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Contents

Economic impact of the public debt

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Introduction

The economic and financial crisis led to a strong increase in the public debt in the euro area countries, the United Kingdom, the United States and Japan. Moreover, without a change of policy, the public debt will continue to expand in most of those countries.

This article describes the possible consequences and inherent risks of this situation. Those risks have also been illustrated by the problems which certain euro area countries have recently experienced in financing their public debt on the financial markets: those countries had to resort to the conditional financial assistance of the IMF and other European countries. A return to sustainable public finances, not only in those countries but also in most of the other advanced economies, will require a sustained consolidation effort in the coming years.

The first part of this article examines the movement in the public debt in the advanced economies, and the outlook in the absence of a change of policy. The second part concerns the impact of the public debt on economic activity and inflation. The third part focuses on the need for fiscal consolidation to reduce the public debt, and the recommended strategies for achieving that objective. The final part sets out some conclusions.

1. Overview of the public debt

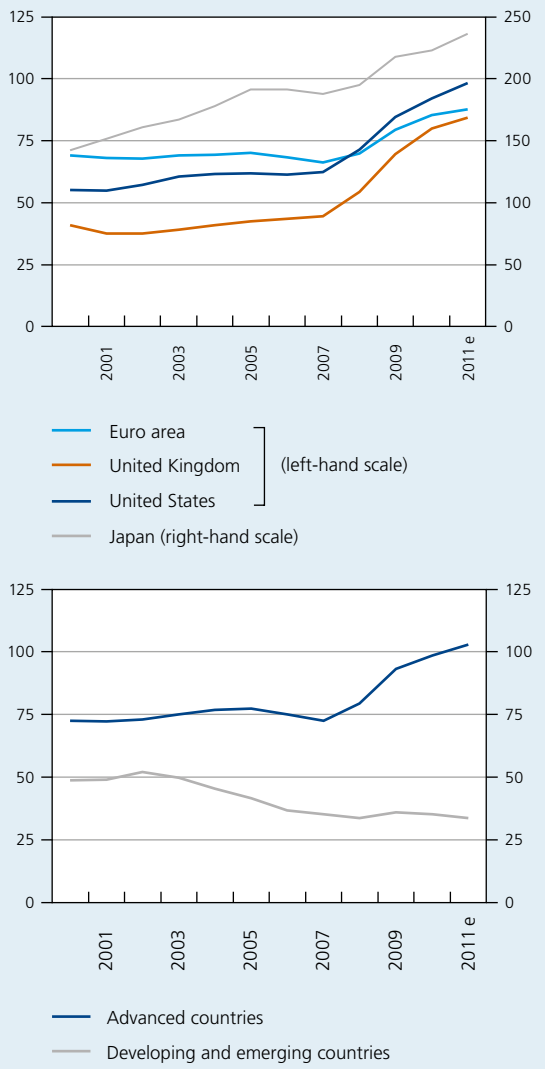
1.1 Current situation

The financial crisis which erupted in 2007 and intensified in 2008, and the ensuing economic recession had a very serious adverse impact on public finances in most of the advanced economies. In particular, many countries saw a sharp rise in their debt ratio.

In the euro area, the debt ratio is set to rise from 66.2 % in 2007 to 87.7 % in 2011. Nevertheless, there are wide variations between countries. Ireland is seeing the biggest increase, at almost 90 percentage points of GDP. In Greece, which already had the highest debt ratio in the euro area before the crisis, the increase is expected to exceed 50 percentage points of GDP. Similarly, in Spain and Portugal the public debt has expanded considerably, by over 30 percentage points. In other euro area countries, though the rise in the public debt is weaker, it is still substantial with increases ranging between 10 and 20 percentage points. In no less than twelve euro area countries, the public debt exceeds the maximum reference value of 60 % of GDP stipulated by the Maastricht Treaty.

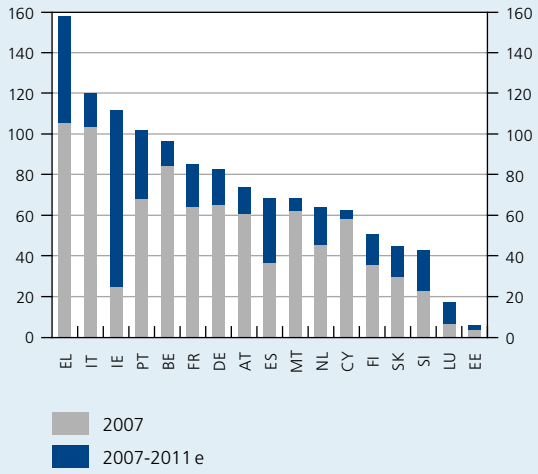
The euro area countries are not the only ones to see their debt level increase strongly between 2007 and 2011. Thus, over the same period the debt ratio of the United States will have risen from just over 60 % to almost 100 % of GDP. In Japan, where the debt ratio was already particularly high in 2007, it is set to rise by a further 50 percentage points to just under 240 % of GDP. In the United Kingdom, the debt ratio is likely to rise by 40 percentage points, but since it was still relatively modest in 2007, the

CHART 1 GROSS DEBT OF GENERAL GOVERNMENT
(in % of GDP)



Sources: EC, IMF.

CHART 2 GROSS DEBT OF GENERAL GOVERNMENT IN THE EURO AREA COUNTRIES
(in % of GDP)



Sources: EC, NAI, NBB.

debt is expected to remain lower at 84.2 % of GDP by the end of 2011.

Clearly, the surge in the debt ratio seen in the advanced countries in recent years is closely linked to the support measures for the financial sector at the time of the financial crisis and to the loss of revenue caused by the ensuing economic recession. However, the financial sector rescue operations account for only a small proportion of the total increase in the public debt since the outbreak of the crisis. The growth of the budget deficits is in fact the main factor determining that increase. Despite the economic recovery evident since 2010, the upward trend in the debt ratio of most of the advanced countries has persisted.

Since the start of the financial and economic crisis, the gross borrowing requirements of the public sector have been very substantial. It has been necessary to refinance part of the debt as it reaches maturity. Governments have also had to raise money to finance the injections of capital into the financial sector and their fast-growing budget deficits. However, up to mid-2010, the strong risk aversion generated sustained demand for government securities considered as safe. That sustained demand and the accommodating policy of the central banks enabled most countries to borrow at favourable rates. However, since the final quarter of 2010, concerns about the solvency of certain countries have driven up interest rates. These persistent worries combined with substantial gross refinancing requirements could increase the pressure on rates.

The financial and economic crisis has not affected all regions of the world in the same way. The emerging and developing countries, which – on average – had an initial public debt ratio below that of the advanced countries, have not seen their debt ratio rise, on average. In the emerging and developing countries, the debt ratio has remained relatively stable since the crisis, at around 35 % of GDP. This favourable dynamic reflects stronger growth and smaller deficits than in the advanced countries. The gap between the two groups of countries therefore widened after the financial and economic crisis.

1.2 Projections with no change of policy

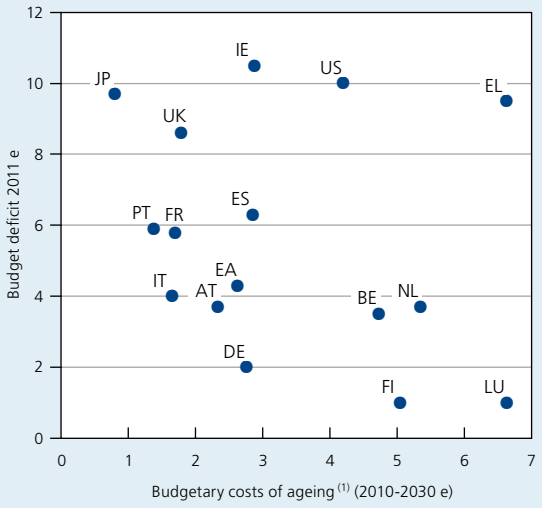
In the absence of consolidation measures, the budget situation in the advanced countries is set to become even worse. Population ageing is likely to contribute to that deterioration by putting additional pressure on public expenditure on health care and pensions. Without a change of policy, that situation is likely to generate even bigger deficits and a strong rise in public debt levels.

The ageing-related public expenditure is projected to rise by 2.6 percentage points of GDP by the year 2030 for the euro area countries, and as much as 5.1 percentage points by 2060. However, it should be noted that there are major variations between the euro area countries. The United States, Japan and the United Kingdom will also have to cope with a substantial rise in age-related public spending. In most of the advanced economies, the sustainability of public finances is therefore a serious problem. To avoid a marked deterioration in the budget position of those countries, fundamental adjustments are needed.

To demonstrate that the current budgetary policy is unsustainable, it is possible to simulate what will happen to public debt levels if there is no change of policy. This exercise clearly shows the exponential growth of the public debt in most of the advanced countries.

CHART 3 BUDGET DEFICIT AND BUDGETARY COSTS OF AGEING

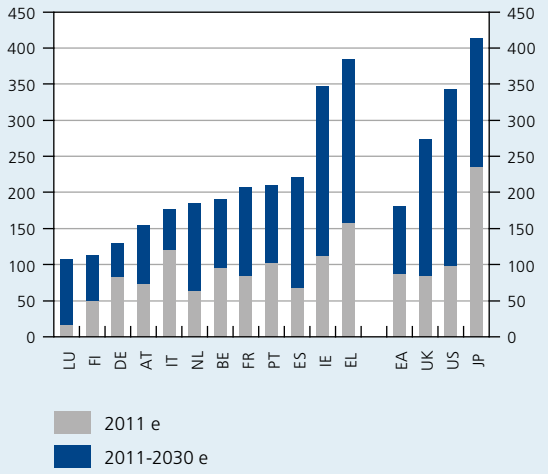
(in % of GDP)



Sources: EC, IMF, NBB.
(1) Costs of pensions, health care and long-term care only.

CHART 4 PROJECTIONS FOR THE PUBLIC DEBT WITH NO CHANGE OF POLICY (1)

(in % of GDP)



Sources: EC, IMF, NBB.
(1) These projections are based on the assumption that the primary balance will deteriorate by the amount of the increase in age-related expenditure. In addition, it is assumed that nominal GDP growth will come to 3.75 % per annum and that the implicit interest rate on the public debt will ultimately tend towards 4 %.

Debt levels in the euro area would exceed 180 % of GDP in 2030. None of the euro area countries would escape this vicious spiral. In some countries such as Greece and Ireland, the debt would even reach levels equivalent to 3 or 4 times their GDP. This exponential growth of the public debt would not be confined to the euro area countries. In fact, without a change of policy, the public debt of the United Kingdom could amount to three times its GDP in 2030, while the public debt of the United States would exceed that figure by then. In Japan, the debt ratio could actually be more than four times GDP in 2030.

Thus, it is clear that all the advanced countries will be forced to act in order to prevent their financial situation from becoming unsustainable. Some countries have already announced measures to restore sound, sustainable public finances. Nonetheless, many countries have yet to put such measures in place.

2. What is the economic impact of the public debt?

The impact of fiscal policy – and hence of the public debt – on economic growth and other economic variables has always been the subject of lively debate among economists. Following the increase in the public debt in

most of the advanced countries, this subject is more topical than ever.

This chapter examines the main current viewpoints on this question. It begins with some theoretical considerations concerning the optimum and maximum government debt ratios. Next, it focuses on the central question of this article : the impact of the public debt on economic activity. The chapter ends by considering the potential implications for inflation of the scale and pattern of the public debt.

2.1 Theoretical considerations concerning the optimum and maximum public debt ratios

The public debt tends to increase the disposable income of the current generation while – *ceteris paribus* – reducing that of future generations. It therefore seems obvious to assess the debt level in an intergenerational framework. In that context, the public debt and deficits are acceptable if they facilitate the expansion of production capacity and if the return on the public financial intervention thus financed outweighs the costs of the debt. By comparing those costs and the return on public intervention, it is therefore possible to determine the optimum level of the public debt. Government intervention may concern investment expenditure on infrastructure, education, the operation of public institutions, security and a reduction in taxation in order to moderate its adverse impact on economic growth. The criterion of intergenerational neutrality – which means that each generation should make an equivalent net contribution to the government – also requires inclusion in the analysis of the impact of demography on that neutrality : with the prospect of significant population ageing, it seems appropriate to anticipate the increased costs in the form of pensions and health care for the elderly, and to ensure that they are financed partly by the current generation.

In practice, however, it is difficult to determine the optimal level of the public debt. First, the concept of an equivalent net contribution to government from each generation can be defined in absolute or relative terms. Moreover, it is extremely hard to measure the economic return on public intervention. It is therefore difficult to quantify the level at which the return on public intervention financed by the debt is lower than the cost of the public debt. Owing to these methodological problems, the empirical literature on the optimal debt level is fairly limited, and the findings are very divergent.

Nevertheless, it is evident that fiscal policy does not necessarily correspond to what might be considered the macroeconomic optimum. Thus, in past decades, the governments of a good many countries have shown a lack of fiscal discipline and have therefore increased their debt levels. The literature attributes that lack of fiscal discipline to the "deficit bias". This says that the democratic decision-making process may encourage deviation from the optimal fiscal policy. Fiscal policy may be too improvident if the population focuses essentially on the short-term advantages of lower taxes or higher spending, without always being aware of the potential adverse repercussions on the budget in the long term of an expansionary fiscal policy. Political decision-makers may tend to play on this in order to increase their chances of re-election. There may also be a preference for deliberately favouring current generations and transferring the burden of the debt to future generations. The concept known in game theory as the 'common pool problem' offers another explanation for the deficit bias. In regard to fiscal policy, this concept means that each interest group or each party in a coalition government looks after its own interests, so that the budget deficit and the public debt may exceed the optimum levels. The deficit bias and its undesirable effects may be counteracted by independent institutions and rules imposing restrictions on the budget.

Apart from the concept of the optimal debt, the literature also examines the concept of the maximum acceptable public debt, corresponding to a country's maximum capacity to repay its debts. The current level of public debt is, by definition, equal to the discounted value of future primary balances. The literature refers to the concept of inter-temporal budget constraint. According to this constraint, the higher the public debt ratio, the bigger the future primary balances need to be.

Consequently, the maximum acceptable debt ratio corresponds to the discounted value of the maximum acceptable future primary balances. The primary balances can only increase via an expansion of public revenues or a restriction on public spending. The maximum acceptable debt ratio is therefore determined by the maximum acceptable level of public revenues and the minimum acceptable level of public primary expenditure. Those levels cannot be fixed only on the basis of economic considerations : it is essentially social and political considerations that may set the limits here. If the current level of the public debt exceeds the discounted value of the future primary balances that the population is prepared to generate, then sooner or later there will be a problem of default on the public debt. However, it is extremely difficult to quantify the theoretical concept of the maximum debt ratio. Moreover, the maximum acceptable debt ratio may vary from one country to another.

2.2 Impact of the public debt on GDP

2.2.1 Short- and long-term effects of a reduction in the public debt

The theoretical and empirical literature concerning the impact of fiscal policy on economic activity is extensive, but it does not offer a clear answer to the question of the link between fiscal policy and economic activity. In fact, the impact depends very much on circumstances, which may vary considerably over time and from one country to another. Here it is crucial to distinguish between the short-term economic impact of the public debt and its long-term effects.

Short-term impact

In the short term, the measures taken to consolidate the budget are likely to depress economic growth. In fact, most empirical studies show that the budget multipliers – which indicate the extent to which a given fiscal stimulus influences activity growth – are positive in the short term.

However, the scale of a consolidation plan's short-term negative impact on economic activity varies according to the measures adopted. Measures relating to public consumption and investment have a relatively major impact on economic activity, whereas measures concerning transfers – such as taxes or social benefits – have a weaker effect. The reason is that the latter have only an indirect effect in modifying consumption or investment, via an adjustment to the incomes of households or companies. The degree to which households and firms face liquidity constraints or credit restrictions is also important for ascertaining the impact of tax increases or social benefit cuts on economic growth.

Moreover, it seems that the negative effect of consolidation measures on economic growth in the short term is weaker – or even practically non-existent – if the public finance situation deteriorates and that situation is considered worrying. In fact, the consolidation measures may avoid an interest rate rise, which would curb private investment. Moreover, they may lead to a reduction in the savings ratio, e.g. owing to a reduction in precautionary savings by households thanks to a revival in confidence after a period of budget difficulties[1]. In that case, the negative impact on economic activity in the short term could be very small. In the current situation, these factors seem relevant, so that fiscal consolidation will not necessarily have a very negative effect on business activity.

The scale of the impact of consolidation also depends on the economic and monetary environment in which it is implemented. Where consolidation takes place in a small, open economy, its short-term impact is less than in the case of simultaneous consolidation in a number of countries, which will have a bigger restraining effect on global demand. Next, if the central banks are able to adopt an accommodating policy, consolidation is less damaging to growth. However, if interest rates are close to zero, central banks have less scope for compensating for the potential decline in global demand and inflation caused by increasing revenues and cutting public spending. Finally, the presence of a fixed exchange rate tends to reinforce the negative impact of consolidation on growth, compared to a system of floating exchange rates, which generally plays a significant buffer role.

Long-term impact

In contrast to the short-term effects, the long-term impact of fiscal consolidation ensuring the sustainability of public finances is undeniably positive. The effects include a decline in long-term interest rates, owing to a contraction in the supply of government securities on the market and a reduction in risk premiums. In addition, the reduction in interest charges resulting from consolidation frees up more resources for productive public expenditure or for reductions in the burden of taxation and parafiscal levies.

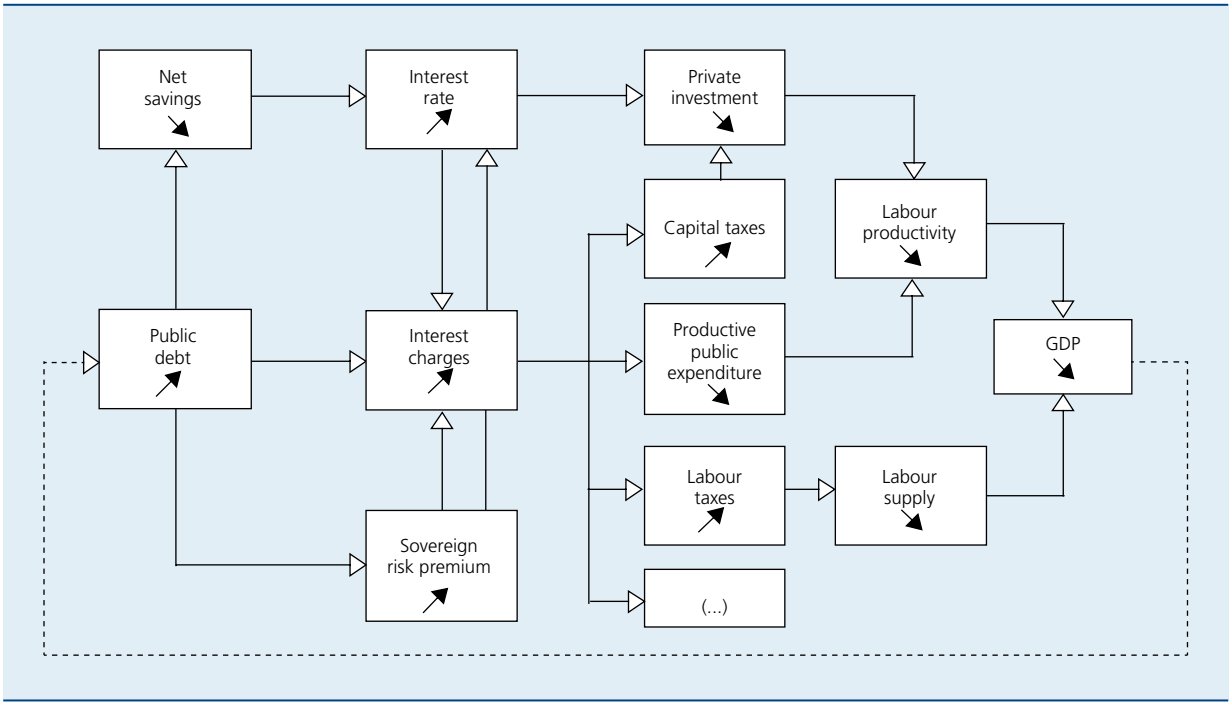
According to the literature, fiscal consolidation based on spending cuts is more effective and has a more favourable impact on economic growth in the long term than that based on a rise in public revenues. That is particularly the case if the budget restraint applies to spending other than that which is generally considered productive, such as expenditure on investment, education, research and innovation. The scale of the impact of consolidation on economic activity will depend on the use made of the money saved by budget austerity (see section 2.2.3).

2.2.2 Transmission mechanisms

There are several ways in which an increase (reduction) in the public debt may have a negative (positive) influence on economic activity in the long term. There are three main transmission channels.

(1) According to the Ricardian equivalence theory, an increase in the public debt is offset by an increase in the private savings ratio, because individuals take account of the prospect of a future tax increase and a future public spending cut. However, the Ricardian equivalence theory is based on a number of unrealistic assumptions, e.g. that households face no budget constraints and that households take account of an infinite time horizon and non-distorting, lump-sum taxes. Consequently, though an increase in the public debt may lead to a higher private savings ratio, that will not be enough to compensate entirely for the decline in national net savings.

CHART 5 TRANSMISSION MECHANISMS [1]



(1) This diagram shows the main transmission mechanisms whereby a higher public debt leads, in the long term, to lower GDP. If the public debt is reduced, the opposite effects are seen.

First, an increase in the public debt generally corresponds to a decline in the positive savings or an increase in the negative savings of the government, leading to a reduction in the volume of net national savings. This tends to push up interest rates. The rise in interest rates causes a fall in investment and in the growth of the capital stock. The slower pace of capital accumulation hampers the innovations that improve productivity. The result is lower labour productivity. It should be noted that the impact on interest rates depends on the size of the region affected by the rise in the public debt. If that rise is confined to a small open economy, the impact on market interest rates will be very modest. Conversely, if the debt expands simultaneously in countries forming a large economic region, the upward pressure on market interest rates will be substantial.

In addition, the increase in the debt leads to higher interest charges. Those charges then take the place of productive expenditure – such as public investment in infrastructure – or are offset by higher taxation and an increase in the associated distortions. Depending on the fiscal measure adopted, there may be a negative impact on consumption (in the case of an increase in VAT and excise duty), on private investment (in the case of capital taxes), and on the labour supply (in the case of taxes on wages).

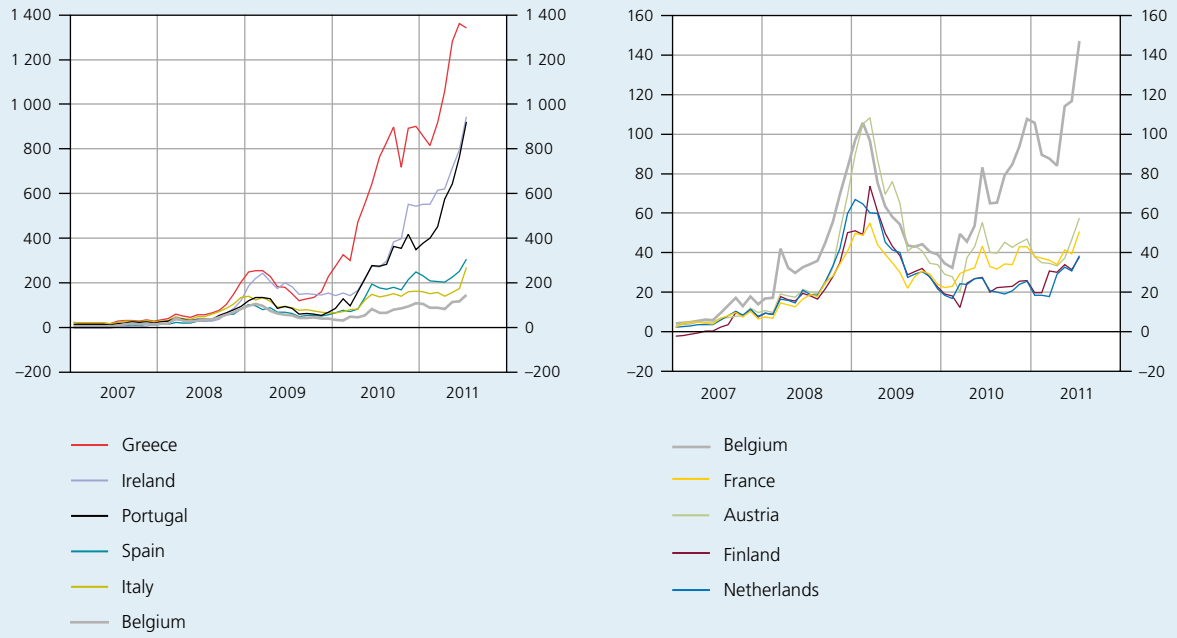
Finally, if the increase in the debt leads to the emergence of sovereign risk, the debt drives up the risk premiums. The higher premiums generate an increase in financing costs which may threaten the solvency of public finances. In addition, that may lead to an increase in the interest rates applied to individuals and firms.

Where substantial debts are combined with adverse budgetary starting conditions, that amplifies the negative and non-linear effect of a high debt level on interest rates. In this context, attention must be drawn to the importance of the initial budgetary, structural and institutional conditions, and the contagion effects emanating from the financial markets. Thus, factors such as weak or inadequate institutions, low private savings, a weak inflow of foreign capital, weak competitiveness of the national economy, high unemployment, a fragile banking sector or high sensitivity to contagion effects play a key role in determining the scale of the impact of the debt on interest rates. The impact of population ageing on the sustainability of public finances may also be an essential determinant.

The pattern of yield differentials on ten-year government securities in the euro area countries vis-à-vis the German Bund shows the great sensitivity of risk premiums on

CHART 6 YIELD DIFFERENTIALS BETWEEN TEN-YEAR GOVERNMENT LOANS OF EURO AREA COUNTRIES AND THE GERMAN BUND

(monthly averages, in basis points)



Source: Thomson Reuters Datastream.

government securities since the start of the financial and economic crisis. The movement in those risk premiums, particularly since 2010, shows that the financial markets made a steep upward revision to the default risk of certain countries, and that the financial markets may react suddenly and very vigorously.

The negative impact of the public debt on economic activity may also be felt via other transmission mechanisms, such as higher inflation expectations, greater uncertainty and increased macroeconomic volatility. The impact which expansion of the public debt may have on inflation expectations is discussed in section 2.3.

It should also be noted that while the debt has a negative effect on growth, the opposite causal relation is equally true. In other words, a deterioration in economic growth tends to increase the debt ratio.

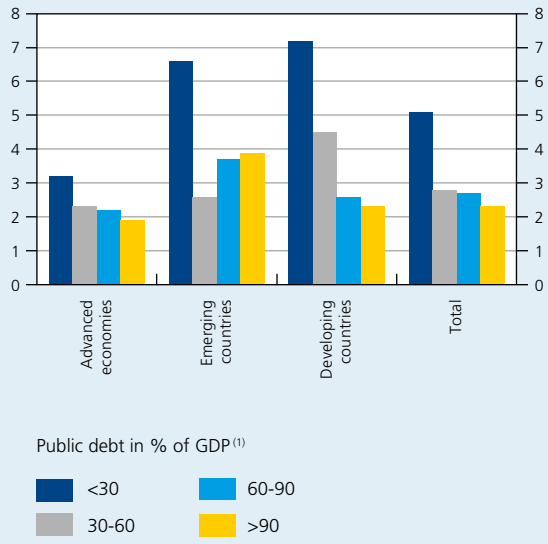
2.2.3 Empirical findings

Link between the public debt and economic growth

The data covering the period 1970-2007 indicate that there is a significant negative link between the level of the public debt and per capita GDP growth at constant prices.

CHART 7 PUBLIC DEBT AND ECONOMIC GROWTH

(1970-2007, annual growth rate of GDP per capita at constant prices)

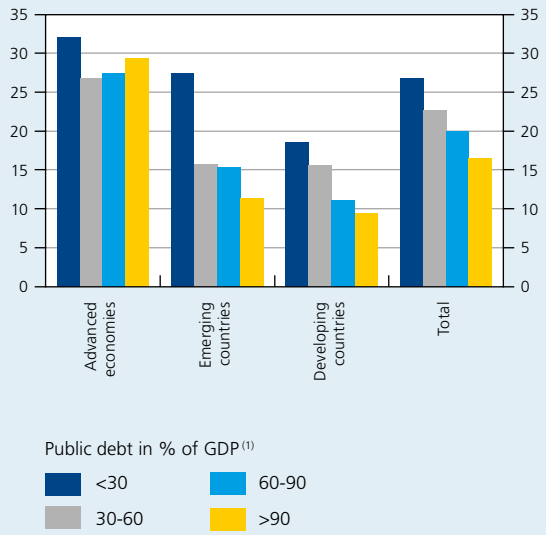


Source: Kumar and Woo (2010).

(1) The figures show the initial level of the public debt at the start of each five-year period and the average annual growth rate of GDP per capita at constant prices for each period.

CHART 8 PUBLIC DEBT AND GROSS CAPITAL FORMATION

(1970-2007, gross fixed capital formation in % of GDP)



Source: Kumar and Woo (2010).

(1) The figures show the initial level of the public debt at the start of each five-year period and the average annual gross capital formation in % of GDP for each period.

During that period, the advanced economies with a debt ratio below 30 % of GDP achieved an average increase in per capita GDP at constant prices of 3.2 %, whereas growth came to only 1.9 % for the advanced economies with a debt ratio in excess of 90 % of GDP. The link is less clear for the emerging countries, but here too the average per capita GDP growth at constant prices is strongest in the countries with the lowest public debt. Finally, in the developing countries, per capita GDP growth at constant prices is clearly higher the lower the public debt.

In the case of the emerging and developing countries, a negative link is also evident for the period 1970-2007 between the level of the public debt and gross fixed capital formation. This finding seems to confirm the existence of a significant transmission channel which operates via gross capital formation. Conversely, for the advanced economies, there is no clear link between the level of public debt and gross fixed capital formation.

A number of empirical studies have tried to determine the limit which the debt must not exceed in order to avoid a severe adverse impact on economic growth. Those studies [1] confirm the existence of a negative, non-linear causal relationship between the debt and GDP. In fact, they conclude that a low debt level has no effect on economic growth, whereas beyond a certain level, the debt has a negative impact on growth. According to these studies, the critical debt level is between 90 and 100 % of GDP.

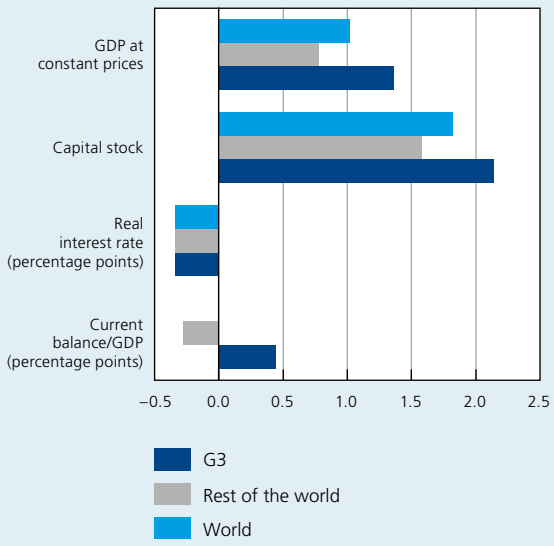
However, in some cases, the empirical findings do not bear out this threshold effect for debt levels equivalent to – or above – 90 to 100 % of GDP. That is notably the case in Japan, where the debt exceeds 200 % of GDP. This critical threshold therefore needs to be analysed and defined country by country, taking account of the domestic economic, budgetary and institutional characteristics. Market perception of solvency risk and macroeconomic stability is another crucial factor.

Long-term effects of a permanent reduction in the public debt

Although fiscal consolidation generally has a detrimental effect in the short term for countries which have no major solvency problems, in the long term a rebalancing of the budget is likely to be beneficial. Thus, on the basis of the IMF simulations [2], cutting the debt by 10 % in the euro

CHART 9 LONG-TERM EFFECTS OF A PERMANENT 10 PERCENTAGE POINT REDUCTION IN THE PUBLIC DEBT/GDP RATIO OF THE G3 (1), (2)

(G3 = euro area, United States, Japan; in %, unless otherwise stated)



Source: IMF, World Economic Outlook (October 2010).

(1) Simulation of the IMF's global integrated monetary and fiscal model, assuming that money saved on interest charges is used to cut taxes on labour incomes.

(2) The findings take no account of the probability that the public debt reduction will drive down the risk premiums on market interest rates. That fall would reinforce and accelerate the long-term positive effects on output.

(1) See for example Kumar and Woo (2010), Reinhart and Rogoff (2010a), Chercherita and Rother (2010) and Caner, Grennes and Koehler-Geib (2010).

(2) For more details, see IMF (2010c).

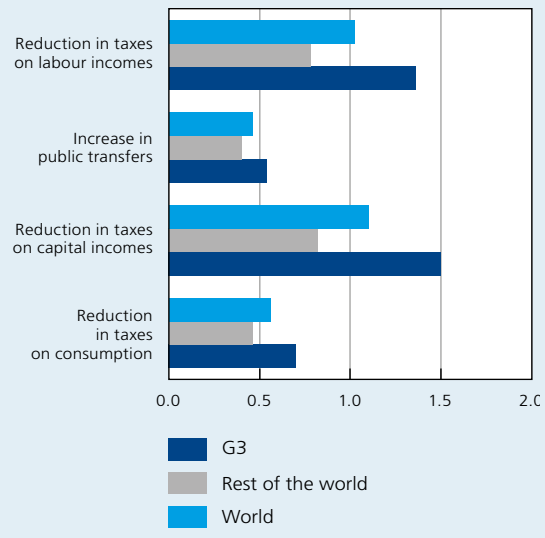
area, the United States and Japan would boost output not just in those countries but also in the rest of the world. The rebalancing introduced in this simulation exercise comprises permanent cuts in public consumption and transfers. Deficit reduction would lead to a steady decline in real interest rates, thus stimulating private investment.

A 10 % cut in the debt ratios would drive interest rates down by 30 basis points. That decline in interest rates would boost private investment, leading to an increase in the physical capital stock and output in the long term. The IMF points out that the improvement in output in the countries analysed also produces benefits for the rest of the world in the form of the expansion of exports to those countries. In the IMF exercise, the capital stock would thus expand by 2.1 % in the countries concerned, and by 1.6 % in the rest of the world.

In addition, lower interest rates would mean a reduction in debt interest charges. If the savings on interest are used to cut taxes on labour incomes, that will increase the labour supply and, consequently, output. If the savings on interest are used to reduce the taxes on capital incomes, the long-term effects on growth could be even more favourable, via increased investment in the private sector. Conversely, if the savings are used to cut taxes on consumption or to increase public transfers, the increase in output would be more modest.

CHART 10 IDEM CHART 9, IMPACT ON GDP AT CONSTANT PRICES ACCORDING TO HOW THE INTEREST SAVINGS ARE USED

(in %)



Source: IMF, World Economic Outlook (October 2010).

During the first three years of consolidation, the costs are likely to outweigh the benefits. Subsequently, the benefits should always outweigh the costs of fiscal consolidation. After five years, the gains resulting from consolidation would exactly offset the losses suffered in the first three years. In the long term, GDP would increase by 1.4 % in the euro area, the United States and Japan, and 0.8 % in the rest of the world.

It should be noted that this IMF simulation takes no account of the positive effect of debt reduction on the perception of sovereign risk, and hence on the risk premium on government securities. This is another factor which would help to cut the cost of financing the debt and the interest charges, reinforcing and accelerating the positive long-term effects on output.

2.3 Impact of the public debt on inflation

An increase in the public debt may, in certain cases, heighten the risk of inflation. If the public debt grows strongly, the government may in fact be tempted to reduce the value of that debt by generating inflation. That happens if the public debt is monetised. In that case, the government issues debts which are bought by the central bank, that purchase usually being mandatory. The money which the government thus receives from the central bank is used to finance the budget deficit. The money supply expands substantially as a result, and there is inflationary pressure which may lead to hyperinflation.

All periods of hyperinflation which have occurred in the past have originated from a budget crisis which may be due to war, extremely negative economic shocks, or bad policies. A budget crisis may prevent the government from raising finance on the capital market, or force it to borrow at very high interest rates, so that it resorts to monetisation of the public debt.

If the public debt increases, and if the economic agents take account of a greater likelihood of monetisation of the debt, inflation expectations – and hence also current inflation – may rise. In that case, apart from the transmission channels already described, there would be an additional negative impact on economic activity.

Whether or not this risk materialises depends in particular on institutional factors. Thus, it will not be possible to monetise the public debt if the law prohibits the monetary financing of public spending or deficits, as is the case in the European Union. The independence of the central bank and a clear mandate geared to the maintenance of

price stability are also important to prevent the risk of a strong rise in the public debt triggering higher inflation.

During the period after the Second World War, a rising debt ratio was accompanied by higher inflation in certain developing or emerging countries. In contrast, during that same period, the increase in the debt ratio in the advanced countries did not cause inflationary pressure. The existence of institutions independent of the government for deciding on monetary policy, and the role of those institutions in monitoring inflation, were certainly crucial here.

Be that as it may, a situation featuring unsustainable public finances makes it considerably more difficult to conduct monetary policy, which must be centred on price stability. If such a situation were to fuel inflation expectations, there would inevitably be a tightening of monetary policy in the form of a rise in short-term interest rates. In addition, tensions could appear between the central bank and the government which, having a substantial public debt, is very sensitive to interest rate increases.

