

# Economic Review

June 2007



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# Economic projections for Belgium – Spring 2007

## Introduction

In 2006, the Belgian economy benefited greatly from a buoyant environment. GDP grew by 3 p.c. in volume and, according to the NAI, over 46,000 jobs were created in net terms, the best performance since 2000. This favourable situation persisted in the initial months of 2007. Global activity continued to grow strongly, bolstered in particular by the emerging economies. However, the sources of growth are now more balanced on either side of the Atlantic, as a slowdown in the United States coincided with a marked strengthening in the euro area. In Germany, in particular, contrary to what had been feared six months ago, the three percentage point increase in the rate of VAT at the beginning of 2007 appears to have had hardly any adverse impact on growth, or at least the effects have been offset by the general economic revival. In a context of less accommodating monetary policies, inflation remained under control in the majority of economic regions, partly as a result of the easing of oil prices between August 2006 and January 2007.

The positive growth differential which appeared in relation to the United States contributed to the euro's appreciation against the dollar, and long-term interest rates in Europe have also edged upwards in the past twelve months. Nonetheless, the high level of the recent results of Belgian business and household surveys point to a continuing favourable economic outlook in the short term. The spring 2007 economic projections, which relate to the current year and 2008, are therefore issued in an environment which initially appears to be slightly more favourable than had been predicted six months earlier, at the time of the autumn 2006 projections<sup>(1)</sup>.

Produced as part of a biannual exercise by the Eurosystem central banks – the results for the euro area being obtained by aggregating the results for the various national economies<sup>(2)</sup> – these projections for Belgium are prepared by the Bank on the basis of a set of common assumptions concerning the international environment and movements in interest rates, exchange rates and commodity prices. They also depend on assumptions specific to the Belgian economy as regards variables which are to a large extent influenced by the discretionary action of the economic agents. That applies, for example, to the wage agreements resulting from negotiations between the social partners, and to government decisions on the budget.

For this exercise, an increase of 5 p.c. was assumed for hourly labour costs in the private sector over 2007 and 2008 together. That corresponds to the indicative norm of the central agreement, in the absence of full information on the outcome of the negotiations conducted at joint committee level.

The figures for public finances, in the case of both revenue and expenditure, take account of only those measures which have already been introduced and of recent actual figures. Over the longer term, they result mainly from the endogenous effect of the macroeconomic environment on the revenue, and an expenditure pattern based on past developments. New government measures to be adopted in the months ahead were not taken into account in this projection exercise. In some circumstances, they could in turn affect the projections for the economy as a whole.

(1) NBB (2006), "Economic projections for Belgium – Autumn 2006", Economic Review, December 2006.

(2) The projections for the euro area were published in the ECB's June Monthly Bulletin.

The first section deals with the international environment. It summarises the Eurosystem projections for the euro area and presents the principal common assumptions. The next three sections go into more detail on the recent situation and the projections for the national economy, dealing respectively with activity, employment and the main expenditure components (section 2) – which, in accordance with Eurosystem practice, are presented without taking account of specific seasonal effects and the impact of irregularities in the calendar –, prices and labour costs (section 3), and the public finance figures (section 4). Finally, the main risks relating to the projections are discussed in the last section, which also contains a summary of the results obtained by other institutions.

The projections for Belgium were drawn up on the basis of information available as at 24 May 2007.

## 1. International environment

### 1.1 The world economy

The world economy produced exceptionally strong growth in 2006, while inflation remained under control. World GDP expanded by 5.2 p.c., a growth rate almost equaling the 2004 record. This dynamism was due mainly to the very strong expansion recorded by the emerging countries, especially China, India, Russia and a number of Central and East European countries. Taken as a group, the industrialised countries also produced stronger growth in 2006 than in 2005. While economic growth began to slow down in the United States in the second quarter, the other industrialised countries continued to record robust expansion so that the business cycles displayed a more similar pattern across the main economic regions. The vigour of the global economy coincided with very strong growth of world trade, with a rise of some 8.5 p.c. in 2006. The business survey indicators and the available statistics also show that economic activity remained buoyant in the initial months of 2007.

The persistence of very high prices for oil and other commodities in 2006 therefore did little to curb world growth. Having peaked at 78.5 US dollars at the beginning of August, the price of a barrel of Brent crude dropped to an average of 54.3 dollars in January 2007. Nonetheless, it has since risen again, reaching 67.6 dollars in April. The high level of oil prices is due mainly to the vigour of demand and the shortage of spare capacity in both production and refining, while the price volatility chiefly reflects variations in the geopolitical situation and climatic conditions. Prices of industrial commodities increased

almost constantly in 2006 and the initial months of 2007, driven by very sustained demand. The prices of most commodities are likely to remain high overall in 2007 and 2008.

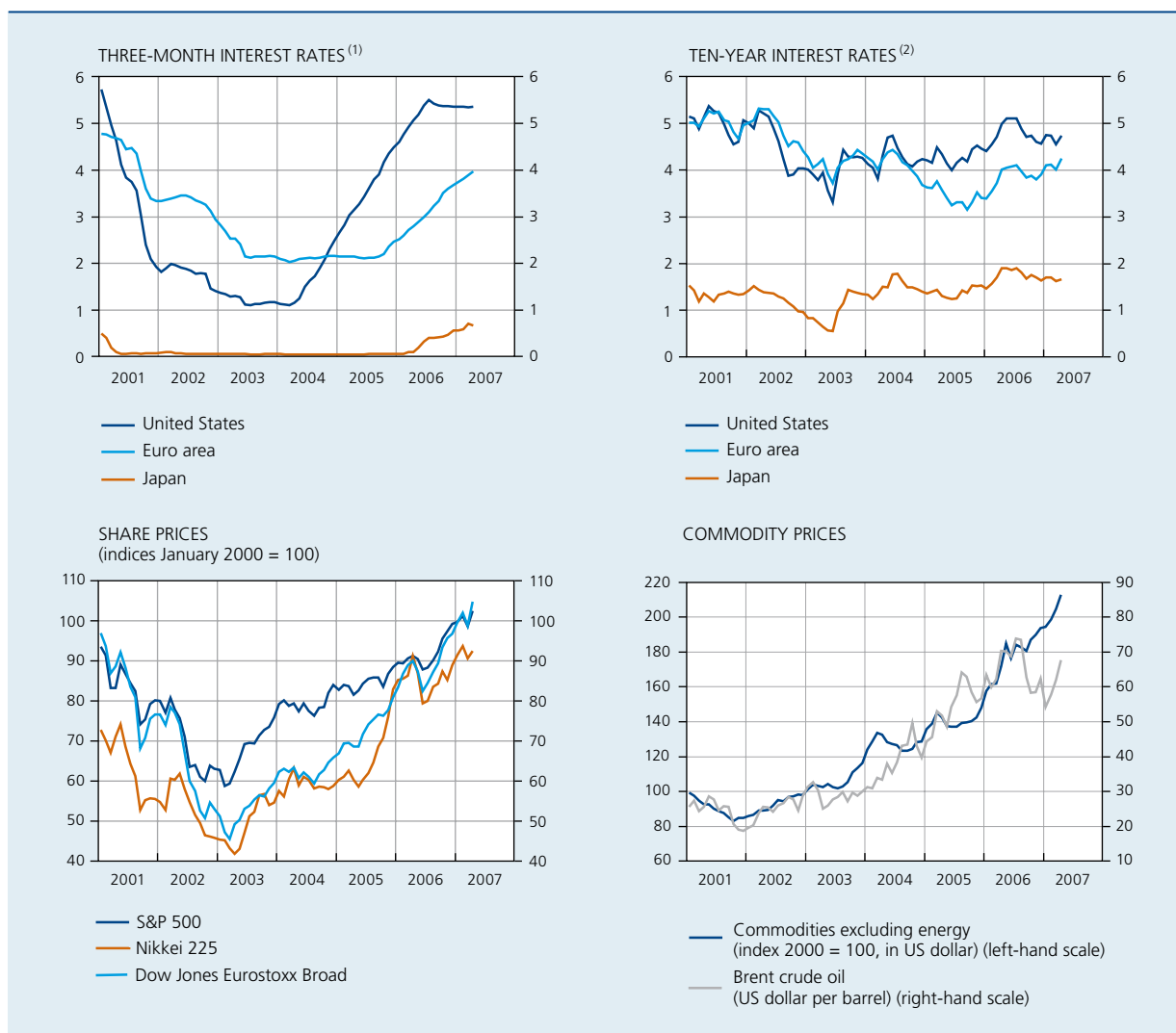
In response to the increasing risk of inflation, the main central banks raised their key rates in 2006. In the United States, the progressive tightening of monetary policy which had begun in June 2004 continued in the first half of 2006. On 29 June, the target for the federal funds rate was increased to 5.25 p.c. Although the pace of growth in the United States has since slackened considerably, the Federal Reserve has not eased its policy, considering that it could not do so on account of the inflation risk. In the euro area, the ECB Governing Council raised the Eurosystem's key rate in seven successive stages from 2 p.c. in November 2005 to 3.75 p.c. on 8 March 2007, the latest rise on the closing date of the projections<sup>(1)</sup>. In 2006, in the context of waning deflation in Japan, the Bank of Japan ended its policy of granting abundant liquidity at zero interest. It increased its key rate on 14 July 2006 and 21 February 2007, by 25 basis points on each occasion, bringing it to 0.5 p.c. Finally, since mid 2006, the Bank of England has raised its key rate on four occasions, by 25 basis points at a time, bringing it to 5.5 p.c. on 10 May 2007.

