Economic Review

September 2009

National Bank OF BELGIUM

Eurosystem

ISSN 1780-664X

Contents

Deflation, a demon from the distant past or a real danger now?

Stefaan Ide
Jef Boeckx
David Cornille

Introduction

This article examines to what extent deflation is currently a real danger for the euro area, and on that basis, what are the policy implications of that analysis. When it became clear, from September 2008, that the worsening financial crisis would have a significant impact on the real economy, both policy-makers and a broader public increasingly asked whether the economy of not just the euro area but also of other industrial countries was heading for deflation. Parallels were repeatedly drawn between the current crisis and the Great Depression of the 1930s. Moreover, during the summer of 2009, a number of countries recorded negative inflation.

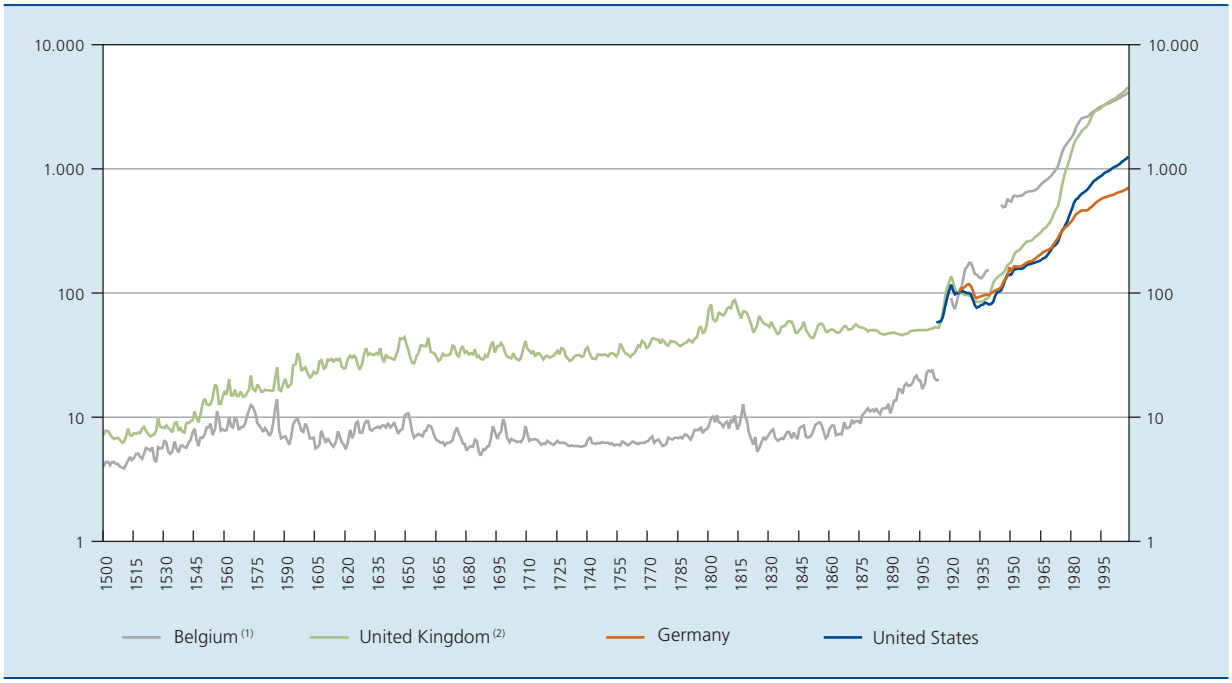
This article is structured as follows. The first section notes that deflation is not an unknown phenomenon in economic history, at least not when defined in broad terms, i.e. simply as the observation of negative inflation, or a decline in the general price level, which amounts to the same thing. It also stresses the importance of distinguishing between deflationary periods on the basis of both the underlying shock which caused the deflation and the pattern of economic activity during the various deflationary periods. In fact, the broad definition of deflation, the original starting point, is thus modified to arrive at various types of deflation, namely benign deflation, as opposed to various degrees of harmful deflation. Since the term deflation often has negative connotations, it seems that benign forms of deflation are generally disregarded in practice, as it is specifically the harmful forms of deflation that present a serious challenge for policy. They are discussed in more detail in the second section of this article which, more specifically, explains why they cannot be regarded simply as inflation with a negative sign. Indeed, harmful deflation appears to trigger specific economic mechanisms which may lead to a downward spiral in both the price level and economic activity. These mechanisms are attributable mainly to the existence of one or other form of downward nominal rigidity. Section 3 assesses the risk of harmful deflation in the current European context, beginning with an analysis of the recent trend in inflation. Next it examines inflation expectations – which are a key factor in the development of a deflationary spiral – and then, as in the IMF studies, considers not only price movements themselves but also a broader range of indicators. Section 4 discusses the policy options in a deflationary environment. Section 5 sets out the conclusions.

1. Deflation, an old acquaintance

In the period since the 1970s when inflation was a significant destabilising factor for the economy, and monetary policy was aimed at controlling rising inflation and inflation expectations, the subject of deflation received only sporadic attention. However, economic history since the Middle Ages teaches us that deflation has occurred fairly frequently, at least if it is defined in the broad sense – as already mentioned in the introduction – as the simple observation of falls in the general price level (negative inflation). That is inextricably linked to the prevailing monetary policy system, because the restrictions imposed by monetary policy systems which were tied to stocks of gold and silver – as was explicitly the case at the time of the gold standard – were a major contributory factor in

CHART 1 PRICE LEVELS THROUGHOUT THE CENTURIES

(indices 1924 = 100, logarithmic scale)



Sources : Bureau of Labor Statistics, International Institute of Social History, Office of National Statistics, Statistisches Bundesamt, NBB.
(1) Up to 1912 this is a consumer price index for the city of Antwerp. During the two world wars no index figure was calculated.
(2) Up to 1801 this is a consumer price index for the city of London.

the high frequency of falling prices. Sometimes there was a surge in demand for money, e.g. owing to technological changes or population growth, while the money supply was largely fixed. Conversely, the discovery of new gold and silver reserves drove prices upwards. In the early 20th century, increasing numbers of countries abandoned the gold standard, so that prices rose steeply compared to earlier centuries. After the 1970s, monetary policy focused on maintaining low, stable inflation which – at global level – led to a greater number of periods of negative inflation after 1990 (Bordo and Filardo, 2005).

However, it is worth mentioning that falling prices in the past were not necessarily accompanied by economic recession. Prices often declined during periods of strong productivity-related growth, whereas in most cases – certainly in the light of the current severe recession worldwide – a link is suggested with adverse deflationary periods such as the Great Depression of the 1930s or the stagnation in Japan during the 1990s and 2000s. In view of that diversity, Borio and Filardo (2004) described deflationary periods as *"the good, the bad and the ugly"*. Deflation is not an isolated phenomenon and is usually, if not always, a symptom of an underlying economic shock. It is precisely on the basis of such underlying economic shocks (and their repercussions on economic activity[1]) that a distinction can be made between the various types of deflationary periods. Thus, in principle, deflation can occur in the case of a positive supply shock as well as a negative demand shock.

In the first case, Borio and Filardo refer to *"good deflation"*. This occurs if, on the one hand, a series of positive supply shocks expand the economic potential while, on the other hand, nominal demand shows little or no adjustment. That is the case if the money supply does not mirror the expansion in the growth potential, a situation which often occurred in periods when the gold standard was in force and the global money supply therefore remained largely constant. The *"good deflation"* label refers only to the beneficial character of deflation, and more specifically to the fact that the said deflationary periods were not accompanied by a decline in economic activity or, on the contrary, were even associated with strong economic expansion, which is in turn attributable to the favourable nature of the underlying economic shock, and therefore

(1) The pattern of economic activity is in fact one of the factors identifying the shock. Thus, supply shocks are generally identified as shocks which affect prices and economic activity in opposite ways, while demand shocks are usually identified as shocks which influence prices and economic activity in the same direction.

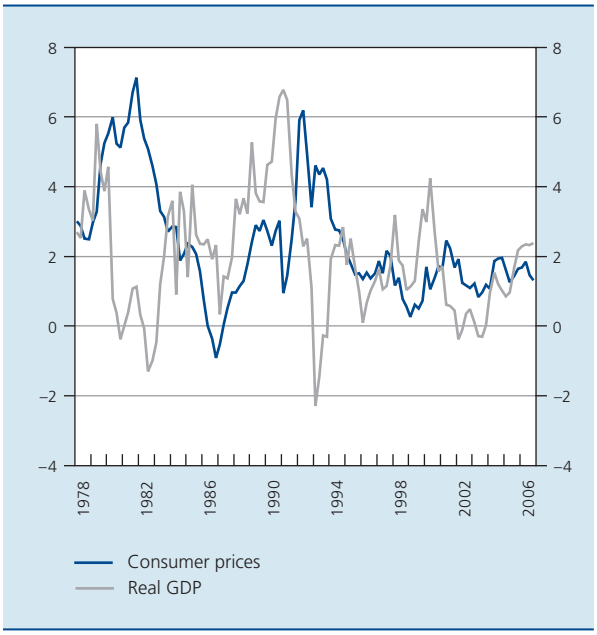
cannot be interpreted in a normative way. It therefore does not necessarily indicate that during the said periods an optimum policy was implemented. In fact, it could be argued that the failure to accommodate favourable developments on the supply side of the economy may have temporarily depressed demand, and hence effective real growth, leading to a negative output gap during that transitional period. However, it should be pointed out that this theoretical argument is perhaps less relevant for the more distant past than today, because at that time economies featured less price and wage rigidity, so that – in principle – the monetary policy implemented had fewer real effects.

The "roaring twenties" provide an example of such *"good deflation"*, when the post-war recovery and the spread of new technologies such as cars, telephones and radios contributed to strong real economic growth (White, 1990). International trade also revived, and international capital movements recovered once the leading exchange rates had stabilised and the gold standard was reintroduced in 1925. Another example of *"good deflation"* is the reverse oil shock in 1986, which in Germany's case led to a brief period of negative inflation with no noticeable adverse impact on economic activity. The fact that, in 1986, the reverse oil shock generated negative inflation in Germany but not in most other industrialised countries is connected, of course, with the fact that inflation in Germany was structurally lower, owing to the monetary policy's strong focus on price stability. As already stated, this illustrates how the prevailing monetary policy system has an impact on the likely occurrence of deflationary periods.

In this connection, reference may also be made to the rise of China and other new industrial countries as a significant positive and, what is more, persistent supply shock. Under the gold standard, such a shock may have led to *"good deflation"*, but since the monetary policy in most industrial countries is nowadays geared to stabilising inflation at a low but strictly positive level, this positive supply shock was largely accommodated, so that no deflation was recorded *ex post*. This example therefore shows once again that the occurrence of deflation depends on the prevailing monetary policy system. That also implies that, under the current monetary policy systems, persistent, good deflation is rather unlikely. While the gold standard, as already mentioned, had the inherent risk that monetary policy would be insufficiently accommodating in the event of positive supply shocks, in retrospect it could be said that during the more recent period there was too much one-sided focus on stabilising inflation – e.g. because too much importance was attached to the impact of first round effects on inflation resulting from cheaper imports from low-cost countries – so that monetary policy

CHART 2 CONSUMER PRICES AND REAL GDP IN VOLUME IN GERMANY

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



Source: Thomson Reuters Datastream.

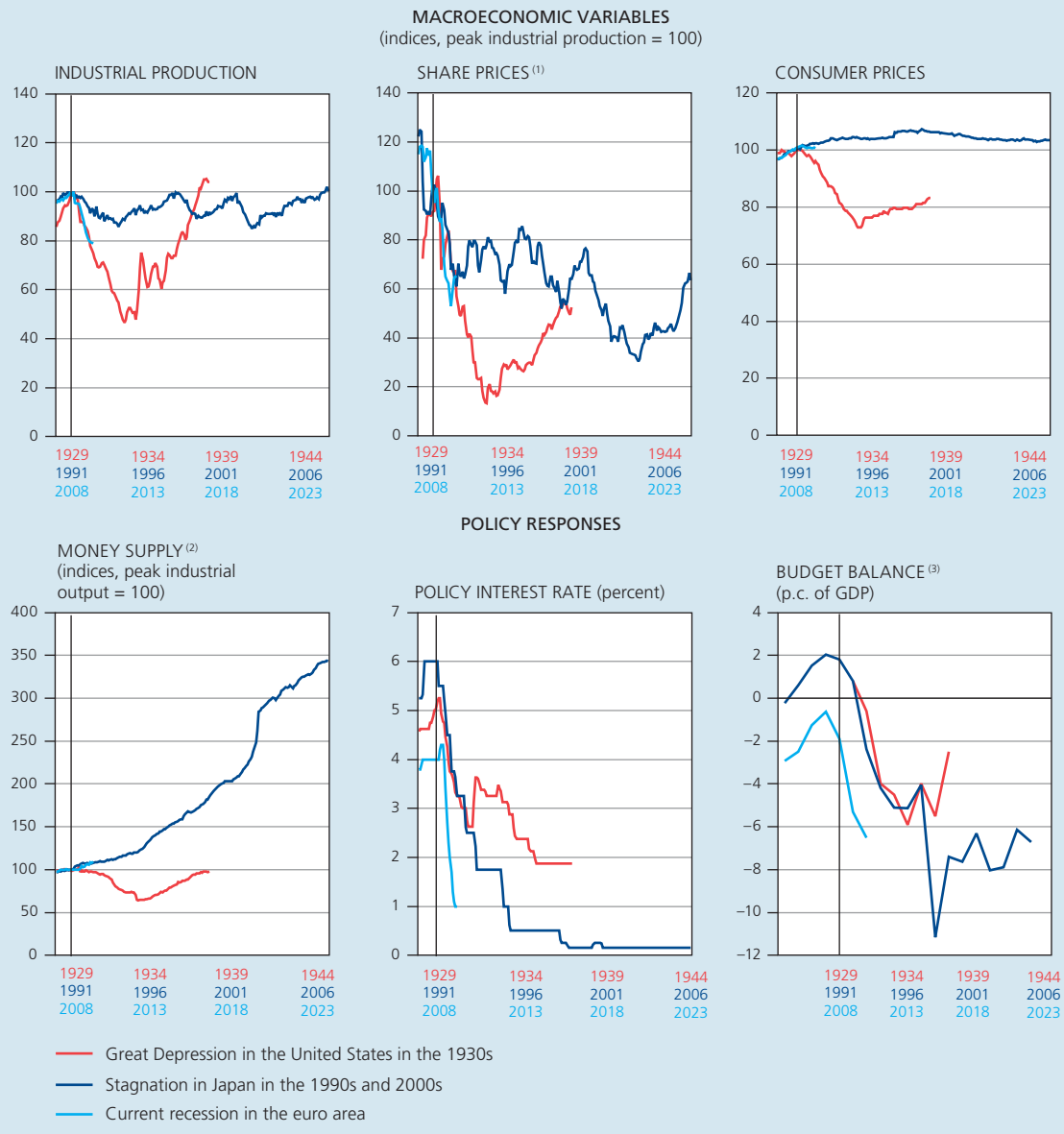
worldwide was perhaps too accommodating, thus contributing to the recent boom-bust cycle.

On the other hand, *"bad deflation"* results from a negative demand shock, where the contraction in activity – by its scale and/or persistence – exerts such great downward pressure on prices as to bring about a reduction in the general price level. If that downward pressure on prices leads to a genuine deflationary spiral, we call it *"ugly deflation"*. Owing to the establishment of such a downward spiral – the mechanisms which trigger it will be discussed later – the effects on the price level and on economic activity are far more dramatic. Box 1 discusses the Japanese stagnation during the 1990s and the present decade – an example of *"bad deflation"* – and the Great Depression in the United States – an example of *"ugly deflation"*. It also investigates to what extent the current situation displays similarities with those periods, because in those instances, too, the bursting of a stock market and property market bubble and a malfunctioning banking system were key factors. However, both in Japan and during the Great Depression the policy responses also played a leading role (or even the primary role, according to some observers). Unlike during those periods, in the current recession the policy response has been resolute, and that of course considerably reduces the risk of bad deflation actually occurring, even if the initial decline in demand is so great that, in principle, it implied a substantial *ex ante* risk of bad deflation.

Box 1 – The current crisis compared to the Great Depression and Japanese stagnation during the 1990s and 2000s

During the 1990s, Japanese economic activity stagnated for quite a lengthy period, while the price level exhibited a persistent, albeit limited, decline. However, since no deflationary spiral occurred during that period, the Japanese episode is described as *"bad deflation"*, while the Great Depression of the 1930s can be called *"ugly deflation"*.

THE CURRENT RECESSION FROM A HISTORICAL PERSPECTIVE



Sources: Thomson Reuters Datastream, NBER Macrohistory database, Federal Reserve Bank of St. Louis, Yahoo Finance, OECD, EC.
(1) For the United States this is the Dow Jones Industrial Average, for Japan the Nikkei 225 and for the euro area the Eurostoxx 50.
(2) Measured as M1.
(3) Government budget balance. For 2009 and 2010 these are EC predictions.

In the United States, economic activity contracted sharply during the early 1930s, in contrast to the Japanese stagnation of the 1990s and 2000s, and the American price level dropped by over 25 p.c. in the space of four years.

There have been various theories to explain both the Japanese stagnation of the 1990s and 2000s and the Great Depression, and that debate is still not over today. In both cases, the bursting of a bubble on the stock market and the property market plus a malfunctioning banking system played a key role. Those two factors are also present today, so that – alongside the intensity of the current recession and the steep decline in inflation – it is natural to ask whether we are moving towards bad deflation. However, the depth of the current recession is overestimated in that – in the absence of GDP data for the period of the Great Depression – the chart only shows the decline in industrial production. Nowadays, services – which display a less marked cyclical pattern – represent a much larger proportion of value added and employment than in the past.

Both during the Japanese stagnation of the 1990s and 2000s and during the Great Depression, the policy responses played a key role, according to many researchers. The main underlying cause of the persistent economic weakness in Japan does not really seem to be the deflationary process itself. Although that process has also played a role, the problems in the banking sector – which have dragged on for a very long time and were not resolutely addressed – are cited as the primary reason for the years of stagnation. During the 1990s, the Japanese government made only gradual attempts to stabilise the financial sector, initially in the form of rather modest programmes for buying up bank assets, programmes which subsequently proved to be too limited and not very cohesive. In 1998, the government therefore also set up programmes for recapitalising troubled Japanese banks, and between 2002 and 2004 the Bank of Japan bought shares in commercial banks, to safeguard financial stability.

On the other hand, this seems to indicate that, despite some hesitation, the monetary and fiscal policy implemented did act as a stabilising factor during the Japanese stagnation of the 1990s and 2000s, as the (limited) price falls in Japan did not lead to any postponement of spending in the expectation of strong price reductions in the future (White, 2006). From 1991, the Japanese interest rate was steadily reduced, and from February 1999 there was a zero interest rate policy. In August 2000, however, the Bank of Japan raised its interest rates again, a decision which it soon had to reverse. In March 2001, it reintroduced the zero interest rate policy, this time in the form of a policy of quantitative easing aimed at providing the banking system with very substantial reserves, so that the overnight rate dropped to zero. The quantitative easing had a marked effect on the money supply, which increased strongly after 2001. In March 2006, the policy of quantitative easing was stopped, and in July 2006 the policy interest rate was again raised to 0.25 p.c. Before long, Japanese fiscal policy also provided a stimulus : after the 1997 recession, the budget deficit actually rose to over 11 p.c. of GDP. The cyclically adjusted figures also indicate an expansionary policy which caused the Japanese public debt to mushroom, reaching 180 p.c. of GDP in 2006.

In contrast, at the time of the Great Depression the inappropriate monetary policy was a crucial factor, because the gold standard left little room for an accommodating monetary or fiscal policy. The numerous bank runs in the early 1930s implied a fall in the money and credit multiplier which could not be offset by monetary policy, so that the money supply contracted sharply. After the United States abandoned the gold standard in March 1933, monetary policy was eased and the money supply grew rapidly. Furthermore, the monetary expansion was supported by the decision, during the March 1933 Bank Holiday, to close the insolvent banks and to restructure others. This restored confidence in the financial system, and the process of money and credit creation could resume. From 1933, there was therefore a renewed increase in activity and in the price level, so that by 1937 the Great Depression was over. The Federal Reserve also cut its official interest rates, albeit only slightly. Moreover, at that time those rates did not have the monetary policy signalling function that they have today. In contrast, American fiscal policy did not play a major role in the recovery from the Great Depression because the budget deficits recorded were rather small, and were also largely offset by a more restrictive fiscal policy at local government level.

In contrast to what happened with the Japanese stagnation and the American Great Depression, the European monetary and fiscal authorities took swift action to deal with the steep economic decline (and the same was true in other industrial countries). Moreover, the rapid cuts in policy interest rates by the ECB were supplemented by non-conventional measures intended to maintain normal money and credit creation and thus help prevent a Great Depression scenario. In addition, right from the start of the crisis the national authorities set up substantial rescue operations to stabilise the financial system and maintain confidence, while the macroeconomic stimulus generated by fiscal policy was greater and more rapid than in the other two periods. Part of the reason is that, certainly in Europe, the automatic stabilisers are much more important now than in the past, in view of the well-developed social security systems. The current recession is, furthermore, a global phenomenon and for that reason central banks and national governments worldwide are taking measures to tackle the crisis, and some of the measures are being coordinated to a certain degree. Owing to political tensions between the countries concerned, there was no question of a more or less joint approach of this kind in the 1930s.

2. Why deflation is not just inflation with a negative sign

There are various reasons why the rest of this article focuses on the bad forms of deflation. First, they could have disastrous consequences for economic activity and hence present a serious challenge for policy-makers, especially those in charge of monetary policy. Moreover, as already stated – in the light of the monetary policy systems currently prevailing in the industrial countries – there is now little chance of good deflation actually occurring (in contrast to the 19th and the first half of the 20th century). Finally, the current crisis is to some degree comparable to the situation in Japan and to the Great Depression of the 1930s, so that in the present circumstances bad deflation is far more relevant than good deflation.

In practice, deflation is therefore often immediately defined as bad deflation, and good deflation is implicitly disregarded. Such a definition – which is narrower than the one used so far in this article – systematically refers to deflation as a persistent fall in the general price level prompting expectations of further falls (Bini Smaghi, 2008). This narrower definition comprises a number of important elements. First, it refers explicitly to a fall in the *general price level*. In practice, this means that the consumer price index as a whole must fall, and the price reductions must be widely distributed. In other words, it is not sufficient to see a reduction in the price of just a few specific goods or services, because that type of price fall is quite common – certainly when inflation is low – and is due to changes in relative demand and/or productivity, not developments at aggregate level. Furthermore, there must be a *persistent* price fall, not brief periods of falling prices, e.g. lasting a few months. Finally, a third essential feature is the creation of *expectations of further price falls*. The second and third features are interlinked: the persistence of the price falls may help to generate further expectations of falling prices, which in turn encourages the persistence of the falls. These two elements are very important because they may trigger a deflationary spiral.

Deflation entails first of all a number of costs which also apply in the case of inflation, e.g. distortion of the relative price signal. From that point of view, deflation appears to be merely the mirror image of inflation. However, that view is incorrect because it is only part of the picture: deflation also produces a number of specific effects which do not occur under inflation, and which may entail additional and potentially high costs for the economy. These effects of deflation are also the factors which trigger a deflationary spiral. There are three types of effect, and they are essentially attributable to one or other form of downward nominal rigidity (the fact that certain nominal variables cannot become negative or cannot fall, or at least display a specific resistance to moving in that direction).

The lower bound of the nominal policy interest rate

The first nominal rigidity is the zero lower bound of the nominal policy interest rate. This amounts to an almost absolute lower bound. Once the nominal interest rate reaches zero, the central bank can no longer ease monetary policy by using the conventional interest rate instrument, because everyone would rather hold cash than lend at a negative interest rate (liquidity trap). Although the monetary policy debate often focuses on the nominal interest rate, it is the real interest rate that influences the economy and inflation. The real interest rate is the difference between the nominal rate – which in turn comprises

the nominal policy interest rate and the spreads consisting of risk and liquidity premiums – and the expected inflation. The development of negative inflation expectations (expectations of price falls) is an essential feature of bad deflation, in which the real interest rate may become increasingly positive, while the fact that the deflation occurs after a strong negative demand shock specifically implies that the real natural interest rate is very low or even negative[1]. This difference between the real actual interest rate and the real natural interest rate may prolong the shortfall in demand in the economy, generating further downward pressure on prices, a further increase in negative inflation expectations, an even higher real interest rate: in short, a genuine deflationary spiral. That spiral may thus develop because monetary policy has lost control over the real interest rate and is therefore no longer capable of steering the economy and inflation. In more intuitive terms, this mechanism refers to the fact that the expectations of falling prices cause the postponement of expenditure.

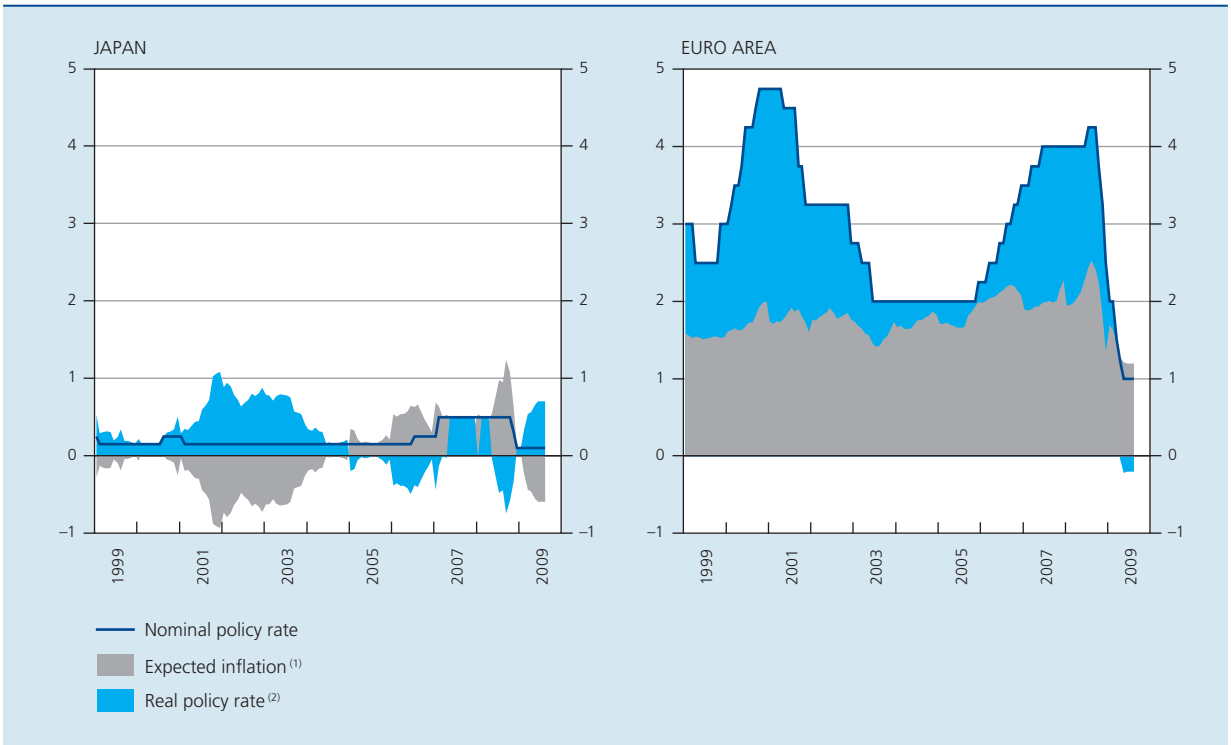
(1) If the deflation is due to a positive supply shock, there is much less chance that such a destabilising mechanism will be triggered, because in that case it is not only the actual real interest rate that increases, but also its equilibrium value. That also makes it unlikely that what begins as good deflation may in time turn into bad deflation.

If the nominal key interest rate is zero, monetary policy can try to continue steering the relevant real interest rate by reducing the spreads and/or maintaining or creating positive inflation expectations. For that purpose it is possible to pursue an unconventional monetary policy, as discussed in section 4. However, monetary policy-makers are less familiar with these alternative policy instruments, and apart from the possible practical implementation problems, their impact on the economy is harder to assess than that of a change in the nominal policy rate. This may impair the effectiveness of monetary policy.

Japan provides a perfect example of how real interest rates are affected by the zero lower bound on the nominal policy rate. In the late 1990s and early 2000s, the Japanese economy was bogged down in a deflationary environment, and the Japanese central bank cut its key interest rate to almost zero. However, since the deflation had also affected expectations, the real interest rate remained markedly positive. This forced the Japanese central bank to pursue an unconventional monetary policy, in the form of quantitative easing. While negative inflation expectations have resurfaced in Japan during the current crisis, that is not the case in the euro area

CHART 3 NOMINAL AND REAL POLICY RATE

(percentages)



Sources: Thomson Reuters Datastream, Consensus Economics.
(1) Expected inflation for the next calendar year.
(2) Calculated as the difference between the nominal policy rate and expected inflation.

(see below for more information). The result is that the steep cut in the ECB key interest rate has also actually resulted in the relaxation of monetary conditions, and the lower real interest rate – actually a negative real rate at the end of the period – can provide a significant stimulus for economic activity.

Increase in the real burden of existing debts

Second, since most debt contracts are concluded in nominal terms, if deflation occurs the real burden of debts previously incurred will increase. As deflation often follows a period of excessive lending, this hampers the ongoing process of debt reduction which, *ceteris paribus*, further boosts the propensity to save and thus exacerbates the slump in demand. Another significant consequence is an undesirable *ex post* redistribution of wealth from borrowers to savers. Since borrowers often have a greater propensity to consume, this redistribution also adds to the negative effect on demand [1]. In combination with the already sharply deteriorated economic conditions, there will also be a strong rise in repayment problems and bad debts. Moreover, this is often accompanied by falling asset prices, causing a steep decline in the value of the collateral behind the loans. In such a situation, the banks will tighten their lending conditions, and repayment problems and declining collateral values will also affect the solvency of the financial institutions, causing the crisis to become even more acute. The pursuit of price stability and avoidance of deflation are therefore crucial from the point of view of financial stability, too.

Downward nominal wage rigidity

A third important downward nominal rigidity concerns the difficulty of reducing nominal wages, even if such a move would be justified on the grounds of the deteriorating economic situation or the decline in the general price level. The reason lies in the "money illusion" of the economic agents, whereby they focus mainly on nominal wages rather than real wages, and consequently always see a reduction in wages as a loss of purchasing power – even if that is not the case.

In the short term, a relatively high degree of downward nominal wage rigidity (DNWR) may be favourable, because it supports real disposable incomes (and hence demand in the economy), and in the first instance eases the problem of repaying loans. In the early stages, this can counterbalance deflationary pressure. However, rigidities also hamper the adjustment of the real economy, certainly if the downward shock is persistent. In the end, as a result of a non-adjusted high real wage level, this puts further pressure on business profitability, leading to higher unemployment and therefore exacerbating the impact of the demand shock [2].This seems to imply that, in view of the higher degree of rigidity, the euro area is better protected initially against the emergence of deflation than the United States, but once a deflationary process has started, the euro area would be harder hit. In this connection, however, De Grauwe (2009) comments that some specific characteristics of 'rigid' economies, such as the existence of an extensive social security system or minimum wages, may halt the deflationary mechanism, because despite falling to some degree, disposable incomes will not drop below a certain level, so that consumption and debt repayment are still supported. According to this reasoning, any negative effects of greater rigidity are thus absorbed by fiscal policy, and more specifically by the 'automatic stabilisers' which are more significant in Europe than in the United States and the cost which this implies for the government would be less than the expense which the government would face in a decidedly deflationary environment. However, it must be added that the fiscal scope available to the government, and therefore its potential for stabilising the economy, is not unlimited.

The relevance of DNWR varies greatly from one country to another, depending on the institutional characteristics of the labour market. For instance, in Portugal, nominal wage reductions are prohibited by law, so that there is a high degree of downward nominal wage rigidity (Duarte, 2008). In contrast, Belgium has hardly any DNWR owing to automatic wage indexation, because in the event of negative inflation, indexation will imply downward adjustments in nominal wages. This protects real wages from any upward effect caused by deflation, so that the real consequences are less disastrous for Belgian businesses and hence also for unemployment. Moreover, the existence of DNWR in the trading partners may ultimately lead to an improvement in Belgium's competitive position in an international deflationary environment, though on the other hand, indexation accelerates the nominal effect on wages and prices, so that Belgium may suffer more acutely from the problem of the real interest rate and the increase in the debt burden explained above. Yet in a small, open economy such as Belgium, the absence of an effect on real wages is perhaps more important than the fact that there may be a bigger effect on the real interest rate or the debt burden. While indexation in Belgium may thus attenuate the effects of deflation, in other instances

(1) In principle, this redistribution effect is no different from a sharp fall in inflation. Thus, in the late 1980s and early 1990s the most severe recessions occurred in countries which had previously seen the biggest rise in their debts (see for example Groth and Westaway, 2003 and King, 1994).

(2) If deflation is due to a positive supply shock, then an increase in real wages is not necessarily a problem because their equilibrium value also rises, e.g. as a result of higher productivity.

– such as terms of trade shocks – that mechanism has the drawback of hampering the adjustment of the economy precisely because the required adjustment to real wages is more difficult to achieve. Indeed, Du Caju et al. (2007) find that Belgium features a low degree of nominal wage rigidity but a high degree of real wage rigidity.

In countries without wage indexation, the impact of DNWR increases, in principle, the lower the level of inflation. Of course, that phenomenon will be more plainly visible in a deflationary environment. For example, Fehr and Goette (2005) show that the decline in inflation in Switzerland, from 4.7 p.c. in 1991 to 0 p.c. in 1997, was accompanied by a distortion in the distribution of the wage changes recorded in the individual data. The histogram for 1997 was less symmetrical than the one for 1991, and the distortion lay in the fact that in 1997 fewer downward adjustments to real wages were recorded than in 1991, precisely because there was a substantial rise in the percentage of wages that remained unchanged (and thus evidently could not be adjusted downwards), from less than 5 p.c. in 1991 to almost 20 p.c. in 1997. Such an increase in the percentage of unchanged wages is a typical symptom of DNWR. Yet it is also evident that DNWR is not an absolute given in Switzerland, since there was also a considerable increase in the proportion of wage reductions between 1991 and 1997 (from 11 p.c. in 1991 to 31 p.c. in 1997). In Hong Kong, a country where the institutional characteristics of the labour market are admittedly very different from those of the euro area, the consumer price index declined between May 1998 and August 2003 by a cumulative total of 16.3 p.c., and during that period wage reductions were frequently observed. Furthermore, the distribution of wage adjustments was symmetrical during that period (Gerlach, 2009). The degree to which the DNWR problem would manifest itself in a deflationary environment therefore appears to be an open question.

3. The risk of deflation in the current context

In order to assess the risks of deflation in the current context, the analysis focuses not only on the recent pattern of inflation but also on the inflation expectations of various economic agents at different horizons. Since the deflation risks cannot be viewed separately from the underlying negative demand shock, a wide range of indicators is then taken into account alongside inflation measures.

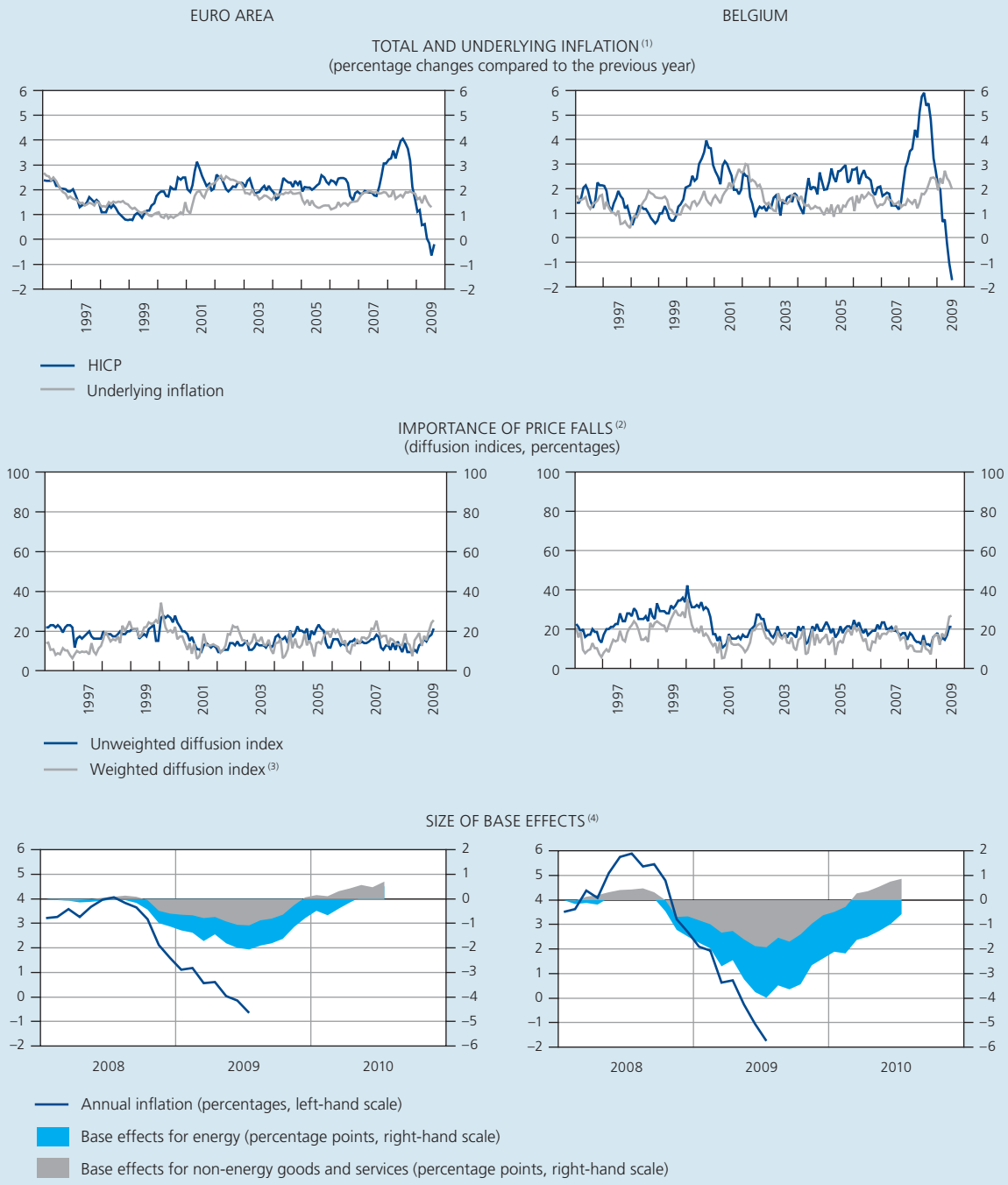
Are the price falls widespread at present ?

The global inflation picture currently features a process of disinflation (in many cases even negative inflation) as a result of the sharp fall in energy and food prices since the summer of 2008. Before that, energy prices – and to a lesser extent food prices – had given a strong boost to inflation, which thus reached its highest level for decades in the various developed economies. In contrast, core inflation, defined as total inflation excluding energy and food, is only declining slowly in both the euro area and in many other industrialised economies. In Belgium, the turning point in core inflation was reached somewhat later as the high indexations of 2008 and early 2009 were still exerting upward pressure.

This implies that the contraction of activity and, in general, weak demand have not (yet) had a major effect on prices of non-energy and non-food goods and services in the euro area, and especially not in Belgium. This means that the rapid decline in inflation observed in recent months is not so much an indication of a fall in the general price level but rather the outcome of relative price movements. Viewed in that way, the current decline in inflation looks similar to the period of *"good deflation"* in Germany following the reverse oil shock in 1986. Precisely because the decline in inflation is attributable to imported goods, it supports purchasing power in the industrial countries via the accompanying improvement in the terms of trade, and counteracts the negative forces in the real economy. This can hardly be seen as a mechanism triggering a harmful deflationary spiral, unless the sharp fall in inflation is incorporated in inflation expectations.

The fact that the price falls are not as yet widespread is also evident from a 'diffusion index' which shows the percentage of product categories in the harmonised index of consumer prices which record a year-on-year fall in price. It is apparent from this criterion that price reductions are not exceptional, certainly not in sectors exhibiting major productivity gains such as communication services or multimedia products. It is also evident that this index has not increased exceptionally strongly during the recent period, confirming that there is no evidence of a general tendency towards falling prices, either in the euro area or in Belgium. That finding holds regardless of whether or not the HICP weights are applied to the diffusion index. For Belgium, the Institute of National Accounts (2009) reached similar findings on the basis of individual price notations which form the basis of the consumer price index.

CHART 4 HARMONISED INDEX OF CONSUMER PRICES



Sources : EC, NBB.

(1) HICP excluding energy and food.

(2) Share of product categories with price falls in the total.

(3) Weighted with the HICP weights.

(4) Cumulative base effects since January 2008, calculated as the contribution to the change in inflation in a particular month attributable to marked movements in the corresponding month of the previous year. For that purpose, the month-on-month change in the HICP was compared with the usual pattern of change for each month. This method makes it possible to predict the impact of the base effects for the next twelve months.

As a result of the steep rises in energy and food prices in the first half of 2008, base effects [1] exerted strong downward pressure on inflation during the first half of 2009. In June and July, the impact of the downward base effects showed a further slight increase; those were the very months in which inflation peaked in 2008. In Belgium, base effects are more marked than in the euro area, owing to the much stronger surge in Belgian inflation in 2008. In August 2009, however, the downward impact of the base effects started to weaken so that, *ceteris paribus*, the downward trend in inflation should be reversed. However, it is uncertain whether that will actually happen, and if so, to what extent, because in the months ahead inflation will be determined not only by the mechanical impact of these base effects but also by the movement in prices during those actual months, which will in turn depend in particular on the movement in commodity prices and the pressure on prices caused by the general economic situation.

Will the price falls persist for long?

Inflation expectations play a crucial role in determining current inflation, and are therefore important for assessing the possible risks of deflation now and in the near future. They are also important as a determinant of the monetary policy stance, and – in the case of a very low nominal policy interest rate – influencing inflation expectations becomes the principal if not the only instrument left for influencing the real interest rate (see above). It is therefore very important to conduct a close analysis of the pattern of inflation expectations.

The European Commission's monthly consumer survey asks a question about the expected movement in consumer prices over the coming twelve months, compared to that during the past twelve months. This balance statistic is converted to an inflation indicator comparable to the HICP via a standardisation procedure. This shows that both in the euro area and in Belgium this expected inflation based on the balance statistic has fallen sharply since mid 2008, and has become slightly negative in recent months. That movement tallies with what other sources predict and thus confirms the information value of this – albeit qualitative – criterion.

When analysing deflation risk, it is interesting to examine what proportion of consumers claim to expect a fall in consumer prices. In the past, that figure was negligible, except for a small rise in the Netherlands in 2003, when that country was affected by a contraction in activity accompanied by a price war in the distribution sector. Recently it has become apparent that a growing proportion of consumers in various euro area countries are expecting prices to fall, but the percentage is still rather low overall.

Since September 2008, inflation predictions for the euro area produced by international institutions and other professional forecasters have undergone sharp downward revision. That is particularly true for 2009, and to a lesser extent for 2010, indicating that these forecasters are assuming that inflation will pick up again to some extent compared to the low level expected in 2009. That view corresponds to the diminishing downward impact of base effects explained above. Nonetheless, the latest predictions for 2010 are well below the upper limit of the quantitative definition of price stability applied by the ECB Governing Council. Yet all forecasters still expect positive inflation in 2010. At the same time, however, the uncertainty has greatly increased. That is evident from the fact that the dispersion of the forecasts for 2010 produced during the first half of 2009 is greater than for those produced for 2009 in the first half of 2008. Since the prediction horizon is the same in both cases, that increased dispersion has nothing to do with technical factors but definitely indicates greater intrinsic uncertainty for the latest exercises. The OECD and IMF inflation forecasts, in particular, are much lower than the others.

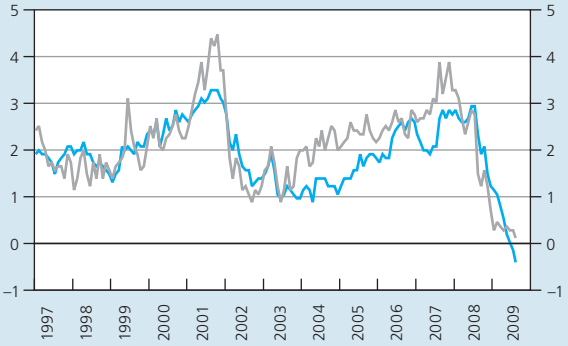
Another important source for measuring inflation expectations in the euro area is the ECB's quarterly survey of professional forecasters. The added value of this survey is not only the large number of participants – between forty and sixty – but also the fact that, as well as making forecasts for the current and the next calendar year, they also provide information on inflation expectations within one, two and five years respectively. This last item of information is very important because it concerns long-term inflation expectations and therefore offers an indication of the credibility of monetary policy. These data again show that the professional forecasters have adjusted their expectations downwards since September 2008, but that adjustment declines with the prediction horizon. According to the latest survey, the average inflation forecast within one year (actually June 2010) is 1.2 p.c., the average inflation forecast within two years (actually June 2011) is 1.6 p.c. and the average inflation forecast within five years is 2.0 p.c. Although the long-term inflation expectation is thus still anchored at a level corresponding to the quantitative definition of price stability, it is nevertheless evident from the data that the downward deviation from the

(1) A base effect refers to the influence – on a particular month's inflation figure – of an unusual or extreme development during the base period, namely in the corresponding month of the previous year. The impact of base effects was quantified as the contribution to the change in inflation originating from a deviation in the month-on-month change in the base period compared to the usual pattern of change. Those monthly effects were then cumulated from January 2008.

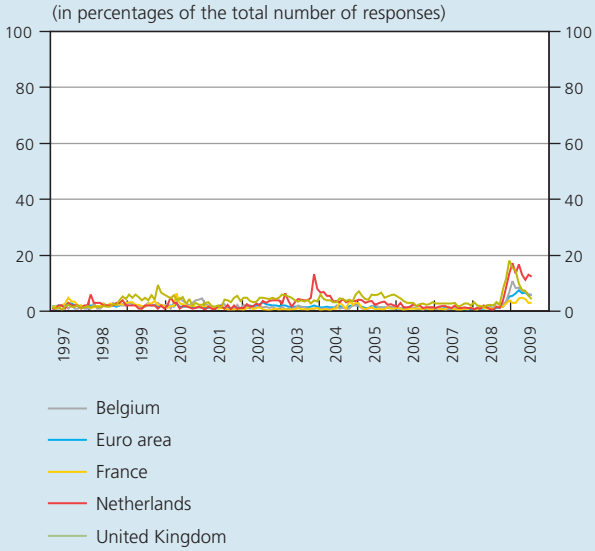
CHART 5 SHORT-TERM INFLATION EXPECTATIONS

CONSUMERS' INFLATION EXPECTATIONS OVER THE NEXT TWELVE MONTHS

EXPECTED INFLATION [1]
(percentage changes compared to the corresponding month of the previous year)

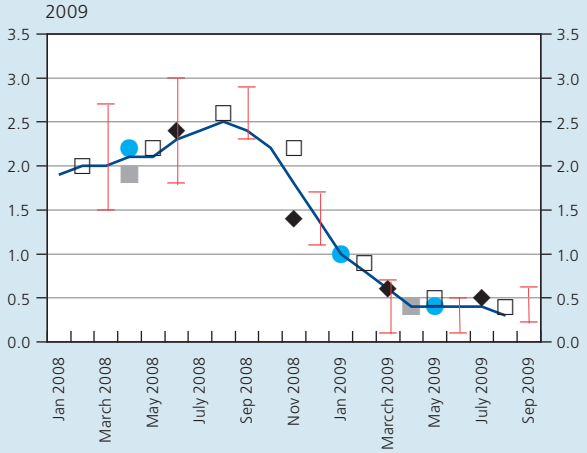


EXPECTATIONS OF PRICE FALLS
(in percentages of the total number of responses)

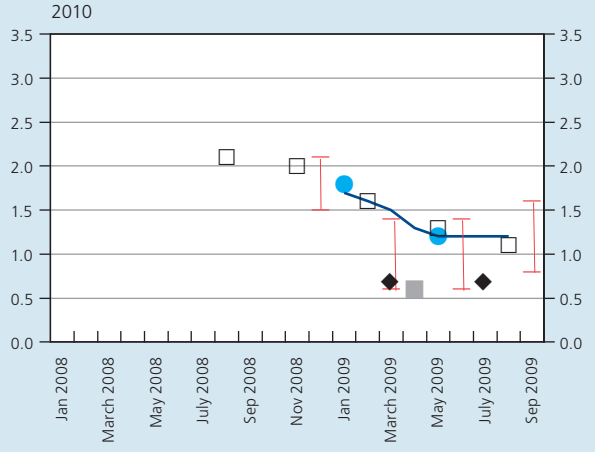


INFLATION FORECASTS OF INTERNATIONAL INSTITUTIONS AND PROFESSIONAL FORECASTERS FOR THE EURO AREA
(percentage changes compared to the previous calendar year)

2009



2010



IMF
EC
Consensus Economics
OECD
ECB survey of professional forecasters
Eurosystem

Sources : Consensus Economics, EC, ECB, IMF, OECD, NBB.