3. Strategies for reducing the public debt

The accumulation of historically high levels of public debt is problematic for several reasons. First, high and rising public debt levels cause problems for the sustainability of public finances and pose solvency risks. The resulting increase in the risk premium makes it more expensive for countries to borrow. The financial markets already doubt the solvency of the State in the case of some countries such as Greece, Ireland and Portugal. In addition, the rise in interest rates caused by the increase in the public debt may have an adverse effect on long-term growth and productivity, e.g. as a result of slower private investment. Moreover, the budgetary impact of population ageing will further aggravate the problem of the sustainability of public finances. Finally, the uncertainty over sustainability may reduce the capacity of monetary policy to control inflation expectations and to exert a favourable influence on the real economy.

Consequently, the consolidation of public finances is unavoidable in almost all the advanced countries. To that end, there is an urgent need for credible consolidation programmes. Nonetheless, the strategy may vary from one country to another. It will be more urgent and more stringent in the countries facing high and rising risk premiums. For those countries, postponing the consolidation would not only be likely to increase the cost of financing the public debt, it would also exacerbate macroeconomic instability. The cost of non-intervention could therefore be even greater. The heavily indebted governments must therefore embark on adjustment programmes without delay. For the countries with lower risk premiums, consolidation is no less urgent, but the adjustment can be made more gradually.

The three-pronged strategy formulated by the Stockholm European Council in March 2001 for addressing the challenge of population ageing is as relevant as ever in the current battle to restore sustainable public finances. That budgetary strategy consists in reducing the public debt, increasing the employment rate and productivity, and reforming the existing pension schemes, health care and care of the elderly.

First, almost all the advanced countries must achieve and maintain sound budgetary positions. In most of the advanced countries, the adjustment measures should consist mainly of sharp reductions in public spending, which has edged upwards in recent years. However, it is necessary to avoid reducing certain public spending regarded as productive, such as public expenditure on investment, research and innovation, or education. Yet in view of the scale of the fiscal consolidation required in most of the advanced countries, it is probably inevitable that consolidation measures will have to be taken on the revenue side as well. The strengthening of the institutions and the fiscal rules is also essential to ensure successful consolidation. In this context, the strengthening of the budgetary framework in the euro area is a positive sign. In this regard, the public debt will receive more attention than in the past. Thus, countries with a gross debt in excess of 60 % of GDP must reduce the gap between the two variables by at least 1/20th per annum.

Second, the countries must increase participation in the labour market and boost labour productivity, as effective use of those measures could augment potential GDP, thus also expanding the fiscal scope. Education is regarded as a decisive factor here.

Third, the countries must consider appropriate reforms to their pension schemes, health systems and arrangements for the care of the elderly. In fact, the constraints connected with ageing-related expenditure will be particularly great in the light of the demographic pressures in many countries. It is therefore necessary to develop strategies to manage the increase in that expenditure. For the advanced countries, where the pressure is very great, it is essential to avoid an exponential rise in that expenditure in the medium term. In regard to pension spending, many advanced countries should introduce reforms in order to raise the effective retirement age.

Conclusions

The financial crisis has not only brought a sharp economic slowdown and great uncertainty, it has also caused a deterioration in public finances in most of the advanced countries. That situation, characterised by a strong rise in public debt levels, is problematic. In certain countries, the increase in the level of the public debt actually raises solvency risks. In addition, the costs relating to ageing will aggravate the problem of the sustainability of public finances.

A debt reduction programme is therefore needed in most of the advanced countries. The consolidation will be more urgent for the countries whose solvency is called into question by the financial markets and which face high and rising risk premiums. For the other countries, the adjustment can be implemented more gradually. The consolidation measures should focus mainly on cuts in public spending. Given the scale of the adjustment needed in most of the advanced countries, measures which increase revenues will probably also be necessary. In the short term, the consolidation could have the effect of slowing the pace of economic activity. In the long term, however, budgetary rebalancing must certainly be beneficial.

At present, some countries have already implemented consolidation measures while others – including Belgium – are yet to put most of the measures in place.

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The Europe 2020 strategy

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Introduction

The economic and financial crisis has had a severe effect on the economies of the Member States of the EU, emphasised their structural weaknesses, placed strains on the euro and cast doubt on the credibility of Economic and Monetary Union. In order to rectify this situation, the European authorities resolved to define a new strategy for growth and employment and to carry out a thoroughgoing reform of their model of governance.

The Lisbon strategy for growth and jobs thus gave way in 2010 to the Europe 2020 strategy. This defines five key targets to ensure more vigorous growth and create more jobs: founded on the realignment of policies linked to managing the crisis towards structural reforms over the medium and long term, it is focused on strengthening the competitiveness of the European economy, as well as productivity, growth potential, social cohesion and economic convergence.

Alongside this, the EU has geared itself up in order to strengthen policy coordination and monitoring. The existing surveillance mechanisms have been strengthened and new devices have been introduced, notably in the field of macroeconomic imbalances. Furthermore, a single timetable applicable to all these surveillance mechanisms, the European Semester, was introduced as from 2011. This is intended to strengthen consistency between the economic, social and budgetary elements of the policies implemented on the one hand, and between European action and that of the Member States on the other.

The first section of this article sets out the underlying principles of the Europe 2020 strategy. The second describes the new model of governance adopted by the EU and how the European tools ensuring overall cohesion are interconnected. The third is devoted to the commitments made by the Member States in the context of the Europe 2020 strategy as detailed in the national reform programmes drawn up for 2011.

1. Towards a new vision of the European economy: the Europe 2020 strategy

The European integration process is marked out by initiatives intended to coordinate efforts in the political fields of action falling essentially within the spheres of competence of the Member States. During the 1990s, various coordination procedures thus saw the light of day, including the broad economic policy guidelines (BEPG) put in place in 1996 in order to ensure economic convergence between the economies committed to the path towards the euro. The Luxembourg process, launched in 1997, established the institutional basis for the European Employment Strategy heralded a few years earlier by the adoption of five key targets in aid of employment at the Essen European Summit, with the aim of achieving a significant reduction in unemployment at the European level and harmonising the structural reforms to be implemented on the national labour markets. The Cardiff process, instituted in 1998, was focused on coordinating structural policies. Lastly, the Cologne process opened the way, from 1999 onwards, to macroeconomic dialogue.

With effect from 2000, these European initiatives have been led by the Lisbon strategy, the aim of which was to make Europe, within ten years, "the most competitive and dynamic knowledge-driven economy in the world,

capable of sustainable economic growth with more and better jobs and greater social cohesion". It involved an overall strategy that connected up the sectorial strategies existing before it. It focused simultaneously on modernising the European social model, promoting the implementation of structural reforms intended to strengthen competitiveness, laying the foundations of a knowledge-based society and improving the prospects for growth by striking an appropriate economic policy balance. It was supported by guidelines and common targets, and also multilateral surveillance based on a set of indicators and the filing of country reports detailing the policies implemented in the Member States.

In 2005, the mid-term review of the Lisbon strategy by the Commission regretted the multiplicity of priorities and the lack of coordination, emphasising the need to refocus it on growth and jobs. From then on, the renewed Lisbon strategy sought to strengthen integration by setting out a single and coherent strategic vision of the European challenges and also to channel the efforts of the Member States into a set of priority action points. It was given concrete form by the adoption of twenty-four integrated guidelines, embracing not only employment policy but also macroeconomic and microeconomic policy.

The structural problems of the EU – lack of growth and productivity, inadequate participation of the population in the labour market, rather incomplete accommodation of the constraints linked to ageing – have nevertheless persisted whilst new worries were appearing, in particular the greater competition from the emerging economies and the challenges linked to climate change and management of natural resources. Moreover, the crisis in 2008 placed strains on the financial sector and negated part of the efforts to stabilise budgets that had been accomplished in the preceding years.

This is the context in which the Europe 2020 strategy was prepared. It is focused both on strengthening the EU by ensuring a quick exit from the crisis and on promoting "smart, sustainable and inclusive" growth in order to face up to the main long-term challenges represented by international competition and the ageing of the population. Like the Lisbon strategy, it is based on a set of integrated guidelines, now numbering ten, and key targets that have become virtually binding and which are also fewer in number. By way of stronger multilateral surveillance, it attempts to correct the shortcomings of the previous strategy, mainly in terms of the national appropriation of targets and the implementation of structural reforms needed to achieve them.

The principles on which the Europe 2020 strategy is based are laid out in the European Commission's communication dated 3 March 2010[1]. They were discussed and approved by the heads of State and government during the European Council meeting held in March 2010. The Europe 2020 strategy was then endorsed by the European Council in June 2010.

1.1 Towards smart, sustainable and inclusive growth

The Europe 2020 strategy is focused on making the EU a "smart, sustainable and inclusive" economy. These three priorities characterise the vision of the social market economy envisaged by the EU in the aftermath of the crisis. They break down into seven flagship initiatives – broadly-based action areas intended to support quality development of growth and employment.

Each of the flagship initiatives formed the subject of a communication from the Commission during 2010 and 2011. These define courses of action, emphasise the stumbling blocks and the progress expected and set targets – in terms of concrete action to be implemented at the national, European and/or international levels –, priorities, rules of governance and also, where relevant, indicators of progress.

1.1.1 Smart growth

Focusing on "smart" growth means the EU making headway in the fields of innovation and education. In particular, this involves catching up the accumulated backlog with regard to research and development (R&D) as compared to competing economies, so as to improve the competitiveness of the European economy. This lack of competitiveness is due simultaneously to inadequate investment in R&D; overly limited conversion of research findings into commercially available products and services; and far from optimum exploitation of the opportunities offered by information and communication technology (ICT), whether at firm level or within private households. It is for these reasons that the innovation initiative and the digital society initiative have been set up. Alongside this, smart growth means that workers, and in particular young people, have at their disposal the skills needed to exploit this potential for growth. The Youth on the Move initiative gives its backing to the excellence of training, in particular in higher education, and to a successful transition between school and the labour market.

(1) EC (2010a).

1.1.1.1 "Innovation Union[1]"

This initiative contains a set of action points intended to improve the framework conditions for research and innovation, so as to raise the quality of life and preserve the European social model.

These actions are concerned not only with education (encouraging excellence and developing skills) but also with building a framework (bringing about a European Research Area) and funding (optimising the amounts invested in R&D and preventing fragmentation). Furthermore, they are focused on encouraging the transfer of research results and also their concrete expression in terms of innovation, by deriving support in particular from the European Institute of Innovation and Technology established in 2008.

In order to remove obstacles to the conversion of ideas into products and services, it is necessary to improve access to public and private funding for innovative enterprises (particularly SMEs), establish a favourable regulatory and normative framework (single market for innovation, European patent) and facilitate access to the results of public research and the transfer of technology. Moreover, the Commission is envisaging launching European innovation partnerships in certain fields, in particular ageing in good health and eco-innovation.

Monitoring of this initiative is ensured by way of the "Innovation Union Competitiveness Report[2]" published every two years. The first issue came out in June 2011. The report analyses the strengths and weaknesses of national policies on research and innovation by means of a scoreboard containing a set of progress indicators.

In addition, the Commission has put in place a working group tasked with developing an indicator that measures the proportion of high-growth innovative enterprises in the economy, and which will allow a comparison between the EU's performance and that of its main partners. This new indicator will form part of the key European targets as from 2012, alongside the target of investing an amount corresponding to 3 % of GDP in R&D.

1.1.1.2 "A digital agenda for Europe[3]"

The aim of this strategy is to exploit to best effect the potential for growth and cohesion offered by ICT.

Following wide-ranging public consultation, the Commission has defined seven action areas:
- to develop a single digital market;
- to harmonise standards and facilitate interoperability;
- to ensure digital security and combat cyber-crime;
- to promote fast internet;
- to stimulate R&D in ICT;
- to encourage digital culture and skills;
- to exploit the advantages of ICT in order to improve everyday life and address the challenges facing society.

For each of these fields, the Commission has indicated a set of concrete action points to be implemented (about a hundred in total), some of which are accompanied by a timetable. The international dimension of the digital strategy is also taken into account, in particular through the signing of agreements focused on promoting e-commerce and the protection of intellectual property rights.

1.1.1.3 "Youth on the Move[4]"

The aim of this initiative is to improve training for young people and to facilitate their integration into the labour market.

The measures envisaged are supported on four foundations:
- modernising systems of education and training in order to encourage excellence and the acquisition of key skills (improving prevention of students dropping out of school, providing high-quality study advice, adapting school syllabuses to the skills required on the labour market, encouraging apprenticeships and the recognition of non-formal and informal skills, etc.);
- encouraging access to, and the appeal of, higher education (providing funding to non-traditional learners, encouraging student mobility between establishments, guaranteeing the quality of information both with regard to programmes and opportunities for research, developing a performance indicator for universities, etc.);
- encouraging cross-border mobility of young people whether they are studying or already have a job (giving all young people the opportunity to study or undergo training abroad during their course; creating a European "Youth on the Move" card focused on facilitating the integration of young people outside their country of origin and a "European skills passport" intended to assert the value of non-formal skills; developing the European Vacancy Monitor);
- facilitating the obtaining of a first job both in the country of origin and abroad by providing for appropriate support at the start of a professional career.

(1) EC (2010d).
(2) It replaces the old report on science, technology and competitiveness.
(3) EC (2010b).
(4) EC (2010c).

1.1.2 Sustainable growth

Sustainable growth means that the EU commits itself to a path of reducing the consumption of energy, not only with the aim of lowering energy dependence but also in order to lessen the effects of human activity on the environment in general and on global warming in particular. The EU has developed an initiative encouraging the rational use of energy and the development of ecological technologies, which are potential sources of growth and employment. In this context of changing sources of energy supply, moreover, it is important to be able to rely on a leading-edge industrial sector that is competitive and causes little pollution, which is the subject of the initiative devoted to industrial policy.

1.1.2.1 "A resource-efficient Europe[1]"

This initiative is focused on encouraging the transition towards a low-carbon economy, by uncoupling growth from the use of natural resources.

The initiative provides for action in four directions:
- stimulating economic performance whilst still using fewer resources;
- looking for and creating new options for economic growth, intensifying innovation and strengthening the competitiveness of the EU;
- ensuring the security of supplies of essential resources;
- combating climate change and limiting the environmental impact of the use of resources.

In this context, it is necessary to exploit the synergies between policies and between sectors to best effect, and take account of the full range of interests in play (including the positive and negative derived effects) when a measure is introduced. This balancing process should improve cost transparency. When applied at the level of products and services, it is capable of improving information for consumers and therefore guiding their choices in favour of initiatives presenting the least environmental impact.

This initiative is essentially focused on defining a legal framework which ensures that the long-term strategies concerned in particular with energy, climate change, research and innovation, industry, transport, agriculture, fisheries and the environment contribute to a more efficient use of natural resources, and in particular energy. This legal framework will be made up of coordinated roadmaps in various fields; for instance, for creating a resource-efficient European transport system. The medium-term measures, some of which are already listed on the 2011 agenda (such as the revision of the policies on water, biodiversity and supply of raw materials), will have to fall into line with this reasoning.

1.1.2.2 "An integrated industrial policy for the globalisation era[2]"

The aim of industrial policy is to maintain and strengthen competitiveness whilst taking account of requirements linked to sustainable development.

In the context of this initiative, the European strategies and policies are assessed depending on their impact on the competitiveness of industry in terms of costs, prices and innovation. This horizontal approach is complemented by a sector-specific approach (which takes account of the supranational dimension and the interdependence of activities). Particular attention is paid to the chain of production and the life-cycle of the product, from production infrastructure right through to after-sales service, and from raw material right through to recycling. The development of a strategy for raw materials, which is intended to ensure their supply and sustainable management, is similarly envisaged.

Provision is also made for several initiatives to improve framework conditions of industrial activity (reduction of administrative burden, improvement of access to funding – in particular for SMEs –, strengthening of European standardisation, support for and dissemination of innovation – particularly in energy-efficient technologies –, etc.).

1.1.3 Inclusive growth

The consequences of the prevailing demographic trends are that the dependency ratio, which compares the number of economically inactive people with the number of people in work, is showing a considerable increase. The initiative for new skills and jobs is intended to put in place the conditions for the widest possible participation of people of working age in the labour market, by taking action both on working conditions and on the skills and qualifications of workers. The platform against social exclusion is in turn focused on encouraging the return to employment – the integration factor *par excellence* – and on reducing inequalities.

1.1.3.1 "An agenda for new skills and jobs[3]"

This initiative fits into the context of the target of increasing the employment rate by drawing support from a set of courses of action and concrete action points focused on:

(1) EC (2011b).
(2) EC (2010e).
(3) EC (2010f).

– strengthening flexibility and security on the labour market and reducing its segmentation (making provision for flexible and reliable contractual arrangements – through the institution of a single employment contract, for example –; putting in place a policy for lifelong learning by making provision for cost-sharing that is both efficient and gives preference to the most vulnerable workers; improving support for job-seekers; adapting unemployment benefit payments);
– developing the qualifications and the skills needed to carry out a job today and tomorrow (developing monitoring tools with regard to skills; harmonising the systems for recognising professional competence; ensuring that everyone has training that combines specific skills and more general skills facilitating access to employment; encouraging the geographical mobility of workers; tapping the employment potential of migrant workers);
– improving the quality of jobs and working conditions;
– putting in place an environment that favours the creation of jobs (reducing the tax system weighing on labour; relaxing administrative constraints).

1.1.3.2 "The European platform against poverty and social exclusion[1]"

The European platform against poverty and social exclusion concentrates on mobilising the Member States, the European institutions and the other stakeholders around the target of reducing poverty in a context where smaller government budgets will necessitate optimum use of resources and the development of new forms of social inclusion. Moreover, this involves reducing the disparities between the regions of the EU by encouraging types of investment that foster growth and employment in the least favoured regions.

The Commission has established the following lines of intervention:
– taking action at the level of policies as a whole, in particular to encourage access to the labour market, to the social protection system and to essential services (health, housing and education);
– overseeing a wider and more efficient use of European funding to provide support for social inclusion and combat discrimination;
– stimulating social innovation;
– encouraging partnerships between the public and private sectors and exploiting the opportunities offered by the social economy to best effect;
– strengthening policy coordination between the Member States.

The progress achieved will be examined each year at a convention attended by all the stakeholders. Good practice will be highlighted in the context of a mutual learning procedure.

1.2 Five key targets

Contrasting sharply with the multiplicity of targets applying in the context of the Lisbon strategy, the Europe 2020 strategy focuses on a small number of quantified targets affecting four fields on which the EU wishes to concentrate its efforts: raising employment rates; knowledge and innovation; a more sustainable economy; and improving social inclusion.

These involve:

1) raising the total employment rate for men and women between 20 and 64 years of age to 75 % in 2020, by virtue of greater participation of young people, older workers and low-skilled workers, and the better integration of legal migrants;

2) with regard to innovation, raising the total amount of public and private investment in R&D to 3 % of GDP in 2020;

3) with regard to education, reducing the school drop-out rate to less than 10 % and increasing the proportion of people between 30 and 34 years old who have completed tertiary (or equivalent) education to at least 40 %;

4) with regard to climate and energy, reducing greenhouse gas emissions by at least 20 % compared to the level in 1990, increasing the share of renewable energy sources in final energy consumption to 20 % and driving up energy efficiency by 20 % (the "20/20/20" targets);

5) promoting social inclusion, in particular by reducing poverty so that within the EU as a whole, at least 20 million people are no longer faced with the risk of poverty or social exclusion[2].

The targets with regard to energy were already listed in the legislative texts of the EU and mean a sharing of

(1) EC (2010g).
(2) The population at risk of poverty and exclusion is defined by three indicators: the risk of relative poverty, severe material deprivation and the fact of living in a household where there is a low work intensity (for further details, see Section 3.5). The Member States can choose their national targets on the basis of the indicators that they deem most appropriate depending on their specific situation.

burdens between the Member States. In other respects, the countries have been called upon to set their own targets and national paths in close consultation with the Commission, by taking account of their starting position and their specific situation in accordance with the national decision-making procedures.

1.3 General mobilisation to achieve the targets of the strategy

Certain institutions of the EU (Parliament, Council and Commission), the social partners, regional and local authorities and other stakeholders are being called upon to cooperate so as to strengthen the legitimacy of the strategy, so that the efforts of all parties converge on the accomplishment of the five key targets for the long term adopted for the EU.

At the same time, all the policies and more broadly-based tools that the EU has at its disposal need to be harnessed in aid of the Europe 2020 strategy, in order to speed up progress in the priority fields. In particular, this involves improving the operation of markets, both internal (Single Market and competition policy) and external (partnerships with other countries or groups of countries and establishment of an international regulatory framework in certain future-oriented fields such as ecological technologies and products and leading-edge technologies). Furthermore, the EU budget needs to be harnessed in aid of growth and employment by way of programmes supported by the Structural Funds, which are preferential channels of funding for achieving the strategic targets. These include, respectively, the European Regional Development Fund (correction of regional imbalances), the Cohesion Fund (economic and social catching-up of countries lagging behind) and the European Social Fund (improvement of jobs and development of employment opportunities).

2. The new European model of governance

The Treaty on the Functioning of the European Union (TFEU), which took effect on 1 December 2009, lays the foundations of European governance. It defines, among other things, those matters for which the EU has its own powers and those for which it has shared powers, and it creates the institutional framework, where relevant, for the policy coordination and surveillance mechanisms for the Member States.

Since the old surveillance mechanisms had shown their limitations, the European Council made provision in June 2010 for improving the coordination of economic policies and establishing the basis for stronger governance. It outlined a certain number of directions, focused notably on tightening up the stability and growth pact (SGP) and introducing a framework for macroeconomic surveillance. This results in a new three-pronged approach to surveillance, supported by the introduction of a single timetable, the European Semester, intended to achieve better coordination of political action in the budgetary and economic fields.

2.1 Institutional foundations

Unlike monetary policy, which falls within the exclusive sphere of competence of the EU for countries that have adopted the euro, policy on economic, social and employment matters falls within a joint sphere of competence shared between the EU and the Member States. Article 5, paragraph 1 of the TFEU provides that "the Member States shall coordinate their economic policies within the Union. To this end, the Council shall adopt measures, in particular broad guidelines for these policies". Paragraph 2 stipulates that "the Union shall take measures to ensure coordination of the employment policies of the Member States, in particular by defining guidelines for these policies". Finally, paragraph 3 states that "the Union may take initiatives to ensure coordination of Member States' social policies". More extensive special provisions, stipulated in Article 136 of the TFEU, apply to the countries in the euro area.

Moreover, the Treaty makes provision for the coordination mechanisms for these policies: in Article 121 for economic policy, in Article 126 (which sets up the surveillance mechanism for excessive government deficits and, in the near future, will contain the provisions relating to the European Stability Mechanism) for budgetary discipline and Article 148 for employment policy respectively. The mechanisms for coordinating social policies are not established by the TFEU, on the other hand. In this regard, use is made of the open method of coordination, which, by way of the sharing of good practices and the peer-review of national policies, is focused on bringing together the structural reforms implemented in the Member States.

2.2 Integrated guidelines

Together with the employment guidelines (EGL), the broad economic policy guidelines (BEPG) – that provide a framework for macroeconomic policies and national microeconomic reforms – constitute the underlying tool for coordinating the economic and social policies of the EU. In accordance with Article 148 of the TFEU, the EGL are required to be compatible with the BEPG. Although

they are adopted separately – the former in the context of the EPSCO Council[1], the latter in the context of the ECOFIN Council[2] – the EGL and the BEPG together form the integrated guidelines that indicate preferred courses of action to the Member States.

In a quest for simplification and legibility, which chimes with the aspirations of the new European governance, the number of integrated guidelines drawn up in 2010 was greatly reduced. The Recommendation adopted in July 2010[3] by the ECOFIN Council has six BEPG, whilst the decision of the EPSCO Council taken in October of the same year[4], has four EGL. By comparison, the integrated guidelines adopted in 2008 for the period 2008-2010 had sixteen BEPG and eight EGL.

The integrated guidelines adopted in 2010 envisage that adequate measures are taken, in the context of the broad economic policy guidelines:

1) to ensure the quality and the sustainability of public finances;

2) to address macroeconomic imbalances;

3) to reduce imbalances within the euro area;

4) to optimise support for R&D and innovation, strengthen the knowledge triangle (education, research and innovation) and unleash the potential of the digital economy;

5) to improve resource efficiency and reduce greenhouse gas emissions;

6) to improve the business and consumer environment and modernise and develop the industrial base in order to ensure the full functioning of the Single Market.

In the context of the guidelines on employment policy, efforts need to be concentrated on:

7) increasing labour market participation of men and women, reducing structural unemployment and promoting job quality;

8) developing a skilled workforce responding to labour market needs and promoting lifelong learning;

9) improving the quality and performance of education and training systems at all levels and increasing participation in tertiary or equivalent education;

10) promoting social inclusion and combating poverty.

It should be noted that one of the EGL adopted in 2010 is explicitly focused on social policy. In addition, the integrated guidelines set out the five key targets accepted in the context of the Europe 2020 strategy with regard to innovation (Guideline 4), sustainable development (Guideline 5), employment (Guideline 7), education (Guideline 9) and social inclusion (Guideline 10).

Although the TFEU envisages that the guidelines are updated every year, the Council has agreed that they should remain unchanged up to 2014 in order to allow them time to produce their effects before adapting them, where relevant.

2.3 Coordination mechanisms

The economic and financial crisis emphasised the need to improve coordination of policies and monitoring of the progress achieved. It was from this perspective that the Task Force on Economic Governance conducted its work. Its final report[5], published in October 2010, introduces fundamental changes to the coordination mechanisms. Some existing devices look likely to be strengthened, whilst new convergence tools are being, or will soon be, put in place.

From now on, surveillance will be carried out by way of a three-pronged approach. The first is based on the stability and growth pact (SGP) and is concerned with fiscal surveillance. The second, which has yet to be implemented, will establish the institutional framework for macroeconomic surveillance. The third relates to the surveillance of structural reforms and is supported by the progress recorded in the context of the five key targets of the Europe 2020 strategy.

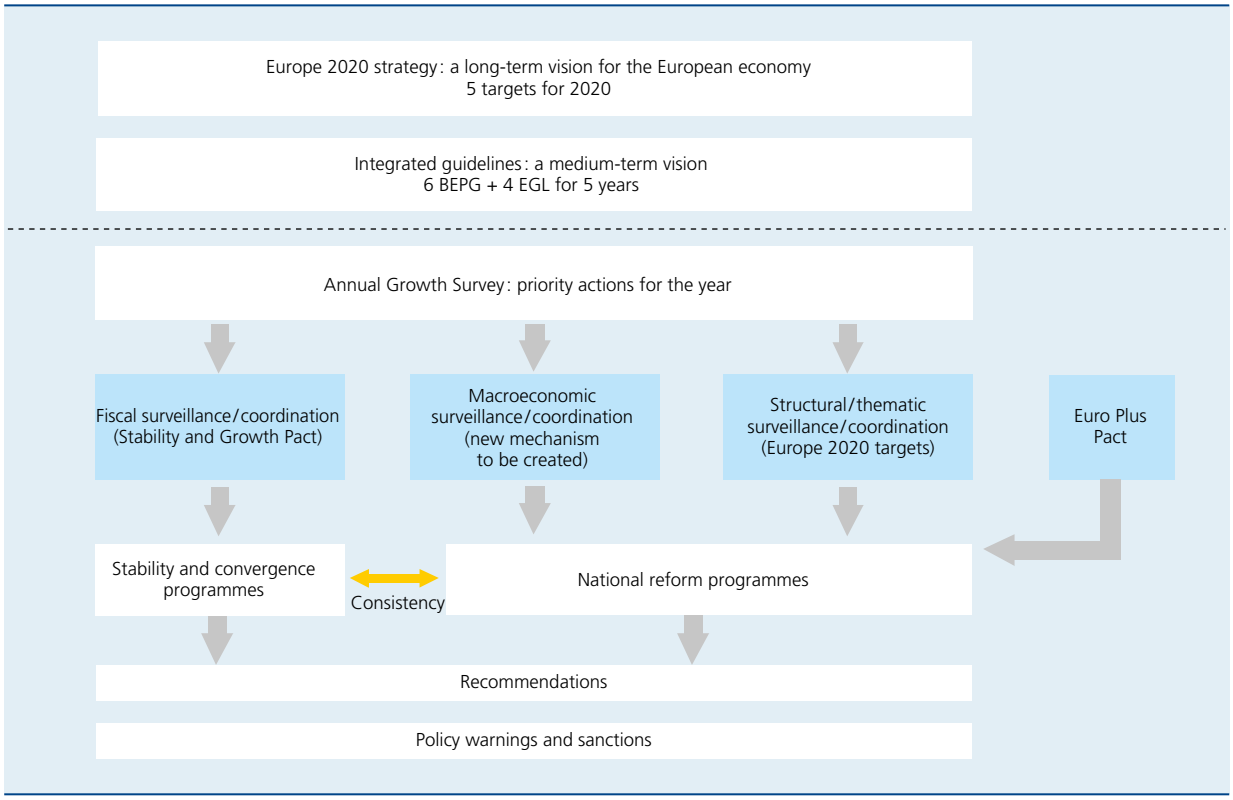
Added to these three channels is the Euro Plus Pact, which envisages stronger surveillance for the member countries of the euro area and the other signatory countries. In addition, the surveillance procedures are governed by the European Semester.

2.3.1 Fiscal surveillance: the stability and growth pact

The SGP launched at the European Summit in Amsterdam in June 1997 is the tool that the countries of the EU have armed themselves with in order to ensure budgetary discipline and prevent the occurrence of excessive government deficits. It imposes on the Member States a requirement

(1) The EPSCO Council brings together the EU's Ministers of Employment, Social and Consumer Affairs.
(2) The ECOFIN Council brings together the EU's Economics Ministers and Ministers of Finance.
(3) EU (2010a).
(4) EU (2010b).
(5) Task Force on Economic Governance (2010).

CHART 1 STRUCTURE OF THE POLICY COORDINATION AND SURVEILLANCE MECHANISMS IN THE CONTEXT OF THE EUROPE 2020 STRATEGY



Sources: EC, NBB.

to have, in the long term, budgets that are close to being in balance or show a surplus and thus contribute to the monetary stability of the EU.

The SGP includes a preventive arm and a corrective arm. The preventive element is represented by multilateral surveillance: the Member States set out their budgetary targets for the medium term in a stability programme (in the case of countries that are members of the euro area) or convergence programme (in the case of the other Member States) which is updated every year, and which also indicates how they intend to arrive at a healthy medium-term budgetary position whilst taking account of the budgetary impact of population ageing. The Commission assesses these programmes and, in the event of a budgetary slippage, an early warning system allows the ECOFIN Council to direct a recommendation to the Member State concerned.

The excessive deficit procedure, as described in Article 126 of the TFEU, constitutes the corrective arm of the pact. It is launched when a Member State exceeds the threshold for government deficit which is set, in the absence of exceptional circumstances, at 3 % of GDP. The ECOFIN Council then issues recommendations for the State to bring an end to this situation and sets a timetable for it to accomplish this. Non-observance of these recommendations leads notably to the application of financial sanctions which may take the form of a non-interest-bearing deposit or a fine.

Following the conclusions of the Task Force on Economic Governance, the European Council approved in March 2011 four new legislative provisions [1] to strengthen the fiscal surveillance and apply measures intended to ensure observance of the fixed rules systematically and at an earlier stage. To rectify the laxity that certain Member States demonstrated during periods of favourable economic conditions, the preventive arm of the SGP will be modified so that control of public finances will be based on a new concept of prudent management of budgetary policy. Sanctions to be applied

(1) The legislative package (four measures linked to budgetary surveillance and two measures linked to macroeconomic surveillance) is currently being debated in the European Parliament.

against a country in the euro area that does not implement the measures necessary to correct its adjustment path will be provided for in the preventive arm. The corrective arm of the SGP will in turn attach greater importance to changes in debt levels, which will form the subject of examination as is the case for budget deficit developments. A system of graduated financial sanctions will be introduced for the Member States in the euro area. Lastly, minimum requirements, linked notably to systems of public accounting and statistics, will be imposed on the Member States as far as budgetary policy is concerned.

2.3.2 Surveillance of macroeconomic imbalances

Alongside the strengthening of fiscal surveillance, the European Council introduced in March 2011 a new element of economic coordination in the EU. This involves a procedure for carrying out surveillance of macroeconomic imbalances and represents the counterpart to the excessive (budget) deficit procedure.

As in budgetary matters, the procedure will include a preventive arm and a corrective arm. Based on a regular assessment supported by a scoreboard of economic indicators, the Commission will endeavour to identify those Member States showing signs of risk at an early stage. The Council will be able to adopt recommendations with respect to a Member State showing signs of serious imbalances and/or presenting a threat to the healthy functioning of Economic and Monetary Union and, if appropriate, launch an excessive imbalance procedure, which will translate into a national action plan accompanied by deadlines for implementation. Any Member State that repeatedly fails to conform in this regard would lay itself open to a fine consisting of the annual payment of an amount proportional to GDP.

2.3.3 Surveillance of structural reforms: the thematic approach

In contrast to the surveillance procedures for budgetary and macroeconomic matters which include a corrective element, thematic surveillance is mainly supported by peer pressure.

In this context, the European Council examines the economic situation and the employment situation in the EU every year. It adopts conclusions on the basis of these exercises and formulates a group of guidelines, the BEPG and the EGL, intended to guide national economic and employment policies.

In response to these strategic guidelines, the Member States are called upon to supply information about the measures that are implemented or planned. Since the introduction of the Europe 2020 strategy, they bring all this information together into a single document, the national reform programme, in which they identify the main obstacles (or bottlenecks) standing in the way of growth and job creation, as well as the measures envisaged to remove them. Similarly, this document shows the translation of the five key targets into national targets and the initiatives taken, or to be taken, to set the country on the defined path.

The Commission examines the commitments and policies of the Member States in the light of the guidelines. It can direct a warning to those countries whose economic or employment policies do not conform to the BEPG or EGL. Following this examination, the Council, on the basis of a proposal from the Commission, may address recommendations to the Member States if it deems this to be appropriate.

2.3.4 Euro Plus Pact

Added to the three surveillance mechanisms referred to above is the Euro Plus Pact, itself also adopted during the European Summit in March 2011. This new pact is intended to provide further coordination of the economic policies of the signatory Member States, that is to say the countries in the euro area with the addition of Bulgaria, Denmark, Latvia, Lithuania, Poland and Romania, with the aim of improving competitiveness and achieving a greater degree of convergence.

The Euro Plus Pact is based on four guiding principles:

- it follows the model of governance that already exists in the EU and is compatible with the existing tools (the Europe 2020 strategy, the integrated guidelines, the SGP, the new framework of macroeconomic surveillance and the European Semester) but means additional and more ambitious commitments than those that have already been approved; these need to be listed in the stability and convergence programmes and in the national reform programmes;
- it gives preference to concrete action in essential fields, directed according to common goals, to encourage competitiveness, promote employment, improve the viability of public finances and strengthen financial stability;
- commitments are undertaken every year; they specify the measures to be implemented in the following twelve months by following the example of best practices and best-performing countries. Annual monitoring of these commitments is carried out by the Commission;
- the signatory countries commit themselves to completing the Single Market.

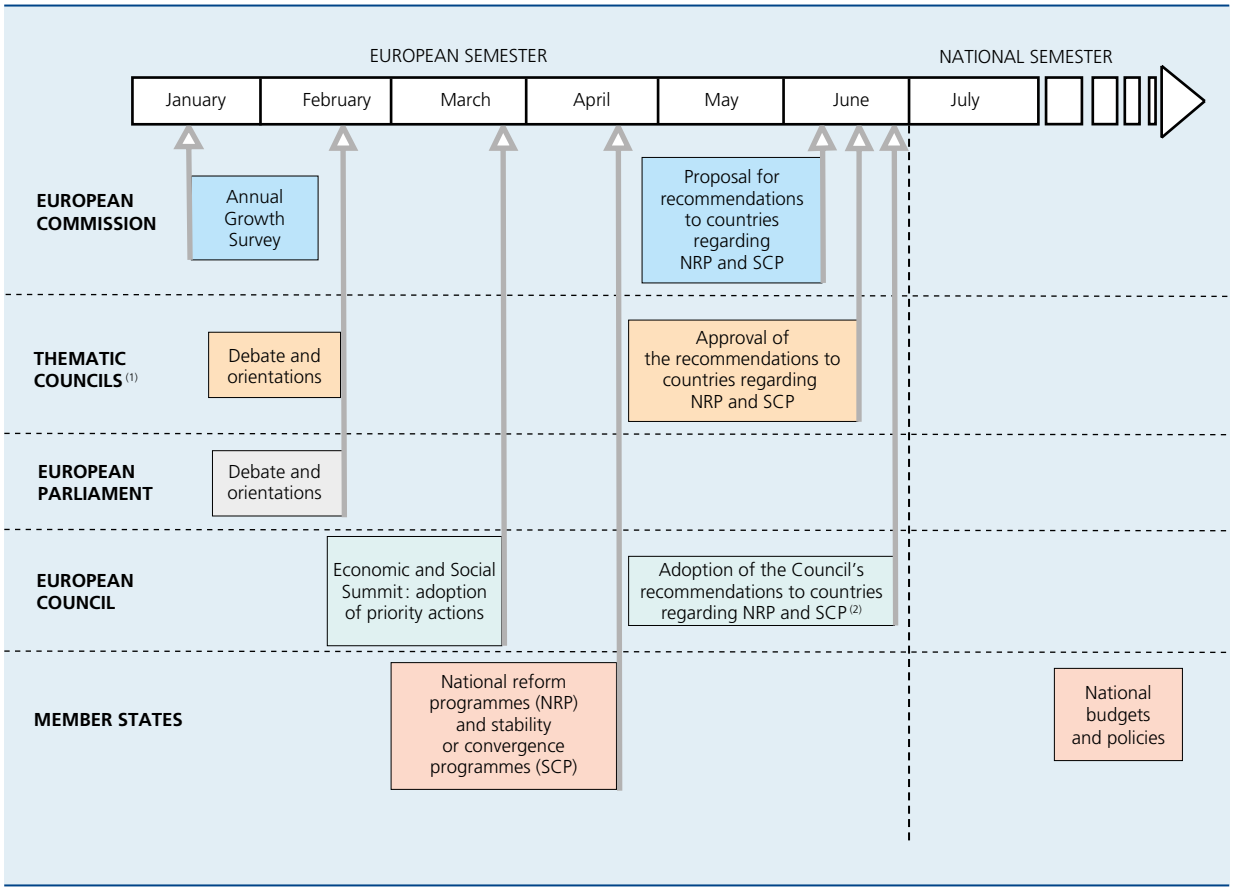
2.3.5 The European Semester

The introduction of the European Semester marks a turning point in the method of implementing European policy on growth and jobs. Up to now, discussions between the EU and the Member States relating to budgetary and economic policies, and also structural reforms, followed independent procedures accompanied by specific timetables for filing reports, examining progress and formulating recommendations to the Member States. The institution of a European Semester allows the efforts of the Member States to be coordinated and directed according to long-term targets and the priorities defined for the year to come.

