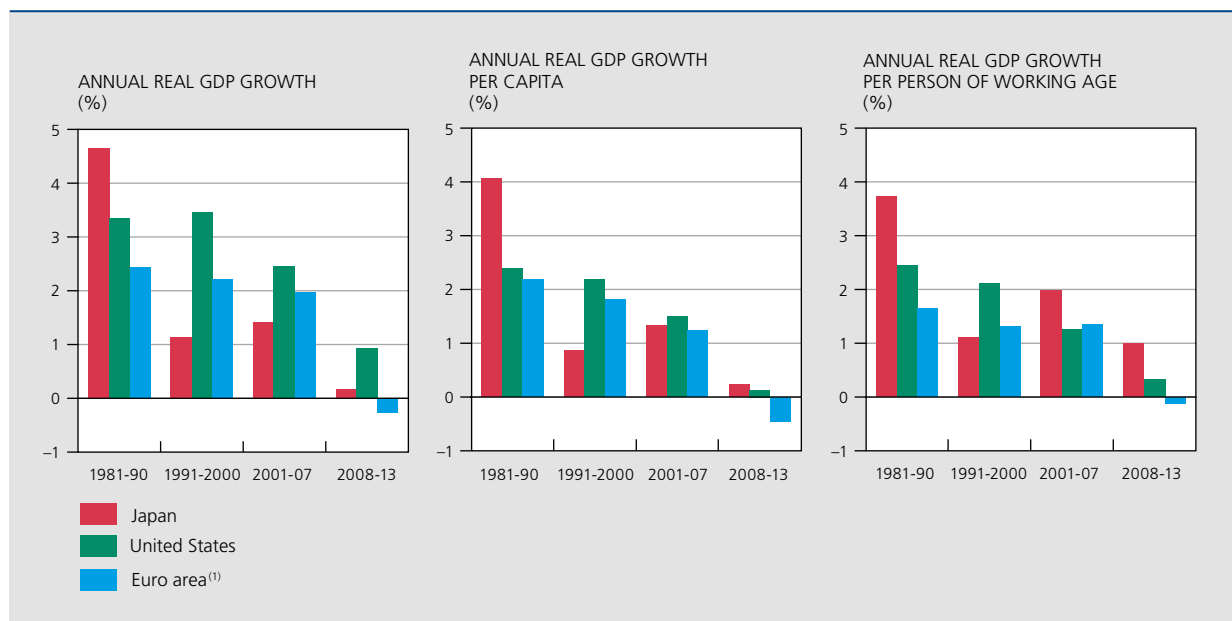
1.3 A new equilibrium: decent macroeconomic results but a fragile balance

As it turns out, then, real growth in the Japanese economy has more or less hovered around its potential level, suggesting that the new, slightly deflationary equilibrium reached in the early 2000s does not come at a cost. This begs two questions: why then are the past twenty-odd years after the bubble burst still referred to as the “lost decades” (e.g. Lipton, 2014)? And secondly: is this equilibrium stable and really free of cost?

Decent macroeconomic results

The “lost decades” term that has been used to describe the evolution of Japan's economy in the past twenty years can be traced back to the country's output gap remaining deeply negative since the early 1990s while economic growth was lower than in the United States or the euro area. However, a closer look reveals that, at least in part, “lost” is not quite the right adjective to use if we take into account the demographic trends in the archipelago.

CHART 8 REAL GDP GROWTH



Sources: OECD, own calculations.
 (1) Six key euro area economies: Belgium, Germany, France, Italy, the Netherlands and Spain.

Two relevant indicators of the economic performance of advanced economies are real growth per capita and, more specifically, real growth per person of working age. Real per capita growth provides some insight into the way the material living standards of a population are developing, while real output per person of working age offers information about the ability of an economy to use its production potential efficiently. The first indicator shows Japan to have performed worse than the United States and the euro area in the 1990s, but this stopped being the case in the 2000s. What is more, Japan's relative performance would seem to have improved since the great recession started in 2008. Japan also did less well on real growth per person of working age in the 1990s – particularly when compared with the United States – but appears to have done significantly better than the other two economies since.

As it turns out, the real story behind Japan's less-than-brilliant performance on real economic growth over the past two decades is demographic trends. Factoring these in, the "lost decade" description so easily used to describe the Japanese archipelago in the 1990s should be taken with a pinch of salt, while it is totally inapt for the 2000s. These findings tie in with our observation above that the economy has struck a new balance, marked by lower inflation but growth in line with its potential.

A fragile balance

Given the zero lower bound on nominal policy rates, a deflationary environment shackles a central bank and keeps it from stimulating economic activity and supporting inflation. This increases the danger that, when hit by a shock, an economy will slide into secular stagnation, in which economic growth is zero or sluggish as traditional monetary policies do not work (see NBB, 2015, pp. 50-52). Weaker economic growth in nominal terms also implies a greater risk to the sustainability of public debt, discussed later in this article. Against this backdrop, the equilibrium that has marked the Japanese economy since the early 2000s would appear fragile and potentially costly, even if it would seem not to come with any direct costs in real terms.

Theoretically, a range of macroeconomic and structural policy measures can help ward off the threat of secular stagnation. A first one is that the central bank sets an inflation target to pin down expectations and limit the risk of deflation. Central banks that already have an inflation target in place can increase their target if doing so does not erode their credibility. Non-conventional monetary policy instruments that can help contain long-term interest rates in the economy are a second course of action

– e.g. quantitative easing and forward guidance. A third way would be for a country to implement expansionary fiscal policies to support aggregate demand and reduce the negative output gap. Lastly, a country can implement structural reforms to bolster its growth potential. Such reforms may temporarily eat into aggregate demand and/or widen the negative output gap, but should boost growth in the longer term as economic resources are used more efficiently. Abenomics, the set of policies pursued by Japan's Prime Minister Shinzo Abe since 2013, comprises precisely these various elements.