(1) Balance of responses to the EC survey, converted to an inflation indicator comparable to the HICP using the standardisation procedure described in Aucremanne, L., M. Collin and T. Stragier (2007).

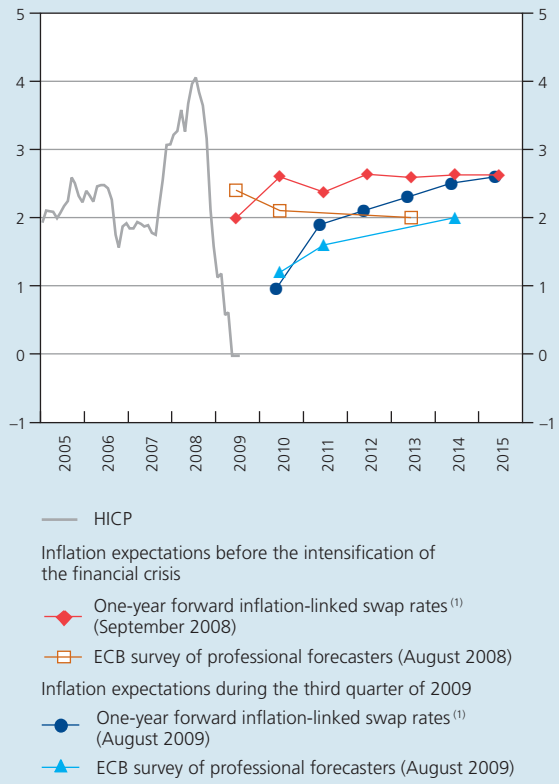
long-term inflation expectation is assumed to be somewhat persistent (at least until 2011).

Inflation expectations can also be deduced from financial market instruments such as indexed bonds and inflation swaps, but these measures have to be interpreted with some caution in times of heightened financial market volatility. However, that proviso applies less to inflation swaps than to the inflation expectations deduced from indexed bonds (NBB, 2009), so that the analysis which follows is based on the former. From the spot price of inflation swaps it is possible to calculate implicit forward prices for one-year inflation swaps, the latter reflecting the expected HICP inflation for the ensuing year for various points in time[1]. The advantage of these implicit forward prices is that, in contrast to the survey of professional forecasters, they also provide information for intermediate horizons, namely not only within one, two and five years but also within three and four years. Thus, in September 2008, the expected inflation for June was priced at 2 p.c. for 2009 and roughly 2.5 p.c. for subsequent years, a level which is not necessarily contrary to the definition of price stability since inflation swaps incorporate not only the actual inflation expectation but also quite considerable risk and liquidity premiums. Since September 2008, however, inflation expectations for the coming five to six years have shifted downwards, primarily – though not exclusively – for the shorter horizons. On the basis of the August 2009 inflation swaps, the financial markets do not expect any negative inflation or deflation, but anticipate only a gradual return to inflation at levels corresponding to price stability. Nonetheless, it is also apparent that the long-term expectations are still firmly anchored. In the event of a longer period of downward deviations from the quantitative definition of price stability, there is a risk that economic agents will gradually adjust downwards their perception of the Eurosystem's inflation objective. If that should happen, then there will of course be a greater risk of deflation.

This was also reflected in the Eurosystem's September 2009 inflation projections. Those projections form part of a coherent macroeconomic exercise and therefore take account of the outlook for the real economy[2]. For the euro area, inflation has become negative during the summer, mainly as a result of base effects. However, it is likely to gather pace again thereafter. For 2010, inflation is expected to run at between 0.8 and 1.6 p.c. That assumes that, in view of the disappearance of the negative contribution from energy, core inflation will decline further. On the basis of the centre point of the published intervals, it therefore seems that, in the baseline scenario, although inflation in 2010 will be well below the 2 p.c. upper limit of the definition of price stability, negative

CHART 6 LONGER-TERM INFLATION EXPECTATIONS FOR THE EURO AREA

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



Sources: Bloomberg, EC, ECB.
(1) Implicit forward price for a one-year inflation swap.

inflation is unlikely. However, the uncertainty interval indicates that the figure could be lower or higher. A steeper decline in economic activity and/or a slower recovery than assumed in the September 2009 projections could lead to lower inflation. Higher commodity prices – the September projection was based in particular on an average crude oil price of 62.4 and 78.9 dollars per barrel of Brent in 2009 and 2010 respectively – and/or a speedier economic recovery could lead to higher inflation.

In qualitative terms, the inflation projection for Belgium published by the Bank in June 2009 differs little from this pattern. A brief period of negative inflation during May to October 2009 will be followed by a slight rise in inflation

(1) Since the consumer price index is published after a certain delay, the inflation swap contracts reflect expected inflation for the month three months ahead of the due date of the inflation swap. Thus, the August 2009 contracts reflect expected inflation for the month of May, while the September 2008 contracts reflect the expected inflation for the month of June.
(2) They are also based on market expectations regarding short- and long-term interest rates and on implicit crude oil prices as indicated by forward contracts, while the bilateral exchange rates were kept constant at their mid August value.

to an average of 1.3 p.c. in 2010. The fact that inflation in 2009 (average 0.1 p.c.) will be slightly below the figure for the euro area is the net outcome of a stronger downward effect for energy – Belgian inflation is traditionally more sensitive to this factor – and the fact that the moderation of underlying inflation is initially slower than in the euro area, suggesting the presence of some second round effects due to the very high inflation in 2008. However, the impact of this last factor will gradually ebb away, and in 2010 wage indexation will actually become a factor contributing to wage moderation. Of course, the inflation projection for Belgium is also uncertain, and that uncertainty is actually greater than for the euro area, since the movement in the crude oil price has a greater influence on Belgian inflation.

A broader approach to the risk of deflation : the IMF methodology

While this section has so far focused on inflation itself and on inflation expectations, it is also important to consider a broader set of economic variables in order to identify potential deflationary risks, because deflation is not a phenomenon expressed purely in price movements. As already stated, it is a macroeconomic phenomenon with clear interactions between prices and activity. Furthermore, in the past it has been evident that deflation is very difficult to predict, one reason being that price and wage rigidities initially inhibit a sharp decline in (core) inflation, and that may conceal substantial downward pressure on prices exerted by a low capacity utilisation rate. Finally, indicators of inflation expectations need to be interpreted with due caution, as they are based not only on the expected impact of economic shocks but also on the expected monetary policy response [1]. If the economic agents assume that the authorities will do everything possible to avoid deflation, inflation expectations will remain largely stable, certainly in the long term, but that does not of course imply that the policy should remain neutral.

A broader approach is therefore required. For that purpose, the IMF has developed a methodology aimed at proposing a wide range of relevant variables in synthetic form. The result is known as the IMF *"deflation vulnerability indicator"* (see IMF, 2003 and Decressin and Laxton, 2009). Here, the IMF selected eleven variables which are relevant for detecting deflation risks. A threshold value is associated with each variable. If a variable is below its threshold value, it is assigned the binary value 1, which indicates an increased risk of deflation ; otherwise it is assigned the binary value 0. The average of these binary scores yields a standardised indicator with values ranging between 0 and 1. A high (low) value for this synthetic indicator indicates a high (low) risk of deflation. In view of its composition, however, this indicator cannot be interpreted as a percentage risk of deflation. For this article, it was possible to calculate a synthetic indicator up to the second quarter of 2009 [2]. Box 2 lists the eleven selected variables and their threshold values.

As expected, the value of the indicator for Japan is high throughout the period considered. An increased risk was also identified for some countries at the end of 2002 and in 2003. During that period, it was mainly Switzerland and the euro area that had an increased risk of deflation. At the time, the IMF (2003) mainly drew attention to a

(1) See also Gerlach (2009).

(2) In the IMF's original methodology, some responses were weighted on the basis of the relative size of the stock market and the bank lending market. That is not the case in our own calculations. Small deviations from results previously published by the IMF may also be attributable to the use of different data banks and/or data revisions. The data used for this article are quarterly figures.

Box 2 – Measuring the deflationary risk according to the IMF methodology

The IMF synthetic indicator for deflation risk comprises eleven indicators and the associated threshold values which are listed below. They can be divided into four categories. First, three general inflation criteria are considered, because low inflation is logically regarded as potentially problematic. Since bad deflation is associated with a negative demand shock, a series of variables was also selected which focus on the scale of the demand shock, and more specifically on the degree to which there is excess capacity in the economy. The trend in asset prices also functions as an indicator, as some periods of bad deflation are not only preceded by a *boom-bust* cycle in asset prices but the movement in asset prices – via income and wealth effects – has a significant impact on the negative demand shock, which it may or may not reinforce. Finally, four indicators focus on aspects of monetary conditions, precisely because it is evident from the foregoing that monetary policy plays a key role in the occurrence or avoidance of deflation.

THE ELEVEN QUESTIONS IN THE SYNTHETIC IMF INDICATOR OF THE DEFLATION RISK

Inflation criteria

Is total annual inflation below 0.5 p.c. ?
Has the GDP deflator risen by less than 0.5 p.c. in the past year ?
Is annual core inflation below 0.5 p.c. ?

Capacity utilisation

Has the output gap shrunk by more than 2 percentage points over the past four quarters ?
Is the output gap less than 2 p.c. ?
Is the average real GDP growth over the past three years below two-thirds of the average real GDP growth over the preceding ten years ?

Asset prices

Have share prices dropped by more than 30 p.c. over the past three years ?

Monetary conditions

Has the real effective exchange rate appreciated by more than 4 p.c. over the past year ?
Is annual credit growth lower than nominal GDP growth ?
Is cumulative credit growth over the past three years below 10 p.c. ?
Has broad money grown by 2 percentage points less than base money over the past two years ?

When interpreting this indicator, it should be borne in mind that (in the absence of comparable criteria for the various countries) no account is taken of inflation expectations, and excess capacity is very difficult to measure accurately, certainly in real time. Finally, determination of the threshold value for each partial indicator is not obvious. Owing to the limited number of recent periods of deflation, those threshold values were based mainly on Japan's experience during the 1990s. It is therefore not surprising that the indicator for Japan points to an increased deflation risk towards the end of the 1990s and in the initial years of the present decade.

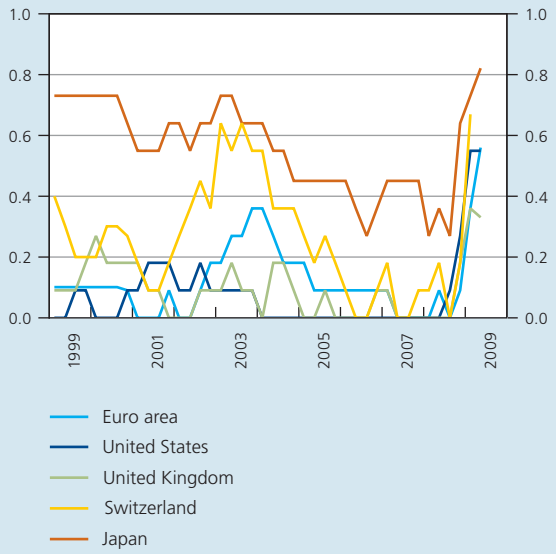
heightened deflation risk in Germany. Conversely, the indicator for the United States is surprisingly low in 2002-2003. This last finding, which is admittedly based on a rather rudimentary indicator, is in line with the findings of other studies which indicate that US monetary policy may have overestimated the deflation risk at that time, and was therefore too accommodating. Taylor (2009) argues that monetary policy was too lax in the period 2002-2004, and Jarocinsky and Smets (2008) conclude that this lax monetary policy contributed to the asset price boom in the United States.

For the recent period, the deflation risk seems to have increased considerably in virtually all the industrialised economies, both in the last quarter of 2008 and in the first and second quarter of 2009. The deflation risk seems to be particularly great in Japan and Switzerland. In the euro area and the US, it is quite considerable and clearly greater than in the period 2002-2003.

The fact that this indicator unmistakeably points to an increased deflation risk is not inconsistent with the monetary policy stance adopted in the countries mentioned since September 2008. Owing to the sharp decline in inflationary pressure (and the potential threat of deflation), key interest rates in all these economies were cut at an unprecedented speed, and the expansionary monetary policy was further backed by non-conventional measures. The contradiction between the increased deflation risk according to the IMF methodology and the earlier findings whereby many other indicators suggest only a limited risk is merely an illusion. This paradox can be explained as follows. The prevailing inflation expectations and forecasts embody not only the expected impact of the economic shocks but also the strong monetary policy response, and in many cases also the (implicit) expectation of additional measures if the deflationary pressure should nevertheless manifest itself. Precisely because of this reliance on the stabilising role of policy, the eventual *ex post* risk is therefore significantly smaller than the *ex ante* risk of deflation. The IMF indicator perhaps comes closer to measuring

CHART 7 SYNTHETIC INDICATOR OF THE DEFLATION RISK ACCORDING TO THE IMF METHODOLOGY (1)

(average of the binary scores for the eleven indicators)



Sources : IMF, NBB.

(1) See IMF (2003) and Decressin and Laxton (2009).

this *ex ante* risk. That should encourage policy-makers to remain constantly vigilant, and if necessary to take appropriate, resolute action. The policy options in the case of an increased risk of deflation, or if deflation has already set in, are discussed in the next section of this article.

4. Policy options in a deflationary environment

This article has already drawn attention to the crucial role of monetary policy, in particular, in determining whether or not deflation occurs. Economists in general agree that economic policy – be it monetary or fiscal policy, or a combination of the two – is always capable of generating inflation (Bernanke, 2002), so that persistent deflation can ultimately be viewed as either a policy choice or a policy failure (Buiter, 2003). This section discusses the various policy options, with reference to examples from the recent past.

Prevention is better than cure

Since, as mentioned above, deflation may be accompanied by a number of reinforcing mechanisms which do not apply in the case of inflation, it is far more difficult to revive a deflationary economy than to curb inflationary tensions in an overheated economy. Prevention is therefore better than cure, certainly where deflation is concerned.

Even in times when deflation does not appear to be an immediate problem, it is possible, when determining the monetary policy strategy, to do something to ward off deflation by creating a kind of buffer zone against deflation risks. That is why central banks typically define price stability as low but strictly positive inflation. For instance, in the euro area the ECB Governing Council has, since 2003, defined price stability as an annual rise in the HICP for the euro area of less than – *but close to* – 2 p.c. in the medium term. When the definition was clarified by adding "but close to" in May 2003, that was an explicit reference to the risks of deflation. This buffer zone reduces the likelihood of the key interest rate reaching the lower limit in the event of a substantial negative demand shock. This last argument was precisely one of the elements expressly taken into account in determining the buffer zone for the euro area (Coenen, 2003), because the risk of the key interest rate encountering the lower limit appeared to increase in a non-linear way for inflation objectives below 2 p.c. Of course, the advantage of creating such a buffer zone has to be weighed against the possible costs of positive inflation in normal circumstances. Other central banks with an explicit inflation objective have typically set theirs at between 1 and 3 p.c.

Furthermore, a quantitative inflation objective offers a clear reference point for inflation expectations, so that they can be more firmly anchored, reducing the risk of a deflationary spiral. Central banks which, like the Eurosystem, have an explicit inflation objective are therefore better equipped, in principle, for the battle against deflation than central banks with no explicit inflation objective.

This also implies that if inflation and inflation expectations fall below the threshold associated with price stability, that may prompt an adjustment of the monetary policy stance in exactly the same way as if they exceed it. Such a symmetrical approach to achieving price stability – as there are not only upside but also downside risks to price stability – is best emphasised from the start and systematically applied in order to ensure that it is sufficiently credible when a real risk of deflation arises.

If, in the event of a sudden, sharp deterioration in the economic fundamentals, a real deflation risk nevertheless looms, it is best for monetary policy to be proactive – i.e. to produce a stronger response than under normal circumstances – by making speedy and significant cuts in the key interest rate (see Ito, 2009 and Orphanides, 2009). If this causes the nominal interest rate to fall faster

than inflation expectations, monetary policy can remain sufficiently expansionary by cutting the real interest rate, which in those circumstances has a stabilising effect on the economy, ultimately counteracting the decline in inflation expectations and reducing the risk that the key interest rate will actually come up against the lower limit. The existence of a lower limit for the key interest rate therefore implies that more aggressive use is made of the interest rate instrument than in a (hypothetical) situation without a lower limit (Adam and Billi, 2006), and that hesitation in using the interest rate instrument, e.g. in order to retain the option of further cuts later on, is certainly not to be recommended in those circumstances.

In regard to the lower limit, it must be said that in theory the limit is zero, but in practice allowance must be made for the fact that a very low interest rate can be damaging to the profitability of banks and other financial institutions, with implications for the transmission of the monetary policy impulse and for financial stability. One of the factors at work here is that the banks pay rates which are below the key interest rate on their customers' deposits. Once those interest rates have reached zero – i.e. before the key policy rate does so – if the monetary policy is eased further, that either squeezes the banks' interest rate margin or means that the additional monetary policy impulse is no longer passed on in full in lending rates. The consequences have to be weighed against the fact that a further easing, via the improvement in the macroeconomic situation which in principle results, generates positive feedback effects on the profitability of the financial sector. In practice, central banks seem to adopt very low but nonetheless strictly positive key interest rates in exceptional circumstances[1].

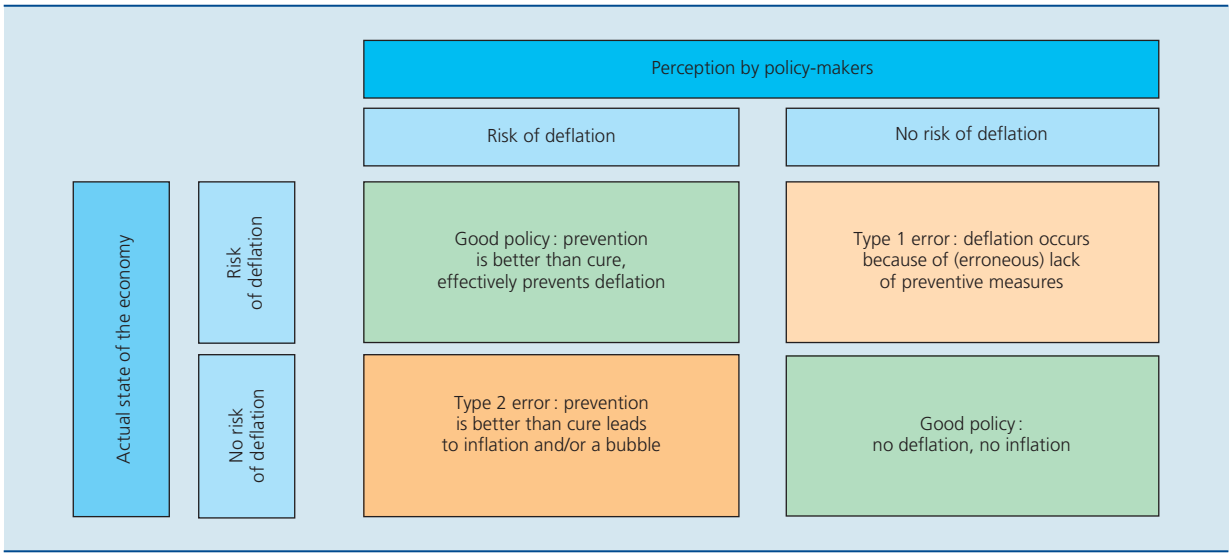
In addition to cutting the key interest rate, central banks can also take unconventional monetary policy measures, as they have done in the past few months. The recent unconventional monetary policy measures were taken for three reasons, which will be briefly explained below. First, additional liquidity was provided in order to ensure financial stability, in other words, central banks have definitely fulfilled their role as lender of last resort during the financial crisis. Second, some of these measures were aimed at restoring the smooth operation of the money market, the interbank market and other segments of the credit markets, so that the monetary transmission mechanism could continue to work as efficiently as possible. Third, certain measures were motivated by the fact that in some economies the key interest rate had been reduced very close to the absolute lower limit. For, once that rate reaches its lower limit, monetary policy is not powerless against persistent deflationary pressure. In such circumstances, the focus of monetary policy may shift from the traditional instrument, namely the short-term interest rate, to other aspects of monetary policy such as the quantity of base money, the size and structure of the central bank balance sheet, and the steering of longer-term interest rates. However, it must be noted that not all of the recent additional measures were expressly related to the risk of deflation, as such a link is less evident for measures in the first and second category. Nevertheless, they also contribute, at least indirectly, towards reducing the risks of deflation.

Apart from monetary policy, fiscal policy can also help to limit deflationary risks. If deflationary periods are accompanied by risks to financial stability – which is often the case – it is crucial to tackle the banks' solvency problems without delay. One of the lessons which can be drawn from the Japanese stagnation in the 1990s and 2000s is that hesitation in that respect prolongs the crisis. In addition, fiscal policy can provide macroeconomic stimuli, either via the automatic stabilisers or via additional discretionary action plans. For the fiscal policy to succeed, it must focus as far as possible on measures with the biggest multiplier. Moreover, it is also necessary to ensure that public finances are sustainable in the long term, otherwise there will be Ricardian effects which impair the efficiency of fiscal policy. This policy therefore cannot be implemented without constraints. The fiscal policy adopted in the EU Member States and in the United States is discussed in detail in another article in this issue of the Economic Review.

Since deflation often sets in totally unexpectedly and it is not easy to distinguish between, on the one hand, a sharp growth slowdown or recession forming part of a more or less normal, albeit very pronounced, economic cycle and, on the other hand, a recession which may trigger a deflationary spiral, policy in practice faces the difficult challenge of correctly assessing the situation at a very early stage in "real time" – i.e. on the basis of the data available at the time of the policy decision – and then implementing the appropriate policy response. In view of this real time character of the decisions, both type 1 and type 2 type errors (terms borrowed from statistics) can be made. In this context, a type 1 error occurs if the policy is not aimed at avoiding deflation, whereas there is a real danger of deflation. In that case, it is very likely that deflation will actually occur as a result of the underestimation of the deflation risk and the inadequate policy response. A type 2 error consists in conducting a decidedly anti-deflationary policy whereas in reality there is no real risk of deflation. The result in that case will be that

(1) An exeption in this respect is the Swedish central bank. It cut its main policy rate to 0.25 p.c. on 8 July, but, as the difference between the interest rates for the marginal lending facility and the deposit facility was kept constant, the interest rate for the deposit facility was lowered to –0.25 p.c.

CHART 8 COMPLEXITY OF CONDUCTING POLICY IN "REAL TIME"



an over-accommodating policy fuels inflation and/or the development of a bubble. At a later stage, the bursting of the bubble may then present major challenges for policy, and perhaps even deflation risks. A type 1 error is generally regarded as worse, owing to the considerable costs in terms of prosperity resulting from a period of deflation. Therefore, type 2 errors can be regarded as payment of an insurance premium against type 1 errors. However, in some cases the cost of that insurance premium may be very high, because type 2 errors can also have substantial implications. In retrospect, it could be argued that monetary policy in the United States in 2003-2004 overestimated the risk of deflation so that the policy pursued was too expansionary, and may have contributed to the development of a bubble on the housing and credit markets. The bursting of that bubble was in turn among the reasons for the current economic problems.

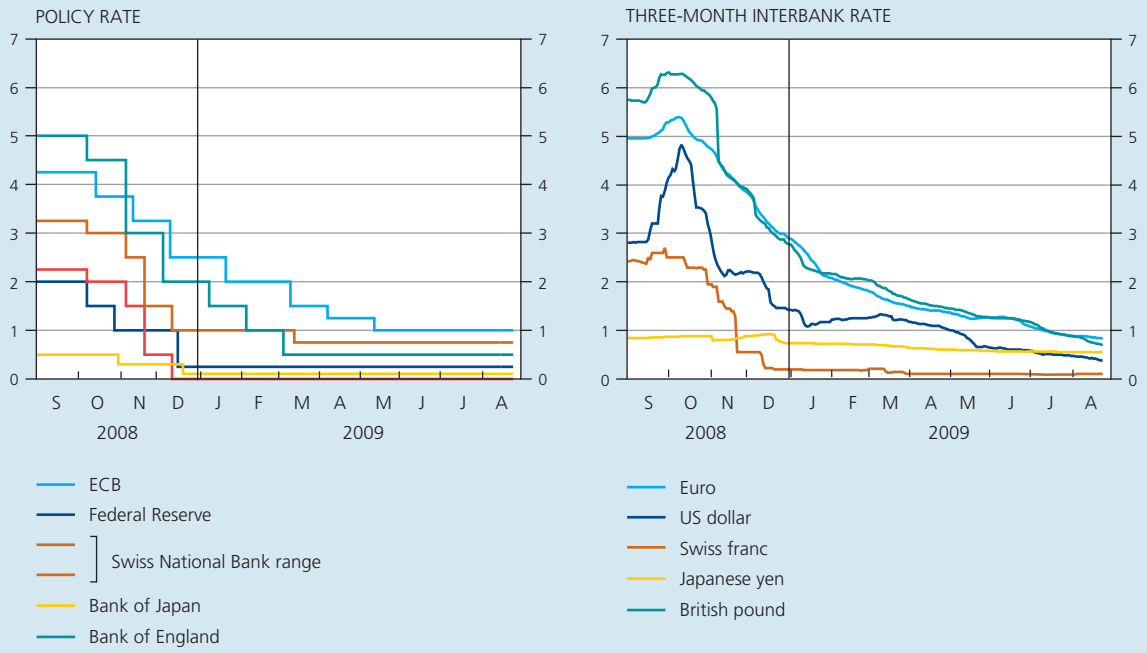
This makes it more complicated to conduct policy, not least when it comes to following the advice: "prevention is better than cure".

An outline of the monetary policy pursued from September 2008

In September 2008, when the financial turbulence developed into a full-blown financial and economic crisis with a significant impact on the real economy, all the leading central banks decided to make substantial cuts in their key interest rates, taking account of the downward pressure on inflation. At the beginning of October, the first cuts were coordinated; thereafter, the respective central banks reduced their key interest rates as the negative demand shock intensified and the (expected) pressure on prices weakened. The cumulative interest rate cuts in the individual countries and their rapid succession indicate that all central banks opted for a very marked easing of monetary policy in order to achieve their respective goals and thus reduce the risk of deflation. The differences between the respective economies in terms of key interest rate responses are generally greater than the differences in money market rates, which are more relevant for transmission to the economy. For instance, the British key interest rate is well below that in the euro area. However, the three-month Euribor is at roughly the same level as the three-month Libor. If the euro area is compared with the US, the difference is also smaller for the three-month money market rate than for the key interest rate.

Since the eruption of the financial crisis, most central banks have supplemented these sharp interest rate cuts with unconventional measures. Some of them, such as the provision of liquidity for the purpose of safeguarding financial stability, were implemented regardless of the level of the key interest rate. However, other measures were explicitly designed to ensure further easing of monetary policy. In practice, this means that the central bank tries to steer the real market interest rates – possibly even the longer-term rate – downwards by influencing spreads or by maintaining or creating sufficiently positive inflation expectations. Below is a brief outline of these unconventional measures, though it does not aim to be exhaustive since that would be beyond the scope of this article. It seems useful here to divide them into six main categories,

CHART 9 SHORT-TERM INTEREST RATES



Source : Thomson Reuters Datastream.

but in the literature slightly different classifications are sometimes used.

Since the start of the financial turbulence in July 2007, virtually all central banks began by stepping up the provision of liquidity. To that end, a wider range of counterparties were admitted to the refinancing transactions, the respective central banks provided liquidity in foreign currencies, and/or adjustments were made to the way in which the requested liquidity was allocated. In addition, most central banks increasingly provided longer-term liquidity, and the eligible collateral was expanded. This more ample provision of liquidity was intended mainly to ensure that liquidity shortages in individual institutions, in the event of a non-functional interbank market, were not converted into solvency risks, increasing the systemic risk. They also reduced the uncertainty over the borrowing requirements of the financial institutions, and helped to compensate for the lower money and credit multipliers, possibly with a supporting effect on the lending of these institutions. Thus, apart from a pure financial stability motive, there was also to some degree an inherent monetary policy aspect.

Quantitative easing, for its part, focuses on the liabilities side of the central bank balance sheet, and in particular on the banks' reserves. The deliberate expansion of banks' reserves via open market operations, e.g. by the purchase of government paper, should in principle lead to more lending and the holding of riskier assets, and should maintain or revive sufficiently high inflation expectations. Only the Bank of Japan has explicitly applied quantitative easing in recent times, namely between March 2001 and March 2006. Despite the fact that base money grew by around 70 p.c. during that period, the effect on inflation expectations was negligible. Svensson (2009) attributes this to a central bank's inability to create the credible expectation of a permanent expansion of the money supply and thus have a positive effect on the expected price level, as there is nothing to prevent the central bank from cutting the money supply back in the future. Many of the measures taken nowadays – such as more ample provision of liquidity – in practice lead to an expansion of the central bank balance sheet and in many cases also to an increase in the quantity of base money, but are nevertheless not, or at least not so explicitly, classed as quantitative easing because they focus more on the assets side of the central bank balance sheet. Moreover, in the specific case of the Eurosystem, it should be noted that there is no target at all for the volume of reserves or base money – an essential feature of quantitative easing –, since the volume of the reserves held by banks with the Eurosystem is driven entirely by demand from the banks, and not actively steered towards a particular level by the

TABLE 1 UNCONVENTIONAL MONETARY POLICY

	Eurosystem	Federal Reserve	Bank of Japan	Bank of England	Swiss National Bank
Ample provision of liquidity	X	X	X	X	X
Quantitative easing			X (until March 2006)		
Credit easing					
Government bonds		X	X	X	
Private debt instruments	X	X	X	X	X
Communication on the future path of interest rates		X			
Exchange rate					X
Price-level targeting					

Eurosystem. The unconventional measures taken by the Eurosystem are discussed in more detail in box 3.

The measures focusing on the assets side of the central bank balance sheet are often referred to as credit easing, a term which was first used by Bernanke (2009). In the case of credit easing, the emphasis is more on the qualitative changes to the central bank balance sheet, rather than simply the fact that most of these measures also lead to its enlargement. Credit easing generally refers to the purchase of assets such as debt instruments issued by the private sector or the government, where the main aim is to create more favourable financing conditions in the economy and/or to restore the operation of certain credit market segments which were hard hit by the crisis. While the purchase of private sector debt instruments is intended mainly to ensure liquidity on a particular market segment and exert downward pressure on the spreads for those assets, the purchase of government paper is designed to flatten the (risk-free) yield curve. Both contribute to a reduction in spreads and the maintenance or creation of positive inflation expectations, so that real financing conditions remain sufficiently expansionary. The latest unconventional monetary policy measures approved by the ECB Governing Council at its meetings on 7 May and 4 June also fall into this category.

Another way of flattening the yield curve is to offer information on the future interest rate path, and more specifically by making an announcement, as soon as the key interest rate has reached its lower limit, stating that it will remain at a very low level for a long period. Some central banks, such as the Swedish and the Norwegian Central Bank, systematically publish their future interest rate path, even under more normal conditions. However, the big central banks do not do that. The Federal Reserve alone announced in December 2008, after it had reduced its key interest rate to 0.25 p.c., that it would maintain that rate at a very low level *"for some time"*.

In an open economy, a policy aimed at exchange rate depreciation may ease monetary conditions and help to create positive inflation expectations[1]. Up to now, only the Swiss central bank has opted for such a policy, namely by announcing on 12 March this year that it would counteract any further appreciation of the Swiss franc against the euro. It is not by chance that the central bank in question is that of a small, open economy. Of course, in view of the synchronised, global character of the current crisis, this instrument can hardly be viewed as efficient, because it is not possible for all currencies to depreciate at the same time. Moreover, such a policy can be seen as exporting domestic problems (*"beggar thy neighbour"*) and therefore unleashing a protectionist backlash, which can only exacerbate the crisis.

Finally, the literature often says that aiming at a clear target for the price level, rather than for annual inflation, can provide better protection for the economy against a deflationary spiral. If such a target for the future price level is credible, then a fall in today's price level caused by a strong negative demand shock automatically implies an increase in inflation expectations, generating downward pressure on the real interest rate. In that way, an automatic stabiliser is triggered. Aiming at a target for the price level is equivalent to aiming at a target for average inflation calculated over a fairly long period, such as five years. While

(1) Some economists claim that this is the most efficient way of creating positive inflation expectations (Svensson, 2009).

the greater stabilisation potential of such a strategy is clear from model simulations, it has not yet been applied by any of the large central banks. Moreover, Walsh (2009) argues that it seems unadvisable to switch to price-level targeting in a crisis. One of the reasons is that, if this switch is made when deflation becomes a threat, the new strategy will presumably lack the necessary credibility.

The degree to which the various central banks have gone down the road of unconventional measures, and the type of measures chosen, depend on various factors. It is beyond the scope of this article to describe them all, so we confine ourselves here to briefly listing the most important. Of course, the macroeconomic situation of the respective national economies is one of the principal determinants, and it can be assumed that a higher risk of deflation generally leads to a more pronounced monetary policy response. The structural characteristics of the various economies also have an influence, primarily on the choice of measures. For instance, up to now the Eurosystem has made exclusive use of the bank transmission channel, precisely because the euro area economy is financed mainly via the banks. In contrast, in the United States and in the United Kingdom, monetary policy focused relatively more on certain financial market segments, because direct financing of the economy via the market is far more significant there. Finally, policy-makers' preferences may vary, especially in regard to avoiding type 1 and type 2 errors respectively, and that may have had an impact on the policies eventually chosen.

Box 3 – The Eurosystem's unconventional monetary policy measures

As soon as the financial crisis worsened in September 2008, the Eurosystem took a series of unconventional policy measures which are still in force today. Since 15 October, liquidity has been provided at a fixed rate of interest with full allotment, so that the banks' demand for reserves is accommodated in full. In addition, a larger percentage of the liquidity is provided over a fairly long term. To that end, refinancing operations with terms of one reserve maintenance period (roughly one month) and six months were introduced, in addition to the existing long-term operations with a maturity of three months. Furthermore, the banks can obtain liquidity from the Eurosystem in US dollars and in Swiss francs, while euros are made available to a number of other central banks in order to enable them to provide their counterparties with liquidity in euros. Finally, in view of the strong expansion of the provision of liquidity, the list of eligible collateral was temporarily extended. In the case of most of these measures, it was also announced at an early stage that they would remain in force at least until the end of 2009.

One of the main implications of these measures was the creation of a liquidity surplus at the level of the consolidated banking sector, a surplus which was stored at a penalty interest rate in the Eurosystem's deposit facility. This generated strong downward pressure on the overnight interest rate. Thus, during that period, the EONIA deviated significantly from the central policy rate, while the provision of liquidity had previously been intended specifically to keep the EONIA stable at close to that rate. This made it possible to neutralise part of the increased premiums in the term interest rates in the non-guaranteed segment of the money market, which are the relevant ones for the transmission of monetary policy.

In the light of the persistent downside risks to price stability, the ECB Governing Council decided on three supplementary measures on 7 May and 4 June.

First, the European Investment Bank (EIB) was recognised as an eligible counterparty for the Eurosystem's refinancing operations. The ultimate aim of this measure is to support lending to small and medium-sized enterprises (SMEs), because this measure should help the EIB to satisfy additional demand for loans totalling an estimated 10 billion, which – in view of the usual leverage in this type of loan – could lead to a total expansion of 40 billion in the volume of lending to SMEs.

Second, it was also decided to conduct longer-term refinancing operations with a maturity of twelve months in June, September and December 2009. Not only will these supplementary refinancing operations give a further boost to structural liquidity, offering the banks additional comfort, but they will also help to flatten the yield curve

on the money market. These operations are also conducted at a fixed rate with full allotment. While it was decided to conduct the June and September operations at the key policy rate, which then stood at 1 p.c., a premium may be added to the prevailing key interest rate at the time of the December operation. To maintain consistency between the various measures, it was also decided to extend the list of eligible collateral until December 2010, precisely the month in which the December 2009 twelve-month refinancing operation will mature.

Third, it was decided to buy a portfolio of covered bonds for the sum of 60 billion. These purchases will be spread over the period July 2009 – June 2010 and will be conducted on both the primary and the secondary market. There are two reasons for specifically choosing covered bonds. First, these bonds are issued mainly by banks. By increasing liquidity in this market segment, which was hard hit by the financial crisis, and lowering the spreads in relation to the risk-free interest rate, an attempt is therefore being made to improve the long-term financing of the banks and thus support lending to the non-bank sector. Furthermore, the banking sector is also the main holder of covered bonds, so that the purchases on the secondary market will also provide additional liquidity for the banks, or at least enable them to reduce their leverage without squeezing the volume of lending to households and businesses. Thus, the supplementary easing of monetary policy is still clearly aimed at the bank transmission channel, which is important for the euro area. Second, covered bonds have a low risk profile, because the holder has a dual claim : a claim on the issuer of the covered bond (often a bank) and – if the issuer defaults – a claim on a pool of underlying assets (often mortgage loans or loans to the government) which the issuer must hold in order to cover the bond. This ensures that the risk incurred by the Eurosystem in buying these instruments remains manageable.

Conclusions

Since September 2008, in both the euro area and most developed economies, there have been unmistakeable signs of an increased *ex ante* risk of bad deflation. In the past, a negative demand shock which originates partly from, but is also reinforced by, a financial crisis and which is preceded by the bursting of a bubble affecting various asset prices has quite often led to deflation. However, prompt, accurate assessment of this increased risk of deflation has led the policy-makers to conduct a decidedly expansionary policy. The measures to support the banks, the recovery plans of the various governments, and the interest rate cuts supplemented by unconventional measures on the part of central banks throughout the world have significantly reduced the deflation risk. Such a resolute policy response is in stark contrast to what happened at the time of the Great Depression. This has ensured that inflation expectations remain positive and to a large extent anchored. In that regard, the analysis has focused on the euro area (and where possible on Belgium) and shown that the current situation of (slightly) negative inflation will in all probability be short-lived. Low but nonetheless definitely positive inflation is then likely to ensue. The baseline scenario therefore does not assume deflation and recently indicators have increasingly become available showing that the freefall of the economy has come to a standstill.

Yet monetary policy faces two major challenges for the immediate future.

First, it is absolutely essential to ensure that the price falls reflected in the inflation figures for the summer months are not incorporated in expectations concerning the pattern of the general price level, thus increasing the risk of a deflationary spiral. It is therefore vital to make clear and credible statements about the inflation analysis. This article has attempted to make a contribution here. More particularly, it stresses that the sharp fall in inflation during recent months does not point to bad deflation, but to negative inflation resulting from relative price adjustments, and that there are no widespread price reductions taking place at present. This sharp fall, resulting in negative values during the summer of 2009, is due mainly to the decline in the crude oil price at the end of last year, which in itself is a factor bolstering the purchasing power of the oil-importing economies, and therefore can hardly be seen as a mechanism triggering a bad deflationary spiral. The Eurosystem's monetary policy strategy comprises all the ingredients for addressing this communication challenge. The quantitative definition of price stability does not only provide a clear anchor for inflation expectations. Its explicit medium-term orientation also indicates that temporary deviations from the inflation level corresponding to price stability – in either direction – are less relevant from the point of view of monetary policy.

Second, monetary policy must remain vigilant in order to avoid the type 1 and type 2 errors described in this article, as there is unusually great uncertainty over the macroeconomic outlook at present, including inflation expectations in both the short and medium term.

On the one hand, it is not possible to state with any certainty that the deflation risk has definitely faded, since there are still risks of a contraction in activity. More specifically, there is still a possibility that, following an initial recovery, the economy will contract again once the – in principle short-term – support provided by the rebuilding of stocks and the fiscal policy stimuli ceases to apply, or that the recovery takes longer than expected to materialise, e.g. owing to persistent problems in the banking sector. In both cases, there will be additional downward pressure on inflation, and further monetary policy easing may be desirable. In this connection, the ECB Governing Council has indicated that the key interest rate, at 1 p.c., has not necessarily reached its lowest level, although during the summer months that level was deemed appropriate in view of the general macroeconomic situation.

On the other hand, there is also the risk that the massive monetary stimuli of recent months may not be removed sufficiently promptly, certainly if the economy picks up faster than expected. The change of direction evident in most economic indicators and commodity prices in recent months naturally requires close monitoring in this respect.

Bibliography

Adam K. and R. Billi (2006), "Optimal monetary policy under commitment with a zero bound on nominal interest rates", *Journal of Money, Credit and Banking,* vol. 38(7), 1877-1905, October.

Ahearne A., J. Gagnon, J. Haltmaier and S. Kamin (2002), *Preventing deflation: Lessons from Japan's experience in the 1990s*, International Finance Discussion Papers 729, Board of Governors of the Federal Reserve System, June.

Aucremanne L., M. Collin and T. Stragier (2007), *Assessing the gap between observed and perceived inflation in the euro area: Is the credibility of the HICP at stake?*, NBB, working paper 112.

Bernanke B. (2002), *Deflation – Making sure "it" doesn't happen here*, Lecture at the National Economists Club, Washington, November.

Bernanke B. (2009), *The crisis and the policy response*, The Stamp Lecture, January.

Bini Smaghi L. (2008), *Careful with (the "d") words!*, Lecture for the European Colloquia Series, Venezia, November.

Bordo M. and A. Filardo (2005), *Deflation in a historical perspective*, BIS, working paper 186.

Borio C. and A. Filardo (2004), *Back to the future? Assessing the deflation record*, BIS, working paper 152.

Buiter W. (2003), *Should we worry about deflation? Prevention and cure*, McKenna Lecture on International Trade and Economics, November.

Coenen G. (2003), *Zero lower bound – Is it a problem with the euro area?*, ECB, working paper 269.

Decressin J. and D. Laxton (2009), *Gauging risks for deflation*, IMF, Staff position note, January.

De Grauwe P. (2009), *Flexibility gives way to rigidity's virtues*, FT column, 22 February.

Duarte C. (2008), *A sectoral perspective on nominal and real wage rigidity in Portugal*, Bank of Portugal Economic Bulletin, vol.14(3), autumn.

Du Caju P., C. Fuss and L. Wintr (2007), *Downward wage rigidity for different workers and firms, an evaluation for Belgium using the IWFP procedure*, ECB, working paper 870.

Fehr E. and L. Goette (2005), "Robustness and real consequences of nominal wage rigidity", *Journal of Monetary Economics*, vol. 52(4), May, 779-804.

Gerlach S. (2009), "The risk of deflation", in Macroeconomic Stability and Financial Regulation: *Key issues for the G20*, CEPR.

Groth C. and P. Westaway (2003), *Deflation*, Bank of England Inflation Report, February.

IMF (2003), *Deflation: Determinants, Risks, and Policy Options*, April.

Instituut voor de nationale rekeningen (2009), *Analyse van de prijzen: tweede kwartaalverslag.*

Ito T. (2009), "Zero interest rate policy (ZIRP) and quantitative easing (QE)", in Macroeconomic Stability and Financial Regulation: *Key issues for the G20*, CEPR.

Jarocinski M. and F. Smets (2008), *House prices and the stance of monetary policy*, Federal Reserve Bank of St. Louis Review, July, 339-366.

King M. (1994), "Debt deflation : theory and evidence", *European Economic Review*, vol. 38, 419-45.

NBB (2009), Annual Report 2008 : Economic and financial developments.

Orphanides A. (2009), *The international financial turmoil and the economy*, Lecture at the Institute of Certified Public Accountants, January.

Svensson L. E. O. (2003), "Escaping from a liquidity trap and deflation : The foolproof way and others". *Journal of Economic Perspectives* 17 (4), 145-166.

Taylor J.B. (2009), *The financial crisis and the policy responses : An empirical analysis of what went wrong*, NBER, working paper 14631, January.

Walsh C. (2009), *Using monetary policy to stabilise economic activity*, Lecture at the Jackson Hole Symposium on Financial Stability and Macroeconomic Policy, July.

White E. (1990), " The stock market boom and crash of 1929 revisited", *Journal of Economic Perspectives*, vol. 4(2), 67-83.

White W. (2006), *Is price stability enough ?*, BIS, working paper 205.

Regulation and competition in the distribution sector in Belgium

V. Baugnet
D. Cornille
E. Dhyne
B. Robert

Introduction

The distribution sector or trade sector – the two terms are used synonymously in this article – is a key stakeholder in developed economies. In 2007, the trade branches as a whole – automobile, wholesale and retail – accounted for 13.1 p.c. of value added in Belgium, and 14.1 p.c. of total employment. Over and above its direct weight in the economy, the distribution sector is an essential element because of its role as an ultimate channel through which all final consumption goods, the main component of domestic expenditure, have to pass.

Just like other major branches of the economy, over the last few decades, the trade sector has seen – and is still going through – radical changes linked to globalisation and technological advance. The most important developments are the concentration of retail trade, its integration with the wholesale trade, the internationalisation of the large retail groups' business and the incorporation of ICT, which is leading to a reorganisation of modes of distribution.

This article seeks to outline the situation of the distribution sector in Belgium, with particular emphasis on the impact of regulation. The regulatory burden is being closely monitored by the IMF as well as the OECD and its weight in Europe, and particularly in Belgium, is often singled out for criticism. According to both these institutions, greater flexibility in the rules in force in the sector should help to stimulate activity and employment. Referring to the example of the United States, the arguments put forward are that this kind of deregulation policy would lead to an increase in employment in the sector, notably among low-skilled workers, while also boosting productivity growth. The trade sector does actually appear to be one of the reasons for Europe's lagging behind in potential output growth, notably because of a less advanced integration of ICT into the structure of distribution channels. By reducing barriers to entry, deregulation would also bring about greater competition, as well as having a positive impact on productivity, and, consequently, exert a downward influence on price levels and inflation.

The article analyses these issues by comparing as far as possible Belgium's performance with that of neighbouring countries. The first chapter deals with the regulatory burden. This issue is tackled by using existing international indicators on this subject, as well as by reviewing the main legislation governing retail trade in Belgium. Chapter 2 gives a detailed analysis of the level and growth of productivity in the trade sector in Belgium over the last few years. By determining conditions for market access and carrying out a commercial activity, the regulatory framework also has some influence on the market structure, on the type of shops there are and, ultimately, on the degree of competition. Furthermore, productivity and the degree of competition tend to interact, not least because a higher level of competition within the sector forces companies to be more productive in order to survive or leads to the disappearance of the least productive firms. Market structure and competition-related aspects are addressed in chapter 3, which deals specifically with the food retailing subsector. Chapter 4 looks at the impact of competition on prices in Belgium and neighbouring countries. The main

lessons to be drawn from the analysis are summed up in the conclusion. The final part of the article also touches on the economic policy implications.