The introduction of the European Semester also results from the conclusions of the Task Force on Economic Governance. It is the only measure already implemented since it requires no amendment of the TFEU. This concept had already been referred to in the conclusions of the European Council meeting in June 2010. It was a question of bringing forward the filing date for the stability and convergence programmes so that the budgetary plans of the Member States could be judged by their peers and any adjustments in the light of these comments could be introduced before the adoption of definitive budgets at the national level.

The concept of the European Semester actually refers to all the policy surveillance and coordination processes. This exercise starts with the Annual Growth Survey carried out in January by the European Commission. The latter draws up a set of annual priority actions which, once approved by the European Council in March, are taken into account in the economic, social and budgetary policies implemented within the Member States. Their commitments are formalised in the national reform programme and the stability or convergence programme

CHART 2 STRUCTURE OF THE EUROPEAN SEMESTER IN THE CONTEXT OF THE EUROPE 2020 STRATEGY



Sources: EC, NBB.

(1) For reasons relating to the organisation of its work, the Council meets in various configurations (in particular ECOFIN for economic and financial matters and EPSCO for employment and social affairs), which bring together those Ministers of the Member States and European Commissioners responsible for the fields concerned.

(2) Although envisaged for July under the European Semester plan, the approval of the country recommendations by the European Council for 2011 took place during the meeting of 23 and 24 June 2011.

that they need to submit to the Commission by the middle of April. These documents are examined by the Commission, which formulates recommendations intended to feed into the discussions within the various configurations of the Council and to allow the European Council to adopt the recommendations provided for by the surveillance mechanisms in June.

The European Semester is based on closer cooperation between the institutions of the EU. Whilst the Commission fulfils the driving role by starting off the Semester with the Annual Growth Survey, the priority actions that it puts forward are debated in the various configurations of the Council as well as in the European Parliament, before being adopted by the European Council. The recommendations – following on from the examination of the stability and convergence programmes and the national reform programmes – directed to the Member States at the suggestion of the Commission similarly form the subject of discussion before being ratified by the European Council.

2.3.5.1 Annual Growth Survey

The Annual Growth Survey is the first stage in the European Semester. It involves an annual communication in which the European Commission reviews the major challenges facing the EU and defines priority actions with a view to managing them. These priorities fall within the scope of the wider framework of the integrated guidelines adopted for five years.

The Annual Growth Survey includes three other documents devoted to the progress made in implementing the Europe 2020 strategy at the level of the Member States (Progress Report on Europe 2020) and to detailed analyses of the economic situation (Macroeconomic Report) and the labour market situation (Draft Joint Employment Report from the Council and the Commission), from which the Commission draws support in order to formulate its priority actions. These documents are intended to feed into the work of the March European Summit.

Given that 2009 and 2010 were characterised by the economic and financial crisis triggered in 2008, the Commission's communication published in January 2011 is focused on speeding up the recovery in the EU, guiding it onto the path of strong economic growth and a high employment rate in order to prevent it lagging behind its competitors and to move it forward towards the key targets of the Europe 2020 strategy. In this context, the Commission has identified ten priority actions to strengthen the recovery in the short term and the competitiveness of the European States. These priority actions promote macroeconomic stability (through rigorous stabilisation of budgets, evening out of macroeconomic imbalances and restructuring of the financial sector), increased mobilisation of national labour markets and structural reforms intended to strengthen growth, thus placing the emphasis on the need for an integrated approach to the recovery.

The conclusions of the European Summit held in March 2011 largely follow the lead provided by the priority actions defined in the Annual Growth Survey. The European Council thus emphasised the fact that the Member States needed to endeavour, as a matter of priority:

- to restore confidence by bringing the debt trends down to sustainable levels and take steps so that deficits fall back below the 3 % threshold;
- to make work more attractive;
- to help the unemployed to get back to work;
- to combat poverty and promote social inclusion;
- to invest in education and training;
- to strike a balance between security and flexibility;
- to reform pension systems;
- to attract private capital to finance growth;
- to stimulate research and innovation;
- to allow access to energy at an affordable price and strengthen energy efficiency policies.

Given that the European Semester was implemented for the first time in 2011, the documents published by the Commission in January are to a large extent directed towards future prospects, each of them giving different expression to the priorities defined in the context of the integrated guidelines adopted in 2010.

In its Progress Report on Europe 2020 in January 2011, the Commission argues in favour of reforms that do not necessitate major public investment, lend themselves to rapid implementation and have a marked impact on growth and the creation of jobs. In particular, it proposes the completion of the Single Market, the implementation of the Services Directive and an improvement in the functioning of public procurement and infrastructure in the fields of sustainable energy, transport and information technology. Similarly, it takes stock of the national translation of the European key targets on the basis of the provisional national reform programmes filed by the Member States in Autumn 2010. In this regard, it regrets the fact that the national targets have been set in an overly unambitious way. In most cases, the summation of the national results is not actually sufficient to achieve the European target. Moreover, the preparation of long-term paths does not seem to have mobilised enough attention,

whereas in the spirit of the strategy, the aim is to prompt the Member States to implement, at the earliest possible point, concrete reforms where progress is measurable.

The Macroeconomic Report takes stock of the EU's situation in the wake of the crisis and emphasises the imbalances and weaknesses that continue to gnaw away at its growth potential. It then specifies the most appropriate measures to put public finances back on an even keel and stabilise the financial sector. Lastly, it argues for the rapid implementation of structural reforms capable of improving the functioning of the labour and product markets, so as to even out macroeconomic imbalances and re-start the engines of growth.

The Joint Employment Report reviews the courses of action that are essential for implementing the integrated guidelines in the fields of employment (Guideline 7), education (Guidelines 8 and 9) and social inclusion (Guideline 10). Moreover, it insists on the need to move without delay from a business-cycle-oriented management of the labour market to structural reforms, and specifies the directions that the Member States are requested to take into account when establishing their national reform programmes. These refer, for example, to the mechanisms for setting wages, the systems for unemployment benefit payments and the other social benefit schemes, and likewise to the systems for organising work and working time. In a context where budgetary resources are limited by the necessary stabilisation operations, the Commission argues for the establishment of priorities within the spectrum of measures to be implemented, taking account both of their cost and the time needed for their effects to be felt on the labour market.

2.3.5.2 National responses: the stability and convergence programmes and the national reform programmes

Based on the priority actions laid down by the European Council, from mid-April onwards the Member States put forward their national commitments in their national reform programmes and their stability or convergence programmes. The former details the measures implemented at national level to even out macroeconomic imbalances and the structural reforms undertaken in the context of the Europe 2020 strategy, and also the commitments made in the context of the Euro Plus Pact, whilst the latter contains the medium-term strategy for stabilising public finances.

In principle, the national reform programmes all display the same structure comprising, apart from a description of the macroeconomic context and the trends expected in the medium term, a listing of both the main obstacles (or bottlenecks) standing in the way of growth and job creation and the measures envisaged to remove these obstacles; these reform programmes also take stock of the translation of the key targets of the Europe 2020 strategy into national targets and the initiatives taken, or to be taken, to set the country on the defined path. In principle, it is also necessary to show how each measure contributes to meeting the targets.

In practice, the structure and content of the national reform programmes sometimes differ considerably. Nevertheless, with the exception of that of the United Kingdom, they all refer to the national targets adopted by virtue of the Europe 2020 strategy. In some cases, the targets are only a range. A few countries, including Belgium, have moreover adopted subsidiary targets, notably with regard to employment. Although this practice conforms to the guidelines on employment policy which provide that specific efforts need to be made in aid of those groups of the population with the lowest participation in employment, it conflicts with the spirit of the Europe 2020 strategy which consists in crystallising efforts around a small number of targets accepted by all.

The national targets adopted by the Member States in the five key fields of the Europe 2020 strategy are contained in Section 3 of this article.

2.3.5.3 Assessment of national policies and recommendations

The conformity of the convergence and stability programmes and the national reform programmes with regard to the integrated guidelines was examined in accordance with the procedures laid down by the TFEU during the months of May and June 2011.

The Commission published the closing report on the first European Semester for coordinating economic policy in June[1]. It also published recommendations for the euro area as a whole and for each of the Member States of the EU, accompanied by a technical document containing the elements of analysis underpinning them. The concern for policy coordination and integration that characterises the Europe 2020 strategy and the reform of governance was expressed in the publication of country recommendations which, for the first time, relate to all the fields of coordination and surveillance. Consequently, the opinion with regard to budgetary matters (which follows from the SGP) and the advice with regard to economic and employment policies can be found in a single document.

(1) EC (2011c).

In this closing report, the Commission emphasises the effectiveness of this method of governance for developing integrated European and national policies, insofar as the Member States integrate the European recommendations into their national decision-making processes during the following six months, referred to as the National Semester.

In broad terms, the Commission recommends undertaking national action to rectify budgetary and macroeconomic imbalances, improve the functioning of the labour market and create an economic environment that fosters business development.

It calls for a rapid stabilisation of public finances to be accomplished by paying particular attention to the quality of expenditure. Member States should put in place the reforms needed to bring the current account balance back to parity, by improving competitiveness for those countries in deficit (structural reforms or reforms relating to the mechanisms for setting wages) and by driving up domestic demand for those countries displaying a balance that is in surplus. Moreover, the capacity of the banking sector to respond to the requirements of the economy needs to be improved.

The Commission suggests several control levers for increasing participation in employment. Amongst other things, this involves encouragement for keeping older people in employment. The strengthening of support for job-seekers – especially the most vulnerable – is essential to counteract the effects of the crisis. In this context, some Member States need to improve access to lifelong learning but also, at an earlier stage, the performance of their education systems. Social and fiscal aspects holding back access to employment need to be removed.

The development of enterprises needs to be supported by eliminating unjustified barriers to entry – particularly in the services sector – and by encouraging competition in the network industries. According to the Commission, it is similarly appropriate to improve access to funding for innovative enterprises and to reduce the administrative burden weighing on companies, whilst improving the efficiency of public administrations and the judicial system.

The country recommendations were approved by the European Council during the Summit of 23 and 24 June 2011. The five Member States benefiting from financial assistance from the European Union and the IMF did not receive specific recommendations. These countries comprise Greece, Ireland, Portugal, Latvia and Romania. This assistance is indeed granted subject to the implementation of an action programme appropriate to the position of the country concerned, and where the emphasis is placed on stabilisation of the budget and structural economic reforms. These five countries need to implement the agreed programme without fail; hence the single recommendation inviting them to apply it. This is also the reason why Portugal and Greece did not set out a stability programme this year.

3. Translation of the five European strategic targets into national targets

This section details the translation of the five key targets of the Europe 2020 strategy appearing in the national reform programmes filed by the Member States of the EU. The latest achievements in each regard are compared with the targets set for 2020 – allowing an assessment of the efforts which remain to be delivered – and the position of Belgium is compared with that of the other countries in the Union. When setting their national targets, the countries take account of their starting position. Thus, each Member State makes a contribution to achieving the European targets according to its means and its ambitions.

3.1 Target for employment

The countries that posted the highest employment rates in 2010 are similarly the ones that have set themselves the highest targets, and in fact higher than the European target of 75 %. The countries involved are Sweden, the Netherlands and Denmark, which have committed themselves to raising the proportion of people in the age group between 20 and 64 years old who are in work to 80 %. However, some Member States whose employment rate was below the European average – which was 68.6 % in 2010 – are proving to be more ambitious: they are focusing on improvements exceeding 9 percentage points in ten years. This applies to Hungary, Bulgaria and Estonia as well as Spain which is thus setting itself apart from the other countries in the south of Europe. Comparison of the relative efforts is nevertheless complicated by the consequences of the economic and financial crisis, which caused the employment rate to fall and sometimes to a considerable extent. Amongst the Member States that have joined the EU more recently, the increases expected in the employment rate are generally higher than those for the old members, owing to the continuation of the effects of catching up.

The Belgian authorities have set themselves an employment rate target equivalent to 73.2 % by 2020, that is to say an improvement of 5.6 percentage points in ten years, which means the average net creation of 56 000 jobs every year up to 2020. By way of comparison, the improvement

Recommendations directed at Belgium

The recommendations addressed to Belgium on the basis of the analysis of its stability programme and its national reform programme which were approved by the European Council in June 2011 comprise six items. During the period 2011-2012, Belgium is required to:

– "take advantage of the ongoing economic recovery to accelerate the correction of the excessive deficit. To this end, take the necessary specified measures – mainly on the expenditure side – by the time of the 2012 budget to achieve an average annual fiscal effort in line with the recommendations under the excessive deficit procedure, thus bringing the high public debt ratio on a declining path. This should bring the government deficit well below the 3 % of the GDP reference value by 2012 at the latest. Ensure progress towards the medium term objective by at least 0.5 % of GDP annually;
– take steps to improve the long-term sustainability of public finances. In line with the framework of the three-pronged EU strategy, the focus should be put on curbing age-related expenditure, notably by preventing early exit from the labour market in order to markedly increase the effective retirement age. Measures such as linking the statutory retirement age to life expectancy could be considered;
– address the structural weaknesses in the financial sector, in particular by finalising restructuring of the banks in need of an adequately funded and viable business model;
– take steps in order to reform, in consultation with the social partners and in accordance with national practice, the system of wage bargaining and wage indexation, to ensure that wage growth better reflects developments in labour productivity and competitiveness;
– improve participation in the labour market by reducing the high tax and social security burden for the low-paid in a budgetary neutral way and by introducing a system in which the level of unemployment benefits decreases gradually with the duration of unemployment. Take steps to shift the tax burden from labour to consumption and to make the tax system more environmentally friendly. Improve the effectiveness of active labour policies by targeting measures at older workers and vulnerable groups;
– introduce measures to boost competition in the retail sector, by lowering barriers to entry and reducing operational restrictions; and introduce measures to strengthen competition in the electricity and gas markets by further improving the effectiveness of the sectoral regulatory and competition authorities."

was 40 000 units between 2000 and 2010 [1]. By 2020, close to five million people between 20 and 64 years of age would thus be in employment in Belgium.

Assuming that the commitments made by the Member States are honoured, and excluding the United Kingdom (which has not set a quantitative national target) from the calculation, the average employment rate in the EU in 2020 should only amount to 73.7 % or 74 %, according to whether the minimum or maximum value of the ranges given by those Member States not supplying a precise quantitative target is taken into consideration. The strategic target of 75 % would therefore not be met.

In this case, the employment rate in Belgium would be less than one percentage point lower than the anticipated European average. Nevertheless, a gap of close to 7 points would remain compared to the level anticipated in those countries where the targets for participation in employment are highest.

In tune with the reasoning behind the integrated guidelines, which advocate raising the employment rate by way, in particular, of greater participation by young people, the elderly, those with low-level qualifications and migrants with legitimate status, a minority of countries have set themselves subsidiary targets for employment. However, the performance of these Member States will only be assessed on the basis of their overall employment rate.

Belgium is one of the countries that have adopted subsidiary targets concerned with the employment of certain at-risk groups, whose employment rate is lower than the average and in some cases particularly low. The employment rate for women would need to climb from 61.6 % in 2010 to 69.1 % in 2020. The rate for people between 55 and 64 years of age would need to improve by close to 13 percentage points to reach 50 %. The improvement

(1) Based on the harmonised data from the labour force surveys (EC).

in results with regard to employment of non-European citizens has been formulated in terms of reducing the gap between the employment rate for this group and that for Belgian citizens. In 2010, the difference stood at 28.4 percentage points. Belgium not only recorded the lowest employment rate for non-European citizens in the whole of the EU (40.4 %) but also, expressed in percentage points compared to the employment rate of Belgian nationals, it also posted the highest gap after Sweden (where it reached 32.5 percentage points). Within a decade, this gap will have to contract to less than 16.5 points. Lastly, the share of young people (15-24 year-olds) who are not in employment, education or training would need to reach 8.2 % at the most in ten years, that is to say a fall of around 3 percentage points compared to 2009.

In their national reform programmes, the Member States of the EU put forward a set of measures intended to fulfil their targets in accordance with the provisions of Europe 2020 (and, where relevant, the commitments made in the context of the Euro Plus Pact), the integrated guidelines and the priority actions raised by the European Council, whatever the level of power from which competence is derived with regard to employment. Thus, in Belgium, the federal government (caretaker government at the time of filing the 2011 reform programme) has undertaken a certain number of action points in the short or medium term falling within its sphere of competence and affecting the priority actions raised, whilst the Regions – which have wide-ranging responsibilities with regard to employment – have planned initiatives in the field of support for job-seekers in particular.

3.2 Target for innovation and R&D

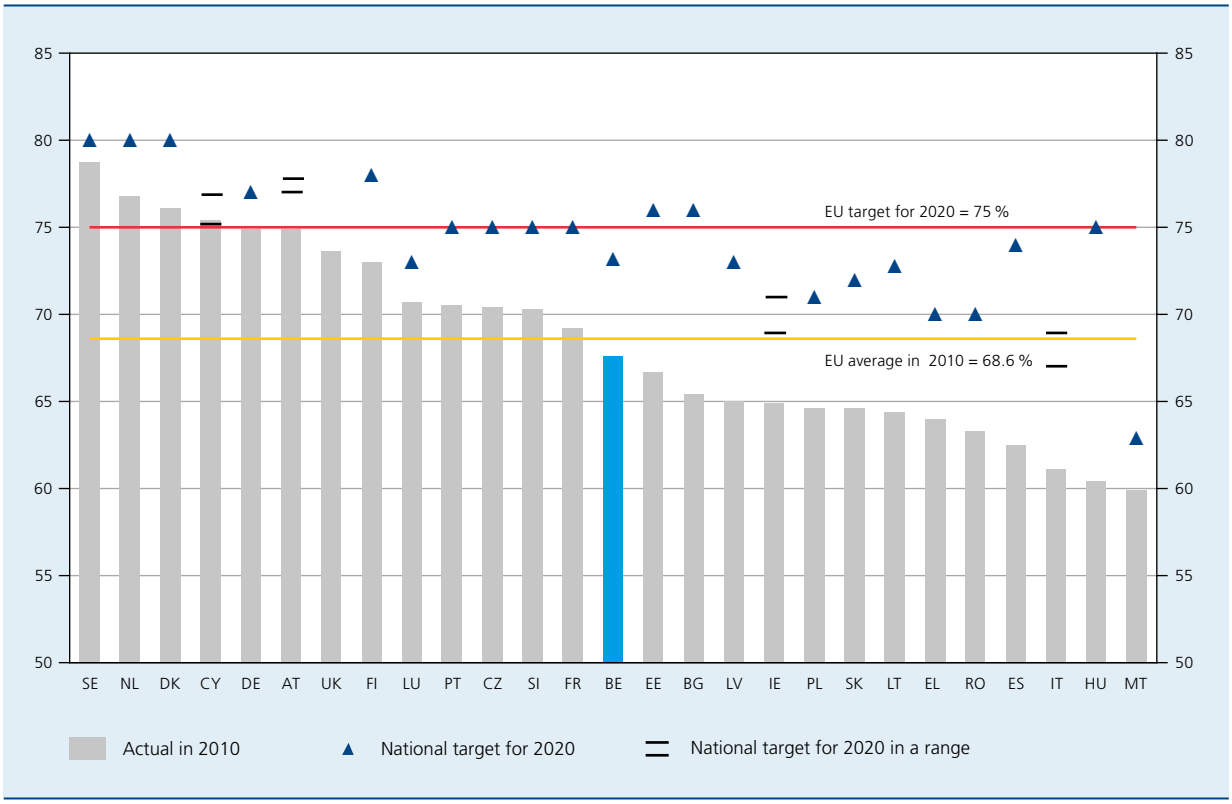
On average within the EU, gross domestic expenditure, both private and public, devoted to R&D[1] will have to reach 3 % of GDP by 2020. In 2008[2], with a share

(1) According to Eurostat, which refers to the Frascati Manual (OECD, 2002), "research and experimental development (R&D) encompasses creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications".

(2) Source: EC (Eurostat).

CHART 3 EMPLOYMENT RATE

(in % of the population between 20 and 64 years of age)



Sources: EC, National reform programmes 2011 of the countries in the EU.

TABLE 1 EMPLOYMENT TARGETS SET BY BELGIUM TO BE ACHIEVED BY 2020

(in % of the corresponding population, unless stated otherwise)

	Belgium 2010	**Belgium 2020**	EU 2010	**EU 2020**
Total employment rate (20-64 year-olds)	67.6	**73.2**	68.6	**75.0**
Employment rate for women (20-64 year-olds)	61.6	**69.1**	62.1	
Employment rate for older workers (55-64 year-olds)	37.3	**50.0**	46.3	
Gap in employment rate between national and non-EU citizens (20-64 year-olds, percentage points)	28.4	**< 16.5**	10.5	
Share of young people who are not in employment, education or training (15-24 year-olds)	11.1 (1)	**8.2**	12.4 (1)	

Sources: EC, National reform programme of Belgium 2011.
(1) Data for 2009.

estimated at 1.92 %, the EU was still facing a substantial gap in this field compared to the United States and Japan, that is to say of 0.9 and 1.5 percentage points respectively. In 2009, the share of expenditure on R&D in the EU increased slightly, to reach 2.01 % of GDP.

A major disparity in actual and target figures can be seen between the 27 Member States with regard to R&D. In the majority of the States that joined the EU in 2004 or 2007, the share taken by this investment is markedly lower than the European average. Out of these twelve countries, eight displayed expenditure on R&D lower than 1 % of GDP in 2009. With the exception of Estonia and Slovenia, none of the new Member States signed up to a target higher than 2 %. At the other extreme, the Scandinavian countries are the most advanced with ratios ranging from around 3 % to 4 % of GDP in 2009. The commitments for 2020 are already achieved there, or nearly so. Belgium posted a share of expenditure on R&D of 1.96 % in 2009, close to the European average. The country has set itself the same target as the EU as a whole, that is to say 3 %. The Commission has calculated that, overall, even if the countries met the quantitative targets that they have given themselves for 2020, the share of GDP taken up by gross domestic expenditure on R&D would remain between 2.65 % and 2.72 %.

However, the amount of expenditure on R&D is not sufficient to generate the "smart" growth to which the EU aspires. This is why the European Council requested, during the Summit held on 25 and 26 March 2010, the addition of an indicator referring to innovation results (see Section 1.1.1.1, the flagship "Innovation Union" initiative). After examining the conclusions of a high-level working group, the Commission decided to propose an indicator based on high-growth innovative enterprises. Some time is needed to prepare the indicator so that it will not be possible to take it into account before the year 2012.

In Belgium, the Communities and Regions are equipped with wide spheres of competence with regard to innovation. Basic and applied research at the establishments of higher education falls essentially under the competence of the Communities (1), whilst research based on the economy, technological development and the promotion of innovation falls under the Regions. The initiatives planned differ from one region to the other and are dependent on their comparative advantages, but they all have the target of becoming knowledge-based economies, through an integrated approach to innovation.

3.3 Targets for energy

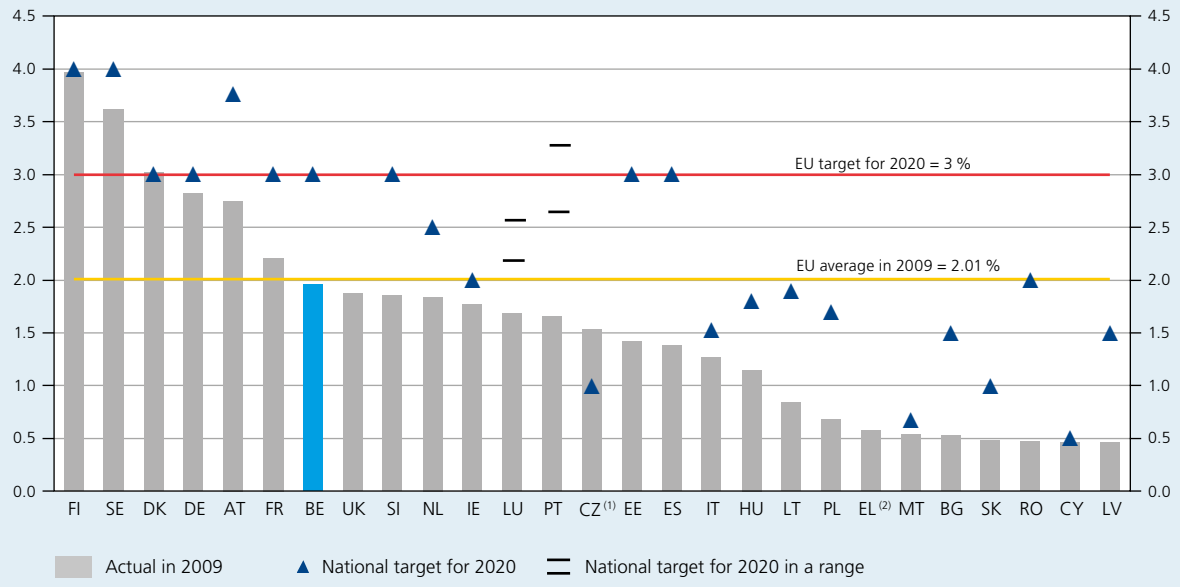
With regard to the environment, the EU has adopted a strategy for combating global warming that pursues the three targets listed below ("20/20/20").

The EU has committed itself to reducing its greenhouse gas emissions by at least 20 % between 1990 and 2020. With regard to the period 2005-2020, this target means a reduction of 21 % in emissions originating from the sectors covered by the EU ETS (the European Community's system for trading permits for emitting greenhouse

(1) The federal State and the Regions are similarly able to entrust the research activities falling within their sphere of competence to the higher education establishments.

CHART 4 SHARE OF GDP ACCOUNTED FOR BY GROSS DOMESTIC EXPENDITURE ON R&D

(in %)



Sources: EC, National reform programmes 2011 of the countries in the EU.
(1) The target of the Czech Republic is limited to public expenditure on R&D.
(2) The latest figure for Greece is an estimate referring to 2007.

gases)[1] and a reduction of 10 % in emissions originating from the sectors not covered by the EU ETS. To achieve this overall target of 10 %, efforts have been distributed according to the principle of burden-sharing: each of the 27 Member States has accepted specific limits for greenhouse gas emissions that are contained in the European climate and energy package. Efforts are distributed by taking account of each country's starting position, in particular the effects of catching up for some of them. Thus, Bulgaria and Romania, which joined the EU in 2007, are authorised to emit markedly more than others but still within the limit of legally binding ceilings. In Belgium, greenhouse gas emissions will need to fall by 15 % between 2005 and 2020.

Across the EU, the share of renewable energy sources would need to represent 20 % of gross final energy consumption in 2020. The method of setting targets in this regard is also based on a fair distribution of efforts between the Member States, taking account of the opportunities for developing this type of energy source at the national level[2]. The requirements range from 10 % in Malta to 49 % in Sweden. In Belgium, the share of renewable energy sources as a percentage of gross end-consumption of energy would need to reach 13 % in ten years, having been only 3.3 % in 2008, which was markedly lower than the European average.

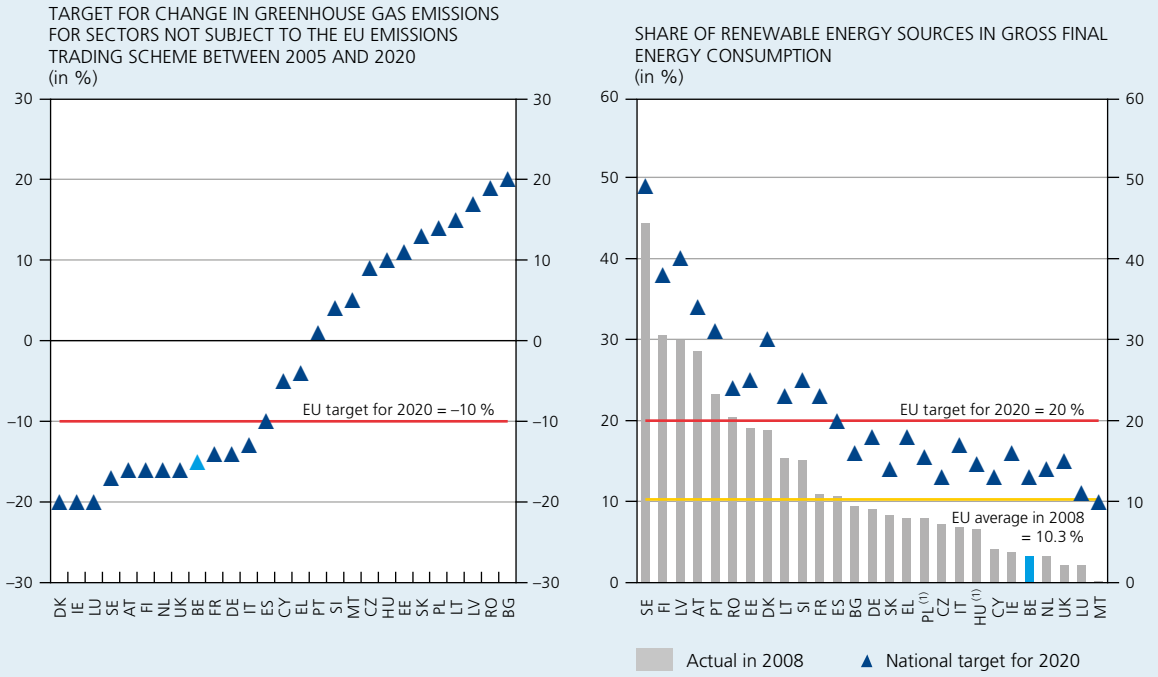
At the same time, the EU has signed up to a target of 20 % for boosting energy efficiency. For Belgium, the target is expressed by comparison with the PRIMES 2007 reference scenario[3]; in 2020, consumption of primary energy would need to be 18 % lower than that of this projection, which assumes that policy remains unchanged. This fall represents an energy saving of 9.8 megatonnes of oil equivalent. The energy efficiency targets are not directly comparable from one country to another since they are dependent on the year or reference scenario used. However, adding up the national targets announced,

(1) Each permit gives the right to emit one tonne of CO_2. The Member States need to define national allocation plans for each trading period, which consists in indicating the number of permits that each plant will receive annually. Enterprises whose emissions are lower than the permits allocated can sell the unused permits at a price set by supply and demand at the time of selling. Those that have problems in not exceeding their permits can take measures to reduce their emissions or buy additional permits. At the present time, the system applies to 11 000 European plants that are responsible for around 50 % of the CO_2 emissions and 40 % of the greenhouse gas emissions generated overall in the EU. As trading periods succeed one another, the field of application of the EU ETS is extending in terms of pollutants, plants and countries concerned.

(2) These opportunities are dependent notably on the countries' geographical characteristics.

(3) Energy model used notably by the Federal Planning Bureau and which serves as a reference for estimating primary energy savings. The energy projections described in the model do not take account of the impact of the economic and financial crisis on the energy system since they were prepared before 2008.

CHART 5 TARGETS IN THE CLIMATE AND ENERGY PACKAGE



Source : EC.
(1) Own target (slightly higher than the climate and energy package).

the European Commission has estimated that energy efficiency will not be improved sufficiently.

With regard to energy and climate issues, the priority measures in the Belgian national reform programme follow from the implementation of the climate and energy package. In order to contribute to meeting the targets that have been set, the federal authorities, which are responsible notably for product policy and the tax system applicable to energy, need to apply certain measures in these fields. As for the Regions, which are responsible for nature conservation and the rational use of energy, amongst other things, they are developing climate policy plans and action plans with regard to energy efficiency that are compatible with the commitments made at the European and international levels.

3.4 Targets for education

The level of education achieved is a determining factor for sustainable integration in the labour market. As a result, targets have been defined in terms of reducing the number of early school leavers, on the one hand, and expanding the number of those holding qualifications from higher education, on the other. Since starting positions vary, national targets differ and sometimes lie markedly above or below the European key target.

The school drop-out rate, or in other words the proportion of the population between 18 and 24 years of age not following a course of study or training and whose level of education does not exceed lower secondary education, varies between 4.7 % in Slovakia and 36.9 % in Malta. With the exception of the latter country, all Member States joining the EU in 2004 displays rates below the European average – which stood at 14.1 % in 2010 –, whilst the majority of the countries in the south of Europe and also the United Kingdom and Romania record higher levels. In Spain and Portugal, more than one in four young people between 18 and 24 years of age is an early school leaver. These countries have resolved to reduce this proportion by half.

In Belgium, the school drop-out rate was close to 12 % in 2010, that is to say a rate lower than the European average. The target to be achieved at the national level is to reduce this to 9.5 % at the most. The effort to be made equates to a fall of 2.4 percentage points between now and 2020, as against 4.1 points for the

EU as a whole, given that the overall target is to move below a threshold of 10 %.

The targets to be achieved in terms of early school leaving have been expressed differently from one country to the next: some have committed themselves to reducing the school drop-out rate to a defined level, others to keep it below a threshold figure. Lithuania and Luxembourg have chosen the latter option and they seem to have already met their targets, based on the data for 2010. As far as Luxembourg is concerned, the statistics resulting from the harmonised labour force survey are subject to marked annual variations due to the limited size of the sample.

Taking account of the national targets, the Commission has calculated that the proportion of young people leaving school early would amount to 10.3 % or 10.5 % in 2020 according to whether the lower or higher limit of the range set by Italy is used; however this may be, the target would not be fully achieved, therefore.

The second European target with regard to education is focused on lifting the proportion of people between 30 and 34 years of age completing tertiary-level education (or equivalent) to at least 40 %. This should help to meet a greater demand for skills – developments in industry and technology are having the effect of supporting the demand for staff with high-level and medium-level qualifications, at the expense of jobs requiring low-level qualifications – and allow the potential for innovation in the European economies to be developed. Ireland is top of the European league with half of all people in this age group holding a qualification from higher education or having an equivalent level of education in 2010; moreover, this country is expressing a willingness to increase this share to 60 %. The Scandinavian countries, Luxembourg and Cyprus follow Ireland in the ranking. It is worth noting that while this classification refers to the results of the labour force surveys, some countries have defined their targets on the basis of national indicators. Thus, Luxembourg has set the indicator in relation to a national rate that is around 30 %, whilst the result of the labour force survey is 46.1 %. Denmark has rallied to the European target of 40 % but is expecting to achieve this level by meeting national targets that are calculated differently (half of all young people need to have high-level qualifications). In Finland, the definition of a young person with high-level qualifications currently excludes those who have not attended university; the country therefore displays a national rate that is lower than that according to the European survey.

In 2010, with a share of young people who have successfully completed tertiary-level education greater than 44.4 %, Belgium posted a better performance than the European average. The commitment made at the national level is to increase this proportion to at least 47 %.

The national targets are not enough for the overall European commitment to be honoured in 2020; according to the Commission, the proportion of highly qualified people between 30 and 34 years of age would not in fact exceed 38 % even if the higher limit of the range given by some Member States is used.

In Belgium, education falls within the sphere of competence of the language Communities. In order to reduce the risk of students dropping out of school, the Flemish and French-speaking Communities have undertaken a reform of secondary education intended in particular to reassert the value of technical and vocational education, strengthen dual apprenticeship systems and improve the interconnections between education and the world of work. Apart from the initiatives intended to encourage access to higher education, lifelong learning is regarded as a priority to improve opportunities for integration and mobility on the labour market.

3.5 Target for social cohesion

The European target is expressed in terms of reducing the number of people at risk of poverty or social exclusion, as defined on the basis of three indicators: (1) the risk of relative poverty expressed by comparison with a monetary threshold[1], (2) severe material deprivation[2] and (3) living in a household with low work intensity[3]. The target involves reducing this number by 20 million between now and 2020.

Based on the data from the EU-SILC survey[4] conducted in 2009 (and relating to incomes in 2008), the proportion of people faced with at least one of these three criteria (no person being counted more than once) amounted to 23.1 % in the EU, that is to say 114 million people. In Belgium, the percentage was 20.2 %, that is to say 2.1 million people.