Despite the tighter monetary policy, financing conditions remained favourable overall in 2006, and that combined with the substantial corporate profits and the improved labour market situation supported economic activity. Long-term interest rates also remained at relatively low levels, on average, in 2006 and in the initial months of 2007, although they were slightly higher than the rates prevailing in 2005. The main reason lies in the decline of the risk premium included in long-term interest rates, which partly negated the effect of the rise in short-term interest rates. The premiums incorporated in the yields on riskier bonds issued by the governments of emerging countries and by companies also remained exceptionally small. That is probably due to some extent to increased macroeconomic stability, though other factors are also involved, such as strong demand for investments on the part of Asian central banks and oil-exporting countries. The low level of long-term interest rates, plus the vigour of economic growth and the high level of corporate profits, also underpinned the rise in share prices. Despite a temporary correction in May and June 2006, the Dow Jones Eurostoxx index, in particular, recorded a significant rise of almost 30 p.c. between December 2005 and April 2007. Conditions for raising external finance via share issues were therefore favourable once again in 2006.

(1) On 6 June 2007, the Governing Council raised the key rate to 4 p.c.

CHART 1 FINANCIAL AND COMMODITY MARKET DEVELOPMENTS

(monthly averages)



Sources: ECB, HWWA.

(1) Interest on three-month interbank deposits.

(2) Yield on ten-year government bonds (benchmark loans).

The outlook for the global economy therefore appears positive in 2007 and in 2008. According to the European Commission, after a very strong result in 2006 the pace of global GDP growth is expected to dip slightly, dropping to 4.8 p.c. in 2007 and 2008, to equal the 2005 figure. Inflation should remain under control, two factors being the heightened international competition caused by globalisation and the modest rise in unit labour costs.

Although the pace is expected to slacken slightly compared to 2006, the emerging countries of Asia and Russia are likely to remain the main engine of global economic growth in 2007 and 2008. Again slightly lower than the

2006 figure, the expansion of activity is also predicted to be very sustained in the twelve new EU Member States, stimulated by private consumption, housing construction and foreign direct investment. These countries should therefore continue the process of catching up with the euro area.

Most of the industrialised countries not forming part of the euro area are also likely to see robust growth in 2007 and 2008. The outlook for the United States is the main exception to this positive picture: the substantial correction in progress on the housing market is likely to have an even greater impact in 2007 than in 2006. Although there is great uncertainty surrounding the scale of that

**TABLE 1** PROJECTIONS FOR THE MAIN ECONOMIC REGIONS EXCLUDING THE EURO AREA

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

	2006	2007	2008
	Actual	Projections	
<b>GDP in volume</b>			
United States .....	3.3	2.2	2.7
Japan .....	2.2	2.3	2.1
United Kingdom .....	2.8	2.8	2.5
Twelve new EU Member States <sup>(1)</sup> .....	6.3	5.7	5.3
Asia (excluding Japan) .....	8.7	8.3	8.4
China .....	10.7	10.5	10.4
India .....	8.7	7.6	7.4
Russia .....	6.7	6.8	6.5
World .....	5.2	4.8	4.8
<i>p.m. World trade</i> .....	<i>8½</i>	<i>7¾</i>	<i>7¾</i>
<b>Inflation<sup>(2)</sup></b>			
United States .....	3.2	2.3	1.9
Japan .....	0.2	0.0	0.4
United Kingdom .....	2.3	2.3	2.0
Twelve new EU Member States <sup>(1)</sup> .....	3.2	3.4	3.2
<b>Unemployment rate<sup>(3)</sup></b>			
United States .....	4.6	4.7	5.0
Japan .....	4.1	4.1	4.2
United Kingdom .....	5.3	5.0	4.9
Twelve new EU Member States <sup>(1)</sup> .....	9.9	8.7	7.8

Sources: EC (spring forecasts, May 2007) and own calculations.

(1) Weighted averages according to relative size of their GDP in 2006.

(2) Consumer price index.

(3) Percentages of the labour force.

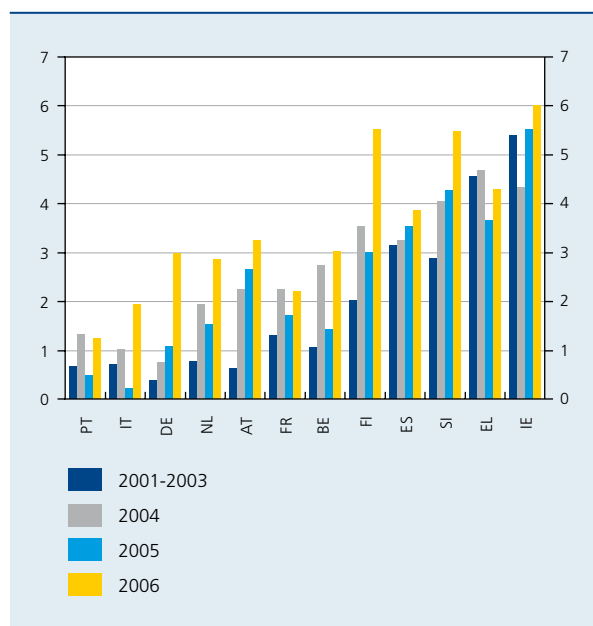
correction, the general opinion is still that its impact on the rest of the US economy will be limited; growth should therefore pick up gradually in 2008, once the housing market correction has disappeared. In that case, the contagion affecting other economies will also be slight. In the other main industrialised countries outside the euro area, such as Japan and the United Kingdom, the expansion of activity should also be steady in 2007 and 2008. In the first year, it should still be sustained mainly by corporate investment, but in 2008 the other components of domestic demand – consumption and investment in housing – should also make a large positive contribution. The expected combination of a continuing growth slowdown in the United States and persistently strong growth in most other industrialised countries outside the

euro area is set to reduce growth differentials between the industrialised countries.

## 1.2 Eurosystem projections for the euro area

Having lagged behind the vigorous global economy in previous years, the euro area joined in the general trend in 2006. Economic activity expanded strongly, by 2.9 p.c., the highest rate since 2000, despite the high oil prices, the slower pace of growth in the United States and the euro's appreciation. The euro area therefore seems to have been more resilient to external adverse shocks than in the past. Not only did GDP growth show a marked acceleration, it also became more broadly based.

**CHART 2** GDP GROWTH IN THE EURO AREA COUNTRIES<sup>(1)</sup>  
(percentage changes compared to the previous year)



Source : EC.

(1) Excluding Luxembourg; calendar adjusted data.

First, investment expanded strongly, underpinned by the favourable outlook for demand, rising capacity utilisation rates, high corporate profits and continuing favourable financing conditions. Next, private consumption also revived. Although wage moderation and high oil prices continued to weigh on household purchasing power, the improvement in the labour market situation boosted

consumption. Finally, in contrast to 2005, net exports also made a positive contribution to GDP growth in 2006.

The countries making up the euro area also presented a more balanced picture. In particular, growth differentials between the large countries became narrower, following the marked revival of the German economy, and to a lesser extent the Italian economy, which had remained in the doldrums in 2004 and 2005. The renewed vigour seen in these two countries was accompanied by a marked improvement in the labour market situation. Increased momentum was also evident in the other euro area countries in 2006. However, the very strong GDP growth recorded in Finland must be viewed partly as a recovery following a slowdown in 2005.

According to the initial information available, the consolidation of economic activity in the euro area continued at the beginning of 2007. In particular, it seems in retrospect that fears of a slowdown in Germany, due to the increase in that country's VAT rate on 1 January, were exaggerated. Although the VAT increase undeniably curbed German private consumption in the first few months of the year, the damage to both consumer and business confidence was only very temporary. The expansion of domestic demand and the significant improvement in the labour market situation seem to be reinforcing one another, and have more than offset the adverse impact of the rise in VAT, resulting in consolidation after the strong recovery seen in 2006.