1. Regulation

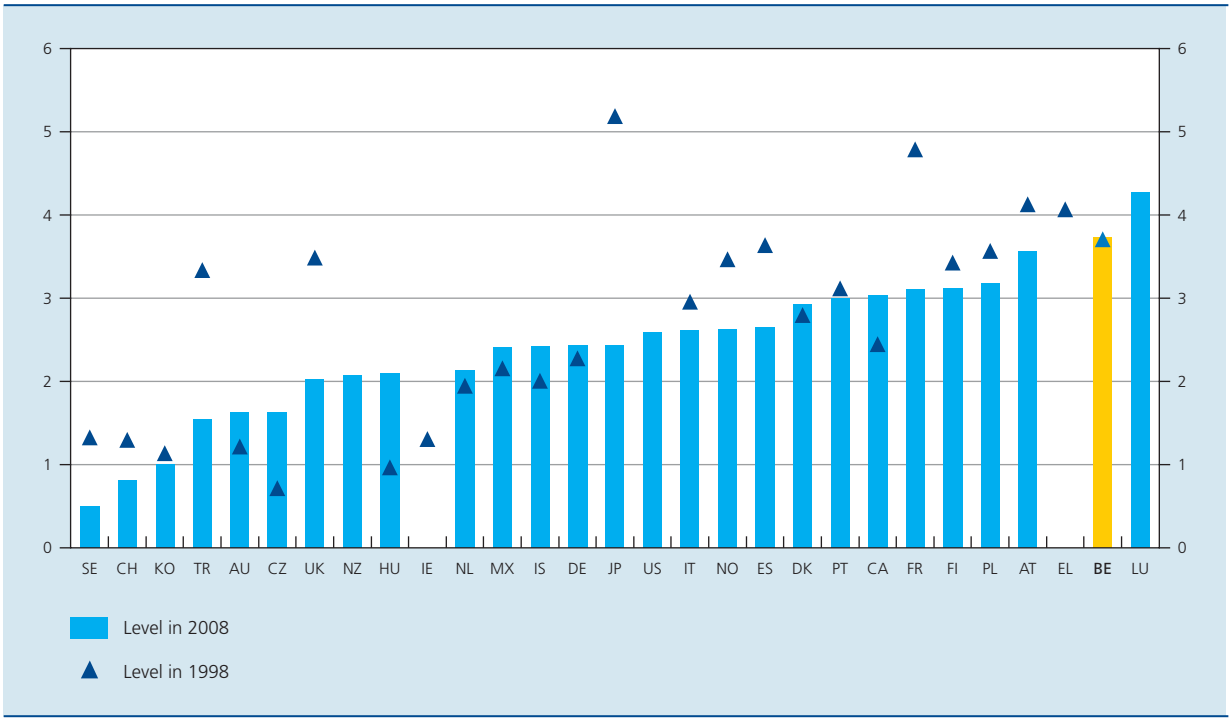
To get an idea of the degree of regulation in an economy or a specific sector, one possible approach is to refer to summary indicators. These indicators aim to translate the main aspects of a piece of legislation in force into "scores", which makes it easier to assess the more or less restrictive nature of the law. These indicators have the advantage of being comparable internationally and possibly over time as well. The most frequently used indicator in this field is certainly the Product Market Regulation (PMR) indicator calculated by the OECD which enables the regulatory burden to be measured for the economy as a whole. A sub-set of questions concerns retail trade, a sector for which a specific regulation indicator is established according to the detailed methodology set out in box 1. In order to carry out a more in-depth analysis, and given the limitations affecting this type of summary indicator, it is worth examining these yardsticks in light of the main laws in force in the retail trade sector.

According to the PMR indicators, Belgium had the second most binding regulation in retail trade out of the twenty-seven countries examined by the OECD in 2008, second only to Luxembourg. With an overall score of 3.7 on a scale of 0 to 6, Belgium thus ranks above the three main neighbouring countries, whose scores ranged from 2.1 for the Netherlands to 3.1 for France, with Germany in the middle at 2.4. Generally speaking, the countries where the retail trade sector is the least regulated are not members of the EU, with the exception of Sweden which has the lowest score of just 0.5.

Over the years, Belgium's overall score has remained below 4, fluctuating between 3.7 in 1998 and 3.9 in 2003 and back down to 3.7 in 2008. At the same time, its ranking has gradually worsened compared with the other countries examined by the OECD, moving up from fifth to second place in the space of ten years. The analysis of intermediary indicators, which cover barriers to market entry, operational restrictions and price controls in particular, suggests that this overall trend breaks down into a deterioration as regards barriers to entry – especially when it comes to rules governing the establishment of large outlets – and some improvement with price controls, although this point is still given less weight in the summary index. It should also

CHART 1 REGULATION INDICATORS IN RETAIL TRADE [1]

(scale of 0 to 6, with a higher score indicating tighter regulation)



Source : OECD (Product Market Regulation summary indicators).
(1) Including automobile trade.

be noted that, in the areas where the Belgian score has held steady over the last ten years, Belgium's position has shown some deterioration vis-à-vis the other countries. Even though some regulatory provisions in the retail trade sector have not been amended in our country, they have turned out to be more and more restrictive compared with the measures to relax the regulatory framework put in place in other countries.

Box 1 – Methodology for the OECD indicators of retail trade regulation

Since the end of the 1990s, the OECD has built up a system of indicators aimed at measuring regulatory trends on product markets in the euro area countries. These indicators are used in particular for identifying economic policy priorities in the framework of the Growth Strategy the Paris-based institution has developed.

The indicators are either calculated for the economy as a whole, or for specific sectors, on the basis of qualitative information collected from the different states, and then normalised over a scale of 0 to 6. A higher score is taken to mean tighter regulation. The PMR indicator is constructed as a pyramid, aggregating the answers to the basic questions by levels corresponding to various themes, to eventually arrive at a summary indicator.

The OECD indicator for the retail trade sector is based on six detailed indicators, grouping together one or more questions, relating to:

1. registration in the commercial register (for the sale of food products);
2. licences or permits needed to engage in commercial activity (for the sale of food products);
3. specific regulation of large outlets (minimum surface area from which it applies);
4. protection of existing firms;
5. opening hours (whether there is any regulation or not and, subsidiarily, whether it is of a national or local nature);
6. price controls (questions sub-divided per product category).

At an intermediary level, three themes are singled out, which summarise each time the six above-mentioned basic indicators, using a different weighting resulting from a factor analysis. However, the score in each of these three themes depends excessively on certain of these basic indicators, so, by simplification, each of the indicators can first be associated with a specific theme:

– barriers to entry (0.42): mainly indicators 1, 2 and 3;
– operational restrictions (0.34): mainly indicators 4 and 5;
– price controls (0.24): mainly indicator 6.

Finally, the summary retail trade indicator is obtained from the weighted average of the six basic indicators, again using a different weighting. Alternatively, it can be taken as a weighted average of the scores of the three intermediary themes, which give a relatively greater weight to entry barriers and a smaller weight to price controls, as shown by the figures given in brackets above.

The OECD publishes these indicators at five-year intervals. An update for 2008 was published in February 2009, so that a chronological analysis is now possible on a relatively harmonised basis for the years 1998, 2003 and 2008.

While the simplicity of this indicator is undoubtedly an asset, it also shows up its limitations. The criteria selected can sometimes actually give a narrow view of reality; the questions often call for blunt binary answers (yes/no). The findings of this indicator therefore need to be put into perspective, by looking into the legislation in force in Belgium. Moreover, the OECD indicator provides an interesting analytical framework for this exercise, as its very structure enables it to take into account the three laws that are the most frequently cited as potential sources of barriers to retail trade, such as rules for setting up new shops, opening hours and days, and business practices, the latter covering a wide range of provisions (price controls, sales, joint sales, etc.).

Among the three intermediary themes, Belgium's score on barriers to entry rose steadily from 2.6 to 3.4 between 1998 and 2008. The specific regulations governing large outlets are the main reason behind this deterioration, since the rules on establishment of hypermarkets are often regarded as one of the main barriers to entry into the distribution sector. These rules potentially target several objectives: land use planning, environmental protection by avoiding massive traffic flows towards the big commercial centres located on the outskirts of towns, protection of small retailers, etc. At the same time, these provisions can have a harmful impact of limiting economies of scale, protecting existing firms from competition from new entrants and hold up modernisation of the sector.

Since March 2005, the establishment of new hypermarkets in Belgium has come under the scope of the so-called "Ikea" Law[(1)], which replaced the "*loi cadenas*" dating from 1975. The "Ikea" Law aimed to facilitate such establishments, by simplifying and speeding up the decision-making procedure, while also widening the scope for applicants to appeal. The most striking feature of this law has been a shift in the decision-making centre from the national to the local level. The law makes provision for three scenarios:

- for a (limited) extension or a (nearby) relocation of an existing shop, notifying the municipality authority is sufficient;
- for the establishment of new retail outlets with a commercial surface of between 400 and 1,000 m^2, the College of mayors and aldermen must reach a decision within 50 days;
- for the establishment of new retail outlets with a commercial surface exceeding 1,000 m^2, the College also has to ask for the prior opinion of the national Socio-Economic Committee for the Retail Sector (CSEND) – which brings the time-limit for a decision up to 70 days –, but this opinion is not binding, as it was before. For retail outlets of more than 2,000 m^2, the neighbouring municipalities must also be informed so that their observations can be made.

So, all in all, the time limit for reaching a decision is a maximum of 70 days. In all cases, the decision is assumed to be favourable if the statutory response period is exceeded.

Although some of the "Ikea" Law's provisions are still open to criticism, notably the participation in CSEND of the parties involved (see below), there is no doubt that the legislation has made it easier to establish new large retail outlets than previously. In practice, since 2005, most requests for setting up commercial establishments have gained the go-ahead. In its 2005 country survey, the OECD had given a positive opinion of the new law, reckoning that it reduced barriers to entry for large outlets, by making the authorisation procedure more transparent and by cutting by half the statutory response period.

This improvement is not reflected in the PMR indicators. Instead, Belgium's score got worse between 2003 and 2008, owing to the fact that the sole criterion used by the OECD concerns the retail floor space above which the regulatory requirements apply and this surface area was lowered to 400 m^2 under the so-called "Ikea" Law.

Among the neighbouring countries, there is specific legislation governing new commercial establishments in both Luxembourg and France, and is just as restrictive according to the OECD criteria, since its application thresholds refer to comparable surface areas. On the other hand, the score obtained generally tends to be more favourable in countries where there is no specific legislation for large outlets, but where the establishment of shops is subject to general land use planning rules, which are sometimes quite strict. This, for instance, is the case in the Netherlands, a country where retail trade tends to be concentrated in the towns and where the presence of hypermarkets is unusual, but which nevertheless gets a score of zero, reflecting total deregulation, according to the OECD criteria. These examples show that the quantitative figures from the OECD indicators should be interpreted carefully, by putting them in their correct context.

It is for operational restrictions that Belgium gets its worst results, scoring a maximum of 6 for the two main basic indicators in this category. First of all, existing firms are considered to be protected, because, on the one hand, representatives of professional organisations are involved in the granting of authorisations and licences through their participation in the CSEND and, on the other hand, some products can only be sold by outlets that have a *de jure* monopoly, such as the sale of medicines in pharmacies, for example.

Another important criterion taken into consideration is legislation on shop opening hours. This is sensitive issue, as it touches on cultural aspects linked to life in society. From a purely theoretical point of view, the question can bring the various interest groups concerned (consumers, workers, enterprises) into conflict, and the likely impact can change from the short to long term. The main arguments put forward in favour of longer opening hours are greater convenience for the consumer, made all the more necessary by societal developments (such as increased participation of women in the labour market), greater

(1) Law of 13 August 2004 on the authorisation of commercial establishments.

TABLE 1 INDICATORS OF RETAIL TRADE REGULATION[1] IN BELGIUM

(scale of 0 to 6, with a higher score indicating tighter regulation[2])

	1998	2003	2008
1. Registration in commercial register	1.5	1.5	2.0
2. Licences or permits	2.0	2.0	2.0
3. Specific regulation of large outlets[3]	4.0	5.0	6.0
Barriers to entry	*2.6*	*2.9*	*3.4*
	(12)	*(8)*	*(6)*
		p.m. 2008 :	
		DE (2.1) – FR (2.6) – NL (2.1)	
4. Protection of existing firms	6.0	6.0	6.0
5. Opening hours and days[4]	6.0	6.0	6.0
Operational restrictions	*4.8*	*4.8*	*5.0*
	(5)	*(1)*	*(1)*
		p.m. 2008 :	
		DE (2.9) – FR (4.7) – NL (2.4)	
6. Price controls	4.0	4.0	2.0
Price controls	*4.0*	*4.1*	*2.6*
	(2)	*(2)*	*(5)*
		p.m. 2008 :	
		DE (2.4) – FR (1.7) – NL (1.8)	
Summary indicator	**3.7**	**3.9**	**3.7**
	(5)	**(3)**	**(2)**
		p.m. 2008 :	
		DE (2.4) – FR (3.1) – NL (2.1)	

Source : OECD (Product Market Regulation indicators).

(1) Including automobile trade.

(2) The figures in brackets indicate Belgium's position among a number of OECD countries varying from 26 to 29 depending on the indicators used and the years covered.

(3) Indicator based solely on the threshold floor area above which any regulatory requirements apply.

(4) Whether or not there are any national or regional/local regulations.

profitability for the shops, whether through faster depreciation of fixed costs or a higher turnover, and expanded activity, higher employment and lower prices at both sectoral level and in the economy as a whole. Opponents of extended opening hours, especially on Sundays, doubt that the anticipated benefits, and especially a significant increase in turnover, do actually materialise, and tend to emphasise the inconvenience for the workers, as well as the societal need for a common rest period away from all economic activity.

Research work attempting to assess the impact of experience in liberalising opening hours in some countries has tended to produce rather mixed results. Not surprisingly, the winners seems to be the consumers. Beyond that, the overall impact on prices appears to be modest : initially, there is an upward effect to cover the increase in operating costs, and also as a result of the potential rise in market power of surviving firms, after certain competitors cease trading ; and then a downward influence owing to the efficiency gains achieved and the arrival of new competitors on the market. Turnover and employment would tend to increase slightly, but the jobs created often offers less attractive work conditions. In Belgium, opening hours and days in retail trade are governed by a law adopted on 10 November 2006, which streamlined and updated the previous legislation from 1960 and 1973, without changing the main principles enshrined in these laws. As far as opening days are concerned, the principle is one day off a week, or more precisely a 24-hour period of uninterrupted closure starting on any day – normally but not necessarily Sunday – at 5 am or 1 pm. As for opening hours, the principle is authorised opening between 5 am and 8 pm from Monday to Thursday and on Saturdays, and until 9 pm on Fridays and on the eve of public holidays. Three kinds of derogations are possible : according to the type of outlet (transit points, newspaper sales points, motor fuel outlets, etc.), for exceptional circumstances (a maximum of 15 days a year), and in tourist areas.

The criterion taken into account by the OECD for establishing the PMR indicators is the existence of any regulation in this field and if it takes on a national dimension this is regarded as an aggravating factor. On this basis, Belgium gets a maximum score of 6, like many other countries, despite the actual range of opening hours. Thus, the United Kingdom, a country where opening hours are virtually unlimited but nevertheless governed by specific legislation, has also been given a maximum score. Conversely, Germany gets a lower score, owing to the fact that regulations on opening hours fall within the competence of the *Länder*.

In order to better assess the flexibility of rules on opening hours, their actual scope should be surveyed. Compared with the neighbouring countries, Belgium comes somewhere in the middle. Shops in Belgium are open more than they are in Germany, similar to opening hours in Luxembourg, albeit to a lesser extent than in the Netherlands (opening hours until 10 pm on weekdays and Saturdays), and especially in France and the United Kingdom, countries where the restrictions only concern Sundays. On the other hand, the shops in Belgium often opt on a voluntary basis for shorter opening hours than those allowed under the regulatory restrictions, something

which also tends to put their constraining nature into perspective. The collective labour agreements in force in the distribution sector probably play a part here.

The OECD 's 2007 country survey was quite positive about the Belgian law adopted in 2006, pointing up the simplification of the rules governing opening days and hours, as well as the extension of the potential number of Sunday openings. But once again, the improvement in the legislative framework is not reflected in the PMR indicator score, even though it is acknowledged by the OECD.

Finally, price controls make up the last axis for assessing regulation in retail trade. This is the only area in which Belgium has improved its score and its ranking, with the intermediary indicator coming down from 4.1 in 2003 to 2.6 in 2008, and Belgium itself dropping from 2nd to 5th place, thanks to the removal of price controls on bread and to the OECD's taking into account, no doubt mistakenly, a presumed easing of petrol price fixing. So, contrary to the impact of the "Ikea" Law or the regime governing opening hours, the PMR indicator score tends to overestimate somewhat the progress made in the field of price controls.

In Belgium, price controls are governed by the Law of 22 January 1945 on the economic regulation of prices, which also encompasses decrees fixing maximum prices, prior announcements of prices in regulated sectors, programme contracts, etc. A few other provisions affecting prices, such as labelling, discounts, seasonal sales, joint sales, closing-down sales, are covered by the Law on commercial practices, consumer information and consumer protection, the latest version of which dates from 1999. In Belgium, there are plenty of provisions in this area, not often found in the other countries.

With its basic indicator, the OECD first of all assesses whether any prices are fixed in absolute terms, then whether there are any such price controls for certain product categories, such as staple goods, petrol, tobacco, alcohol, medicines, other categories. The overall score thus goes up with the number of products whose prices are subject to controls. By counting two categories of products subject to price controls, including medicines (an area in which price liberalisation had already been covered by an IMF recommendation in December 2008), Belgium is ranked in the middle, rather nearer the top than the bottom. It forms part of a group of countries, along with Germany and the Netherlands, where drug prices are also regulated. Five countries have a higher score, among them Luxembourg which additionally has price controls on tobacco and petrol. Conversely, thirteen countries have a lower score, including France (tobacco), the United States (alcohol) and the United Kingdom (medicines), along with four countries that do not have any price controls, including Denmark and Sweden.

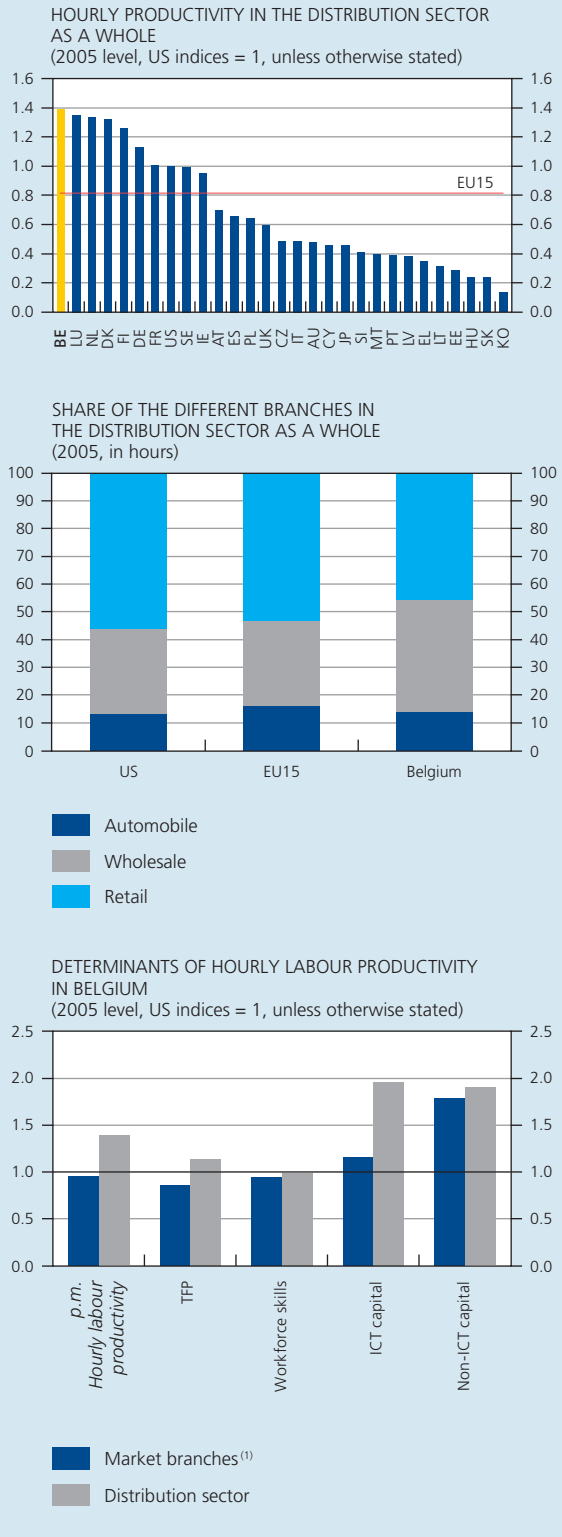
In all, and despite the need to perhaps take a critical look at the OECD's PMR indicators, it is worth noting that Belgium almost always has a score equal to or higher than that of its three main neighbours. This suggests that the retail trade regulatory framework is more restrictive there than elsewhere. Looking at the matter more closely, il appears that it is not so much the content of the legislative provisions as their actual existence, or even the sheer number of them, that leads to this view. When compared with the neighbouring countries, Belgium seems to suffer from a legislative inflation syndrome, whereby any commercial practice is regarded as being controlled by specific legislation. Although Belgian legislation has been reshaped slightly over the last ten years, largely as a result of the transposition of EU Directives, a genuine effort to simplify and streamline existing laws still needs to be made. This is an important point because the perception that the market players have of barriers to doing business is sometimes more of a determining factor than the actual level of these obstacles. If potential competitors get the impression that the Belgian regulations are excessively heavy, they will hesitate before committing themselves to moving into this market, while the stakeholders already present will feel as though they are protected against the arrival of new entrants. This situation *de facto* restricts competition and can give rise to inefficiencies.

2. Productivity

Having given an overview of the degree of regulation in the distribution sector in Belgium in the previous chapter, we shall now try to find out whether its relatively restrictive nature affects the performance of the sector in terms of business and productivity.

In order to do so, we draw on the EU KLEMS database, which provides statistics on economic activity and productivity for most EU countries, as well as for the United States, covering all the various branches of the economy, including distribution. Compiled using methods harmonised under the guidance of the EC, this database notably enables economic growth to be broken down according to the conventional determinants of growth accounting, labour, capital and total factor productivity. For this calculation, it has the peculiarity of measuring the contribution of capital by using an estimate of the services that it provides, rather than directly from the capital stock, while also distinguishing ICT capital from non-ICT capital. Likewise, the contribution of labour input is sub-divided

CHART 2 STRUCTURE AND LEVEL OF PRODUCTIVITY IN THE DISTRIBUTION SECTOR



Sources: EU KLEMS database, March 2008; GGDC database on productivity levels, September 2008.

(1) Per hour worked.

(2) All branches of activity in the economy, with the exception of NACE branches 70 (real estate) and 75-85 (public administration, education and health).

into two components, namely the volume of employment (hours worked) and workforce skills.

Among the countries covered by the EU KLEMS database, the Belgian distribution sector had the highest hourly labour productivity rate in 2005. This was almost 40 p.c. higher than the rate observed in the United States, and 70 p.c. above the EU15 level. Several EU Member States, most of which are neighbouring countries (the Netherlands, Luxembourg, Germany), recorded a higher level of productivity in the distribution sector than in the United States, with France in the same position as the latter.

The generally higher productivity level of the Belgian distribution sector is partly due to its structure, that is, Belgium's relative specialisation in the wholesale trade, which by its very nature is more productive than retail trade. Wholesale trade actually accounts for 40 p.c. of total trade in Belgium compared with a little more than 30 p.c. in the EU15 and the United States. This degree of specialisation reflects Belgium's vocation as a logistics centre for the Benelux and Western Europe. Moreover, the products that are the most important in the Belgian wholesale trade are the same as those in which the industrial sector is specialised: intermediary goods (chemicals and diamonds), machinery and equipment (construction and textiles) and non-food consumer goods (household electrical appliances, television and radio, and glass).

Furthermore, the findings obtained from annual accounts of companies show that the Belgian retail trade sector is among the most productive in the EU15. It is notably more productive than its German and Dutch counterparts, but a little less than the French retail sector.

As for the determinants, this higher productivity in the distribution sector in Belgium than in the United States is primarily evident in the extent to which two types of capital, ICT and non-ICT, are used and also in total factor productivity (TFP). While productivity in the Belgian economy as a whole is close to the rate recorded in the United States, performance appears quite outstanding in the distribution sector, notably because of the extent of ICT capital integrated into the production process.

While Belgium has undoubtedly posted some remarkable performance as regards the productivity level reached in the distribution sector, it is quite a different picture when one observes growth of activity and productivity recorded in recent years.

Belgian distribution has in fact featured among the least dynamic over the last ten years. Growth in real value added for the distribution as a whole averaged 1.1 p.c. a

year from 1995 to 2005, compared with 2.1 p.c. in the EU15 and 4.4 p.c. in the United States. This growth lag behind the United States and the EU15 is evident in all three sub-branches of the distribution sector. The average growth rate in the retail trade has been 0.8 p.c. in Belgium compared with 1.6 p.c. in the EU15 and 5.5 p.c. in the United States.

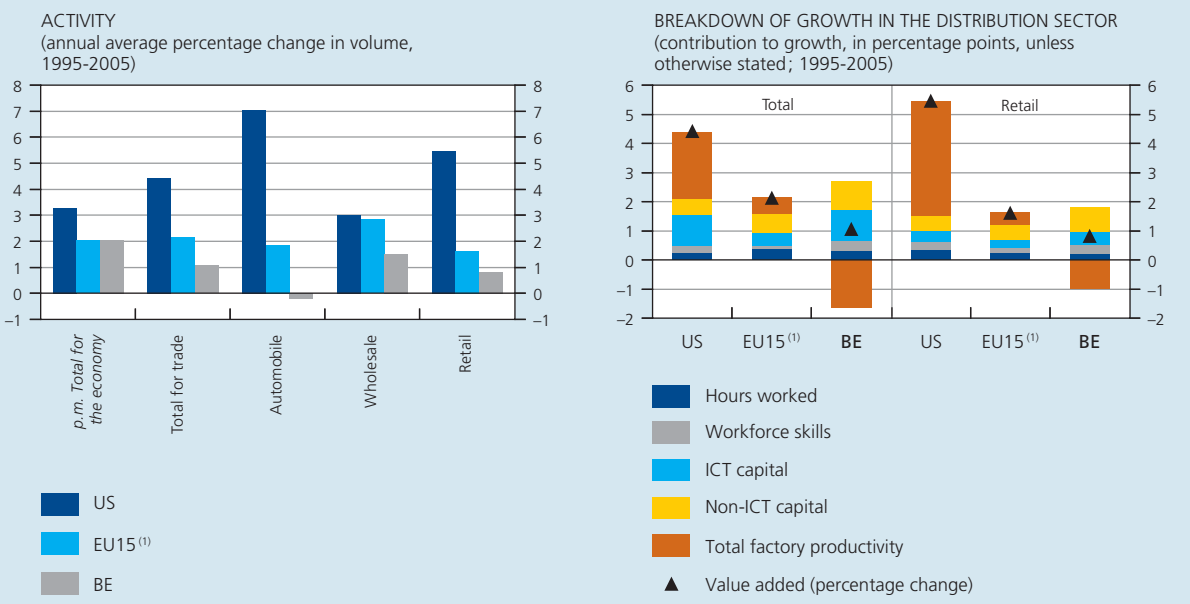
A breakdown of the growth in activity into its main determinants provides further insight into the source of the Belgian distribution sector's growth deficit. In both retailing and the whole distribution sector, the contribution of the factors of production (labour and capital) to growth in activity in Belgium has been similar to or higher than that seen in other economies. Belgium notably stands out for its high contribution of the capital production factor and especially non-ICT capital.

The divergences in growth performance compared with the United States have therefore largely originated from the differences in TFP, whether at the EU level or in Belgium itself where the gap is more pronounced. While the contribution of TFP to growth in the retail trade sector in the United States was on average 3.9 percentage points a year from 1995 to 2005, it was only 0.4 percentage point in the EU15 and even negative in Belgium, at –1.

At this stage in the analysis, it is important to point out that the statistics on productivity levels should be interpreted even more cautiously than those measuring changes: errors and omissions have wider consequences. One such example is the difficulty in measuring the volume of activity in the services sector, resulting partly from account being taken of the quality of service, which can lead to an under-estimation of growth of activity. Assuming that the production factor contributions are measured correctly, these calculation errors are reflected in TFP, since it is calculated residually and, moreover, incorporates many factors which interact amongst one another. In principle, there is no reason to believe that these measurement errors are more determining in Belgium than elsewhere.

It would certainly be tempting to explain Belgium's poor performance in recent years by a simple level effect: the other countries, and the United States in particular, appear to have caught up with Belgium in this respect. But this line of reasoning conflicts with the fact that some countries – most notably the Netherlands – have also posted a high level of retail trade productivity and sustained growth in the sector in recent years, while others (Italy and Portugal) have reported poor performance in both productivity levels and their recent productivity growth rates.

CHART 3 GROWTH IN ACTIVITY AND PRODUCTIVITY IN THE DISTRIBUTION SECTOR



Source: EU KLEMS database, March 2008.
(1) Limited to Belgium, Denmark, Germany, Spain, France, Italy, the Netherlands, Austria, Finland and the United Kingdom.

One argument often put forward to explain the European retail sector's lag in productivity growth behind its American counterpart is the lack of – or the lag in – European investment in ICT. This investment automatically implies productivity gains (hard savings), a classic example being the introduction of bar codes in the retail sector. While this argument appears to be at least partly valid for the EU as a whole, it does not seem to hold for Belgium: on the contrary, the EU KLEMS database indicates that the contribution of ICT capital to growth has been higher in this country than elsewhere, both in the distribution sector as a whole and retail trade in particular. This finding squares with the intensive capitalisation of the Belgian economy, necessary to preserve its competitive edge given the high degree of openness of the economy and the level of labour costs.

Harder to quantify are the "soft savings" also generated by investment in ICT but obtained more or less intensively and even with some time lag as they require other adjustments such as work organisation or managerial changes. They notably imply changes in supplier and customer behaviour (minimum stocks, just-in-time delivery, more detailed and readily available information on consumer habits, etc.). These soft savings can also result from investment made in related sectors: one example being deregulation of road transport which has also helped the reorganisation of retail trade in the United States.

Regulation is also likely to have a major influence on production factor efficiency. For instance, land use planning requirements, which are stricter in Europe, have slowed down the expansion of American-style "big box" hypermarkets, which are deemed to have played a significant role in the rapid development of the distribution sector in the United States. Similarly, the prescribed restrictions on opening hours are considered by some to limit the potential scope for writing off innovation costs. Generally speaking, market opening and the encouragement of competition can promote innovation, and ultimately productivity too. As far as Belgium is concerned, the relatively stringent legislation on distribution, or at least the fact that market players perceive it as being strict, probably hinders the full use of new technologies, despite their abundance, and therefore puts a brake on productivity growth.

Finally, the institutional and cultural context, as well as some geographic factors, may also influence performance in the distribution sector. For example, since innovation-related productivity improvements can only be made by trial and error, it is important to have a favourable context here, focused on promoting the entrepreneurial spirit, overcoming the stigma of business failures and the possibility of rapidly starting up a business again. The way in which the labour market functions can also play a role here, since general rules or agreements between social partners can turn out to be more restrictive than the specific regulations governing the distribution sector. In the same vein, it can be noted that firms in the retail sector do not make full use of the range of opening hours permitted by the regulatory requirements. On the other hand, the small size of the Belgian market, combined with strong regional disparities, and especially along linguistic lines, are likely to restrict the market penetration rate of foreign firms. At the European level, the lack of harmonisation of regulations between EU Member States, along with the persistent geographical and cultural fragmentation of markets despite the integration process, constitute a similar hurdle to the optimum functioning of the distribution sector.

3. Competition

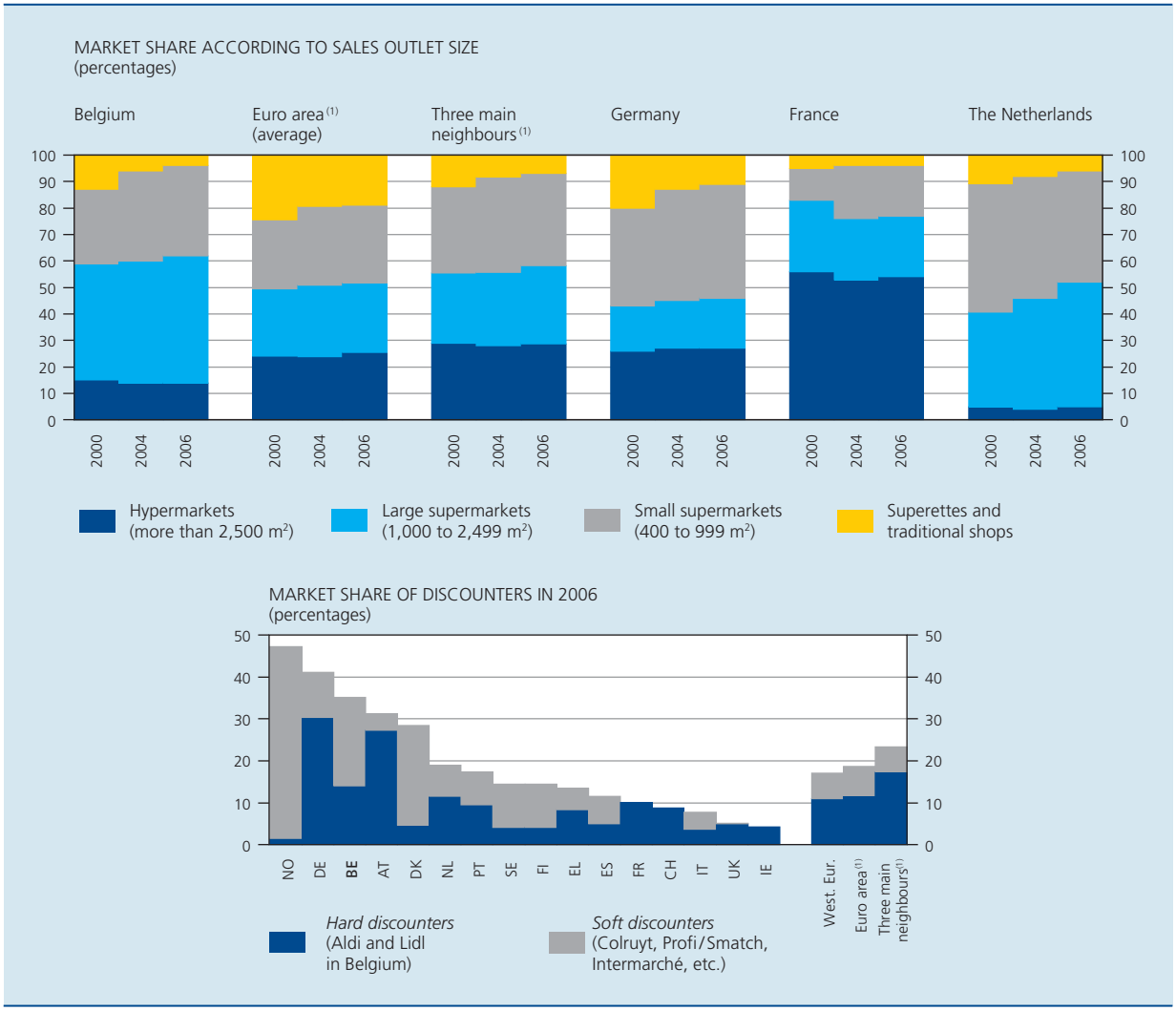
For reasons of data availability, the analysis featuring in this part of the article focuses on the one segment of the retail trade sector with which the general public is the most familiar, namely the supermarkets, or more precisely self-service non-specialised food retailing[1]. This definition therefore excludes small specialised shops like bakeries, butcheries, small-scale grocer's shops that are not self-service and whose product range is smaller. It also excludes non-food retailing, even though part of the product range of the outlets under consideration can include non-food goods, albeit to a minor extent.

This sector accounts for roughly 40 p.c. of retail trade turnover in Belgium and the euro area, but this proportion is higher in France and the Netherlands (close to 50 and 60 p.c. respectively). Compared with the food trade as a whole, the non-specialised segment accounts for a little less than 90 p.c. of the total in Belgium and in the euro area, but more than 90 p.c. in our neighbours, with the exception of the Netherlands. This proportion is much lower in the southern countries, especially in Greece and Spain where the small-scale traditional shops are still more predominant.

According to data from AC Nielsen, the evolution of the number of shops in non-specialised food retailing in Belgium suggests a decrease due to the decline in traditional shops, and a parallel increase in the relative importance of self-service stores. A very significant expansion of the *hard discounters* can also be observed, as well

(1) It should also be noted that there is no agreement on how this market can be carved up into categories. Therefore classifications may vary from one source to another, and also explain slight inconsistencies between the data presented, which nonetheless do not ever cast doubt on the findings drawn from them.

CHART 4 STRUCTURE OF NON-SPECIALISED FOOD RETAILING



Source : AC Nielsen.
(1) Unweighted averages.

as a general increase in large outlet retailing, i.e. in the very biggest stores, and a concomitan downward trend in small-scale outlets (with retail floor space of less than 400 m²). Nevertheless, a slight increase in the number of small shops has been noted these last few years, which can be attributed to the boom in new types of local shops.

These developments are also evident from changes in market share of the various types of sales outlet, with the traditional retailers losing market share, a significant expansion in the hard discounters' share and an increase for the supermarket chains. Moreover, loss of market share can be observed for medium-scale retailers and a very slight improvement for the mini-markets (*superettes*), for the above-mentioned reason.

The market share held by supermarkets of over 1,000 m² is higher in Belgium than in the euro area and than the average of the three neighbouring countries. Only France has a bigger market share, mainly due to the very high market share of the hypermarkets, the highest of the euro area. The growing predominance of the biggest retail outlets over the smallest outlets is a widespread trend in Europe (1).

(1) The slightly different pattern in France could be explained by legislation that is more protective of the big supermarkets which, owing to the fact that large-scale outlets were highly developed to start with, limited their expansion to the advantage of smaller outlets, for which the legislation was probably relatively less restrictive. Moreover, the expansion of the hard discount stores, where retail floor space has generally tended to be less than 1,000 m², could account for roughly half of the growth recorded by outlets with 400 to 999 m² of floor space (the hard discount market share in France rose from 10 to 14 p.c. between 2001 and 2007).

The growth of the hard discounters (currently Aldi and Lidl in Belgium) is a very pronounced development – both in terms of numbers and market share – taking place in Belgium as well as in the rest of Europe. In Belgium, it is further boosted by a significant increase in market share held by the soft discounters (like Colruyt) whose stock also includes main brands[1], while the hard discounters generally tend to limit their products to generic brands or brands which they market exclusively. This trend is also spreading to the strategy of other types of supermarkets which are increasingly adding own-brand goods to their product range, i.e. in-house brands in the name of the distributor's store or generic brands. Together, these own brands (including the hard discounters' store brands) accounted for 31 p.c. of retail trade turnover in Belgium in 2007. These developments can be interpreted as a sign of competitive forces at play in the non-specialised food market.

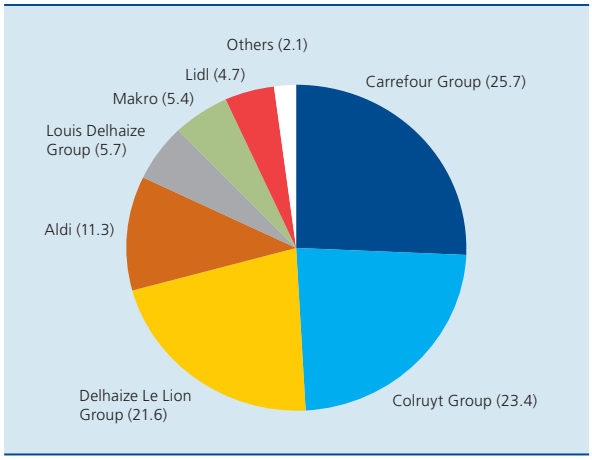
In terms of market share held by the discounters (hard and soft), Belgium thus lies in third place in Western Europe, behind Germany and Norway. This ranking is mainly due to the size of the soft discounters' segment, but the hard discounters' market share also exceeds the average share observed in the euro area, Belgium coming in third place in the European rankings in this respect, behind Austria, and of course Germany, the country where the concept originated and which later exported it elsewhere.

Apart from the hard discounters which, according to Marketing Map, together have a market share of 16 p.c. putting them in 4th and 7th position on the Belgian market (respectively Aldi and Lidl), the four biggest distribution groups in Belgium (Carrefour, Colruyt, Delhaize Le Lion, and Louis Delhaize) account for 76 p.c. of the market for self-service food retailing[2]. When Makro is added to this quartet, the overall market share rises to 82 p.c. And, if the above-mentioned hard discounters are added too, the market share goes up to 98 p.c. for the seven main distribution groups in Belgium.

A conventional way of measuring concentration is with the Herfindahl-Hirschmann index (HHI). This is a yardstick used by the anti-trust authorities (in the United States as well as in the European Union).The index is obtained by adding up the squares of market share of all enterprises in a sector. The higher the HHI for a given market, the more production is concentrated in the hands of a small number of firms. A result of less than 1,000 indicates a low degree of concentration, between 1,000 and 1,800 is average concentration and over 1,800 points to a high degree of concentration[3].

CHART 5 MARKET SHARES IN FOOD RETAILING IN BELGIUM (2007 TURNOVER)

(percentages)



Source: Marketing Map.

The HHI for Belgium varies from 1,720 (on the basis of retail floor area) to 1,890 (on the basis of the turnover of the seven biggest groups), which suggests an average to high degree of concentration at the national level. By way of comparison, the seven main distribution groups in the United Kingdom accounted for 77 p.c. of total market share in 2007, which works out at an IHH of 1,400, or average concentration, and less than that measured in Belgium. Data for France and Germany (2002/2003) show that concentration there is weaker than in Belgium, while it is stronger in the Netherlands.

However, there are many reasons to believe that the market to be taken into consideration for calculating the degree of concentration is not actually the national market. Supermarkets do tend to be more active on local markets. So, the HHI at national level is no longer really suitable. It is in fact liable to under-estimate the degree of concentration if retail stores were to share the territory, so that the market would be marked by a lack of competition at local level. Moreover, an HHI calculated at local level is not comparable with a national-level index if at local level the size of the market determines the optimum number of competitors: a market with three competitors could be considered as optimal in view of the size of the local market, but in this case the HHI would indicate a high level of concentration according to the above-mentioned scale.

(1) Also called "national brands", these are agri-food industry brands whose image generally tends to be supported by advertising and which are not linked to any particular retailer.

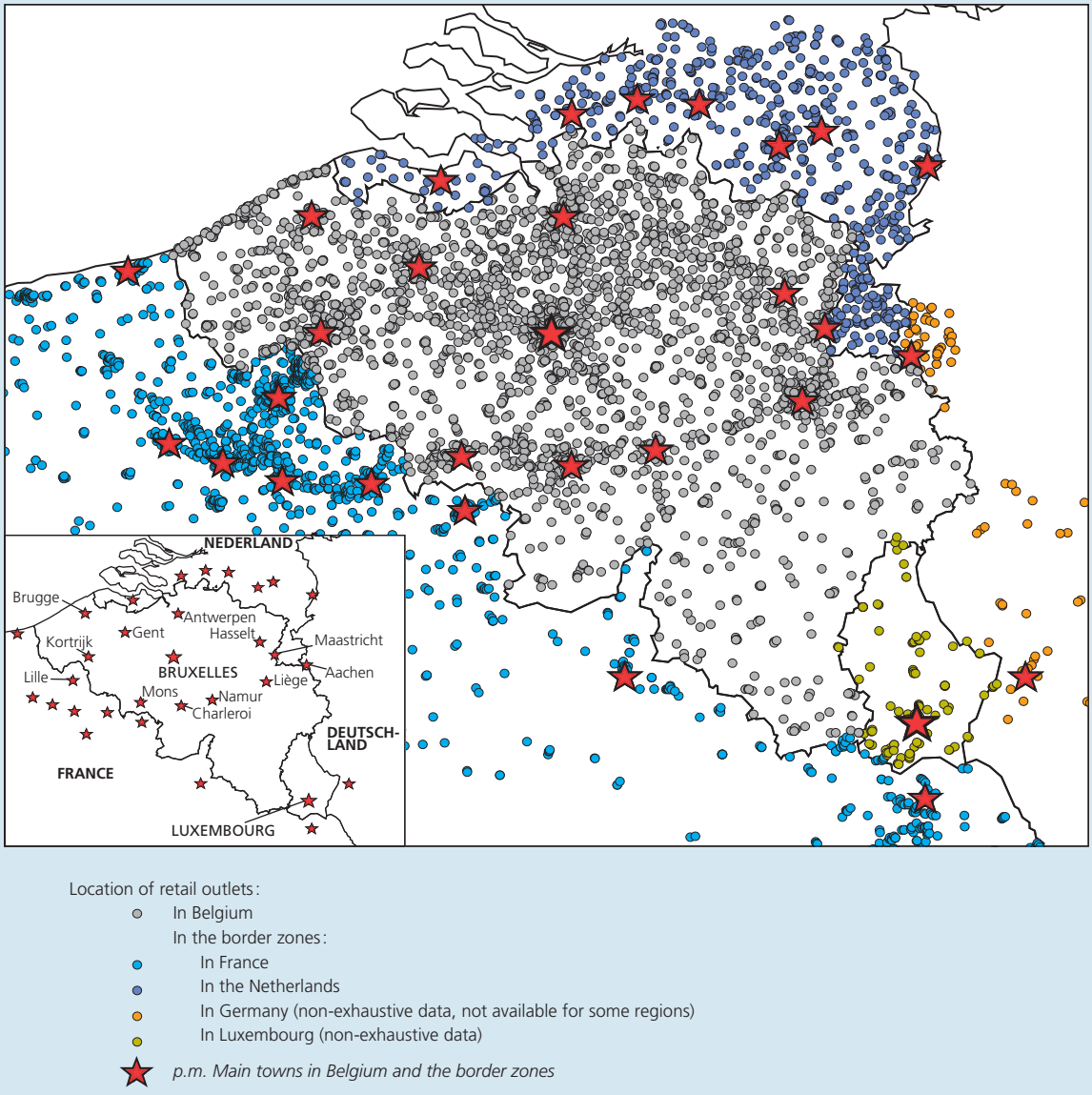
(2) Grouping together the different brands per distribution chain is not always easy, as the links between the brand name and the group are not always of the same intensity. The degree of autonomy of outlets can also be quite high.

(3) In a theoretical situation with an infinite number of competitors of equivalent size, the market share of each competitor will tend to be near zero and the HHI will be nil. Conversely, in the case of a monopoly (with a market share of 100 p.c.), the HHI will reach 10,000.

In order to apply a local approach to Belgium, the most detailed data possible on supermarkets have been used. The main source consists of information provided by the FPS Economy's planology service in the form of a list of retail trade outlets active in Belgium. This sort of list seems to be the only one of its kind in Europe. It is updated every year. The version used in this part of the analysis is the list closed on 31 December 2007. Apart from the name and address of the sales outlet, this list of more than 8,500 shops includes information on the retail surface area and the business sector, which makes it possible to select just the self-service food retail trade outlets, for which the list is exhaustive. It covers 3,731 self-service food outlets of more than 100 m² of retail floor space. The novelty of the following analysis lies in the possibility of transforming the list into a geographical database, using geocoding services that enable addresses to be transformed into geographical data like those used by GPS navigation systems. The geographical features can thus be used to analyse the local aspects of the self-service food retail market.

One of the first things to be noted is that population density is evidently the main determinant of market size and therefore of the number of shops, as well as the total

CHART 6 LOCATION OF FOOD RETAIL STORES IN BELGIUM AND IN THE BORDER ZONES



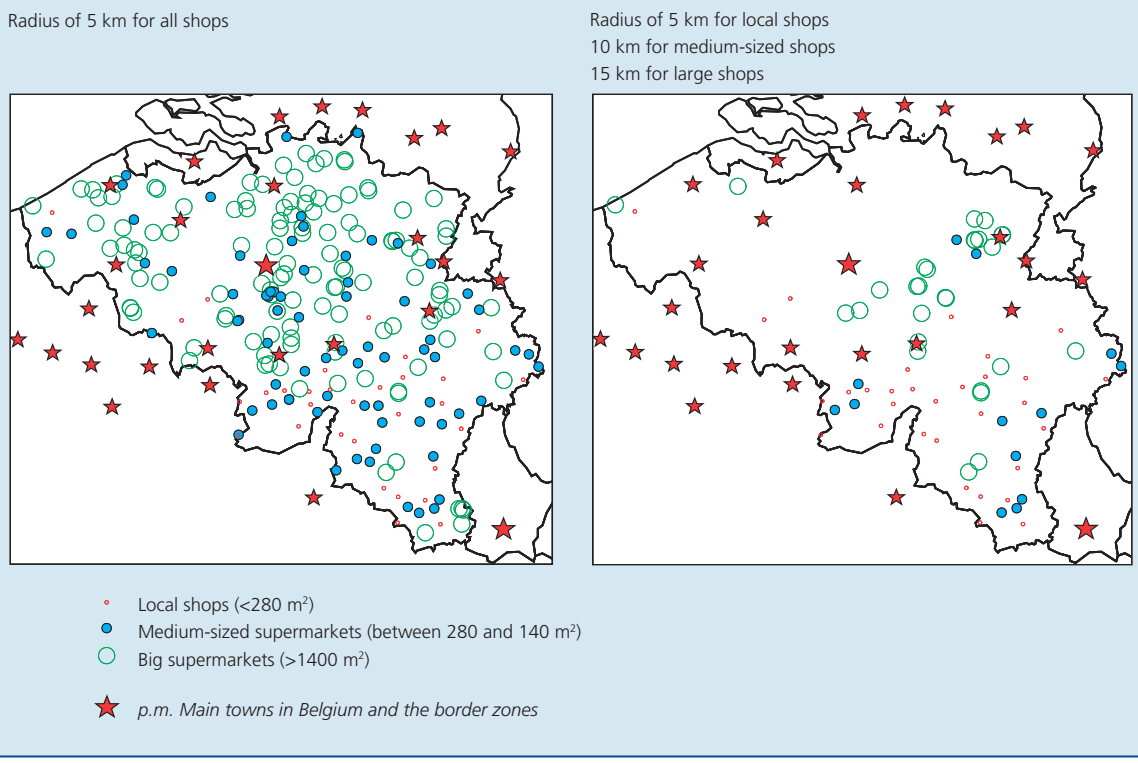
Sources: Atlas Commercial SaarLorLux (DE, LU), FPS Economy (BE), Google Maps (DE), INSEE (FR), KVH(NL), Grand Duchy of Luxembourg Chamber of Commerce (LU), NBB.

supply of retail outlets. The map of self-service food retail outlets of more than 100 m² clearly illustrates the link between the number of shops and population size or economic clusters as well as major road axes (characteristics which are strongly correlated amongst themselves). The most concentrated zones are the area around Brussels, between Brussels and Ghent, between Brussels and Antwerp, between Antwerp and Hasselt down to Liège, the Walloon ridge running from Mons and Charleroi to Namur and Liège, the region around Kortrijk and the coast. Conversely, southern Wallonia and the province of Luxembourg in particular evidently have a lower density of shops, directly linked to the lowest population density, which means a smaller market. It is also interesting to note that the province of Luxembourg, which has a very small number of shops per square kilometre, does actually have a higher number of shops per inhabitant than the other provinces. If supermarkets are singled out according to size among the sales outlets in Belgium, the above observations remain generally valid. The location of the biggest supermarkets is even more closely correlated with population density, and so these stores are even more under-represented in the south of the Walloon Region.