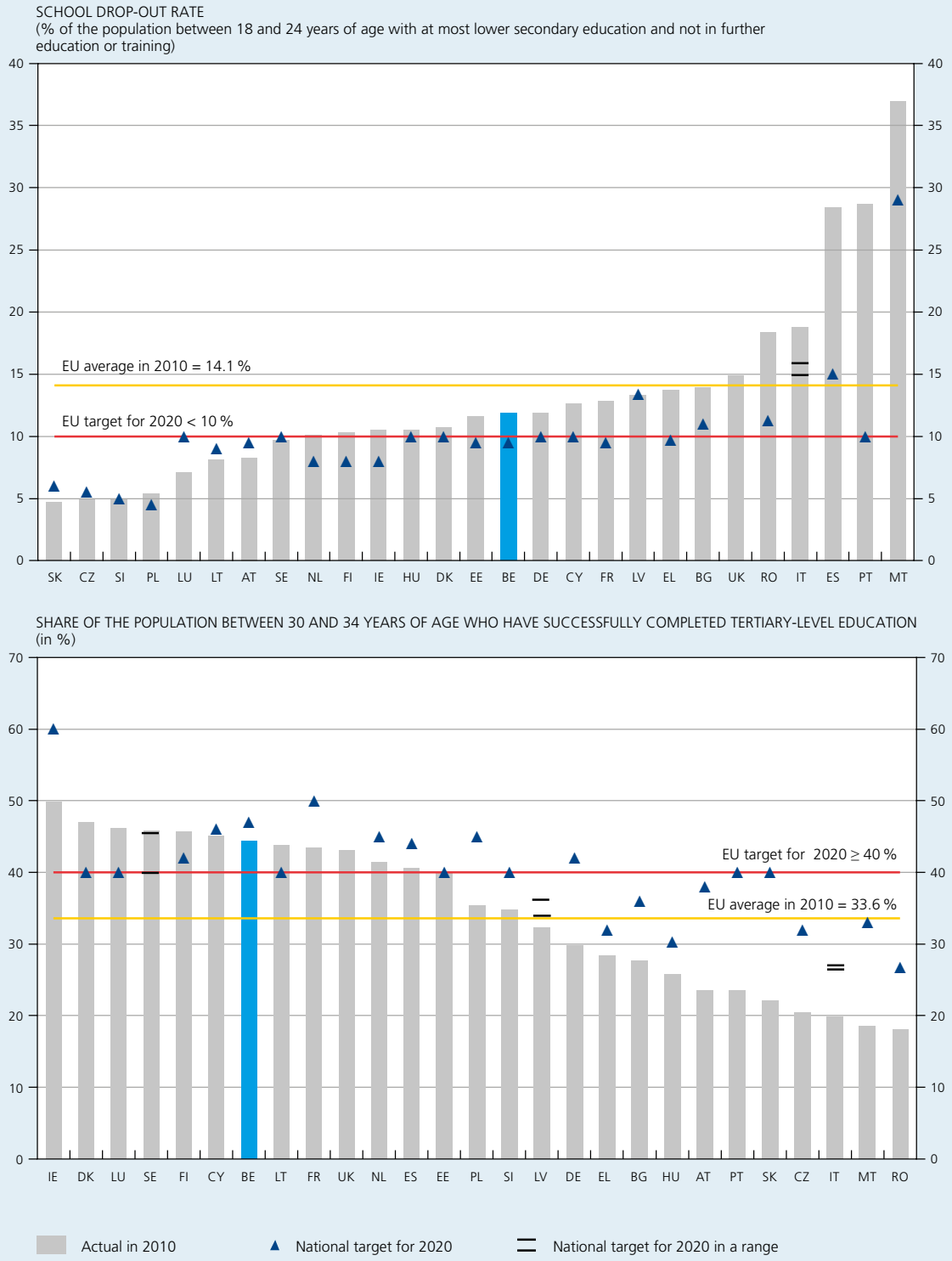
(1) People at risk of poverty are those living in a household with an equivalent disposable income lower than the poverty threshold, which is set at 60 % of the national median equivalent disposable income (after social transfers). In Belgium, the poverty threshold defined in this way corresponds to € 966 per month for a single person.

(2) People in a situation of severe material deprivation have living conditions limited by a lack of resources and are faced with the deprivation of at least four of the nine following elements: they are not in a position 1) to pay a rent or the current bills, 2) to heat their place of residence properly, 3) to cope with unforeseen expenses, 4) to consume meat, fish or an equivalent protein every second day, 5) to afford a week's holiday away from their place of residence, 6) to own a private car, 7) a washing machine, 8) a colour television or 9) a telephone.

(3) People living in a household with a low level of work intensity are people between 0 and 59 years of age living in a household in which the adults (between 18 and 59 years of age) used less than 20 % of their total employment potential during the previous year on average. Students are excluded.

(4) The EU-SILC project was launched in 2003 (but the survey was not put in place at the same time in all the Member States, even the oldest) and has the aim of obtaining data that allows the structural indicators of social cohesion to be calculated. The survey, which is harmonised at EU level, gathers data on income, poverty and social exclusion.

CHART 6 EDUCATION INDICATORS



Sources: EC, National reform programmes 2011 of the countries in the EU.

Some people accumulate all three of these risk scenarios; this applied to 2.1 % of the population in Belgium in 2009, that is to say 219 000 people. The greatest risk that the population is faced with is that of finding oneself below the poverty threshold (14.6 %). The level of work intensity needs to be sufficient so as not to tip into poverty or social exclusion: 9.6 % of the population was living in a household where employment potential is inadequately tapped. Severe material deprivation affected 5.3 % of the population in Belgium.

The majority of the countries in the EU have committed themselves to reducing the number of people at risk of poverty or social exclusion in 2020, but some have chosen another indicator (risk of poverty alone or risk linked to the low work intensity).

In the light of the commitments made by the other countries in the EU, the national target is relatively ambitious in Belgium. It is to bring the number of people threatened with finding themselves in a precarious situation from 2.2 million to 1.8 million between 2008 and 2020.

The best means of combating poverty is to have a job. This finding applies in all the countries of the EU. In Belgium, the at-risk-of-poverty rate is seven times lower for workers than for unemployed persons[1]. The structural reforms of the labour market are complemented at the federal level, in Brussels and in Flanders by plans for combating poverty that include, in particular, elements relating to housing, education, health and employment. The policy operated in Wallonia with regard to social integration is universal but special efforts are made for those people who are furthest from the labour market.

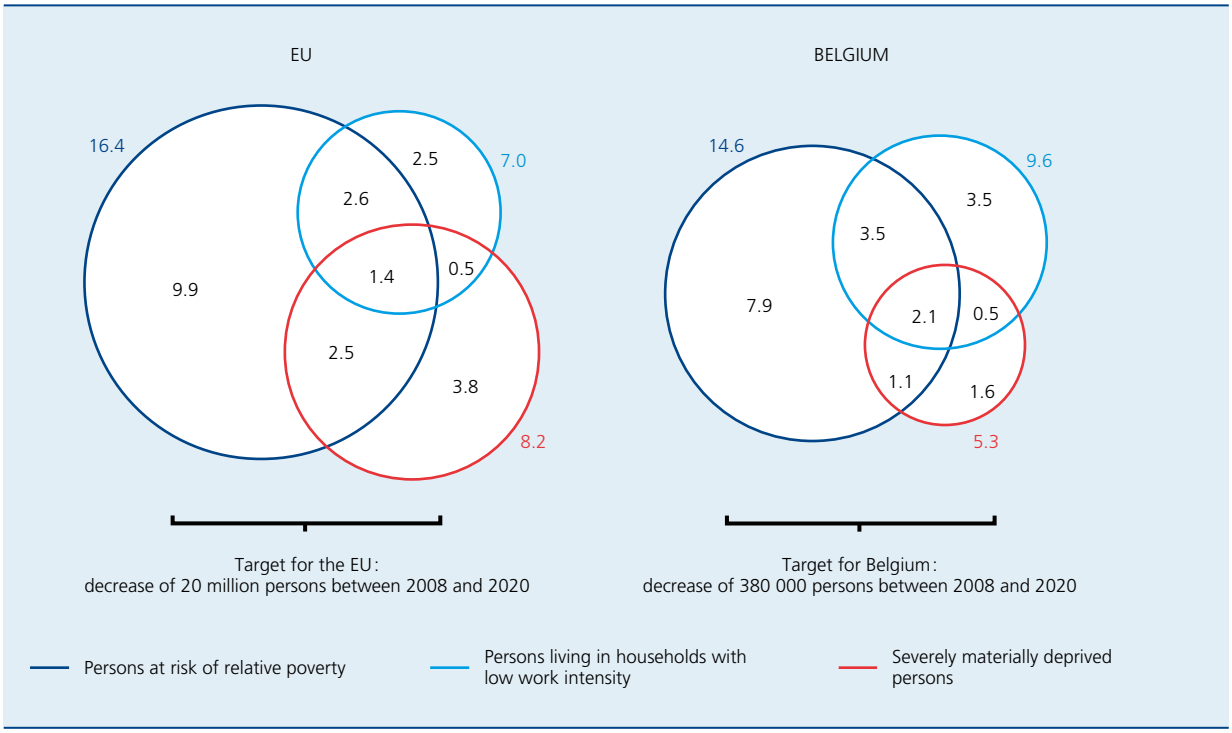
Conclusions

In 2010, the EU resolved to revitalise its economy, not only to speed up the emergence from the crisis but also to lay the foundations for "smart, sustainable and inclusive" growth. The Europe 2020 strategy establishes the framework within which the European economy is going to evolve in the decade to come. To achieve its five key targets with regard to employment, innovation, education, sustainable development and social inclusion, the EU wishes to undertake or continue concrete

(1) According to the International Labour Office (ILO) criteria.

CHART 7 SOCIAL COHESION INDICATORS

(in % of the total population, income for 2008)



Sources: EC, National reform programme of Belgium 2011.

action in seven key fields. Initiatives are expected at the European (and international) level as well as the national (and regional) level.

The success of the Europe 2020 strategy depends on its targets and principles being adopted by all the stakeholders, starting with the Member States. To ensure this cooperation, the EU has put in place a three-pronged structure for policy surveillance incorporating fiscal, macroeconomic and thematic aspects. It is in the context of the thematic surveillance that the commitments made by Member States in favour of the Europe 2020 strategy are examined and their progress measured. The national reform programmes filed each year with the European Commission effectively contain the translation of the key European targets into national targets and also the measures that the countries are intending to implement in order to achieve them.

The year 2011 marks the first implementation of this new model of governance which causes European policies and tools to converge on a single aim: smart, sustainable and inclusive growth. In the first six months – the European Semester – the impetus was provided in January by the Annual Growth Survey carried out by the European Commission. This exercise enabled the European Council to adopt in March priority actions for the year to come. In April, the Member States compiled their national reform programmes and their stability or convergence programmes. The Commission examined them in May and the Council issued specific recommendations to each country in June with the aim of strengthening the consistency of the national policies that will be implemented during the following six months, referred to as the National Semester.

The recommendations addressed to Belgium number six in total and are concerned with correcting the

TABLE 2 SOCIAL COHESION TARGETS SET BY THE COUNTRIES OF THE EU [1]

(thousands of persons, unless otherwise stated)

	2008	2009	2020	Targeted reduction in level, 2008-2020	Targeted reduction in %, 2008-2020
Population at risk of poverty					
RO	4 988	4 745	4 408	580	11.6
BG	1 632	1 657	1 372	260	15.9
LV	573	573	452	121	21.1
Population at risk of poverty or social exclusion					
CZ	1 566	1 448	1 536	30	1.9
PT	2 757	2 648	2 557	200	7.3
MT	79	82	72	7	8.3
SI	361	339	321	40	11.1
PL	11 491	10 454	9 991	1 500	13.1
ES	10 340	10 652	8 840 – 8 940	1 400 – 1 500	13.5 – 14.5
IT	15 099	14 835	12 899	2 200	14.6
GR	3 046	3 007	2 596	450	14.8
SK	1 111	1 061	941	170	15.3
AT	1 532	1 406	1 297	235	15.3
CY	174	176	147	27	15.5
HU	2 794	2 956	2 344	450	16.1
FI	910	886	760	150	16.5
BE	2 194	2 145	1 814	380	17.3
LT	928	985	758	170	18.3
Population living in a household with low work intensity					
DK	347	360	325	22	6.3

Sources: EC, National reform programmes 2011 of the countries in the EU.

(1) Those countries in the EU that have set national targets that are incompatible with the indicators arising from the EU-SILC survey are not included in the table. Luxembourg and the United Kingdom have not fixed quantitative targets for reducing poverty.

government deficit, improving the long-term viability of public finances by curbing expenditure linked to population ageing, correcting the structural weaknesses in the financial sector, taking measures in order to reform the system for negotiating and indexing wages, boosting participation in the labour market and strengthening competition in the retail sector and on the markets for electricity and gas.

The compilation of the national reform programmes shows that the mobilisation of countries in favour of the Europe 2020 strategy is proving insufficient in a certain number of fields.

Thus, even if the commitments made by the Member States were honoured, the European strategic target for employment would not be achieved. The employment rate for people between 20 and 64 years of age in the EU in 2020 should only amount to 73.7 % or 74 % according to whether the minimum value or the maximum value of the ranges given by certain Member States is taken into consideration, hence a lower result than the expected 75 % rate. The Belgian authorities have set themselves an employment rate target of 73.2 % by 2020, that is to say an improvement of 5.6 percentage points in ten years.

In the field of research and innovation, in the light of the quantitative targets at national level, the average share of GDP taken up by gross domestic expenditure on R&D in the EU would remain below 3 %, the target that Belgium has signed up to.

With regard to energy, the targets for reducing greenhouse gas emissions and raising the share of renewable energy in final energy consumption originate from the European climate and energy package, whose overall effort is shared between the 27 Member States. In this context, Belgium would need to reduce its greenhouse gas emissions by 15 % in 2020 compared to their level in 2005 and increase the share of renewable energy in final energy consumption to 13 %. The efforts to improve energy efficiency – the third element of the European "20/20/20" target – set out in the national reform programmes cannot be directly compared between the countries.

The target with regard to education is two-fold : to reduce the school drop-out rate below a threshold of 10 % and to bring the share of people between 30 and 34 years of age who have completed third level education at a minimum of 40 %. Once again, the national targets do not allow the overall European commitment to be ensured ; the European Commission has calculated that, in 2020, the share of young people leaving school early would lie between 10.3 % and 10.5 % and that the percentage of people with high-level qualifications would not exceed 38 %. Belgium has signed up to targets of 9.5 % and 47 % respectively.

Lastly, with regard to social cohesion, the European target is to take action to ensure that at least 20 million people are no longer faced with the risk of poverty or social exclusion in the EU as a whole between now and 2020. In Belgium, the goal is to reduce this figure by 380 000 people between 2008 and 2020.

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Developments in private consumption over the past three years

V. Baugnet
L. Dresse

Introduction

Like its partners in the euro area and in most of the advanced countries, the Belgian economy has experienced severe turbulence over the past three years. The financial crisis which spread rapidly following the collapse of the American investment bank, Lehman Brothers, in September 2008, and the ensuing slump in international trade and the widespread recession in global activity up to mid-2009 affected the behaviour of businesses and individuals through various channels. Since then, the situation has improved, notably as a result of accommodating monetary and fiscal policies, but there is still considerable uncertainty in view of the substantial consolidation efforts yet to be undertaken.

It now looks as if Belgium weathered the recession relatively well compared to the euro area as a whole and most of its constituent economies. At the beginning of 2011, it was among the first euro area member countries to see its GDP exceed the level recorded in early 2008, before the recession began.

In that context, it seemed interesting to examine the pattern of household consumption expenditure over the past three years. Traditionally, private consumption is regarded as performing a stabilising role in regard to cyclical fluctuations, but this time the shocks affecting activity and employment, financial assets and uncertainty were so severe that consumption may have suffered. This article therefore aims to shed light on the interactions between the general economic situation and private consumption during the recession and in the recent recovery phase.

To that end, the first part of the article reviews the relative movements in GDP and consumption in Belgium, both from the perspective of the past four decades and during the latest phase of the business cycle. This last point is supplemented by an international comparison. The second part looks at the role of the main determinants of movements in private consumption, particularly in the econometric model of the Belgian economy used by the Bank. The conclusion summarises the main findings and prospects.

1. Consumption and activity

1.1 Historical perspective

To assess developments in private consumption during the recent recession phase, in 2008-2009, and during the ensuing recovery, it is useful to take a longer term perspective in order to analyse the link between this component of demand and GDP.

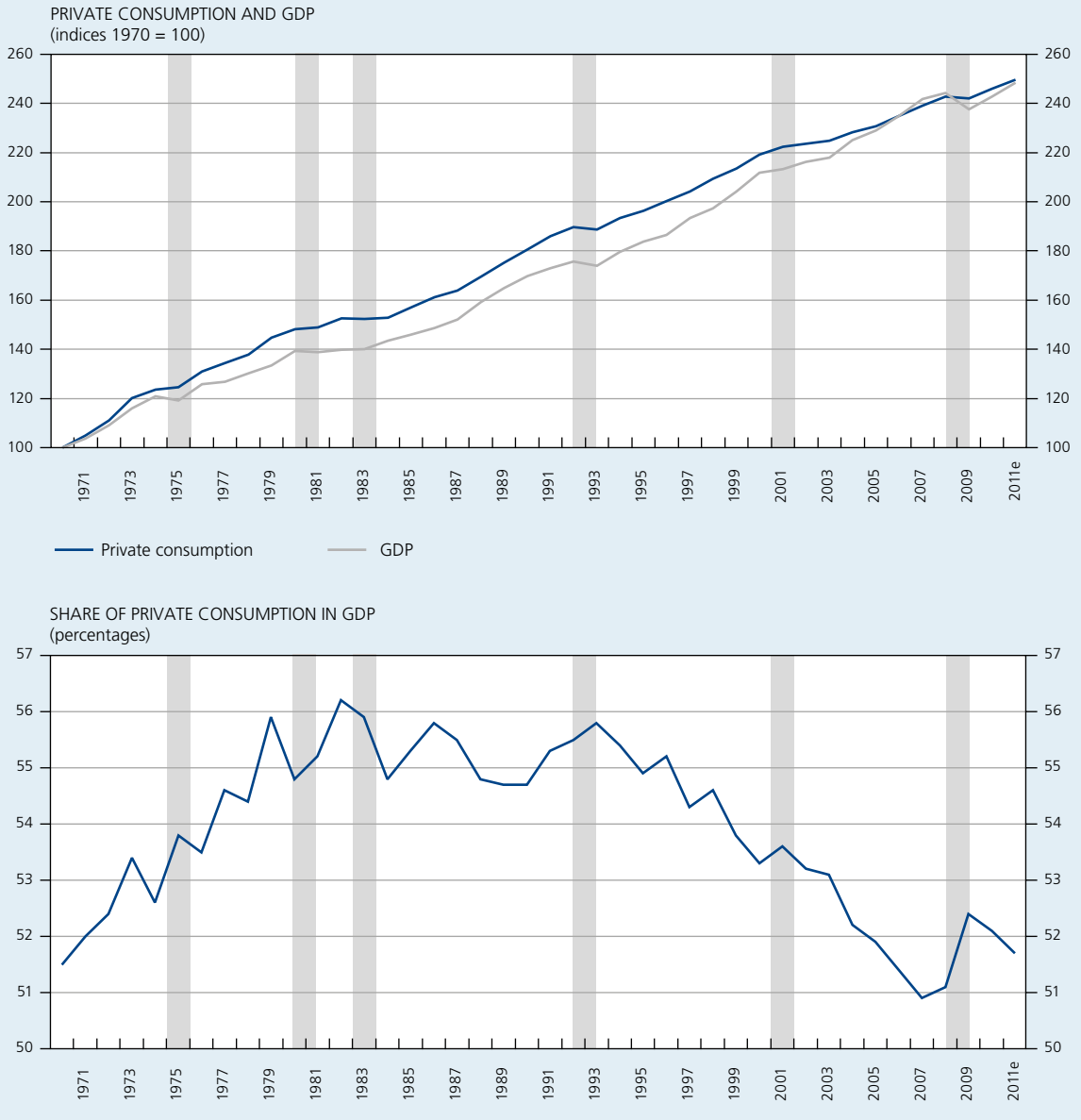
Analysis of the data for Belgium since 1970, reconstructed by the EC in order to eliminate the effect of breaks in the methodology, shows that the pattern of private consumption has, in general, closely mirrored that of activity over the past four decades. However, it initially grew slightly faster up to the first half of the 1980s, and was subsequently a little less vigorous, particularly between 1995 and 2007.

Over the period as a whole – calculated on the basis of chained volume series, expressed at 2000 prices, in order

to eliminate the relative movement in the deflators of these two variables so as to isolate changes in volume – private consumption expenditure thus represented an average of 53.9 % of GDP; it is by far the largest component of demand, at least if foreign trade in goods and services is considered in net terms. That figure increased from 51.5 % in 1970 to 56.2 % in 1982, before dropping back to 52.1 % in 2010, close to its level at the start of the period in question. Expressed in nominal terms, the profile is similar; the proportion averaged 54.3 %, with figures of around 53 % in both 1970 and 2010.

Apart from these results for the period as a whole, a more detailed analysis of the correlation between movements in GDP and private consumption is needed during recession phases. Apart from the recession experienced in late 2008 and early 2009, four episodes of this type can be identified since 1970 according to the usual definition of

CHART 1 LONG-TERM GROWTH OF PRIVATE CONSUMPTION AND GDP (1)



Sources: EC, NBB.

(1) Gross data, chained volume series at 2000 prices.

Note: The grey areas correspond to the recession periods identified on the basis of a decline in the level of GDP over two consecutive quarters; in the absence of quarterly data prior to 1980, the 1975 recession was identified on the basis of the fall in the annual average level of GDP compared to the previous year.

a decline in the level of GDP over two consecutive quarters[1]: the 1975 recession and those that occurred in the early 1980s[2], 1992-1993 and 2001.

These episodes of declining activity varied in scale and duration. However, they all affected the annual average movement in the volume of private consumption, either by causing a marked slowdown in the rate of expansion, as in the 1975 and 2001 recessions, or by triggering a decline in the other episodes. While the scale of the reaction of consumption to cyclical fluctuations in activity varied from one episode to another, the movements in consumption were in all cases smaller than the movements in GDP, so that the ratio between consumption and GDP has tended to increase temporarily during a recession. That was particularly true during the recessions of 1975 and the early 1980s, when this ratio had risen by more than 1 percentage point of GDP. It is true that these cyclical movements are additional to the medium-term tendencies described above, and the change in the ratio is also subject to short-term variability. Nonetheless, each period of a recession in economic activity systematically shows a rise in the share of consumption. The reason is that cyclical fluctuations are generally caused by shocks emanating from foreign demand, investment or changes in inventories, whereas private consumption tends to cushion those fluctuations. It is also noticeable that the temporary increases in consumption as a percentage of GDP were accompanied by a rise in wages as a percentage of GDP. As we shall subsequently explain in detail, these movements are interconnected and are due mainly to the short-term resilience of household incomes, particularly labour incomes, in the face of cyclical shocks.

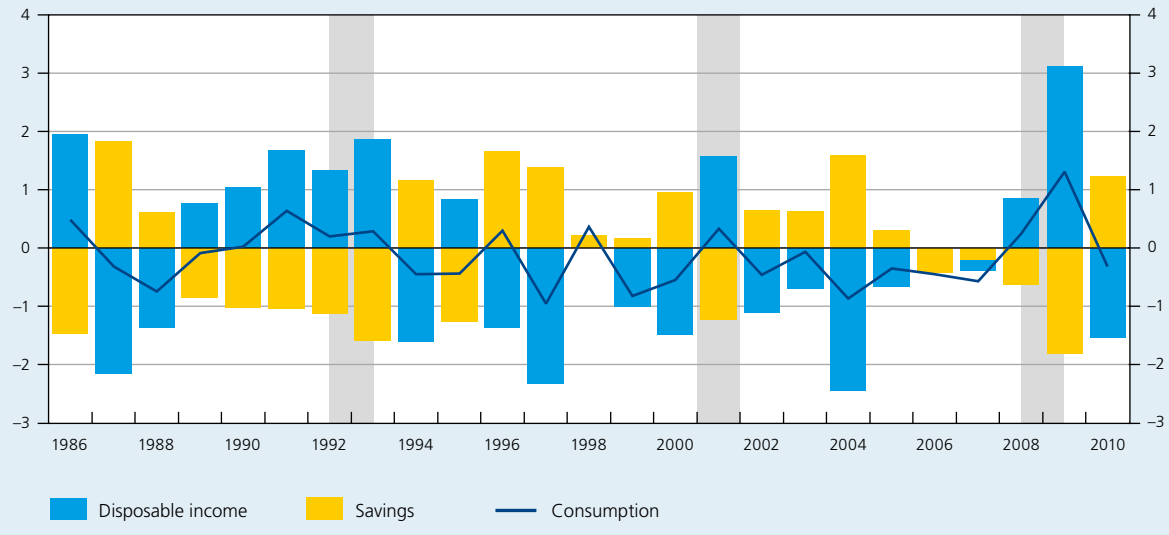
What about the recent recession? In 2009, the volume of private consumption had fallen by 0.2 % against the average in 2008, representing a significant decline compared to previous episodes. It was only in 1993 that private consumption had recorded a steeper decline of 0.3 %. However, in relation to the extremely sharp contraction in output (–2.7 % in volume on average in 2009), the drop in private consumption was particularly modest; that is evident from the steep rise in the ratio of private consumption to GDP, which jumped by 1.3 percentage points from 51.1 % in 2008 to 52.4 % in 2009.

According to the national accounts approach, movements in the consumption/GDP ratio from one year to the next can be broken down into the change in the proportion of disposable income and the change in the proportion

(1) In the absence of quarterly data prior to 1980, the 1975 recession was identified on the basis of the fall in the annual average level of GDP compared to the previous year.
(2) In the early 1980s, recession phases were specifically recorded in 1980-1981 and 1983; in 1982, though GDP growth was positive, it was extremely weak. By extension, in this article, the whole period is designated as the recession of the early 1980s.

CHART 2 BREAKDOWN OF THE SHARE OF PRIVATE CONSUMPTION IN GDP

(annual change in percentage points of GDP)[1]



Source: NBB.
(1) Gross data. An increase in savings is indicated by a negative bar.
Note: The grey areas correspond to the recession periods identified on the basis of a decline in the level of GDP over two consecutive quarters.

of savings. That breakdown is shown in chart 2 for the period commencing in 1985, the data being available only from that year onwards.

The first term reflects the way in which disposable income moves in relation to activity. In general, disposable income shows a more positive movement during an economic recession period. That is true of the 2008-2009 recession, but also applies to the recessions in 2001 and 1992-1993. *A priori*, that resilience of disposable income may be attributed to a number of factors. First, employment generally takes time to react to fluctuations in activity, and where wages are concerned, real collectively agreed adjustments are negotiated for two-year periods, and that limits the adjustment of labour incomes in the face of unexpected shocks. In addition, social transfer mechanisms also tend to restrain the decline in incomes during periods of weak activity, either as a result of the counter-cyclical character of unemployment benefits or because pensions follow a regular trend regardless of the business cycle. Depending on the case, these general mechanisms may be supplemented by factors specific to each recession, e.g. in the form of discretionary measures concerning taxation or a time lapse between inflation and indexation, since the latter applies to a large proportion of incomes.

The second term in the breakdown of the movement in the consumption/GDP ratio reflects the movement in household savings: an increase in savings depresses consumption, and is therefore represented by a negative bar in chart 2. In general, this chart shows a rise in the household savings ratio during recessions, which tends to attenuate the effect of the resilience of disposable incomes on consumption during those periods.

More generally, fluctuations in current disposable income, both upwards and downwards, usually cause the savings ratio to move in the same direction (i.e. opposing movements in chart 2), which has the effect of smoothing household consumption over time in the face of the volatility of current incomes. This illustrates the fact that, unless they face budget constraints, households do not determine their level of consumption for a given period solely according to their current income, but also take account of the income that they expect to receive in the future or the value of their assets, the latter constituting a reserve which can be used to maintain a certain level of consumption in retirement. Thus, a change in expectations regarding future income or assets, or even a change in the degree of uncertainty surrounding those expectations, may affect private consumption, even without any change in current income. Conversely, temporary fluctuations in disposable income do not trigger movements in consumption on the same scale. Part 2 returns in more detail to the contribution of these various determinants to the movement in private consumption in Belgium over the past three years.

Box – The concepts of private consumption in the national accounts

The ESA 1995 national accounts methodology distinguishes between two alternative concepts of consumption and income for the sectors:

- The first concept measures **final consumption expenditure**, which covers a sector's expenditure on the acquisition of consumption goods and services, whichever sector benefits;
- The second concept measures **actual final consumption**, which refers to the use of consumption goods and services by a sector, whichever sector finances the acquisition.

The difference between these two concepts lies in the treatment of a number of goods and services which are financed by the government and supplied to households in the form of social transfers in kind. By convention, this "individual consumption expenditure" by the government covers expenditure on education, health care, social security and social work, sport and leisure, and culture. It is included in government consumption expenditure according to the first concept, and in the actual final consumption of households according to the second concept. In this case, a transfer of the same amount is imputed from the general government sector to the household sector for the purpose of calculating the adjusted disposable income.

Whatever the term used, the concept of private consumption in this article, as in the Bank's other economic publications, refers to the final consumption expenditure of households. This is in fact the concept traditionally

used by international institutions, and is the only one for which quarterly data are available. The household sector refers to a combination of two national accounts entities: the household sector (S14) and non-profit institutions serving households (S15).

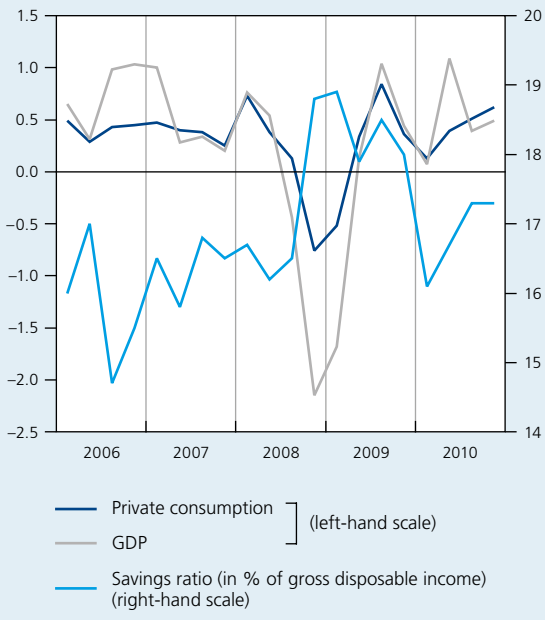
It is worth noting that private consumption has a more marked cushioning effect on cyclical fluctuations in regard to actual household consumption than for household consumption expenditure, owing to the non-cyclical nature of expenditure on education and health care, in particular.

1.2 Developments in private consumption since 2008

The use of quarterly data permits a more detailed analysis of developments in private consumption during the recent recession. To recap, the contraction in activity was initially moderate in the third quarter of 2008, then accelerated very suddenly and sharply in the ensuing two quarters. Altogether, this meant a decline in GDP over three consecutive quarters amounting to 4.3 %; this was the most severe recession in over 60 years. From mid-2009 onwards, activity began expanding again by around 0.6 % per quarter or 2.4 % year-on-year, outpacing the potential growth of the economy.

CHART 3 RECENT TREND IN PRIVATE CONSUMPTION AND HOUSEHOLD SAVINGS

(percentage changes compared to the previous quarter, unless otherwise stated) (1)



Source : NAI.
(1) Data adjusted for seasonal and calendar effects.

In this context, households curbed their consumption expenditure from the final quarter of 2008 and the first quarter of 2009, cutting it in real terms by 0.8 % and 0.5 % respectively, making a cumulative reduction of 1.3 %. The fall in consumption was even more marked in nominal terms, since consumer prices dropped sharply during the same period. Consumption growth became positive again in the second quarter of 2009, and has continued to expand slightly more slowly than GDP since then.

The decline in consumption in late 2008 and early 2009 was due largely to the increase in the savings ratio, from around 16 % of disposable income during the previous three years to almost 19 % at the height of the recession, whereas at that time real disposable incomes were still rising. Conversely, the return to positive growth in the volume of consumption in the second half of 2009 and in 2010 was accompanied by the gradual decline in the savings ratio, whereas in contrast the purchasing power of households had almost ceased rising.

As explained by the 2010 Annual Report, the fact that the movement in real disposable income was at odds with the trend in economic activity in 2009 and 2010 is due largely to various temporary factors. First, owing to the time lapse between movements in inflation and indexation, the strong rise in inflation in the previous year continued to boost the indexation of wages and social benefits in 2009, at a time when inflation was actually falling. The opposite effect was seen in 2010, depressing the real growth of disposable income in that year. Apart from the indexation effect, wages also maintained their rapid rise in 2009 as a result of an inertia effect. Finally, the tax burden was eased temporarily during that same year by measures such as the extension of the temporary reduction in personal income tax granted by the Flemish Region and the accelerated personal income tax assessments. In

2010, these tax cuts were largely abolished and there was no further acceleration in the assessments; the result was downward pressure on household incomes. These factors contributed to the volatile movement in disposable incomes in 2009 and 2010. Where consumption is concerned, they were largely smoothed out by opposing movements in the savings ratio, and in any case they do not explain the relative resilience of private consumption over the past three years.

The decline in consumption in 2009 was not uniform across the various component items. It was mainly spending on clothing and on hotels and restaurants that fell significantly in real terms, i.e. disregarding price changes. Expenditure on leisure and furniture was also down against 2008, though to a lesser extent, in the latter case mirroring lower investment in housing.

Conversely, the consumption of goods and services relating to communications continued to rise, in line with the growing importance of services concerning mobile telephony and other electronic data exchange facilities in household budgets. Similarly, certain items which cannot be cut, such as household expenditure on food, recorded an increase in 2009.

TABLE 1 BREAKDOWN OF PRIVATE CONSUMPTION BY TYPE OF GOODS AND SERVICES

	Weight in total consumption (2008)	Average annual growth (1): 2002-2007	Annual growth (1): 2009
Housing, water, electricity, gas and other fuels	23.6	0.5	0.5
Food and non-alcoholic beverages	13.0	0.1	2.5
Miscellaneous goods and services	12.9	0.8	2.0
Transport	12.0	1.0	–0.9
Leisure and culture	9.5	4.9	–2.2
Restaurants, cafés and hotels	5.8	0.9	–6.3
Furniture, household equipment and cleaning materials	5.7	1.5	–2.6
Health expenditure	5.3	2.2	1.9
Clothing and footwear	4.8	3.0	–8.6
Alcoholic beverages and tobacco	3.5	–0.6	1.9
Communication	2.3	3.0	4.0
Education	0.5	0.2	0.3
Total	**100.0**	**1.3**	**–0.3**

Source: NAI.
(1) In real terms.

1.3 International comparison

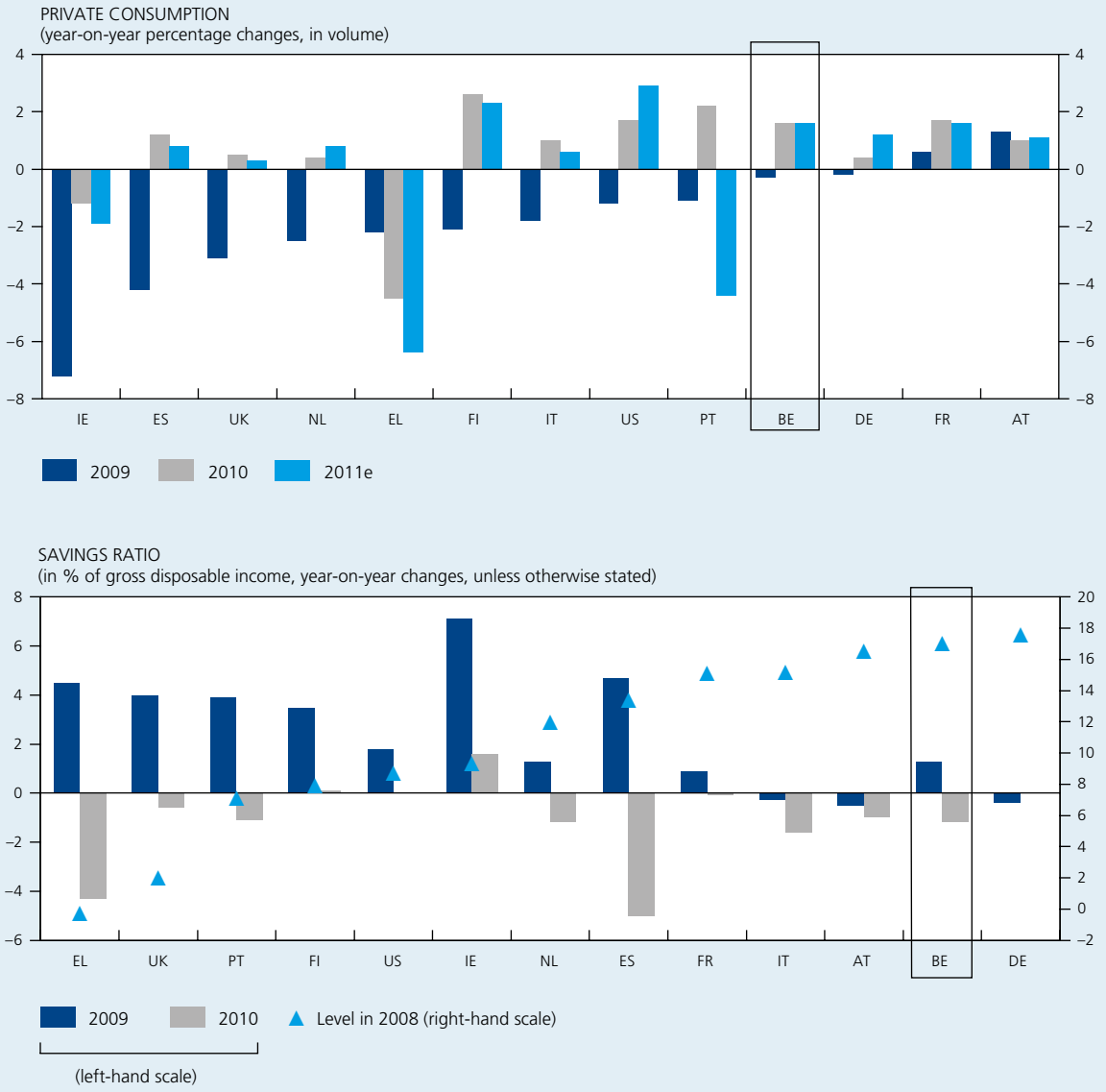
On the basis of international comparison, the decline in consumption expenditure in Belgium of around 0.3 % in volume was very modest in 2009, and the 1.6 % revival in 2010 was relatively strong. Taking an average for the euro area, private consumption fell by about 1.1 % in the first year, and picked up by only 0.8 %.