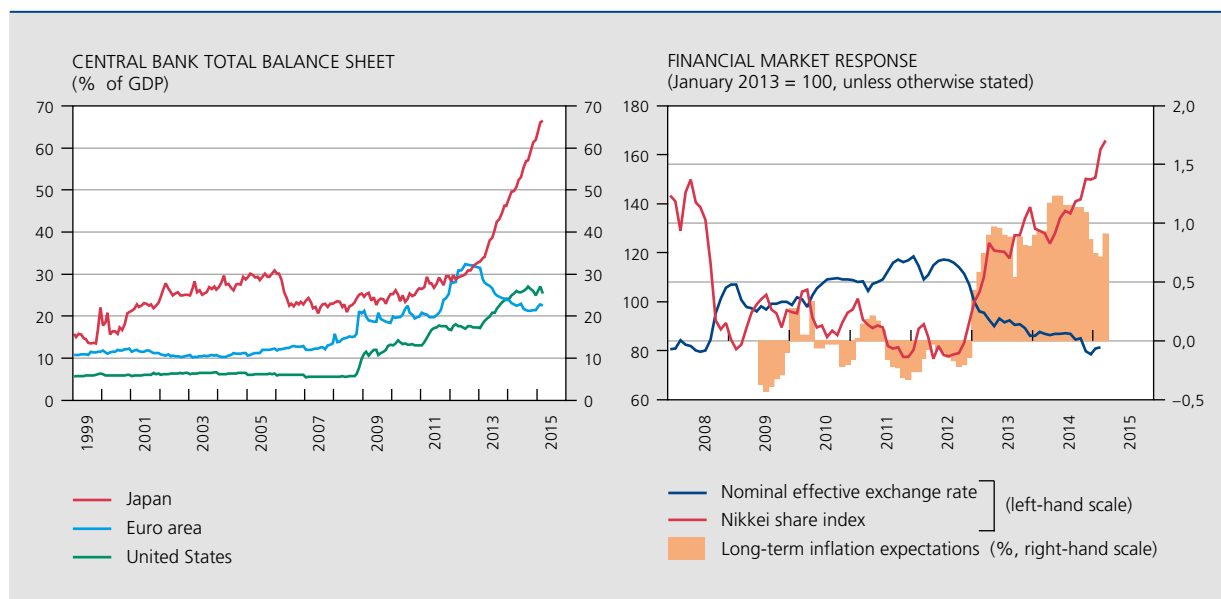
2. Abenomics

Abenomics, the economic programme launched in 2013 and named after Japan's Prime Minister Shinzo Abe, aims to end the protracted period of economic stagnation and deflation, while at the same time tackling head on the country's high and growing public debt. It breaks down into three 'arrows', the first of these relating to monetary policy and entailing a complete reversal in the monetary policy regime. In January 2013, the Bank of Japan introduced a 2% quantitative inflation target, and in April 2013 – after the appointment of Governor Haruhiko Kuroda – it launched its qualitative and quantitative easing (QQE) policy, its aim being to hit the inflation target by the end of 2015, meanwhile pushed back to the first half of 2016. The second arrow targets fiscal policy. While it is expansionary and supportive of growth in the short term, it should ultimately hone in on long-term fiscal consolidation, as sustainability of its public debt is one of the key risks facing the Japanese economy. Structural reforms make up the third arrow and are intended to support private sector investment and boost potential growth, dubbed the Japan Revitalisation Strategy by the Tokyo government in June 2013. A strategy update in June 2014 added an additional target of real GDP growth averaging 2% by 2022. This is the most crucial Abenomics arrow, as neither easy monetary policies nor expansionary fiscal policies on their own can get the economy onto a sustainably higher growth trajectory and ensure the sustainability of public debt.

2.1 Monetary policy

The 'first arrow' as set out in the Abenomics programme was a major departure from past monetary policies. The quantitative aspect of Bank of Japan's QQE programme aimed to double the monetary base within the space of two years, implying an increase of 50 000 billion yen annually; a figure raised in October 2014 to 80 000 billion yen per annum. These are massive liquidity injections into

CHART 9 BANK OF JAPAN MONETARY POLICY



Source: Thomson Reuters Datastream.

the economy – over 60 % of GDP at this juncture – when compared with the expansion of central bank balance sheets recorded in other countries during the global financial crisis.

On the asset side – the qualitative aspect – the Bank of Japan primarily purchased government bonds, but also included private sector assets such as commercial paper, corporate bonds, exchange-traded funds (ETFs) and real estate investment trusts (REITs). Meanwhile, the maturities of government bonds so held were extended from a little under three years to about seven years, pushing the entire risk-free yield curve downwards. An open-ended commitment to actually achieve the inflation target is key to the credibility of the QQE programme, implying that the asset purchasing programme will not end until the target is met. Such a commitment should prevent what happened in 2006, when the then QE programme was discontinued while inflation was still negative – a decision exposing Japan to a slide-back into deflation in the event of any additional significant negative demand shocks. This duly happened in 2008 when the financial crisis erupted.

As hoped, the initial effect on inflation expectations was upwards and real interest rates fell, also as government bond purchases by the Bank of Japan pushed down nominal interest rates. However, inflation expectations stabilised at a level below the 2 % target, showing up a credibility deficit for the central bank. Over the course of 2014, inflation expectations fell, as it became clear that a

VAT increase would trip Japan back into a recession and as oil prices continued to move smartly downwards. At the end of October 2014, the Bank of Japan therefore decided additional stimulus was required; the subsequent drop in real interest rates combined with the depreciation of the Japanese yen eased monetary conditions, boosting competitiveness. Meanwhile, Japan's QQE programme caused share prices rise significantly, and some market watchers wonder whether the higher equity prices adequately reflect expected dividends, given that there have been no major upward revisions of growth prospects.

2.2 Fiscal policy

Fiscal policy, the second 'arrow', combines stimulus in the short term with consolidation in the medium to longer term, the aim being to achieve a balanced budget and stabilise the debt ratio by 2020. The initial phase in the country's fiscal consolidation was the increase in VAT rates, in two increments. The first of these, from 5 % to 8 %, took place in April 2014, and was immediately followed by an economic recession – a clear sign of the first key challenge in fiscal policies, i.e. reconciling the proposed fiscal consolidation with the achievement of the 2 % real growth target. The Japanese government handled this technical recession by providing additional fiscal stimulus at the end of 2014 and by deferring the second VAT increase (up to 10 %), jeopardising the proposed balanced budget by 2020.

The biggest challenge facing Abenomics and the Japanese economy in general is the sustainability of public debt. Despite the size of this debt, interest charges have remained relatively subdued thanks to massive purchases of government securities by the Bank of Japan and a persistent savings surplus in the private sector. That said, the sheer size of its public debt makes Japan vulnerable to any increases in interest rates. If Abenomics – with its inflation and real growth targets each at 2% – succeeds, an increase in nominal interest rates and interest charges is on the cards. The OECD (2015) simulated a range of scenarios in which the Japanese government does or does not implement additional cost-cutting measures to offset higher interest charges and in which both real growth and inflation are up. Simulations assuming that the Japanese government does not introduce any additional fiscal consolidation measures and that nominal growth averages 2.75% point to a surge in public debt to 400% of GDP by 2040. Interest rates would go up to 7% in that year to reflect high risk premiums. If counteracted by additional fiscal consolidation to the tune of around 7% of GDP – e.g. a VAT increase from 8% to 22% – the debt ratio would stabilise at today's steep levels or fall to 122% of GDP by 2040, depending on average nominal growth.

The key factors that have so far supported the sustainability of Japanese public debt are the home bias of Japanese investors and the private sector's savings surplus, which ties in with the current account surplus and which has led to a significant positive net international investment position.

Around 90% of Japanese government debt is held domestically. The economic literature has been at pains to adequately explain this 'home bias', i.e. that investors are willing to accept lower returns on domestic assets even risk-adjusted. Explanations suggested are aversion to exchange rate risks and prudential capital requirements, domestic government bonds being assigned low to no risk weightings (Hoshi and Ito, 2014). The bulk of Japanese government debt is held by domestic financial institutions (banks, insurers and pension funds), and the recent contraction of their share is virtually completely matched by the asset purchasing programme run by the central bank, which predominantly buys longer-dated issues. Greater – albeit still limited – external ownership since 2007 mainly reflects an interest in short-dated government paper (<1 year) as part of a flight to safety, after other governments also started issuing short-dated instruments at similarly low yields (Horioka *et al.*, 2013).

The savings behaviour of the Japanese in the past two decades has resulted in significant wealth creation, also

percolating through in a robustly positive net international investment position (at 74% of GDP in 2013). Recently, some shifts in savings behaviour have emerged that may undermine this excellent position from the perspective of public debt sustainability. In the past few years, Japan's corporations have been the main contributors to the private sector savings surplus, while the household savings ratio has fallen sharply and recently even dipped into negative territory as a percentage of disposable household income as a result of population ageing and cyclical factors such as the drop in real wages. In fact, to boost economic growth, corporations should scale down their savings surplus in favour of investment or higher wages. From a different perspective, the current account surplus is shrinking due to the trade deficit, which only partly reflects higher energy imports after the Fukushima nuclear disaster. As long as the current account balance is in surplus, marginal buyers of newly issued government debt can be residents – which they are very likely to be given the home bias already noted. This set-up might be jeopardised if the current account balance shrinks further.