The same type of geographical breakdown can be noted in the neighbouring countries[1]. On the map, a high concentration of shops can be seen in the region around Lille in France and towards Mons either side of Kortrijk, where the population density is high. Conversely, along the border with the "Boot" of Hainaut or the province of Luxembourg, shop density – as in the corresponding part of Belgium – is markedly lower, with the exception of the France-Belgium-Luxembourg border region. Along the rest of the Belgo-Luxembourg border, shop density is also relatively low (although the data for Luxembourg are not exhaustive). The situation is undoubtedly similar along the border with Germany, but here too, there is a lack of data. Around Aachen and towards Maastricht, the number of shops again increases significantly, still in relation to economic activity and population. The situation

(1) On the basis of additional data gathered from national sources, it has been possible to draw up the map of self-service food retail outlets in border areas. In some cases, the variables, like the shops' retail floor space, have had to be estimated – at least in part. In other cases (Germany, Luxembourg), the sources are not exhaustive. In all, roughly 2,800 sales outlets have been identified in the four neighbouring countries. More than 2,200 of them are located less than 50 kilometres away from an outlet in Belgium. Logically, this figure decreases over the distance considered: there are just under 1,000 within 15 km of a shop in Belgium, around 500 at 10 km and roughly 221 within 5 kilometres. The distance is generally shorter in France than in the Netherlands.

CHART 7 LOCATION OF FOOD RETAIL STORES WITH SIGNIFICANT MARKET POWER [1]



Sources: Atlas Commercial SaarLorLux (DE, LU), FPS Economy (BE), Google Maps (DE), INSEE (FR), KVH(NL), Grand Duchy of Luxembourg Chamber of Commerce (LU), NBB.

(1) Market share (estimated on the basis of retail floor space) of over 60 p.c. This is calculated as consolidated market share at group level, taking account of shops in border areas.

along the remainder of the border between Belgium and the Netherlands reveals a high degree of concentration quite uniformly spread out, in line with the high population density in the Netherlands.

Taking the analysis a notch higher, it is possible to measure the degree of competition at the local level in Belgium. Box 2 sets out the concepts and the main findings drawn from two studies abroad, one for the United Kingdom and the other for France. Overall, the indicators obtained put the findings from the comparison of national Herfindahl indices (HHI) into perspective: the number of shops with significant market power at local level appears to be lower in Belgium than in the United Kingdom and France. This indicates higher local competition despite a higher HHI.

Furthermore, the map pinpointing sales outlets with significant market power shows that, in most cases, they are sales outlets located in less favourable markets, that is, in regions with a lower population density, situations for which the definition of the local market (the length of the radius) itself is maybe inadequate, since households there are used to travelling longer distances to get to shops and other services. It is particularly striking for local shops (a market radius of 5 km) and average-size supermarkets (a market radius of 10 km), almost all located in the least populated part of Wallonia. In the case of the big supermarkets, it is obvious that the shift from a narrowly-defined market (5 km) to a wider market (15 km) reduces the number of market power situations significantly. A good many of the remaining potentially problematical cases are again located in southern Wallonia.

To sum up, these indications suggest that the siting of supermarkets is in line with expectations and does not seem to show any sign of widespread problems. Moreover, competition at local level seems to be playing its role relatively well in Belgium, even though this situation is largely attributable to high population density. Cross-checking the rather qualified interpretation of the market regulation indicators for setting up supermarkets presented in chapter 1, this analysis suggests that the actual impact of these regulatory requirements, which are generally felt to be strict, on the degree of competition at the relevant local level is fairly small.

Box 2 – Measuring the degree of local competition

Drawing on the findings of a study published in 2008 by the anti-trust authority in the United Kingdom, the UK Competition Commission (UKCC), the degree of competition at local level has been measured for Belgium on the basis of data supermarket siting.

First of all, the reference markets are defined in terms of shop size. According to the UKCC report, consumers do not actually consider different sized shops as perfect substitutes for each other. So, in the case of the big supermarkets, the nearest substitute is another large supermarket: following a small but significant increase in prices, the majority of consumers who change store will move towards a large outlet, but not towards small or medium-sized outlets. Therefore, the big shops are mainly (as opposed to only, assumed in the exercise) influenced by competition from other large stores. In our exercise, they are defined as shops with a retail trading space of more than 1,400 m². Medium-sized shops (retail floor space of between 280 and 1,400 m²) not only face competition from other stores of a similar size, but also from big stores. On the other hand, small shops (retail floor space of less than 280 m²) are not relevant competitors for medium-sized stores. Finally, small shops are subject to competition from three types of store. That makes it possible to define three reference markets.

In a second step, a local or geographical dimension is added to this definition depending on supermarket size. The UKCC study shows that the big supermarkets generally tend to compete with the other large supermarkets located within an isochronal radius of 10 to 15 minutes by car around each shop. In the absence of detailed data on journey times in Belgium at such a specific level, the analysis set out below measures these isochrones approximately by a radius of 5, 10 or 15 km around each shop "as the crow flies". In Belgium's case, it is also important to take cross-border competition into consideration. Comparable data have been able to be found for France and the Netherlands, but for Germany and Luxembourg, only partial data are available. Therefore,

the results that take the cross-border market into account are, in principle, the most relevant, but they slightly underestimate actual competition in practice, especially in the regions near Germany and Luxembourg.

The indicator of the degree of competition at local level used in the UKCC study is the number of shops with a market share (on their relevant local market) of more than 60 p.c. This figure is then expressed as a percentage of the total of all the shops. The same indicator has been used, but the market share has had to be calculated on the basis of the retail floor space of the shops, and not on the basis of turnover (owing to a lack of data on turnover per individual store). Moreover, account must be taken of the fact that other shops belonging to (or associates of) the same group are also active on the geographical market of a given store, which *de facto* reduces effective

SHOPS WITH SIGNIFICANT MARKET POWER ON THEIR LOCAL MARKET

(percentages, with corresponding percentages in brackets when cross-border market is taken into account)

	Big supermarkets >1,400 m² (n = 564)	Mid-size supermarkets, between 1,400 m² and 280 m² (n = 2,753)	Local shops < 280 m² (n = 978)
Belgium (1)			
Radius of 5 km	13.1 (12.6)	3.1 (2.9)	3.1 (n.)
Radius of 10 km	3.0 (2.8)	0.3 (0.2)	
Radius of 15 km	1.2 (0.9)		
Belgium – with group consolidated market share (2)			
Radius of 5 km	28.1 (27.5)	5.1 (4.8)	3.8 (n.)
Radius of 10 km	14.0 (13.5)	1.1 (0.9)	
Radius of 15 km	9.6 (7.3)		
p.m. United Kingdom	*(n = 1,853)*	*(n = 4,265)*	
10-minute drive	*27*	*22*	*n.*
15-minute drive	*11*	*10*	*n.*

Sources: UKCC, NBB.
(1) Market share, estimated on the basis of retail floor space, higher than 60 p.c.
(2) Market share, estimated on the basis of retail floor space and consolidated at group level, higher than 60 p.c.

competition, since group strategies can be put in place. Therefore, this exercise has also taken into consideration an indicator based on group consolidated market share. This indicator, in principle more relevant, can nevertheless over-estimate somewhat the lack of competition, and for two reasons. First of all, there is a slight risk of double counting: since several shops belonging to the same group and operating in close proximity can in turn be identified as having market power, while several of them actually share this power. Secondly, it is not impossible that, in some cases, shops run by self-employed owners or franchisees also compete with each other, even within the same group. This can be relatively significant in the case of small and medium-sized shops.

Turning to big supermarkets, as defined by a radius of 5 km, it was found that 28 p.c. of them have significant power when group consolidated market shares are taken into account. By extending the radius to 10 km or to 15 km, which appears to be a more suitable distance for distinguishing the potential market for a large supermarket, it emerges that there are, respectively, no more than 14 p.c. or only 9.6 p.c. of supermarkets that can be regarded as having a market power according to the definition used. Although taking cross-border trade into account has a marginal influence on the overall results, the impact is significant for the border zones.

Corresponding figures available for the United Kingdom are quite similar, with 27 p.c. to 11 p.c. of large supermarkets in a position of strength on their market. However, as the definition of significant power power in the UKCC study imposes an additional criterion (that there are only three competitors or less) and as it is based on non consolidated market share, it can be concluded that local competition seems to be stronger in Belgium.

As far as the market for medium-sized supermarkets is concerned, the share of sales outlets considered as being in a dominant position on the markets within a radius of 5 to 10 km varies between 5.1 and 1.1 p.c., rates well below those recorded in the United Kingdom, which suggest that competition is rife in this segment. With only 3.8 p.c. of sales outlets in a position of strength on a market within a 5 km radius, the finding is similar for local shops. In practice, however, these results are less relevant than in the case of medium- to large-scale supermarkets in that a narrower geographical market, within a radius of 1 km for example, should be taken into consideration to determine the market on which other local shops are rivals. Moreover, other small retail trade outlets (mini-markets of less than 100 m² and specialised shops) which are probably part of the same market should also be taken into account.

These conclusions are further confirmed by a robustness test based on a second survey covering France, which was carried out in 2008 by Asterop, a (geo)marketing research consultancy(1). Drawing on the findings of this study, the local dimension has been measured approximately by a circle with a radius of 18.5 km²(2). The indicator used measures the number of local markets dominated by one or two "leaders". A market dominated by just one group corresponds to a market where the leader has a market share of at least 25 p.c. and a 10 point lead in terms of market share over the second biggest retailer(3). A market dominated by two groups has been defined by analogy by taking as the starting point the combined market share of the two groups with the biggest shares. This suggests that 35 p.c. of supermarkets in Belgium would display some form of market power. That appears to be well below the situation described for France where 87 p.c. of all zones investigated are marked by a lack of competition. These differences can most probably be explained by the fact that France has a bigger proportion of large supermarkets, with a lower population density than in Belgium, as well as – until only recently – legislation tending to protect existing supermarkets.

These findings suggest that, on the whole, competition can play its role at the local level without any major obstacles in Belgium.

(1) A summary of the study is available on the following webpage : http ://www.asterop.com/fr/etudes/localenseignes.aspx .

(2) The reference study in fact defines 630 "*zones de vie*" of varying size, corresponding to geographically delimited areas that have been studied specially to best reflect economic reality, unlike the standard administrative division of regions and districts (*départements, cantons,* etc.). The average size of a zone corresponds to a circle with a radius of 18.5 km.

(3) 15 points if the market leader has a share of more than 40 p.c. of the market.

4. Price Level

The aim of this section is to analyse Belgium's position in relation to the euro area and its three main neighbours (Germany, France and the Netherlands) in terms of prices charged by the retail trade sector. This analysis is based on two sources of information, used in many other research papers (Allington, Kattuman and Waldmann, 2005 ; Rogers, 2007, for example).

The leading source is Eurostat. The EU's statistical institute publishes relative price indices (the purchasing power parities index) making it possible to compare the relative position of prices in a Member State of the European Union with the average for the EU15. The data used in this article cover the period running from 1995 to 2007 and concern the relative price of a selection of products sold mainly by firms in the retail trade sector (NACE 52), namely food and beverages, clothing and footwear, cleaning products and household equipment and toiletries. The second source of information is the CityData database produced by the Economic Intelligence Unit. The objective of this database is to provide detailed information on the cost of living in 140 towns (mainly capital cities or very big towns), across the world, on the basis of price lists from a standard basket of products. These data are available on an annual basis for the period 1990-2008.

Unlike the Eurostat data, the CityData statistics describe the price level expressed in local currency units for a basket of identical goods and services in each country. In addition, the available data relate to individual products and not to a grouping of products. They therefore enable a closer comparison between countries. Lastly, unlike the Eurostat database, the CityData statistics make it possible to distinguish between prices charged in different types of shops (small retailers, supermarkets and hypermarkets, clothing retail chains, etc.). While this database may have some advantages over the figures published by Eurostat (observation of the price levels, product homogeneity, segmentation by type of retailer), it also has a few disadvantages, notably in terms of representativeness of the price lists (geographical scope limited to large towns and capital cities, basket representative of the consumption of a manager in a multinational enterprise).

Drawing on these two sources, three reference baskets have been constructed depending on the type of retail outlet: a Eurostat basket made up of 13 product categories, a "CityData – Supermarkets" basket and a "CityData – Small retailers" basket both composed of 88 products. Three other comparison baskets have also been constructed on the basis of CityData figures: a basket of 16 products sold by small clothing outlets, the same basket for clothes shops belonging to retail chains, and a basket of 36 products (excluding clothes) and services not sold in supermarkets and hypermarkets. The composition of these baskets is explained in box 3.

Box 3 – The three reference baskets and the three comparison baskets

The reference baskets

The Eurostat basket is made up of 13 product categories sold by retail trade sector firms. These categories are: Bread and cereals, Meat, Fish, Milk, cheese and eggs, Oils and fats, Fruit and vegetables (including potatoes), Other food products, Non-alcoholic beverages, Alcoholic beverages, Tobacco, Clothing and footwear, Furniture, household equipment and cleaning products, Various goods and services. These products cover categories 01, 02, 03, 05 and 12 of the international COICOP classification.

The "CityData – Supermarkets" and "CityData – Small retailers" baskets are made up of 88 products: white bread, butter, margarine, rice, spaghetti, flour, sugar, cheese, cornflakes, yoghurt, milk, olive oil, maize and peanut oil, potatoes, onions, mushrooms, tomatoes, carrots, oranges, apples, lemons, bananas, lettuce, eggs, peas, canned tomatoes, canned peaches, canned sliced pineapple, filet mignon, steak, stewing beef, roast beef, minced beef, veal chops, veal fillet, roast veal, leg of lamb, lamb chops, stewing lamb, pork chops, pork loin, ham, bacon, frozen chicken, fresh chicken, fish fingers, fresh fish, instant coffee, ground coffee, tea bags, cocoa, chocolate drink, coca-cola, tonic water, mineral water, orange juice, table wine, superior quality wine, fine wine, local-brand beer, top-quality beer, whisky, gin, vermouth, cognac, liqueur, soap, laundry detergent, toilet tissue, washing-up liquid, insect-killer spray, electric light bulbs, batteries, frying pan, toaster, laundry, dry cleaning (man's suit, woman's dress, trousers), aspirins, razor blades, toothpaste, facial tissues hand lotion, shampoo, lipstick, cigarettes (2 brands).

The comparison baskets

The "CityData – Clothes – Small retailers" and "CityData – Clothes – Chain stores" baskets are composed of the 16 following items: suit (man's), shoes (man's), raincoat (man's), dress, shoes (woman's), cardigan (woman's), raincoat (woman's), stockings, jeans (children's), shoes (children's), sports shoes (children's), dress (children's), jacket (children's), trousers (children's).

The "Citydata – Products and services not sold in retail stores" basket is composed of 36 items: drink at a bar of a Hilton-type hotel, fast-food snack, car hire (two vehicle categories), room in a Hilton-type hotel, room in a moderate hotel, simple meal in a restaurant, two-course meal for two in a restaurant, baby-sitter, hourly rate for domestic cleaning, consultation with the dentist (two types of service), golf course green fee, swimming pool entrance fee, tennis court hire, CD, cinema ticket, theatre or concert ticket, local newspaper, international newspaper, international magazine, coulour photo film, novel, unleaded petrol, taxi (3 tarifs), car tune-up in the garage, electricity, gas, telephone (land line, local call) and water.

An analysis of the price differentials calculated from the Eurostat and CityData – Supermarkets baskets shows that the differential between prices charged in Belgium and in the euro area is generally positive. In 2007, it came to 7.7 p.c. on the basis of the Eurostat basket and 8.7 p.c. according to the CityData – Supermarkets basket (7.8 p.c. in 2008 according to this source). So, these two sources give consistent indications. This positive differential can mainly be attributed to the fact that prices in the southern member countries of the euro area are generally lower than those charged in Belgium, in particular in Spain (average differential of 19 p.c. in 2007 according to Eurostat), Portugal (average differential of 20.5 p.c. in 2007 according to Eurostat) and Greece (average differential of 8.7 p.c. in 2007 according to Eurostat). On the other hand, as far as small retail stores are concerned, the data available indicate that the average price level surveyed in Belgium does not appear to differ significantly from the average level recorded in the euro area as a whole.

Compared with price levels in the three neighbouring countries, there is almost no difference between the Eurostat and CityData – Supermarkets baskets up to the year 2004. However, from 2005 onwards, a significant increase in the average differential can be observed, especially for prices recorded in the supermarkets. On average, over the last four years for which data are available, prices charged by supermarkets and hypermarkets in Belgium have been 7.1 p.c. higher than those charged by our neighbours, according to the CityData – Supermarkets basket. Based on the Eurostat basket, the average differential over the period 2005-2007 was 5.9 p.c. On the other hand, if the CityData – Small retailers basket is considered, prices charged in Belgium have been on average 5 p.c. lower than prices in Germany, France and the Netherlands since 1997.

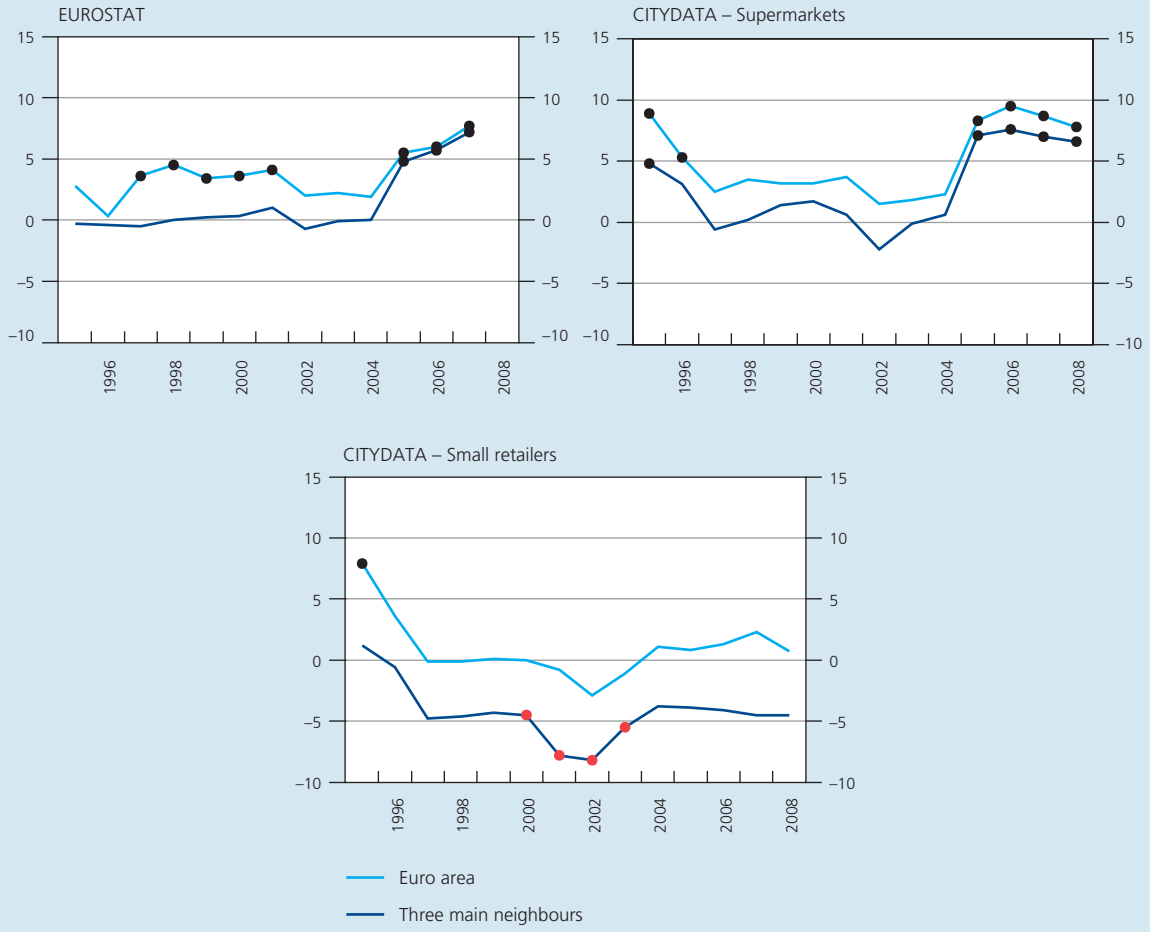
To sum up, the two comparisons point to a sharp deterioration in Belgium's relative position in terms of price levels since 2005. This worsening of Belgium's score concerns its relative position vis-à-vis its neighbours and, according to the CityData database, is mainly to be found in the retail sale in non-specialised stores sector (NACE sector 52.1). Using the data from the three comparison baskets, the analysis of price differentials between Belgium and its three neighbours does not actually point to any deterioration of Belgium's relative position.

As regards the two clothing baskets, starting from an average handicap of 10 p.c. in 1995, a very favourable trend can be noted for the price of clothes sold in shops belonging to retail chains, leading to an average price differential of –28 p.c. in 2008. The price situation among small fashion retailers seems to be leaning structurally in Belgium's favour, with an average price differential of –15.5 p.c. over the years from 1995 to 2008. However, it should be pointed out that these two baskets of goods only include 16 products, which limits their representativeness and amplifies the effect of outliers on the average.

One factor that might explain the fairly average range of lower prices for products sold in shops other than supermarkets and hypermarkets may be linked to the specific nature of the CityData database. As mentioned above, the prices published in this database are only gathered in the big towns. In Belgium's case, sample prices are only taken from Brussels. For Germany, data are only available for the cities of Frankfurt, Munich, Berlin and Hamburg and in France, only for Paris and Lyon. And finally, for the Netherlands, price samples are only available for Amsterdam.

CHART 8 AVERAGE PRICE DIFFERENTIAL BETWEEN BELGIUM AND THE EURO ZONE AND THE AVERAGE FOR THE THREE MAIN NEIGHBOURS [1]

(percentage points, difference between Belgium and the reference zone)



Sources : Eurostat, CityData.
A black (red) marker indicates a significantly positive (negative) price differential, at a significance threshold of 5 p.c.

Taking account of the specificities of the towns in which the price samples are collected, the favourable price differential seen in Belgium for these three comparison baskets can be largely attributable to the lower cost of commercial floor space there. According to the CityData database, the average annual cost of renting one square metre of office space, during the period from 2000 to 2007, varied from 328.75 euro in Brussels, and 362.72 euro in Germany (Berlin, Frankfurt, Munich, Hamburg), to 546.94 euro in France (Paris, Lyon) and 418.38 euro in Amsterdam. This indicator is probably a good proxy for the cost of a commercial lease for a small shop, but not necessarily for a large retail outlet in which case other factors influence the cost per m² (legal constraints for establishing the shop, siting on the outskirts of big towns, etc.).

The indicators discussed above point up a distinctive trend in prices in the big retail outlets in Belgium in comparison with the three neighbouring countries. A more in-depth analysis of the price situation vis-à-vis these three countries shows that the deterioration observed from 2005 onwards is mainly due to the relative price situation in Belgium compared with the Netherlands, and to a lesser extent with Germany.

The average price differential with the Netherlands in fact widened from 5.5 p.c. over the period 1995-2004 to 23.3 p.c. for the period 2005-2008, using the CityData – Supermarkets basket. When compared with Germany, the average differential rose from 4.7 p.c. in the 1995-2004 reference period to 8.9 p.c. for the recent period, according to the same source. The price differential with France,

however, is rarely significant. The CityData statistics for the period 2005-2008 show that average prices in supermarkets in Belgium were not significantly different from the average price in the French supermarkets.

A similar trend can be seen from the Eurostat data, even though differences in price levels are evident. For example, the average differential with Germany goes up from 0.6 p.c. in the years from 1995 to 2004 to 4.9 p.c. over the period 2005-2007. Compared with the Netherlands, the average differential is 6.5 p.c. over the period from 1995 to 2004 and 16.8 p.c. over the period 2005-2007. A notable difference can be observed for France. According to Eurostat, the average price differential with France turned significantly positive in 2007.

Theoretically, two major sources of divergence can be put forward to explain price differences between two countries that are members of an economic and monetary union.

Firstly, the higher prices in Belgium might mirror larger operating margins, reflecting a lower degree of competition than in the neighbouring countries. Using the EU KLEMS database, Christopoulou and Vermeulen (2008) estimated mark-up rates in several euro area countries for all the NACE sectors, over the period 1981-2004. Their estimates for the retail trade sector (NACE 52) show that the mark-up in Belgium (21 p.c.) is lower than that obtained for the euro area (42 p.c.) and also France (24 p.c.) and the Netherlands (39 p.c.). It is nevertheless higher than that observed in Germany (12 p.c.). The unfavourable price differential observed vis-à-vis the Netherlands does not therefore seem to be the result of an unfavourable profit margin differential. On the other hand, the price differential with Germany could reflect lower margins in Germany, associated with a higher market share held by the *hard discounters*.

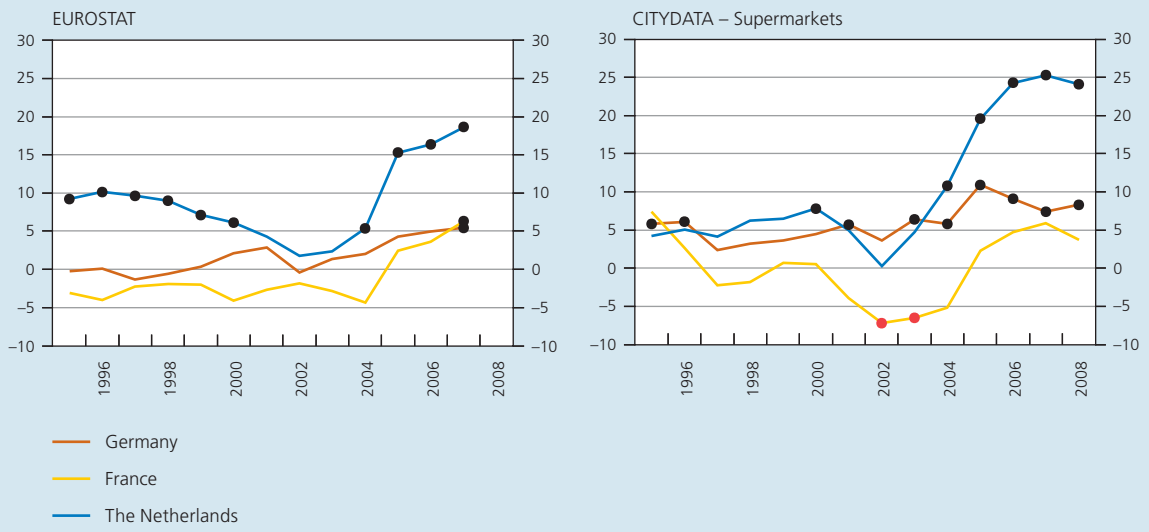
Secondly, cost factors specific to the different countries can also affect price differentials per product. Retailers' production costs, in particular, can vary considerably depending on local conditions.

Since 2005, labour costs have risen faster in Belgium than in the three neighbouring countries, and especially Germany. This factor can therefore also help to explain the changes in the price differential with this country. Yet, the deterioration in the price differential observed vis-à-vis the Netherlands from 2004 onwards does not seem to be explained by an unfavourable trend in labour costs in Belgium compared with its Dutch neighbour.

The reason behind the rather unfavourable trend in the supermarket price differential between Belgium and the Netherlands in fact lies in a price war among the main Dutch retailers. In a bid to (re)gain market share, Dutch

CHART 9 AVERAGE PRICE DIFFERENTIAL BETWEEN BELGIUM AND GERMANY, FRANCE AND THE NETHERLANDS [1]

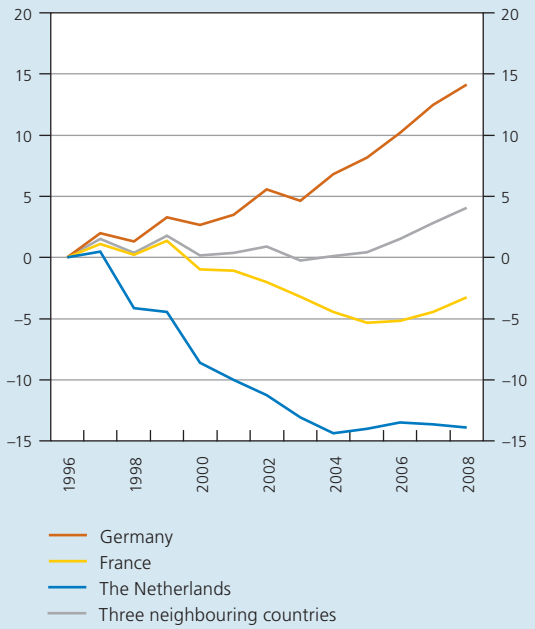
(percentage points, difference between Belgium and the reference zone)



Sources : Eurostat, CityData.
A black (red) marker indicates a significantly positive (negative) price differential, at a significance threshold of 5 p.c.

CHART 10 RELATIVE CHANGES IN LABOUR COSTS PER HOUR WORKED

(percentage points, difference between Belgium and the reference zone)



Source : Central Economic Council.

retailer Albert Heijn decided to cut the price of over 1,000 products in October 2003. Its main competitors immediately followed suit, which triggered a wave of price cuts on certain consumer goods, and mainly food products. In December 2006, the Albert Heijn group announced that it had reached its market share target and normal competition conditions returned. According to Van Heerde, Gijsbrechts and Pauwels (2008), this price war appears to have resulted in an 8.2 p.c. reduction in the price of food products. It should be noted that this price war was declared in a competitive context which seemed to be marked by high margins (39 p.c. according to Christopoulou and Vermeulen, 2008), which gave firms operating in the sector wide possibilities for cutting prices. Based on estimates made by Christopoulou and Vermeulen (2008), Belgian companies did not have such wide margins of manoeuvre.

Although Albert Heijn's Dutch rivals reacted to these price cuts, this particular price war does not seem to have extended beyond Dutch borders; at least, it does not appear to have spread to Belgian retailers, which could suggest that retail markets are still relatively geographically fragmented. It can not be ruled out that the supermarkets located near the Dutch border agreed to some price reductions without this trend spreading to the whole of the Belgian retail distribution sector.

Box 4 – Price war, causes and consequences

A price war is a phase of price-cutting that leads all stakeholders on a given market to follow the initial price reduction (Urbany and Dickson, 1991). Unlike a situation of normal competition, a price war generates unsustainable price levels in the long term. Heil and Helsen (2001) reckon that there is a price war when the following seven conditions have been fulfilled : (1) market players pay more attention to their competitors' than the consumers' reactions, (2) at first sight, the reaction of all stakeholders to the initial price cut is not something to be desired, (3) none of the stakeholders deliberately wants to trigger the price war, (4) the competitors' reaction is not an "ordinary" reaction, (5) price responses are faster than usual, (6) prices come down, and (7) the downward movement in prices is not sustainable.

An important factor triggering a price war is competition among new entrants. A price war can therefore be due to the implementation of policies aimed at facilitating access to a particular market. However, the introduction of structural reform measures does not necessarily spark a price war. A deterioration of economic conditions, weak loyalty to a brand or high sensitivity of consumers to price levels can also be triggering factors.

Firms that launch into a price war hope to regain market share by improving their image in the eyes of consumers and by squeezing out a series of competitors, which then boosts their market power (and thus their profit expectations) in the long term [1]. On the whole, however, it seems that a price war has relatively negative effects for enterprises operating in the sector.

(1) For example, when the Carrefour group took over the GB hypermarket and supermarket chain in July 2000, the French group had announced that it intended to lead a price war in order to regain market share.

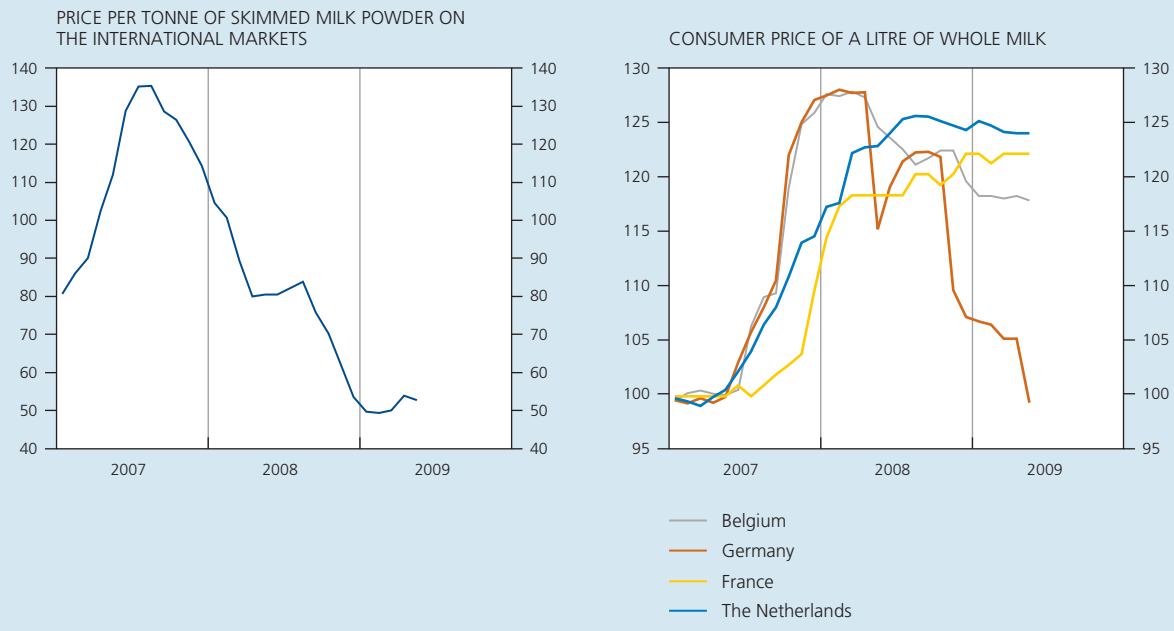
As regards the price war that raged in the retail distribution sector in the Netherlands, at the beginning of the millennium Albert Heijn was faced not only with an unfavourable macroeconomic context, but also with a loss of market share due to the arrival of the hard discounters Aldi and Lidl on the Dutch market. Moreover, it had damaged its image by almost pricing itself out of the market. At the end of the price-war episode, its image among consumers as far as prices were concerned had improved significantly and one rival (Edah) had been squeezed out of the market. From a sectoral perspective, while the drop in prices has been beneficial in the short term for consumers and the firm which started the price war, the reduction of profit margins in the retail distribution sector could have negative consequences in the long run, in terms of investment in R&D or quality of the service provided. Furthermore, the increased concentration in the sector and the resultant drop in competition could also have a negative impact on price developments in the long run (rapid return to higher margins than during the initial period).

Overall, a price war can therefore be regarded as a phase somewhere between two equilibrium situations on the market. If, during this transition, the situation appears profitable for consumers, in the long term it may have negative consequences for them (with competition focused solely on prices to the detriment of quality, less investment in R&D, greater concentration in the sector).

Another way of studying the issue of price formation and competition in the retail distribution sector is to examine the price reaction observed in different countries following a common and identifiable shock of significant magnitude. Such a shock has been observed in the case of food products, and more particularly for dairy products. Indeed, the price of milk on the international markets increased very sharply during the first half of 2007 before falling again. Consumer prices followed suit with a lag of a few months, but not always to the same extent. It

CHART 11 MILK PRICES

(indices for first half of 2007 = 100)



Sources : AAE, CPB (NL), DGSEI (BE), DESTATIS (DE), INSEE (FR).

should, however, be pointed out that this approach has major limitations since it does not integrate the links in the production chain between the original producer and the final consumer: the change in consumer prices is not always exclusively the result of the retail distribution sector's pricing policy. Nevertheless, it is possible to draw some conclusions from it.

First of all, following the initial shock, the rise in consumer prices for milk was very significant in Belgium, more so than in France and the Netherlands, but of a similar magnitude to that observed in Germany. However, the extent to which these upward cost trends were passed on through the chain does not enable any conclusions to be drawn about the degree of competition. A strong increase in consumption prices can either reflect uncompetitive price formation or quite the opposite: indeed, in a highly competitive environment, not passing on the rise in costs to the consumer is not an easy thing to do for the various stakeholders in the sector, from the production stage to distribution via the processing stage, taking account of their (in principle) already narrow margins.

On the other hand, the symmetry (or lack of) between the initial upward phase and the downswing recorded since the second half of 2008 can be a sign of more (or less) competitive price formation. Here, Belgium seems to occupy a middle rank; while the drop in consumer prices following the fall in costs was not symmetric to the rise, nor as pronounced as in Germany, it is more evident than in France and the Netherlands where milk prices barely fell at all in 2008 and during the first few months of 2009.

Together with the differences observed between countries, this asymmetry between the upward and downward phases may therefore suggest that price formation in Belgium is less competitive than in Germany, but comparatively more than in France or the Netherlands. The less favourable position of Dutch retailers, who have been through a price war in the recent past, could also be explained by the potentially harmful effects in the longer term of this kind of price war, as described in box 4.

Conclusion

The distribution sector is an essential link in the economy. On the one hand, owing to its own intrinsic weight in terms of value added or employment, it makes a major contribution to the overall performance of the economy, notably in productivity terms and, ultimately, as regards generation of income. On the other hand, through its specific role of getting goods to the final consumer, it has a direct influence on the well-being of the consumer with the diversity of products on sale and via their prices.

In this respect, while the specific regulatory requirements for the sector may be justified by general societal considerations such as land use planning, protection of workers' leisure time, etc. – or sometimes even by the need to take account of specific interests of particular groups –, these rules are likely to act as a brake on purely economic efficiency. Despite the progress made in Belgium over the last few years, some of these regulatory requirements regularly attract the attention of the IMF and the OECD during their surveys of the structural position of the economy, especially since trends in activity and productivity in the distribution sector seem to be lagging behind those observed in the more dynamic European countries or in the United States. These developments would rather tend to suggest an inadequate degree of competition, which could lead to excessively high prices.

This article seeks to fully assess this evidence, by cross-matching the various sources of information available.

First of all, the OECD indicators show that the regulations governing the retail distribution sector are relatively restrictive in Belgium. Admittedly, caution is warranted when using the OECD indicators, owing to the difficulty in translating national laws into an internationally comparable figure. Nevertheless, the range of indices and the comparison of the findings with legislation tend to suggest that, for most of the major themes tackled by the OECD, regulation in Belgium is among the five most restrictive of all the countries covered. Operating conditions – the national character of restrictions on opening times of (large) shops and the monopolies over the distribution of certain products, notably medicines – are tightly regulated in Belgium and are a much greater constraint than market access conditions or direct price regulation.

As regards the economic performance of retail trade, it should be noted that, like most other economic sectors, the retail trade business in Belgium still has a higher productivity rate than in the majority of other European countries and even the United States too. However, unlike trends noted in other branches of activity, this favourable position has been gradually eroded over the last ten years. It does actually seem that Belgium's main problem lies in its inability to improve the efficiency of the production factors being used. So, the relatively strong growth in investment, notably in ICT, is offset by adverse trends in total factor productivity. If these developments continue, they could dampen the overall competitiveness of the distribution sector in Belgium and, along with the increased

openness to international trade that might be triggered by the transposition of the EU Services Directive into national legislation at the end of 2009, could constitute a threat to its sustainability.

The regulatory burden is no doubt one explanatory factor, but it is not the only one. To start with, the size of the market, as a result of the fragmentation between European countries, or even within Belgium itself owing to cultural differences, limits the opportunities to reap economies of scale. Then again, beyond the boundaries of the distribution sector, the general functioning of product and labour markets or the entrepreneurial spirit at play in the economy also come into the equation.

Despite so much regulation, no really striking anomalies are noted in the competitive situation in Belgium. The non-specialised food retail sector has a growing number of big shops, as well as an increasing number of hard discounters. This trend towards hard discounting goes hand in hand with a larger share of generic brand products, in traditional retail outlets too. Moreover, even though the overall indicators point to some concentration at national level, local competition appears to be quite strong ; only a few sales outlets have a dominant position at local level, despite quite a restrictive degree of perceived regulation. This is no doubt largely explained by the high population density, which tends to create local markets that are strong enough to be able to accept several competitors.

As far as price levels are concerned, both CityData and Eurostat's data indicate that prices charged by the retail sector are higher in Belgium than in the euro area and the three neighbouring countries. There have also been signs of a recent deterioration in the differential between prices in the Belgian supermarkets and prices charged by the German and Dutch supermarkets in particular. Compared with Germany alone, adverse developments in labour costs in Belgium can go some way to explaining the trend in price differentials. Similarly, retail business margins seem to be structurally higher than in Germany (wider presence of hard discounters in this country no doubt goes a long way to explaing the low mark-ups in the retail distribution sector). On the other hand, the sharp deterioration of the price differentials between Belgium and the Netherlands recorded in supermarkets can be explained by the price war that raged between the major Dutch retail groups from October 2003 to December 2006.

Overall, it therefore appears that the actual influence of specific regulatory requirements for the retail trade on the efficiency of the sector, on the degree of competition and, ultimately, on consumer prices needs to be looked at very carefully.

On the one hand, coordinating and simplifying the many rules and regulations in force in Belgium would no doubt generate the same results in terms of consumer protection, land use planning, or other objectives, while at the same time breaking down the underlying barriers to entry for new market players caused – in terms of prior information requirements and administrative burden – by the multiplication of regulatory laws. On the other hand, the performance of the distribution sector must be examined taking account of the specific features and general organisational rules of the economy, in which it is just one link. Nevertheless, there is no doubt that a flexible retail sector enjoying effective competition is a necessary precondition for supporting the growth potential of the economy and ensuring consumer satisfaction, and that also means by maintaining an appropriate price level.

Bibliography

Allington N., P. Kattuman and F. Waldmann (2005), "One market, one money, one price?", *International Journal of Central Banking*, 1(3), 73-115.

Boylaud O. and G. Nicoletti (2001), *Regulatory reform in retail distribution*, OECD, Economic Studies 32.

Christopoulou R. and P. Vermeulen (2008), *Markups in the euro area and the US over the period 1981-2004: A comparison of 50 sectors*, ECB, working paper 856.

Conway P. and G. Nicoletti (2006), *Product market regulation in the non-manufacturing sectors of OECD countries: Measurement and highlights*, OECD Economics Department, working paper 530.

Coupain N. (2005), *La distribution en Belgium. Trente ans de mutation*, Racine, Bruxelles, 392.

Economic Intelligence Unit, CityData 1990-2008.

Eurostat, Purchasing power parities 1995-2007.

Heil O. and K. Helsen (2001), "Toward an understanding of price wars: Their nature and how they erupt", *International Journal of Research in Marketing*, 18(1-2), 83-98.

Inklaar R., M.P. Timmer and B. van Ark (2007), "Mind the gap! International comparisons of productivity in services and goods production", *German economic review*, 8(2), 281-307.

McGuckin R.H., M. Spiegelman and B. van Ark (2005), *The retail revolution: Can Europe match US productivity performance?*, Research report Perspectives on a global economy, The Conference Board.

Rogers J. (2007), *Monetary union, price level convergence, and inflation: How close is Europe to the United States?*, Journal of Monetary Economics, 54(3), 785-796.

UK Competition Commission (2008), *The supply of groceries in the UK: Market investigation*, www.competition-commission.org.uk.

Urbany J. and P. Dickson (1991), "Competitive price-cutting momentum and pricing reactions", *Marketing Letters*, 2(4), 393-402.

van Ark B. (2005), *Europe's productivity gap: Catching up or getting stuck?* Paper presented at International Symposium on Productivity, Competitiveness and Globalisation, Banque de France.

Van Heerde H., E. Gijsbrechts and K. Pauwels (2008), "Winners and losers in a major price war", *Journal of Marketing Research*, 45, 499-518.

Wölfl A., I. Wanner, T. Kozluk and G. Nicoletti (2009), *Ten years of product market reform in OECD countries – Insights from a revised PMR indicator*, OECD Economics Department, working paper 365.

The economic recovery plans

D. Dury
G. Langenus
K. Van Cauter
L. Van Meensel*

Introduction

The financial crisis which began in 2007 worsened dramatically in the autumn of 2008, culminating in the most serious global economic recession of the post-war period. Moreover, the consequences of that recession are in turn threatening to aggravate the financial crisis. It is therefore vital to ward off that threat and ensure that this crisis does not turn into a protracted global depression.

The seriousness of the financial crisis and the economic recession and the scale of the accompanying risks prompted the economic policy makers to take swift and resolute action. Thus, governments and central banks took various measures to support the financial sector, which was in danger of collapse. Efforts were made to protect deposits and avert a looming credit crunch. In parallel with these measures, monetary policy was eased significantly throughout the world, a move made possible by the sharp decline in inflation expectations and risks. On the fiscal policy front, numerous countries devised measures in the form of economic recovery plans which, together with the automatic stabilisers, were intended to counteract falling demand.

This article looks at the economic recovery plans. The attempt to use fiscal measures to kick-start economic growth is laudable, but the question is whether that goal is actually being achieved. The first chapter aims to define a fiscal policy which could offer an appropriate response to the crisis, on the basis of the theoretical framework of fiscal activism and the findings of empirical studies on the subject. The second chapter describes the recent economic recovery plans of the United States and those of the European Union and its Member States, including Belgium. The third chapter comments on these various plans. The article ends by drawing a number of conclusions.

1. Effectiveness and limits of an anticyclical fiscal policy

1.1 Theoretical background

A lively debate is in progress on the appropriate role of fiscal policy in steering the business cycle, principally during an economic recession phase. Recovery measures are mostly presented as a way of attenuating the unwelcome effects of a slowdown or an economic recession, such as rising unemployment. That is particularly true if those effects are not confined to purely cyclical phenomena but also impair the economy's growth potential. One example concerns the 'hysteresis' effects on unemployment, where the unemployed lose hope of finding a new job, and cyclical unemployment is liable to become structural. In such circumstances, governments may try to stimulate economic activity via both their expenditure and their revenue. Fiscal measures may provide a direct boost to economic growth via increased consumption or public investment, but they may also have an indirect effect, e.g. by augmenting household purchasing power via tax cuts or an increase in welfare benefits. The effectiveness and desirability of such demand management by the

* The authors would like to thank Wim Melyn for his contribution to the production of this article.

government on the basis of the theories of John Maynard Keynes call for a number of comments.

First, it is important for such recovery measures to be timely in their effects, otherwise their impact might only become apparent after the cyclical upturn and the measures would become procyclical. In reality, all kinds of delays may occur, originating in particular from the political decision-making process, not only at the stage of identifying the economic slowdown but also when the measures are implemented.