According to the Eurosystem projections, growth should therefore remain vigorous in the euro area in 2007 and 2008. Despite the expected slight slowing of world

**TABLE 2** EUROSISTEM PROJECTIONS  
(percentage changes compared to the previous year)

	Euro area			<i>p.m. Belgium</i>		
	2006	2007	2008	2006	2007	2008
Inflation (HICP) .....	2.2	1.8 – 2.2	1.4 – 2.6	2.3	1.6	1.8
GDP in volume .....	2.9	2.3 – 2.9	1.8 – 2.8	3.0	2.5	2.2
of which:						
Private consumption .....	1.8	1.7 – 2.1	1.6 – 2.8	2.5	1.9	1.9
Public consumption .....	2.0	1.0 – 2.0	1.0 – 2.0	1.4	2.0	2.3
Investment .....	5.1	3.8 – 6.0	1.9 – 5.1	5.7	3.8	3.7
Exports .....	8.5	4.8 – 7.6	4.0 – 7.2	3.6	5.7	4.6
Imports .....	8.0	4.6 – 8.0	3.9 – 7.3	4.6	5.4	4.6

Sources : ECB, NBB.



growth, the persistence of high prices for most commodities, and the delayed impact of the recent appreciation of the euro, the external environment should remain favourable overall to activity in the euro area. The steady support of export demand should gradually spread to domestic demand. The investment revival which began in 2006 is expected to continue in the context of high corporate profits and continuing favourable financing conditions. The labour market situation should gradually improve, bolstering private consumption via a rise in disposable income. Average GDP growth in volume terms, which had peaked at 2.9 p.c. in 2006, is projected at between 2.3 and 2.9 p.c. in 2007 and between 1.8 and 2.8 p.c. in 2008.

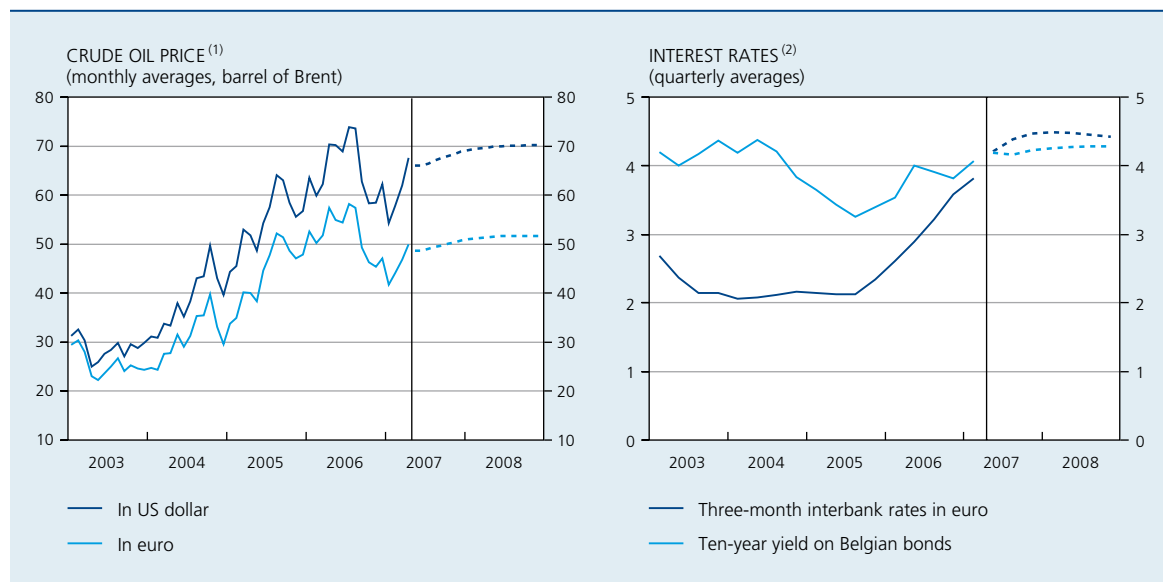
As in 2005, inflation measured by the HICP averaged 2.2 p.c. in 2006, the main factor being the steep rise in oil prices. Conversely, the energy component of the HICP is likely to have a moderating effect on inflation in 2007 and should be more or less neutral in 2008. However, this effect will be partly offset in 2007 by the upward pressure of indirect taxes, particularly in Germany, and labour costs. Those costs are expected to continue accelerating slightly in 2008, but the effect on inflation should be more or less counterbalanced by a smaller increase in corporate profit margins. Inflation should average between 1.8 and 2.2 p.c. in 2007 and between 1.4 and 2.6 p.c. in 2008.

## Box – Eurosystem assumptions

The Eurosystem's economic projections for the euro area and the corresponding projections for Belgium are based on the following technical assumptions:

- The interest rates are based on market expectations. The three-month interbank rate in euro stood at around 4 p.c. when the projections were prepared. According to market expectations, it is set to increase to an annual average of 4.2 p.c. in 2007 and 4.5 p.c. in 2008. The benchmark ten-year interest rate for Belgium is projected at 4.2 p.c. in 2007 and 4.3 p.c. in 2008.
- The bilateral euro exchange rates are kept constant at their value as at mid May 2007, namely 1.36 US dollar to the euro.

### ASSUMPTIONS CONCERNING THE MOVEMENT IN OIL PRICES AND INTEREST RATES



Source : ECB.

(1) Actual figures up to April 2007, assumption from May 2007.

(2) Actual figures up to the first quarter of 2007, assumption from the second quarter of 2007.

- In accordance with the movement in implicit prices reflected in forward contracts in the first half of May, global oil prices are expected to continue edging upwards during 2007, from around 66 dollars per barrel in the first half of May 2007. Taking an average over the year, Brent is forecast to cost 65 dollars per barrel in 2007 and 69.9 dollars in 2008, compared to 65.4 dollars in 2006.

The expected developments in world trade and the results of the projections for the euro area's partners concerning trade in goods and services can be used to assess the external conditions for the Belgian economy. The exceptionally vigorous volume growth of the export markets in 2006, calculated as the weighted sum of imports of our trading partners, is unlikely to be equalled in the next two years. However, the export markets should continue to expand strongly, by 5.9 p.c. in 2007 and 6.2 p.c. in 2008. The rise in competitors' export prices should be smaller than in 2006, at only 0.2 p.c. in 2007 and 1.2 p.c. in 2008, mainly owing to the expected movement in competitors' prices for exports to countries outside the euro area.

#### ASSUMPTIONS UNDERLYING THE EUROSISTEM PROJECTIONS

	2006	2007	2008
		(annual averages)	
Three-month interbank rates in euro .....	3.1	4.2	4.5
Ten-year bond yields in Belgium .....	3.8	4.2	4.3
Euro exchange rate against the US dollar .....	1.26	1.34	1.36
Oil price (US dollar per barrel) .....	65.4	65.0	69.9
		(percentage changes)	
Export markets relevant to Belgium .....	9.0	5.9	6.2
Export competitors' prices .....	2.5	0.2	1.2
of which: competitors on euro area markets .....	2.3	1.6	1.6

Source: ECB.

## 2. Activity, employment and demand in Belgium

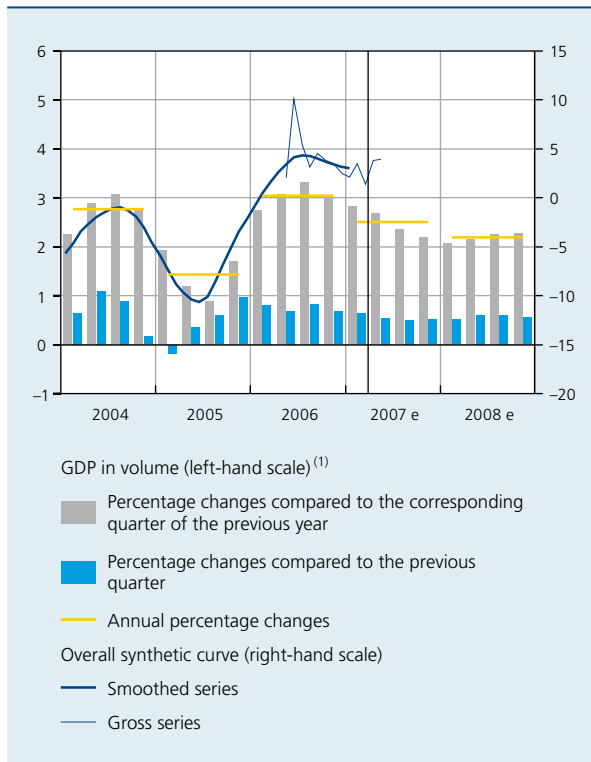
### 2.1 Activity and employment

In parallel with the recovery in the euro area, economic activity expanded by 3 p.c. in Belgium in 2006. This was the highest growth rate for six years and was also well above the potential growth rate. The sustained recovery began in late 2005 and produced steady growth of between 0.7 and 0.8 p.c. per quarter throughout 2006. However, in year-on-year terms, a very modest slowdown has been apparent since the third quarter of 2006.

This performance was accompanied by a marked restoration of business confidence. The Bank's overall business survey indicator peaked in mid 2006 and has since remained at a high level. While exports were initially weaker compared to the dynamism of the export markets, the recovery apparent in 2006 was based mainly on domestic demand, underpinned by a further increase in investment growth and a notable improvement of the labour market.