2.3 Structural policy

The third and most important arrow in the Abenomics programme is the implementation of structural reforms. The demand-stimulating first and second arrows (monetary and fiscal policies) are expected to serve as an impetus to drag the Japanese economy out of the deflationary equilibrium it has been languishing in for over a decade. Whether or not the country will manage to slot into a sustainably higher growth path will depend on the effective implementation of structural reforms and how these benefit the potential growth of the Japanese economy in the medium to longer term. Structural reforms may also bring short-term rewards, as the prospect of higher productivity and higher incomes may spark extra investment and household spending (ECB, 2015).

The structural reforms under the Japan Revitalisation Strategy cover a wide range of areas: health care, agriculture, trade agreements, corporate governance, labour market, social security, pensions, tax reforms, energy and electoral reform. The main challenges facing the Revitalisation Strategy include a decline in the effective labour supply, Japan's further integration in the global economy and increasing productivity.

2.3.1 Curbing the fall in effective labour supply

In Japan, the working age population has been shrinking since the mid-1990s. This trend is expected to continue in

the next few decades, and at an even faster pace than for the population at large, as the population ages faster and the dependency ratio shoots up. Put in numbers, the total population should contract from 127 million people today to less than 100 million in 2050 and the working age population looks set to fall from 78 million to 50.5 million in the same period.

Japan could slow the decline by encouraging more women to enter the workforce. If the activity rates of the male and female working populations, currently at 85 % and 66 %, remained at their 2014 levels, the total working population would fall to 38 million in 2050 compared with 59 million today. The activity rate is already high for men, so raising female workforce participation is the only way to put a brake on the decline. Were the female activity rate to rise by 1 percentage point per year to today's percentage for men, the fall in the total working population would slow to 43 million.

An important reason for Japanese women's low workforce participation is that less than 50 per cent return to work after giving birth, so the government's Revitalisation Strategy envisages an increase in the number of childcare places. What is more, many studies show an increase in the rate of births wherever more childcare facilities are available. Japanese women may also be encouraged to return to work if the government revises current personal income tax rules granting households sizeable tax relief for non-working spouses.

Another way to hold the working population steady is to relax the rules on immigration. Between 2001 and 2011, the number of foreigners as a percentage of the Japanese population merely inched ahead from 1.4 % to 1.6 %, while corporate surveys already reveal labour shortages. However, the Revitalisation Strategy does not identify any quantitative criteria for migration. Raising the employment rate for older employees may also make an important difference, as countless Japanese corporations currently impose a compulsory retirement age of 60, often in keeping with age-based pay scales.

2.3.2 Japan's integration into the global economy

Whereas in the 1980s Japan was right at the frontier of global technology and enjoyed a competitive edge, this is no longer the case. Broader measures of competitiveness such as the international competitiveness indicator of the International Institute for Management Development (IMD) put Japan in 27th place in 2012 (out of 59 countries), down from 1st place between 1989 and 1993. Over the past two decades, Japan has seen its share of world trade – as measured by exports – fall from 10 % to 4 %,

while its terms of trade have also worsened significantly as its export prices have been hit by competition from emerging Asian countries.

The aim of Japan's Revitalisation Strategy is to conduct 70 % of its total trade with countries with which it has Economic Partnership Agreements; its 14 agreements currently account for some 25 % of total Japanese trade. The country is looking to close a new free trade agreement – the Trans-Pacific Partnership – as well as additional agreements with key trading partners such as the United States, China and the European Union. The services sector, for one, offers plenty of scope for international opening-up and for positive productivity effects as a result. Importantly, protection of the agricultural sector is being relaxed significantly for the first time ever.

Further freeing up trade should also attract foreign direct investment. Japanese companies may boast positions across the world, but the country's domestic stock of foreign direct investment is one of the lowest in the developed economies (less than 4 % of GDP, compared with an OECD average of 35 %). Abe's Revitalisation Strategy is looking to double such inward investment by 2020. Foreign companies cite a number of obstacles for foreign direct investment into Japan: low M&A levels, high corporation tax, an unclear regulatory framework, high employment protection and rules hampering the immigration of foreign workers (European Business Council in Japan (EBC), 2014).

2.3.3 Increasing productivity

Aside from opening up the Japanese economy to global competition, the Revitalisation Strategy also aims to boost productivity by improving the corporate governance framework and aligning it to standard OECD practices. Reducing cross-shareholdings and encouraging/imposing the inclusion of foreigners in management teams and boards are two such changes.

Contrary to the oft-cited allegation that all Japanese are middle class, inequality has risen sharply in the past 30 years (Aoyagi *et al.*, 2015). The labour market in Japan is increasingly a two-track one, with highly protected employees on regular contracts and 'non-regular' employees on the other track. The latter group's share of the labour market has grown from 20 % in 1980 to 35 % in 2013, and consists mostly of women and older workers. In addition to significant wage differentials – they typically earn between one-third and a half less than regular workers – these non-regulars enjoy less job security, fewer social security benefits and less training, which seriously harms their labour productivity.

3. Lessons for the euro area

This final section reviews a number of lessons that may be drawn from the Japanese experience of the past 25 years and that might benefit the euro area. Three key conclusions are immediately obvious: that it is better to prevent financial crises rather than to cure them afterwards; that inflation expectations need to remain firmly anchored, and that the authorities should move promptly and in a coordinated fashion while focusing on both supply and demand. Japan's reality has also illustrated that the cost of deflation reflects the specific features of an economy, and in particular its nominal flexibility.

Crisis prevention rather than cure

Nearly seven years after the great recession took hold in the United States and the euro area, it has become painfully clear that recessions sparked by financial crises last for a long time and run deep, another case in point being Japan in the 1990s. Closer investigation shows that these are no isolated instances: Taylor (2015) finds that recessions following financial crises tend to be deeper and more protracted than recessions resulting from other shocks.

It may sound self-evident in today's world that it is important to prevent a financial crisis. However, it would seem that policy-makers had learned little from the events in Japan, which had largely proved how damaging the repercussions of a financial bubble bursting are.

In the past couple of years, both the European and the Belgian institutional frameworks have been expanded, with a clear shift in emphasis to the macroprudential aspects of supervision: regulators are not just there to ensure the health of the individual financial institutions, they also need to guard the systemic aspect of financial stability. New institutions have been put in place to oversee the implementation of macroprudential policies: at European level, the European Systemic Risk Board (ESRB) has been established and the ECB's mandate under the single supervisory mechanism (SSM) has been expanded, and the NBB has been tasked with macroprudential policy at the domestic level. This enhanced focus on the financial system at large should help avert future financial crises and mitigate their costs.

The Japanese experience also shows that any financial crisis, if it cannot be avoided, requires a very rapid restructuring of the financial sector so as to enable it to fully play its financial intermediation role. In Japan, the lack of bold action by the authorities to resolve the problems in the banking industry likely caused the crisis to drag on. Banks in the euro area were recapitalised much more quickly and

the restructuring of its banking sector entered a crucial phase by the end of 2014: the release, in October 2014, of the findings of the comprehensive assessment of the balance sheets of the major euro area banks was crucial to speed up the recapitalisation of the sector.

Keeping inflation expectations firmly anchored

The Japanese experience shows that once deflation becomes embedded into an economy's DNA, it is difficult to combat. The Bank of Japan did not get around to setting an explicit inflation target until January 2013 and its communications regularly caused doubts about its will and even its ability to guarantee price stability. For a long time, it also dragged its feet about any further easing of its monetary policy. This is not a good way to keep inflation expectations firmly anchored – a crucial prerequisite if a central bank is to influence real interest rates and readjust its monetary policy course.