This relatively favourable performance is in line with that seen at the level of economic activity and employment. In fact, the scale of the decline in GDP was also smaller in Belgium than in the euro area, whereas the Belgian recovery was slightly stronger. In addition, the fall in employment was limited and short-lived.

Moreover, there are wide variations between euro area countries. In common with Germany, Austria, France and – to a lesser extent – Finland, Belgium belongs to a first group of countries where the decline in consumption was small in 2009 – in France and Austria consumption actually expanded –, and where the recovery was already solid by 2010. In the absence of major macroeconomic imbalances in recent years, the cumulative movement in the savings ratio was generally modest over the years 2009 and 2010 as a whole.

In contrast, the countries which faced serious structural imbalances, and which are still making significant restructuring efforts, saw a sharp fall in private consumption, which slumped in Ireland (–7.2 %) and Spain (–4.2 %), and was down by over 2 % in Greece. Whatever the nature of the structural problems facing these countries, private consumption there reinforced the recessive effects of the financial crisis and the temporary paralysis of international trade, instead of acting as a buffer. According to the EC's spring forecasts, the situation regarding consumption is set to deteriorate further in Greece, Ireland and Portugal in 2011.

CHART 4 INTERNATIONAL COMPARISON OF TRENDS IN HOUSEHOLD CONSUMPTION AND SAVINGS RATIO



Source: EC.

2. Explanation of recent movements in consumption

2.1 Determinants of consumption in the Bank's econometric model

By the way in which it represents the Belgian economy, the Bank's econometric model reveals the role of the various determinants in the declining consumption phase, in late 2008 and early 2009, and subsequently in the recovery. To explain this variable, the model bases household behaviour on the "life-cycle" approach, whereby consumers try to maximise the benefits which they obtain from their consumption not only during the current period but also during future periods up to the end of their life, taking account of the resources which will be available to them in different periods (see Jeanfils and Burggraeve, 2005). Those resources consist of labour incomes in the broad sense – i.e. including replacement incomes –, plus assets and the income which they generate. It is the accumulation of assets via savings that determines the intertemporal character of consumers' decisions. This process of maximisation is subject to various uncertainties,

e.g. concerning the lifespan, and future income flows from labour or assets. That uncertainty may be taken into account by the discount rate which is used to discount future income. Finally, apart from these long-term determinants, there are also short-term factors determining the dynamics of consumption, such as the movement in current disposable income or the economic situation, particularly regarding employment.

In this chapter, we analyse the extent to which the events observed during the financial crisis and the economic recession affected these variables and therefore influenced consumption.

2.2 Recent developments in the main determinants

FINANCIAL WEALTH

Since the first phase of the crisis was essentially financial, households initially felt its impact in the erosion of their financial wealth, following the collapse of share prices more or less worldwide. Stock markets had already begun to fall by July 2007: in the space of six months, the Belgian reference index for listed companies[1] lost 11% of its value. In 2008, the stock market fall accelerated sharply throughout the world as well as in Belgium, and the Belgian reference index plummeted by 41%, dropping alarmingly in October 2008 at a time of extreme concern about the impact of the crisis on the Belgian economy, notably via its repercussions on the financial sector.

The impact of the stock market crash on the financial assets of households[2] was considerable, even though listed shares made up only about 8% of those assets before the crisis, since the valuation of a large part of their assets – in this case unlisted shares – is also based on stock market valuations. Overall, from the end of June 2007 to 31 December 2008, Belgian households thus suffered a cumulative loss of around 90 billion on their financial assets, representing a fall of around 13% against their initial value. Historically speaking, it is not so much the scale of the financial losses that is remarkable, but the speed with which they occurred, namely in the space of six quarters. For comparison, when the dotcom bubble burst in the early 2000s, household assets were cut by 116 billion, a 17% fall, but the decline was spread over ten quarters, from the third quarter of 2000 to the first quarter of 2003.

Household assets – in the form of financial or real estate assets – constitute a reserve which can be used to maintain a certain level of consumption following retirement, i.e. when disposable income declines, but which can also be consumed at any other time. The assets which constitute wealth generate income, but may be resold or used to augment borrowing capacity, by serving as collateral. If wealth depreciates sharply while disposable income remains unchanged, and if that depreciation is considered permanent, households can logically be expected to reduce their (current and future) consumption expenditure in order to rebuild their assets.

However, in Belgium, this effect – called the wealth effect, a generic term designating the link between assets and consumption, and in particular the impact on consumption of (large) fluctuations in the prices of the assets which make up the wealth – is considered to be limited (Eugène *et al.*, 2003). In particular, the wealth effect in Belgium is thought to be weaker than the average for the euro area, where it is moreover considered to be smaller than in the United States[3].

The scale of the wealth effect in an economy depends on two elements: the size of household assets in relation to consumption, on the one hand, and the marginal propensity to consume those assets, on the other hand. In regard to the first element, international comparisons show that households' assets are substantial in Belgium, and that this is due to the size of their financial assets, which should augment the wealth effect. Conversely, the marginal propensity to consume those assets seems to be lower than elsewhere, owing to the concentration of the assets in a small segment of the population, and their composition, namely the small proportion of listed shares.

The marginal propensity to consume real estate assets is regarded as virtually zero in Belgium. Given the high transaction costs, real estate is viewed to a greater extent than elsewhere as an asset providing housing services rather than as an investment. The absence in Belgium

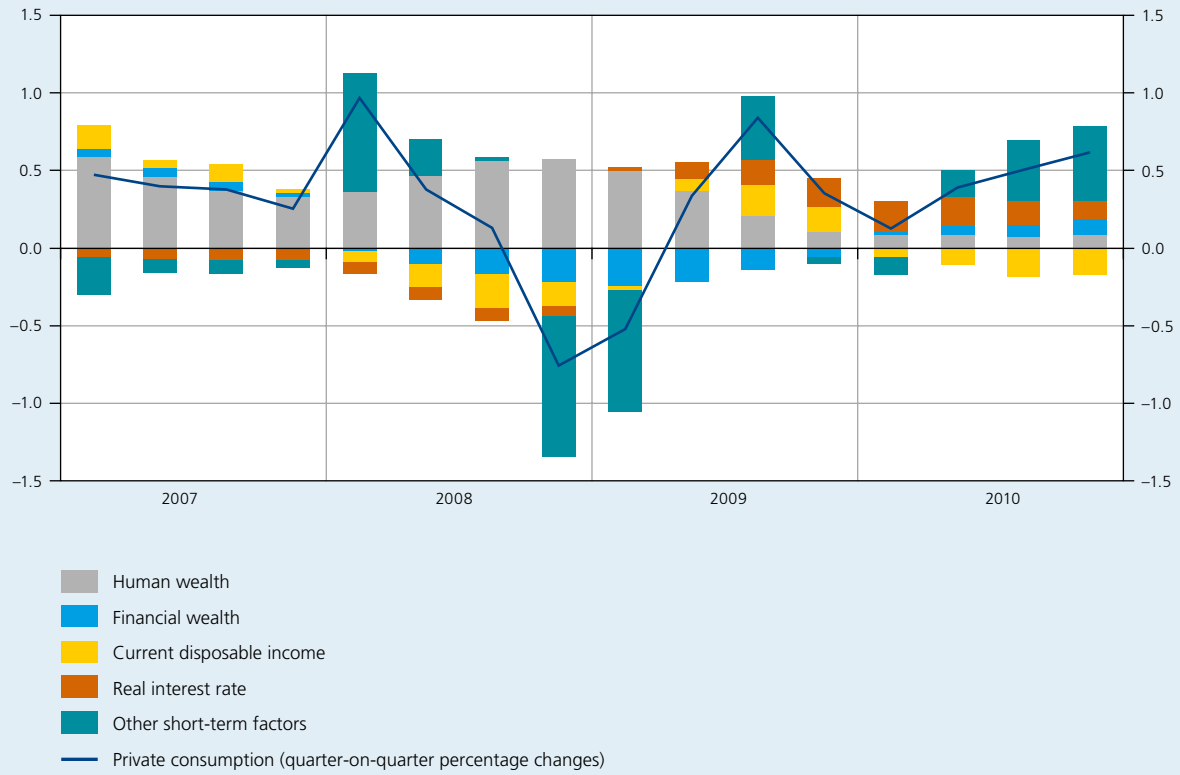
(1) Index covering all listed companies excluding financial corporations. The global index which also covers financial corporations showed an even sharper fall.

(2) The financial assets in question here are net assets, i.e. the value of the financial assets less the value of the financial liabilities (consisting mainly of mortgage loans): if households manage to reduce their liabilities in parallel with the decline in their assets, that curbs the erosion of their wealth. That did not happen in the recent crisis, as lending to households remained relatively sustained throughout the period.

(3) Numerous studies have tried to quantify the importance of the wealth effect in various countries – generally comparing the situation in the United States to that in European countries – and, depending on the type of assets, generally making a distinction between financial wealth and real estate wealth. In a recent study, the OECD presented new empirical findings concerning the importance of wealth effects in the United States, Japan and the euro area, on the basis of observations covering the 2008-2009 crisis (see Kerdrain, 2011). These showed that the marginal propensity to consume (MPC) financial assets is similar overall in the three regions (US, EA, JP), and comes to around $ 5 to 6 per additional $ 100 of financial wealth. Conversely, the marginal propensity to consume real estate wealth is higher in the United States – $ 5 to 6 – than in the euro area and Japan – $ 1 to 1.5 per additional $ 100. Overall, taking account of the respective proportions of financial and real estate wealth in the total assets of each region, the total wealth effect (expressed in MPC) is around $ 5 in the United States and $ 3 to 4 in the euro area and Japan per $ 100 of additional wealth. In broad terms, this study confirms previous research findings whereby the wealth effect is greater in the Anglo-Saxon countries, notably because real estate wealth is easier to mobilise for the purpose of consumption, as a result of explicit arrangements of home equity withdrawal.

CHART 5 DETERMINANTS OF PRIVATE CONSUMPTION IN BELGIUM

(contributions to the quarter-on-quarter percentage change, unless otherwise stated)[1]



Source: NBB.
(1) Contributions calculated by the Bank's econometric model for the June 2011 macroeconomic forecasts.

– as in most euro area countries – of explicit arrangements for the release of capital via home mortgages (mortgage equity withdrawal), probably the main channel for transmitting the effect of real estate wealth on to consumption, also greatly inhibits the existence of any housing wealth effect.

These findings are fully reflected in the Bank's econometric model. Financial wealth has only a fairly marginal influence on the level of household consumption, which is determined to a much greater extent by human wealth, i.e. the discounted value of labour incomes. The long-term elasticity of consumption to human wealth is 0.95, against 0.05 for financial wealth. On the other hand, the assets taken into consideration in the context of a potential wealth effect are solely the net financial assets, because if real estate assets are taken into account, that does not yield plausible significant coefficients.

Despite the theoretically limited significance of financial wealth in determining household consumption in Belgium, the intensity of the shock to the financial assets of households during the recent crisis was so great that the impact on consumption expenditure was unusual. The contribution of financial wealth to consumption thus became negative in the first quarter of 2008, and deteriorated very rapidly and significantly up to the first quarter of 2009. It was not until the first quarter of 2010 that financial wealth again made a positive contribution to household consumption. The efforts which households made to save, from the end of 2008, and the simultaneous fairly strong stock market recovery in fact meant that household financial assets were gradually rebuilt. In the third quarter of 2010, they had regained their pre-crisis level at a net value of €716 billion.

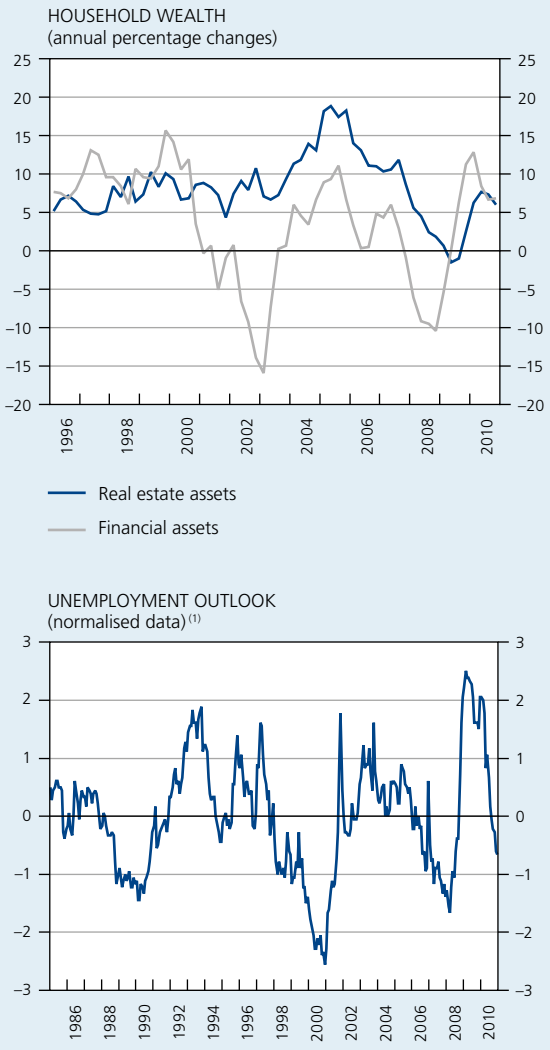
UNCERTAINTY AND OTHER SHORT-TERM FACTORS

The negative effect of financial wealth was greatly exacerbated by the rapidly mounting uncertainty – covered by the variable "other short-term factors" in chart 5 – in late 2008 and early 2009, as the crisis was reaching its height.

The sudden deterioration in the general macroeconomic environment and the outlook undermined consumer confidence, prompting sharp cuts in consumption expenditure and increases in savings. The consumer confidence indicator, and more particularly the component which measures households' expectations regarding unemployment over the next twelve months, showed a very sharp fall during this period, reaching a record level of pessimism in February 2009.

Another element of uncertainty concerns developments on the real estate markets, even though – as already mentioned – housing wealth does not play a fundamental role in determining consumption in Belgium. Compared to other recession episodes, and particularly the 2001 recession, the 2008-2009 crisis has a strong housing component since it was triggered by the problems on the subprime segment in the United States and was accompanied by a severe housing crisis and the collapse of prices in numerous countries. It is true that, in retrospect, the real estate market in Belgium withstood the crisis very well, as the housing price correction in particular was very small. But in the highly uncertain environment prevailing at the end of 2008 and in early 2009, Belgian households may have feared that what was happening elsewhere might spread to their own market, with a subsequent erosion of their housing wealth.

CHART 6 DETERMINANTS OF CONSUMPTION AND SAVINGS



Source : NBB.

(1) Balance of replies to the monthly consumer survey ; original series less the average over the period from 1985 to 2010 divided by its standard deviation.

This braking effect due to uncertainty gradually weakened in the second half of 2009 and in 2010, as is evident from the almost continuous improvement in household expectations regarding the unemployment outlook. In August 2010, expectations had reverted to their long-term level, indicating that households took a more or less neutral view of their future labour incomes. Consequently, the contribution to consumption growth of short-term factors due to uncertainty became more decidedly positive again from the second quarter of 2010.

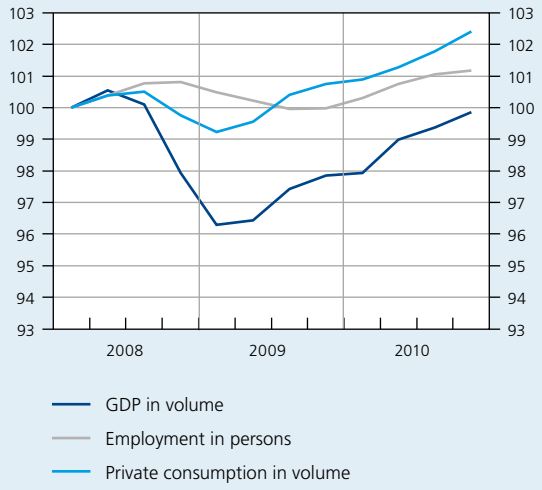
HUMAN WEALTH

While the uncertainty over future income flows diminished, those income flows became smaller from the second half of 2009 and throughout 2010, as the contraction in economic activity affected employment and wages. True, in relation to the fairly dramatic expectations of households on the subject, the worst did not materialise on the employment front. As explained in detail by the article published in the June Economic Review on the reaction of the Belgian labour market to the recent crisis (see De Mulder and Druant, 2011), the decline in economic activity had a greater impact on the number of hours worked per employee than on the number of persons employed. The usual practice of labour hoarding, whereby staff are not made redundant in the expectation of a rapid revival in activity and in the light of existing shortages of skilled staff, was in fact reinforced by the system of temporary lay-offs and a series of special anti-crisis measures.

The resilience of employment therefore helped to support private consumption at the height of the recession. Nonetheless, the gradual adjustment of employment and wages and the persistent effect of the crisis on the potential growth of the economy, implying weaker income growth in the future, subsequently meant that the contribution of human wealth to consumption declined throughout 2009 and remained low in 2010.

CHART 7 RECENT DEVELOPMENTS IN PRIVATE CONSUMPTION AND EMPLOYMENT

(indices 2008 Q1=100, data adjusted for seasonal and calendar effects)



Source : NAI

CURRENT DISPOSABLE INCOME

Although the life-cycle theory states that discounted future income is the main determinant of the consumption profile, the influence of current income must not be neglected. In particular, the existence of liquidity constraints may give current income a much bigger role in consumption than that attributed to it by the life-cycle theory. Moreover, individuals' expectations regarding their future income are not unrelated to their current income. But the movement in current disposable income may also be directly contrary to short-term uncertainty over future income. That was precisely the case during the recent crisis: current disposable income had a negative influence on consumption in 2008 and a positive influence in 2009, for reasons explained in detail in section 1.2.

REAL INTEREST RATE

The real interest rate expresses intertemporal substitution in consumption, or the decision to consume today rather than tomorrow. Having been slightly negative up to mid-2008, its influence on consumption turned around from the first quarter of 2009 and gradually strengthened up to mid-2010. The sharp cut in interest rates from the autumn of 2008 and their maintenance at a low level in fact encouraged current consumption rather than postponement.

Conclusion

Viewed overall, private consumption accounts for half of the growth of activity in Belgium. Despite exceptionally severe shocks, it cushioned the decline in activity during the 2008-2009 economic recession in conjunction with the resilience of employment during that period. The operation of the automatic stabilisers inherent in the social security system played a key role here.

Private consumption therefore provides a stable basis enabling the economy to pursue a growth path which is sustainable in the long term. However, these specific features are not inherent in this demand component; they are seen only in an economic context free of serious imbalances, in which the agents can form their expectations without having to take account of avoidable uncertainty. The example of certain euro area countries shows that where structural imbalances develop – be it in public finances or firms' competitiveness – and need to be corrected, the impact on private consumption is liable to be serious and lasting, which in turn weakens the potential for activity, income generation and job creation.

Therefore, in order to maintain the positive interaction between the supply capacity of the economy and domestic sources of demand, taking account of the structural challenges posed by population ageing and globalisation, it is vital to preserve or even reinforce the conditions for balanced development. Those conditions concern numerous variables, notably the financial situation of households and non-financial corporations, but also that of the financial sector and the government or, in general, the competitiveness of the economy.

In particular, the large increase in the public debt between 2007 and 2010, though it was smaller than in most other European countries, must rapidly give way to consolidation to restore the debt to a path which is sustainable in the long term. That increase was due to support measures for the financial sector, the endogenous effects of the economic recession on public finances and, to a lesser extent, to other anti-crisis measures. Without consolidation, it is likely that consumers – aware of the intertemporal budget constraint that governments must also respect – will rapidly step up their savings ratio in accordance with the principle of "Ricardian equivalence", in anticipation of the future effort that will be needed in terms of increased taxes or cuts in government transfers.

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The economic impact of the fight against climate change

A. Bruggeman (1)

Introduction

The attention being given to the consequences of climate change, and environmental issues in general, has increased considerably in recent decades. This is particularly true of climate experts and policy-makers, but companies and households have also changed their behaviour in order to combat climate change. This issue has been the subject of numerous reports by esteemed researchers in a variety of fields (physicians, chemists, climate scientists, economists, sociologists, etc.). This article aims to depict the principle facets of this issue, focusing on the situation in Belgium as much as possible.

The first part of the article briefly presents the possible causes of climate change and their effects. The second part describes several aspects of climate policy in an international context, paying close attention to policy targets and instruments. The third part examines some key studies that quantify the impact of the fight against climate change on the Belgian economy. We identify the areas in which there is the greatest room for improvement, taking into account the structural characteristics of the Belgian economy. We formulate several conclusions in the fourth section, the most significant of which is that the fight against climate change not only has a cost, it also offers opportunities.

(1) The author thanks F. Coppens, L. Dresse, L. Dufresne, C. Swartenbroekx and K. Van Cauter for their valuable discussions and information.

1. Climate change

Global warming has received most of the attention in recent decades. The average global temperature has progressively increased over the past 35 years, such that the temperature in 2010 was about 0.8 °C higher than the average for the period 1951-1980. It is vital to understand the causes of this warming and its consequences in order to set an optimal climate policy. However, we still face a number of uncertainties.

The causes of global warming are still being debated, even though most scientists believe that the warming is very likely caused, to a material extent, by human activity. For example, the growing use of fossil fuels (coal, crude oil and natural gas), deforestation and agriculture are increasing the concentration of greenhouse gases in the atmosphere, amplifying the natural greenhouse effect, which is thought to be raising global temperatures. That being the case, several attempts have been made in recent decades to reduce world greenhouse gas emissions and thereby reverse an exponential trend.

The consequences of warming are shrouded in even greater uncertainty. There is (as of yet) no consensus as to how high temperatures will rise and what the impact will be on mankind and the environment. However, it is widely thought that coastal regions will lose land to the sea due to rising ocean levels. As warming speeds up, we are also likely to see a decrease in biodiversity, because certain animal and plant species will be unable to adapt quickly enough. One of the consequences that already appears to be happening is an increased frequency of extreme weather conditions. The resulting natural disasters are having a significant impact on agricultural production,

the availability of drinking water, and public health. Not only do these disasters result in a loss of human life, they also destroy a portion of the production capacity and infrastructure of affected economies, undermining their growth potential. Because the direct consequences of global warming vary greatly from one region to the next, inequalities are likely to widen, which could result in large-scale migration.

Quantifying the impact of climate change is made even harder by the fact that the process is necessarily based on a number of technical assumptions. It is, thus, difficult to express some of the expected impacts in monetary terms. The loss of human life, the loss of biodiversity, migratory flows, and so on can be expressed in thousands of units, but must be translated into monetary terms. Furthermore, consequences vary greatly from one region to the next, so the aggregation method will influence the final outcome. Lastly, certain effects will be felt quickly, whereas others will only show up later on. The choice of the discount rate will thus influence the final result. The available total cost estimates for climate change are thus very diverse. Two estimates often cited are those of the Intergovernmental Panel on Climate Change (IPCC) and the Stern Review (2007). In 2007, the IPCC announced that if no action were taken to combat climate change, world GDP would eventually be 1 % to 5 % lower. By contrast, Stern claimed that, in a more comprehensive scenario, the total costs could reach 5 % to 14 % of world GDP per capita.

For Belgium, as for the rest of Western Europe, the consequences of climate change appear less dramatic at first glance than for certain other regions. A limited rise in the average temperature is even likely to benefit agriculture and the tourism sector. However, further out, more extreme weather conditions and rising sea levels will have negative consequences, especially for the Belgian coast. According to a recent study conducted in 2009 by reinsurer Swiss Re working with the University of Berne, the damage to the Belgian coast as a result of more violent storms and an expected 37cm rise in sea level by the end of the century will be three times greater than present damage[1]. Measures will have to be taken to better protect coastal regions. One possibility is to make dykes better able to resist superstorms. Other projects aim to raise several sandbanks using sand from maintenance dredging of waterways to prevent waves from breaking on the shore. But more violent storms and abundant rainfall could have serious consequences for the rest of Belgium as well, not just for farming and the insurance sector, but also for companies working in other sectors of the economy, and for households, whose buildings and machinery could be damaged. This is why authorities need to adapt land planning and construction regulations. Lastly, it is worth mentioning a certain number of impacts on public health (van Ypersele and Marbaix, 2004). For example, more frequent or intense heatwaves are resulting in more heat-related deaths in the over-65 population. Conversely, fewer very cold winter days tend to reduce the number of cardiovascular deaths.

Even though the direct effects of climate change will undoubtedly remain limited in Belgium, our country must join the global fight against climate change, not just out of solidarity with the developing countries that will be hit the hardest, despite the fact that they are not the source of much of the problem, but also because the effort could generate positive effects through lower energy consumption. Belgian companies will suffer a loss of competitiveness if they lower their energy costs less sharply than their principal competitors on international markets, which would be extremely detrimental for an open economy. Furthermore, using less crude oil and natural gas for energy purposes will free up resources for numerous other basic applications, such as plastics and fertilisers, which is notably in the interest of future generations. More judicious use of these natural resources is not only necessary because of global warming, but also from an ethical standpoint.

This article focuses principally on efforts to fight climate change by limiting greenhouse gas concentration in the atmosphere. However, even if greenhouse gas emissions were completely halted, global warming would continue due to the delayed effects of earlier emissions. At this point, it is important to take steps simultaneously to mitigate the unavoidable harmful consequences on the population, the economy and the environment. Because the effects of climate change vary greatly from one region to the next, the necessary mitigation efforts will also vary. Even so, there are several general measures worth mentioning, such as investing in water reservoirs, choosing plants suitable for farming, strengthening dykes, creating controlled flood areas, devising or altering emergency plans, etc.

2. Climate policy

The numerous uncertainties surrounding the causes and consequences of climate change are the reason why the international community has not reacted earlier and more radically to this ecological shock. Nevertheless, it has gradually become apparent that the impact may be extremely negative for many countries, and even irreversible

(1) A 37 cm rise in sea level corresponds to the IPCC's A2 scenario, which assumes a very heterogeneous world characterised by high population growth, slow economic development, and slow technological change.

in certain cases. Given the global nature of the ecological shock, the fight can only be waged through international agreements aimed at reducing greenhouse gas emissions, with the overall goal then translated into national plans.

2.1 International climate agreements

2.1.1 Emissions reduction targets

For international climate agreements to be reached, the mostly likely causes and consequences of climate change had to be clearly delineated. To this end, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) created an international network of scientists, the Intergovernmental Panel on Climate Change (IPCC), in 1988. This group of experts was tasked with conducting a critical and objective analysis of the scientific, technical and socio-economic literature on climate change. The IPCC's mission was to inventory and evaluate the current state of climate change science, without carrying out its own research. Its work was to result in summary assessment reports upon which policy-makers could base their decisions. So far, the IPCC has released four assessment reports, in 1990, 1995, 2001 and 2007. A fifth report is scheduled for release in 2014. The IPCC has also published several supporting documents, such as special reports on particular issues and methodological reports.

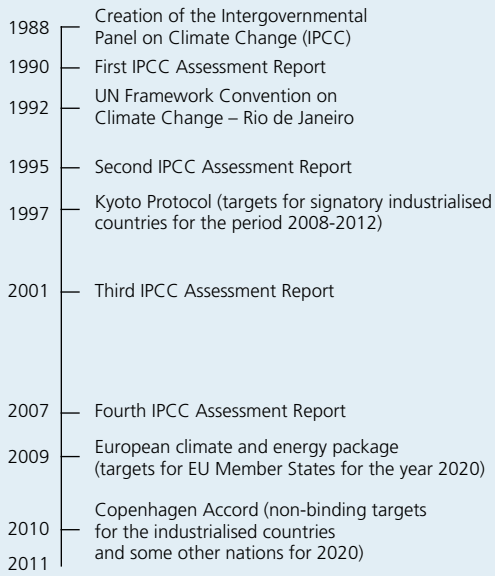
The IPCC's first assessment report, published in 1990, was the basis of the United Nations Framework Convention on Climate Change (UNFCCC), signed in 1992 in Rio de Janeiro. The Convention sought to fight climate change caused by the greenhouse effect that is amplified by human activity. To do so, it was decided to stabilise concentrations of greenhouse gases in the atmosphere at a level that would prevent any dangerous disturbance to the climate system. Most of all, the Convention offered a general framework requiring industrialised countries to reduce their greenhouse gas emissions to 1990 levels by 2000, without specifying concretely how they should do so.

It was only after years of negotiations that the Parties to the UNFCCC reached an agreement in Kyoto in 1997 containing concrete targets for reducing greenhouse gas emissions. The Kyoto Protocol calls for signatory industrialised nations to reduce their average greenhouse gas emissions during the period 2008-2012 by at least 5 % overall relative to 1990 levels. The exact percentage reductions vary from one country to the next, as a function of economic potential, emissions levels and the goodwill of the countries in question. For example, the US was supposed to cut its emissions by 7 %, Japan by 6 % and the EU-15 by 8 %. However, the US never ratified the Protocol. For the other countries, the reduction targets are binding. If they do not reach their targets, they will be forced to make up the difference during the following commitment period (after 2012), with a surcharge set at 30 %. The Kyoto Protocol does not include emissions reduction targets for emerging countries such as China or India.

No binding agreement has been reached at the global level for the period after 2012. In January 2010, the industrialised nations and several developing countries – which together are responsible for more than 80 % of world greenhouse gas emissions – set concrete targets in the Copenhagen Accord that they hope to reach by 2020. However, these pledges are not legally binding. Furthermore, an analysis of these national targets shows that the joint effort to which these countries have committed will not be enough to keep global warming below the threshold of 2 °C above pre-industrial temperatures.

Despite the lack of an international agreement at the world level, the European Union's 2009 climate and energy package set a number of ambitious targets that it hopes to meet by 2020. For example, it plans to reduce greenhouse gas emissions in the EU by at least 20 % relative to 1990 levels. If other developed countries make a similar commitment, the EU will raise that reduction target to 30 %. Furthermore, the percentage of final energy

CHART 1 PRINCIPAL INTERNATIONAL CLIMATE AGREEMENTS



consumption derived from renewable sources must be raised to 20 %, and at least 10 % of energy for transport must be produced sustainably. Lastly, it aims to increase energy efficiency by 20 %, but this target is not binding.

2.1.2 Evaluating ongoing efforts

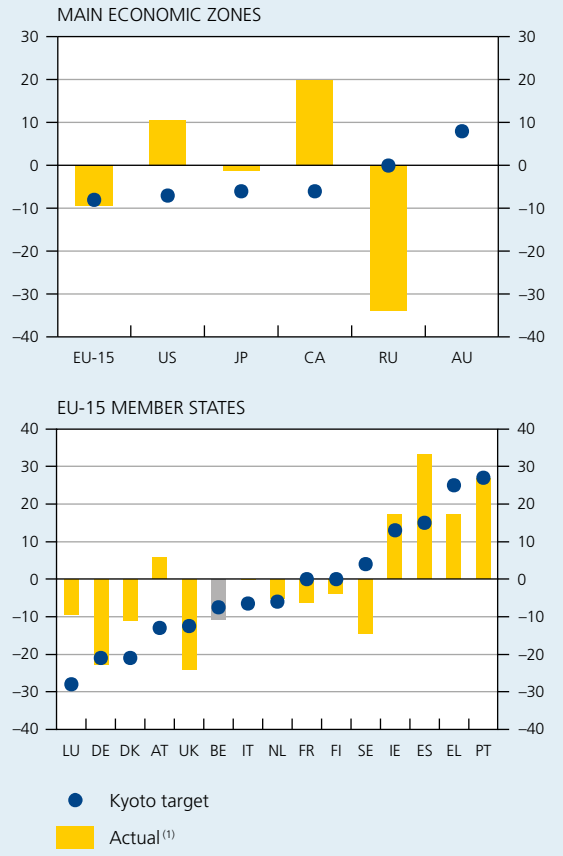
The Parties to the Convention on Climate Change must report annually on greenhouse gas emission volumes. The figures available up to 2009 inclusive show that results vary considerably among the largest countries. On the one hand are countries like the Russian Federation and Australia, whose average greenhouse gas emissions in 2008-2009 were significantly below the authorised level. These developments are partly attributable to changes in the economic structure of those countries, as the most polluting economic activities have grown less significant. Furthermore, modernisation of the industrial tool – in response to both environmental considerations and rising energy prices – has also played a role. Lastly, the reduction in emissions in 2009 is partly attributable to weaker demand for energy because of the recession. On the other hand are large countries like the US, Japan and Canada, whose average greenhouse gas emissions in 2008-2009 were well above the authorised level and who will have to step up their efforts considerably.

This observation is equally true of some emerging economies – which are, however, not party to the Kyoto Protocol. These countries have enjoyed robust economic growth, but have also risen quickly through the rankings of greenhouse gas emitters. According to the most recent figures from the World Resources Institute for 2005, greenhouse gas emissions have risen by respectively 101.3 % and 68.1 % in China and India since 1990. In 2005, these countries were respectively the biggest and fifth-biggest polluters in the world. At the same time, their per capita emissions remain very low compared with countries like Australia, the US and Canada, whose per capita greenhouse gas emissions are around 4.5 times higher, and compared with Belgium, whose per capita greenhouse gas emissions are around 2.5 times higher. While it is essential, in the post-Kyoto period, for more countries to commit to reducing their greenhouse gas emissions, in setting concrete targets it is necessary to take into account the "lag" exhibited by emerging countries.

The EU-15 countries are somewhere in the middle: average greenhouse gas emissions during the period 2008-2009 were 9.5 % below the base year, whereas the reduction target for the period 2008-2012 was only 8 %. However, it is important to remember that the reduction in emissions in 2009 was partly attributable to weaker

CHART 2 KYOTO TARGETS AND ACTUAL GREENHOUSE GAS EMISSIONS

(change as a % relative to the base year)



Sources : UNFCCC, EC.
(1) Average emissions over the period 2008-2009.

demand for energy caused by the recession. In 2010, this decrease probably experienced a correction, and may have even been temporarily reversed. The EU-15 nevertheless appears to be on track to meet its target for the period 2008-2012.

However, it is worth pointing out that the Member States are not all producing the same results with respect to limiting greenhouse gas emissions. When the Kyoto Protocol was concluded, very different targets were set. For example, certain countries pledged to reduce their greenhouse gas emissions (Luxembourg, Germany, Denmark, Austria, the UK, Belgium, Italy and the Netherlands), whereas other Member States sought only to stabilise their emissions (France and Finland), and still others decided to cap the increase in their emissions (Sweden, Ireland, Spain, Greece and Portugal). Given the range of targets, it makes more

sense to evaluate ongoing efforts by using the difference between average emissions during the period 2008-2009 and the countries' individual Kyoto targets. Based on this yardstick, Sweden and the UK have clearly had the best results. Both countries managed to lower their greenhouse gas emissions during the period 2008-2009 to a level more than 10 % below their Kyoto targets. France and Greece are also ahead of target by around 6 %. Conversely, Luxembourg and Austria were the weakest: their average emissions over the period 2008-2009 were more than 20 % higher than their Kyoto targets. Spain and Denmark also must intensify their efforts, given that their emissions were on average more than 10 % higher than their Kyoto targets.

With a 10.9 % reduction, Belgium's performance during the period 2008-09 was better than the targeted 7.5 %. While the result is partially attributable to the abrupt economic slump, which reduced energy consumption during the 2009 crisis, Belgium could easily meet its Kyoto target by 2012 without additional measures. According to the Federal Planning Bureau's economic outlook for 2011-2016, greenhouse gas emissions during the period 2008-2012 are expected to be 11 % lower on average than the 1990 level. Additional measures will, however, be necessary to meet the 2020 targets in the European climate and energy package. According to the Federal Planning Bureau, the biggest need for reducing emissions lies with energy-intensive industrial facilities, and significant efforts still need to be made in terms of renewable energy.

2.2 Climate policy instruments

In Belgium, jurisdiction over climate policy – covering the environmental, energy and transport fields – is currently split between the federal government and the three Regions. The fragmentation makes it more complicated to implement a national strategy to fight climate change, even though several coordinating bodies have been created to encourage dialogue and collaboration, ensure consistent policies and unlock needed synergies. For example, the National Climate Commission in 2009 developed the first National Climate Plan, which synthesises all of the measures taken by the various levels of government to meet the obligations of the Kyoto Protocol. This plan also lays the groundwork for a post-2012 strategy. It sets goals for six key sectors – optimise energy production, use energy rationally in buildings, work on industrial processes, develop sustainable modes of transport, encourage the sustainable management of agricultural and forest ecosystems, and step up waste management efforts – many of which are examined in greater detail in section three of this article.

Above all, a climate policy aimed at reducing greenhouse gas emissions must get economic agents (both producers and consumers) to modify their behaviour. To reduce greenhouse gas emissions, energy consumption will have to fall through increased energy efficiency, and the energy mix will have to change to include a lower percentage of carbon, which means reducing the use of coal and, to a lesser extent, crude oil in favour of nuclear energy, natural gas and/or renewable sources. In concrete terms, this means notably that companies will have to adapt their production processes and introduce new technologies, and that households will have to pay more attention to the sustainability of their purchases when making consumption and investment decisions.