The persistent buoyancy of business confidence and the favourable response of the labour market indicate that the recovery has become more sustainable in recent months, and more broadly based, a situation also seen in the euro area. For 2007, the GDP growth projection for Belgium has therefore been upgraded by 0.4 percentage

**CHART 3** ACTIVITY AND BUSINESS SURVEY INDICATOR  
(seasonally adjusted data)

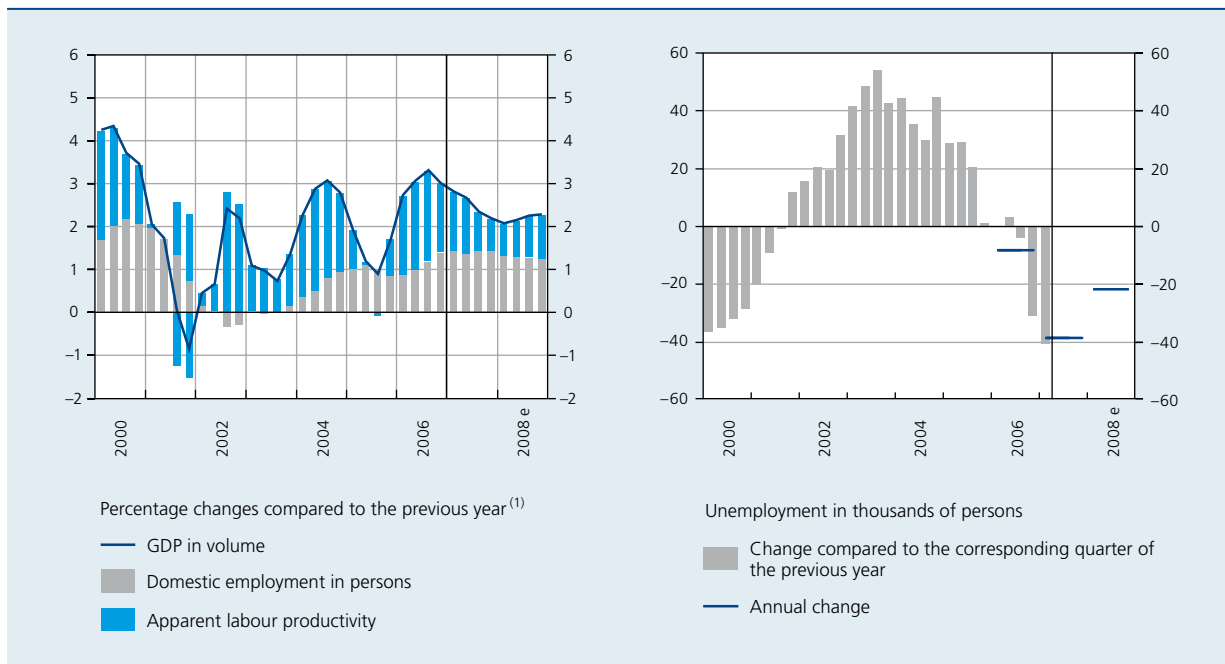


Sources : NAI, NBB.  
(1) Calendar adjusted data.

point to 2.5 p.c., as the slowdown expected during the year is proving to be less marked than predicted by the autumn 2006 projections. Growth should be based on both domestic and foreign demand. It is set to continue at 2.2 p.c. in 2008, which is close to the potential level. The recent cyclical upswing considerably augmented the economy's supply capacity so that potential growth should have risen somewhat compared to the low point in 2003-2004.

The employment growth rate is in fact more sustained than at the time of previous recoveries, rising from an average of 0.2 p.c. per quarter in 2005 to 0.3-0.4 p.c. in 2006. Altogether, the number of jobs increased by 46,000 units last year, propelled by the expansion of activity, but also by the increase in net job creation due to the service voucher system. The biggest increases were seen in construction and in the branches comprising financial institutions in the broad sense and business services, while job losses slowed down in manufacturing industry. According to the projections, some 115,000 additional jobs will be created in 2007-2008, encouraged – particularly in the first year – by the cyclical upswing in 2006, as employment usually takes time to respond to cyclical fluctuations in activity. The increase in per capita productivity, which had reached 1.9 p.c. in 2006, will therefore revert to an average of 1 p.c. in 2007 and 2008, compared to an average of 1.3 p.c. over the past ten years.

**CHART 4** EMPLOYMENT AND UNEMPLOYMENT



Sources : NAI, NEMO, NBB.  
(1) Data adjusted for seasonal and calendar effects.

**TABLE 3** LABOUR SUPPLY AND DEMAND

(calendar adjusted data, annual averages; year-on-year changes in thousands of persons, unless otherwise stated)

	2004	2005	2006	2007 e	2008 e
Population of working age .....	30	44	49	43	33
Labour force .....	66	61	38	22	33
<i>p.m. Harmonised activity rate</i> <sup>(1)</sup> .....	65.9	66.7	66.5	66.4	66.5
National employment .....	27	41	46	60	55
<i>p.m. Harmonised employment rate</i> <sup>(1)</sup> .....	60.4	61.1	61.0	61.5	62.0
Frontier workers .....	1	0	0	0	0
Domestic employment .....	27	41	46	60	55
Self-employed .....	-1	7	8	8	6
Employees .....	27	34	38	52	49
Public sector .....	12	-2	4	0	3
Private sector .....	15	36	35	52	46
Unemployed job-seekers .....	38	20	-8	-39	-22
<i>p.m. Harmonised unemployment rate</i> <sup>(2)</sup> .....	8.4	8.4	8.2	7.6	7.2

Sources: EC, NAI, NEMO, NBB.

(1) Percentages of the population of working age (15-64 years).

(2) Percentages of the labour force. This series corresponds to the results of the labour force survey, adjusted monthly in accordance with the Eurostat methodology, using national administrative data.

With an activity rate more or less stable at 66.5 p.c., the increase in the labour supply should be only 55,000 units over the period 2007-2008, following slower growth in the population of working age than in the preceding two years. The number of jobs created over the projection period is therefore significantly greater than the expected increase in the labour force, so that the decline in unemployment which began in 2006 should continue. Unemployment is expected to fall by around 60,000 units, the largest cumulative decline in any two-year period since 1999-2000. The harmonised unemployment rate, expressed as a percentage of the labour force, should fall from 8.2 p.c. in 2006 to 7.2 p.c. in 2008, while the employment rate, calculated as the ratio between the number of jobs and the population of working age, should rise by 1 percentage point during the period covered by the projections, to reach 62 p.c. in 2008.

## 2.2 Expected developments in the main expenditure categories

In 2006, GDP growth had been sustained by unusually high contributions from domestic expenditure. In 2007 and 2008, these should revert to a more balanced level. Thus, the contribution of domestic expenditure excluding stocks is projected to fall from 2.8 percentage points in

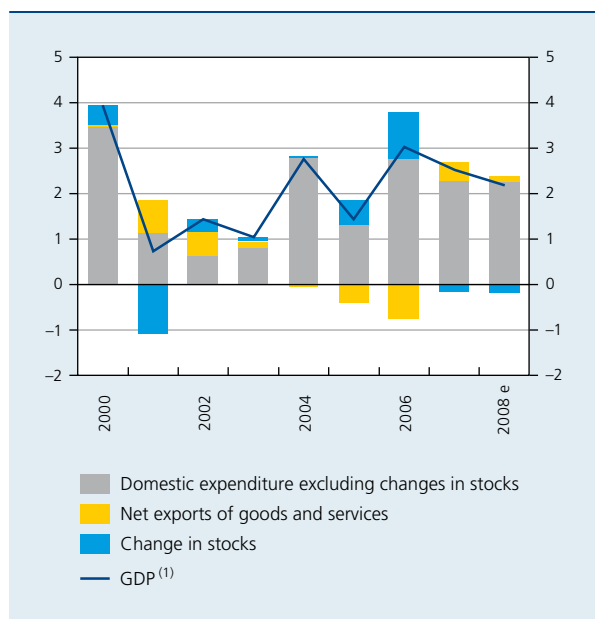
2006 to 2.3 percentage points in the ensuing two years, while the change in stocks is likely to curb GDP growth slightly over that period, after having increased it by 1 percentage point in 2006. Conversely, net exports of goods and services, which had increasingly depressed growth over the past three years, are expected to revive and make a positive contribution again in 2007 and 2008.

Private consumption is forecast to increase by 1.9 p.c. in both 2007 and 2008. While that is weaker than the sustained growth of 2.5 p.c. in 2006, the rise is nonetheless well above the average rate for the preceding five years. These developments largely reflect the movement in household purchasing power. In real terms, the increase in disposable income is expected to drop from an annual average of 3.2 p.c. in 2006 to 2.1 p.c. over the projection period. True, the curbing effect of inflation, measured by the deflator of private consumption, should ease somewhat over that period, but the nominal growth of household disposable income is expected to slow still more, declining from 5.3 p.c. in 2006 to 4.2 p.c. in 2007 and 3.6 p.c. in 2008.