The Japanese situation is in sharp contrast with conditions in the euro area. The Eurosystem was given a mandate focused on price stability, which the ECB Governing Council followed up with a precise definition of being an increase in the harmonised index of consumer prices (HICP) of below, but close to, 2% in the medium term, a target that serves as a benchmark to firmly anchor inflation expectations. In the recent crisis, the Eurosystem consistently referred to its mandate and objectives to ensure price stability in the medium term, but although it cut key interest rates faster than the Bank of Japan in its day, it was less quick to respond than the US Federal Reserve.

In the area of unconventional monetary policy measures, the Eurosystem proved more willing to work its balance sheet at the time of the great recession than the Bank of Japan had been in its time of crisis. In the early stages of the crises – i.e. while the banking troubles raged and at the start of the sovereign debt scare – the Eurosystem used its balance sheet to preserve the transmission mechanism of its monetary policy. The euro area's banks were able to tap the central bank for as much liquidity as they needed, provided they had adequate collateral, and the balance sheet mainly moved in keeping with the demand for refinancing from the Eurosystem's counterparties. Since the end of 2014 and more specifically since March 2015, the Eurosystem has been working its balance sheet more proactively to help adjust the monetary policy stance against the backdrop of easing financial tension, the fall in inflation and inflation expectations, and the lower bound that key interest rates have now reached. Every month since March 2015, the Eurosystem has been purchasing €60 billion worth of government bonds, ABSs and covered bonds in the markets and intends continuing

to do so until September 2016, and in any case until the Governing Council sees a sustained adjustment in the path of inflation that is consistent with its target. Clearly, the Eurosystem has demonstrated its commitment to achieve its objective.

The Japanese experience suggests that in the absence of a swift and forceful response in the early stages, extreme measures will be needed at a later date to get inflation expectations back on track, as evidenced by the expansion of the Bank of Japan's balance sheet, which accounted for nearly 70% of GDP in the recent past. And the story of the United States also highlights the importance of swift and decisive action: the country that moved promptly on monetary policy, even before inflation expectations could be said to be adrift, has since been able to discontinue its asset purchases and is generally expected to raise interest rates in the near future. The Eurosystem's current policies would appear to be a mix of prevention and cure: long-term inflation expectations have come down somewhat, but not to the same extent as observed in Japan.

Cost of deflation: reflecting the features of the economy

Japan may have gone through a lengthy period of deflation, but it never did get sucked into a deflationary spiral. Its unemployment rate remained low – when compared with the euro area at least – and its per capita GDP performance has been comparable or even better than that in the euro area or the United States since the 2000s. All this would seem to suggest that a period of low inflation or deflation does not necessarily involve high real costs (see Borio *et al.*, 2015), corroborating the idea that monetary variables – money supply, nominal interest rates – are neutral in the long term and that real variables are determined by real factors such as the preferences of economic agents, total factor productivity and population growth.

Even though monetary variables are neutral in the long term, it is generally assumed that these do have a real short-term impact, reflecting the fact that a large number of prices in the economy (of products and services, but also of labour or debt) are set in nominal terms over a fairly lengthy period. Shocks affecting the general price level therefore cause undesirable – i.e. inefficient – changes in the relative prices of individual products and services, of labour and of nominal debt.

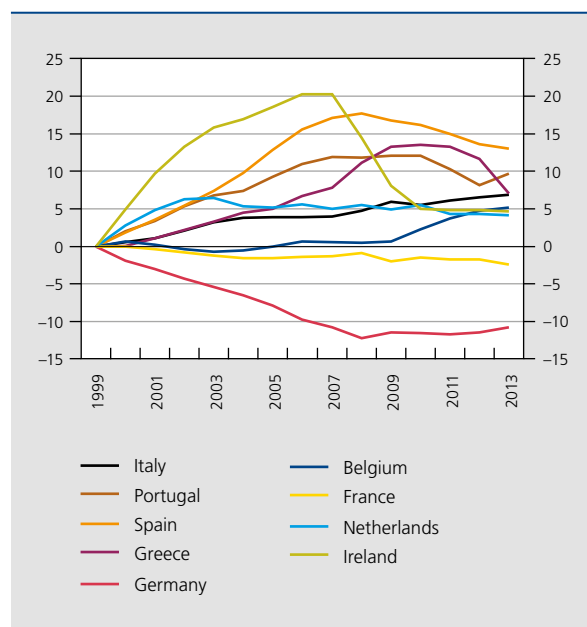
The actual impact of these shocks depends on the flexibility of the nominal variables in the economy: the more flexible prices and nominal wages are, and the greater

the margin of variation of nominal interest rates to absorb shocks, the smaller the effect of any changes in general price levels on real variables (NBB, 2015). This is a crucial aspect of any assessment of the possible repercussions of an unforeseen period of disinflation.

When it comes to nominal wages, the institutional wage-setting framework in Japan appears more flexible than in the euro area (Du Caju *et al.*, 2009). From 1998, wages in Japan have displayed fairly strong downward flexibility in contrast to the relative downward rigidity that euro area wages continue to show in the current low inflation environment (IMF, 2014). This is particularly true for a number of countries that were hit hard by the crisis – Spain comes to mind here, although others such as Ireland have fared better. ECB research has found that corporations in the euro area were generally reluctant to reduce wages during the great recession and opted instead for the redundancies route (Fabiani *et al.*, 2015). As a result, the real cost of disinflation or deflation – particularly in terms of rising unemployment – would be higher in the euro area than it is in Japan.

And there is more to the downward nominal wage rigidity in the euro area: judging by relative price trends, competitiveness in quite a few countries deteriorated rapidly and sometimes also strongly in the run-up to the crisis. With a monetary union in place, these economies now have to cut their relative nominal prices and

CHART 10 GDP DEFLATOR
(cumulative difference from the euro area average since 1999)



Source: Thomson Reuters Datastream.

wages if they are to turn the tide, but find themselves up against the downward nominal rigidities of these variables. If inflation stays low in the other euro area countries as well, the danger is that adjustments will proceed only very slowly. A rapid recovery in competitiveness of countries that recorded excessive increases in relative prices and wages before the crisis would accelerate if the other countries report higher inflation, whereas average inflation in the euro area would stay close to 2%. A positive rate of inflation close to the ECB's target contributes to the smooth functioning of the Economic and Monetary Union, as this helps to correct any imbalances and has its part to play in managing debt. It should be noted that the high external debt levels of various countries in the euro area also mean that a period of low inflation would hit the euro area harder in real terms than it did Japan, which enjoys a net external creditor position. This is particularly true for the most highly indebted countries, which are most in need of a downward adjustment of their relative prices and wages. The fairly close correlation between the net international investment position and underlying inflation developments in the countries of the euro area (see chart 11) captures the adjustments currently taking place. The more countries that need to boost their competitiveness are compelled to adjust their wages and prices downwards, the more the real value of their debt will tend to rise and the bigger the risk that a drop in relative prices will have negative real effects.