There are several ways to encourage the needed behavioural changes. The various instruments can be split into two main categories: market instruments, which influence the relative prices of products (such as tradable emissions permits, environmental taxes and green subsidies), and non-market instruments. Among the second group, the principal instruments are regulatory, such as prohibitions or standards for certain goods and services. This group of instruments also includes measures aimed at promoting research into new technologies, and subsequently their development and spread, as well as measures aimed at informing and raising awareness among the population and companies.

In general, climate policy consists in calibrating these instruments, taking into account numerous factors, particularly the manner in which greenhouse gases are emitted. If emissions are principally caused by economic sectors that are highly sensitive to price movements, the instruments that influence relative prices will be a good choice. Where this is not the case – notably in the transport sector – other instruments will have to be used, such as promoting innovation or improving public transport options. Social aspects must also be kept in mind. For example, most environmental taxes are regressive, as costs weigh proportionally more heavily on lower-income classes. However, they also generate receipts for public authorities that can be used, among other things, to lower the tax burden on labour (or certain categories of labour), support innovation or reduce the public debt. Lastly, environmental policy must not imperil the competitiveness of companies active on international markets. In this respect, it is important for environmental goals to be subscribed to by a very large number of countries, and that carbon leakage be avoided as much as possible. This occurs when companies decide to relocate some or all of their polluting production to

countries with more lenient climate rules. According to a 2010 OECD estimate, carbon leakage would amount to around 12 % if the EU unilaterally imposed a 50 % reduction in emissions by 2050, whereas the number would be less than 2 % if all industrialised countries made similar commitments.

2.2.1 Market instruments that influence price

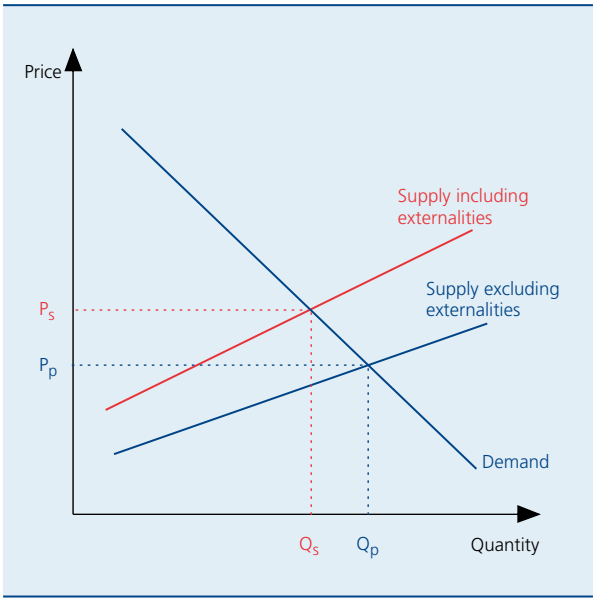
Market instruments that influence the relative prices of products are designed to internalise negative externalities. The private cost of producing or consuming a product is lower than the social cost, because the latter also includes external effects such as greenhouse gas emissions. The market price of the product (P_p) – obtained where demand meets the marginal private cost – does not take into account these externalities and will thus be lower than the optimal price from a societal standpoint (P_s), which results in excessive use of the product ($Q_p > Q_s$).

In the case of an emissions permit trading system, authorities issue a number of emissions permits for a certain period, which can then be traded. The limited overall quantity creates scarcity, which then, through market mechanisms, causes the price of emissions permits to rise. This encourages companies to reduce their emissions. The advantage of such a system is that the target for reducing emissions is set by the authorities. However, the carbon value varies over time, so companies have no certainty as to the additional costs engendered by emitting greenhouse gases. This uncertainty may diminish their willingness to invest in the development and use of new technologies. Furthermore, companies in this type of system have less incentive to reduce their emissions once the target is reached.

The market for tradable emissions permits must be deep enough and liquid enough for prices to correctly reflect the carbon value. Because such a market could not be created by most European countries acting individually, the EU Emission Trading Scheme (EU ETS) was launched in 2005. At present, some 11 000 energy-intensive installations compulsorily participate in the system. They consist chiefly of power plants, combustion plants, oil refineries, cokers, iron and steel works and plants producing cement, glass, bricks, ceramics, pulp and paper. These installations together generate around 40 % of the EU's greenhouse gas emissions.

In phase one (from 1 January 2005 to 31 December 2007), it was up to the Member States to determine the total quantity of emissions permits for their country and how to allocate them (mostly free of charge) among the individual installations by crafting a national allocation plan that had to be approved by the EC. Companies were required, after the year had ended, to turn in the emissions permits owed. If a company's emissions exceeded the number of permits it owned, it would have to pay a fine of € 40 for each missing emissions permit and turn in the owed emissions permits the following year. During phase two (from 1 January 2008 to 31 December 2012), the system is largely the same, but the number of emissions permits has been reduced and the fine for each missing permit raised to € 100. Furthermore, emissions rights can be carried over from one year to the next, which was not the case in phase one.

CHART 3 INTERNALISING ENVIRONMENTAL EXTERNALITIES



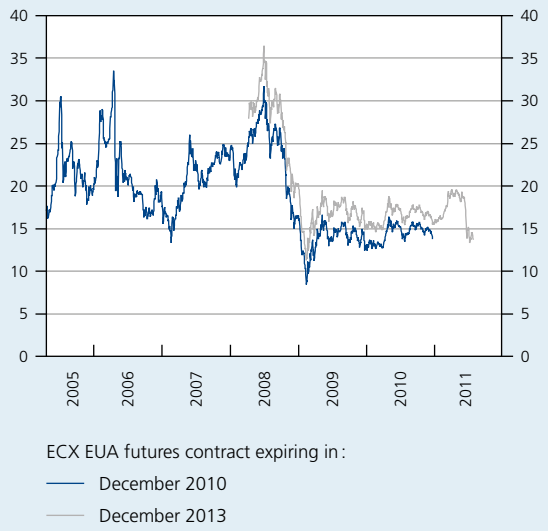
For phase three (from 1 January 2013 to 31 December 2020), the rules will be changed considerably. First of all, the number of emissions permits for the entire EU will be limited. It will be lowered each year by 1.74 %; the total number of emissions permits in 2020 will thus be 21 % lower than the amount issued in 2005. Second, a growing share of the emissions permits will be auctioned. However, activities that consume a great deal of energy and would thus experience a significant competitive disadvantage – implying the risk of carbon leakage – will still be initially allocated most of the emissions permits free of charge. The auction proceeds could reach, according to EC estimates, between € 30 billion and € 50 billion annually by 2020, depending on the permit price. Member States have agreed that at least half of this revenue will be used to fight climate change, both in Europe and in developing countries. Third, the air transport sector, international shipping, and the capture, transport and storage of CO_2 will be incorporated into

the trading system. By contrast, small installations are to be excluded to keep administrative costs down, provided that the appropriate Member State applies equivalent environmental levies to those installations. Lastly, the fine per permit not received will be adjusted to euro area inflation annually.

The extent to which companies are prepared to make efforts to limit their greenhouse gas emissions depends principally on prevailing market prices. These need to be not only sufficiently high, but also relatively stable. To increase its energy efficiency, a company must make sizeable investments over a fairly long period. As uncertainties regarding the future carbon value increase, a company will be less temped to make the necessary investments and so will adopt a wait-and-see attitude. Until now, emissions permit prices have been very volatile. In the first year of the EU ETS's operations, this volatility may have been attributable to a lack of market liquidity, because too many emissions permits were granted. Prices then fell sharply when the figures on actual emissions were released in late April 2006. In following years, price trends were less volatile, although significant fluctuations continued. For example, the price of a futures contract maturing in December 2010 traded on the European Climate Exchange rose from a low of € 13.3 on 20 February 2007 to a peak of € 31.7 on 1 July 2008, or an increase of 138.4 %. Demand for emissions permits rose sharply over the period, with more coal being used to generate electricity in response to a rising oil price, resulting in higher CO_2 emissions. The carbon value then plunged following the economic and financial crisis, reaching a new low of € 8.4 on 12 February 2009. Subsequently, the market recovered somewhat and the price of a futures contract maturing in December 2010 fluctuated between € 12.5 and € 16.5. Longer contracts are a bit more expensive, but their prices exhibited comparable trends.

CHART 4 EMISSIONS PERMIT PRICES

(in € per tonne of CO_2 emissions)



Source : European Climate Exchange (ECX).

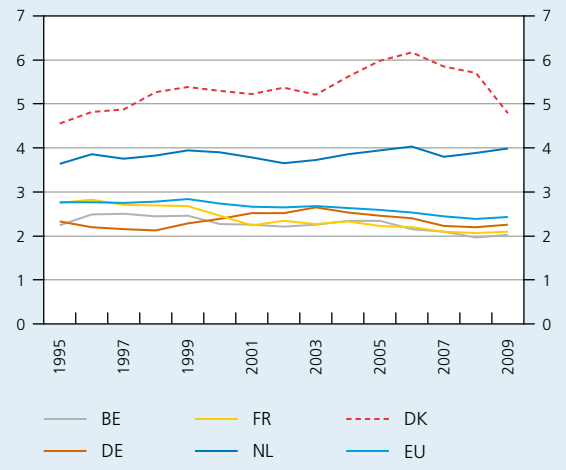
The EU ETS is the pre-eminent way to reduce emissions by industry and public utilities. However, Member States must also take steps to limit the greenhouse gas emissions of sectors not subject to the ETS (such as households, the transport sector and agriculture). One way of doing so is to levy environmental taxes. Unlike the emissions permit trading system, imposing an environmental tax offers no guarantees with respect to emissions reduction. The final outcome depends on the behaviour of producers and consumers. Environmental taxes also pose the disadvantage of offering less ability to differentiate between production and consumption locations and methods. On the other hand, a sufficiently high tax rate gives companies a permanent catalyst to develop and use new technologies. Once a new technology is adopted on a large scale, emissions reductions can thus be more pronounced than authorities' initial estimates.

For the EU, environmental tax receipts averaged 2.6 % of GDP over the period 1995-2009, but there were significant disparities among the countries. Belgian receipts were limited to 2.3 % of GDP on average, the second-lowest figure in the EU-15. Of its three principal neighbours, France and Germany also make little use of environmental taxes. In the Netherlands, on the other hand, environmental tax receipts have hovered around 3.8 % of GDP. Denmark is by far the leading country in this respect, with receipts averaging 5.3 % of GDP. The positioning of Denmark and the Netherlands is remarkable not only in terms of the average tax receipts over the period in question, but also in terms of their trends. Whereas EU environmental tax receipts have fallen by 0.4 % of GDP since 1999, they have been relatively stable in the Netherlands and even rose in Denmark until 2006, after which they fell sharply. But the development in environmental taxes is influenced by two factors : on the one hand, environmental tax rates, and on the other, consumption of the taxed good. A downward trend does not necessarily indicate that authorities have eliminated environmental taxes ; it may also be attributable to the fact that taxes are effective in reducing consumption of polluting products.

From a statistical standpoint, environmental taxes are generally split into three categories. The biggest group is taxes on energy. This category includes taxes on fuel

CHART 5 ENVIRONMENTAL TAX RECEIPTS

(as a % of GDP)



Source : EC.

used in transport, heating oil, natural gas, coal and electricity, along with CO_2 taxes. Between 1996 and 2009, these taxes trended downward in Belgium, as in the EU. However, this trend was temporarily interrupted in 2003-2005, when several structural measures were enacted to tie automobile transport costs to the use of the vehicle rather than its possession. During the period 2006-2008, however, energy taxes were again lowered in Belgium, principally due to application of the reverse ratchet system to petrol and diesel. Belgian energy tax policy has often proceeded by trial and error, and has in some cases lacked a long-term vision.

Apart from energy taxes, taxes on transport play a relatively important role. They include both the one-off tax paid when a vehicle is purchased and recurring charges, but not excise duties on petrol or diesel, which fall under energy taxes. The relative significance of transport taxes does not show a clear trend in any of the countries studied, although it has fluctuated significantly over time in the Netherlands and especially Denmark. Lastly, taxes on pollution and resources bring in much less. They include notably taxes on packaging, atmospheric pollution, waste and water use. However, it is this category that is the reason for the upward trend in environmental taxes as a percentage of GDP in Denmark.

To cover all the bases, it is worth adding that in addition to tradable emissions permits and environmental taxes, the category of instruments that influence the relative prices of products also includes environmental subsidies and tax deductions for green products. Such is the case with green certificates and cogeneration certificates, which stipulate a minimum guaranteed price, designed to encourage the production of green electricity and the cogeneration of heat and electricity. Furthermore, tax cuts for various energy-saving investments have been enacted for personal income taxes in Belgium. These investments include replacing old boilers, installing double-pane windows, and improving home insulation. Tax advantages are also granted for the purchase of environmentally friendly vehicles. Companies can also take advantage of tax incentives when they make certain energy-saving investments.

2.2.2 Non-market instruments

Correcting the price signal to include the external effects of greenhouse gas emissions will not, however, be enough to sufficiently lower these emissions. That is why non-market instruments must also be used. Regulatory instruments are the principal tools in this category. Authorities may decide, for example, to completely outlaw the use of certain pollutants, such as was the case with chlorofluorocarbons (CFCs). Their use was progressively banned by the Montreal Protocol. Incandescent light bulbs, as well, will gradually disappear from the EU between 2009 and 2012. Furthermore, authorities may impose standards for certain products. Ordinarily, this practice is also used at the EU level to avoid unfair competition. For example, Directives dealing with the ecodesign of energy-using products and energy-related products have established a framework for setting requirements designed to optimise the environmental performance of products throughout their life cycle without impairing their functional characteristics. Among the energy-using products targeted are, notably, domestic appliances, consumer electronics, lighting, office equipment, heating, air conditioning and ventilation systems, electric motor systems, pumps, fans, transformers and industrial ovens. The group of energy-related products includes, notably, windows, insulation materials and water-consuming products, such as shower heads and water taps. Lastly, there are also overall standards in terms of energy performance and insulation for new housing, which are intended to improve the energy efficiency of the housing stock (see below, section 3.2.2).

Given the extent of the actions needed, companies, households and authorities will also have to take part in the general trend toward significantly improved technologies or new technologies, especially for activities that generate the most pollution. The nature of the new technologies that will be needed to considerably reduce greenhouse gas emissions over the long term is such that the private

sector will not be able to act on its own. What is needed is not marginal improvements to existing technologies, but rather a technological revolution that will substantially cut energy consumption without affecting economic growth and prosperity. Without sufficient support from authorities, private companies will be slower to want to develop such technologies. As a result, it would be technically impossible to meet ambitious environmental targets.

To begin with, these new technologies will not be profitable unless they can be used on a large scale. During the first phase of the innovation process (invention), costs are high and the likelihood of commercial success is low. Given this risk profile, it is often difficult for companies to find enough affordable financing from banks or on financial markets. As effective new technologies become more widely used, their costs decline during the marketing phase due to the learning curve and economies of scale. It is thus up to authorities to support research into new technologies, chiefly during the initial phase. In addition, authorities can pay an incentive to users of the new technology during this initial phase in order to reach critical mass more quickly.

Secondly, innovation can be viewed as a public good, in the sense that once the new technology has been developed, the knowledge is shared with other companies. Other companies can thus build on that knowledge, which increases the likelihood that the innovation will be effective. However, the drawback of this situation is that the economic benefits of the investment in new technologies do not all accrue to the (first) innovating company. Thus, the company is not assured of being able to profit sufficiently from its investment down the road, which may dissuade it from taking such big risks. This is yet another argument for authorities to provide financial assistance to companies trying to develop new technologies.

For companies that emit a great deal of CO_2, R&D and innovation are naturally important. As long as they manage to reduce their emissions at a price lower than the carbon value, they will be getting a good deal. But for other companies as well, eco-innovation can be a powerful catalyst. Given that climate change is a global problem, the world market for eco-innovations is very large. The idea is to seize such opportunities as quickly as possible and to be among the first movers in this vast market.

Innovation in general and eco-innovation in particular now occupy a central place in the EC's Europe 2020 strategy and in the OECD's green growth strategy. In Belgium as well, innovation plays a major role in Wallonia's Marshall Plans and in Vlaanderen in Actie's Pact 2020. Organisational and financial support will be available for cooperation agreements between companies, research centres and training centres and it will be easier to establish innovative new companies.

Lastly, authorities can also do a lot to help raise the awareness of companies and households on climate change issues. Targeted information campaigns can show how far we have to go in certain areas and present the actions that can or must be taken, along with what forms of public assistance are available.

3. Impact of the fight against climate change on the Belgian economy

The economic impact of the fight against climate change can be analysed using several approaches. The first consists in using an econometric model to simulate the macroeconomic consequences of the targets imposed by the European climate and energy package. Section 3.1 presents the results of two of these studies. We can also take a more descriptive approach focused on the methods used to reduce greenhouse gas emissions. Using this approach, we will look successively at the decrease in energy intensity of certain activities (section 3.2), the increasing use of renewable energy (3.3) and, as a last resort, CO_2 capture and storage (3.4).

3.1 Macroeconomic impact of the European climate and energy package

Estimating the impact of the fight against climate change on the Belgian economy requires to formulate a number of hypotheses. For example, it is important first of all to create a baseline scenario describing the likely trend in energy consumption assuming no change in (climate) policy. To this end, it is necessary to formulate working assumptions regarding population trends, the number of households, economic growth and commodity prices. One must then develop several scenarios under which it is possible to meet the targets of the European climate and energy package. The results of these simulations can then be compared against those of the baseline scenario to determine the impact of the fight against climate change.

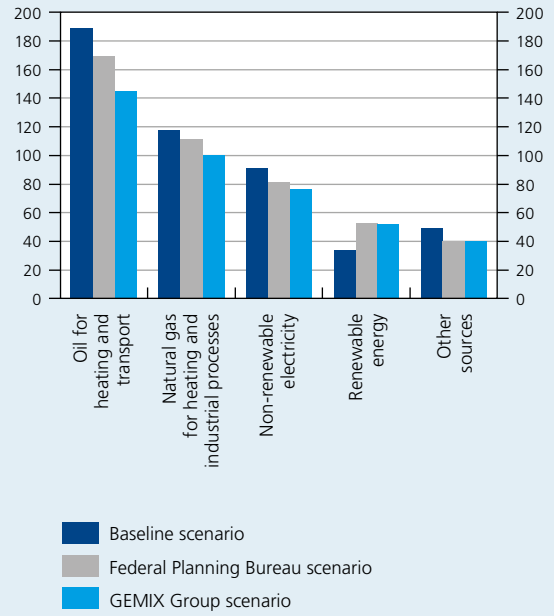
3.1.1 Impact on energy consumption

The Bank does not have a model that allows us to quantify the impact on the Belgian economy of the fight against climate change. The Federal Planning Bureau, however, has already conducted several simulations in this respect. According to Bossier *et al.* (2008), the targets of the

European climate and energy package will have a twofold impact on Belgian energy consumption. First of all, the introduction of carbon pricing is expected to push up energy prices and thereby reduce final energy consumption by a total of 5.7 % in 2020 compared with the baseline scenario. Secondly, the energy mix is expected to shift in favour of a lower carbon content. In this case, the carbon value will influence the relative prices of the various energy sources, and the explicit target for renewable energies will also play a role. The principal energy sources that will be significantly lower than in the baseline scenario are oil demand for heating and transport, and non-renewable electricity consumption, by respectively 10.6 % and 11.5 %. Natural gas consumption for heating and industrial processes would also be more limited, but the 5.5 % drop relative to the baseline scenario is less pronounced. This is attributable notably to the fact that industry has already substantially improved its energy efficiency and significant additional economies will only be possible by extensively adapting industrial processes, which is not possible with current technology. Compared with the baseline scenario, renewable energy consumption would be around 50 % higher, but would still only represent 11.6 % of total final energy consumption in 2020.

CHART 6 IMPACT OF THE EUROPEAN CLIMATE AND ENERGY PACKAGE ON FINAL ENERGY CONSUMPTION IN BELGIUM IN 2020, ACCORDING TO DIFFERENT SCENARIOS

(in TWh)



Source : GEMIX Group (2009).

In its 30 September 2009 report, the GEMIX Group argued that it would be possible to lower final energy consumption by 14.5 % relative to the baseline scenario. The additional decrease is principally due to the oil demand for heating and transport and the natural gas demand for heating and industrial processes. To meet these targets, it is advisable to pursue a particularly aggressive policy with respect to energy efficiency, emphasising building insulation, improving public transport, increasing multimodal transport, and clean vehicles (see below, section 3.2).

As already pointed out in section 2.1.2, energy consumption fell significantly in 2009 due to the economic crisis, which invalidated the baseline scenario presented above. The updated version of Bossier *et al.* (2011) accounts for the impact of the crisis, and assumes stronger population growth and higher energy prices. The study also takes into consideration certain energy-saving measures enacted in 2008 and 2009. While the principal results of Bossier *et al.* (2008) are confirmed, the needed energy savings represent only 1 % in the new study, compared with 6 % in the previous version. It is principally natural gas consumption and, to a lesser extent, oil consumption that will need to be reduced still further. The results of the two studies are comparable with respect to renewable energy sources.

3.1.2 Impact on economic activity and employment

The macroeconomic impact of the fight against climate change has a number of aspects, including direct costs linked to the actions taken at the national level to reduce greenhouse gas emissions, which include investment in renewable energies and energy-efficient technologies, higher energy prices and the costs of adapting to changing energy consumption, as well as the direct costs of using the flexibility mechanisms that allow to meet targets for emissions reductions and renewable energies abroad. According to the estimates of Bossier *et al.* (2008), the total direct costs for Belgium will amount to 0.86 % of GDP in 2020 [(1)]. The macroeconomic consequences for the Belgian economy, however, also include feedback effects. Whereas new technology investments represent a cost for the companies that make them, they will also generate revenues for the companies that make the purchased products. In addition, authorities will have additional resources (from environmental taxes and emissions permit auctions) that they can inject into the economy. The total

(1) According to the updated version of Bossier *et al.* (2011), the total direct costs would represent only 0.3 % of GDP. This study, however, does not include the new estimate of the macroeconomic impact of the European climate and energy package, at least with respect to the scenario considered here for the reduction of greenhouse gas emissions by 20 % by 2020, and for that reason it is not considered in this section.

impact of the fight against climate change will consequently be smaller.

Bossier *et al.* (2008) calculated that in 2020, GDP would be "only" 0.45 % lower than in the baseline scenario, even if authorities choose not to use the additional proceeds to stimulate the economy. The rise in energy prices will hurt individuals' purchasing power, thus slowing consumption. Business investment will fall more sharply due to the drop in production. Whereas exports will also be slightly lower, this decline will be offset by a considerably drop in imports, so net exports will make a positive contribution to GDP. The decrease in activity will also have an impact on employment, which will be 0.35 % lower than in the baseline scenario.

According to this study, the negative impact on the Belgian economy may be mostly offset if authorities use their extra receipts to reduce employers' social security contributions. This would spread the charges more evenly among the production factors of labour, capital and energy. Furthermore, employment would benefit from the lower labour charges: according to this study, it would even be higher than in the baseline scenario. As a result, the negative impact on private consumption will be almost cancelled out. Under this scenario as well, business investment would remain lower than in the baseline scenario, but the difference would be reduced by half. The total negative impact on GDP would be lowered to 0.07 % in 2020.

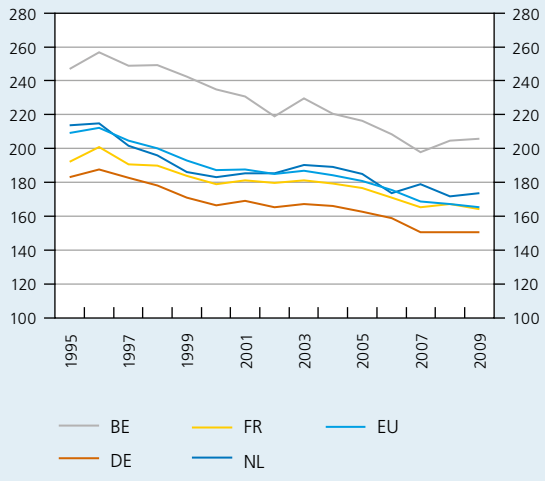
According to a recent study by the EC, support for innovation may also be a stimulant that can offset the costs generated by the fight against climate change. Conte *et al.* (2010) analyse the impact of this fight for the entire EU. They look at five scenarios, which vary in the extent to which authorities redirect their additional receipts. The least favourable result in terms of GDP and employment is when authorities decide to use their additional receipts to reduce a flat-rate tax. If authorities lower the tax on earned income, employment in the EU in 2020 would be higher than in the baseline scenario, even though GDP would still be a bit lower. The latter is no longer the case in the other scenarios, in which 10-20 % of additional public receipts are used to subsidise innovative projects (environmentally friendly or not) and the remaining additional receipts are used to lower the tax burden on labour. In these scenarios, employment would be less strongly stimulated than in the second scenario, but in 2020 it would still be 0.2 % higher than in the baseline scenario, and GDP would also be slightly higher than in the baseline scenario.

Even though the results of such model-based simulations depend heavily on the underlying working assumptions, these studies clearly show that the fight against climate change will not necessarily cause a contraction in economic activity. At the same time, it appears that not all sectors of activity or companies will be affected to the same extent. For example, the simulations cited above indicate slower activity principally in the energy sector (at least in the segment using fossil fuels) and transport sector (except rail transport). Conversely, we see strong growth in the sectors that meet the needs of a more environmentally friendly economy. Another task for authorities is to prepare for and guide, as much as possible, the shifts arising in the economic structure. In this respect, we principally have in mind making sure that job-seekers have the qualifications to meet the (new) needs of companies.

3.2 Decrease in energy intensity

Over the past 15 years, the energy intensity of the Belgian economy has definitely trended downwards, but it remains particularly high. In 2009, overall energy intensity – defined here as the ratio of gross energy consumption to GDP in volume terms – was 206 TOE per million euro in Belgium, whereas it was between 150 and 175 TOE

CHART 7 OVERALL ENERGY INTENSITY (1)
(in TOE per million euro)



Source : EC.
(1) Calculated as the ratio between gross energy consumption and GDP in volume terms.

(1) The tonne of oil equivalent (TOE) is a unit of account for the amount of energy that a primary energy source represents and is more or less equal to the net calorific content of a tonne of crude oil. The units of primary energy sources other than oil are converted into tonne of oil equivalents using conversion coefficients.

per million euro in the principal neighbouring countries and the EU[1]. A country's overall energy intensity is influenced by numerous factors, such as economic structure, the average age of the building stock and capital stock, weather conditions, population density, standard of living and transport infrastructures. It is calculated using gross energy consumption and is thus influenced by final energy production methods due to differences in performance[1]. When comparing energy intensity across countries, it is thus important to remember that these differences are not only a function of efficiency.

3.2.1 Energy intensity in industry

The impact of the economic structure can be partially eliminated by analysing energy intensity at the level of the major economic sectors. Energy intensity in this case is defined as the ratio between final energy consumption and the value added of each economic sector. This measure indicates that in recent years, Belgian industry has already made considerable headway. Between 2001 and 2009, its energy intensity fell by a total of 26.8 %. Much of this downward trend is the result of voluntary agreements that many industrial companies signed with regional authorities to increase their energy efficiency. These companies have made a commitment to be among the global elite in terms of energy efficiency by 2012. In exchange, the authorities have pledged not to impose additional obligations in terms of energy savings or CO_2 reduction. Furthermore, the three Regions have put their full weight behind support for cogeneration technology, which involves producing both electrical energy and thermal energy using the same primary energy source. Similarly, the creation of an authorisation policy based on the "best available techniques" has helped increase energy efficiency in industry.

Even though this process has helped close the gap vis-à-vis the three principal neighbouring countries, Belgium still lags behind considerably, notably due to differences in industrial specialisation. For example, in 2008 the most energy-intensive industries – iron and steel works, metallurgy and non-ferrous metalworking, non-metallic minerals and chemicals and petrochemicals – represented 37 % of the value-added of Belgian industry, compared with just 27 % in Germany and France. Furthermore, these industrial sectors also exhibit large differences that influence installations' energy consumption. For example, the Belgian steel sector specialises in oxygen steel-making, which is produced using iron ore, whereas many other countries have more electric steel-making, which uses scrap metal. Given that the two production processes and types of steel are totally different, their energy consumption is not comparable. Even though the industry could still opt for technologies that use energy more efficiently, the principal contribution will probably not come from this sector, at least in the current state of the technology.

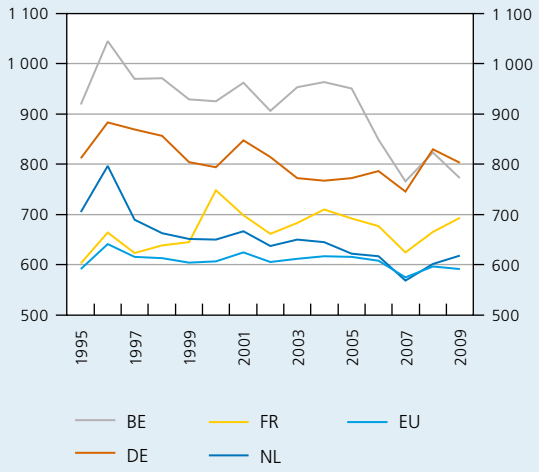
3.2.2 Residential energy consumption

One of the areas in which energy efficiency could still improve considerably is energy consumption by Belgian individuals for domestic purposes (heating, lighting and electrical appliances). Over the period from 1999 to 2005, this consumption was significantly higher than those of the three principal neighbouring countries and the EU. In 2006 and 2007, energy consumption fell sharply, although without closing the gap completely.

This relatively high energy consumption is partly attributable to the fact that existing housing in Belgium is fairly old and tends not to be renovated extensively until the arrival of a new owner. This is why many old residences have only single-glazing windows and inadequate roof insulation. Moreover, Belgium's housing stock includes a relatively large number of single-family homes and a relatively small number of apartments, which generally results in higher energy consumption for heating. Similarly, the share of social rental housing in the total

CHART 8 ANNUAL ENERGY CONSUMPTION FOR DOMESTIC PURPOSES

(in TOE per capita)



Source : EC.

(1) Gross energy consumption includes the primary energy sources used (principally solid fuels, oil, natural gas and nuclear power). Final energy consumption is obtained after the primary energy sources have been transformed into usable forms of energy (principally refined oil products and electricity). Energy transformation and transport generate losses, primarily linked to the efficiency of the electric power plant.

housing stock in Belgium, and in Germany, is considerably lower than in France or the Netherlands, where public authorities can increase the energy efficiency of those residential buildings. By contrast, the owners of housing that is rented out privately are less inclined to invest in energy efficiency because it is the tenant who pays the energy bills. Lastly, the consumer price of heating oil and natural gas is lower in Belgium than in the three principal neighbouring countries because excise duties are much lower[1]. As a result, the price signal is not strong enough to encourage Belgian households to practice rational residential energy consumption. Given that in Belgium, circumstances are unfavourable to sparing energy consumption for domestic purposes, all interested parties (individuals, authorities and companies) must redouble their efforts to increase the energy efficiency of housing (and buildings in general).

Directive 2002/91/EC on the energy performance of buildings notably sets out the requirements in terms of energy efficiency for new construction and renovation projects, for both residential buildings and non-residential buildings such as offices and commercial space. In this context, Belgian regulations on energy performance impose a higher limit for the E value of new construction, a measure of a building's energy consumption defined as the ratio between the theoretical energy consumption of the building and a benchmark value[2]. The energy consumption calculation is based on several building characteristics, such as compactness, choice of energy source, windows and thermal insulation. These standards are increasingly strict. As at 1 September 2011, the limit was set at E80 in the Flanders Region and Wallonia. In the Brussels-Capital Region, it was set at E70 for housing and E75 for offices.

Given the weak percentage of renovated buildings, it is nevertheless evident that the existing housing stock can do the most to improve energy performances. A first stage will involve stimulating energy consulting activities by certifying energy experts who will then be in a position to perform inspections to measure the energy performance of buildings and identify areas where improvement is possible. Introducing an energy performance certificate for existing buildings – giving potential buyers and renters information regarding a home's energy efficiency – is another step in this direction. The introduction of energy labelling for home appliances is also raising consumer awareness of the environment.

(1) For more information, see Baugnet and Dury (2010).

(2) This benchmark value is calculated using the building's surface area of heat loss (interior and exterior separation constructions that result in a loss of heat), protected volume (rooms actually lived in and heated) and ventilation flow rate (a fixed function of the protected volume).

The incentives cited above will make consumers more conscious of the potential economies. However, financial incentives are also necessary. Such incentives include, on the one hand, measures to increase the cost of products whose consumption is undesirable, and, on the other hand, measures to reduce the cost of products that limit energy consumption. For example, authorities may increase excise duties on heating oil, natural gas and electricity, raising consumer prices of these energy sources and encouraging households to limit their consumption. Relatively low excise duties are principally attributable to the fact that spending on energy represents a fairly significant portion of low-income households' budgets, and higher excise duties are thus heavily regressive. To alleviate this impact, authorities can devise offsetting measures to raise the incomes of the less fortunate without reducing the dissuasive effect of higher energy costs.

Furthermore, there are currently numerous incentives and tax deductions for renovation work to improve a home's insulation or for individuals buying energy-saving appliances. For many households and companies, it is not easy to know which incentives they qualify for or who to apply to in that context. Thus, it would be helpful to simplify the range of incentives and conditions for receiving them. In addition, authorities must be sufficiently selective in handing out incentives. For example, when choosing which products to support, they need to take into consideration the cost-effectiveness of the measure. Furthermore, the individuals and companies who qualify for the incentive must be more carefully selected. For example, inadequately insulated buildings should be disqualified from the tax deduction for installing solar panels. Another possibility consists in planning specific financing options for low-income households (low-interest bank loans, assistance from an outside investor, etc.).

Generating substantial energy savings over the medium term will require greater efforts in innovation. Currently, several Belgian companies already specialise in developing and selling innovative materials that improve the energy efficiency of buildings. For example, the FEB (2010) notably mentions as specialty areas the production of polyurethane insulation materials and applications limiting energy loss or excessive heating due to plate-glass windows. In addition, energy-efficient appliances are needed. In this respect as well, progress have been considerable, notably with the development of heat pumps, thermal solar water heaters, condensing boilers and micro-cogeneration. It is imperative that the workers installing this equipment receive enough continuing training for them to ensure that the new appliances operate properly and as efficiently as possible. It is also important to improve professional training in the energy-efficiency renovation sector

and to adapt to new materials and new technologies. Applications in the ICT field can also encourage significant energy savings; these include sensors that automatically trigger switches or time switches that operate electrical appliances and heating systems.

3.2.3 Energy consumption for road transport

Alongside residential energy consumption, road transport represents a significant component of final energy consumption. According to a McKinsey study (2009), consumption of fuel per passenger-kilometre in 1990 was significantly higher in Belgium than in France, the Netherlands and the EU-25. Germany had an even worse score in this respect. However, Germany has significantly reduced its consumption of fuel, and by 2005 was well ahead of Belgium. Given that the Belgian fleet of vehicles is relatively efficient from an energy standpoint, in part because of the significant share of diesel engines, Belgium's poor standing is notably due to the fact that the number of passengers per vehicle is lower than in other countries, and to the fact that trips generally cover short distances in urban areas, which involves a relatively high use of fuel. Furthermore, consumer diesel and petrol prices, like heating oil and natural gas, are relatively low in Belgium because lower excise duties are levied on these products. So for transport as well, the price signal is too weak to encourage individuals and companies to adopt more rational energy consumption habits.

Limiting goods and passenger transport is thus a key concern. There are several examples of measures that can limit the transport of persons: increased development of public transport (in terms of supply, punctuality and price), expanded infrastructure for bicycles and encouragement of carpooling and teleworking. As for merchandise, promoting inland waterway and rail transport appear to be the principal tools. In this respect, much attention is being devoted to multimodal goods transport, which favours rail, maritime, river and canal transport, with only initial and terminal shipments taking place over roads. In addition, more efficient or more intelligent road transport may limit the number of empty or half-empty trucks on the road and reduce trips during rush hours.

If there are acceptable alternatives, an increase in excise duties on diesel and petrol can lead individuals and companies to limit their consumption, encouraging them to choose transport options that pollute less. Given that the emissions released by road transport are heavily influenced by the frequency of traffic jams, it is also possible to imagine a tax per kilometre driven that would vary depending on the road followed and the time of the trip to discourage driving during rush hours. It is also important for the fleet of vehicles to be more environmentally friendly and reduce its emissions. For example, authorities are giving tax breaks to encourage buyers to purchase greener (and more expensive) vehicles. Today, the focus is on technical improvements to the fleet of conventional vehicles: equipping them with particulate filters or start-stop systems. Eventually, the biggest energy savings will come from wider use of electric or hybrid vehicles. In this area as well, certain Belgian companies have already gained considerable knowledge. Before such vehicles become widespread, it will be necessary to install needed infrastructure, notably for recharging electric batteries.

3.3 Investment in renewable energy

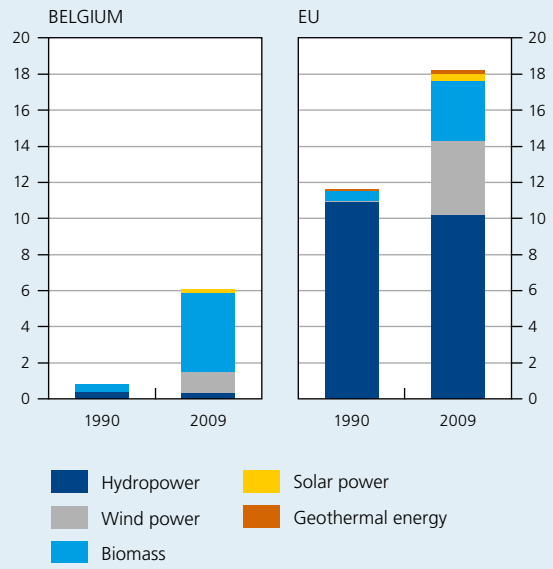
Given that the energy intensity of economic activities cannot be reduced indefinitely, the share of renewable energies in total consumption must also be increased. With respect to renewable energy sources, the EU has set itself the target of reaching a proportion of 20 % of gross final energy consumption by 2020. Belgium must attain a proportion of 13 %, one of the weakest national targets in the EU. This target notably takes into account Belgium's high population density, limited number of sunlight hours, the relatively flat slope of its rivers and its limited coastline length, all of which mean that the country has fewer possibilities to create facilities that produce solar, wind, hydraulic or tidal power.