Over the projection horizon, primary household income should be sustained by compensation of employees in the same way as in 2006. This is expected to result mainly from stronger expansion of employment, while the rise in

**CHART 5** MAIN EXPENDITURE CATEGORIES

(calendar adjusted volume data; contribution to the change in GDP in percentage points, unless otherwise stated)



Sources: NAI, NBB.

(1) Annual percentage changes.

compensation per person will be less than in 2006. The slower pace of disposable income growth is therefore attributable primarily to the increase in net transfers by individuals to other sectors, especially taxes and contributions paid to the government. The movement in these transfers should become realigned with the growth of primary income, after having lagged behind in 2006 following the implementation of the last major phase of the tax reform which began in 2001. In 2007, disposable income should still benefit to a limited extent from the residual effects of the implementation of that reform and various new smaller-scale measures.

Over the period 2007-2008 as a whole, the growth rate of private consumption should therefore be fairly similar to that of real household disposable income. In a context in which households take a positive view of the general economic situation, as shown by the generally high level of the consumer confidence indicator, there should be hardly any further increase in the private savings ratio, which should hover around 14 p.c. of disposable income after a strong rise in 2006. The main reason for that increase was that households tend to smooth their consumption expenditure in order to offset wide temporary variations in the growth rate of their real disposable income, such as that which occurred in 2006.

**TABLE 4** GROSS DISPOSABLE INCOME OF INDIVIDUALS, AT CURRENT PRICES

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

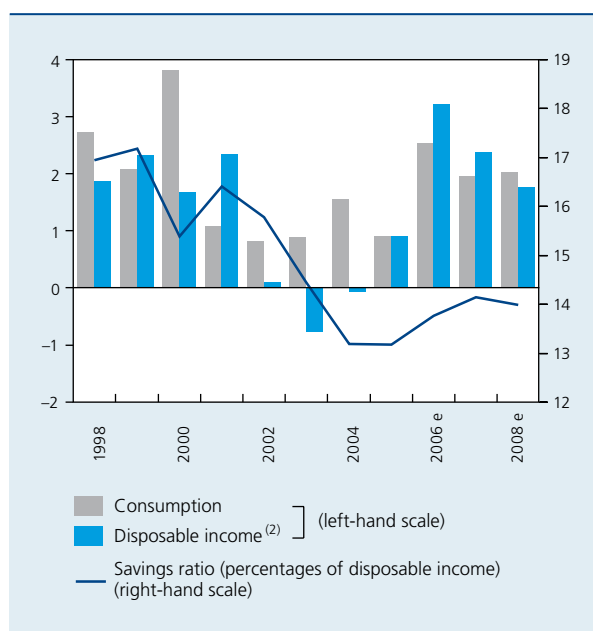
	2004	2005	2006 e	2007 e	2008 e
Gross primary income .....	2.3	3.6	4.3	4.0	3.6
of which:					
Wages and salaries .....	2.8	3.4	4.2	4.2	3.9
Compensation per person .....	2.0	2.4	3.1	2.7	2.5
Employment .....	0.8	1.0	1.1	1.5	1.4
Incomes other than wages and salaries .....	1.3	4.1	4.4	3.4	3.0
Current transfers <sup>(1)</sup> .....	2.2	2.8	-0.2	3.1	3.8
of which:					
Current taxes on income and assets .....	3.3	4.1	-0.2	3.4	4.2
Gross disposable income .....	2.4	3.8	5.3	4.2	3.6
<i>p.m. In real terms</i> <sup>(2)</sup> .....	-0.1	0.9	3.2	2.4	1.8
Consumption expenditure .....	4.0	3.8	4.6	3.7	3.9
Savings ratio <sup>(3)</sup> .....	13.2	13.2	13.8	14.1	14.0

Sources: NAI, NBB.

(1) These are net amounts, i.e. the difference between transfers received from other sectors and those paid to other sectors, excluding transfers in kind.

(2) Data deflated by the private final consumption expenditure deflator.

(3) Gross savings as a percentage of gross disposable income, these two aggregates including the net claims of households on pension funds.

**CHART 6** CONSUMPTION, DISPOSABLE INCOME AND SAVINGS RATIO OF INDIVIDUALS(percentage changes in volume compared to the previous year<sup>(1)</sup>, unless otherwise stated)

Sources: NAI, NBB.

(1) Non calendar adjusted data.

(2) Data deflated by the private final consumption expenditure deflator.

With an increase of 5.8 p.c. in 2007 and 3 p.c. in 2008, the rate of expansion of household investment in housing should once again outpace the growth of real disposable income. The easing of property prices on the secondary market which had already begun in 2006 should continue over the next two years, gradually reining in the growth of investment in housing. Conversely, the relatively low level of long-term interest rates is likely to remain a supporting factor.

The growth of consumption expenditure by general government is projected to rise gradually from 1.4 p.c. in 2006 to 2 p.c. in 2007 and 2.3 p.c. in 2008. Following an unusually small increase in health care expenditure in 2005 and 2006, this acceleration can be regarded as a return to the trend growth rate.

On the other hand, public investment is set to grow by only 0.9 p.c. in 2007, compared to modest growth of 1.3 p.c. in 2006. However, these developments are greatly influenced by sales of public buildings, which – according to the accounting conventions – are regarded as disinvestment by general government. In 2006, these transactions represented around 575 million euro. Further property sales should bring in about 200 million euro in 2007. Disregarding the impact of these sales, public investment increased by 10.2 p.c. in 2006 and should see a 5.5 p.c.

**TABLE 5** GDP AND MAIN EXPENDITURE CATEGORIES

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

	2004	2005	2006	2007 e	2008 e
Consumption expenditure of individuals .....	1.4	1.1	2.5	1.9	1.9
Consumption expenditure of general government .....	2.1	-0.6	1.4	2.0	2.3
Gross fixed capital formation .....	8.1	4.3	5.7	3.8	3.7
Housing .....	9.0	3.4	4.7	5.8	3.0
General government .....	2.9	13.6	1.3	0.9	4.2
Enterprises .....	8.4	3.4	6.6	3.5	3.8
Change in stocks <sup>(1)</sup> .....	0.1	0.5	1.0	-0.2	-0.2
<i>p.m.</i> Total domestic expenditure .....	3.0	1.9	3.9	2.1	2.1
Net exports of goods and services <sup>(1)</sup> .....	-0.1	-0.4	-0.8	0.4	0.1
Exports of goods and services .....	5.9	3.1	3.6	5.7	4.6
Imports of goods and services .....	6.3	3.8	4.6	5.4	4.6
GDP .....	2.8	1.4	3.0	2.5	2.2

Sources: NAI, NBB.

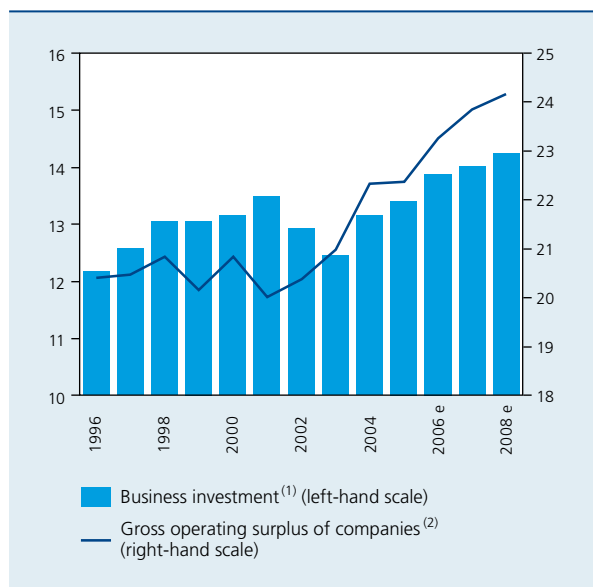
(1) Contribution to the change in GDP.

decline in volume in 2007. This largely reflects the usual profile of local authority investment during a municipal and provincial election year and the year that follows. Although local authority investment is likely to diminish further in 2008, total public investment should expand by 4.2 p.c., though that rate exhibits a slight upward bias as a result of sales of public buildings in 2007.

Enterprises are expected to maintain the steady expansion of their fixed capital investment, continuing the trend which began in 2004 after two years of decline. Investments should expand by 3.5 p.c. in 2007 and 3.8 p.c. in 2008, slightly below the rate recorded from 2004 to 2006 but still outpacing GDP growth. This means that the investment ratio should rise from 12.5 p.c. of GDP in 2003 to 14.2 p.c. in 2008.