Second, measures to support demand must, by definition, be temporary and must be neutralised as soon as the economy picks up. Experience has also shown that, for policy makers, it is far more attractive to implement such recovery measures than to abolish them. There is therefore a possibility that "temporary" recovery measures may become permanent, causing the structural budget position to deteriorate.

Third, it is important that budget resources intended to stimulate the economy should be allocated correctly, and that recovery measures should be defined and established on the basis of objective criteria, taking account of general well-being. Nonetheless, it is hard to ensure that the measures cannot be distorted by various private interests and pressure groups. If that happens, the government measures become less effective.

In addition, the effectiveness of the recovery package is largely determined by the response of private economic agents. In that regard, various factors may undermine that effectiveness. Thus, the effectiveness of tax cuts or increases in household allowances may be diminished if, owing to the uncertainty surrounding their future financial situation, the households choose to set aside a large percentage of the resulting additional resources. Similarly, tax cuts for businesses do not necessarily cause firms to step up their investment, or recruit or retain more staff. In uncertain times, firms may prefer to devote the resulting additional resources to strengthening their balance sheet, especially if they face substantial excess capacity as a result of a sharp fall in demand. In the economic literature, this type of reaction – which may considerably impair the effectiveness of a fiscal stimulatory policy – is known as a "non-Keynesian effect".

It must also be borne in mind that a deterioration in the budget situation and increased government borrowing exert upward pressure on interest rates and thus compromise the effectiveness of the recovery package. These inhibiting effects can be attenuated if the fiscal policy is accompanied by an accommodating monetary policy.

Finally, the degree of openness of the economy is an essential factor: if the import ratio is high, all other things being equal, the impact of a given fiscal measure on domestic activity growth will obviously be smaller than in the case of a low import ratio.

For these reasons, it is essential to assess which elements will determine the reactions of private economic agents to the fiscal stimuli. Apart from general confidence in the economy, the credibility of fiscal policy also plays a decisive role. Doubts over the sustainability of public finances may in fact render consumers and investors even more cautious, and lead to non-Keynesian reactions. The proportion of households and businesses facing constraints on liquidity or credit is another important factor. The greater that proportion – which in principle rises in a period of economic recession – the more likely it is that the tax incentives will trigger consumption and investment expenditure, reinforcing the effectiveness of fiscal activism.

The conclusion is therefore that the theoretical basis for the anticyclical fiscal policy is not clear cut. In any case, during an economic recession, a recovery package is not the obvious way of achieving the desired effects, as the effectiveness of the measures seems heavily dependent on the detailed recovery plan arrangements, and on circumstances such as the situation regarding public finances.

1.2 Empirical results for fiscal multipliers

There is also a huge volume of empirical literature on the effectiveness of an active fiscal policy designed to support demand. This often refers to what are known as the fiscal multipliers, which reflect the extent to which a given fiscal stimulus will boost the growth of activity.

However, these studies are not unanimous in their conclusions regarding both the scale of these multipliers and the relative effectiveness of the various measures concerning revenue and expenditure. In line with the theory, the empirical findings appear to depend largely on the exact circumstances, and often also on the model used to assess the results. They must therefore be interpreted with the greatest caution. Nonetheless, the empirical literature does permit a few tentative conclusions.

Although the empirical estimates of the fiscal multipliers vary widely in their results, ranging from (Keynesian) values of 1 or more to negative values, in most cases they are positive, implying that fiscal recovery measures are actually capable of providing a positive boost to economic growth. However, most of the studies do indicate fiscal

multipliers of less than 1, and in many cases the impact of a temporary stimulus on economic activity is very limited.

Moreover, the multipliers appear to diverge according to the type of stimuli considered. Many studies demonstrate that it is temporary increases in consumption and public investment that have the greatest positive and immediate impact on economic activity, although ordinarily that effect soon fades. Conversely, in the long term, a cut in public revenues seems to be more beneficial for economic growth than an increase in public expenditure.

Empirical studies also confirm that the scale of the liquidity and credit constraints plays a role in the effectiveness of a fiscal stimulatory policy. The greater the number of households and businesses facing such constraints, the higher the fiscal multipliers of tax cuts.

It also seems that the impact of recovery measures is smaller if the situation regarding public finances – generally estimated on the basis of the level of public debt or its growth – is deteriorating. This is because the recovery measures drive up interest rates, depressing private investment, and because households save more as a precaution in times of budget problems.

Finally, the fiscal multipliers clearly diverge from one country to another. Thus, the impact of the recovery package tends to be weaker the smaller and more open the economy, since a large part of the fiscal stimulus may be exported. Various studies observe smaller multipliers for developed economies than for developing economies, owing to greater liquidity constraints in the latter. In addition, studies at national level find that multipliers in the EU Member States are smaller than in the United States.

1.3 What fiscal policy in response to the crisis ?

The theoretical considerations and empirical findings described above seem to suggest that fiscal activism is not very effective as a way of smoothing out normal cyclical fluctuations. But the crisis which battered the global economy in the autumn of 2008 cannot be viewed as a normal cyclical slowdown. Given the gravity of the economic situation and the scale of the associated risks, it seemed right to mobilise all possible resources to reverse this situation. In that context, fiscal policy does have a role to play.

Given that the recession could become protracted, it is irrelevant to argue that economic recovery plans always come too late. Moreover, owing to the recession more households and businesses could face liquidity or credit constraints than under more normal circumstances, and that should augment the impact of the recovery measures. Finally, under the said circumstances, it is desirable to support economic activity in order to halt the negative spiral and curb the hysteresis effects on unemployment.

However, in order to succeed, economic recovery plans have to fulfil certain conditions.

First, the recovery plans must form part of a much wider package. In that regard, the absolute priority is to stabilise the financial system, without which it will in fact be impossible to achieve a recovery in the real economy. Moreover, fiscal stimuli are more effective if accompanied by a flexible monetary policy.

Second, recovery measures obviously need to be timely, temporary and targeted – the famous 3 Ts. Another requirement might be coordination : coordinated action is desirable because part of the fiscal stimulus is exported via an increase in imports, and is also needed to eliminate protectionist reflexes from national recovery plans. These conditions should be considered necessary for fiscal activism, but not sufficient to ensure its success.

Automatic stabilisers, such as the decline in tax revenues and the increase in unemployment benefits during an economic recession, always satisfy the 3 T criteria. In countries where, during a recession, relatively powerful automatic stabilisers already ensure a temporary and targeted economic recovery, the need to resort to fiscal activism – and the scope available for that purpose – is also less than in countries where the automatic stabilisers are relatively limited.

Third, wherever possible the recovery package should try to facilitate rather than complicate or delay essential structural reforms. Nevertheless, it is not always obvious how to reconcile such aims with other requirements. From that point of view, public investment appears to be the best option in terms of fiscal multipliers and strengthening of the economic growth potential, although in practice speedy implementation may prove difficult.

Finally, it is vital to dispel doubts about the long-term sustainability of public finances. In many European countries, including Belgium, that last condition is already imposing tight constraints on the scope for far-reaching recovery measures – which would impose a heavy burden on the budget. Combined with a rather unfavourable initial budget situation in some countries, the effect which the economic recession exerts on the budget position via relatively powerful economic stabilisers has seriously damaged the health of public finances in many countries. Consequently, there is a danger that it will become even

more problematic to finance the budgetary cost of population ageing.

In order to eradicate doubts about the sustainability of public finances, it is therefore important for the recovery measures to be largely temporary, and for the economic policy makers to highlight the prospect of reducing budget deficits and, preferably, eliminating them as soon as the economy reverts to a more normal growth path.

2. Description of the recovery plans in the United States and in Europe

This chapter reviews the various economic recovery plans as devised by the United States, and by the European Union and its Member States, including Belgium.[1] It concentrates more particularly on the planned increases in expenditure and tax cuts, since they have a direct effect on the general government budget balance. Conversely, this chapter devotes little or no attention to the relatively numerous measures taken to support the financial sector and the financial markets, and other measures which have no direct impact on the budget balance.

TABLE 1 RECOVERY MEASURES IN THE UNITED STATES: AMERICAN RECOVERY AND REINVESTMENT ACT

(billions of US dollars, unless otherwise stated)

Tax cuts[1]	288
Tax cuts in favour of States and local authorities[2]	144
Infrastructure and science	111
Protection for vulnerable groups	81
Health care	59
Education and training	53
Energy	43
Other	8
Total	**787**
p.m. As a percentage of GDP	*5.4*

Source: www.recovery.gov.

(1) Of which 15 billion US dollars for infrastructure and science, 61 billion for the protection of vulnerable groups, 25 billion for education and training and 22 billion for energy. Altogether, the funds allocated thus total 126 billion for infrastructure and science, 142 billion for the protection of vulnerable groups, 78 billion for education and training and 65 billion for energy.

(2) These tax reductions aim to prevent any cut-backs in expenditure on health care and education and tax increases on the part of States and local authorities.

2.1 The US recovery plan

In addition to the initiatives taken by the Federal Reserve via its monetary policy instruments, the American government has implemented or approved a number of recovery and stabilisation plans in order to limit the impact of the financial crisis on the real economy and to support the sectors hit by this crisis.[2]

Thus, in February 2008 Congress approved the Economic Stimulus Act, a law comprising measures totalling 168 billion US dollars to support individuals, firms and the mortgage market.

In February 2009 the American Recovery and Reinvestment Act was passed in order to cushion the impact of the financial crisis on the real economy and to halt the slump in demand. This large-scale recovery plan aims to create or safeguard 3 to 4 million jobs – 90 p.c. of them in the private sector – via multiple fiscal stimulus measures.

This last plan implies a budgetary cost of 787 billion US dollars, or 5.4 p.c. of GDP. Almost 40 p.c. of the amount allocated to recovery measures corresponds to tax cuts, including a general reduction in personal income tax of 400 dollars per person. Just under 20 p.c. of this amount is to be allocated to aid for the States and local authorities. Finally, just over 40 p.c. will go on expenditure, and more particularly on social and federal programmes. These programmes focus mainly on infrastructure projects and science, protection for vulnerable groups, health care, education and training, and energy.

2.2 The European Economic Recovery Plan

A number of national governments in the EU had already announced economic recovery plans or had such plans in preparation, but it was on 26 November 2008 that the EC presented a European framework for the plans. The "European Economic Recovery Plan" was approved by the European Council on 11 and 12 December 2008. It provides a common framework for the implementation of an active fiscal policy designed to limit the scale of the recession, to stimulate demand and to restore confidence. This plan provides for a total fiscal stimulus of 200 billion euro – or around 1.5 p.c. of the EU's GDP –, with

(1) This article does not consider the plans adopted in other countries, even though their scale is sometimes considerable. For instance, in China, according to IMF data published in April 2009, discretionary measures relating to 2007 represented a cumulative budgetary cost amounting to 0.4 p.c. of GDP in 2008, 3.1 p.c. of GDP in 2009 and 2.7 p.c. of GDP in 2010. The corresponding figures for Russia are 0 p.c. of GDP in 2008, 4.1 p.c. of GDP in 2009 and 1.3 p.c. of GDP in 2010, and for Japan 0.3 p.c. of GDP in 2008, 2.4 p.c. of GDP in 2009 and 1.8 p.c. of GDP in 2010.

(2) The Emergency Economic Stabilization Act (October 2008) and the Financial Stability Plan (February 2009) include measures designed to restore liquidity and stability on the US financial markets and to recapitalise a number of financial institutions (and certain vehicle manufacturing groups).

Member States contributing 170 billion euro in the form of fiscal measures, and the European Investment Bank providing 30 billion via increased lending.

The recovery plan does not propose any specific allocation of measures among the Member States. However, the EC stated that account should be taken of the initial situation of the various Member States, and of the fact that they did not all have the same fiscal room for manoeuvre.

According to the European Economic Recovery Plan, the proposed fiscal stimuli must be carefully designed and based on a number of principles.

First, the recovery measures must satisfy the 3 T criteria : they must be timely, temporary and targeted. According to the EC's interpretation, this last condition means that the recovery measures must target the source of the economic problem – unemployment, credit constraints facing households and businesses, and support for structural reforms – in order to maximise the stabilisation effect produced by limited budget resources.

Next, the recovery measures must combine instruments affecting both revenue and expenditure. However, the EC pointed out that increases in consumption and public investment generally had a greater influence on demand than tax cuts, since some consumers may prefer to set aside the amount saved from lower taxes. In that context the European Economic Recovery Plan draws up a list of measures which may provide a fiscal stimulus. Thus, expenditure may be increased, either by measures to support the households hardest hit by the crisis – such as an increase in benefits for low-income households or the unemployed, and a temporary extension of the unemployment benefit period – or by bringing forward investment projects which may be advantageous for SMEs or may support long-term political goals. Guarantees and subsidies in the form of loans may also help to alleviate the shortage of credit. Other possibilities include financial incentives to speed up the adjustment of economies facing long-term challenges, and more particularly, to promote energy efficiency. Reductions in taxes and social security contributions for both businesses and households may strengthen demand for labour and boost purchasing power. Finally, temporary reductions in the rate of VAT may support private consumption.

The fiscal stimuli also need to be accompanied by structural reforms within the broader context of the Lisbon strategy, which aims in particular to raise the employment rate and create a knowledge-based economy.

Finally, the recovery measures must fit into the framework defined by the Stability and Growth Pact, which lays down the rules of fiscal discipline to be respected by the EU Member States. The European Economic Recovery Plan provides for "judicious" application of that pact, ensuring the establishment of fiscal strategies with medium-term credibility. Thus, the existence of exceptional circumstances combining a financial crisis with a recession justifies the immediate implementation of a recovery plan, even if that may cause some Member States to exceed the deficit reference value of 3 p.c. of GDP. Member States were asked to submit an updated stability or convergence programme. That updating should clarify the measures to be adopted to compensate for the deterioration in the budget and guarantee the sustainability of public finances.

Regarding the excessive deficit procedure, the EC has to produce a report in all cases where the public deficit exceeds the reference value of 3 p.c. of GDP.[1] A deficit is called excessive if it fails to satisfy the following three conditions simultaneously : the excess must be temporary, limited, and due to exceptional circumstances. A correction procedure is then launched in accordance with the rules laid down by the pact. The EC has stated that, although the current circumstances are clearly exceptional, it is unlikely that the deficits expected in excess of the reference value in many Member States can satisfy the other two conditions, so that the pact offers little scope for avoiding the launch of the excessive deficit procedure against the Member States concerned.

Conversely, the EC drew attention to the great flexibility which has existed since the 2005 reform in regard to the implementation of this procedure, especially concerning the time allowed and the structural budget effort required to correct the excessive deficit. Thus, in specific circumstances, the period is set at two years – instead of one year – following identification of the excessive deficit, and the EC has drawn attention to precedents in which even more flexible periods applied. Moreover, that period may be extended in the event of unexpected economic developments which have a very adverse effect on public finances. Finally, the EC stated that under the pact the Ecofin Council calls on Member States with an excessive public deficit to make an annual structural budget effort representing at least 0.5 p.c. of GDP, which is regarded as the reference value, and that the scale of the budget effort required can therefore be adjusted in line with exceptional circumstances.

(1) Under Article 104 § 3 of the Treaty establishing the European Community.

Turning to the medium-term goals of fiscal policy, the EC states that, as potential growth will probably be revised downwards, the same will apply to the structural budget balances. In that context, the deadline for achieving the medium-term objectives specific to each country could also be reviewed case by case.

2.3 The recovery plans of the EU Member States

2.3.1 General

Total fiscal support for economic activity

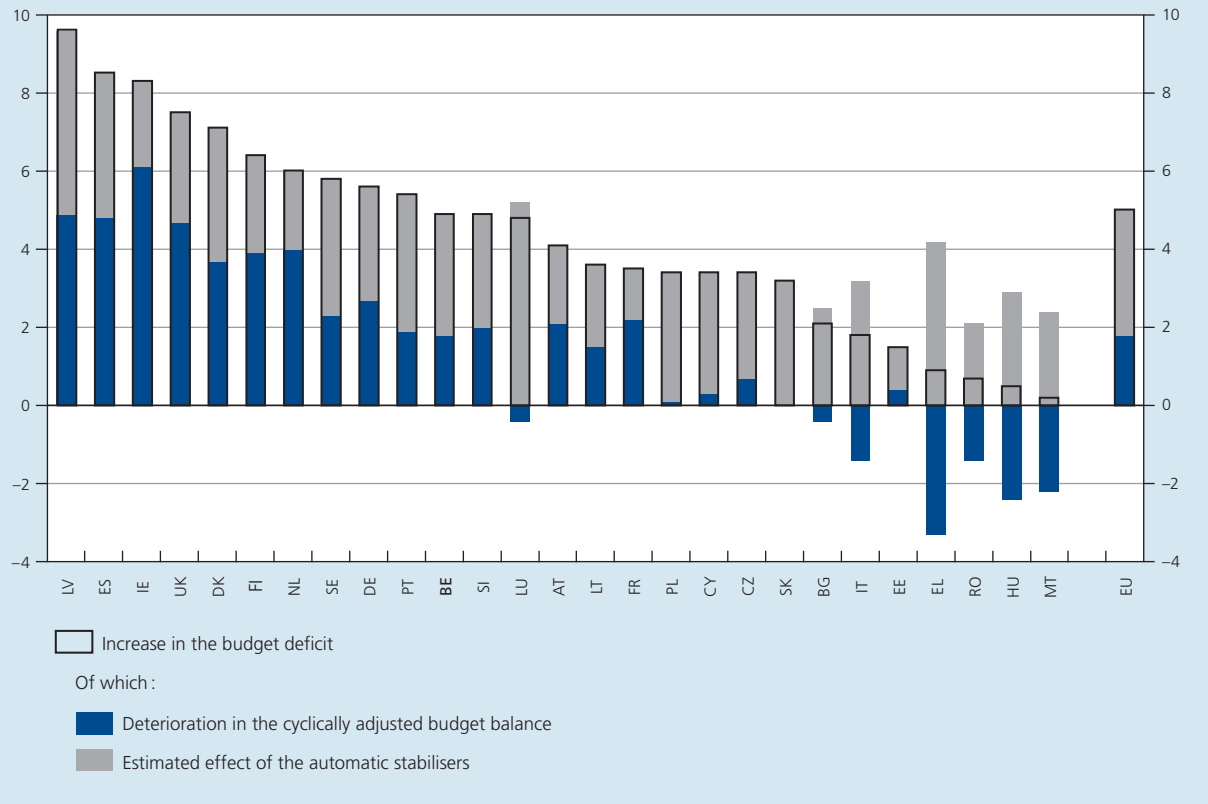
In line with the European Economic Recovery Plan, the governments of most EU Member States took measures to stimulate economic activity. The latest information from the EC indicates that the total fiscal policy support for economic activity in the EU amounts to around 5 p.c. of GDP in 2009 and 2010 together.

Only part of this support is attributable to discretionary recovery measures. These comprise all measures adopted or announced since the autumn of 2008 which may be regarded as a fiscal response to the economic recession. Thus, the impact on the budget balance of the measures approved or announced by EU Member States comes to over 135 billion euro (1.1 p.c. of GDP) for the EU as a whole in 2009. That impact will decline to 90 billion (0.7 p.c. of GDP) in 2010. It is possible to obtain an approximation of this discretionary component via the change in the cyclically adjusted budget balance, which is often used as an indicator of the fiscal policy stance. (1)

(1) The change in the cyclically adjusted budget balance does not necessarily tally with the scale of the fiscal measures designed to stimulate economic activity, as laid down in the recovery plans. That discrepancy is due partly to discretionary measures which are not recorded in the recovery plans, and partly to technical factors relating to the calculation of the cyclically adjusted budget balance.

CHART 1 TOTAL FISCAL SUPPORT FOR ECONOMIC ACTIVITY (1)

(percentages of GDP, cumulative effect over 2009 and 2010)



Source : EC.

(1) Excluding the financial sector support measures (such as recapitalisations and provision of liquidity) and guarantees granted to the private sector.

In addition, the budget's automatic reaction to the economic recession should play a considerable role in Europe. More specifically, the effect of the automatic stabilisers over 2009 and 2010 is estimated at around 3.2 p.c. of GDP. That is an average figure, since the effect of the automatic stabilisers varies greatly from one country to another, given the divergences in terms of factors such as the tax burden and the progress of the economic cycle. This figure should also be treated with caution since the difficulties which already arise under ordinary circumstances in distinguishing between automatic fluctuations in the budget balance and discretionary adjustments are heightened by the exceptional character of the current situation.

In the EU, the total fiscal support for economic activity is likely to cause the budget balance to deteriorate by around 5 percentage points, creating a deficit of over 7 p.c. of GDP in 2010. In the euro area, the budget balance is set to deteriorate by 4.5 percentage points, producing a deficit of 6.5 p.c. of GDP in 2010.

Measures in favour of the financial sector are disregarded in the EC's estimate of total fiscal support mentioned above, although they will obviously play a vital role in overcoming the current crisis. Moreover, the EU Member States have also taken a series of measures which have no impact on the general government budget balance. This mainly concerns loans and capital injections for non-financial corporations, the early reimbursement of VAT, and the increase in investments by public enterprises.

Comparison of the various fiscal policy responses in terms of both the scale and the content of the total fiscal support reveals notable differences between EU Member States. That finding is also true of the recovery plans. The following section concentrates on the scale and content of those plans. Differences concerning the action of the automatic stabilisers are not examined. However, it should be noted that the normal action of these stabilisers is an essential element of the total fiscal support for economic activity. As already stated, in most EU Member States the contribution of the automatic stabilisers exceeds that of the discretionary measures contained in the economic recovery plans.

(1) The indicator is based on six variables, namely: gross public debt, the implicit debt of the financial sector – calculated on the basis of the outstanding domestic debt of the private sector and a risk factor –, the potential medium-term adverse impact on revenues generated by corporation tax and capital taxes, the current balance, non-discretionary expenditure – essentially interest charges and pensions – and a sustainability indicator.

Scale of the recovery plans

The scale of the recovery plans as identified by the EC varies greatly from one EU Member State to another. In Spain, Austria, Finland, Malta, Germany and the United Kingdom, the scale of the recovery plans for 2009 exceeds the norm of 1.2 p.c. of GDP proposed by the EC. In contrast, Luxembourg, the Czech Republic, Poland, France and the Netherlands are very close to the European average of 1 p.c. of GDP. In Belgium, the recovery measures look limited in comparison with those adopted by all these countries, since they amount to only 0.5 and 0.4 p.c. of GDP respectively in 2009 and 2010. However, in a number of EU Member States the measures adopted have had little or no impact on the budget. That is true, for instance, of the Baltic States and of several east European countries – Bulgaria, Hungary and Romania –, and of some southern European countries such as Cyprus, Italy and Greece.

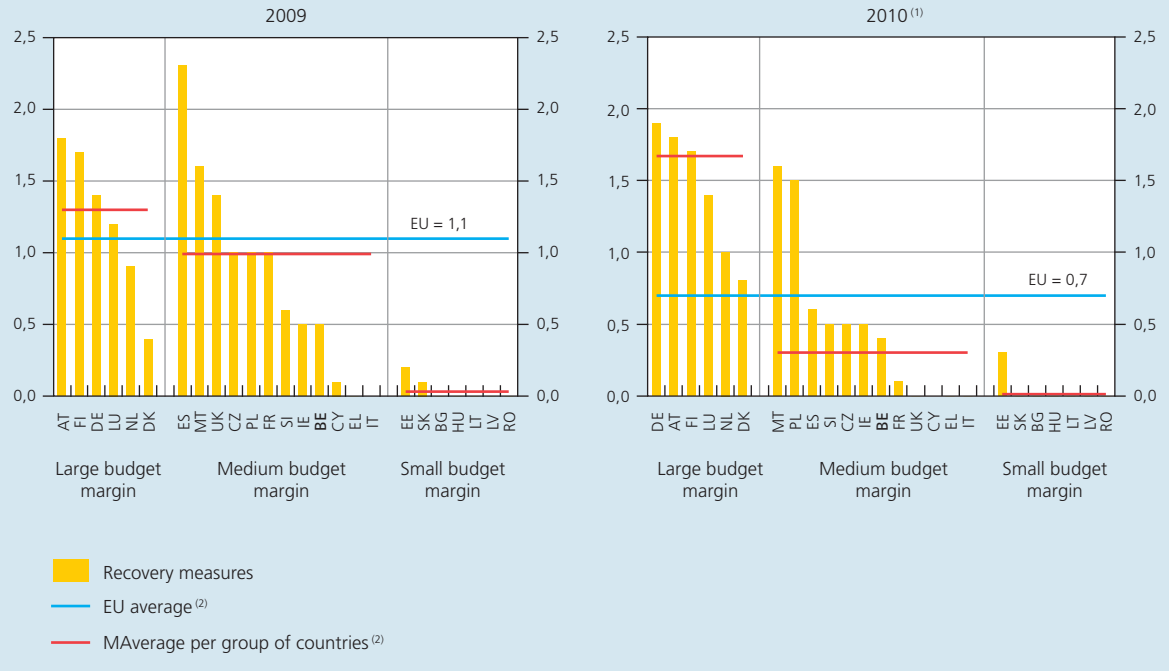
The differences in terms of the scale of the EU Member States' recovery plans are in line with the European Economic Recovery Plan's call for the initial budget position of each country to be taken into account in devising these plans. Moreover, the EC has tried to examine the extent to which the EU Member States had in fact taken that point into account. For that purpose, it compared the scale of the national recovery plans to a budget margin indicator developed by its staff. That indicator refers to a country's capacity to finance the desired fiscal programmes in the short, medium and long term, and to honour its creditors without jeopardising macroeconomic stability and the sustainability of public finances. (1)

On the basis of that indicator, the EC divided the EU Member States into three groups according to whether their budget room for manoeuvre was large, medium or small. In view of the highly complicated method of calculating this indicator, the results must be interpreted with caution. Belgium belongs to the group of countries with medium room for manoeuvre.

In general, the Member States with greater budget room for manoeuvre seem to have adopted more recovery measures than those which have less scope. More specifically, the measures adopted by countries with ample budget room for manoeuvre represent, on average 1.3 p.c. of GDP in 2009 and 1.7 p.c. in 2010, whereas the corresponding figures for those years in countries with average budget room for manoeuvre are around 1 and 0.2 p.c. of GDP respectively. On the other hand, countries with limited budget room for manoeuvre have made little or no use of recovery measures.

CHART 2 SCALE OF THE RECOVERY PLANS

(percentages of GDP)



Source: EC.

(1) The figures indicate the change between 2008 and 2010. They therefore take account of permanent measures which came into force in 2009 and the net effect of measures planned for 2010.

(2) Weighted average.

Content of the recovery plans

The recovery plans adopted by the EU Member States comprise a range of measures. Over half of the EU Member States have reduced the fiscal and parafiscal burden on labour, measures which are likely to have a major impact on the budget in a number of countries. Under half of the Member States have adopted measures concerning taxes on corporate profits. VAT cuts are less common: the United Kingdom is the only country to have made a substantial general, but temporary, reduction in VAT. Cyprus, Finland, Austria and Belgium resorted to sectoral cuts in VAT. Those cuts concerned the following branches of activity respectively: tourism, food, pharmaceuticals and construction. Most of the EU Member States endeavoured to stimulate investments in public infrastructure. Rather than new initiatives, most of these measures concern infrastructure projects which were already planned and have been brought forward. Over half of the EU Member States have adjusted social benefits (pensions, family allowances and unemployment benefits). In the majority of countries, these measures have little impact on the budget. Finally, all Member States have adopted other measures aimed, in particular, at facilitating access to credit, reinforcing the liquidity position of firms, stimulating private investment in R&D and energy efficiency, assisting certain specific sectors (such as the car industry and the property market), and establishing an active labour market policy.

The recovery measures taken at the scale of the EU and the euro area are evenly balanced between expenditure and revenue. Of the total discretionary recovery measures, which amount to 1.1 p.c. of GDP in 2009, just under half (0.5 p.c. of GDP) concern expenditure while just over half (0.6 p.c. of GDP) concern revenue. In most of the EU Member States, there is a balanced mix of measures affecting expenditure and revenue. However, a number of countries, namely Finland, the Netherlands, Luxembourg, Austria, the United Kingdom and Poland, have focused most of their measures on revenues. Conversely, the opposite is true for Cyprus, Estonia, Malta, Portugal and Slovenia.

TABLE 2 COMPOSITION OF THE RECOVERY MEASURES[1]
(2009)

	AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HU	IE
Levies on labour	X	x	x		x	X	X			X	X	x	x	
Corporation tax	x				x	X			x	X		x		
VAT	x	x		x							X			
Public infrastructure[2]	x	x	x	x	x	X	X	x		X	x	X	x	x
Social benefits	x	x	x	x		x			x	x		x		X
Other	x	x	x	X	x	X	x	x	x	X	x	x	x	x

	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK
Levies on labour	X		X	x	x	x		x	x	X		x	
Corporation tax			X			x	X	x		X	x		
VAT													X
Public infrastructure[2]	x	x	X		x	x	X	x	X	x		x	x
Social benefits	x		X	x			x	x	x				x
Other	x	x	X	x	x	x	x	x	x	X	x	x	x

Source: EC.

(1) This table was produced using an EC database which records various recovery measures adopted by EU countries. It does not include some more recent measures, such as the reduction in VAT in the hotel and catering trade in France.

(2) A minority of measures concerning the public infrastructure consist of new initiatives. In other words, most of them relate to projects which had already been planned and were brought forward.

X Big impact on the budget (≥ 0.2 p.c. of GDP).

x Small or unspecified impact on the budget.

Effect of the recovery plans on economic growth

It is uncertain how the recovery plans will affect economic growth, as estimating the fiscal multipliers entails making a number of strong assumptions. On the basis of its economic model, Quest III, and assuming a serious shortage of liquidity for households, the EC estimated that the European recovery measures would contribute 0.8 percentage point to GDP growth in 2009 and 0.3 percentage point in 2010.[1]

2.3.2 Recovery measures adopted by certain EU Member States

This section examines in more detail the recovery measures adopted by countries bordering Belgium. It also comments on the recovery plans set up in the United Kingdom and Spain, as they are relatively substantial in scale.

(1) These figures are based on discretionary stimuli amounting to 1 p.c. of GDP in 2009 and 0.5 p.c. of GDP in 2010, corresponding overall to the scale of the European recovery plans.

Germany

Germany has the most ambitious recovery plan of all the EU Member States, in terms of both percentage of GDP except Austria – and billions of euro. The EC estimated the budgetary cost at around 3.3 p.c. of GDP over 2009 and 2010 together. More specifically, the impact on the budget is assessed at 1.4 p.c. of GDP in 2009, rising to 1.9 p.c. of GDP in 2010.

This discretionary support largely takes the form of a reduction in the charges imposed on labour. There are also plans for a fundamental reform of corporation tax, and substantial public investment in infrastructure has been announced. In addition, a 2,500 euro allowance is granted in cases where a car over 9 years old is replaced by a more ecological vehicle. Only one-third of the purchases resulting from this measure concern German-made cars, so that there are significant spill-over effects for foreign car makers. The other measures include in particular reinforcement of the employment activation policy, extension of the temporary lay-offs system, a structural, one-off increase in family allowances, reintroduction of more

flexible rules on depreciation for businesses to encourage them to invest, reinstatement of the tax allowance for commuters, and a steeper increase in pensions and social benefits in the context of rising unemployment. Finally, there is the implementation of a programme of loans and guarantees for businesses amounting to 100 billion euro, although this measure has no impact on the general government budget balance.

France

The French recovery plan is less extensive than the German plan. The EC estimates its budget impact at 0.9 p.c. of GDP, namely 0.8 p.c. of GDP in 2009 and 0.1 p.c. in 2010.

The plan boosts the purchasing power of low-income households by payment of a solidarity bonus of 200 euro per household, and by tax cuts and tax exemption. In contrast to the German recovery plan, a reduction in charges on labour is not a key component of the French recovery plan. Although the employers' contributions payable by SMEs recruiting unemployed persons have been reduced, the budget impact of this measure is small. In order to support the labour market, the employment activation policy is also being reinforced. In addition, the French economy is being revitalised by substantial investment in infrastructure projects, such as the renovation of university campuses. Business investment is also being encouraged by tax exemptions. Furthermore, there is sectoral support for the car industry, in the form of a 1,000 euro allowance in cases where an old car is replaced by a new one, and substantial loans for car makers, and support for the property sector by the doubling of the amount on which a zero-rate loan can be arranged for the purchase of a new home and by increased finance for housing construction. Finally, aid is being granted to French firms via numerous measures geared to liquidity, and a programme intended to support lending to SMEs has been set up, but these measures have no direct impact on the general government budget balance.

Netherlands

The EC estimates the overall budget cost of the Dutch recovery plan at 1.9 p.c. of GDP in 2009 and 2010. The discretionary support is put at around 0.9 p.c. of GDP in 2009 and 1 p.c. of GDP in 2010.

The measures mainly affect public revenues. For instance, there are measures concerning corporation tax, particularly via an adjustment to the depreciation rules, and measures concerning social security contributions and personal income tax. It was also decided to cancel the planned 1 percentage point increase in VAT and to abolish the tax on airline tickets. In addition, household purchasing power is being boosted by the reduction in unemployment insurance contributions. There is also sectoral support for the social housing market and support for the car industry, via payment of an allowance for the replacement of an old vehicle. In addition, specific measures to combat unemployment have been adopted, such as the introduction of a system of temporary lay-offs. Investments in public infrastructure have also been announced, mainly the acceleration of projects already planned. Finally, there are government guarantees to encourage lending to SMEs.

Luxembourg

The recovery plan adopted by Luxembourg comprises measures amounting to 2.6 p.c. of GDP. The impact on the budget is estimated at 1.2 p.c. of GDP in 2009 and 1.4 p.c. in 2010.

The recovery measures consist largely of tax cuts and a significant increase in public investment. In order to support household purchasing power, the personal income tax scales have been index-linked, pensions have been increased by 2 p.c., and there are plans for a reform which will extend the tax credit for dependent children. Corporation tax has been cut from 22 to 21 p.c., and the tax on capital increases has been abolished. In addition, struggling firms may qualify for a special support programme and SMEs may be eligible for increased subsidies. The Luxembourg recovery plan also provides for labour market support via an incentive to resort to temporary lay-offs, with refund of the employer's contribution to unemployment benefits, extension of the period covered and increased benefits for workers who attend training. Finally, there is a package of "green" measures, designed to promote environment-friendly cars and eco-energy consumption.

United Kingdom

The EC estimates the impact of the United Kingdom's recovery plan at 1.4 p.c. of GDP. All the impact on the budget will be felt in 2009.

The main measure is the temporary reduction in the rate of VAT from 17.5 to 15 p.c. in 2009. Other measures include the acceleration of public investment in infrastructure and a one-off tax reduction of 130 pounds sterling per person in 2009, in addition to the £600 granted in May 2008. There are also some measures to reinforce the active employment policy, support for the residential property market and an increase in family allowances and pensions linked to prosperity. By analogy with the

recovery plans adopted in Germany and France, there is a £2,000 allowance for the purchase of a new car provided it replaces an old vehicle. Finally, a number of measures also aim to support lending to small businesses and to the car industry.

Spain

Like Germany, Spain has set up a relatively ambitious recovery plan compared to the other EU Member States. The EC considers that the Spanish recovery measures will have a budgetary cost of 2.9 p.c. of GDP in 2009 and 2010. Most of that will be felt in 2009, at 2.3 p.c. of GDP. In 2010, the budgetary impact of the Spanish recovery plan will drop to 0.6 p.c. of GDP.

A substantial part of the fiscal stimulus concerns investment in public infrastructure projects. A number of fiscal measures have also been adopted, such as a one-off, significant tax reduction of 400 euro per taxpayer, and the abolition of the wealth tax. In addition, households struggling to repay their mortgage loan are being granted guarantees. The car industry is also receiving specific aid. Moreover, to reduce unemployment employers are being granted exemption from social security contributions when taking on new employees. Finally, businesses, and especially SMEs, are receiving support in the form of loans and early reimbursement of VAT.

2.4 The Belgian recovery plan

Following the European Economic Recovery Plan, the federal government presented the broad outline of the Belgian recovery plan on 11 December 2008. In addition, the regions announced supplementary recovery measures.

The budgetary measures taken by the federal government to revive economic activity aim mainly to breathe new life into firms, to boost purchasing power and to safeguard jobs. The measures leading to the conclusion of the central agreement for 2009 2010 were incorporated in the recovery plan, which also aims to strengthen sustainable socio-economic leverage and investment in the environmental sphere. However, the budget resources earmarked for this last item are very limited. The budget expenditure of the regions is estimated to increase by only around 0.1 p.c. of GDP in 2009, as a result of the acceleration of investment projects already planned.

The effect on the budget balances of the whole series of discretionary measures comes to 0.9 p.c. of GDP in both 2009 and 2010.[1] It essentially covers measures which had already been adopted, in particular increases in social benefits and an extension of the payroll tax reductions granted by the federal and Flemish governments. The measures taken under the federal and regional recovery plans come to 0.5 p.c. of GDP in 2009 and 0.4 p.c. in 2010.

The main recurrent budgetary costs associated with the supplementary recovery measures are due to the extension of the payroll tax reductions for firms, amounting to 482 million euro in 2009 and 1.1 billion in 2010. Thus, the reductions in charges on shift work and night work have been extended with effect from 1 June 2009. The number of overtime hours qualifying for exemption has also been increased, and the general reduction in payroll tax was extended in June 2009, and will be extended again in January 2010. Finally, the percentage of the payroll tax reduction applicable to researchers has been increased.

In addition, to counteract the repercussions of the crisis, the government adopted a series of specific measures which also have a permanent impact on the budget balance. For instance, the purchasing power of workers who have been temporarily laid off was boosted by a simultaneous increase in both the unemployment benefit reimbursement rates and the calculation ceiling. Moreover, the tax discrimination affecting married persons who are temporarily laid off has been eliminated, and subject to certain conditions, it is now easier for agency workers to claim benefits.

The recovery plans include only a small number of measures having a temporary impact on the budget balance. The federal government and the regions are trying to speed up the rate of their own investments. Also, the rate of VAT on the construction of new family housing has been cut from 21 to 6 p.c. on the first 50,000 euro tranche. The VAT rate has also been cut from 12 to 6 p.c. for the construction of public social housing. Finally, a one-off reduction of 30 euro on electricity bills has been granted to all households in 2009, costing the government an estimated 135 million euro.

The above measures form just part of the response by the federal and regional governments to the crisis. The federal government has in fact also provided support for the financial sector. In addition, it has adopted considerable measures to preserve the liquidity position of businesses and self-employed persons, e.g. by postponing the dates for payment of VAT, social contributions and payroll tax,

(1) The federal government also included in the recovery plan the effect of the indexation of personal income tax scales for 2009 (costing 1.2 billion euro). According to the methodology used by the Bank and by the EC, this is not regarded as a measure (though conversely, the non-indexation might be regarded as such). Its effect is therefore disregarded here.

TABLE 3 MAIN RECOVERY MEASURES IN BELGIUM[1]
(millions of euro, change compared to 2008)

	2009	2010
Permanent measures	**1,869**	**2,821**
Measures already adopted	1,242	1,570
Payroll tax reductions[2]	482	1,115
Increase in temporary lay-off benefits	100	103
Other	45	33
Temporary measures	**1,140**	**153**
Reduced rate of VAT in construction	300	0
Measures adopted by the regions	150	0
Acceleration of public investment	146	153
Reduction in electricity bills	165	0
Other	379	0
Total recovery measures	**3,009**	**2,974**
p.m. As a percentage of GDP	*0.9*	*0.9*

Sources: FPS Finance, budget documents.
(1) This only concerns measures having a direct effect on the general government budget balance.
(2) For shift work and night work, overtime and general reduction.

or by early reimbursement of VAT. Moreover, the regional plans place a large volume of funds at the disposal of non-financial corporations via regional investment companies. Nonetheless, taken together, these measures do not in principle imply any associated direct effect on the overall balance of general government.

3. Comments on the recovery plans

This chapter sets out some general thoughts on the economic recovery plans. It focuses first on the differences between the United States and Europe, and then examines the extent to which the European recovery measures satisfy the 3 Ts. Finally, it draws attention to the scale of the risks associated with the current wave of fiscal activism.

Differences between the United States and Europe

The US economic recovery plan is far more extensive than that of the EU. In specific terms, the budgetary cost of the American plan cumulated over 2009 and 2010 is estimated at 5.4 p.c. of GDP, while the European plan is expected to cost only 1.8 p.c. of GDP. However, these figures do not provide an accurate picture of the total fiscal support in the two economies. For that purpose it is necessary to take account of the differences in terms of automatic stabilisers. In the EU, the budgetary support via the economic stabilisers is put at 3.2 p.c. of GDP, representing considerably more than the support provided via the recovery plans. In the United States, the stabilisers play a much more modest role, as the fiscal pressure is less there. Moreover, the absence of a strong social security safety net is a powerful argument in favour of a stronger fiscal stimulus in the United States. Also, past experience has shown that in the United States there is a culture of large-scale fiscal intervention in times of crisis, at least to a much greater extent than in Europe.

Timely, temporary and targeted ?

It is difficult to judge whether the European recovery plans are sufficiently timely. All things considered, the government response has been relatively swift. Admittedly, there was some delay between the start of the economic crisis and its recognition, and between the decision on the recovery plans and their eventual implementation, but those delays were more or less inevitable. Past experience indicates that serious financial crises are often accompanied by protracted economic recessions. If the current recession also proves persistent, the measures will have been taken in good time, or at least, they will not be procyclical. The measures concerning investments seem to be geared mainly towards speeding up projects which have already been planned, rather than new investments. In Belgium, the measures which have the greatest impact on the budget balance, namely the reduction in payroll tax and the adjustment in line with prosperity, were not implemented until the second half of 2009. The temporary measures and the injection of liquidity were implemented promptly and could make a very effective contribution towards limiting the impact of adverse economic growth and helping viable companies faced with liquidity problems to get through the most difficult period.

The recovery plans of the various EU Member States are not all temporary. While those of some countries, such as the United Kingdom, are genuinely temporary, that is barely true – if at all – in other countries. Belgium belongs to this last category of countries. The recovery measures there are very largely permanent, mainly on account of the measures taken under the central agreement.

Finally, it is hard to assess the extent to which the interventions are targeted, notably because the criterion in question is vague. Be that as it may, a broad range of measures have been adopted. In Belgium, the measures appear to be partly targeted, e.g. in the case of those combating unemployment, providing financial resources

for firms and households facing liquidity problems, and stimulating structural reforms. Nonetheless, it should be noted that only a very small number of measures concern public investment, in particular because the federal government no longer has any substantial powers in that area. The major part of the cost of the plan directly benefits households and businesses as a whole, in the hope that this will give them more scope for consumption and investment. However, in an adverse economic period when the confidence of consumers and producers is weak, it is likely that a substantial proportion of these resources will be held as savings, and consequently not allocated to consumption or investment.

Risks associated with the current wave of fiscal activism

In recent decades a consensus has emerged whereby sound and sustainable public finances are one of the keystones of a culture of stability geared to sustainable long-term growth. In the EU, and more particularly in the euro area, a responsible fiscal policy is in principle imposed by the fiscal rules of the stability and growth pact. From that perspective, it should probably be pointed out that, since the introduction of the euro, some countries have not always adhered strictly to those rules, and have not taken sufficient advantage of favourable periods in previous years to achieve a structural improvement in their fiscal policy.

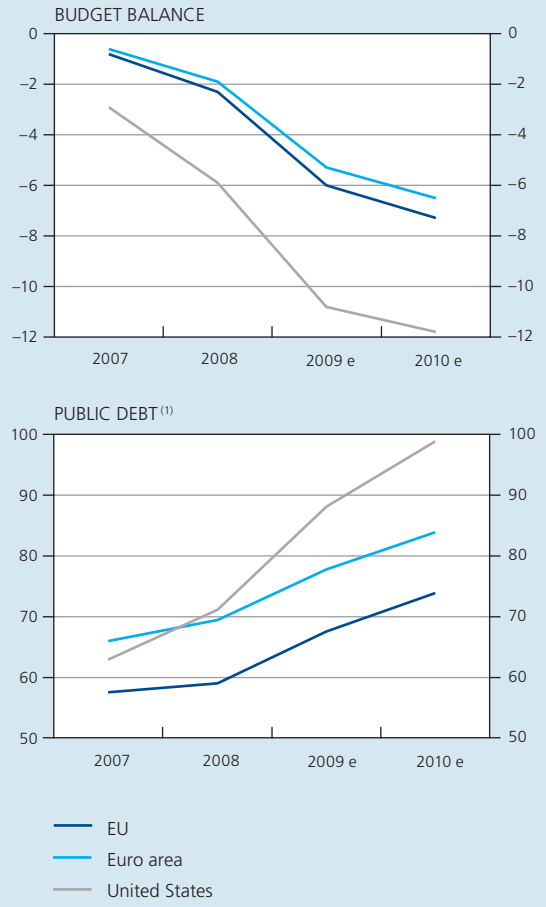
The wave of fiscal activism born of the economic and financial crisis is not without its risks. According to the latest EC estimate, as a result of the crisis the EU's budget deficit is expected to reach 7.3 p.c. of GDP in 2010, with a debt ratio of 73.9 p.c. of GDP in that year. In the euro area, the public deficit is put at 6.5 p.c. of GDP in 2010, while the debt ratio will climb to 83.9 p.c. of GDP. According to the OECD, the public deficit in the United States is likely to reach 10.8 p.c. of GDP in 2009 and 11.8 p.c. in 2010, driving up the debt ratio to almost 100 p.c. In view of the scale of the public deficits, the public debt is liable to expand considerably in the ensuing years.

The challenge which all the national governments must address concerns finding the right balance between, on the one hand, the need to revive the economy in the short term and the desire to achieve that by adopting fiscal measures, and on the other hand, the sustainability of public finances. In that regard, it must be remembered that in the coming years many countries will face the impact of population ageing on public finances.

That said, it is vital to dispel doubts about the long-term sustainability of public finances, especially as they thwart the desired effect of the recovery plans. Otherwise, non-Keynesian effects could emerge – in which case the main effect of the fiscal stimulus would be to drive up the savings ratio without boosting expenditure – and there could be a steep increase in interest rate spreads, and hence interest charges.

CHART 3 PUBLIC FINANCE PROJECTIONS

(percentages of GDP)



Sources: EC, OECD.
(1) Consolidated gross public debt.

It is therefore vital for the recovery measures to be temporary as far as possible. It is also crucial that economic policy makers should emphasise the prospect of budget deficits being radically reduced, if not eliminated, as soon as the economy reverts to a more normal growth path.

In that connection, it should be stressed that, in a report on the European Economic Recovery Plan, submitted to the European Council on 18 and 19 June 2009, the Ecofin Council estimated on the basis of the economic and budgetary forecasts that new fiscal stimuli were not necessary and that the focus should be moved towards fiscal consolidation, as the economic recovery strengthens.

Conclusion

The economic recovery plans are a key element of the wide range of measures adopted by the economic policy makers worldwide in response to the financial crisis and the economic recession. The aim is of course laudable, but is it really achievable? While the recovery measures may indeed attenuate the economic recession in the short term, their effect is uncertain and could be relatively limited. The recovery plans cannot have the optimum short-term impact on economic growth unless certain conditions are met. An essential condition is that doubts over the long-term sustainability of public finances must be dispelled.

Combined with an initial budget position which is already weak in some countries, however, the economic recovery plans and the effect which the economic recession is exerting on the budget position via the relatively powerful automatic stabilisers have seriously impaired the health of public finances in a good many countries. It therefore seems that most European countries, including Belgium, no longer have any scope to adopt effective additional recovery measures. Conversely, there is now a need for clear and reliable strategies heralding a return to sound and sustainable public finances.

Bibliography

Cordon M. (2009), *The theory of the fiscal stimulus: How will a debt-financed stimulus affect the future?*, CEPR, Policy Insight, 34.

EC (2008), *Communication from the Commission to the European Council. A European Economic Recovery Plan*, COM(2008) 800.

EC (2009), *Public finances in EMU – 2009*, European Economy, 5.

Council of the European Union (2009), *Report on the European Economic Recovery Plan*, Council (Ecofin) contribution to the European Council, 18-19 June, 10771/09.

IMF (2008), *Financial stress and economic downturns*, World Economic Outlook, chapter 4, 129-158.

IMF (2008), *Fiscal policy as a countercyclical tool*, World Economic Outlook, chapter 5, 159-196.

IMF (2009), *Update on fiscal stimulus and financial sector measures*, 26 April 2009.

Belgian federal government (2008), *Recovery plan: Restoring confidence*, 11 December 2008.