Even so, this target is ambitious for Belgium. In 2005, the share of renewables in its gross final energy consumption was only 2.2 %. This proportion climbed to 3.3 % in 2008. The pace of growth is thus much too slow for the country to reach the 13 % target by 2020. According to the Federal Planning Bureau, with current policies we will reach a proportion of only 7.5 % in 2016, which is less than the 8.6 % set out in the national renewable energy action plan that was submitted to the EC. As a result, considerable additional efforts will be needed to reach the ultimate goal. The delay may be partially erased by further reducing final energy consumption or by taking advantage of the option to promote efforts abroad.

The available figures on green electricity as a share of overall electricity consumption show that the production of renewable energy in Belgium has been growing only recently. In 1990, only 0.8 % of overall electricity consumption was produced from renewable energy sources, whereas the EU average was 11.6 %. At over 50 %, Austria and Sweden are the leaders in this respect. Starting in 1999, however, the share of renewable energy in Belgium began to increase due to the use of biomass, and reached 6.1 % in 2009. Even so, the lag relative to

CHART 9 SHARE OF GREEN ELECTRICITY

(as a % of overall electricity consumption)



Source : EC.

the EU average remains considerable, given that the share of electricity produced from renewable energy sources was 18.2 % of overall electricity consumption at that point. Both in Belgium and in the EU, the rise is chiefly attributable to the success of biomass (wood, municipal waste and biogas) and wind power ; the share of geothermal and solar power remains very low.

In light of Belgian particularities, the greatest potential for growth lies with biomass and wind power. Each of these options, however, comes with a caveat. The power plants that produce thermal or electrical energy using biomass can pose an ethical problem from a sustainability standpoint. Increased use of these plants creates growing tension between agricultural land used to feed the population and land used for energy purposes. The same problem arises with the production of biofuels. In both cases, massive production of biomass is dangerous for the local environment. Furthermore, significant demand for certain types of biomass can threaten the food supply for a portion of the world population, either indirectly via an increase in food prices, or directly via inadequate food production. These problems result principally from the first generation of biomass (wood, sugar cane, corn, palm oil, rapeseed oil), and are less of an issue with the second generation (biodiesel, refined alcohol, materials produced from biomass as part of a chemical process, used frying oil, animal fats). Work is currently being done on a third generation of biomass, produced using specially prepared organisms such as algae which can contain more than 30 % oil. Many experts believe that algae are a good way to satisfy world demand for biomass and energy. However, years of research are still needed before they can be cultivated intensively, profitably and sustainably. The algae used as a source of biofuel are unlikely to arrive on the market before 2020. Another problem linked to the spread of small-scale biomass processing facilities lies in their emissions of fine particulates and nitrogen oxides (NOx), which need to be tightly controlled.

As for wind power, Belgium has principally invested in offshore wind turbines over the past few years. At present, two offshore wind farms are already partially operational. The farm located on the Bligh Bank generates 165 MW of power, which will double in the years ahead to reach 330 MW. The Thornton Bank farm currently produces only 30 MW, but will be expanded to 325 MW. When both wind farms are entirely operational, they will represent estimated annual electricity production of around 2 TWh, which is enough to supply 650 000 households with green electricity. Furthermore, authorities have already granted a concession for a wind farm on the Bank With No Name in the North Sea. Many Belgian companies are participating in these projects. Their highly specific expertise has enabled them to earn worldwide recognition. The FEB (2010) notably cites the following specialties : dredging and maritime construction, engineering and wind turbine components.

In this respect as well, a comprehensive vision is indispensable because there is already a capacity problem now. The electricity generated by offshore wind farms must travel via the Elia high-voltage grid, which is already expected to operate at full capacity until its planned expansion in 2014. Due to the high-voltage grid's limited capacity, other renewable energy projects in the country's interior will go nowhere, even though they complement offshore projects : they could supply the electric grid when there is not enough wind. The development of renewable sources of energy thus requires increased investment in a suitable electricity distribution grid able to handle the massive flows that could arise due to the fluctuating nature of renewable energy. The problem resulting from the intermittent nature of wind power can notably be resolved by linking the offshore wind farms amongst themselves. As a result, periods of no wind and peak demand could be handled better and the average performance of the farms improved. In December 2009, Belgium, Denmark, Germany, France, Ireland, Luxembourg, the Netherlands, the UK and Sweden signed a cooperation agreement to develop such an offshore grid in the North Sea and the Irish Sea. Furthermore, it will be important to adapt Belgian high-voltage infrastructure to bidirectional power flows to

capture the electricity generated in a decentralised manner by wind and solar facilities, and what could be supplied by electric vehicles. It is thus imperative to further research the applications of smart grids in order to manage unstable supply and consumption of electricity. There are other problems: offshore wind energy projects often run into financing difficulties due to the size and risk profile of such investment. In addition, certain initiatives have trouble with environmental regulations: certain projects, for example, must be built further offshore, which makes them more complex, most costly, and thus less appealing.

3.4 Carbon capture and storage

For certain (industrial) companies, it is very difficult, and in some cases unprofitable, to reduce CO_2 emissions by using other energy sources or a production process that pollutes less. Another possibility for these companies is carbon capture and storage. This solution will become more appealing the more ambitious emissions reduction targets become. Research is currently being done into local-level carbon extraction, which is essential for Belgian steel- and cement-makers. However, the principal problem is carbon storage. In this field, as well, Belgium is not well positioned. The Campine is the only region where storage is possible, but the suitable land is already being used for seasonal natural gas storage. As an alternative, some have suggested certain mine shafts in Wallonia, but several additional geological studies would be necessary. Thus, it will be important to invest in a pipeline to transport CO_2 for offshore storage under the North Sea or transport it by boat to other locations. For example, there is a project in Norway to extract carbon from the Sleipner field's natural gas before storing it in a subsea aquifer layer.

Carbon extraction and capture techniques on a local scale are particularly energy-intensive. Existing technologies would result in a performance loss of around 10 %. Similarly, investment in the necessary infrastructure will be extremely large. Lastly, it is important not to lose sight of the legal aspects. However, this technique may also hold promise for the fight against climate change, because it provides a way to continue using coal, which is vitally important for fast-growing emerging countries such as China. At the same time, this technique must not be an impediment to initiatives aimed at reducing energy intensity and increasing the use of renewable energy sources.

Conclusion

The fight against climate change is a major challenge for the world. With respect to Belgium, the ability to reduce its emissions is somewhat limited by its economic structure, given its energy-intensive industries and significant logistical role. As for renewable energy production, its options are also more limited than other countries', given Belgium's geographic and climate characteristics.

The situation calls for a collective effort to meet the emissions reduction target. Private households will have to realise that current consumption habits are not sustainable. In concrete terms, the areas where the most progress is possible are energy efficiency for housing and private transportation. Individuals need to understand that if everyone helps, even a modest individual contribution can make a big difference. When making consumption and investment decisions, individuals will have to give more weight to environmental considerations, which assumes that there are sufficient environmentally friendly alternatives and that energy ratings and ecolabels are sufficiently clear.

Either spontaneously or in response to measures taken by public authorities, many companies have already done much to improve their energy efficiency. These efforts need to be continued and stepped up. Furthermore, companies have a crucial role to play in terms of innovation. They need not only to invest in scientific research, but also to do a better job of employing the resulting technological advances. Climate change is a global concern. There is thus a very large market for the new technologies needed to deal with it. The global dimension of the problem, however, also means that competition from foreign companies is particularly fierce. Thus, it is in the interests of Belgian companies to gain a foothold in the immense global market for eco-applications as soon as possible to maximise the profit to be had from a first-mover advantage.

The contribution of authorities, lastly, involves encouraging and supporting indispensable behavioural changes in the private sector. Companies and individuals need incentives to take the steps that will reduce energy consumption, and these come in a variety of forms: information and awareness campaigns, financial incentives and regulations. Furthermore, it will help to offer more alternatives to current pollution-causing activities. In this respect, authorities can do their part by supporting innovation and providing needed infrastructure (for example, with respect to public transport and renewable energy). In addition (local) authorities can provide an example of rational energy consumption, and sustainable energy production and mobility. Lastly, they must make sure to invest adequately in education and training so that new technologies can be used, and guide the structural changes in the economy as best they can.

The fight against climate change will clearly involve significant costs for the world economy. However, investment in developing low-emissions products and production process offers prospects in terms of innovation, economic activity, sustainable growth and employment. Energy efficiency will truly be a decisive factor for the competitiveness of the European and Belgian economies. In addition, it will be to our companies' advantage to conquer the global eco-innovation market as quickly as possible. In certain areas – such as dredging, wind power, engineering, building materials and basic materials for hybrid and electric vehicles – several Belgian companies have already acquired significant expertise and are now the principal suppliers in their niche. To hold on to and strengthen this position, companies, along with research centres and federal and regional authorities, must absolutely place greater importance on fundamental research. At present, this is already the case with biomass, biofuels, nuclear energy and waste treatment. Moreover, it will be necessary to strengthen collaboration among all parties concerned in order to strive for excellence with a common vision.

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The impact of low interest rates on household financial behaviour

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Introduction

This article uses Belgian financial accounts for the full year 2010 to analyse recent financial transactions by individuals in an environment marked by low interest rates. We will first comment on the low level of interest rates before examining its influence on household financial decisions, and more specifically on the size and make-up of their new financial assets and liabilities.

The article includes four parts.

The first looks at the characteristics of interest rate levels. In addition to an analysis of the long-term trend in short- and long-term nominal and real interest rates, it pays particular attention to the shape of the yield curve, which can be an essential factor in a variety of financial decisions.

The second part deals with individuals' overall financial operations – their financial balance, their acquisition of assets, new commitments – and looks for real explanations for trends. It focuses chiefly on the impact of interest rates on the savings rate.

Section three studies recent financial asset formation by Belgian households and, more specifically, the role that interest rates play in the choice of savings and investment instruments: on the one hand, interest rate variables may make it possible to choose between short-term and long-term financial assets; on the other hand, they play a key role in determining savers' preferences among the range of savings formulas offered, depending on their duration.

Lastly, the fourth part focuses on the trend in new financial commitments undertaken by individuals in Belgium. With respect to the principal commitment – mortgage loans – interest rates may be responsible not only for the robust growth observed in recent years, but also borrowers' choice of formula among loan offerings.

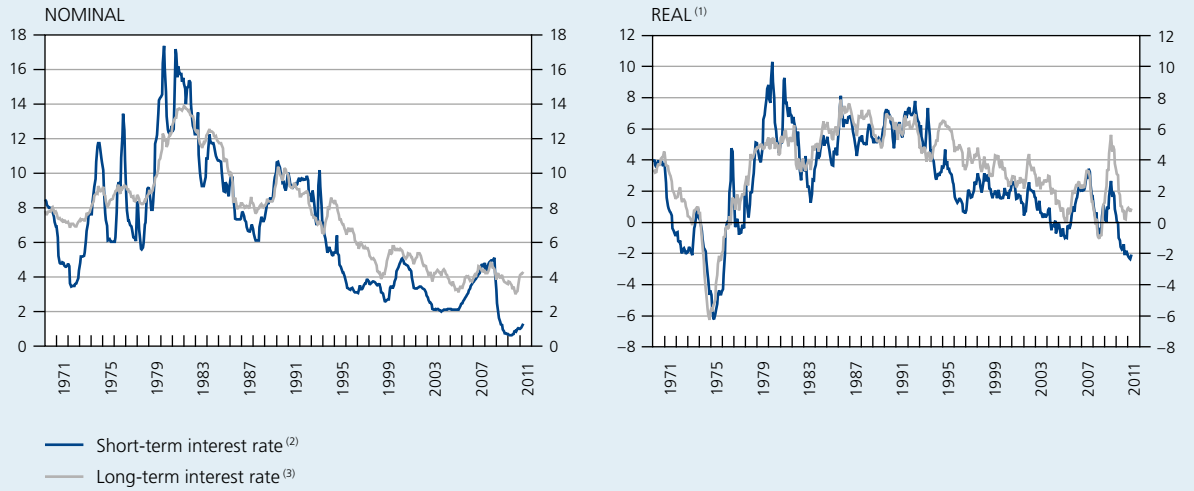
1. Characteristics of interest rate conditions

For most of 2010, short- and long-term nominal interest rates were exceptionally low in Belgium. Short-term rates reached a low of 0.64 % in April 2010, while long-term rates hit a historical low of 2.82 % in late August 2010. Whereas long-term interest rates then recovered fairly rapidly to above 4 % as a result of growing uncertainty regarding the sustainability of European sovereign debt, Belgian nominal interest rates remained very low on average in 2010.

Real interest rates, calculated in this article as the difference between the nominal interest rate and the percentage annual change in the national consumer price index[(1)], were also low in 2010. Real short-term interest rates were even negative, below –2 %. Long-term rates stayed in positive territory, but were clearly below their average level. Unlike nominal interest rates, real interest

(1) This is an *ex-post* real interest rate, which means the nominal interest rate minus the actual rate of inflation. Investors and savers, however, base their decisions on *ex-ante* real interest rates, by estimating future inflation trends. Given the difficulty of accurately measuring those inflation expectations, especially long-term expectations, we opted for this simple measure of real interest rates. However, it does have the drawback of being fairly volatile.

CHART 1 SHORT- AND LONG-TERM INTEREST RATES



Source : NBB.
(1) Nominal interest rates minus the percentage annual change in the national consumer price index.
(2) 3-month interest rate on the Belgian interbank market through December 1998 inclusive (Bibor). 3m Euribor from 1999.
(3) Yield on the benchmark 10-year Belgian government bond.

rates did not reach a historical low. In 1974, when inflation suddenly spiked following the first oil crisis, real interest rates dropped to around –6 %.

The weak interest rates observed in 2010 are chiefly attributable to the ECB's accommodative monetary policy. The ECB lowered its key interest rate in seven steps from 4.25 % to 1 % between October 2008 and May 2009. Furthermore, the ECB's efforts to inject liquidity caused easing on the interbank market, with interbank yields temporarily dropping even lower than central bank rates.

From a historical standpoint, the low interest rate levels are part of a downward trend that began in the early 1980s. The high nominal interest rates of that time were the result of high percentage inflation and the spike in inflation expectations following the oil crises of the 1970s. The downward trend that has taken shape since then is attributable to tamer inflation and better use of monetary policy to manage inflation expectations.

Extremely restrictive monetary policy in the first half of the 1980s, particularly in the US, where the policy was paired with an expansionist fiscal policy, initially resulted in higher interest rates around the world, and thus in Belgium. The policy paid off : inflation fell sharply and economic cycles became less volatile, giving rise to the period of the Great Moderation, which lasted approximately from 1987 to 2007 and was characterised by predictable economic policy, weak inflation, and modest cycles. These factors all likely contributed to lower interest rate levels. In the early 2000s, interest rates around the world were also likely driven downward by a global savings glut (Bernanke, 2005) due to the foreign currency reserves amassed by Asian and oil exporting countries. Until recently, the savings surplus made it easy to finance deficits, most notably the "twin deficits" – current account and budget deficits – of the US.

The low level of interest rates in 2010 was accompanied by a positive spread between long-term and short-term interest rates. Whereas the yield curve was nearly flat at the start of the financial crisis, with a small or even negative spread between long- and short-term interest rates, monetary policy easing from late 2008 led to a positive interest rate structure, with rates rising as a function of their duration. In 2010, the spread between long- and short-term interest rates reached around 3 percentage points, compared with an average spread of 0.9 percentage point since 1970.

This interest rate spread undoubtedly influences individuals' financial decisions. The shape of the yield curve can be considered a source of information on future macroeconomic trends, depending upon which theory one uses to explain the structure of interest rates :

– the Liquidity Premium theory:
  Tying up financial resources for longer periods of time implies a liquidity risk for which investors present in markets demand a premium. A steep yield curve is thus the normal state of the model;
– the Market Segmentation theory (or Preferred Habitat theory):
  Supply and demand on the short- and long-term segments are mostly independent of each other; the corresponding instruments are thus not interchangeable. A specific equilibrium interest rate is formed for each segment. It is assumed that a majority of investors have a decided preference for liquidity, with a robust demand (and a high price) for short-term instruments, which thus earn little return. Certain investors – insurance companies and pension funds, for example – may however need very long-term instruments (e.g. 30-year bonds) from time to time, and drive their yields downwards;
– the Interest Rate Expectations theory:
  According to this theory, instruments with different maturities are perfectly interchangeable; the yield on a long-term investment is the result of successive short-term investments. Long-term yields could thus be considered an average of current and future short-term yields.

Based on this last theory, a steep yield curve – as in 2010 – would indicate expectations of interest rate rises, whereas a flat yield curve would signal stable expectations, and an inverted yield curve (short-term yields higher than long-term yields) would imply expectations of a decline.

2. Overall financial operations of individuals in Belgium: trends and determining factors

Low yields, in both nominal and real terms, have not discouraged individuals from buying considerable amounts of new financial assets. In 2010, households formed € 34.2 billion of financial assets, a particularly high level close to the record set in 2009, when € 33.6 billion were raised. Financial liabilities rose by € 12.9 billion, an acceleration compared with the € 10 billion increase in 2009. These developments translated into a financial surplus, or net financial asset formation of € 21.3 billion in 2010, compared with € 23.6 billion in 2009.

Conceptually, net financial asset formation corresponds to the financing balance in the non-financial account of individuals, which results, on the one hand, from gross savings (gross disposable income minus consumption) and, on the other hand, gross capital formation, which includes principally household investment in building new housing or renovating existing housing. While the financing balance of households was not as positive in 2010 as it was in 2009, it was still close to the average of the past 10 years (4.2 %), which is principally attributable

TABLE 1 NON-FINANCIAL AND FINANCIAL ACCOUNTS OF INDIVIDUALS
(in % of GDP, gross data unless otherwise indicated)

	2006	2007	2008	2009	2010
Non-financial account					
1. Gross disposable income[1]	61.0	61.0	62.5	64.2	63.1
2. Consumption expenditure	51.3	51.0	51.9	52.4	52.4
3. Gross savings (1 – 2)[1]	9.7	10.0	10.6	11.7	10.7
p.m. Savings rate (in % of gross disposable income)	*15.9*	*16.4*	*17.0*	*18.3*	*16,9*
4. Gross capital formation	6.9	7.0	7.1	6.5	6.5
5. Financing balance (3 – 4)	**2.8**	**3.0**	**3.5**	**5.2**	**4.2**
Financial account					
1. Financial asset formation	5,9	7.1	6.6	9,9	9.7
2. New financial liabilities	3.8	4.3	4.0	2.9	3.7
3. Financial balance (1 – 2)[2]	**2.1**	**2.9**	**2.6**	**7.0**	**6.0**

Sources: NAI, NBB.
(1) Including the change in claims of individuals on occupational retirement institutions.
(2) The balance of the financial account of individuals does not correspond to the financing balance that appears in the non-financial account because operations are recorded at different times in the two accounts and because of different statistical adjustments, errors and omissions.

to individuals' strong propensity to save over the period 2009-2010. Furthermore, the financial balance of individuals was also supported by a reduction in their gross capital formation.

Net financial asset formation is thus closely linked with individuals' saving and investment behaviour. This article examines the role of interest rates in this respect. It could be expected that, all else being equal, a rise in interest rates would increase gross saving by increasing returns and slow gross capital formation by raising costs, which implies a positive relationship between interest rates and net financial asset formation. But a negative link was observed in the period 2009-2010, in the form of a downturn in interest rates and a strong expansion of net financial assets. This calls for more extensive analysis of the determinants of individuals' saving and investment behaviour during the recent period.

2.1 Gross savings

The economic literature gives interest rates – which are often specified in real terms – only a very modest role in determining savings volumes. There are two main reasons for this. First, the impact of interest rates on savings behaviour is ambiguous because theoretically opposing effects materialise. Second, saving behaviour is determined by a multitude of other factors.

The impact of (real) interest rates on savings volumes is unclear due to the existence, at least in theory, of various effects such as substitution effects, income effects and valuation effects, which can cancel each other out:

- A rise in interest rates may lead consumers seeking intertemporal consumption optimisation to delay purchases, and thus increase their savings, because waiting will enable them to boost their consumption at a later time. In other words, there is substitution over time, with interest rates having a positive impact on saving;
- Conversely, a rise in interest rates triggers an income effect, at least for households with a positive net financial worth, as is the case in Belgium for the sector as a whole. Higher interest rates boost income on assets, which reduces the savings needed to finance future consumption;
- Lastly, an increase in interest rates also leads to valuation effects: assets generating a fixed income and certain equity shares lose value, which may cause consumers to reduce their consumption and save more in order to rebuild their net worth.

With respect to other determinants of saving behaviour, there is first of all a positive link between disposable income and savings volume. Savings is, after all, the portion of income that is not consumed. Apart from current disposable income, income expectations also play a role. For example, according to the permanent income hypothesis (Friedman, 1957), consumers try to smooth out their spending to match their average, or "permanent", income over the course of their life, with savings playing the role of shock absorber. Income above the permanent level boosts saving, whereas a drop in income below the permanent level leads to dissaving. Given that income can vary significantly over the course of a person's life, demographic factors play a crucial role in determining savings in the life-cycle theory (Ando and Modigliani, 1963). Young households dissave in the early stages of their career because their income is relatively low and they must finance substantial expenditure related to housing and the acquisition of durable consumer goods. During their professional life, they form financial assets, which they will spend once they have retired.

Apart from interest rates and income, it is worth mentioning other factors that determine saving behaviour:

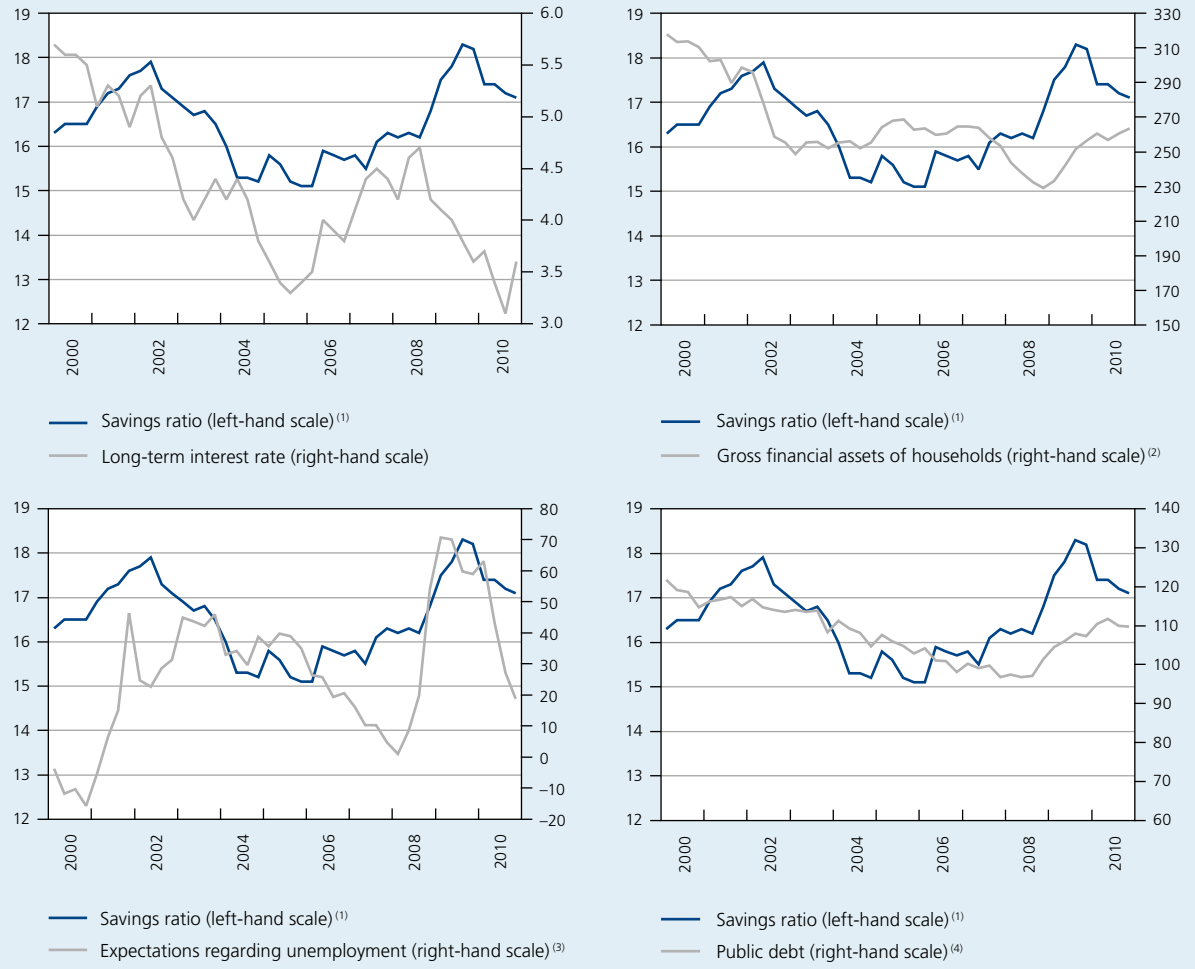
- Wealth effects: when the value of financial assets and real estate rise, there is less need to save a portion of wages to form similar assets;
- The quality of social security, and more specifically of retirement benefits. Doubts about the outlook for these provisions may encourage precautionary saving;
- Rational expectations regarding future tax pressure. Worsening public deficits cause households to fear future tax increases and lead individuals to save more. This is Ricardian equivalence (Barro, 1974), the theory that holds that changes in public sector saving trigger offsetting fluctuations in private sector saving;
- Financial liberalisation. Improved access to consumer credit and mortgage loans reduces savings due to the greater availability of financing options.

Most empirical studies show a positive but insignificant link between interest rates and saving behaviour[1]. Based on a simple correlation, we observe in Belgium a weakly positive link between (nominal) long-term interest rates and the savings rate. However, this relationship was suddenly disrupted by the financial crisis. The higher propensity to save observed in 2009 and 2010 arose in the context of a widespread decline in interest rates.

Interest rates appear to have been only one factor among many during the crisis in determining saving behaviour, including the decline in household net worth (wealth effect), increased uncertainty regarding the employment outlook (precautionary saving) and the deterioration of public finances (rational expectations).

(1) See Loayza, Schmidt-Hebbel and Servén (2000) for an overview.

CHART 2 SAVINGS RATE OF INDIVIDUALS AND DETERMINANTS



Source : NBB.
(1) As a percentage of gross disposable income. Gross data, four-quarter moving average.
(2) As a percentage of GDP.
(3) Percentage of consumers who expect an increase in unemployment minus the percentage who expect a drop in the monthly consumer confidence survey.
(4) Indebtedness based on national financial accounts, calculated as the sum of borrowings and securities other than stock issued by public authorities, as a percentage of GDP.

The strengthening of saving behaviour observed during the financial crisis appears to be primarily attributable to the change in households' financial position. As a result of the stock market correction and financial market tension, individuals saw their gross financial assets fall by € 71 billion between mid-2007 and end-2008, from € 860 billion to € 789 billion. At the same time, the savings rate increased, which indicates that individuals tried to compensate for the loss of wealth with a greater propensity to save. Owing notably to a rebound in equity prices and more effort devoted to saving, gross financial assets climbed back to € 918 billion at end-2010. Expressed as a percentage of GDP (260 %), this level is nearly where it was before the financial crisis. These capital gains may have led to a decline in the savings rate, and thus an increase in consumption.

The increased propensity to save observed since the financial crisis may also be attributable to greater economic uncertainty, in particular regarding the labour market situation. This relationship can be illustrated using the sub-indicator of the consumer confidence survey that gauges individuals' expectations regarding the trend in unemployment over the next 12 months. An increase in this indicator is a sign that individuals view their future income situation less favourably and will try to save more to offset the potential loss of income as much as they can. The decline in this indicator was accompanied by an

increase in the savings rate. In 2010, however, consumers' pessimism receded sharply, which may partly explain the decline in the savings rate.

In Belgium, we also observe a positive correlation between individuals' saving behaviour and the level of public debt. The higher the public debt, the greater individuals' propensity to save. When large budget deficits begin to build up, households take into account the fact that, eventually, taxes will have to be raised or social benefits cut. Individuals thus anticipate slower growth in their future disposable income, which leads them to limit their consumption and save more. The marked deterioration in public finances following the financial crisis thus also appears to have contributed to individuals' increased propensity to save.

In sum, interest rates have had only a limited influence on individuals' overall savings volume in Belgium over the recent period. The strengthening of individuals' saving behaviour and the related net formation of financial assets in 2009-2010 appears to be mostly attributable to the economic uncertainty stemming from the financial crisis.

2.2 Gross capital formation

Gross capital formation is generally supported by low interest rate levels (cf. the increase in mortgage loans analysed in section four of this article), which can lower the financing balance and, thus, reduce net financial asset formation. Here again, the impact of interest rates does not appear to have offset the uncertain economic conditions that prevailed during the financial crisis : despite the drop in interest rates, gross capital formation fell from 7.1 % of GDP in 2008 to 6.5 % in 2010, resulting in a favourable impact on the financing balance, which is reflected in individuals' financial account balance.

3. Financial assets formation by individuals in Belgium

Individuals' portfolio choices result from trade-offs that they make between various possible financial assets. These trade-offs depend on available returns and risk aversion. These two basic criteria may be accompanied by other factors, such as the influence of taxation and regulatory characteristics. Furthermore, over time, individuals' behaviour can also change and adapt to innovation stemming from financial market deregulation, for example, or the rise of new communication methods, as well as the development of new financial products (investment funds and insurance policies, for example) (Artus et al., 1991 ; Ricart, 1994). Considering all of these factors, individuals will choose between fairly safe assets (notes and deposits, regulated savings deposits, money market investments and bonds) and risky assets (equities and equity funds, certain insurance products, foreign currency-denominated assets) or between short-term assets (notes and deposits, savings products, short-term deposits and securities) and long-term assets (long-term deposits and securities, equities, insurance products).

The goal of this section is to study – specifically using data from the financial accounts of Belgian individuals – the influence of interest rates on household portfolio choices, in particular during the recent period when interest rates were relatively low.

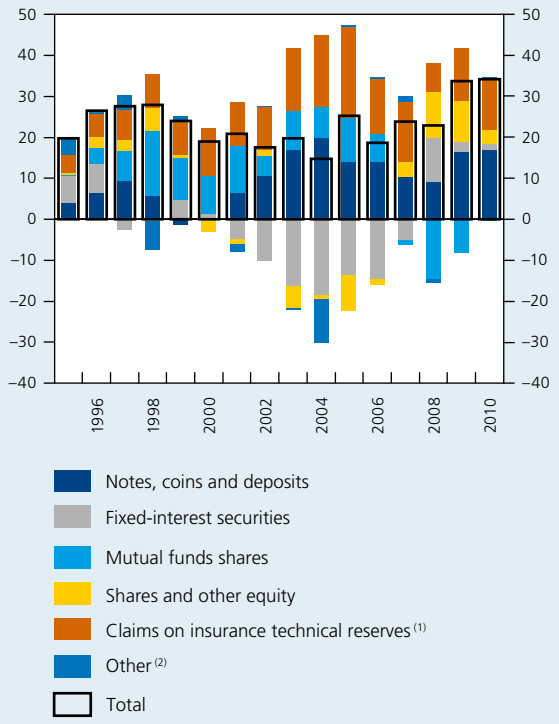
A breakdown, by instrument, of financial assets newly acquired by individuals over time allows us to highlight the trends that have marked the past few years. These trends can then be viewed against movements in the benchmark interest rate corresponding to the assets described, in order to detect any influence that these interest rates have over individuals' investment choices.

3.1 Financial asset formation : breakdown by instrument

Significant saving in the form of notes, coins and deposits was observed in the years 2009 and 2010. Individuals' embrace of savings deposits in particular is attributable to the advantages associated with this kind of instrument, namely liquidity – which is much prized during periods of uncertainty – exemption from the withholding tax, and deposit guarantees. These characteristics make savings deposits a virtually risk-free instrument. Furthermore, during the recent period, the success of savings deposits is also attributable to the decline in enthusiasm among individuals for long-term instruments, notably due to the low interest rates available on those kinds of investments. In 2010, individuals saved € 16.9 billion in the form of notes, coins and deposits, compared with € 16.3 billion in 2009. Savings deposits were the instrument of choice for households, offering them the flexibility they wanted as they waited for more profitable alternatives.

With respect to fixed-interest securities, investors began a lasting turn away from these instruments between 2001 and 2007, principally due to persistently low long-term yields on this type of investment, combined with a disinvestment in securities held abroad following changes to the way savings are taxed at the European level.

CHART 3 FINANCIAL ASSET FORMATION OF INDIVIDUALS
(in € billion)



Source: NBB.
(1) This category essentially comprises the net claims of households on life insurance technical reserves and pension funds or occupational pension institutions.
(2) Other accounts receivable in the sense of ESA 95, i.e. trade-related credits and various claims on public authorities and financial institutions, including, for example, accrued unpaid interest.

The acquisition of fixed-interest securities can take place during times when individuals are wary of equity markets. For example, in 2008, equity markets became very volatile, causing investors to retreat to instruments considered safe havens. This is a temporary movement, however, because when all investors participate, it causes prices to rise and yields to drop, making the instruments less attractive. In 2010, individuals were net purchasers of fixed-interest securities, but only in the amount of € 1.7 billion, after € 2.7 billion in 2009.

Movements involving investment fund units depend notably upon decisions in matters of taxation and trends in equity prices. In 2008 and 2009, individuals were net sellers of investment fund units due to the equity market correction and tax measures that specifically affected bond funds and certain mixed funds that capitalise their income. This trend weakened in 2010, when individuals sold a net € 0.4 billion of investment fund units, compared with € 8.1 billion in 2009.

In recent years, individuals have made net investments with insurance companies and pension funds. These types of savings thus now represent a large share of individuals' financial assets. Over the past two years, certain guaranteed-return products (those of class 21) have clearly profited from high contractual interest rates and thus set themselves apart from fixed-income securities, whose returns are in line with those of the market. In 2010, individuals increased their claims on insurance technical reserves by € 12.5 billion, an amount similar to the previous year, which was € 12.7 billion.

Of course, shares and other equity still represent an important part of individuals' asset portfolios. The financial accounts do not show transactions on secondary markets, but they do record new share issuance (mainly unlisted shares) and cross-border movements in the form of balance of payments data. Furthermore, given that interest rate movements do not appear to determine individuals' decisions to buy or sell equities (they are chiefly governed by equity prices and earnings expectations), the rest of this article will not comment further on transactions involving shares and other equity.

3.2 Impact of interest rates on asset formation

To determine the influence of interest rates on individuals' financial asset formation, we have reviewed the various instruments in the light of trends in corresponding interest rates. We will look successively at non-risky short- and long-term assets; the holding of fiduciary money and sight deposits; regulated savings deposits and term deposits; and, lastly, insurance products.

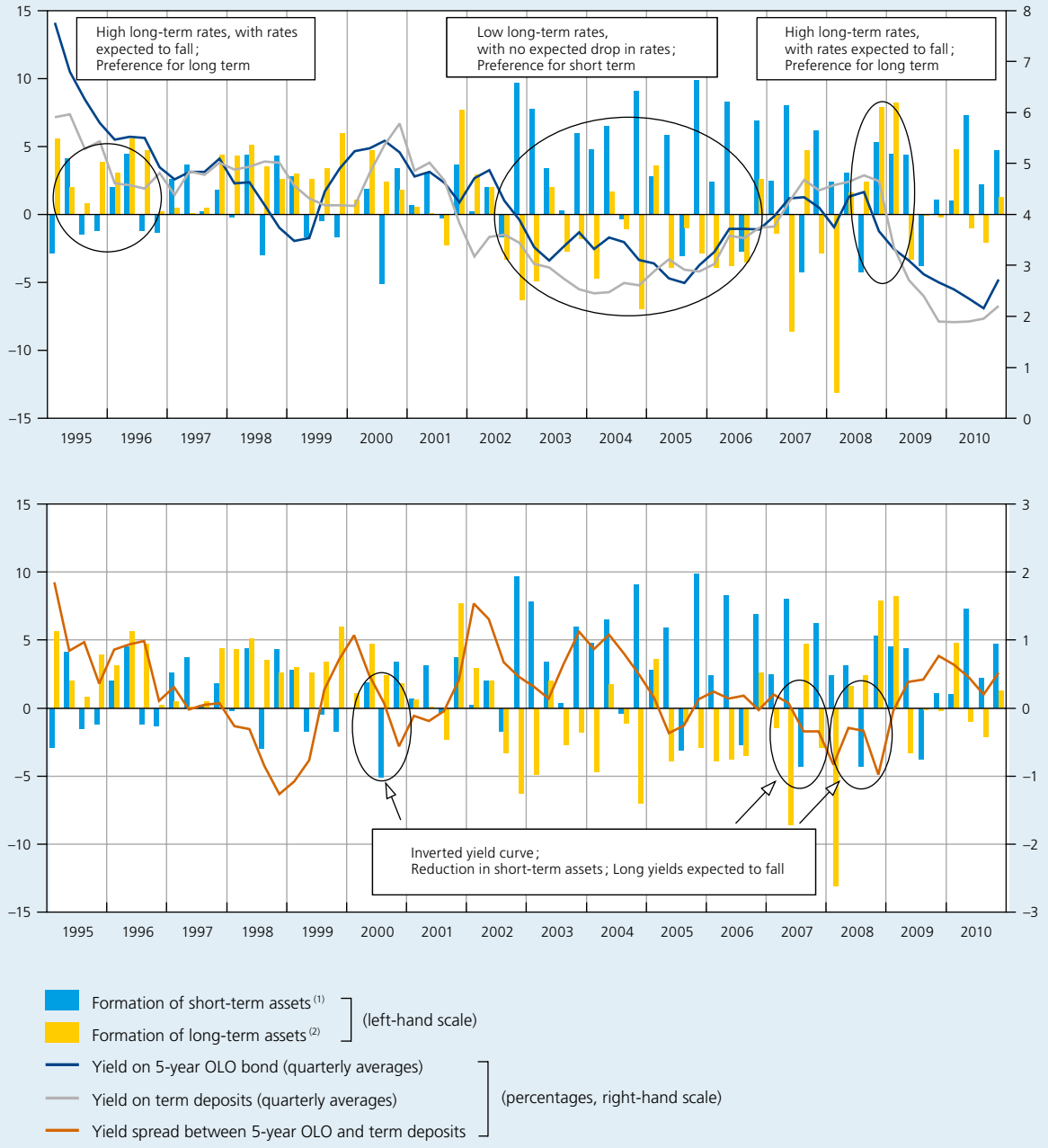
3.2.1 Non-risky short- and long-term assets

Whether individuals decide to buy short- or long-term assets appears partially linked to interest rate movements. The acquisition of long-term, fixed-income financial assets appears primarily influenced by the level of long-term interest rates: net purchases are more significant in periods when long-term interest rates are relatively high, or when the interest rate cycle has begun a downward phase. For example, in 1995 and 1996, individuals invested chiefly in long-term assets. This situation repeated itself in late 2008 and early 2009.