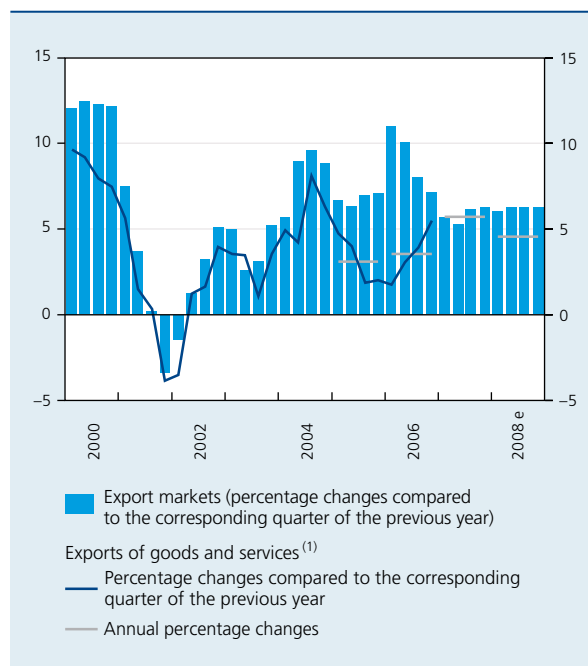
The growth of business investment should be supported mainly by the consolidation of demand prospects in a context in which the economic agents seem to regard the risks to the overall economic environment as relatively minor. Moreover, financing opportunities should remain favourable. In fact, enterprises have substantial funds, generated by a gross operating surplus which came to 23.3 p.c. of GDP in 2006 and should reach 24.2 p.c. in 2008. This further rise is attributable mainly to the sustained growth of the volume of sales, with profit margins

**CHART 7** BUSINESS INVESTMENT AND GROSS OPERATING SURPLUS  
(percentages of GDP)



Sources: NAI, NBB.  
(1) Calendar adjusted volume data.  
(2) Non calendar adjusted value data.

**CHART 8** EXPORT MARKETS AND EXPORTS OF GOODS AND SERVICES  
(seasonally adjusted volume data)



Sources: ECB, NAI, NBB.  
(1) Calendar adjusted data.

also increasing, though more slowly than in previous years. Finally, the conditions for raising external finance, by borrowing or by share issues, are unlikely to hamper investment, even if the long-term interest rate were to reach 4.3 p.c. by the end of the period under consideration.

With an average growth rate of 3.6 p.c. in 2006, the rise in the volume of exports of goods and services fell far short of the expansion of the export markets, but the situation improved considerably during the year. The excellent results for the last quarter of 2006 are also part of the reason why export growth is predicted to reach 5.7 p.c. in 2007, a figure close to the expected growth of Belgium's export markets. This increased momentum should be most marked in the case of exports to partners in the euro area, largely reflecting the expected strengthening of that market. Most of the export markets outside the euro area should also see substantial growth, but price competition will be keener there. In 2008, however, the growth in the volume of Belgium's exports is forecast to dip to 4.6 p.c., so that Belgian producers will suffer further losses of market share, though the scale of those losses should be less than in the period 2004-2006, thanks to more competitive prices. Following the steep increases seen from 2004 to 2006, export prices should rise by only 1 p.c.

in 2007 and 2.1 p.c. in 2008, thus outpacing competitors' price increases to a less significant degree than in the past.

Attenuated by the slower rise in prices of energy and commodities, and by the recent appreciation of the euro, the predicted rise in import prices, of 0.3 and 1.9 p.c. in 2007 and in 2008 respectively, should be less than the rise in export prices. Thus, the improvement in the terms of trade which began in the second half of 2006 is expected to continue in 2007 and 2008. The growth in the volume of imports is forecast to rise from 4.6 p.c. in 2006 to 5.4 p.c. in 2007, before subsiding to 4.6 p.c. in 2008. Net exports will therefore make a positive contribution to GDP growth in 2007 and in 2008, for the first time in four years.

According to these projections, the deterioration in the balance of payments current account which began in 2003 should have ended in 2006. Under the combined effects of more sustained growth in the volume of exports than imports and the improvement in the terms of trade, the current account balance should increase from 2 p.c. of GDP in 2006 to 2.7 p.c. in 2007 and 3 p.c. in 2008.

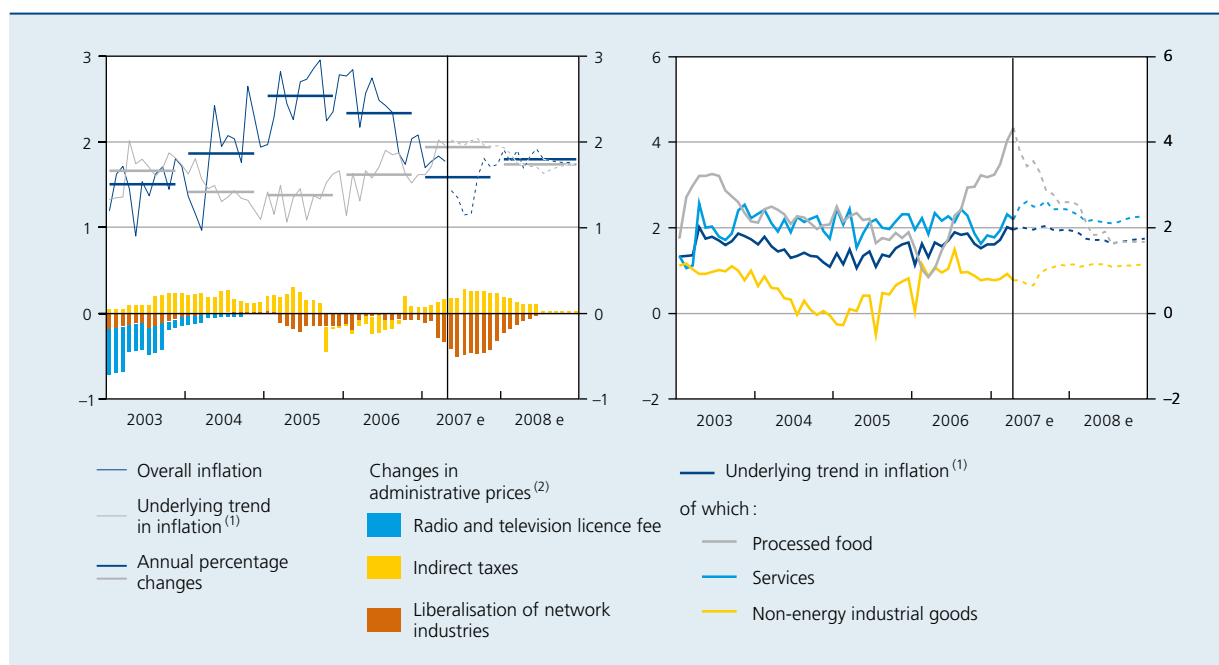
### 3. Prices and costs

In recent years, inflation in Belgium had been driven up by rising energy prices, keeping it at over 2 p.c. in 2005 and 2006, but in 2007, the energy component should exert a moderating effect. That is due in part to the movement in oil prices on the international markets. Having risen sharply in 2006, those prices are assumed to remain on average at the same level in 2007 as in the previous year. During the first half of the year, oil prices were actually below the levels prevailing twelve months earlier, producing a favourable base effect during that period; that effect is expected to wane subsequently. In addition, the liberalisation of the gas and electricity markets in Brussels and Wallonia and the new method of recording those prices in the consumer price index should exert strong downward pressure on the movement in energy prices in 2007. From now on, these changes should cause gas and electricity prices to adjust more speedily to international price movements; that is confirmed by the recent trend in the consumer price index which indeed shows these prices falling at the beginning of 2007. Although the exact impact of these changes on overall inflation is surrounded by some uncertainty, it is likely

CHART 9

#### INFLATION

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



Sources: EC, NBB.

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

(2) Impact on overall inflation, in percentage points, of changes in prices associated with measures relating to the radio and television licence fee, changes in the rates charged in those network industries where liberalisation is farthest advanced, namely telecommunications, electricity and gas, and adjustments to indirect taxes.



to be -0.4 percentage point for the year as a whole. In parallel with the movement in the energy component, overall inflation should therefore show a marked fall, dropping from 2.3 p.c. in 2006 to 1.6 p.c. in 2007 before a moderate acceleration to 1.8 p.c. in 2008.

Unlike overall inflation, the underlying trend in inflation – which excludes the energy component and prices of unprocessed food – should maintain the rise which began in 2006 to reach 1.9 p.c. in 2007. In 2008, it should drop to 1.7 p.c., a figure similar to that for the overall HICP. Its movement over the period covered by the projections is due to changes in indirect taxation. Thus, the tobacco price increases – included in the processed food category – accelerated in the initial months of 2007, owing to an increase in excise duty. In addition, the levy on certain disposable products and packaging, planned to take effect in July 2007, should exert slight upward pressure on the underlying trend in inflation in both 2007 and 2008. The overall impact of the rise in indirect taxes on the underlying trend in inflation is estimated at 0.2 percentage point in 2007 and 0.1 percentage point in 2008. Without that effect, the underlying trend in inflation would therefore be relatively stable. That stability is also evident in the prices of services and non-energy industrial goods. Owing to

heightened competition – the corollary of globalisation – and to the euro's appreciation, the rate of increases in prices of non-energy industrial goods should accelerate only moderately, from 0.9 p.c. in 2006 to 1.1 p.c. in 2008. In line with the moderate trend in labour costs, the increases in services prices should accelerate very little, from 2.1 p.c. in 2006 to 2.2 p.c. in 2008.