OECD (2009), *The effectiveness and scope for fiscal stimulus*, Economic Outlook – Interim Report, 105, chapter 3, 109-156.

Roeger W. and J. in 't Veld (2009), *Fiscal policy with credit constrained households*, European Economy, Economic Papers, 357.

Romer C. (2009), *Lessons from the Great Depression for economic recovery in 2009*, Brookings Institution, Lecture, 9 March.

Spilimbergo A., S. Symanski, O. Blanchard and C. Cottarelli (2008), *Fiscal policy for the crisis*, IMF, Staff Position Note.

Towards more environmental taxes ?

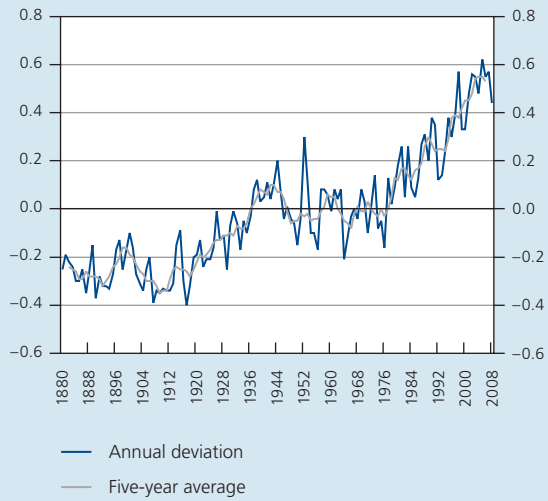
K. Van Cauter
L. Van Meensel

Introduction

In recent decades, there has been a considerable increase in the attention paid to both local and international environmental issues. On a international level, the depletion of fossil fuels, the availability of drinking water, and global warming caused by emissions of CO_2 and other greenhouse gases have become hot topics.

During the last century, the average temperature gradually increased. Most scientists agree that there is a link between human activity and global warming. For instance, the concentration of greenhouse gases in the Earth's atmosphere is rising as a result of the burning of fossil fuels, deforestation, and certain industrial and agricultural activities. In its fourth report in 2007, the United Nations Intergovernmental Panel on Climate Change stated that the temperature could rise by more than 3 degrees Celsius between now and 2100. In that same year, the influential Stern Review described the economic implications of global warming, which is expected to have a serious impact : rising sea levels, damage to ecosystems, falling agricultural productivity as a result of longer periods of drought, drinking water shortages, the spread of diseases such as malaria, more frequent extreme weather events such as flooding and hurricanes, etc. The report therefore argues that the advantages of immediate action to curb greenhouse gas emissions far outweigh the costs involved.

CHART 1 TEMPERATURE OF THE EARTH'S SURFACE
(deviation from the average 1951-1980)



Source : Godart Institute for Space Studies.

Various international institutions have developed activities relating to environmental protection, in view of the geographical spread of the causes and effects of a number of environmental problems. In 1992, in Rio de Janeiro, the Framework Convention on Climate Change was adopted under the aegis of the United Nations, with the aim of cutting greenhouse gas emissions and thus avoiding or limiting the adverse impact of climate change. Under that Convention, the Kyoto Protocol was concluded in 1997, whereby the industrialised countries agreed to reduce their emissions of six greenhouse gases by at least 5 p.c. between 2008 and 2012, compared to their 1990 level. In December 2009, in Copenhagen, an effort will be made to conclude an agreement on reducing emissions for the post-2012 period.

Clearly, the environmental challenges in the decades ahead will be very considerable. Governments have a key role to play here, and have a wide range of instruments

available for achieving environmental objectives. A distinction is usually made between regulatory instruments, such as prohibitions or technological standards imposing mandatory rules, and market instruments such as environmental taxes, subsidies or systems of tradable emission rights, where the aim is to reduce pollution by adjusting relative product prices. Softer instruments can also be deployed, such as raising public awareness, or preventive measures. When selecting which to use, it is necessary to weigh up the advantages and disadvantages of each instrument for each type of pollution. In the case of very harmful products, prohibition could clearly be the most efficient approach. However, in some cases, market instruments are the cheapest way of achieving the desired reduction in pollution. Moreover, international institutions favour the "polluter pays" principle: this was included in the EU Treaty, and was accepted by the OECD as long ago as 1970. In the market instrument category, environmental taxes or tradable emission rights are therefore the preferred option, rather than subsidies which do not conform to that principle.

This article focuses first on the implications of choosing market instruments, and in particular environmental taxes, rather than more traditional instruments such as regulations. Next, it examines the changes which have occurred in the application and scale of environmental taxes in the EU. It also looks at environmental taxes in Belgium, and considers the Kyoto Protocol and the system of trading CO_2 emission rights in the EU. Finally, the article draws some conclusions.

1. Environmental taxes as a policy instrument: theoretical background

1.1 Theory of environmental taxes

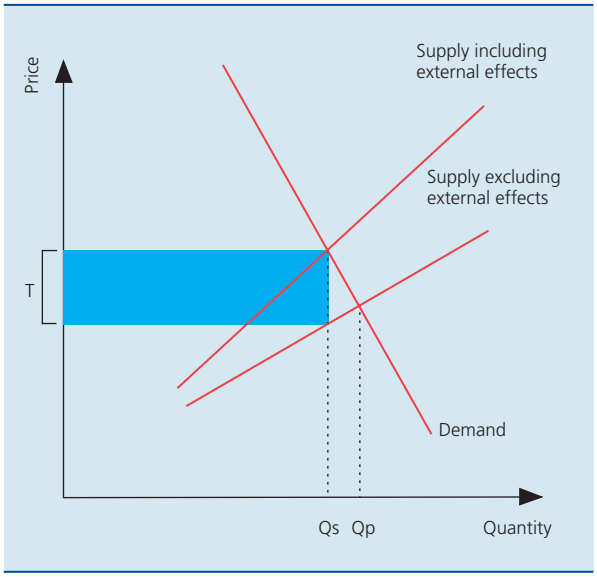
Excessive environmental pollution may be caused by the failure of market forces, owing to the existence of negative external effects accompanying certain forms of production and consumption. Negative external effects are the damage done to society without the producer or consumer having to compensate for that damage. The producer or consumer consequently receives a price signal which is too low, and produces or consumes an amount which is excessive from society's point of view.

A traditional environmental tax – also known as a "Pigovian tax" – is based on the welfare theory, and tries to correct this false price signal in order to bring the level of production and consumption of a particular product down to its social optimum. Owing to the failure of the market, the marginal costs on which the producer bases his supply of a product are lower than the marginal costs to society, which include the negative external effects of pollution. Without the tax, the price of the product is determined on the basis of consumer demand and the supply excluding external costs. Introduction of a tax (T) per unit of product makes it possible to internalise the negative external effects. The tax ensures that consumption is reduced to the point where consumer demand intersects with the supply including external effects. The decline in consumption of the product (from Q_p to Q_s) is accompanied by an increase in the price, and tax revenue equal to T x Q_s. In many cases, this tax revenue is quite considerable, because environmental taxes are often levied on products which are price inelastic, which means that the quantity consumed varies little in response to the price of the product.

It should be noted that the aim is not necessarily zero tolerance where pollution is concerned, but rather a level of pollution which is acceptable in economic terms, taking account of the costs for current and future generations. It is not easy to determine the amount of the tax, the proceeds of which accrue to the government, or the optimum level of pollution.

Environmental taxes and systems for trading emission rights may be very similar in their effects. If an environmental tax per unit of product T results in a quantity of output Q_s, the same result can be achieved by providing tradable emission rights for that level of production which, on a competitive market, will result in a price for the emission rights corresponding to T per unit of output.

CHART 2 INTERNALISATION OF EXTERNAL EFFECTS BY INTRODUCTION OF AN ENVIRONMENTAL TAX



Furthermore, the level of pollution reduction and its distribution among firms will be the same for both types of instruments. In both cases, the firms concerned will face additional costs T per unit of output, so that firms will reduce their pollution so long as that costs them less than T. If such a reduction in pollution is too expensive, on the other hand, they will opt to purchase emission rights or pay the environmental taxes. If the emission rights are bought by competing bids, the proceeds for the government will be the same as the revenues generated by an environmental tax.

However, implementation of the two instruments may result in very different practical effects. For example, tradable emission rights that can be effectively enforced safeguard an overall level of greenhouse gas emissions, but owing to the uncertainty over the costs entailed for firms in cutting emissions, they may impose very heavy costs on those firms. Conversely, while environmental taxes imply a ceiling on the marginal costs of cutting pollution per firm, they cannot offer any guarantees regarding the total volume of emissions.

1.2 Advantages and disadvantages of market instruments

As already stated, governments have a wide range of instruments for designing their environmental policy. In certain cases, there are a number of advantages in using market instruments, especially environmental taxes.

Thus, market instruments can ensure that where the cost of reducing pollution differs from one firm to another, pollution is reduced in those where that process is least expensive. Firms which already use the latest green technologies will no longer have to research other expensive ways of achieving further reductions in their pollution, but will have the option of paying the tax. Conversely, firms using older, more polluting technologies will be more inclined to reduce their tax bill by switching to newer, cleaner technologies, thus helping to curb pollution. In general, it is far more difficult for non-market instruments to deliver an equally efficient reduction in pollution, particularly owing to the absence of the detailed information which would be required for each firm. Another advantage of market instruments is that there is no need for individual negotiations with each firm.

Environmental taxes also provide a permanent incentive to continue seeking new methods which further reduce pollution, or to speed up the implementation of new technologies, and in so doing to reduce the tax bill. Fixed targets for pollution or emissions will not encourage firms to make an extra effort once they have met those targets.

Finally, the revenues generated by the introduction of an environmental tax can be used to reduce other levies, particularly taxes on labour, and thus gaining a double advantage. An improvement in the environment would then be accompanied by a stronger competitive position and higher employment. However, the creation of this "double dividend" clearly depends on the exact way in which the reform is implemented. If the higher prices resulting from the introduction of the environmental taxes are passed on directly in wages, this effect will be largely lost and could actually become negative.

However, the use of market instruments also has its drawbacks.

If the impact of the pollution is dependent on the location, timing or method of production and consumption, it can sometimes be very complicated to take that into account in designing a differential rate of tax, and it may be expedient to use other instruments which curb production or consumption at that location or time.

Moreover, it is sometimes difficult to secure widespread support from the public for environmental taxes, owing to the associated price increases, even though this approach generates tax revenues and reduces consumption or production to levels more acceptable to the community. An environmental tax may also cause firms to close down; in that case, there are of course serious social consequences.

In addition, environmental taxes are generally regressive, which means that – in relative terms – the financially vulnerable sections of the population shoulder more of the tax burden. This can be overcome by devising compensatory measures, but in that case, it is essential to preserve the price signal.

Finally, the additional costs of environmental taxes for firms operating internationally may cause competition problems or lead to relocation of the activities and pollution to regions where taxation is low or non-existent. However, the same concern applies to the use of non-market instruments. Cooperation via international organisations offers a way of endeavouring to limit such relocation.

Since environmental policy is generally very complicated, it is common to use a mix of instruments, e.g. taxation combined with regulations which restrict the location of production or consumption, or limit certain types of pollution.

2. Environmental taxes in the EU

2.1 Statistical definition of environmental taxes

In order to improve the international comparability of data on environmental taxes, Eurostat, the OECD and the International Energy Agency have developed a harmonised statistical framework in which the allocation of government revenues to the environmental tax category is determined exclusively by the tax base. The definition applied by these institutions reads: "An environmental tax is a tax whose tax base is a physical unit that has a proven specific negative impact on the environment." The assessment takes no account of the government's aim in introducing the tax. Owing to the statistical problems of identification, the VAT due on these goods is not regarded as an environmental tax.

Like other taxes, environmental taxes are compulsory payments to the government without any direct counter-consideration. They are therefore different from charges which imply the existence of a counter-consideration and are viewed as payment for a service. For instance, the price paid for household refuse disposal is regarded as payment for the collection and processing of household refuse, so that the proceeds are not recorded as an environmental tax. The way in which the systems are organised is also a factor. In some countries, the systems of charging tolls on motorways are run by private operators and are not included at all in the public sector accounts. These differences hamper international comparison of environmental taxes.

The problem of comparability can also be illustrated by the sewage charges paid by Belgian households, charges which used to be collected and recorded by the regions as taxation. These charges are no longer collected by the regions, but the sewage treatment costs are included in the water bills issued by the water supply companies. This means that these charges have disappeared from the government accounts, but the water supply companies' customers in fact pay the same amount for their sewage treatment.

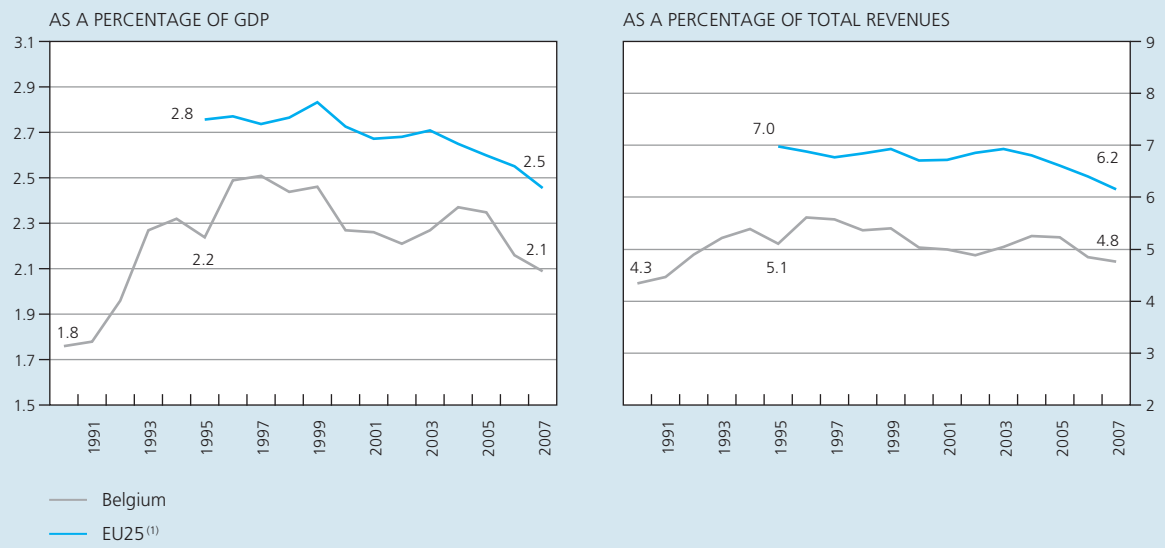
Finally, it should be noted that environmental taxes may generate substantial proceeds as a result of either a low tax on a high level of pollution, or a high tax on a lower level of pollution. An in-depth analysis of the data must therefore always be based on comparison of the actual rates of the environmental taxes.

2.2 Use of environmental taxes in the EU

2.2.1 Trends in environmental taxation

Although environmental taxes have long been the focus of attention, their importance has not increased in recent years. Between 1999 and 2007, the amount represented

CHART 3 LEVEL OF ENVIRONMENTAL TAXATION



Source: EC.
(1) Weighted average.

by these taxes in the EU as a whole declined from 2.8 to 2.5 p.c. of GDP. In Belgium, in the first half of the 1990s, their weight increased strongly, peaking at 2.5 p.c. of GDP in 1997, a level which was regained in 1999. Since then, there has been a decline in the proceeds from these taxes, down to 2.1 p.c. of GDP in 2007.

Although the past decade has brought a decline in the proceeds from environmental taxes, there does seem to be a tendency towards more widespread application of such taxes. In the 1990s, excise duties were levied almost exclusively on petroleum products, but since then, the range of environmental taxes has been considerably extended. Apart from Luxembourg and Portugal, where environmental taxes are confined to petroleum products and vehicle ownership or use, all other EU15 countries have introduced at least one other environmental tax.

On the basis of the progress of environmental taxation in the EU, there seems to have been no question of any large-scale green tax reforms. It was only in the late 1990s that the tax systems in most EU countries acquired an ecological slant, but after that the significance of environmental taxation again declined. The reason for this tendency could be that environmental taxes are usually fixed nominal amounts, expressed per unit of output. The real proceeds from these taxes therefore tend to diminish over time[1]. In addition, environmental taxes are explicitly intended to curb the growth of consumption of goods which harm the environment, so that in many cases it is logical for the proceeds not to keep pace with GDP growth.

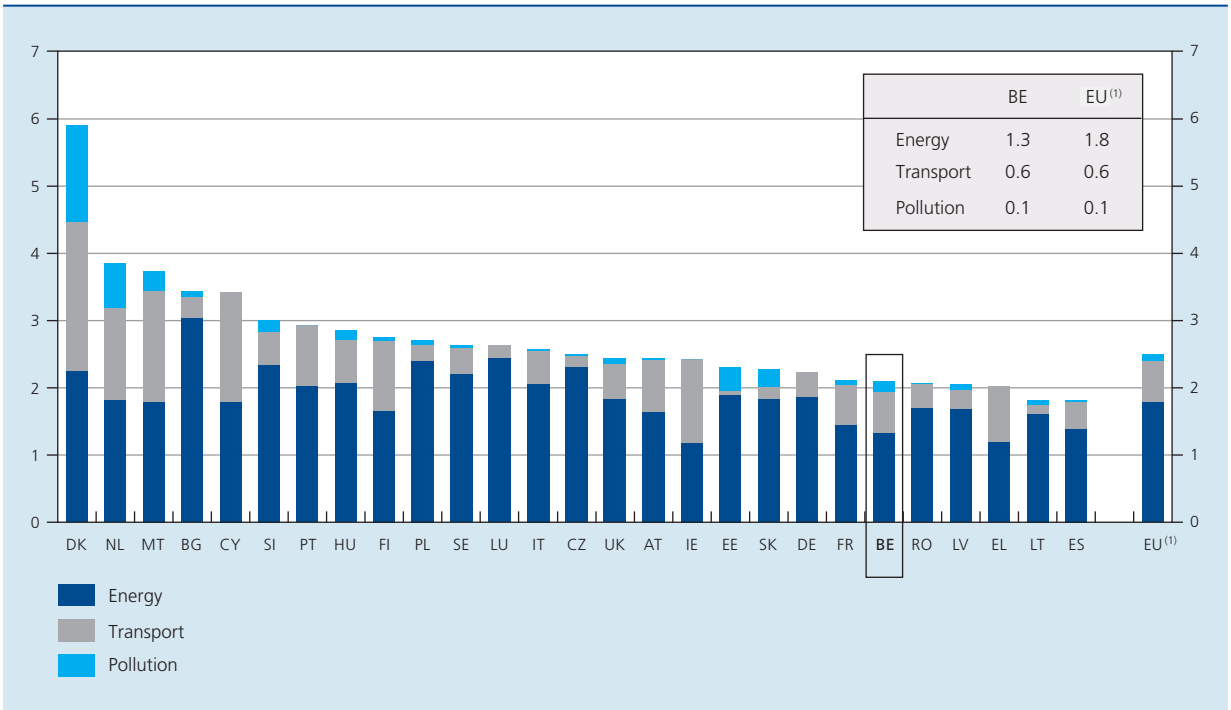
2.2.2 Composition of environmental taxes

The relative importance of environmental taxes varies between EU Member States, but in general the proceeds ranged between 2 and 3.5 p.c. of GDP in 2007. Only two Member States have lower environmental taxes, while in three Member States the proceeds are higher. The outstanding performer in the EU is Denmark, where environmental taxes represent 5.9 p.c. of GDP, but the figures for the Netherlands and Malta are also substantial, at 3.9 and 3.7 p.c. of GDP respectively. Lithuania and Spain have the lowest levels of environmental taxes as a percentage of GDP.

(1) That would not be the case if environmental taxes were adjusted periodically in line with prices. Among the EU Member States, only Denmark has introduced a system of regular indexation of the nominal rates of environmental taxes.

CHART 4 COMPOSITION OF ENVIRONMENTAL TAXES IN THE EU MEMBER STATES

(percentages of GDP, 2007)



Source : EC.
(1) Weighted average.

In Belgium, environmental taxes represent a fairly small percentage of GDP, compared to other EU countries. Belgium is in 21st position among the EU27. In the neighbouring countries of France, Germany and the United Kingdom, proceeds from environmental taxes are comparable to the Belgian figure. In Luxembourg, the proportion of GDP represented by environmental taxes is close to the EU average. That is achieved by relatively low tax rates combined with high consumption, including by foreigners.

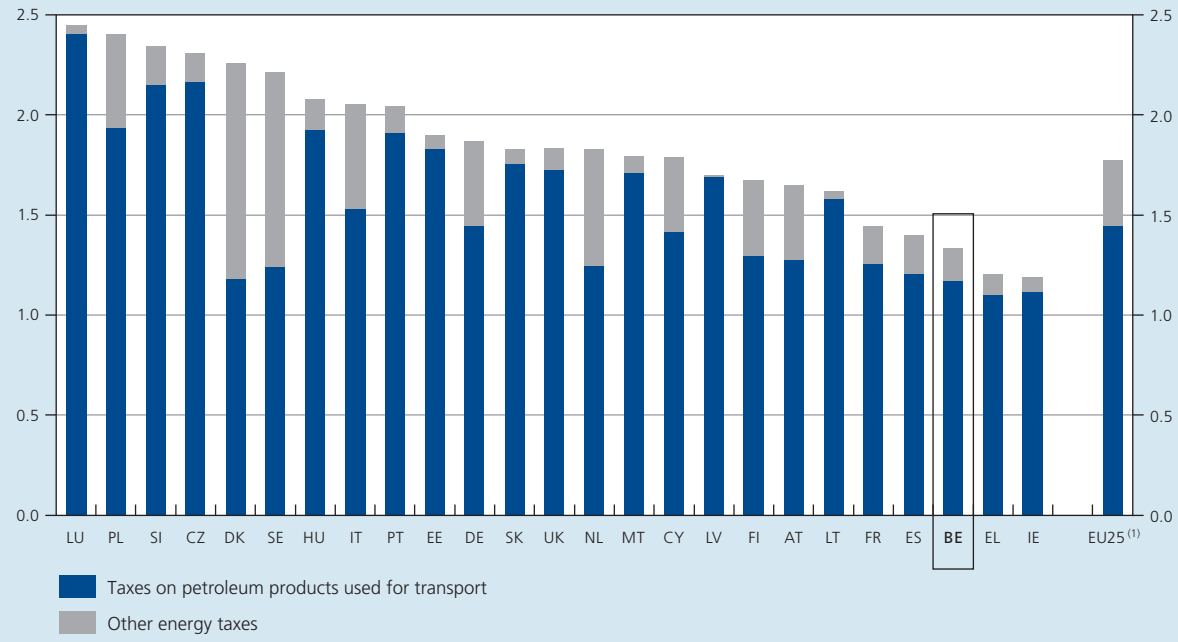
From a statistical point of view, environmental taxes are generally divided into three categories, namely taxes on energy, transport and pollution. Taxes on energy include taxes on energy products, both those used for transport and other products. Energy taxes on transport mainly concern taxes on petrol and diesel. With the exception of those applicable to transport, energy taxes consist mainly of taxes on heating oil, gas, coal and electricity. This category also includes CO_2 taxes, because they often form an inseparable part of the taxes on energy. Taxes on transport include taxes relating to the ownership and use of a vehicle. They comprise both one-off taxes on the purchase of a vehicle and recurring charges, but not the excise duties on petrol or diesel. Taxes on pollution and resources include taxes on packaging, atmospheric pollution, waste or water usage.

Energy taxes make up the bulk of environmental taxes in the EU as they account for almost three-quarters of all environmental taxation. Taxes on transport excluding the consumption of energy products correspond to rather less than a quarter of that total. Taxes on pollution form only a small fraction at roughly 5 p.c.

In the energy taxes category, taxes on fuel used for transport predominate. On average, they account for roughly 80 p.c. of the total energy taxes. In most of the Member States that joined the EU in 2004, that percentage is far higher. In the EU15 Member States, the proportion of taxes on energy products represented by taxes on fuel used for transport ranges from over 90 p.c. in Luxembourg, Ireland, Greece, Portugal and the United Kingdom to just over 50 p.c. in Denmark and Sweden, these last two being countries that charge substantial taxes on electricity and natural gas.

CHART 5 SIGNIFICANCE OF TAXES ON PETROLEUM PRODUCTS USED FOR TRANSPORT IN RELATION TO TOTAL TAXES ON ENERGY

(percentages of GDP, 2007)



Source : EC.

(1) Weighted average.

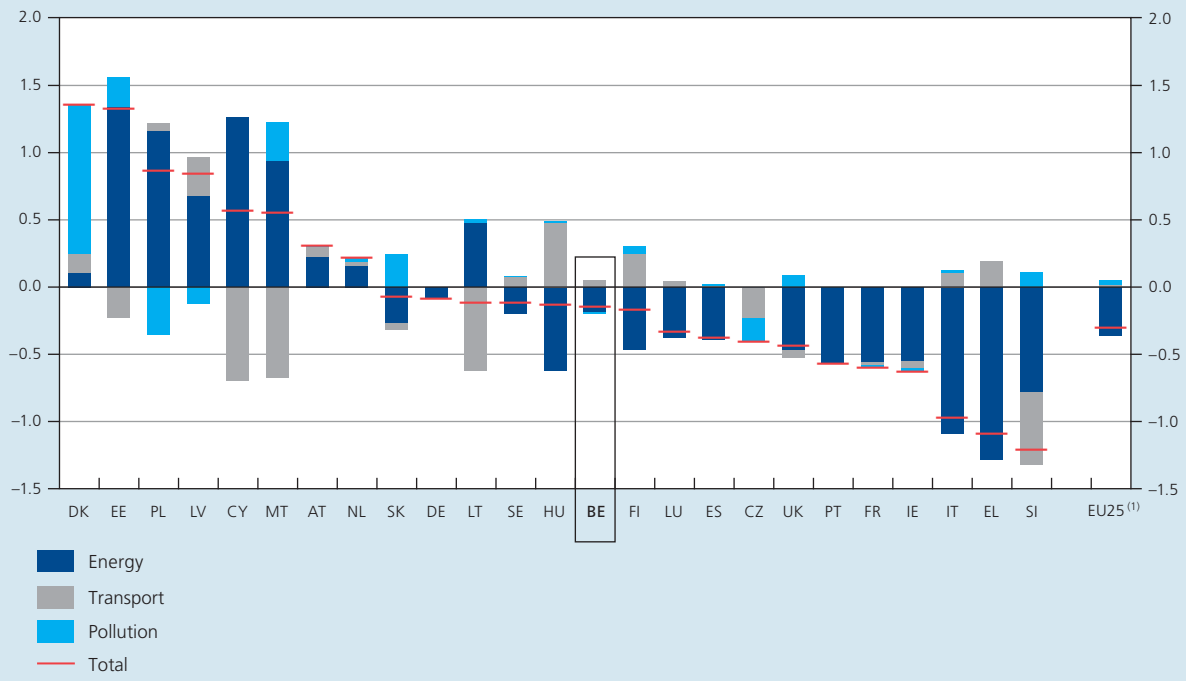
2.2.3 Determinants of the evolution of environmental taxation

During the period 1995-2007 there was some convergence regarding the proceeds of environmental taxes as a percentage of GDP between the EU15 Member States and the countries which joined the EU in 2004. Most of the latter Member States decided to increase their environmental taxes, partly in order to comply with the European rules on minimum excise duties on energy products. In contrast, many EU15 Member States experienced a decline in the proceeds from environmental taxes, especially those generated by taxes on energy, so that the EU average fell. Denmark, the Netherlands and Austria formed exceptions to this trend, since they recorded an increase in the proceeds from environmental taxes as a percentage of GDP between 1995 and 2007. In the Netherlands and Austria, that was due almost entirely to higher proceeds from taxes on energy, while Denmark proved to be the only country which achieved a substantial increase in taxes on pollution.

The movement in the proceeds of taxes on energy as a percentage of GDP is determined by changes in both the energy intensity of the economy and the implicit tax rate on energy products. The fall in taxation on energy in the EU as a whole appears to be due mainly to the reduction in the economy's energy intensity. Between 1995 and 2006, this intensity declined in all the countries considered. There was a particularly dramatic fall in energy intensity in the countries which recently joined the EU, although the level there is still considerably higher than in the EU15. Over the same period, the implicit tax rate on energy have risen in most EU Member States, with the exception of Finland, Spain, France, Portugal, Italy and Greece. In Belgium, the decline in taxes on energy as a percentage of GDP is due to a relatively small reduction in the economy's energy intensity combined with a stable implicit tax rate on energy.

CHART 6 ENVIRONMENTAL TAXATION

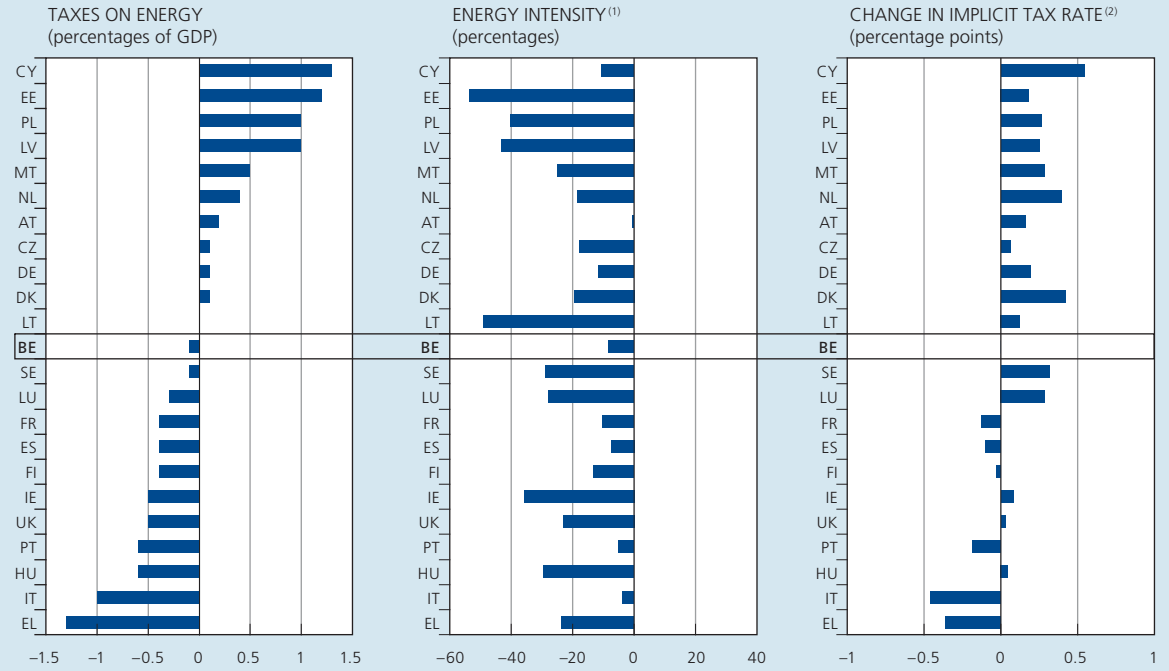
(percentage of GDP, 1995-2007)



Source : EC.
(1) Weighted average.

CHART 7 TAXES ON ENERGY

(1995-2006)



Source: EC.

(1) Energy intensity is calculated as energy consumption converted to kg of oil-equivalent per thousand euro of GDP expressed in chained euros.

(2) The implicit tax rate is calculated as the proceeds of the energy taxes as a percentage of GDP divided by the energy intensity.

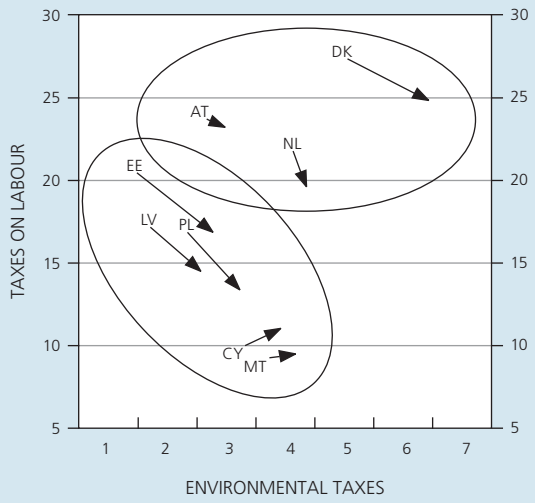
2.3 Green tax reforms

In the 1990s, international institutions recommended "green" tax reforms. Such reforms aim to reduce the taxes on labour, making use of the additional proceeds from new or existing environmental taxes which improve the operation of market forces by taking account of external effects. Green tax reforms were thus intended to achieve two simultaneous goals, namely a better environment and higher employment. That is why those reforms were sometimes said to produce a "double dividend".

However, it is evident from the pattern of revenues generated by environmental taxes and taxes on labour that only a few countries have switched to increased environmental taxes and reduced taxes on labour. As already stated, during the period 1995-2007, there was no increase in environmental taxes as a percentage of GDP in a number of countries. Those which did record an increase can be divided into two groups. One group consists of the countries which have recently joined the EU and have increased their environmental taxes to comply with the minimum European requirements. Estonia, Latvia and Poland used

CHART 8 COUNTRIES WHICH HAVE INCREASED ENVIRONMENTAL TAXES

(percentages of GDP, change 1995-2007)



Source: EC.

CHART 9 TAXES ON LABOUR AND ENVIRONMENTAL TAXES IN DENMARK

(percentages of GDP)

Source : EC.

these additional proceeds to cut the taxes on labour. The other group comprises Denmark, the Netherlands and Austria which decided at a given point to introduce green tax reforms[1]. The reforms in those countries show that the individual EU Member States can develop their own environmental policy and taxation to some extent.

Denmark provides the best example of green tax reforms, with the taxes on labour cut by 2.5 p.c. of GDP between 1995 and 2007. Of that, 1.4 p.c. of GDP was financed by additional environmental taxes. These are very varied and provided the inspiration for reforms in other countries, including Belgium. The principal examples are : a general tax on packaging, the rate varying according to an environmental index of the material used ; a general CO_2 tax on energy products, varying according to emissions ; very heavy taxes on vehicle ownership and use (the tax payable on entry into service of a large car for private use amounts to more than 100 p.c. of the purchase price) ; and a 5 to 10 euro tax on airline tickets, though that was abolished in 2007.

(1) Green tax reforms have also been implemented in other EU Member States, such as Germany, Finland, Sweden and the United Kingdom, but in those countries there was a decline in environmental taxes as a percentage of GDP in the period 1995-2007.

3. Environmental taxes in Belgium

3.1 Summary of environmental taxes in Belgium

Belgium has various taxes which are classed as environmental taxes according to current international definitions. In 2008, excise duties on mineral oils accounted for 54 p.c. of the total environmental tax revenues. The annual road tax also accounts for more than one-fifth of those revenues. The energy tax on mineral oils, gas and electricity, the entry-into-service tax and the tax on drink packaging each represent around 5 p.c. of those taxes, while the federal contribution on electricity and gas amounts to just over 3 p.c.

In Belgium, environmental policy is essentially the responsibility of the regions, but the right to raise environmental taxes is shared among the various levels of power. Taxes on energy accrue mainly to the federal government, while those on transport accrue to the regions. With the exception of the tax on drink packaging, taxes on pollution accrue mainly to the regions.

In Belgium, it is possible to distinguish two periods in which measures were taken regarding environmental taxes.

In the first wave, between 1993 and 1995, various new taxes were introduced. Previously, revenues had consisted almost exclusively of excise duties on mineral oils and the annual road tax. During that period, the heating oil inspection fee was introduced, as was the general tax on energy, the entry-into-service tax, the eco tax on batteries and disposable cameras, and the Eurovignette for lorries.

The period 2003-2005 brought a second wave of measures relating to environmental taxes. Initiatives on that subject were announced mainly in connection with the July 2003 federal government agreement. For instance, by increasing the excise duty on diesel and petrol and gradually abolishing the registration fee and the excise compensatory levy on diesel cars, the government tried to make the cost of transport by car more dependent on car use than on car ownership. The excise duties on diesel and petrol were increased via the ratchet system, whereby the rates of duty increase when there is a fall in the price of these road fuels. In addition, the government introduced the federal contribution on electricity and gas and the tax on drink packaging.

While the taxes on energy and pollution were increased by various measures during the period 2003-2005, since 2006 there has been a structural reduction in

TABLE 1 SUMMARY OF ENVIRONMENTAL TAXES IN BELGIUM

(millions of euro, unless otherwise stated)

	1980	1990	2000	2008	As a percentage of total environmental taxes in 2008
Taxes on energy	**1,109**	**2,017**	**3,614**	**4,297**	**63.3**
Excise duties on mineral oils	1,109	2,017	3,392	3,675	54.2
Energy tax on mineral oils, gas and electricity	0	0	193	330	4.9
Federal contribution on electricity and gas[1]	0	0	0	203	3.0
Other[2]	0	0	29	89	1.3
Taxes on transport	**396**	**768**	**1,622**	**1,974**	**29.1**
Entry-into-service tax	0	0	209	358	5.3
Road tax	368	712	1,132	1,477	21.8
Eurovignette	0	0	82	121	1.8
Other[3]	28	56	199	18	0.2
Taxes on pollution	**0**	**93**	**485**	**509**	**7.5**
Tax on drink packaging	0	0	0	308	4.5
Taxes on industrial waste	0	27	74	72	1.1
Water charge	0	66	378	108	1.6
Other[4]	0	0	33	21	0.3
Total	**1,506**	**2,877**	**5,721**	**6,780**	**100.0**
p.m. as a percentage of GDP	*1.7*	*1.7*	*2.3*	*2.0*	

Sources: NAI, NBB.

(1) Including the "Elia" tax.

(2) Inspection fee on heating oil and contribution on petroleum products intended for heating.

(3) Excise compensatory levy (abolished in 2008) and registration fee.

(4) Eco taxes on batteries (and disposable cameras), taxes on waste fertilizer and domestic refuse, and tax on specific products such as disposable cutlery, disposable bags and aluminium foil.

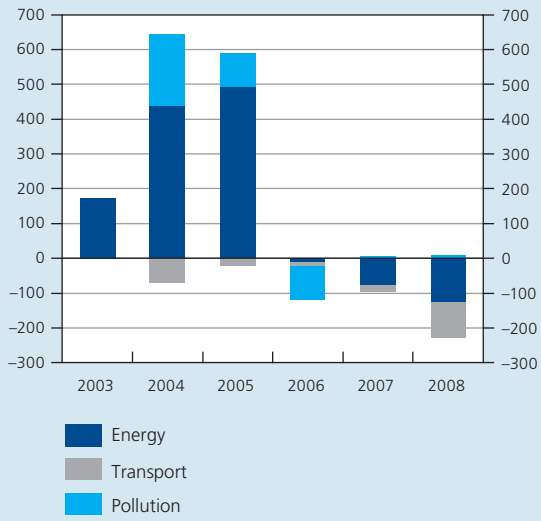
environmental taxes, due primarily to the operation of the reverse ratchet system for petrol and diesel. However, the ratchet system for increasing the excise duties on petrol and diesel was reactivated in 2009. Throughout the period from 2003 to 2008, the taxes on transport were lowered, mainly by abolition of the excise compensatory levy on diesel cars.

The Belgian policy on environmental taxes is not always clear, and often appears to be a process of trial and error, in which a long-term view is sometimes lacking. That is due partly to the uncertainty over the impact on the poorest sections of the population, and the possible shift of consumption or production. A number of measures on which there was a consensus were implemented only partially, if at all. Both the eco tax introduced in 1993 and the general tax on packaging proposed during the preparation of the 2007 federal budget were ultimately reduced to a tax on a small number of products[1]. Moreover, the air travel tax proposed during preparation of the 2009 budget had already been scrapped before the budget was finally approved by parliament. Another example is the tax on drink packaging introduced in 2004, which was increased by 5 euro cents in January 2005. This led to large-scale displacement of consumption to neighbouring countries, so that in June of that year the increase in the tax on drink containers was reversed. The grant of various reductions on electricity, gas and heating oil bills and the simultaneous increases in the taxes on some of

(1) Conversely, Denmark and the Netherlands have succeeded in introducing a general packaging tax which is differentiated according to CO_2 emissions.

CHART 10 STRUCTURAL MEASURES CONCERNING ENVIRONMENTAL TAXES IN BELGIUM

(millions of euro, changes compared to the previous year)



Source : NBB.

these products also give rise to questions. From an economic point of view, a direct increase in the income level of the target groups is always preferable to such specific reductions, otherwise there is nothing to encourage energy saving.

Finally, it should be noted that in recent years the federal government has introduced various other adjustments to the tax system, intended to bring about a change of behaviour in order to achieve environmental goals. Thus, the corporation tax allowance for company cars was made conditional upon the CO_2 emissions, and personal income tax allowances were introduced for various energy-saving investments. These adjustments to tax allowances are disregarded in calculating the total environmental tax revenues.

3.2 Excise duties on mineral oils

Excise duties on mineral oils account for the bulk of the environmental tax revenues. They vary widely from one product category to another. Thus, in the EU, hardly any excise duties are levied on kerosene, owing to legal obstacles under most bilateral aviation agreements (1). The excise duties on heating oil are relatively low, certainly compared to the excise duties charged on diesel and especially petrol.

Excise duties on petrol

With excise duties of 599 euro per thousand litres of petrol at the end of March 2009, Belgium is among the countries charging fairly high rates of duty on petrol. At that time, the EU15 average was 545 euro per thousand litres. However, the neighbouring countries – France, Germany and the Netherlands – charge even higher rates, at 606, 655 and 701 euro per thousand litres respectively. Conversely, Luxembourg charges a much lower rate, namely 462 euro per thousand litres. In the EU, the minimum excise duty on petrol is currently 359 euro per thousand litres.

While the excise duties on petrol had remained fairly steady in Belgium in the latter half of the 1990s, the July 2003 federal government agreement aimed to effect a radical change from fixed to variable transport costs. In August 2003, the ratchet system was introduced for petrol, with a maximum increase in duty set at 14 euro per thousand litres per annum. In 2004 and 2005, the maximum was raised to 28 euro per thousand litres per annum. Between August 2003 and May 2005, the excise duties on petrol were thus increased by a total of 70 euro per thousand litres.

At first, the intention was to maintain the original ratchet system until 2007, but in May 2005, in order to curb the rise in petrol prices, the federal government took the decision to suspend the application of this system. It then introduced a reverse ratchet system with the aim of reducing the excise duties. Under the reverse ratchet system, every increase in VAT revenues resulting from a price rise was totally neutralised by a reduction in excise duties as soon as the prices set for petrol under the programme contract passed the threshold of 1.50 euro per litre. In late 2007 and early 2008, the excise duties on petrol were lowered under this system. In 2009, the ratchet system was reactivated, increasing the excise duties on petrol by 28 euro per thousand litres per annum. The first effects were felt during March.

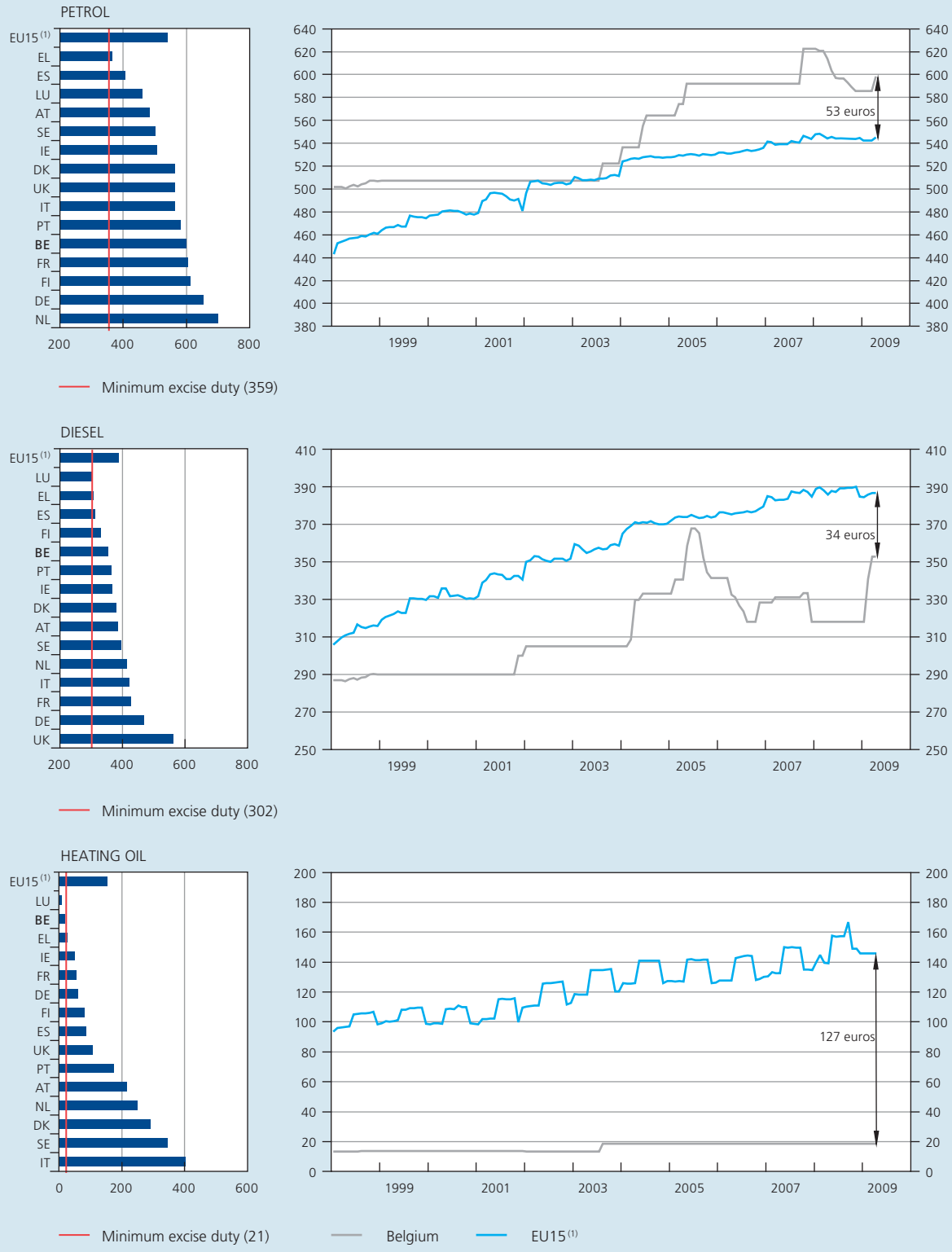
Excise duties on diesel

In Belgium, excise duties on diesel – at 353 euro per thousand litres in March 2009 – are below the EU15 average (387 euro per thousand litres) and below the levels of duty in the Netherlands (413 euro per thousand litres), France (428 euro per thousand litres) and Germany (470 euro per thousand litres), which are among the countries charging the highest rates in the EU. The minimum excise duty in

(1) However, the EC is trying to ensure that, in future, the quantity of CO_2 emissions generated by aircrafts is included in the scope of the European emission trading system (cf. chapter 4) in order to influence air fares.

CHART 11 EXCISE DUTIES ON MINERAL OILS

(euro per 1,000 litres)



Source: EC.

(1) Arithmetic average.

the EU stands at 302 euro per thousand litres. That is the rate charged in Luxembourg. At the beginning of 2009, before entry into force of the ratchet system, this was also the rate which Belgium charged on biodiesel (the excise duties on biodiesel are 15 euro per thousand litres lower than on ordinary diesel). The minimum excise duties in the EU will increase to 330 euro per thousand litres in 2010. There is a proposal for a Directive increasing the minimum rates to 380 euro per thousand litres by 2014.

In 2004, Belgium also introduced a ratchet system for diesel, with the same maximum as for petrol, namely 28 euro per thousand litres. In 2005, that threshold remained in force for petrol, but the maximum for diesel was increased to 35 euro per thousand litres per annum. Thus, between the beginning of 2004 and May 2005, the excise duties on diesel were increased by a total of 63 euro per thousand litres. In May 2005, the federal government decided to suspend this system, just as it did for petrol. It then introduced a reverse ratchet system with the aim of reducing the excise duties as soon as the diesel price set under the programme contract exceeded the threshold of 1.10 euro per litre. By this mechanism, the excise duties on diesel were reduced, bringing them close to the minimum level set by the EC [1]. The ratchet system was reactivated in 2009, to increase the excise duties on diesel by a maximum of 35 euro per thousand litres. That maximum was already applied in full by the end of March.