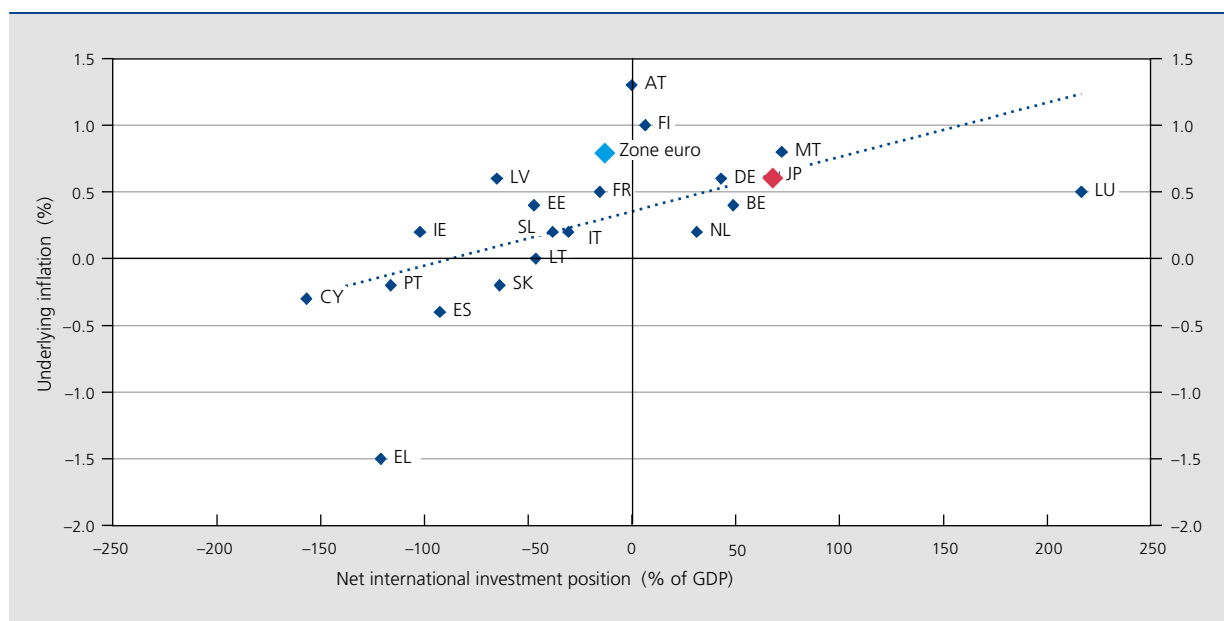
Prompt and coordinated action by way of supply and demand policies

The Japanese experience demonstrates the desirability of prompt, coordinated and consistent policy responses in the event of a balance sheet recession. What is more, all areas of economic policy – monetary and fiscal policies and structural reforms – need to be activated to bolster both supply and aggregate demand. Given the potentially high real cost of a period of low inflation or deflation, this would appear to hold even more true for the euro area.

Demand

Any expansionary demand policies require monetary policy to be supported by appropriate fiscal measures. With key interest rates at rock bottom, a comprehensive asset purchase programme in place and other non-conventional measures already taken, the room for manoeuvre for monetary policy in the euro area has significantly narrowed – and fiscal policies have taken on an important role. It is essential – but also complex – to navigate just the right stimulative course and to do so without endangering the sustainability of public debt in the long term. The question then becomes not only whether domestic policy measures are on the right track but also whether applicable institutional arrangements are the right ones to push fiscal policies for the euro area at large in the right direction.

CHART 11 NET INTERNATIONAL INVESTMENT POSITION (NIIP) AND UNDERLYING INFLATION
(NIIP in 2013 and average annual underlying inflation since January 2014)



Sources: Eurostat, Japan Ministry of Finance, Thomson Reuters Datastream, ECB.

The need for more coordinated macroeconomic policies in the euro area – between monetary and fiscal policies, but also between the various countries – has become evident over the past few years in the way the financial balances of the individual sectors and countries of the euro area have developed. Just like in Japan from the 1990s, private sector deficits have changed into surpluses since the 2008 crisis while government sector deficits have clearly widened. A key difference with Japan is the sizeable contraction of the negative financial balances of the euro area governments in the wake of the sovereign debt crisis. This process of fiscal consolidation, coupled with the still sizeable surpluses in the private sector, have turned the euro area at large into a net saver, depressing domestic demand and therefore also inflation. The euro area savings surplus can mainly be traced back to countries that used to be running deficits and that were compelled to slash their external funding requirements, while most countries already in the black held on to their surpluses. The effect of these highly asymmetrical adjustments has been to squeeze domestic demand.

Although structural reforms are typically regarded as supply-side economic measures, they may also have a role to play in supporting demand. This is particularly the case if they promote investment, which accounts for today's demand as well as tomorrow's supply. More indirectly,

structural reforms open up the prospect that incomes will rise and so also support demand.

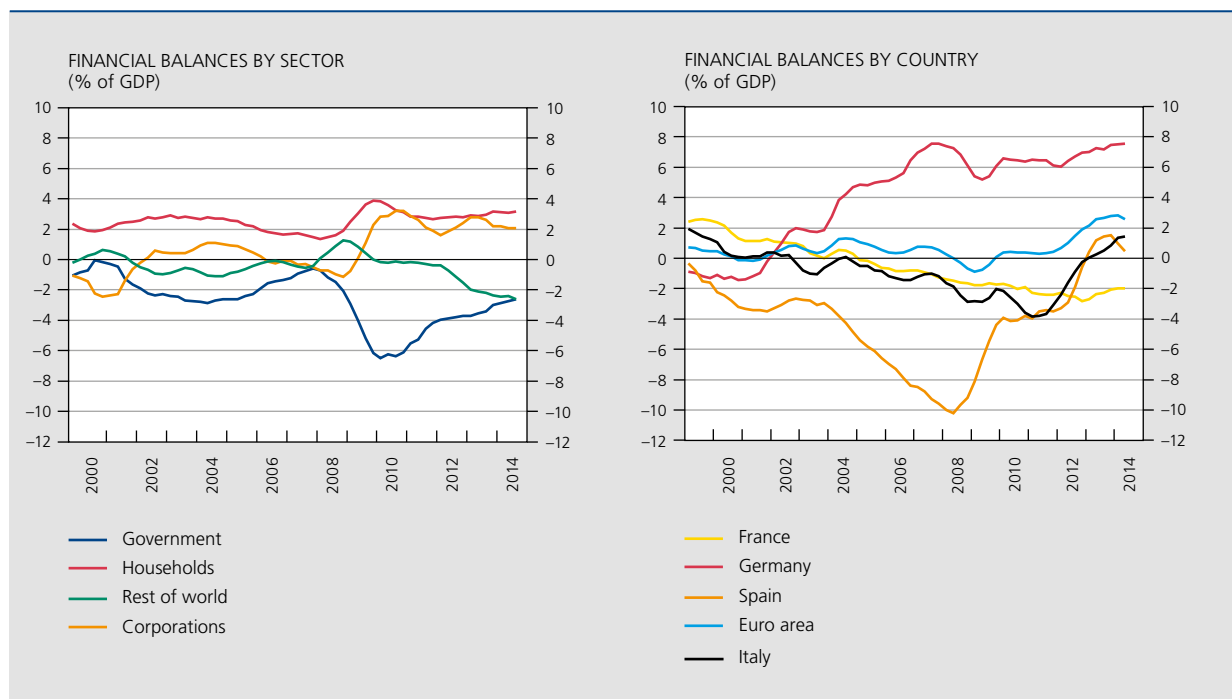
Supply

Apart from temporarily boosting aggregate demand, structural reforms should also be implemented on the supply side if economies are to pull themselves out of crisis situations and keep up their growth potential in the longer term.

Such reforms typically concern the labour and product markets and tend to introduce measures contributing to a more business-friendly climate. By enhancing flexibility, they should encourage optimum resource allocation and use of production factors, while also addressing structural economic developments such as population ageing.

In the short term, some such reforms may drag down inflation and push up real interest rates, curbing growth in the process. If they are coupled with robust demand policies, the expected increase in future incomes should logically offset the deflationary short-term effects – even amply so – and thus support the recovery. It should be noted that this observation serves to underline the key importance of appropriate demand policies and the selection of structural reforms.

CHART 12 FINANCIAL BALANCES IN THE EURO AREA



Source: OECD.

Although demographic trends are still behind those in Japan, the euro area population is ageing as well. All the more reason, then, to implement reforms that bolster labour force participation, the employment rate and productivity in order to keep up living standards and keep debts manageable. Moreover, higher productivity and a resultant increase in real equilibrium interest rates would ward off the danger of secular stagnation.