As indicated by the GDP deflator, the rise in total costs of domestic origin incorporated in all goods and services produced, is expected to remain steady in 2007 at 2 p.c., before edging up to 2.1 p.c. in 2008. The contribution of labour costs should be slightly higher in the projection period, although that small increase is likely to be offset by a smaller contribution from the gross operating surplus. The proportion of wages should continue to decline, falling to 49.9 p.c. of GDP in 2008. Indirect taxes and subsidies are predicted to exert upward pressure on costs, mainly in 2008.

The growing contribution of labour costs to total costs of domestic origin reflects the acceleration of unit labour costs in the private sector, their increase rising from 1.1 p.c. in 2006 to 1.6 p.c. in 2007 and 2008. This growth is due solely to the slowing of labour productivity, resulting

**TABLE 6** PRICE AND COST INDICATORS  
(percentage changes compared to the previous year, unless otherwise stated)

	2004	2005	2006	2007 e	2008 e
HICP .....	1.9	2.5	2.3	1.6	1.8
<i>p.m. Impact of price changes in the network industries</i> .....	0.0	-0.1	-0.1	-0.4	-0.1
<i>p.m. Impact of changes in indirect taxes</i> .....	0.2	0.1	0.0	0.2	0.1
Health index .....	1.6	2.2	1.8	1.6	1.7
Underlying trend in inflation <sup>(1)</sup> .....	1.4	1.4	1.6	1.9	1.7
Deflators of the demand components and of GDP					
Imports .....	2.8	4.6	2.5	0.3	1.9
Exports .....	2.5	3.8	2.9	1.0	2.1
<i>p.m. Terms of trade</i> .....	-0.3	-0.7	0.4	0.7	0.2
Domestic demand .....	2.6	2.6	1.6	1.4	1.9
GDP .....	2.4	2.0	2.0	2.0	2.1
Costs of domestic origin per unit of value added (contributions to the change in the GDP deflator)					
Labour costs .....	-0.1	1.2	0.6	0.8	0.8
Gross operating surplus .....	1.8	0.8	1.5	1.2	1.1
Indirect taxes net of subsidies .....	0.7	0.1	-0.1	0.0	0.2
<i>p.m. Wage share (p.c. of GDP)</i> .....	50.6	50.8	50.3	50.1	49.9

Sources: EC, NAI, NBB.

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

**TABLE 7** LABOUR COSTS IN THE PRIVATE SECTOR

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

	2004	2005	2006	2007 e	2008 e
Labour costs per hour worked .....	2.4	2.2	2.7	2.4	2.6
Employers' social contributions <sup>(1)</sup> .....	-0.5	-0.3	0.0	-0.2	-0.2
Gross wages .....	2.8	2.5	2.7	2.6	2.8
of which: indexations .....	1.4	2.1	1.8	1.7	1.6
Labour productivity <sup>(2)</sup> .....	2.9	0.6	1.6	0.8	0.9
Unit labour costs .....	-0.4	1.5	1.1	1.6	1.6

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

(1) Contribution to the change in labour costs following the adjustments to the implicit contribution rates, percentage points.

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

from the marked expansion in employment in the private sector. Expressed per hour worked, the growth of labour costs should in fact decline slightly compared to 2006, from 2.7 p.c. to 2.4 p.c. in 2007 and 2.6 p.c. in 2008.

These estimates are based on the assumption of a cumulative 5 p.c. increase in hourly labour costs in the private sector. In the absence of information on the outcome of the wage negotiations conducted by the various sectoral joint committees, it corresponds to the indicative norm of the central agreement for the period 2007-2008. Noting that a handicap, estimated at 1.5 p.c. by the Secretariat of the Central Economic Council, had developed over the preceding ten years, the social partners had decided under this agreement to set a norm which was 0.5 percentage point lower than the average increase in hourly labour costs currently forecast in the three main neighbouring countries.

The movement in employers' social contributions is expected to attenuate the growth of labour costs by -0.2 percentage point each year. That includes the reductions introduced pursuant to the generation pact concluded in 2005, granted for the employment of young workers from July 2006 and for workers aged over 50 from April 2007. Apart from the cuts in contributions, firms will also benefit from the increase in the abatements introduced since 2004 for shift work and night work and, from October 2007, the general rebate on the payroll tax, equivalent to 0.15 p.c. of labour costs. According to the national accounts conventions, these measures are regarded as subsidies and are therefore not included in the recorded movement in labour costs.

According to the current projections, the effect of the automatic wage indexation based on the movement in the health index of consumer prices will total 3.4 p.c. over the two years.

## 4. Public finances

### 4.1 Overall balance

In 2006, the Belgian government recorded a budget surplus of 0.2 p.c. of GDP. In the macroeconomic context described above, the general government accounts are expected to be in deficit from 2007, although those deficits should be limited to only 0.1 and 0.2 p.c. of GDP respectively in 2007 and 2008. It should be noted that these projections take account only of budget measures which have already been announced and specified in sufficient detail.

The movement in the general government budget balance is due to four factors, namely the fluctuation in interest charges, the business cycle, the influence of temporary factors, and finally, the movement in the structural primary balance.

General government interest charges should continue to decline between 2006 and 2008 by around 0.3 p.c. of GDP. Although the projections are based on rising market rates, the average implicit rate applicable to the public debt should remain relatively stable. That is due to the small proportion of short-term debt securities and the fact that it is still possible for long-term liabilities to be refinanced at lower rates. The decline in interest charges

**TABLE 8** GENERAL GOVERNMENT ACCOUNTS<sup>(1)</sup>(percentages of GDP; according to the view taken by Eurostat<sup>(2)</sup>, unless otherwise stated)

	2004	2005	2006	2007 e	2008 e
Revenue .....	49.2	50.0	49.2	48.4	48.2
of which: fiscal and parafiscal revenue .....	44.4	44.8	44.3	43.7	43.5
Primary expenditure .....	44.5	47.9	44.9	44.6	44.5
Primary balance .....	4.7	2.0	4.3	3.8	3.7
Interest charges .....	4.7	4.3	4.1	3.9	3.8
Financing balance .....	0.0	-2.3	0.2	-0.1	-0.2
Changes in the financing balance .....		-2.2	2.5	-0.3	-0.1
due to changes in					
interest charges .....		0.4	0.2	0.2	0.1
cyclical component <sup>(3)</sup> .....		-0.7	0.5	0.4	0.2
GDP growth .....		-0.6	0.5	0.2	0.0
composition effects .....		-0.1	-0.1	0.2	0.2
non-recurrent factors .....		-2.8	2.7	-0.5	-0.3
structural primary balance <sup>(4)</sup> .....		0.9	-0.9	-0.4	0.0
<i>p.m. Financing balance according to the view taken by the NAI<sup>(2)</sup></i> .....	<i>0.0</i>	<i>0.1</i>	<i>0.2</i>	<i>-0.2</i>	<i>-0.2</i>
<i>p.m. Stability programme targets</i> .....	<i>0.0</i>	<i>0.0</i>	<i>0.0</i>	<i>0.3</i>	<i>0.5</i>

Sources: EC, NAI, NBB.

- (1) According to the methodology used in the excessive deficit procedure (EDP). This methodology differs from that of the ESA 95 which was adjusted in 2001 to exclude from the calculation of the financing balance and interest charges the net interest gains on certain financial transactions, such as swaps and forward rate agreements (FRAs).
- (2) According to the view taken by the NAI, the Railway Infrastructure Fund (RIF), set up in the context of the BNRC restructuring on 1 January 2005, comes under the non-financial corporations sector. According to the view taken by Eurostat, that Fund forms part of the general government sector and the assumption of the BNRC debt has to be recorded as a capital transfer from that sector to the non-financial corporations sector.
- (3) According to the methodology described in Bouthevillain C., Ph. Cour-Thimann, G. van den Dool, P. Hernández de Cos, G. Langenus, M. Mohr, S. Momigliano and M. Tujula (2001), *Cyclically adjusted balances: an alternative approach*, ECB Working Paper Series, n° 77 (September). A less technical description of this methodology may be found in Box 6 *Cyclically adjusted budget balances: calculation method used by the ESCB* in the NBB Report 2003 (Part 1), p. 83-84.
- (4) Balance adjusted for cyclical and non-recurrent factors.

is therefore due exclusively to the gradual reduction of the public debt.

The business cycle is also expected to have a favourable impact on the financing balance. Activity looks set to continue expanding strongly in 2007, outpacing the trend growth rate. Moreover, the composition of GDP is likely to be favourable to public finances. Overall, the business cycle should improve the financing balance by 0.6 p.c. of GDP over the period considered.