Excise duties on heating oil

At the end of March 2009, Belgium's excise duties on heating oil amounted to 18.49 euro per thousand litres, putting them among the lowest in the EU alongside those charged in Luxembourg (10 euro per thousand litres). These rates are well below the average for the EU15 (146 euro per thousand litres) and below those charged in the neighbouring countries : France (57 euro per thousand litres), Germany (61 euro per thousand litres) and the Netherlands (249 euro per thousand litres). The European minimum excise duty on heating oil is 21 euro per thousand litres, but Belgium and Luxembourg secured a waiver allowing them to apply lower rates.

The low taxes on heating oil in Belgium are hard to justify on environmental grounds, since heating oil is essentially the same product as diesel. One reason for the fairly low level of tax is that the product forms a large proportion of the expenditure of relatively low-income households. The data from the household budget surveys indicate that households in the lowest income decile spend 3.3 p.c. of their income on heating oil, against 0.6 p.c. for households in the highest income decile. In general, expenditure on energy represents a heavier burden for households in the lowest income deciles.

(1) The excise duties on biodiesel, which are 15 euro per thousand litres lower than those on ordinary diesel, reached that minimum level at the end of 2007, precluding any further reduction.

3.3 Possible future developments

If the goals for the reduction of greenhouse gas emissions by households and other sectors are to be achieved efficiently, it will probably be necessary to increase environmental taxes, and this could boost the revenues from that source in the future. In any case, Belgium does have scope for generating additional revenues from environmental taxation.

In Belgium, the excise duties on diesel are relatively low, both in comparison with the rates applied in other EU Member States and in relation to the fairly heavy excise duties on petrol. That is also reflected in the structure of consumption, since Belgium has the highest consumption of diesel in relation to petrol consumption in the EU. However, there is no environmental justification for the differential tax treatment of the two types of fuel. The preliminary draft "Federal Plan for Sustainable Development 2009-2012", prepared by the Interdepartmental Commission for Sustainable Development, to be submitted to the federal government following public consultation, proposes that the excise duties on petrol and diesel other than for commercial use should be harmonised by 2015. The plan also proposes using part of the proceeds to reduce the road tax and part to reduce the taxes on labour.

Taxes on heating oil in Belgium are very low compared to those in most other EU Member States. Belgian taxes on natural gas for domestic use are also below the EU15 average. However, since 1990, domestic heating has accounted for the second biggest increase in CO_2 emissions, after transport. Partly as a result of the lower excise duties on heating oil and diesel, concentrations of particulates – a form of atmospheric pollution produced mainly by diesel vehicles, industrial activities and the heating of residential buildings – are higher in Belgium than elsewhere in Europe. It is therefore advisable to put into practice a long-term strategy on the use of heating fuels. Apart from subsidies, tax allowances for energy-saving investments, and legislation, higher taxes could encourage more efficient use of energy by households.

Also, in the context of Benelux, the Regions are working on a mileage tax on lorries, while various options are under consideration for passenger cars.

Finally, revenues will be obtained in the future from the auctioning of emission rights. The next chapter explains how this mechanism works.

4. The Kyoto Protocol and tradable emission rights

4.1 The Kyoto Protocol

The Kyoto Protocol was concluded in 1997 under the Framework Convention on Climate Change adopted under the aegis of the United Nations in 1992. The industrialised countries entered into an agreement whereby, between 2008 and 2012, they would reduce their emissions of six greenhouse gases – carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride – by at least 5 p.c. against their 1990 levels. The EU Member States committed themselves to cut their emissions by 8 p.c. over that period. On 31 May 2002, the EU and its Member States ratified the Kyoto Protocol. Following ratification by Russia in 2004, the Protocol entered into force on 16 February 2005 and became binding upon the signatory countries. The United States, which causes one-third of the world's greenhouse gas emissions, did not ratify the Protocol. In December 2009, the UN Climate Change Conference in Copenhagen will endeavour to conclude a new agreement setting targets for the post-2012 period.

Greenhouse gas emissions vary widely between regions. At present, the biggest emitter of greenhouse gases (converted to CO_2 equivalents) is China, at almost 20 p.c., but its per capita emissions of CO_2 are relatively low. In contrast, the United States generates almost the same proportion of emissions, but per capita emissions are five times as high as in China. In the EU15, emissions are just over 10 p.c. of the global total. Per capita emissions are significantly lower than in the United States, but much higher than in the other regions.

Similarly, the changes in emissions compared to their 1990 levels also vary widely. In China and India, which are not covered by the Kyoto Protocol, emissions have risen dramatically. In the United States, which is covered by the Kyoto Protocol but has not ratified it, emissions increased by 16.5 p.c. between 1990 and 2005. Over the same period, the EU15 succeeded in keeping their emissions stable. It is clear from these findings that during the post-Kyoto period, it is vital that more countries should commit to a reduction of their annual emissions of greenhouse gases.

The Kyoto Protocol provides for three market-based mechanisms which countries can apply in order to achieve the planned environmental targets. Countries which have signed the protocol can trade emission rights with one another (International Emission Trading). By this system, countries which cannot achieve a sufficient reduction in their emissions can purchase emission rights from countries which have a surplus. The global system of emission right trading entered into effect in 2008. However, this system of emission trading should not be confused with the European system of tradable emission rights for industrial plants, which the EU introduced in 2005. Countries can also invest in projects for reducing emissions in other industrialised countries, in exchange for additional emission credits (Joint Implementation). Finally, industrialised countries can invest in emission reduction in developing countries, a mechanism that may also generate additional emission credits for donor countries (Clean Development Mechanism).

TABLE 2 GREENHOUSE GAS EMISSIONS BY REGION

(CO_2 equivalents)

	Total emissions in 2005 (megatonnes)	Idem, as a percentage of the total	Tonnes of CO_2 per capita in 2005	Change 1990-2005 (percentages)
China	7,219	19	5.5	+101.5
United States	6,963	18	25.5	+16.5
EU15	4,121	11	10.7	+0.5
India	1,853	5	1.7	+68.0
Other	17,611	47		+24.7
World	37,767	100	5.8	+25.7

Source: World Resources Institute.

As already mentioned, the EU Member States have committed themselves to cut their greenhouse gas emissions by 8 p.c. in relation to 1990 levels. This overall target for the then EU15 was allocated among the Member States. For Belgium, the emission reduction target is just below the overall target at 7.5 p.c. The Member States which joined the EU recently are not covered by this joint target, but they do have individual targets for emissions, with the exception of Cyprus and Malta which have not set one.

Since the regions are responsible for the distribution of emission rights in Belgium, the overall target for reducing greenhouse gases had to be allocated among the regions. Under the Cooperation Agreement concluded by the Consultation Committee on 8 March 2004 concerning the allocation of the Kyoto efforts between the regions and the federal government, it was agreed that the Walloon Region would cut emissions by 7.5 p.c., and the Flemish Region by 5.2 p.c. The Brussels Capital Region could increase its emissions by 3.475 p.c. in relation to the base year. Since this allocation would not achieve the required overall reduction of 7.5 p.c., the federal government would try to buy additional emission rights via the mechanisms permitted under the Kyoto Protocol, amounting to 2.46 million tonnes per annum according to the initial estimates.

Belgium's emissions of greenhouse gases increased during the early 1990s. They reached a peak in 1996 when the harsh winter caused a particularly sharp rise in the use of heating, driving up greenhouse gas emissions. Thereafter the volume of emissions remained comparable to the 1990 level. However, since 2004, there has been a significant decline. That decline is due to the combined effect of measures to reduce greenhouse gas emissions, rising energy prices, the slackening pace of economic activity and – above all – the milder winters of 2005 and 2006, which brought a substantial fall in the consumption of energy for heating. In 2006, Belgium's emissions amounted to 137 million tonnes of CO_2 equivalent, down by 5.2 p.c. against the 1990 figure of 144.5 million tonnes of CO_2. On the basis of the latest medium-term forecasts prepared by the Federal Planning Bureau, Belgium should meet its Kyoto target without having to buy additional emission rights, partly on account of the economic recession.

(1) Though the Kyoto Protocol concerned six greenhouse gases, it is only CO_2 emission rights that are referred to here. The other greenhouse gases are nevertheless taken into account via conversion to CO_2 equivalents.

(2) Member States must allocate 95 p.c. of the emission rights free of charge. The United Kingdom, Austria and Germany have already sold a small percentage of their emission rights. In the second half of 2009, the Netherlands is to sell for the first time some of the emission rights which are normally allocated to energy producers.

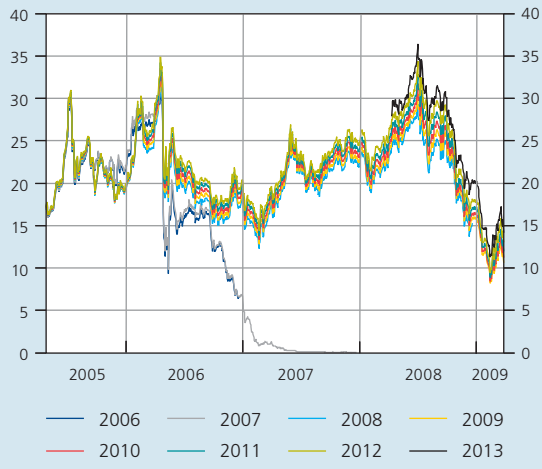
4.2 The European system of tradable emission rights

Directive 2003/87/EC established a system of tradable emission rights for firms in the EU. The system was launched on 1 January 2005 and concerns over 10,000 installations (electricity generating stations, combustion plants, oil refineries, coking plants, iron and steel plants, and factories producing cement, glass, bricks, ceramics, pulp and paper), together accounting for over 40 p.c. of Europe's CO_2 emissions. The countries themselves allocate the total CO_2 emission rights to their firms under national allocation plans[1]. The aim is to restrict the CO_2 emissions of the energy sector and industry, thereby creating a shortage and encouraging the development of a market in which emission rights are traded.

Implementation of the European system of tradable emission rights will push up the prices of various products, but in principle these will be the smallest price increases necessary to achieve the environmental goals. Firms will in fact have a free choice: they can either reduce their own emissions or buy additional rights on the market. Some firms will find it cheaper to cut their emissions than to buy emission rights on the market. Firms which would incur high costs in reducing their emissions will prefer to buy emission rights on the market from firms which can reduce their emissions more cheaply. Up to 2013, the emission rights will largely be allocated free of charge[2]. At the end of each year, firms have to hand over the emission rights due to the government. Firms whose emissions

CHART 12 PRICES OF EMISSION RIGHTS ACCORDING TO THE DUE DATE

(euro per tonne of CO_2)



Source: European Climate Exchange.

exceed the rights held have to pay a fine for each emission right not submitted. The following year, they still have to hand over the corresponding emission rights. Countries keep a stock of emission rights in reserve to permit the creation of new plants.

During the period 2005-2007 when the market was being developed, the price of emission rights was highly volatile, peaking at over 35 euro per tonne of CO_2. Up to 2007, it was not permissible to transfer the rights to later periods, and as a result of excess allocations of emission rights before 2007 the price slumped as the due date approached. In subsequent years the price became less volatile, though there was a perceptible upward trend. The rise in energy prices made it more attractive to make more use of coal for generating electricity, but that fuel is associated with higher CO_2 emissions, so that demand for emission rights increased. In the wake of the financial and economic crisis and the resulting decline in energy prices, the price of emission rights has fallen by more than half.

In the EU, the European emission trading system is the best way for industry and the utilities sector to meet the Kyoto targets. The Member States must also take other measures to restrict emissions by transport, households and the agricultural sector.

The Kyoto Protocol and the targets for 2008-2012 are only a first stage in the battle against climate change. At the March 2007 European Council, the EU unilaterally undertook to cut its CO_2 emissions by 20 p.c. by no later than 2020, and possibly even by 30 p.c. if a new international agreement can be concluded. The reduction target is based on the aim of limiting the temperature rise in this century to less than 2°C. The Copenhagen climate change summit in December 2009 will consider a new international agreement on the subject.

In order to achieve that additional reduction in greenhouse gas emissions, the rules of the European emission trading system will be adjusted during the phase from 2013 to 2020 to include aviation and international shipping. The rules will cease to apply to small installations, so as to limit the administrative burdens, at least if the countries introduce comparable taxes on those installations. Furthermore, an ever-increasing percentage of the emission rights will be auctioned, and that will actually apply to all the rights by 2027. For the electricity sector, all emission rights are to be allocated by auction as early as 2013. Sectors with a risk of "carbon leakage" – i.e. a reduction in emissions in Europe could lead to higher emissions in countries which are not parties to the Kyoto Protocol – will initially still receive most of their rights free of charge.

According to European Commission estimates, the auctioning of emission rights could generate up to 50 billion euro annually by 2020. The rights are to be allocated among the Member States according to a fixed formula, in which 88 p.c. are allocated on the basis of the relative share of each Member State in the emissions under the system in 2005, or the average for the period 2005-2007. A further 10 p.c. will be allocated to Member States with the lowest per capita GDP, and 2 p.c. to Member States which in 2005 had already reduced their emissions by 20 p.c. against their 1990 level. On the basis of the emission rights allocated to Belgian installations in 2005, Belgium should be entitled to around 2 to 2.5 p.c. of the total proceeds from the sales.

Conclusion

The environmental challenges for the decades ahead should not be underestimated. Global warming caused by the emission of greenhouse gases is undoubtedly one of this century's biggest problems which urgently requires an appropriate solution. That solution necessarily involves many aspects, but governments will clearly have a key role to play.

Governments have various instruments for tackling those challenges. When selecting which one to use, they need to weigh up the advantages and disadvantages of each instrument for each type of pollution. In some cases, market instruments such as environmental taxes and tradable emission rights are appropriate because they are the cheapest way of achieving the desired reduction in pollution.

In the early 1990s, there was an increase in environmental tax revenues as a percentage of GDP in both Belgium and the EU as a whole, but in the past decade there has been no further rise in environmental taxation. On the contrary, the trend has been downwards. Nevertheless, use was made of an ever wider spectrum of environmental taxes applied to a varied range of products. The main reason for the downward trend is that the energy intensity of GDP has diminished, and new taxes plus the increases in the rates of existing environmental taxes have led to changes in behaviour and have reduced or curbed consumption.

For the future, there is clearly scope for increasing revenue from environmental taxes in Belgium. A substantial proportion of those new revenues is linked to the commitments concerning the reduction of emissions of CO_2 and other greenhouse gases. For one thing, the sale of an ever-increasing proportion of the emission rights can generate government revenues. Also, steadily expanding

use of environmental taxes could prove necessary in order to achieve an efficient reduction in the emission of greenhouse gases by households. In the process, the inequality between excise duties on diesel and petrol could be reduced. Moreover, the best approach is to devise a long-term strategy on energy efficiency and domestic heating. Owing partly to the scarcity of budget resources as a result of the financial and economic crisis, and taking account of the expected impact of population ageing and the "polluter pays" principle, it is desirable to step up taxation of the main energy sources and introduce legislation on energy performance standards, rather than grant additional tax relief.

Since Belgium is a small country, the relocation of production or consumption may prove a serious obstacle for environmental policy. It is therefore essential to maximise the international coordination of the initiatives. The fact that less well-off households have to bear much of the burden of taxation on energy may also hamper the introduction or raising of those taxes. However, it is possible to devise compensatory arrangements for those households, without losing the price signal. If these obstacles are overcome, environmental taxes and the auctioning of emission rights could become important instruments for the government to deploy in addressing the environmental challenges.

Bibliography

Bassilière D., F. Bossier, I. Bracke, I. Lebrun, L. Masure and P. Stockman (2005), *Variantes de réduction des cotisations sociales et de modalités de financement alternatif*, Federal Planning Bureau, Planning paper 97.

Commission for Sustainable Development (2009), *Preliminary draft federal plan on sustainable development 2009-2012.*

EC (2007), *Green paper on market-based instruments for environment and related policy purposes*, COM (2007) 140.

EC (2007), *Excise duties on gas oil : The European Commission proposes to fight "tank tourism" and reduce environmental damage*, IP/07/316.

EC (2009), *Taxation trends in the European Union : Data for the EU Member States and Norway.*

European Environment Agency (2006), *Using the market for cost-effective environmental policy*, EEA Report, 1/2006.

European Environment Agency (2009), *EEA Signals 2009 – Key environmental issues facing Europe.*

Federal Planning Bureau (2009), Perspectives économiques 2009-2014.

Fullerton D., A. Leicester and S. Smith (2008), *Environmental taxes,* NBER, working paper series, 14197.

Intergovernmental Panel on Climate Change (2007), *Climate change 2007 : Impacts, adaptation and vulnerability*.

OECD (2006), *The political economy of environmentally related taxes.*

Stern N. (2007), *The economics of climate change : the Stern Review*, Cambridge University Press, 2007.

The Belgian mortgage market in a European perspective

Marie-Denise Zachary

Introduction

Loans for the construction, purchase and renovation of property are the principal financial liability of households and represent a large proportion of lending by banks. By that token, they are of crucial importance for the Eurosystem and have implications for the transmission channels through which monetary policy affects financial conditions and hence also activity and prices. They may also be the source of serious financial turbulence: in the United States, of course, but also in certain European countries, the mortgage portfolio held by banks suffered severely from the collapse of property prices.

This article aims to review the major structural changes in the mortgage market in Belgium in recent years, and compare them with those in euro area countries. For that purpose, it will be based on the main results of the Eurosystem's latest Structural Issues Report (SIR) entitled "*Housing finance in the euro area*", produced with the participation of the national central banks of the euro area and published in March 2009.

The first section will describe developments in mortgage lending over the past ten years and the characteristics of the loans. The situation in Belgium will be compared with that in other euro area countries: points to be examined include the pattern of household debt and the main characteristics of mortgage loans (interest rates, maturity, contract flexibility and banks' margins).

The second part will look at what has happened on the mortgage market from the lenders' point of view, focusing on the changes in the banks' financing methods in recent years. That analysis will reveal the effects of deregulation and of the introduction of structured products, and the implications which those factors have had for the supply of credit.

The analysis will endeavour to describe and explain as far as possible the structural changes which have come about in the mortgage market in Europe in general and in Belgium in particular. The emphasis will therefore be on the changes occurring between 1999 and 2007, and not on differences in levels. That period corresponds to the period covered by the 2008 SIR report. However, it is not possible to omit the most recent period and the impact which the still ongoing financial crisis has had here, too. Where those effects are already evident, they will be outlined at the end of the article, with all due caution.

The data come from various sources. The figures for Belgium come from the financial accounts statistics and from the Professional Lenders' Union, which circulates information on mortgage volumes broken down, in particular, by type of rate. The scheme A data (monthly statements) supplied by credit institutions were also consulted in regard to securitisation volumes.

For the comparison with the euro area, the data came mainly from the SIR report already mentioned. The information in that report is collected jointly by the national central banks and the ECB. Certain data are also obtained from the replies to a specific questionnaire sent to commercial banks, concerning the characteristics of mortgages granted during 2007 and the way in which they were funded.

The figures on structured products (securitisation and covered bonds) were taken from the SIR report and from a Eurosystem report published in 2008, "*Covered bonds in the EU financial system*".

Finally, the results of the qualitative surveys conducted by the Eurosystem and relating to supply, demand and lending criteria (Bank Lending Survey) were also consulted to support the analysis

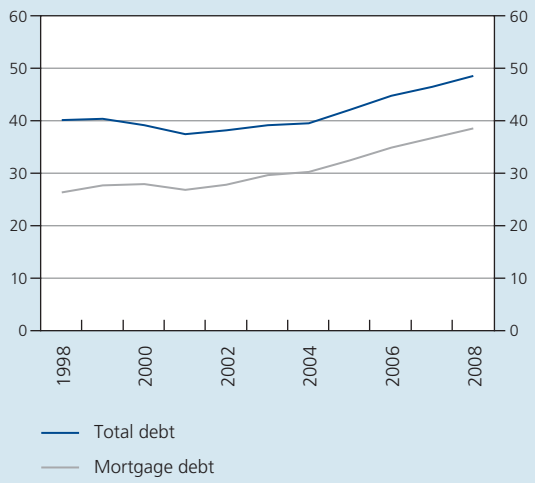
1. Mortgage loan developments and characteristics

1.1 Pattern of household debt in the past ten years: comparison between Belgium and the euro area as a whole

The past ten years have seen Belgian household debt increasing in relation to GDP. That decade can be divided into two phases. From 1998 to 2001 the debt remained more or less stable, or even declined slightly, while from 2001 to 2008 the total debt of households increased steadily. Thus, while the total debt represented around 38 p.c. of GDP at the end of 2001, by the end of 2008 the figure came to 48.6 p.c. of GDP.

CHART 1 BELGIAN HOUSEHOLD DEBT OVER THE PAST TEN YEARS

(percentages of GDP)



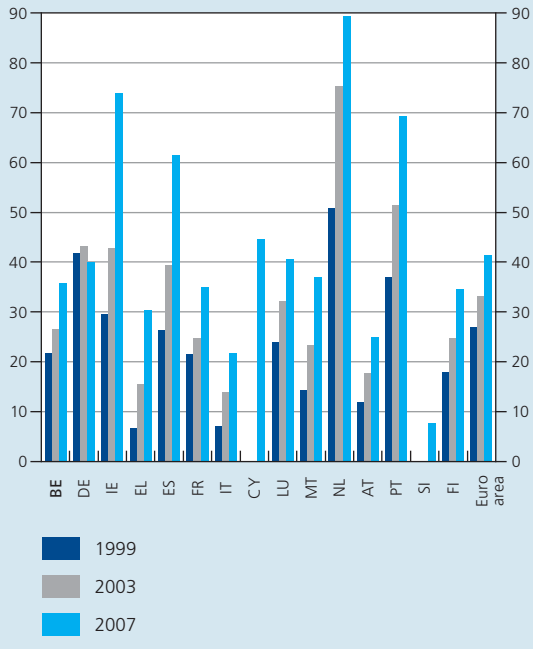
Source: NBB (Financial accounts).

Mortgage loans represent a large proportion of household debt. At the end of 2008 they accounted for almost 80 p.c. of the total outstanding loans to households, compared to 65.7 p.c. at the end of 1998. In relation to GDP, they mirrored the profile of total debt during the decade from 1998 to 2008: a period of relative stability between 1998 and 2001, followed by steady growth between 2001 and 2008. At the end of the period, mortgage loans to Belgian households totalled 133 billion euro, equivalent to 38.6 p.c. of GDP, against 26.4 p.c. in 1998.

The level of Belgian mortgage debt is comparable to that found in the euro area. In most countries, household debts relating to the construction, purchase and renovation of a home have risen as a percentage of GDP in the past ten years. The outstanding mortgages granted by euro area monetary financial institutions (MFIs) amounted to 42 p.c. of GDP at the end of 2007, compared to 27 p.c. at the end of 1999. Except in Germany, households in the various Member States of the euro area saw an increase in their mortgage debt between the two reference years. However, the level varies greatly from one country to another.

CHART 2 HOUSEHOLDS' HOUSING-RELATED DEBT IN THE EURO AREA (1)

(percentages of GDP)



Source: ECB, Housing finance in the Euro Area, 2009.

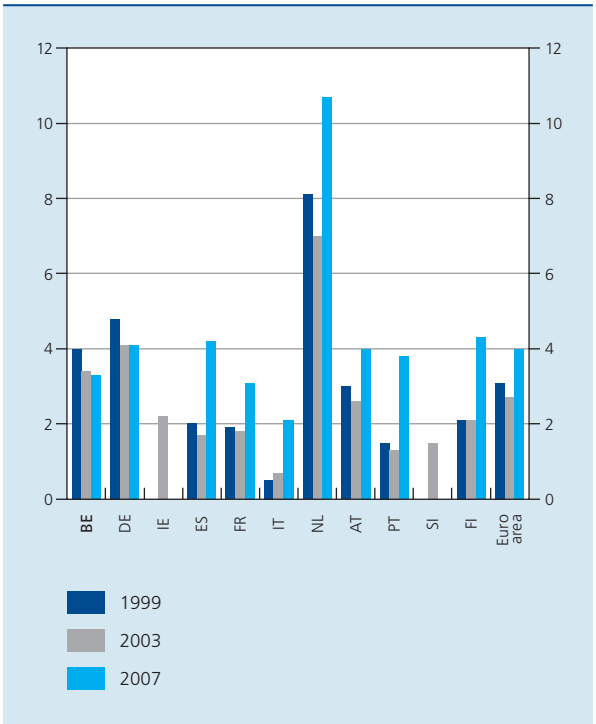
(1) Data reflect the outstanding total of loans granted by MFIs for the construction, purchase and renovation of property, including securitised loans.

The debts contracted by households for the purchase, construction and renovation of residential property increased particularly steeply in certain euro area countries between 2003 and 2007 : that applies mainly to Spain and Ireland, and to a lesser extent to Portugal and the Netherlands. During those years, growth in Spain was based on the dynamism of the property market, which was accompanied by a property price boom and an increase in demand for mortgage loans. For a number of years, Ireland experienced one of the strongest growth rates in the euro area, and that in turn supported wages and property prices, driving up demand for mortgages.

At the same time, and despite the rising debt level, the low interest rates curbed the growth of interest charges for households. Expressed as a percentage of disposable income, those charges initially declined, on average, in the euro area between 1999 and 2003, before rising between 2005 and 2007, although not increasing as rapidly as the debt. In Belgium, interest charges fell throughout the period. While they exceeded the euro area average in 1999, they were below that average in 2007.

CHART 3 HOUSEHOLDS' INTEREST PAYMENTS [1]

(percentages of gross disposable income)



Source : ECB, Housing finance in the euro area, 2009.

(1) No data available for Cyprus, Greece, Luxembourg and Malta. For Ireland and Slovenia only the 2003 data are available.

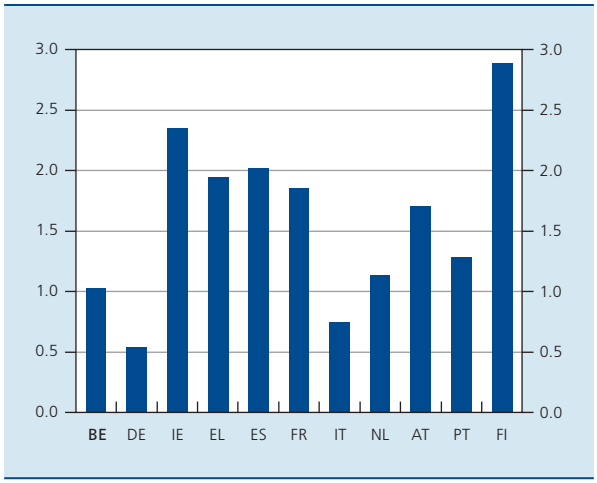
Interest charges increased particularly sharply in Spain, Portugal, Finland and the Netherlands ; in that last country, their level is due mainly to the large proportion of households taking out a housing loan.

There are several common factors which account for the strong growth of mortgage lending in the euro area countries. Those factors include the low level of interest rates over the period considered, population growth, rising disposable incomes, rising property prices and the effects of the deregulation and liberalisation of financial services, augmenting both the number of lenders and the range of products offered.

First, the substantial rise in disposable income between 1999 and 2007 in all euro area countries increased the capacity of households to take on debts. The average growth ranged between 0.54 and 2.89 p.c. *per annum*, depending on the Member State.

Second, generally speaking, low interest rates prevailed during the period under consideration, as is evident from the figures for the 3-month Euribor, often taken as the benchmark for short-term interest rates, and for the ten-year government bond which serves as the benchmark for long-term rates. It should be noted that interest rates on housing loans at variable rates are influenced by the benchmark rates after a shorter time lag than those on fixed-rate loans.

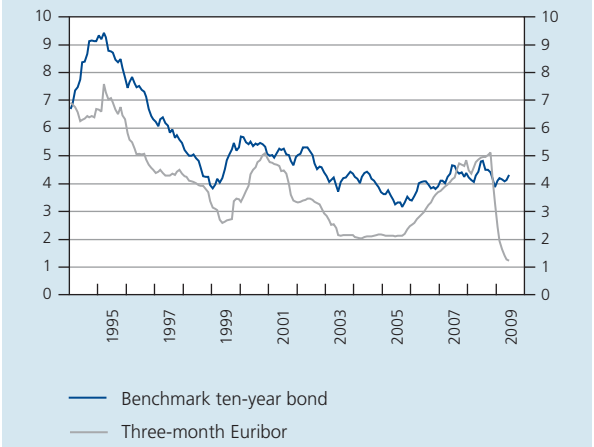
CHART 4 AVERAGE ANNUAL GROWTH RATE OF DISPOSABLE INCOME PER CAPITA IN EURO AREA COUNTRIES, 1999 TO 2007 [1]



Source : ECB, Housing finance in the euro area, 2009.

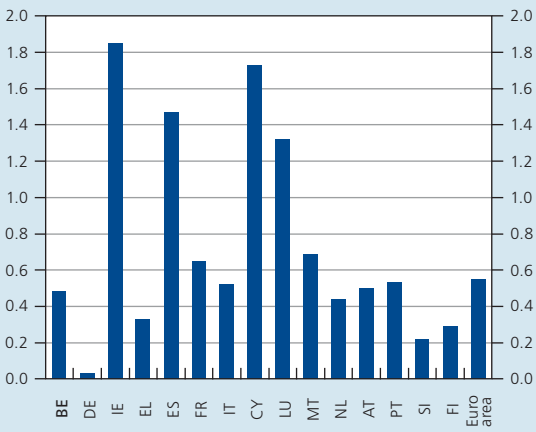
(1) No data available for Cyprus, Luxembourg, Malta and Slovenia.

CHART 5 SHORT AND LONG TERM INTEREST RATES BETWEEN 1994 AND 2009



Source: ECB, Housing finance in the euro area, 2009.

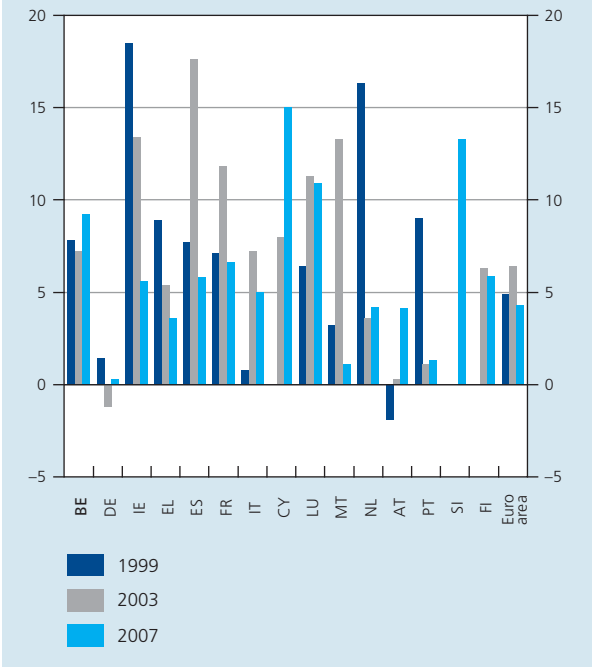
CHART 7 AVERAGE ANNUAL GROWTH RATE OF THE POPULATION BETWEEN 1999 AND 2007 (1)



Source: ECB, Housing finance in the Euro Area, 2009.
(1) For Greece, the average growth rate relates to the period 2001-2007.

Third, rising house prices are another factor contributing to the increase in household mortgage debt. In the euro area as a whole, house prices increased by an average of 6.1 p.c. over the period considered. There is generally a correlation between property prices and the associated lending. In recent years, the growth of these two factors was particularly marked in Ireland and Spain, although it is difficult to determine the direction of the causal relationship. It seems reasonable to assume that the two factors reinforced one another. House prices are driven by various factors, including household income and interest rates.

CHART 6 GROWTH RATE OF HOUSE PRICES IN 1999, 2003 AND 2007 (1)



Source: ECB, Housing finance in the euro area, 2009.
(1) For Luxembourg, the latest data relate to 2006.

In some countries, demographic factors may also have contributed to the rising demand for housing loans, either directly, by increasing the number of contracts concluded, or indirectly, by stimulating the rental market. In the euro area, the population increased by around 0.5 p.c. between 1999 and 2007, but growth rates of over 1 p.c. were recorded in Ireland, Spain, Cyprus and Luxembourg, partly reflecting positive net migration flows. In Spain and Ireland in particular, demographic factors appear to have contributed to the strong expansion of mortgage lending in recent years.

1.2 Main characteristics of mortgage loans

After reviewing the pattern of household debt contracted for the purpose of buying, building or renovating property, and the factors which determine that, this section describes and analyses a number of characteristics of mortgages, particularly those which are important for monetary policy. Those are the interest rate (fixed or variable), the loan-to-value ratio or LTV, the maturity of the loan, the repayment arrangements and the banks'

margins on the mortgages. The characteristics described usually refer to loans granted for a household's first purchase of a home.

A. INTEREST RATES

In Belgium, there has on average been a predominance of fixed interest rates on mortgages granted throughout the past decade, i.e. between 1998 and 2009. However, the year 2004 was an exception, as variable rate loans were in the great majority owing to the low short-term interest rates at that time. The proportion of fixed rate contracts therefore varies according to the level of interest rates, but in comparison with the euro area, a high proportion of contracts are concluded at a fixed rate or with a long initial fixation period.

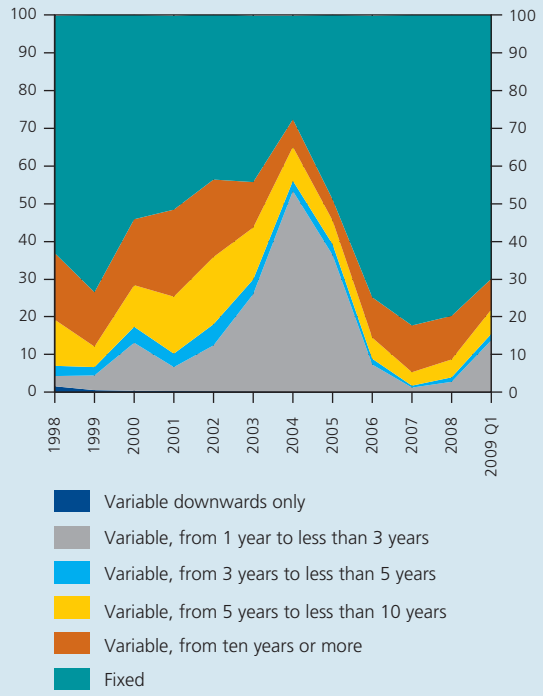
In 2008, fixed rate contracts represented 80 p.c. of loans granted in that year, while variable rate contracts with an initial fixation period of ten years or more represented 11.5 p.c. The remainder consisted of variable rate loans with an initial fixation period of less than ten years. Loans at fixed or semi-fixed rates therefore accounted for over 90 p.c. of loans granted during last year.

In regard to variable rate loans, the Belgian law on mortgage lending lays down strict rules to protect consumers. Thus, variability is not permitted within less than one year, and the change in the rate must be linked to an official reference index (treasury certificates and bonds maturing in 1 to 5 years). Consequently, the extreme volatility of interbank rates which followed the financial crisis turbulence had no impact on mortgage interest rates in Belgium. Similarly, still on the subject of variable rate loans, upper and lower limits must be set, with the same margin in both directions. For that reason, banks offer products on which the risk to the borrower is limited to a deviation of 3 percentage points from the initial interest rate.

At euro area level, a minority of countries are in a situation similar to that of Belgium (predominance of fixed or semi-fixed rates): they are Germany, France and the Netherlands. Together, however, those countries represent around 65 p.c. of all loans granted in the euro area. In the other Member States, mortgages are usually granted at interest rates which are variable in the very short term: the initial rate fixation period is generally one year or less, and the rates can be adjusted monthly, quarterly, twice yearly or annually. It is mostly the Euribor with a corresponding maturity that is used to adjust these interest rates. In countries where loans denominated in foreign currencies play a significant role (Cyprus, Austria, Slovenia), the Libor is also used as the reference for adjusting variable interest rates.

CHART 8 BREAKDOWN OF NEW MORTGAGE CONTRACTS BY TYPE OF RATE, IN BELGIUM (1)

(annual data, percentages of the total amount)



Source: PLU.

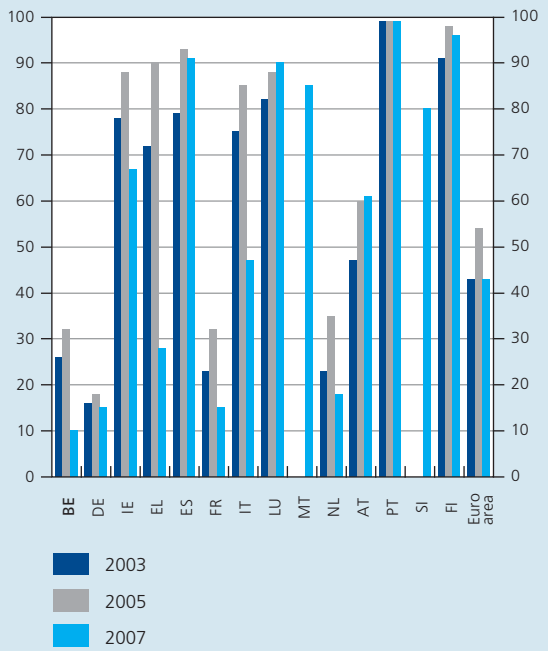
(1) In the case of variable rates, the term mentioned corresponds to the initial rate fixation period.

As in Belgium, the proportion of new lending comprising variable rate loans varies over time according to the respective levels of fixed (or semi-fixed) and variable rates, but these fluctuations do not fundamentally alter the above classification, except in the case of Italy and Greece where the proportion of variable rate contracts dropped sharply between 2005 and 2007. In general, variable rate loans predominated during 2005, probably because of the low short-term interest rates at that time. Subsequently, the trend was reversed in a number of countries, reflecting expectations of an increase in money market interest rates, an increase which did in fact materialise during the second half of 2005.

The substantial differences evident between Member States in regard to the proportion of variable rate loans, ranging from 10 to 99 p.c. in 2007, are partly attributable to trends in supply and demand, cultural and historical

CHART 9 SHARE OF VARIABLE RATE CONTRACTS IN NEW LOANS GRANTED IN EURO AREA COUNTRIES [1]

(percentages of the total)



Source: ECB, Housing finance in the euro area, 2009.

(1) For the purposes of the SIR report, contracts were classed as variable rate loans if the interest rate was variable within a period of one year or less. If the initial fixed-rate period exceeded one year, mortgages were regarded as fixed rate loans.

factors (such as the history of inflation in the various countries), and institutional characteristics.

Among the factors on the demand side, the aspects to be taken into account concern cultural habits, risk aversion and the planning timescale of consumers. Thus, a long period of macroeconomic stability, particularly low inflation, may be conducive to longer term planning and may explain why fixed or semi-fixed rates have been and continue to be dominant in countries such as Belgium, Germany and the Netherlands.

On the supply side, bank funding practices may play a role. The information collected from banks for the SIR suggests that this is the case in Luxembourg, Slovenia and Finland. In those countries, variable rate loans predominate, in the same way as financing by means of short term instruments. Conversely, German banks issue long term covered bonds, which accord with household preferences for interest rates fixed in the longer term.

However, the replies to other points in the questionnaire indicate that in most countries the characteristics of the banks' mortgage portfolio are not determined by conditions governing access to longer term funding. In most cases, the causal link appears to operate the other way round, since the majority of banks state that the maturity of the mortgages determines the maturity of the funding instruments.

The level of financial market development may also have played a role in the past since, in some countries, the lack of an appropriate benchmark rate in the long term bond segment may have hampered the banks' supply of mortgages offering longer fixed-interest periods.

In the case of Italy, households' preference for variable rate loans is due partly to the fact that Italian banks used to charge high margins on fixed rate loans, in comparison with other euro area banks. That situation inhibited switching from one market segment to the other.

Spain provides a clear example of the influence of institutional factors on preferences for variable rate loans: until the law was changed in 2008, loans at rates of interest which were not fixed for the whole term of the loan were regarded as variable rate loans and were therefore subject to limited charges in the event of early redemption. According to the banks, those charges did not cover the investment risk. Consequently, the rates on loans with an initial fixed interest period of five or ten years tended to be high, making them less attractive to borrowers.

In some countries, the entry into force of Basel II may have heightened the banks' preference for variable rate loans, since such loans transfer the interest rate risk to households, reducing the amount of regulatory capital required.

Despite the differences in interest rates, a number of common tendencies relating to other characteristics of mortgages can be identified in the euro area countries. Thus, over the past decade the loan-to-value ratio has increased, loan maturity has increased, and loan repayment arrangements have been made more flexible.

B. MATURITY AND LTV

In Belgium, mortgages generally have a maturity of twenty years. There are no detailed statistics on the maturity structure of the loans, but according to some sources the average maturity increased between 2003 and 2007 from eighteen to twenty-one years. The maximum maturity offered before the start of the financial crisis had risen to forty years.

In the euro area, the standard maturity granted in 2007 varied from one country to another, ranging between twenty and thirty years. The maximum maturity was generally between thirty and forty years, but there were some longer maturity products (up to fifty years in Spain, France and Portugal, and up to sixty years in Finland), although they held only a small market share.

Since the introduction of economic and monetary union, the average maturity has increased in the euro area countries, as has the maximum maturity offered by banks. That is partially a reflection of the increase in property prices, which has forced households wanting to enter the property market to take out bigger loans, and these were only available with longer maturities. Moreover, the increase in life expectancy and the accompanying rise in the retirement age have also played a part in extending mortgage maturities. From the banks' point of view, the launch of longer maturity products on the market should be viewed in the context of stronger competition, the emergence of more favourable long term financing conditions and the development of new funding instruments with longer maturities (covered bonds, securitisation), although the direction of causality is difficult to ascertain.

The loan-to-value ratio measures the ratio between the amount borrowed and the value of the property constituting the collateral. In this respect, the banks have also made some adjustments to their policy in recent years.

In Belgium, although there are no official restrictions, in practice the banks make sure that the interest charges do not exceed 30 to 35 p.c. of the borrower's disposable income during the first year of the contract, though that proportion may increase (up to 50 p.c.) according to income level, job security, age, etc. The banks determine the maximum LTV on that basis. They generally charge a higher interest rate the higher the LTV. Presumably, the policy of granting preferential rates on loans with a lower LTV may have helped to maintain reasonable ratios in Belgium. In the recent period, the LTV has remained more or less constant at around 80 p.c., despite the increase in the average amount borrowed.

At euro area level, the standard LTV applied to a new contract in 2007 was around 80 p.c. in most Member States, ranging between 63 p.c. (Malta) and 101 p.c. (Netherlands). As in Belgium, there are not generally any restrictions on that ratio, but a limit may be defined in terms of capital adequacy and the provisions necessary for mortgage lending. If the LTV remains below a certain limit, mortgages are treated according to the standard procedure under the Basel II accord; conversely, above that level they are classed as riskier, which means that the banks have to increase their capital provision. Similarly, a limit has also been set for loans eligible as collateral for covered bonds or mortgage bonds.

In most countries the LTV increased between 1999 and 2007. This rise was accompanied by an increase in contract maturities and the development of new types of loan allowing the postponement of repayment. In 2007 the LTV had already declined again in some countries such as Belgium, Ireland, Spain, Malta and Portugal, probably owing to the first effects of the financial crisis.

C. REDEMPTION SCHEMES AND CONTRACT FLEXIBILITY

Several types of loan redemption scheme coexist on the market. The commonest in the euro area countries is the redeemable loan, repaid in constant monthly instalments including the interest charges, which represent a diminishing proportion as time goes by, and the capital. This is the most popular repayment scheme in Belgium.

The interest-only scheme is defined by a monthly interest payment with repayment of the whole of the capital on termination of the contract. In 2007 these loans represented only a small proportion of the market, namely 7.5 p.c. in the euro area.

In some countries, credit institutions have extended the range of repayment schemes and introduced new products to permit smaller payments at the start of the contract (teaser loans). These comprise a reduction in the initial repayment costs, e.g. by including an "interest only" formula, followed by a redemption scheme or a period with no payments followed by a redemption formula. These new products have made it easier for certain types of borrower to obtain a mortgage, which has also helped to increase the outstanding credit supply.

The flexibility of the financial market relating to property indicates the ease with which households can modify some of the terms and conditions in their mortgage contract, or switch to a different type of loan with the same bank or another bank. In that connection, the scope for early redemption is a key factor, but the cost of taking out a new loan also plays a role.

Partial or total early repayment of the mortgage is permitted in all euro area countries. The charges associated with such early repayment generally represent a percentage of the amount outstanding, which depends on the amount of the loan, the type of rate (fixed or variable) and the time elapsing since the contract was concluded. In a number of countries, early repayment does not attract any charges in the case of variable rate loans, in contrast to

fixed rate loans. That is so in Finland, Greece, Luxembourg and the Netherlands. In certain cases, the early redemption clause may be inserted in the contract in return for an increase in the rate offered.

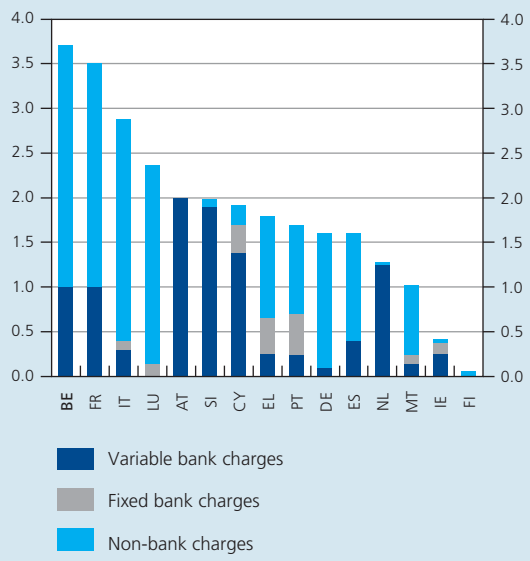
In Belgium, early redemption penalties are subject to a statutory maximum equivalent to three months' interest charges on the outstanding amount of the loan.

In principle, these charges are payable even if the early redemption is required on signature of a new contract with the same credit institution. However, it is sometimes possible to renegotiate the terms of the loan. If a loan is repaid early in order to conclude a contract with another credit institution offering better rates or other more attractive products, such a change entails, in addition to the early repayment penalty, the charges for concluding a new mortgage contract (notary's fees, registration fees, administration fees and search charges). However, in Italy a measure providing for mortgage portability has been introduced, making it possible to switch lenders free of charge so long as the amount of the new loan corresponds to the outstanding amount of the original loan.

Chart 10 shows the charges incurred in arranging a mortgage, expressed as a percentage of a standard sized loan granted in 2007 to a first-time buyer household purchasing a property for its own use. The costs taken into account are those directly entailed in concluding the contract (and not the purchase of the property itself), whether they are fixed by law or normally charged by the lender. Some of those costs vary according to the amount of the loan, others are fixed, their exact nature varying from one country to another. Non-bank charges, for example, may include notary's fees, contract registration fees or other charges laid down by law. There are marked differences between countries, as the costs range from 3.7 p.c. of the loan sum in Belgium (of which 2.7 p.c. are non-bank charges: notary's fees, registration fees and insurance costs) to practically 0 p.c. in Finland, but this comparison is only a guide since it was necessary to make simplistic assumptions owing to the complexity of some cost structures, substantial differences being apparent between credit institutions in the same country, and to the extent to which certain charges depend on specific circumstances.

CHART 10 CHARGES ASSOCIATED WITH A MORTGAGE IN THE EURO AREA, IN 2007

(percentages of a standard housing loan)



Source: ECB, Housing finance in the euro area, 2009.

D. BANKS' MARGINS ON MORTGAGES

The income which banks derive from mortgages can be compared with their funding cost or their opportunity cost. This shows a margin which varies in particular according to the loan characteristics (e.g. the type of rate charged), the borrower's default risk and the competition between credit institutions.

Various types of margin were calculated for the SIR report. However, the statistics needed for that purpose have only been available since 2003, a relatively short period which does not cover a full economic cycle. At the same time, the period from 2003 to 2007 was special in that credit terms were eased considerably during those years.

Chart 11 shows the margins between the rate charged on a standard mortgage and the opportunity cost. Since the standard loan in Belgium comprises a fairly long initial fixation period, the comparisons were made on that basis with countries for which the comparison was relevant, i.e. those where the volume of new fixed-rate loans represented on average at least 20 p.c. of total new loans between 2003 and 2007. The opportunity cost is based on the assumption of a risk-free investment of a corresponding maturity (linear bonds in Belgium, for example).