By contrast, during periods of low long-term interest rates and no expectations of interest rate cuts, there is a marked preference for short-term assets. For example, the years 2002-2006 were characterised by a disinvestment in long-term assets, though this was also partly attributable to tax considerations (see above).

CHART 4 FORMATION OF NON-RISKY ASSETS BY INDIVIDUALS, AND SHORT- AND LONG-TERM INTEREST RATES

(in € billion, unless otherwise indicated)



Source: NBB.

(1) Non-risky short-term assets include investments in cash, deposits and securities of less than one year and in money market funds.

(2) Non-risky long-term assets include investments in deposits and securities of more than one year and in units of investment funds other than money market funds.

The yield curve can have a complementary influence. For example, individuals tended to diminish their holdings of short-term assets during periods characterised by a relatively flat or inverted yield curve because they expected long-term yields to decline. This was the case in 2000, 2007 and 2008. Subsequently, once these expectations had come to pass, there was a transition to a situation of low yields with no expectation of interest rates falling further, which is a favourable environment for short-term investments.

3.2.2 Holding fiduciary money and sight deposits

In theory, the decision to hold notes, coins and sight deposits should depend on the spread between the yield on short-term (three-month) deposits and that on sight deposits. This spread reflects the opportunity cost of funds held in sight deposits that do not earn a return (fiduciary money) or earn a small, administered return that does not really follow market interest rates. The wider and more positive this spread is, the less incentive individuals have to hold financial assets in the form of notes, coins and sight deposits.

While there does not appear to be a strong relationship between the two variables, we note that individuals have a greater tendency to hold notes, coins and sight deposits when the spread between the yields on three-month term deposits and sight deposits is weak : such was notably the case between 2003 and 2010.

In 2010, saving by individuals in the form of sight deposits and fiduciary money increased by € 2.7 billion compared with € 5 billion in 2009.

3.2.3 Regulated savings deposits and term deposits

The available data indicate that individuals' choice between regulated savings deposits and term deposits is more sensitive to interest rates.

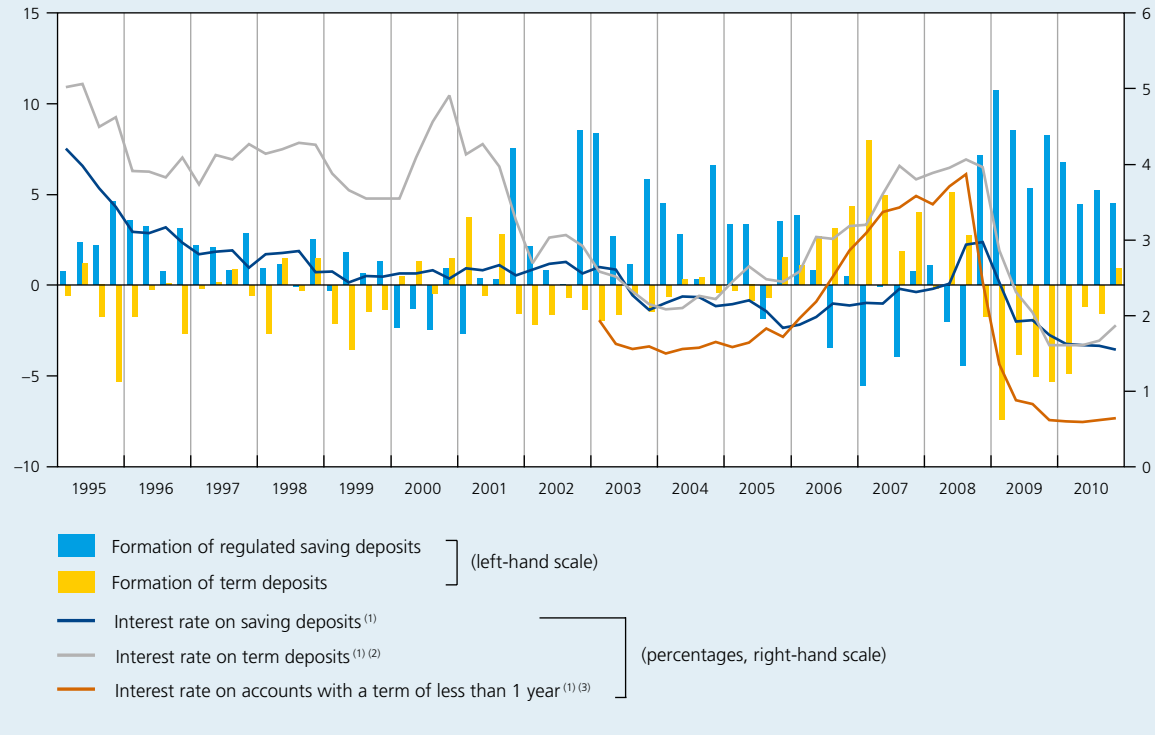
The amounts deposited by individuals in regulated savings accounts have increased significantly since late 2008. In 2009 and 2010, individuals' regulated savings deposits saw inflows of respectively € 32.9 billion and € 20.9 billion, bringing amounts outstanding to a historically high level. Over the same period, term deposits experienced net disinvestments of respectively € 21.6 billion and € 6.7 billion in 2009 and 2010.

One important reason for these movements is the drop in the opportunity cost of investing in savings deposits. The yield spread between term deposits [1] and savings

(1) Here, we look at the interest rate on new term deposits by households as indicated by MIR surveys. The implied interest rate is calculated based on all term deposits, including those of non-financial companies. Thus, it is not as relevant for our analysis.

CHART 5 REGULATED SAVINGS, TERM DEPOSITS AND INTEREST RATE TRENDS

(quarterly data, in € billion, unless otherwise mentioned)



Source : NBB.
(1) Implied interest rate based on credit institutions' profit and loss accounts.
(2) After deduction of the 15 % withholding tax.
(3) Interest rate on new deposits by households according to MIR surveys.

deposits, which was 1.3 % in 2008, began to narrow considerably from the end of that same year. Because the interest rate offered on term deposits is more closely linked to the market interest rate than that applied to savings deposits, it more quickly followed the downward movement in the central key interest rate of the Eurosystem and interbank rates. From late 2008, the yield spread of term deposits – after deducting the 15 % withholding tax – relative to savings deposits not subject to the tax turned negative. In March 2011 it was still –81 basis points. Under these conditions, regulated savings deposits took full advantage of their high level of liquidity, which investors prefer at times of great uncertainty.

3.2.4 Investment in insurance products

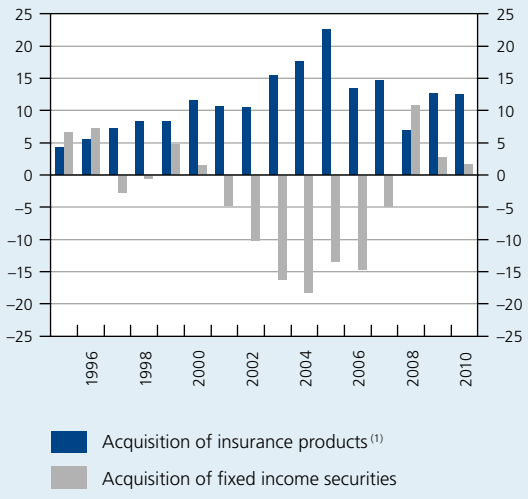
A trend clearly emerges from the changes in individuals' financial assets broken down by counterparty sector: still limited during the 1990s, the market share of insurance companies and pension funds among savings inflows has steadily improved over the past 15 years. By the end of 2010, the assets held in reserve with these institutions represented a quarter of the portfolio of financial assets of Belgian households, compared with one tenth in 1995.

In 2009 and 2010, household savings in the form of insurance products amounted to close to € 13 billion annually. Much of these products, particularly branch 21 defined benefit products, benefited from contractual yields set in the past, which were higher than present day long-term yields (see paragraph 3.2.2 of the 2010 NBB annual report). They distinguished themselves from fixed income securities whose yields followed those of the market. This difference partly explains the success of these products in recent years.

In recent years, individuals thus appear to have made a trade-off between holding insurance products and fixed income securities. Whereas new investments in insurance products, which offer contractually set attractive returns, increased steadily, individuals were net sellers of fixed income securities, whose yields followed market trends.

CHART 6 ACQUISITION OF FIXED INCOME AND INSURANCE PRODUCTS

(in € billion)



Source: NBB.

(1) Basically, households' net claims on life insurance technical reserves and on pension funds and occupational pension institutions.

4. New financial liabilities of individuals in Belgium

Mortgage loans account for the vast majority of households' financial liabilities and have experienced strong growth since 2005. The size of other borrowings – notably consumer credit – is comparatively limited, so the analysis of interest rates' impact on household debt will focus on home loans. It appears that interest rates are one of the principal determinants of the overall trend in mortgage credit. The interest rate level is also a crucial factor in which type of credit borrowers choose. These two influences are dealt one after the other in this section.

To highlight these relationships, we use statistics from the Professional Lenders' Union (PLU). These monthly data cover the volume, number and average amount of new loans, broken down by the purpose of the loan (e.g. homebuying, construction) and the type of interest rate applied to the loan (fixed or floating). In addition to their level of detail, these statistics offer a second advantage over data from Belgian financial accounts: they are limited to the gross flow of new loans issued, without deducting accompanying repayment flows.

4.1 Overall trend

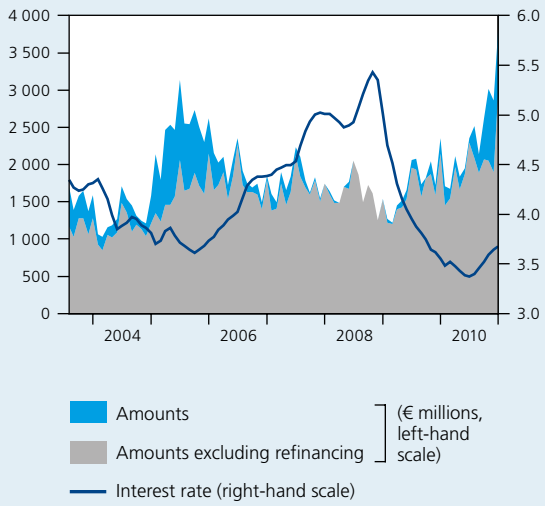
The interest rate level affects home loans both directly and indirectly.

4.1.1 Direct effect

It is easy to isolate the mechanism for refinancing, which is merely a renewal of existing credits on more advantageous terms. They are inherently very sensitive to interest rate movements. And yet, the historically low level of

CHART 7 RECENT NEW MORTGAGE LOAN PRODUCTION

(monthly averages)



Sources: PLU, NBB.

(1) Average of rates applied to the principal categories of mortgage loans, weighted by the amounts of the new loans issued in each category.

interest rates observed throughout 2010 did not generate an exceptional level of refinancing: a portion of existing mortgage loans had already been renegotiated. For example, in 2005, there was a huge amount of refinancing of pre-existing credit, stimulated by already very low interest rates on home loans.

While refinancing activity notably influences new loan production, it has no effect on the level of household debt. The next part of the analysis thus focuses on new loans, excluding refinancing. Once these operations are removed from the equation, the overall volume of new loans remains sensitive to interest rate trends. Quarterly data indicate a negative correlation (–0.24 over the period since mid-2003) between the interest rate level and the total amount of new loans issued over the course of the month. This relationship results from the combined action of interest rates on two factors: the number of loans issued and their average amount.

Of the two factors, it is the number of new loans issued that determines most of the fluctuations in overall volume. The interest rate level influences the number of new loans in two ways:

a) First of all, low interest rates make buying a home more attractive relative to renting. Households decide whether to rent or buy their housing by comparing rent payments with the costs associated with buying. These costs include notably the interest charges calculated on the amount borrowed to acquire the asset. When interest charges decline, the proportion of households preferring to buy rather than rent increases.

b) Reduced borrowing costs also allow homeowners to earn a better return on their investment, increasing the attractiveness of real estate investments relative to financial investments. The mortgage loan is thus used as a complement to the investor's down payment.

These two mechanisms, which act in the same direction, are confirmed by empirical analysis: the data indicate a negative correlation between the average interest rate on mortgage loans and the number of loans issued (–0.45 over the period since mid-2003).

Apart from the effect on the number of new loans issued, the interest rate level also potentially influences the average amount borrowed. In this case, two mechanisms operate in opposite directions:

a) A low interest rate leads households to borrow a larger sum while keeping their monthly payment unchanged, which allows them to reduce their down payment or buy a more expensive home.

b) However, as loans become more accessible, they notably become available to borrowers purchasing properties that do not require large loans; this tends to reduce the average amount borrowed.

Analysis of the data suggests, however, that the second effect dominates the first, because the correlation between the average interest rate and the average loan

TABLE 2 VOLUME, NUMBER AND AVERAGE AMOUNT OF LOANS ISSUED

(observed trend between 2003 and 2010 regarding quarterly date, seasonally adjusted)

	Volume	Number	Average amount
Correlation coefficient[1] against interest rate[2]	–0.24	–0.45	0.44
Change in granting of loans (in %)	+134	+86	+26

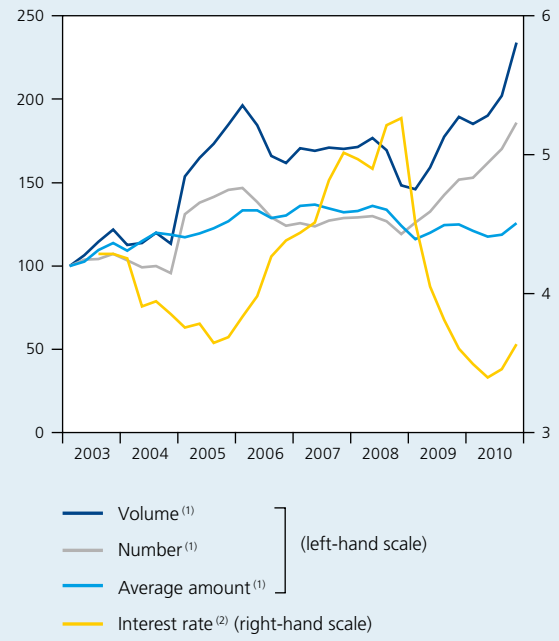
Sources: PLU, NBB.

(1) Calculated over the period between mid-2003 and end-2010.

(2) Average of rates applied to the main categories of mortgage loans, weighted by the amounts of the new loans issued in each category.

CHART 8 BREAKDOWN OF TRENDS IN NEW MORTGAGE LOAN VOLUMES

(quarterly averages; Q1 2003 = 100, except for the interest rate)



Sources: PLU, NBB.
(1) Seasonally adjusted data.
(2) The average of interest rates applied to the principal mortgage loan categories, weighted by the amounts of new loans issued in each category.

amount is positive (0.44 over the period since mid-2003, and 0.10 if we limit the analysis to only loans taken to finance a purchase).

Households can have different reasons for taking out a mortgage loan: new construction, buying an existing property, financing renovations, buying land, etc. Loans issued to finance the purchase of a home on the resale market are principally responsible for the increase in the overall volume of loans observed over the past few years. Their amounts nearly doubled between 2003 and 2010. These loans typically finance transactions between two individuals, and so necessarily give rise to the formation of financial assets of an equivalent amount with the seller. All in all, the overall financial position of the individuals is barely affected by these transactions.

The nominal interest rate level is not always borne entirely by the borrower. Taxation, for example, may influence the interest rate that borrowers effectively pay. While certain borrowers take advantage of tax benefits to obtain a low-cost loan, others would have been unable to carry out the transaction without the public assistance.

For example, one explanation of the strong increase in home loans in 2005 may be the more advantageous tax treatment applied to loans issued from that year forward. The previous, complicated system of deducting interest charges and reducing taxes for repayment of principal and insurance was at that time replaced by a simple standard deduction per person, regardless of the amount of the loan or the value of the property acquired.

Furthermore, from 2009, the introduction of green loans with interest rate subsidies undeniably bolstered mortgage loans used for renovation, a type of loan that had a huge influence on the growth in the number of loans issued over the past two years. The government now subsidises 1.5 percentage points of the interest rate on loans used to finance investments in making housing more energy efficient. Furthermore, 40 % of the remaining interest charges on these loans are tax deductible. According to the PLU, 60 000 loans benefited from this scheme in 2010, representing around € 1 billion, in the form of either consumer loans or mortgages.

4.1.2 Indirect effects

Interest rate movements also have indirect effects on the supply and demand of credit.

The indirect effect of a drop in interest rates on the demand for credit happens in three stages:

1) Lower interest rates give households greater access to credit, via the direct mechanisms describe above.

2) This clearly has repercussions on housing demand, where we see more potential buyers. The market reaches equilibrium through an increase in house prices.

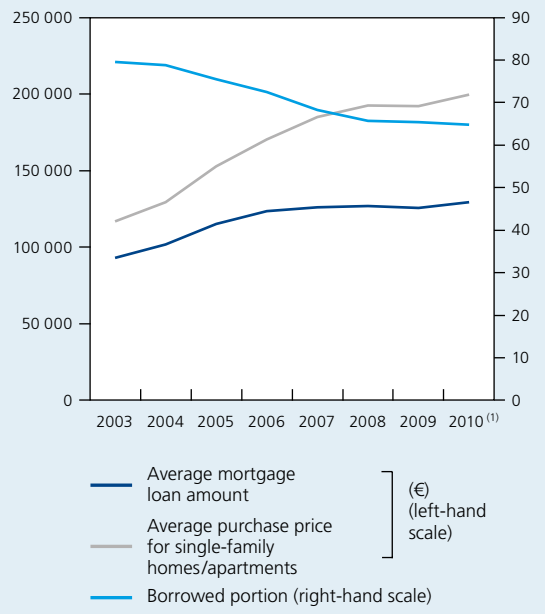
3) In its turn, this increase risks stimulating more mortgage lending. To the extent that the borrowers' down payment remains unchanged, the amount borrowed must necessarily increase to finance the purchase of a more expensive property.

This process thus generates a spiral capable of giving rise to a real estate bubble if lending institutions go with the trend and continue to issue mortgage loans, ignoring borrowers' ability to repay them. This is the type of mechanism that touched off the subprime crisis in the US. Fortunately, this vicious circle can be interrupted if banks are prudent in issuing credit.

In Belgium, the spike in residential property prices observed in the second half of the past decade did not give

CHART 9 BORROWED PORTION OF REAL ESTATE PURCHASES

(in % of purchase price, unless otherwise mentioned)



Sources: FPS Economy, SMEs, Self-employed and Energy, PLU.
(1) Estimate.

rise to a proportional increase in the average amount borrowed for home purchases. The borrowed portion, i.e. the amount borrowed as a percentage of the purchase price, fell over the period, reflecting limitations on the supply of credit.

Limiting the borrowable portion of home purchases is one of the ways banks moderate loan issuance. In general, the supply of credit is determined by the ability and willingness of banks to approve loans. If banks adopt a more conservative attitude to issuing loans, they can halt the upward cycle of prices resulting from increased demand for credit.

Let us take a concrete look at how the trend in interest rates since 2005 has affected mortgage loan (for house purchase) issuance in Belgium:

1) Extremely low interest rates encouraged the purchase of real estate assets, driving demand for credit to a very high level in 2005. At the same time, banks continued to ease their lending conditions, issuing a significant volume of loans.

2) This brisk activity drove up housing prices. During 2006, however, the rise in interest rates slowed the demand for credit. Even so, real estate prices continued to climb at a fast pace, supported by a series of other factors. Notably, the one-off tax discharge statement (DLU/EBA) led Belgian households to repatriate funds, some of which were obviously then invested in real estate. In addition, the financial crisis drove certain households to favour real-estate investment, thought to be very safe. These factors were responsible for the significant increase in down payments observed in recent years for individuals buying real estate.

3) Whereas the number of new loans decreased, their average amount continued to rise. Banks then began to tighten their lending conditions for mortgage loans, stabilising the average amount of new loans. Moreover, real estate prices fell between 2008 and 2009. It was not until 2010, under the impetus of a further drop in interest rates throughout 2009, that the number of loans issued began to climb again.

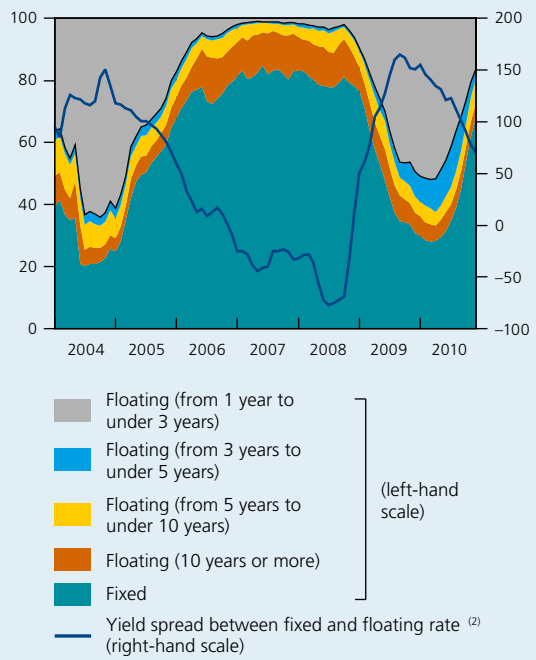
4.2 Choice of mortgage loan type

Whereas the average interest rate level has an effect on new loan volumes, the shape of the yield curve influences the choice of formula used to set the interest rate applied to the loan.

The general rise in interest rates observed from end-2005 onwards was proportionally greater for floating rate loans than for fixed rate loans. From end-2006, the spread between long yields and short yields, which is typically positive in the context of a "normal" yield curve, actually inverted, making fixed-rate formulas significantly more appealing. As a result, in 2007 and 2008, households exhibited a marked preference for these products. In behaving this way, borrowers were not taking into account certain expectations of a decline, which could result from the structure of interest rates at that moment. In 2009, notably because of low short-term interest rates and the resulting decline in annual floating interest rates, the market share of new loans at annual floating interest rates rose spectacularly. Since then, the trend has reversed itself yet again: the renewed rise in annual floating interest rates has led borrowers to fear further rises in benchmark indices in the short/medium term and encouraged them to opt for the security of fixed interest rates.

CHART 10 YIELD SPREAD AND BREAKDOWN OF NEW MORTGAGE LOAN CONTRACTS ACCORDING TO RATE TYPE (1)

(monthly data; in % of total number of loans, unless otherwise mentioned)



Sources: PLU, NBB.

(1) For floating rates, the term cited corresponds to the initial interest rate reset period.

(2) Difference in basis points between, on the one hand, the interest rate on new loans issued to households whose rate is initially set for a period of more than 10 years and, on the other hand, the interest rate on new loans whose rate is initially set for a period of one year.

5. Conclusion

It is possible to analyse Belgian households' recent financial behaviour by using Belgian financial accounts for the full year 2010. Their financial decisions were taken in conditions characterised by low interest rates.

For most of 2010, short- and long-term interest rates were exceptionally low in Belgium. Nominal interest rates fell to historical lows. In real terms, only the low point of 1974 was lower. The yield curve was relatively steep.

We initially examined whether the low level of interest rates had an impact on individuals' overall financial transactions. Recently, interest rates' influence in the real economy has been limited with respect to the overall volume of savings by individuals in Belgium. The reinforcement of individuals' saving behaviour and the related net formation of financial assets over the period 2009-2010 appears largely attributable to economic uncertainty stemming from the financial crisis.

By contrast, interest rates play a certain role in individuals' selection of savings and investment instruments. Such is the case when they must choose between short-term and long-term instruments: there is a clear preference for long-term investments during periods of high long-term yields or when the interest rate cycle has begun a downward phase. During the few periods characterised by a relatively flat or inverted yield curve, individuals reduced their short-term assets because they expected a decline in long-term yields.

It is chiefly in choosing between short-term savings instruments that interest rates exert the most influence, as is evident in individuals' decisions whether to invest in term deposits or regulated savings deposits; the recent contraction in short-term yields clearly favoured the latter.

The formation of claims on life insurance technical reserves and pension funds is spurred by the current level of interest rates, given that certain existing contracts offer a guaranteed return higher than the current market interest rate.

Lastly, interest rates have some influence over the liabilities undertaken by individuals, chiefly mortgage borrowings. Most notably, the number of mortgage loans increases considerably when interest rates are low. Furthermore, the low interest rate level can also result in higher residential property market prices, leading to increased use of mortgage credit. However, credit does not perfectly follow the trend in real estate prices, notably because of more restrictive lending policies on the part of banks.

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Summaries of articles

Economic impact of the public debt

Following the financial and economic crisis, there was a marked increase in the public debt of the euro area countries, the United States, the United Kingdom and Japan. In addition, without a change of policy, the public debt of those countries would maintain an upward trend, a key factor being the rising costs associated with population ageing.

The article analyses the risks and implications of the expansion of the public debt currently evident in most of the advanced countries. The difficulties which certain euro area countries are experiencing in raising finance on the markets illustrate some of those risks.

After outlining the movement in the public debt in the advanced countries in recent years, a simulation is produced in view of showing the future debt pattern in the absence of any change of policy. This exercise clearly highlights the potentially exponential growth of the public debt in most of the advanced countries. Next, the impact of the public debt on economic activity and inflation is examined. That impact appears to be very heavily dependent on the circumstances, which may vary greatly over time and between countries. When looking at the impact of the pattern and size of the public debt on economic activity, it is always important to distinguish between the short and the long term. Finally, the article sets out the need for fiscal consolidation and appropriate strategies for achieving that. The strategy focuses on three aspects: fiscal consolidation aimed at reducing the public debt, boosting the employment rate and productivity, and reform of the pension systems, health care and care of the elderly. For most of the advanced countries, large-scale reform programmes will be necessary in order to restore sustainable public finances. Some countries have already implemented consolidation measures, while others have yet to put most of the measures in place.

Key words: public debt, deficit, economic growth, government expenditure and revenue, taxation, fiscal policies

JEL Codes: H6, H2, H5

The Europe 2020 strategy

The Europe 2020 strategy lays the foundations for "smart, sustainable and inclusive" growth for the decade to come. Alongside this, a three-pronged monitoring mechanism – incorporating fiscal, macroeconomic and thematic surveillance – has been put in place to coordinate and supervise policies. It is in the context of the thematic analysis that the commitments made by Member States in

favour of the Europe 2020 strategy are examined and their progress measured. The national reform programmes filed each year with the European Commission effectively contain the conversion of the five key European targets – with regard to employment, innovation, education, sustainable development and social inclusion – into national objectives and also the steps that the countries are intending to implement in order to advance along these different paths.

The new model of governance – still in progress – was implemented for the first time in 2011, during what has been named the European Semester. The impetus was provided by the Annual Growth Survey carried out in January by the European Commission, which served as a basis for the endorsement of the priorities for fiscal consolidation and structural reforms by the European Council meeting held in the spring. In April, the Member States compiled their national reform programme and their stability or convergence programme. The Commission examined them in May and the European Council approved specific recommendations to each country in June, with the aim of strengthening the cohesion of the national policies planned in the budgets that are to be adopted by Member Sates during the following months, referred to as the National Semester.

The mobilisation of countries in favour of the Europe 2020 strategy is proving insufficient in a certain number of fields. As far as the labour market is concerned, assuming that the commitments made by the Member States are honoured, the European strategic target of arriving at an overall employment rate of 75 % by 2020 would not be achieved, since there would be a shortfall of at least 1 percentage point. In the field of research and innovation, the share of GDP taken up by gross domestic expenditure on R&D would remain below the 3 % targeted by the EU. With regard to energy, sharing the effort between the Member States should ensure the achievement of the objectives for reducing greenhouse gas emissions (by 20 % compared to the level of 1990) and raising the share of renewable energy (to reach 20 % of final consumption of energy in 2020) contained in the climate and energy package. Energy efficiency should in turn grow by 20 % within the EU ; however, the efforts set out in the national reform programmes are not directly comparable between the countries. The education targets aimed at lowering the school drop-out rate to a level below 10 % and increasing the share of persons between 30 and 34 years of age with tertiary education to at least 40 % would not be honoured either. Lastly, with regard to social cohesion, the Member States are free to choose their national objectives on the basis of the indicators that they deem most appropriate depending on their own situation, in order to make their contribution to the European target of reducing the number of persons at risk of poverty and/or social exclusion by at least 20 million between now and 2020.

Key words : country recommendations, surveillance, EU 2020, European Semester, governance, integrated guidelines, national reform programme, national targets

JEL Codes : E61, E66, F42, N44

Developments in private consumption over the past three years

Belgium weathered the 2008-2009 recession relatively well compared to the euro area as a whole and most of its constituent economies. In that context, the article sheds light on the interactions between the general economic situation and private consumption during the recession and in the recent recovery phase. As is generally the case during recessions, private consumption expenditure tended to decline to a lesser degree than general economic activity in Belgium in 2008-2009. The fall in private consumption expenditure turned out to be rather limited, especially when one considers the then plummeting economic activity. The two main avenues through which the crisis affected consumer spending were the erosion of people's financial assets, and a considerable rise in uncertainty in late 2008 and early 2009. However, these effects faded away during the course of 2009. The resilience of private consumption in Belgium – which is also noticeable when compared internationally – can be related to the resilience of employment, which supported households'

disposable income. In addition, the sound situation of households and firms and the absence of great structural imbalances prior to the crisis supported general economic activity. In the future, maintaining an economic context free of serious imbalances, including a sustainable path for public finances, is crucial to favour a steady development of private consumption, contributing to balanced economic growth, income generation and job creation.

Key words: Private consumption, households, wealth effect, savings rate

JEL Codes: D10, E21

The economic impact of the fight against climate change

To fight climate change, global greenhouse gas (GHG) emissions should be reduced dramatically. However, observations for the period 2008-2009 indicate that several major countries will need to step up their efforts to reach their Kyoto target by 2012. For the period after 2012, only the EU has strongly committed itself to further reduce its GHG emissions.

Any climate policy has to induce both producers and consumers to adjust their behaviour. Generally, governments use a combination of instruments while taking into account not only their effectiveness, but also social concerns and firms' international competitiveness.

Efforts to reduce GHG emissions will weigh on economic activity, but the impact could be attenuated if the proceeds from emissions permits and environmental taxes were recycled to stimulate the economy through lower labour taxes or support for R&D and innovation. In addition, investing in the development of low-carbon technologies also offers opportunities for innovation, sustainable growth and employment.

The main channel for reducing GHG emissions is by lowering the energy intensity of economic activity. As Belgian industry has already made important efforts in this respect, there remains little room for manoeuvre given current technologies. At the same time, residential energy consumption and energy consumption for transport could be lowered considerably. As energy intensity cannot be reduced indefinitely, it is also important to increase the use of renewable energy sources and to invest in carbon capture and storage technologies.

Key words: climate change, energy intensity, renewable energy, tradable emissions permits, environmental taxes, eco-innovation

JEL Codes: Q43, Q50, O31

The impact of low interest rates on the financial behaviour of households

For the greater part of 2010, short-term and long-term interest rates in Belgium were at exceptionally low levels. Nominal interest rates reached historic lows; in real terms, only the low point of 1974 remained unequalled. The yield curve was in turn relatively steep.

In the first place, the question of whether these low interest rates have an impact on the overall financial transactions of households is examined. During the recent period, interest rates in real terms have only had a limited influence on the overall volume of savings of Belgian households. It seems that the increased savings behaviour of households and the associated accumulation of net financial assets during the period 2009-2010 can largely be attributed to economic uncertainty due to the financial crisis.

But it can certainly be assumed that interest rates play some part in the selection of savings and investment vehicles by households. This is the case when they have to choose between short-term and long-term vehicles: long-term investments benefit from a clear preference in periods of high long-term interest rates or when the interest rate cycle has moved into a downward phase. During the few periods with a flat or inverted yield curve, private individuals reduce their short-term deposits since they then possibly expect a fall in long-term yields. It is primarily in the choices between short-term savings vehicles that interest rates have the greatest influence, as witnessed by the persistent switching between term and regulated savings deposits, where the recent fall in short-term interest rates worked strongly in favour of the latter vehicle. The build-up of claims on technical reserves of life insurance companies and pension funds is being stimulated by the current level of interest rates, since certain existing contracts offer a guaranteed return that is higher than the current market rates.

Lastly, interest rates have some influence on the commitments entered into by households, and in the first place mortgage loans. It is primarily the number of mortgages that strongly grows in the case of low interest rates. Alongside this, low interest rates may prompt price rises on the housing market with a resulting higher level of recourse to mortgage lending. But lending does not entirely follow the trend in housing prices, partly due to a more restrictive lending policy on the part of the banks.

Key words: saving, interest rates, credit, portfolio choice

JEL Codes: E21, E43, E51, G11

Abstracts from the Working Papers series

215. Economic importance of the Belgian ports: Flemish maritime ports, Liège port complex and the port of Brussels – Report 2009, by C. Mathys

The paper is an annual publication issued by the Microeconomic Analysis Service of the National Bank of Belgium. This update provides an extensive overview of the economic importance and development of the Flemish maritime ports (Antwerp, Ghent, Oostende, Zeebrugge), the Liège port complex and the port of Brussels in the period 2004-2009, with emphasis on 2009. Focusing on the three major variables of value added, employment and investment, the report also provides some information about the social balance sheet and the financial situation in these ports as a whole. These observations are linked to a more general context, along with a few cargo statistics.

Key words: branch survey, maritime cluster, subcontracting, indirect effects, transport intermodality, public investment

JEL Codes: C67, H57, J21, L22, L91, L92, R15, R34, R41

Conventional signs

_	the datum does not exist or is meaningless
e	estimate by the Bank
n.	not available
p.m.	pro memoria

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
MT	Malta
NL	Netherlands
AT	Austria
PT	Portugal
SI	Slovenia
SK	Slovakia
FI	Finland
EA	Euro area
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
LV	Latvia
LT	Lithuania
HU	Hungary
PL	Poland
RO	Romania
SE	Sweden
UK	United Kingdom
EU-15	European Union excluding the countries which joined after 2003
EU-25	European Union, excluding the countries which joined in 2007
AU	Australia
CA	Canada

JP	Japan
RU	Russian Federation
US	United States

Others

Bibor	Brussels Interbank Offered Rate
BEPG	Broad economic policy guidelines
CFC	Chlorofluorocarbon
CIF	Collective investment funds
CO_2	Carbon dioxide
DLU/EBA	One-off tax discharge statement
EC	European Commission
ECB	European Central Bank
ECOFIN	Economic and Financial Affairs Council (configuration of the EU Council of Ministers bringing together the Ministers from EU Member States and the European Commissioners in charge of these matters)
ECX	European Climate Exchange
EGL	Employment guidelines
EPSCO	Employment, Social Policy, Health and Consumer Affairs Council (configuration of the EU Council of Ministers bringing together the Ministers from EU Member States and the European Commissioners in charge of these matters)
ESA	European System of Accounts
EU	European Union
EUA	EU Allowances
EU ETS	European Union Emissions Trading System
EU-SILC	European Union – Statistics on Income and Living Conditions
FEB	Federation of Enterprises in Belgium
FPS	Federal Public Service
G3	Group of Three
GEMIX	Group of experts tasked with studying the ideal energy mix for Belgium in the medium to long term
GDP	Gross domestic product
ICT	Information and communication technology
ILO	International Labour Office
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
MIR	Monetary Financial Institutions Interest Rates
MPC	Marginal propensity to consume
MW	Megawatt
NAI	National Accounts Institute
NBB	National Bank of Belgium
NO_x	Nitrogen oxides

OECD	Organisation for Economic Cooperation and Development
OLO	Linear bonds
PLU	Professional Lenders' Union
PRIMES	Model for the EU energy markets
R&D	Research and development
SGP	Stability and growth pact
SME	Small and medium-sized enterprise
TFEU	Treaty on the Functioning of the European Union
TOE	Tonne of oil equivalent
TWh	Terawatt hour
UCITS	Undertakings for Collective Investment in Transferable Securities
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value added tax
WMO	World Meteorological Organization

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