Early signs suggest that the structural reforms implemented in the euro area since the crisis first broke are beginning to pay off. Wages and prices would appear to have become more flexible, encouraging a more efficient allocation of resources, while some countries are reporting favourable effects on productivity (ECB, 2015). And lastly, countries that have implemented reforms generally also record improved export results. Despite distinct progress since 2008 – and particularly in those countries hardest hit by the crisis – there would appear to be ample margin for improvement still, with significant differences between euro area countries.

Conclusion

In the early 1990s, a major financial and property bubble burst in Japan and its economy suddenly faced the twin challenges of a balance sheet recession and a banking crisis. Its balance sheet recession reflected a significant change in savings behaviour, with corporations preferring to pay down their debt rather than spend or invest, and the government clearly had to intervene to prop up aggregate demand with expansionary policies. At the time, the banking crisis was already in the making, even though its full force did not erupt until 1997, when the Asian crisis hit. This crisis, which caused the demise of key financial institutions, finally forced the country into recognising the problem of non-performing loans, which had been dragging down the real economy. The banking industry ended up being recapitalised by the government.

After these heavy negative shocks, Japan embarked on a period of gradual disinflation in the early 1990s, followed by persistent deflation from halfway through the decade. Two main factors caused the inexorable slide: lower inflation expectations due to the Bank of Japan's lack of credibility and its failure to act resolutely on combating deflation, and the negative output gap, caused by the numerous shocks that buffeted the Japanese economy as well as the drop in real equilibrium interest rates, which eroded the stabilising capability of monetary policy all the more as inflation expectations came down.

Deflation in Japan turned out to be a widespread and unexpected phenomenon, but it remained moderate and persisted for a long time – all of which suggests that between the early 1990s and the early 2000s the Japanese economy evolved to a new equilibrium with nominal interest rates close to zero and negative inflation, but with a real pace of growth in keeping with its potential level much as before. These observations are backed up by the analysis of real growth per capita and per person of working age, and the country's figures have proved quite good since the 2000s when compared with those for the euro area and the United States. Obviously, then, the "lost decade" epithet attributed to Japan in the 1990s needs putting in perspective, and is wholly inapt for the 2000s. Although the Japanese economy appears to be growing at its potential, its newly achieved equilibrium is not yet completely free of potential cost. Because of its deflationary aspect, the central bank has limited room to support economic activity in the event of any shocks, increasing the risk of secular stagnation.

Abenomics, the economic programme introduced in April of 2013, aims to end the protracted period of deflation and to boost the economy by making Japan's public debt sustainable in the longer term. The programme breaks down into three 'arrows': expansionary monetary policy, growth-supporting fiscal policies in the short term but with the aim of also achieving long-term fiscal consolidation, and wide-ranging structural reforms to help the Japanese economy evolve to a higher growth potential.

There are three key lessons to learn from the Japanese experience of the past 25 years. The first is that it is better to prevent financial crises rather than cure them after they materialise. This may sound evident in today's world, but the great recession suggests that policy-makers had learned little from the events in Japan. That said, post-crisis, the euro area's banking sector was restructured quite a bit faster than it had been in Japan. A second important lesson is that inflation expectations should remain firmly anchored: once deflation becomes embedded into an economy's DNA, it is difficult to fight and extreme measures are then needed to get inflation expectations back on track. The third lesson is that a balance sheet recession requires prompt and coordinated action to achieve the maximum effect for any measures taken and to facilitate necessary adjustments. Joint macroeconomic policies should be put in place to bolster both supply and demand. Finally, it should be noted that Japan's experience has shown that the cost of deflation depends on the specific features of an economy and, in particular, its nominal flexibility. To the extent that the latter seems lower in the euro area and since the loss of the exchange

rate instrument requires relative domestic prices to be adjusted to correct any loss of competitiveness, deflation costs threaten to be higher. The need to ward off any risk of deflation in the euro area would thus appear to be even larger.

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Summaries of articles

Economic projections for Belgium – Spring 2015

The article presents the new macroeconomic projections for Belgium for the 2015-2017 period, drawn up by the Bank as part of the Eurosystem forecasting exercises.

In the euro area, the recovery underway is currently enjoying strong tailwinds: the sharp drop in oil prices, the depreciation of the euro and the low level of interest rates are all strong drivers of demand, in a context of less restrictive fiscal policies. According to the Eurosystem projections, real GDP in the euro area should rise by 1.5% in 2015, before climbing to approximately 2% in 2016-2017. As for Belgium, the economic recovery should continue at a relatively moderate pace, with GDP growing by 1.2% in 2015, before strengthening to 1.5% in 2016 and 1.7% in 2017. The pick-up in growth can be mainly traced back to rising net exports that are in turn partly due to the improvement in cost competitiveness of Belgian firms.

The economic upturn and the moderate rise in wage costs will help support net job creations which are expected to reach a cumulative figure of 94 000 units over the period from 2015 to 2017, with the unemployment rate dropping below the 8% mark in 2017.

Inflation, which has been heavily influenced by the fall in energy prices, should remain very low in 2015, at 0.6%, before rising to 1.5% in 2016 and 2017. Under the impact of competitiveness-boosting measures and rising productivity, unit labour costs in the private sector should remain very weak, which would in turn put some brake on underlying inflation developments at least until 2016.

Taking account of only those fiscal measures announced by the federal government and the federated entities, subject to the guidelines for the Eurosystem projection exercises, the budget deficit should come down over the forecasting horizon, falling back to 2.0% in 2017. The public debt is forecast to remain around 107% of GDP throughout the projection period.

JEL codes: E17, E25, E37, E66

Key words: Belgium, macroeconomic projections, Eurosystem

The relationship between economic growth and employment

The article finds that productivity in Belgium has tended to slow down over the past three decades. After controlling for that fundamental tendency, the relationship between persons in employment and economic activity appears generally stable over time throughout the business cycle and

is generally unaffected by recessions. In Belgium in particular, in terms of deviation from their respective trends, a 1 % rise in GDP brings a 0.5 % increase in employment. That figure is in line with the European average.

The downward trend in productivity is accompanied by a shift to the tertiary sector of the economy. That is also one of the factors behind the decline in average working time. Although the relationship between employment and GDP is very stable throughout the business cycle, the recent financial crisis differs from previous recessions in a general tendency to protect jobs at first, in all twelve economies studied in the article. However, that soon came to an end and the situation returned to normal; if employment is struggling to pick up, that is essentially because of the weakness of the economic recovery. Finally, it is very clear that firms initially respond to fluctuations in the economy by adjusting the hours worked. In Belgium, the elasticity of those hours to economic activity is about 50 % greater than the elasticity of the number of persons employed in all sectors sensitive to the business cycle.

JEL codes: E20, E24, E32, J20, J23

Key words: employment, hours worked, labour productivity, business cycle, labour market, Okun's law

Decomposition of the dynamics of sovereign yield spreads in the euro area

The article analyses developments in euro area sovereign bond markets observed during the financial and sovereign debt crises. Not only governments, but also banks, households and non-financial corporations were affected by the sovereign debt crisis. Regarding the private non financial sector in particular, the increased sovereign risk premiums resulted in temporarily higher bank lending margins from 2009 onwards in Belgium, Italy and Spain. By resorting to a macrofinancial modelling approach to decompose these sovereign risk premiums, it appears that fundamental economic shocks are the main drivers of sovereign premiums, although non fundamental shocks were particularly large during the sovereign debt crisis and stemmed mainly from redenomination risk. The significance of non-fundamental components of sovereign premiums nevertheless seemed to have dropped to very low levels by the beginning of 2015, partly due to the (unconventional) monetary policy measures adopted by the ECB (e.g. the announcement of the OMT programme and the expanded APP). However, sovereign premiums are still significant in the euro area periphery (notably in Italy and Spain) and seem to be explained largely by fundamental factors.