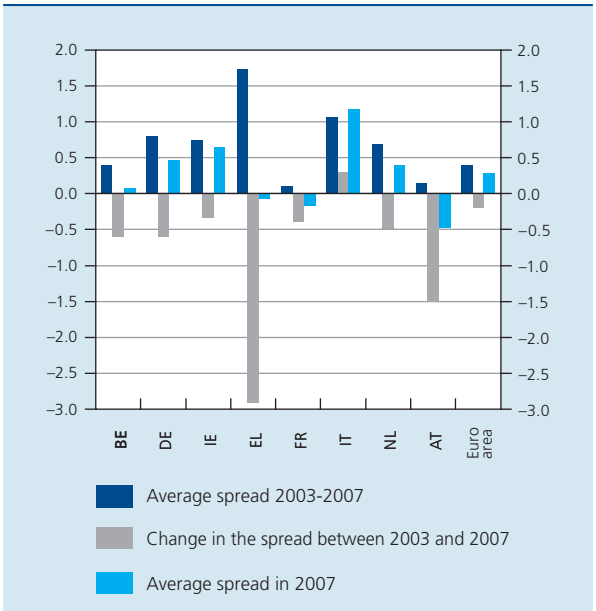
For countries where the commonest type of mortgage comprises a relatively long initial fixation period (Belgium, France, Germany and the Netherlands), the biggest margin, on average, during the years 2003 to 2007, in relation to the opportunity cost was found in Germany and the Netherlands, while it was smallest in Belgium and France.

The margin was relatively large in countries where fixed or semi-fixed rate loans are less common (Ireland, Greece, Italy), which may explain why households in those countries were more inclined towards variable rate loans. In France, the margin on mortgages was negative in 2007, probably owing to the effects of cross-selling: during that period it was possible for mortgages, which may establish a long-term relationship with customers, to be subsidised by other bank products. In Greece, margins declined sharply between 2003 and 2007, becoming practically zero in 2007, a year in which many Greek households replaced their variable rate loan with a fixed rate loan.

Regarding developments over time, spreads declined in practically all the countries considered between 2003 and 2007. That situation is confirmed by the results of the Bank Lending Survey. If the net percentages are added up, we find a significant fall in the margins on average mortgages in most European countries. The picture regarding non-interest rate charges is more varied between countries. While a fall in margins was accompanied by a reduction in this type of charges in some countries, banks in other countries seem to have increased the non interest rate charges to compensate somewhat for the decline in the level of margins.

CHART 11 SPREAD BETWEEN THE RATE CHARGED ON A STANDARD MORTGAGE (INITIAL FIXED RATE PERIOD EXCEEDING FIVE YEARS) AND THE RETURN ON A RISK-FREE INVESTMENT

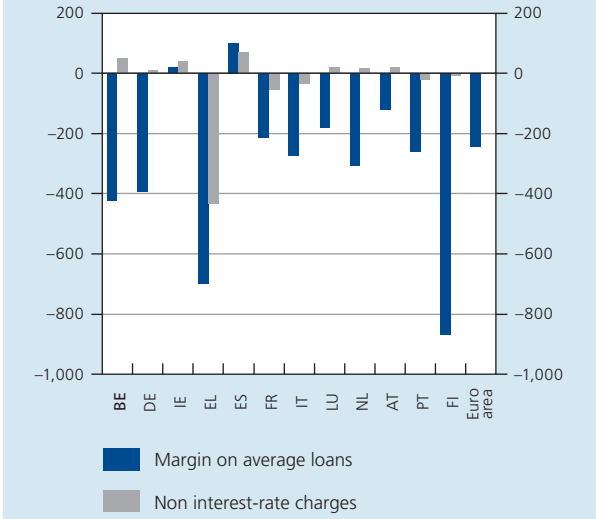
(interest rate on new contracts; percentage points)



Source: ECB, Housing finance in the euro area, 2009.

CHART 12 ADJUSTMENTS TO MARGINS AND CHARGES ON AN AVERAGE MORTGAGE (1)

(cumulative net percentages, 2003 to 2007)



Source: ECB, Housing finance in the euro area, 2009.

(1) The net percentages correspond to the difference between the sum of the percentage of responses to the BLS indicating a tightening and the sum of those indicating an easing. Cumulated over five years, they may indicate substantial movements.

To sum up, common trends have been apparent in recent years regarding the characteristics of mortgages granted in the fifteen euro area countries: the LTV has risen, loan maturities have lengthened, and loan repayment arrangements have become more flexible. Those trends have made it easier for households to gain access to the mortgage market and have improved the operation of that market. At the same time, substantial differences persist, e.g. in regard to the percentage of fixed and variable rate contracts. Those differences may be attributed to historical or cultural factors and to specific institutional characteristics.

2. Bank funding structure

Having examined patterns of demand and the main characteristics of mortgages, we shall now focus on the funding of banking institutions, in order to provide a picture of the banks' funding strategies. The differences between euro area countries will be highlighted, together with the changes observed since the end of the 1990s.

2.1 Funding structure developments over the past ten years

In recent years, financing the acquisition of a home for individuals has become a growth area of activity for banks in the euro area. At the end of 2007, loans granted to households for the construction, purchase or renovation of a property accounted for 32 p.c. of all lending to non-financial sectors, 5 percentage points higher than the 1999 figure. Moreover, this growing proportion is a common trend evident in all Member States.

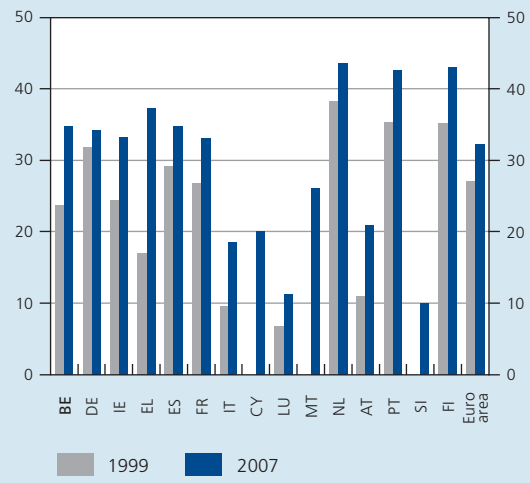
Except for some specific instruments, the banks use their normal funding sources to finance mortgages. In that regard, customer deposits remain the principal source of funding. In recent years, however, a number of factors have contributed to the expansion of the alternative funding sources available to credit institutions. These include the development of a deeper and more integrated European bond market, thanks to the introduction of the euro, financial and technological innovations, and financing conditions which were generally extremely favourable. That situation led to a shift towards more market-based funding structures.

One of the factors accounting for the observed changes in the funding structures of euro area banking systems, at least until the start of the financial crisis in mid 2007, is the strong growth of lending activity in general, and mortgages in particular. From 1997 to 2007, loans to non-financial sectors (including loans derecognised from bank balance sheets following securitisation) increased by 40 p.c. in relation to GDP. At the same time, loans to households for the acquisition, construction and renovation of a residential property increased by 15 percentage points to the equivalent of 38 p.c. of GDP. In absolute terms, the outstanding total of these loans more than doubled over that period. This impressive growth was not followed by a similar rise in traditional deposits by non-financial sectors in the euro area, their amount remaining more or less constant in relation to GDP. This widening gap between loans granted and deposits received was financed by greater recourse to market-based funding, in the form of debt securities and money market loans.

However, it would be misleading to try to establish a one-way causality between the two phenomena, starting from a growing gap between loans and deposits to arrive at the diversification of funding sources. Indeed, part of that gap must be due to the existence of these alternative funding sources, which enable banks to expand their lending activities in a context of growing demand and keener competition.

CHART 13 SHARE OF HOUSING LOANS TO HOUSEHOLDS IN TOTAL MFI LOANS TO THE NON-FINANCIAL SECTORS IN THE EURO AREA (1)

(percentages, fourth quarters of 1999 and 2007)

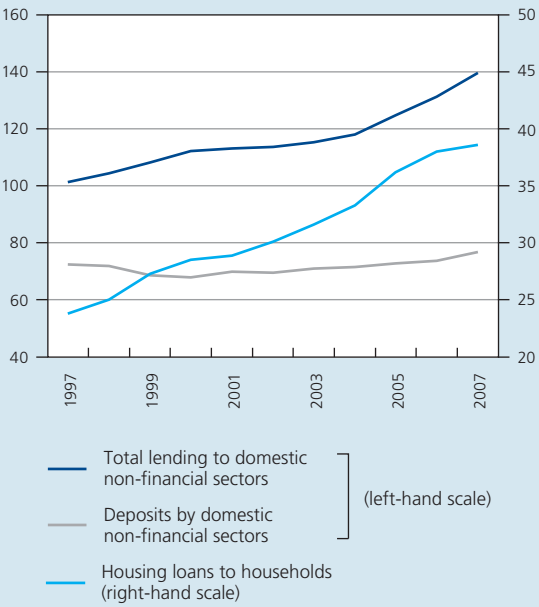


Source: ECB, Housing finance in the euro area, 2009.

(1) Including estimates of loans derecognised from the balance sheet by securitisation.

CHART 14 GAP BETWEEN LOANS GRANTED AND DEPOSITS COLLECTED BY CREDIT INSTITUTIONS IN THE EURO AREA (1)

(percentages of GDP)



Source: ECB, Housing finance in the euro area, 2009.

(1) Including estimates of loans derecognised from the balance sheet by securitisation.

Banks in the Member States where lending to non-financial sectors recorded the strongest cumulative increase over the period 1999 to 2007 – namely Spain, Ireland, the Netherlands and Portugal – are the ones which have made the most use of market-based funding to fill the widening gap between deposits and loans.

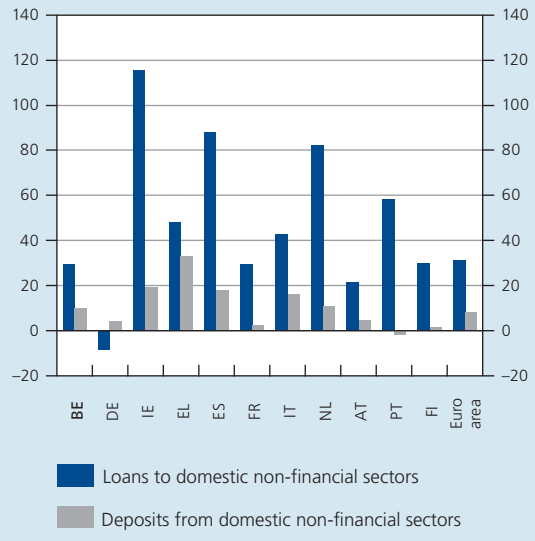
That phenomenon is also evident, though less marked, in other countries except Germany, where the expansion of traditional deposits slightly outpaced the growth of lending activity, which declined over the same period.

The relative importance of the various sources of bank funding has changed over time. Between the end of 1999 and the end of 2007 there was a decline in funding obtained from the deposits of resident non-financial sectors, though on average they are still the principal source of funding for euro area credit institutions. Belgium stands out as one of the countries where these deposits still represent a particularly large share of the funding.

The share of deposits originating from financial institutions (other than MFIs), including securitisation, increased between these two dates, while that of non-interbank deposits from the rest of the world remained stable. Finally, the relative proportion of debt securities in total funding increased slightly, while that of interbank deposits showed a small decline.

CHART 15 EURO AREA MFI LOANS AND DEPOSITS: CUMULATIVE CHANGES FROM 1999 TO 2007 (1)

(percentages of GDP)

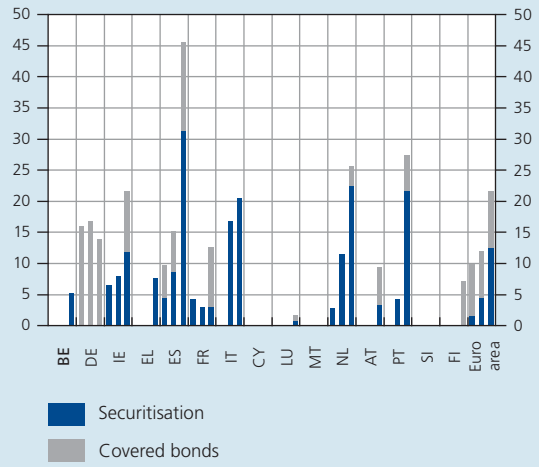


Source: ECB, Housing finance in the euro area, 2009.

(1) Including estimates of loans derecognised from the balance sheet by securitisation.

CHART 16 SECURITISATION AND COVERED BONDS IN 1999, 2002 AND 2007

(percentages of housing loans to households; fourth quarter data)



Source: ECB, Housing finance in the euro area, 2009.

During the period preceding the financial crisis, there was a large increase in the outstanding total of mortgage-backed securities, as is evident from the figures relating to guaranteed funding, broken down into the issuance of Residential Mortgage Backed Securities, or RMBS, and bonds backed by those same loans (covered bonds), as a percentage of the total housing loans to households. Altogether, in the euro area, these two types of products represented around 21 p.c. of the total housing loans outstanding at the end of 2007 (compared to 10 p.c. at the end of 1999), with significant differences between countries.

The countries where the outstanding total of loans to domestic non-financial sectors expanded much more strongly than the deposits of those sectors (Ireland, Spain, Portugal and the Netherlands) had to make substantial use of covered bond issuance and securitisation.

Conversely, some countries such as Belgium, Finland, Greece and Luxembourg (1) began the period under consideration with a high deposit to loan ratio, enabling them to avoid large-scale recourse to market-based funding sources, particularly covered bonds and securitisation.

(1) In Portugal, the ratio of deposits to loans was initially high, but the rapid decline in deposits in relation to total loans was offset by expanding securitisation and net interbank funding.

2.2 Covered bonds and securitisation

This section sets out the main characteristics of covered bonds and securitisation, and the principal differences between these two types of products. In the case of mortgage lending, securitisation takes the form of residential mortgage backed securities (RMBS).

Covered bonds are bonds issued by a credit institution. These bonds are mainly backed by mortgages (or possibly local authority loans). They feature a direct link with the funding of these loans. Unlike in the case of securitisation, both the asset and the risk generally remain on the issuer's balance sheet.

The bond holders have a dual right of recourse: on the issuing institution and on the underlying assets. For investors, the advantage is that they enjoy relatively high yields at comparatively low risk, a factor which has encouraged the development of this market segment in recent years.

In contrast, securitisation is a financial device which enables a company to improve the liquidity of its balance sheet. Technically, assets selected according to the quality of their collateral are placed in an ad hoc company which purchases the assets with funding raised by the issuance of securities subscribed by investors. This technique was originally used by credit institutions to refinance part of their outstanding loans, i.e. to transform customer loans into marketable securities.

From the issuer's perspective, covered bonds and RMBS have many advantages. Collateralised securities carry higher credit ratings, thus providing long-term funding at relatively low cost and helping issuers to bridge their funding gaps. They also enable issuers to diversify and broaden their funding sources.

At the same time, there are several important differences between covered bonds and securitised products such as RMBS.

In general, covered bonds remain on the issuer's consolidated balance sheet, whereas in the case of an RMBS issue the collateral is transferred to a special purpose vehicle (SPV) which issues the securities. The originator and the issuer are therefore not the same in the case of RMBS.

Securitisation in the form of RMBS enables the issuer to transfer the risk and eliminate it from his balance sheet; that therefore reduces the amount of capital required.[1] In contrast, covered bonds are used first and foremost to raise finance.

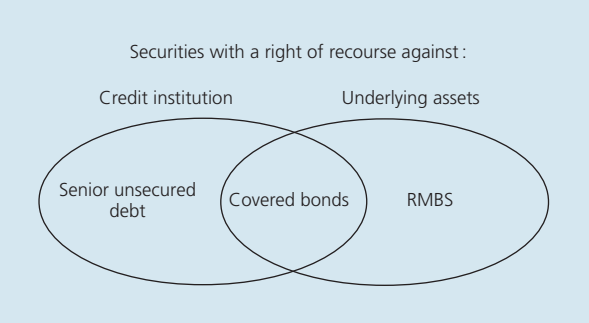
The collateral used in connection with covered bonds has to satisfy specific criteria, generally laid down by law, *inter alia* in terms of the maximum LTV permitted. These criteria ensure that the underlying assets are of good quality.

Unlike RMBS, covered bonds are dual recourse instruments. Investors are preferential creditors of the issuer; they also have a preferential claim on the underlying assets (cover pool), if the issuer defaults.

The collateral pool underlying covered bonds is usually dynamic, which means that the assets involved may be replaced when they mature or if they cease to meet the eligibility criteria. Conversely, the RMBS collateral pool is generally static. While covered bonds are predominantly fixed-income securities, interest rates on RMBS are usually variable.

Subdivision of the pool into a number of tranches is common in the case of RMBS, but not for covered bonds. The issuer can thus adapt the tranches according to the specific needs of the investors.

CHART 17 COVERED BONDS: A DUAL RECOURSE INSTRUMENT



Source: ECB, Covered bonds in the EU financial system, 2008.

(1) This refers solely to the "true sale" type of securitisation whereby the securitised loans are generally removed from the originator's balance sheet, the risks and rights relating to the assets being transferred to the SPV.

TABLE 1 COMPARISON BETWEEN COVERED BONDS AND RMBS

	Collateralised bonds	RMBS
Purpose of issue	Refinancing	Risk reduction, less stringent regulation, refinancing
Issuer	Loan issuer	Specialist entity
Recourse to original issuer	Yes	No
Structure	The assets generally remain on the balance sheet but are identified as belonging to a cover pool	The assets are transferred to the specialist entity
Impact on the issuer's capital requirements	None	Reduction
Legal restriction on eligible collateral	Yes, if the issue refers to the legislation on covered bonds (limit on LTV, for example)	Usually none
Asset management	Usually dynamic	Predominantly static
Transparency of assets for the investor	Limited (but quality is regularly monitored by specialist public or independent agencies)	Limited
Tranching	None	Usual
Coupon	Largely fixed rate	Predominantly floating rate

Source: ECB, Covered bonds in the EU financial system, 2008.

A. COVERED BONDS

Between 2003 and 2007, the value of the outstanding total of mortgage-backed bonds increased by 80 p.c. in the euro area. While this instrument had been used in Germany for a very long time, the widespread use of this funding source developed more recently in other euro area countries. However, in the absence of a homogenous, integrated market, there are substantial divergences.

In essence, the recent developments in this field have been driven largely by changes to laws and regulations (introduction of legislation in the Netherlands in 2008, and in Ireland in 2001, for example), and by the dynamism of the property market (Spain, Ireland, France). At present, three countries dominate covered bond issues in the euro area,[1] namely Germany, Spain and France.

Spain recorded the most significant developments in this field owing to the property market boom. This dynamism and the accompanying strong demand for mortgages were underpinned by the issuance of covered bonds, their share in the euro area rising from 18 p.c. in 2003 to 39 p.c. en 2007.

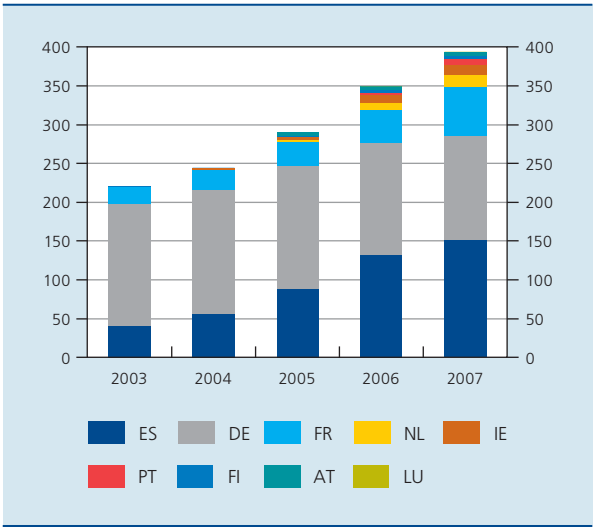
In France, the dynamism of the property market was also sustained during this period and the outstanding total of covered bonds tripled, representing 16 p.c. of the outstanding total for the euro area in 2007, against 6 p.c. in 2003.

With regard to the framework of laws and regulations, a distinction has to be drawn between the international level and specific national developments. At European level, the 1985 directive on the operation of undertakings for collective investment in transferable securities (UCITS) stipulates that these entities may invest up to 25 p.c. of their assets in covered bonds from a single issuer, subject to certain restrictions. Also, if certain conditions are fulfilled (e.g., the LTV ratio), the covered bonds qualify for a more favourable associated risk weighting under the European Capital Requirements Directive adopted in 2006. These two types of regulation have probably contributed to the popularity of covered bonds.

(1) However, these figures must be interpreted with some caution. On the basis of the available data it is not in fact possible to distinguish between residential and commercial covered bonds. Moreover, the national relative shares and outstanding amounts may be biased because international entities can issue covered bonds through subsidiaries in foreign countries. The data are available by country of issue and not by the issuer's nationality.

CHART 18 OUTSTANDING AMOUNT OF MORTGAGE COVERED BONDS: BREAKDOWN BY COUNTRY OF ISSUE

(billions of euro)



Source: ECB, Housing finance in the euro area, 2009.

From the national point of view, a number of countries have recently developed their own specific legislative framework. Only Cyprus and Belgium have not yet introduced legislation on the issuance of this type of securities. The Netherlands is a special case, since before the adoption of a specific law the issuance of these products was based on contractual agreements under the civil code.

B. SECURITISATION

Securitisation is a recent phenomenon in the euro area, having only become a significant source of funding for banks since 2002. In 2007, the share of securitised mortgages eliminated from the banks' balance sheet was estimated at 7 p.c. of the total. As a percentage of GDP, the figure was around 3 p.c.

The slow development of this market in comparison with the United States is due to several factors. First, the main euro area banks were well capitalised at the time when this type of product became available. Next, the legislative framework was usually lacking and had to be developed. The past ten years have seen numerous legislative and regulatory procedures at both national and European level facilitating the development of securitisation markets.

Another factor which has stimulated the recent growth of securitisation is the introduction of the euro, which has promoted financial integration and the development of a more market-based financial system. This has led to an increase in the liquidity and volume of MFI securitisations. At the same time, technological progress has improved financial data processing and pricing, leading *inter alia* to a reduction in the costs entailed in the issuance of RMBS.

Despite that, MFIs in a number of euro area Member States have developed only a low level of securitisation activity, if any. Recourse to securitisation in fact depends on various factors, including the legislative framework, but also on the national mortgage market structure.

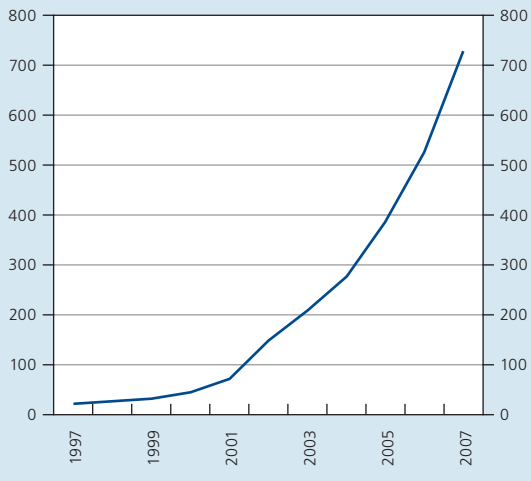
As in the case of covered bonds, issuance of securitised products (RMBS) was highest for MFIs of countries with the strongest demand for mortgages, namely Ireland, Spain and the Netherlands.

In Belgium, securitisation operations remained very limited until the end of 2007. The market in these securities was small and rather illiquid, so that the costs associated with operations of this type could not be recouped. However, in the recent period (2008 and 2009) there has been a very steep rise in the issuance of these securities, as a number of Belgian banks facing serious liquidity problems obtained funds via securitisation operations.

Overall, the figures presented above reveal a general trend towards more market-based funding sources, particularly structured products. The introduction of new legislation and the amendment of older regulations have

CHART 19 SECURITISATION OUTSTANDING IN THE EURO AREA BETWEEN 1997 AND 2007 (1)

(billions of euro)



Source: ECB, Housing finance in the euro area, 2009.

(1) The data reflect only securitisation via resident SPVs, so that total activity is underestimated.

enabled banks to make use of different funding sources, encouraging diversification and access to the financial markets.

The increased use of funding via the financial markets has also led to an extension of the average contractual maturity of the liabilities and easier access for foreign investors. That is particularly true in countries where the housing loan market has developed most rapidly in recent years (Spain, Netherlands and Portugal). At the same time, the shift from funding based on retail deposits to wholesale financing has reflected the wider the access to the domestic market for foreign savers and the banking system's capacity for financing the domestic sector's demand for loans by recourse to funds originating abroad. (1)

3. Impact of the financial crisis

The financial crisis which erupted in the summer of 2007 totally overturned the developments described above. The degree to which this crisis will have contributed to a reversal of the trends seen in the past decade regarding the funding structure of euro area MFIs can only be assessed in the longer term.

True, the Belgian consumer has been well protected, both by prudent legislation (limits on interest rate changes, relatively low LTV ratio) and by the relatively modest growth of mortgage debt, itself due to a moderate rise in property prices. Despite a small increase in the first half of 2009, the default rate has remained very low, at 1.1 p.c. of the total loans recorded as at 30 June 2009.

Conversely, there has been a noticeable impact on bank funding, as it has become increasingly difficult to raise new funds on the financial markets via covered bonds or securitisation, owing to the increased risk aversion of investors and the uncertainty over the scale of the banks' exposure to the assets in question. The volume of trading on markets dedicated to these funding methods has declined considerably owing to the lack of liquidity. In regard to debt securities, between June 2007 and June 2008 the total net issuance of medium or long-term instruments by euro area MFIs dropped by 64 p.c. in comparison with the previous twelve months.

Liquidity on the securitisation market has steadily dried up. Very opaque and complex segments were the first to be affected. As the crisis deepened, the other market segments, including RMBS, were also hit. Issuance of asset-backed securities, particularly those based on property, declined and at the same time yields on RMBS and covered bonds increased. According to estimates, in 2008 most of the euro area asset-backed securities were held for use as collateral with the Eurosystem.

Faced with a drought afflicting the interbank market and money market securities, the banks responded to this unprecedented situation by becoming more aggressive in attracting deposits. At the same time, investors – who had become far more risk averse – once again turned to bank deposits. The depth of the crisis revealed the great potential instability of funding sources based on the market, highlighting in particular the vulnerability of interbank loans to the crises of confidence which accompany periods of intense financial turbulence.

The policy adopted by the authorities did much to remedy this situation: the ECB provided liquidity on a massive scale, and governments endeavoured to restore confidence in the banks, notably by arranging their recapitalisation. It is still uncertain whether these measures will be sufficient to restore confidence and avoid a credit squeeze, including restrictions on mortgage lending. For that purpose, the banks must first secure stable long-term funding, directly linked to mortgage lending activity. The issuance of covered bonds should contribute towards that in Belgium. Moves to rectify the gaps in the current legislative framework are therefore expected.

(1) For example, the *Banco de España* estimates that, at the end of 2007, 66 p.c. of securitised bonds issued by Spanish institutions were held by foreign investors.

Bibliography

ECB (2008), *Covered bonds in the EU financial system*, September.

ECB (2009), *Housing finance in the euro area*, April.

Summaries of articles

Deflation, a demon from bygone times or a real danger in 2009?

During the summer of 2009, Belgium and the euro area, as well as other industrialised countries, recorded negative inflation rates. Although they were the direct result of sharply falling commodity prices in the second half of 2008, policy-makers and the general public wondered whether this would be the start of a deflationary spiral. Indeed, parallels with the Great Depression in the 1930s – which was also characterised by an asset price boom-bust cycle and banking stress – were drawn.

The article explains why deflation can have dramatic consequences for the economy, gauges the current deflationary risks and discusses what the policy options are in a deflationary environment. In past centuries, deflation – when defined in a broad sense as a decline in the general price level – was a frequent phenomenon and was not always accompanied by economic hardship. When deflation is defined more narrowly as a sustained decline in the general price level that gives rise to further expected falls, it is no innocent phenomenon since it confronts an economy with a number of nominal rigidities which can trigger a deflationary spiral. One such rigidity is the lower bound on nominal interest rates which can limit the central bank's potential to stimulate the economy as real interest rates cannot fall any further. Second, the real burden of outstanding debt increases when prices fall, leading to a redistribution of wealth towards lenders who generally have a lower propensity to consume than borrowers. Third, because of money illusion, it is difficult to cut nominal wages, making the adjustment of real wages to a worsened economic situation difficult or even impossible.

As shown by available indicators, risk of deflation in the euro area seems limited. The observed negative inflation rates are not a sign of widespread price falls. Inflation expectations remain in check although inflation is expected to return rather slowly to levels consistent with price stability. Taking a broader view, the IMF deflation vulnerability indicator, which combines a range of macroeconomic indicators, shows an increased risk of deflation in all industrialised countries.

Having a quantitative definition of price stability that defines the latter as a low, but strictly positive rate of inflation – as the Eurosystem has –, helps to prevent deflation. Yet, when confronted with a deflationary threat, monetary policy has a range of tools to tackle deflationary risks. First, nominal policy rates can be lowered aggressively, until they hit the lower bound. If further stimulus is warranted after rates have been brought close to zero, central banks can resort to unconventional monetary policies, as they have done in previous months. Also fiscal policies can help to contain deflationary risks, especially to tackle banks' solvency problems if they threaten financial stability, provided that the longer-term sustainability of public finances remains intact. Finally, it must be emphasised that policy-makers have to decide on appropriate policies to deal with deflationary

risks in real time.

JEL Codes: E31, E52, E61

Key words: deflation, Great Depression, monetary policy

Regulation and competition in the retail distribution sector in Belgium

While being a key sector in all developed economies, retail trade does actually appear to be one of the reasons for Europe's lagging behind in potential output growth. One of the reasons for this lag could be regulation. By determining conditions for market access and for carrying out a commercial activity, the regulatory framework may exert some influence on both economic performance and market structure and, ultimately, on the degree of competition. The article assesses the retail trade situation in Belgium along these lines. As far as possible, Belgium's performance is compared with that of neighbouring countries and the findings are assessed by cross-matching the various sources of information available.

First, evidence from international indicators (such as those regularly published by the OECD), as well as from a review of the main legislation governing retail trade in Belgium, tend to suggest that regulation in Belgium is relatively abundant and restrictive for this sector. Operating conditions in particular appear to be more regulated than in neighbouring countries.

As regards the retail trade sector's economic performance, it should be noted that, like most other economic sectors, the retailing business in Belgium still has a higher productivity rate than in the majority of other European countries and even the United States too. However, unlike trends noted in other branches of activity, this favourable position has been gradually eroded over the last ten years. It does actually seem that Belgium's main problem lies in its inability to improve the efficiency of the production factors being used.

However, looking more closely at the food retailing sub-sector, no striking anomalies are noted in the market structure and the degree of competition in Belgium. Even though the overall indicators point to some concentration at national level, local competition – assessed with an original approach applied to detailed data – appears to be quite strong; only a few sales outlets have a dominant position. Moreover, the non-specialised food retail sector has a growing number of big shops, as well as an increasing number of hard discounters and a larger share of generic brand products in traditional retail outlets.

Using detailed consumption price data from CityData and Eurostat, this analysis throws up evidence that prices charged by the retail sector are higher in Belgium than in the three neighbouring countries and the euro area as a whole. There have also been signs of a recent deterioration in the differential between prices in Belgian supermarkets and prices charged by German and Dutch supermarkets in particular. Adverse developments in labour costs in Belgium and higher retail business margins can go some way to explaining the trend in price differentials compared to Germany, where hard discounters are more common. Then again, the sharp deterioration in the price differentials between Belgium and the Netherlands recorded in supermarkets can largely be explained by the price war that raged between the major Dutch retail groups from October 2003 to December 2006.

Overall, it therefore appears that the actual influence of specific regulatory requirements for the retail trade on the efficiency of the sector, on the degree of competition and, ultimately, on consumer prices needs to be looked at very carefully. On the one hand, simplifying regulations in force in Belgium would no doubt break down the barriers to entry without necessarily impeding other policy objectives. On the other hand, the performance of the retail distribution sector must be

examined taking account of the specific features of the economy, such as population density and cultural preferences.

JEL Codes: L81, K23, L11, O47

Key words: retail, regulation, market structure, pricing, productivity

The economic recovery plans

Economic recovery plans make up a important part of the wide-ranging package of measures that economic policy-makers worldwide have taken in response to the financial and economic crisis.

More specifically, the EU Member States have either approved or announced fiscal measures to boost economic growth amounting to a total of 1.1 p.c. of GDP in 2009 and 0.7 p.c. of GDP in 2010 for the EU as a whole. In the United States, the cumulative budgetary cost of the recovery measures over 2009 and 2010 should reach 5.4 p.c. of GDP. However, fiscal support for economic activity through the automatic stabilisers is greater in the EU than in the US.

A comparison of policy responses, as regards both the scope and composition of the recovery plans, shows that there are significant divergences amongst the EU Member States themselves. Differences in terms of the extent of the recovery plans are in accordance with the European economic recovery plan's call for account to be taken of differences in initial budgetary positions when drafting the national plans. Moreover, the European recovery plans consist of a wide range of measures, which, on the whole, are quite evenly distributed over the revenue and expenditure sides of the equation.

The growth-supporting measures may be able to ease the recession in the short term, but the impact they will have is uncertain and possibly even fairly limited. An optimum effect of the recovery plans on economic growth in the short term would only really be reached if a number of preconditions are met first. So it is clear that the growth-stimulating measures need to be timely, temporary and targeted, conditions that are not always met. Furthermore, the effectiveness of the measures taken is to a large extent determined by the reactions from private economic agents. In this respect, an essential precondition is for there to be no doubt about the sustainability of government finances over the long run. However, combined with the already weak budget positions that some countries had to start with, the economic recovery plans and the effect that the recession has on the budget situation via the relatively large automatic stabilisers have seriously affected the state of public finances in many countries.

JEL Codes: E60, E61, E62, E63, E65, E66

Key words: fiscal stimulus, financial and economic crisis, EERP (European Economic Recovery Plan)

Towards more environmental taxation ?

The article provides an overview of the use and relevance of environmental taxes in Belgium as well as in Europe. It first of all looks into the implications of opting for environmental taxation compared to more conventional environmental policy instruments.

According to the analysis, no increase in proceeds from environmental taxes over the last decade can be found either in Belgium or the EU taken as a whole. The declining trend in the importance of environmental taxes is mainly a result of the decreasing energy intensity of the economy. However, use is being made of a gradually expanding range of environmental taxes on different products. In the article, attention is also paid to the Kyoto Protocol and the emissions trading scheme in the EU.

Looking ahead to the future, more work on green taxation should be recommended in order to meet environmental objectives, partly because of budgetary austerity and the "polluter-pays" principle and certainly in view of the greenhouse gas emission reduction commitments that have been entered into.

JEL Codes:H39, Q58

Key words: environmental taxes, Kyoto Protocol, environmental policy, Belgium

The Belgian mortgage market in a European perspective

Housing loans are by far the largest liability of households, and they make up a large part of bank lending. Housing-related borrowing has implications for the transmission channels through which monetary policy affects financing conditions and, ultimately, real activity and price developments.

The article presents the main results of the latest Structural Issue Report compiled at European level, entitled "Housing finance in the euro area". It analyses the main developments in housing finance in Belgium, compared with those elsewhere in the euro area, over the period from 1999 to 2007, looking at mortgage indebtedness, features of housing loans (including fixed versus variable rate loans, maturity, loan-to-value ratios, redemption schemes, spreads on housing loans) and also at the way in which banks have financed these loans.

Households' debt for house purchase has increased in most euro area countries over recent years. Various factors account for this strong growth, such as lower interest rates, income and population growth and the effects of past deregulation and liberalisation that broadened the scope of both suppliers of mortgage loans and loan products. Moreover, some common trends in the characteristics of housing loans can be observed in the 15 euro area countries, namely a lengthening of maturities, an increase in the loan-to-value ratios and greater flexibility in repayment schedules. However, there are still substantial differences across countries, for instance, as regards the share of variable rate contracts.

On the other hand, the funding of housing loans has changed markedly in the euro area over the last decade, with a rapid increase in the issuance of mortgage-covered bonds and securitisation of loans for house purchase. Nevertheless, retail deposits are still the main source of financing for loans. Considerable cross-country diversity in funding sources can still be observed, partly reflecting differences in legislation on new sources of funding, but also differences in consumers' preferences for safe deposit investment, differences in mortgage demand dynamics and, to some extent, differences in borrowers' preferences for fixed or variable interest rate loans.

The data mostly refer to the situation prevailing before the start of the turmoil in the summer of 2007. The financial market crisis has had a deep impact on the afore-mentioned developments in the mortgage finance market. Some considerations about the way in which the financial crisis is affecting mortgage markets are given at the end of the paper. For instance, it may actually contribute to reversing the changes in the funding structure of euro area banks, and shifting this structure towards more traditional and less volatile sources of finance.

JEL Codes: G 21

Key words: bank lending, mortgage, mortgage markets

Abstracts of the working papers series

165. Understanding inflation dynamics : Where do we stand ?, by M. Dossche, June 2009

The author summarizes recent progress made in the literature on inflation dynamics. This has been a very productive area of research due to the development of the so-called New Keynesian model and the availability of new macroeconomic and microeconomic evidence. Nevertheless, a number of problems still subsist. In particular the importance of temporary price markdowns to inflation dynamics and the characteristics of the information set price-setters use for their price adjustment decision currently constitute unresolved issues.

166. Input-output connections between sectors and optimal monetary policy, by E. Kara, June 2009

The paper considers the monetary policy implications of a model that features input-output connections between stages of production, so that a distinction between consumer prices index (CPI) inflation and producer prices index (PPI) inflation arises. More specifically, it addresses the policy conclusion by K. Huang and Z. Liu [2005, Inflation targeting : What inflation rate to target, Journal of Monetary Economics 52], which states that central banks should use an optimal inflation index that gives substantial weight to stabilising both CPI and PPI. It argues that these authors' findings rely on the assumption that producer prices are as sticky as consumer prices and it also shows that, once empirically relevant frequencies of price adjustment are used to calibrate the model, CPI inflation receives substantial weight in the optimal inflation index. Moreover, this rule is remarkably robust to uncertainty regarding the model parameters, whereas the policy rule proposed by Huang and Liu can result in heavy welfare losses.

167. Back to the basics in banking ? A micro-analysis of banking system stability, by O. De Jonghe, June 2009

The paper analyzes the relationship between banks' divergent strategies toward specialization and diversification of financial activities and their ability to withstand a banking sector crash. The author first generates market-based measures of banks' systemic risk exposures using extreme value analysis. Systemic banking risk is measured as the tail beta, which equals the probability of a sharp decline in a bank's stock price conditional on a crash in a banking index. Subsequently, the impact of (the correlation between) interest income and the components of non-interest income on this risk measure is assessed. The heterogeneity in extreme bank risk is attributed to differences in the scope

of non-traditional banking activities: non-interest generating activities increase banks' tail beta. In addition, smaller banks and better-capitalized banks are better able to withstand extremely adverse conditions. These relationships are stronger during turbulent times compared to normal economic conditions. Overall, diversifying financial activities under one umbrella institution does not improve banking system stability, which may explain why financial conglomerates trade at a discount.

168. Model misspecification, learning and the exchange rate disconnect puzzle, by V. Lewis, A. Markiewicz, July 2009

Rational expectations models fail to explain the disconnect between the exchange rate and macroeconomic fundamentals. In line with survey evidence on the behaviour of foreign exchange traders, the authors introduce model misspecification and learning into a standard monetary model. Agents use simple forecasting rules based on a restricted information set. They learn about the parameters and performance of different models and can switch between forecasting rules. The authors compute the implied post-Bretton Woods US dollar-pound sterling exchange rate and show that the excess volatility of the exchange rate return can be reproduced with low values of the learning gain. Both assumptions, misspecification and learning, are necessary to generate this result. However, the implied correlations with the fundamentals are higher than in the data. Including more lags in the model tends to tip the balance of the findings slightly towards rational expectations and away from the learning hypothesis.

169. The use of fixed-term contracts and the labour adjustment in Belgium, by E. Dhyne, B. Mahy, July 2009

The paper aims to document and analyse the use of fixed-term contracts (FTC) and to analyse the dynamics of labour adjustment by type of labour contract at the firm level, drawing on the detailed breakdown of both the labour force and labour entries and exits that are available in the "Belgian Firms' Social Balance Sheets" dataset. It also aims to investigate the structure of labour adjustment costs by type of labour contract, using the methodology proposed by Goux, Maurin and Pauchet (2001). Results first indicate that flexible labour contracts are not only used to facilitate short-term labour adjustment but also as a screening device. The findings also suggest that when a firm decides to introduce flexible labour into its production process, it does also this to meet long-run objectives such as implementing minimising costs innovations. It is further estimated that the introduction of FTCs does not seem to affect the speed of indefinite-term contracts (ITC) adjustment. The results also tend to indicate that the FTC is a key adjustment variable in response to cost shocks and to unexpected demand fluctuations while, in response to expected fluctuations in output, firms then prefer to adjust their level of permanent employment. Finally, and as far as the structure of labour adjustment costs in Belgium is concerned, the marginal recruitment cost under an ITC represents 12.4 p.c. of the marginal termination cost of ITC, while the marginal cost associated with the recruitment under an FTC only accounts for 0.8 p.c. of its ITC counterpart.

170. Analysis of business demography using markov chains: an application to Belgian data, by F. Coppens, F. Verduyn, July 2009

The paper applies the theory of finite Markov chains to analyse the demographic evolution of Belgian enterprises. While other methodologies concentrate on the entry and exit of firms, the Markov approach also analyses migrations between economic sectors. Besides helping to provide a fuller picture of the evolution of the population, Markov chains also enable forecasts of its future composition to be made, as well as the computation of average lifetimes of companies by branch of activity.

The method is applied to Belgian data from the Crossroads Bank for Enterprises (CBE). To ensure compliance with Eurostat-OECD definitions, only 'active' enterprises, i.e. enterprises with a positive turnover and/or at least one employee, are considered. The forecasting method is applied to simulate the demographic evolution of the CBE population between 2000 and 2006. This simulation seems to match well the observed changes. Taking migrations into account yields better forecasts than if they are not considered. Moreover, several off-diagonal percentages in the transition matrix are significantly different from zero. A case study shows that these migrations are changes in main activity and not the consequence of corrections of wrongly classified firms.

Next, the average remaining lifetime and the average age of enterprises in a particular branch of activity is computed and analysed. These lifetimes and ages differ considerably across branches. As expected the life-times of public services are longer than average. Shorter lifetimes combined with an increasing number of enterprises is an indication of renewal inside the branch. A low average age is a sign of relatively new branches. Comparing age to total expected lifetime yields an indicator of closeness to extinction. This might be an indicator of the maturity of the branch.

The method is more generally applicable in the sense that it can be used to analyse other populations than those from the CBE and other partitions of the population.

171. A global assessment of the degree of price stickiness – results from the NBB business survey, by E. Dhyne, July 2009

The author estimates the degree of price stickiness in Belgium using the NBB business survey. Compared to similar empirical exercises based on consumer or producer price data, the micro data set used allows us to cover most of the Belgian economy in one exercise and therefore provides a better estimate of the overall degree of price stickiness. Based on the author's estimates, 19.2 p.c. of prices are changed each month. In the manufacturing sector and the trade sectors, the frequency of price changes is close to 24.5 p.c. In the construction sector the frequency of price changes is close to 20.5 p.c. and in the business-to-business service sectors it is almost 9 p.c. Econometric analyses of the determinants of the sectoral frequency of price changes indicate, on the one hand, that the cost structure is the main explanatory variable of the sectoral discrepancies. On the other hand, the author finds that domestic competition does not seem to explain an excess or shortage of price changes at the sectoral level.

172. Economic importance of the Belgian ports: Flemish maritime ports, Liège port complex and the port of Brussels – Report 2007, by C. Mathys, July 2009

The National Bank of Belgium publishes an annual update of the study of the economic importance of the Flemish maritime ports – Antwerp, Ghent, Ostend and Zeebrugge – the port of Brussels and the Liège port complex.

Each port's contribution to the national economy is estimated on the basis of the analysis of its economic, social and financial situation over the period from 2002 to 2007. The three variables concerned in the main developments are value added, employment and investment. The study also highlights the port sector's indirect effects in terms of value added and employment. The social balance sheet is briefly summarised in one section. The analysis of the financial results is based on the return on equity, liquidity and solvency ratios, and a synthetic indicator of financial health.

173. Evaluating a monetary business cycle model with unemployment for the euro area, by N. Groshenny, July 2009

The paper estimates a medium-scale dynamic stochastic general equilibrium model with search unemployment by matching model and data spectra. Price mark-up shocks emerge as the main source of business-cycle fluctuations in the euro area. Key factors in the propagation of these disturbances are a high degree of inflation indexation and a persistent response of monetary policy to deviations from the inflation target.

174. How are firms' wages and prices linked : Survey evidence in Europe, by M. Druant, S. Fabiani, G. Kezdi, A. Lamo, F. Martins, R. Sabbatini, August 2009

The paper presents new evidence on the patterns of price and wage adjustment in European firms and on the extent of nominal rigidities. It uses a unique dataset collected through a firm-level survey conducted in a broad range of countries and covering various sectors. Several conclusions are drawn from this evidence. Firms adjust wages less frequently than prices: the former tend to remain unchanged for about 15 months on average, the latter for around 10 months. The degree of price rigidity varies substantially across sectors and depends strongly on economic features, such as the intensity of competition, the exposure to foreign markets and the share of labour costs in total cost. Instead, country specificities, mostly related to the labour market institutional setting, are more relevant in characterising the pattern of wage adjustment. The latter exhibits also a substantial degree of time-dependence, as firms tend to concentrate wage changes in a specific month, mostly January in the majority of countries. Wage and price changes feed into each other at the micro level and there is a relationship between wage and price rigidity.

Conventional signs

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

List of abbreviations

Countries

BE	Belgium
DE	Germany
IE	Ireland
EL	Greece
ES	Spain
FR	France
IT	Italy
CY	Cyprus
LU	Luxemburg
MT	Malta
NL	Netherlands
AT	Austria
PT	Portugal
SI	Slovenia
FI	Finland
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
EE	Estonia
LV	Latvia
LT	Lithuania
HU	Hungary
PL	Poland
RO	Romania
SK	Slovakia
SE	Sweden
UK	United Kingdom
EU	European Union
AU	Australia
CA	Canada
CH	Switzerland
KO	South Korea
IS	Iceland

MX	Mexico
NO	Norway
NZ	New Zealand
TR	Turkey
US	United States
EU-15	European Union excluding the countries which joined in 2004
EU-25	European Union excluding Bulgaria and Romania

Others

AAE	Agricultural and Applied Economics, UW Madison
BLS	Bank Lending Survey
CO2	Carbon Dioxide
COICOP	Classification of Individual Consumption by Purpose Adapted to the Needs
CPB	Centraal Planbureau - The Netherlands
CSEND	Socio-Economic Committee for the Retail Sector
DESTATIS	Statistisches Bundesamt Deutschland
DGSEI	Directorate General for Statistics and Economic Information Belgium (FPS Economy, SMEs, Self-employed and Energy)
DNWR	Downward nominal wage rigidity
EC	European Commission
ECB	European Central Bank
EIB	European Investment Bank
Eonia	Euro Overnight Index Average
EU	European Union
Euribor	Euro Interbank Offered Rate
FPS	Federal Public Service
G20	Group of Twenty
GDP	Gross domestic product
GGDC	Groningen growth and development center
GPS	Global Positioning System
HHI	Herfindahl-Hirschmann Index
HICP	Harmonised index of consumer prices
ICT	Information and Communication Technology
IMF	International Monetary Fund
INSEE	Institut national de la statistique et des études économiques
KVH	Kamer van Koophandel
Libor	London Interbank Offered Rate
LTV	Loan-to-Value Ratio
MFI	Monetary Financial Institutions

NACE	Statistical Classification of Economic Activities in the European Community
NAI	National Accounts Institute
NBB	National Bank of Belgium
NBER	National Bureau of Economic Research
OECD	Organisation for Economic Cooperation and Development
PMR	Product Market Regulation
R&D	Research and Development
RMBS	Residential Mortgage Backed Securities
SIR	Structural issue report
SVP	Special purpose vehicle
TFP	Total factor productivity
UKCC	United Kingdom Competition Commission
UN	United Nations
VAT	Value Added Tax

National Bank of Belgium
Limited liability company
RLP Brussels – Company number: 0203.201.340
Registered office: boulevard de Berlaimont 14 – BE-1000 Brussels
www.nbb.be

Publisher

Jan Smets

Director

National Bank of Belgium
Boulevard de Berlaimont 14 – BE-1000 Brussels

Contacts for the Review

Philippe Quintin

Head of the Communication and Secretariat Department

Tel. +32 2 221 22 41 – Fax +32 2 221 30 91
philippe.quintin@nbb.be

Cover and layout: NBB TS – Prepress & Image

Published in September 2009