JEL codes: E43, E44, G12

Key words: Sovereign yields, spreads, decomposition, fundamental, non fundamental

Analysis of policies for restoring sound Belgian public finances

The article compares the fiscal consolidation effort currently being made in Belgium with two other periods of consolidation: the first in the 1980s and a second one in the 1990s. In the first part, the periods of budget restructuring are determined on the basis of changes in the structural financing balance. The second part compares the economic and politico-institutional context in which fiscal consolidation measures were adopted. The third part gives a brief overview of the main measures. The fourth part takes a closer look at the various instruments used for implementing the fiscal consolidation policy and describes the impact they have had. The fifth part explains the consequences of budget restructuring policies on public debt and on interest rates.

The first period, which started in 1982 and lasted until 1987, is noteworthy for having begun at a time of recession and major imbalances in the Belgian economy, including a substantial government borrowing requirement. The rigorous restructuring effort made at the time was based on deep cuts

in public expenditure and a limited increase in government revenues. The second period, which ran from 1993 to 1998, also started with a recession. The consolidation that took place during this period was achieved mainly through an increase in revenues, but also helped by a reduction in interest charges. The third consolidation period came in the wake of the economic and financial crisis and began back in 2011. This consolidation period was initially characterised by an increase in government revenues, but since 2015 the emphasis has shifted onto cutting expenditure. Moreover, interest charges have continued to shrink thanks to the fall in interest rates.

The analysis of the restructuring policies followed since the early 1980s shows that fiscal consolidations have always begun in periods of low economic activity. Likewise, they are always accompanied by structural reforms. Competitiveness has thus recovered and employment has been boosted. Particular attention has also been paid to the financial sustainability of the social security system, not least through the adoption of pension reforms.

As regards the current consolidation period, the major restructuring efforts underway are still relatively limited compared with efforts made during the previous two restructuring periods. However, the present fiscal consolidation programme is taking place in more difficult conditions, taking account of lower potential growth, high fiscal and parafiscal pressure, low public sector investment and rising costs of population ageing. So, extra measures still need to be taken as part of the ongoing fiscal consolidation in order to restore a structural budget balance.

JEL codes: H20, H50, H60, H62, H63

Key words: public finance, fiscal consolidation, Belgium

Deflation in Japan, Abenomics and lessons for the euro area

The article takes as its starting point the similarities between the current situation in the euro area and that prevailing in Japan for the last two decades, namely slow economic growth and low – or even negative – inflation.

Owing to the fact that Japan's deflation, although persistent, has remained moderate and the economy has not fallen into a deflationary spiral, it can actually be argued that the Japanese economy shifted to a new equilibrium situation between the early 1990s and the beginning of the 2000s. In this new equilibrium, the nominal interest rate is close to its zero lower bound and inflation negative, but, just like before, the real growth rate is around its potential level. Yet it seems that this new equilibrium is not without costs. A deflationary regime like Japan's effectively reduces the central bank's capacity to support economic activity in the event of an adverse shock and thus increases the risk of secular stagnation. Taking this into account, the so-called 'Abenomics' economic programme introduced in April 2013 is aimed precisely at putting an end to the long period of deflation that Japan has gone through and at stimulating the economy while ensuring the long-term sustainability of the country's public debt.

Three major lessons can be drawn from the Japanese experience over the last 25 years. First of all, prevention is better than cure when it comes to financial crises. Secondly, it is crucial to keep inflation expectations firmly anchored. Thirdly, it is important to react to a balance-sheet recession in a prompt and well-coordinated way, so as to maximise the impact of the measures adopted and to facilitate the adjustments that must be made. Moreover, all areas of macroeconomic policy should be brought into play to support both the supply and demand sides. Lastly, events in Japan show that the costs of deflation depend very much on the specific features of an economy, and more specifically on its nominal flexibility.

JEL codes: E65, E58

Key words: Japan, euro area, deflation, crisis, Abenomics

Abstracts from the Working Papers series

275. Effectiveness and transmission of the ECB's balance sheet policies, by J. Boeckx, M. Dossche, G. Peersman, December 2014

The authors estimate the effects of exogenous innovations to the balance sheet of the ECB since the start of the financial crisis within a structural VAR framework. An expansionary balance sheet shock stimulates bank lending, stabilizes financial markets, and has a positive impact on economic activity and prices. The effects on bank lending and output turn out to be smaller in the member countries that have been more affected by the financial crisis, in particular those countries where the banking system is less well-capitalized.

276. How do exporters react to changes in cost competitiveness?, by S. Decramer, C. Fuss, J. Konings, January 2015

Policy-making institutions such as the European Commission, the ECB and the OECD often use unit labor costs as a measure of international competitiveness. The goal of the paper is to examine how well this measure is related to international export performance at the firm level. To this end, the authors use Belgian firm-level data for the period 1999-2010 to analyze the impact of unit labor costs on exports. They use exports adjusted for their import content. They find a statistically significant negative effect of unit labor costs on export performance of firms with an estimated elasticity of the intensive margin of exports ranging between -0.2 and -0.4. This result is robust to various specifications, including firm, time and sector fixed effects and estimation approaches. This elasticity varies between sectors and between firms, with firms that are more labor-intensive having a higher elasticity of exports with respect to unit labor costs. The micro data also enable to analyze the impact of unit labor costs on the extensive margin. The results show that higher unit labor costs reduce the probability of starting to export for non-exporters and increase the probability of exporters stopping. While they results show that unit labor costs have an impact on the intensive margin and extensive margin of firm-level exports, the effect is rather low, suggesting that passthrough of costs into prices is limited or that demand for exported products is not elastic. The latter is consistent with recent trade models emphasizing that not only relative costs, but also demand factors such as quality and taste matter for explaining firm-level exports.

277. [Optimal monetary policy response to endogenous oil price fluctuations](#), by A. Stevens, January 2015

Should the central bank seek to identify the underlying causes of oil price hikes in determining appropriate policy responses to them? Most likely not. Within a calibrated new-Keynesian model of Oil-Importing and Oil-Producing Countries, the author derives the Ramsey policy and analyze optimal monetary policy responses to different sources of oil price fluctuations. He finds that oil-specific demand and supply shocks call for similar policy responses, given the low substitutability of oil in production and the incompleteness of international asset markets.

278. [Comparing fiscal multipliers across models and countries in Europe](#), by J. Kilponen, M. Pisani, S. Schmidt, V. Corbo, T. Hledik, J. Hollmayr, S. Hurtado, P. Júlio, D. Kulikov, M. Lemoine, M. Lozej, H. Lundvall, J. R. Maria, B. Micallef, D. Papageorgiou, J. Rysanek, D. Sideris, C. Thomas, G. de Walque, March 2015

The paper employs fifteen dynamic macroeconomic models maintained within the European System of Central Banks to assess the size of fiscal multipliers in European countries. Using a set of common simulations, the author consider transitory and permanent shocks to government expenditures and different taxes. They investigate how the baseline multipliers change when monetary policy is transitorily constrained by the zero nominal interest rate bound, certain crisis-related structural features of the economy such as the share of liquidity-constrained households change, and the endogenous fiscal rule that ensures fiscal sustainability in the long run is specified in terms of labour income taxes instead of lump-sum taxes.

279. [Assessing European competitiveness: The new CompNet micro-based database](#), by P. Lopez-Garcia, F. di Mauro, the CompNet Task Force, April 2015

Drawing from confidential firm-level balance sheets for 17 European countries (13 Euro-Area), the paper documents the newly expanded database of cross-country comparable competitiveness-related indicators built by the Competitiveness Research Network (CompNet). The new database provides information on the distribution of labour productivity, TFP, ULC or size of firms in detailed 2-digit industries but also within broad macro-sectors or considering the full economy. Most importantly, the expanded database includes detailed information on critical determinants of competitiveness such as the financial position of the firm, its exporting intensity, employment creation or price-cost margins. Both the distribution of all those variables, within each industry, but also their joint analysis with the productivity of the firm provides critical insights to both policymakers and researchers regarding aggregate trends dynamics. The current database comprises 17 EU countries, with information for 56 industries, including both manufacturing and services, over the period 1995-2012. The paper aims at analysing the structure and characteristics of this novel database, pointing out a number of results that are relevant to study productivity developments and its drivers. For instance, by using covariances between productivity and employment the paper shows that the drop in employment which occurred during the recent crisis appears to have had "cleansing effects" on EU economies, as it seems to have accelerated resource reallocation towards the most productive firms, particularly in economies under stress.

280. [FloGARCH: Realizing long memory and asymmetries in returns volatility](#), by H. Vander Elst, April 2015

The author introduces the class of FloGARCH models in this paper. FloGARCH models provide a parsimonious joint model for low frequency returns and realized measures and are sufficiently flexible to capture long memory as well as asymmetries related to leverage effects. He analyzes the

performances of the models in a realistic numerical study and on the basis of a data set composed of 65 equities. Using more than 10 years of high-frequency transactions, he documents significant statistical gains related to the FloGARCH models in terms of in-sample fit, out-of-sample fit and forecasting accuracy compared to classical and Realized GARCH models.

281. [Does Education Raise Productivity and Wages Equally? The Moderating Roles of Age, Gender and Industry](#), by F. Rycx, Y. Saks, I. Tojerow, April 2015

The labour market situation of low-educated people is particularly critical in most advanced economies, especially among youngsters and women. Policies aiming to increase their employability either try to foster their productivity and/or to decrease their wage cost. Yet, the evidence on the misalignment between education-induced productivity gains and corresponding wage cost differentials is surprisingly thin, inconclusive and subject to various econometric biases. The authors investigate this issue using rich Belgian linked employer-employee panel data for the period 1999-2010. Moreover, they provide first evidence on the moderating roles of age, gender and industry in the relationship between education, productivity and wage costs. Controlling for simultaneity issues, time-invariant workplace characteristics and dynamics in the adjustment process of dependent variables, findings support the existence of a 'wage-compression effect', i.e. a situation in which the distribution of wage costs is more compressed than the education-productivity profile. This effect, robust across industries, is found to disappear among older cohorts of workers and to be more pronounced among women than men. Overall, findings suggest that particular attention should be devoted to the productivity to wage cost ratio of low-educated workers, especially when they are young and female, but also to policies favouring gender equality in terms of remuneration and career advancement.

282. [Assessing European firms' exports and productivity distributions: The CompNet trade module](#), by A. Berthou, E. Dhyne, M. Bugamelli, AM. Cazacu, CV. Demian, P. Harasztosi, T. Lalinsky, J. Merikül, F. Oropallo, AC. Soares, May 2015

The paper provides a new cross-country evaluation of competitiveness, focusing on the linkages between productivity and export performance among European economies. The authors use the information compiled in the Trade module of CompNet to establish new stylized facts regarding the joint distributions of the firm-level exports performance and productivity in a panel of 15 countries, 23 manufacturing sectors during the 2000's. The authors confirm that exporters are more productive than nonexporters. However, this productivity premium is rising with the export experience of firms, with permanent exporters being much more productive than starters. At the intensive margin, they show that both the level and the growth of firm-level exports rise with firm productivity, and that the bulk of aggregate exports in each country are made by a small number of highly productive firms. Finally, they show that during the crisis, the growth of exports by high productive firms sustained the current account adjustment of European "stressed" economies. This last result confirms that the shape of the productivity distribution within each country can have important consequences from the point of view of the dynamics of aggregate trade patterns.

Conventional signs

e	estimate
e.g.	<i>exempli gratia</i> (for example)
i.e.	<i>id est</i> (that is)
p.m.	<i>pro memoria</i>

List of abbreviations

Countries or regions

BE	Belgium
DE	Germany
EE	Estonia
IE	Ireland
EL	Greece
ES	Spain
FR	France
IT	Italy
CY	Cyprus
LU	Luxembourg
LT	Lithuania
LV	Latvia
MT	Malta
NL	Netherlands
AT	Austria
PT	Portugal
SI	Slovenia
SK	Slovakia
FI	Finland
EA	Euro area
JP	Japan
US	United States

Other

ABS	Asset-backed securities
APP	Asset purchase programme
ASLK	Algemeen Spaar- en Lijfrentekas
BEF	Belgian franc
BIS	Bank for International Settlements
BLS	Bank lending survey

CDS	Credit default swap
CEC	Central Economic Council
CGER	Caisse générale d'épargne et de retraite
CPB	Centraal Planbureau (the Netherlands)
CPI	Consumer price index
DGS-ADS	Directorate-General Statistics
EAPP	Expanded asset purchase programme
EBC	European Business Council
EC	European Commission
ECB	European Central Bank
EDP	Excessive deficit procedure
EFSF	European Financial Stability Facility
EMS	European Monetary System
EMU	Economic and Monetary Union
ESA	European System of Accounts
ESCB	European System of Central Banks
ESM	European Stability Mechanism
ESRB	European Systemic Risk Board
ETF	Exchange-traded funds
EU	European Union
FPB	Federal Planning Bureau
FPS	Federal Public Service
GDP	Gross domestic product
GIMV	Gewestelijke Investeringsmaatschappij voor Vlaanderen
GNP	Gross national product
HICP	Harmonised index of consumer prices
ICT	Information and communications technology
IG	Investment grade
IMF	International Monetary Fund
KfW	Kreditanstalt für Wiederaufbau
LFS	Labour force survey
M&A	Mergers and acquisitions
MFI	Monetary financial institution
NIIP	Net international investment position
MIR	Monetary financial institutions interest rates
NPL	Non-performing loans
MRO	Main refinancing operations
NAI	National Accounts Institute
NBB	National Bank of Belgium
NCPI	National consumer price index
NEO	National Employment Office
NPI	Non-profit institution
OECD	Organisation for Economic Cooperation and Development

OIS	Overnight index swaps
OMT	Outright monetary transactions
OPEC	Organisation of the Petroleum Exporting Countries
QE	Quantitative easing
QQE	Qualitative and quantitative easing
RCC	Resolution and Collection Corporation
R&D	Research and development
REIT	Real Estate Investment Trusts
SCAP	Supervisory Capital Assessment Program
SME	Small and medium-sized enterprise
S&P	Standard and Poor's
SPF	Survey of Professional Forecasters
TLTRO	Targeted longer-term refinancing operations
VAR	Vector autoregressive model
VAT	Value added tax
VIX	Volatility Index
VLTRO	Very long-term refinancing operations
ZIRP	Zero interest rate policy

National Bank of Belgium
Limited liability company
RLP Brussels – Company number: 0203.201.340
Registered office: boulevard de Berlaimont 14 – BE-1000 Brussels
www.nbb.be



Publisher

Jan Smets

Governor

National Bank of Belgium
Boulevard de Berlaimont 14 – BE-1000 Brussels

Contact for the Review

Luc Dufresne

Secretary-General

Tel. +32 2 221 24 96 – Fax +32 2 221 30 91
luc.dufresne@nbb.be

© Illustrations: National Bank of Belgium
Cover and layout: NBB AG – Prepress & Image
Published in July 2015