Furthermore, the projections assume the gradual disappearance of the non-recurrent factors. In 2006, they had inflated the budget balance by 0.7 p.c. of GDP, essentially following the sale of real estate and the structural acceleration of the corporate income tax assessments. In 2007, the impact of non-recurrent factors is estimated at 0.2 p.c. of GDP. Further real estate sales should raise 200 million euro. In addition, this year's budget balance would benefit from the favourable influence of the tax

regularisation operation launched in 2006. Moreover, it is temporarily more advantageous for companies to distribute or invest certain tax-free reserves. The timing of the collection of social contributions on holiday pay on termination of contracts of employment has also been brought forward. Finally, public authorities are expected to securitise and sell off tax arrears in 2007<sup>(1)</sup>. This new operation should bring in an estimated 150 million euro. However, the net impact of the securitisation on the 2007 budget balance will be negative: the operations conducted in 2005 and 2006 led to a fall in revenue, since when the arrears concerned are collected, they accrue to the buyers of the underlying securities. For 2008, the estimates take account only of the negative effects of the securitisation operations on tax revenues in that year.

(1) Eurostat will specify how securitisation operations conducted by public authorities are to be treated.

Adjusted for non-recurrent and cyclical factors, the primary surplus is projected to decline by 0.4 p.c. of GDP between 2006 and 2008. That decline is due partly to the fact that, in view of the relatively low level of advance payments in the initial months of 2007, corporate income tax this year is likely to grow significantly more slowly than the gross operating surplus of companies. Moreover, the projections also point to a further easing of structural fiscal policy.

The difference in relation to the surplus of 0.3 p.c. of GDP planned for 2007 under the latest stability programme is due to various factors. First, the revenue and expenditure estimates are different in some cases. That applies mainly to corporate income tax, for which the expected growth is more modest than in the budget assumptions. Also, in accordance with the ESCB methodology, the projections take no account of budget measures which are not yet sufficiently detailed, as in the case of the intention to take over the first pillar pension liabilities of companies in return for a one-off capital transfer, which should generate revenue of 500 million euro. For the same reason, only one-third of the assumed proceeds of the sales of real estate is taken into account.

## 4.2 Revenue

General government revenues expressed as percentages of GDP are set to decline in both 2007 and 2008, by 0.7 and 0.2 p.c. of GDP respectively.

That fall is due partly to a reduction in the impact of temporary measures on the revenue side, whose influence over those two years should come to 0.3 and 0.2 p.c. of GDP respectively.

Structural measures are expected to exert downward pressure of 0.1 p.c. of GDP on revenues in both 2007 and 2008. Levies on earned incomes will continue to be slightly lowered during the projection period. The personal income tax reform approved in 2001 and the increase in the pension savings allowance in 2006 will have an impact on personal income tax assessments which is negative for general government. In addition, the percentages and the maximum amount of the standard professional expenses were increased again in 2007 and a standard reduction in personal income tax for professional activities has been applied in the Flemish Region since 1 January 2007. The parafiscal burden on labour will be reduced primarily

**TABLE 9** MAIN NON-RECURRENT FACTORS<sup>(1)</sup>  
(millions of euro, unless otherwise stated)

	2006 <sup>(2)</sup>	2007 e	2008 e
Real estate sales .....	953	200	0
Accelerated collection of corporate income tax .....	900	0	0
Tax regularisation operations .....	75	50	0
Shifts in the financing of the BNRC Group .....	100	0	0
Exceptional payment to the Flemish water supply companies and to Aquafin .....	-100	0	0
Temporary tax regime for tax-free reserves .....	0	341	0
Change in the timing of the payment of social contributions on holiday pay on termination of employment contracts .....	0	233	0
Securitisation of tax arrears .....	333	-176	-358
<b>Total</b> .....	<b>2,265</b>	<b>648</b>	<b>-358</b>
<i>p.m. Percentages of GDP</i> .....	<i>0.7</i>	<i>0.2</i>	<i>-0.1</i>

Sources: NAI, NBB.

(1) A positive (negative) figure indicates an improvement (deterioration) in the general government financing balance.

(2) In addition, a temporary measure relating to heating costs in 2006 caused a one-off increase in expenditure (97 million euro), but that effect was offset by a one-off contribution from the electricity and gas sector (around 100 million euro).

by the reductions in employers' contributions for young workers and for older workers, decided in the context of the generation pact. Finally, the operation of the reverse ratchet system on diesel and the gradual abolition of the compensatory excise duty on diesel vehicles will cause a loss of revenue. The effect of the reductions in charges will, however, be partly offset by other specific measures. Thus, the excise duty on tobacco has been increased, a tax on certain disposable products and packaging has been introduced, and the corporate income tax deductibility for company vehicles now depends on carbon dioxide emissions.

There are also some technical factors which will increase general government revenues while having only a limited net influence on the overall balance. That applies to the payment to the government, from 2007, of the social contributions for the pensions of BNRC staff, following

a revision of the system of pension funding<sup>(1)</sup>. In 2008, the social contributions of self-employed persons will increase, as insurance against minor health care risks will then become compulsory for them. Statistically, that insurance will therefore be regarded as a component of social security from then on.

Finally, structural shifts at macroeconomic level will also influence the movement in general government revenues. Earned incomes, which are subject to relatively heavy taxation, should rise more slowly than GDP, the share of earned incomes – compensation of employees and gross mixed income excluding imputed contributions – falling from 55.6 p.c. of GDP in 2006 to 55.4 p.c. in 2008.

(1) From 2007, the first pillar pensions of former BNRC staff, which used to be paid by the BNRC Group itself, will be paid by the federal public sector pensions service. The operation is neutral for the budget, since the government used to provide a grant to make up the difference between the pensions granted by the BNRC Group and the social contributions collected for this purpose.

**TABLE 10** STRUCTURAL MEASURES RELATING TO PUBLIC REVENUES

(millions of euro, unless otherwise stated; changes compared to the previous year)

	2007 e	2008 e
Taxes .....	-106	-123
of which:		
Personal income tax reform <sup>(1)</sup> .....	-144	0
Increased tax allowance for pension savings .....	-57	0
Flemish Region tax abatement .....	-107	-25
Raising of the standard allowance for professional expenses .....	-77	0
Gradual abolition of the compensatory excise duty on diesel vehicles .....	-81	-121
Tax on disposable products and packaging .....	67	67
Tax deductibility of company vehicles .....	13	51
Control of tax evasion and more efficient collection .....	407	0
Reverse ratchet system on diesel .....	-92	0
Excise duty on tobacco .....	200	0
Other .....	-235	-95
Social security contributions .....	-349	-83
Reduction in employers' contributions .....	-376	-83
Reduction in employees' contributions .....	-60	0
Control of evasion and more efficient collection .....	88	0
<b>Total</b> .....	<b>-454</b>	<b>-206</b>
<i>p.m. Percentages of GDP</i> .....	<i>-0.1</i>	<i>-0.1</i>
<i>p.m. Technical factors</i> .....	<i>214</i>	<i>397</i>
<i>BNRC pension contributions</i> .....	<i>214</i>	<i>0</i>
<i>Self-employed persons' contributions (minor health care risks)</i> .....	<i>0</i>	<i>397</i>

Sources: FPS Finance, NSSO, budget documents.

(1) Including the secondary effects on municipal taxes.

### 4.3 Primary expenditure

Primary expenditure, which had amounted to 44.9 p.c. of GDP in 2006, should decline slightly, dropping to 44.6 and 44.5 p.c. of GDP respectively in 2007 and 2008. Measured in volume, primary expenditure will thus increase by 2.5 and 2.3 p.c. in those two years. However, after adjustment for the influence of non-recurrent and cyclical factors and the effects of indexation<sup>(1)</sup>, the increase comes to 2.1 and 2.2 p.c. in the two years, representing a relatively neutral spending policy in line with the trend growth of activity.

The planned expenditure growth in 2007 is due to varying developments in the subsectors making up the government sector. At the federal government level, the adjusted growth of primary expenditure will be fairly moderate. Expenditure for measures in favour of employment, particularly shift working, which are recorded as subsidies in accordance with the ESA 95, should continue to increase, but more slowly than in 2006. The share of Belgium's contribution to the EU budget, calculated on the basis of Belgian GNI, should also decline in 2007. Conversely, social security expenditure is expected to grow considerably faster than in the previous year, matching the movement in health care expenditure. After two years of particularly moderate growth, health care spending is likely to return again to more vigorous growth levels which are typical for this spending category. In addition, pensions should benefit from a set of measures, notably decided in the context of the generation pact, which will augment expenditure. At local authority level, primary expenditure will decline slightly in 2007 owing to the reduction in investment which traditionally follows the local elections, in this case those held in 2006. At the same time, the primary expenditure of the communities and regions will grow at a fairly sustained rate.

The rate of increase in primary expenditure in 2008 is difficult to estimate as the budgets are not yet available. However, at this stage, the projections include a set of measures to increase social benefits, particularly those decided in the context of the generation pact. While these will add to social security expenditure, the increase in local authority spending should once again be tempered by the reduction in local investment resulting from the electoral cycle. As regards the growth of federal government expenditure and that of the communities and regions, these projections are based on the historical average.

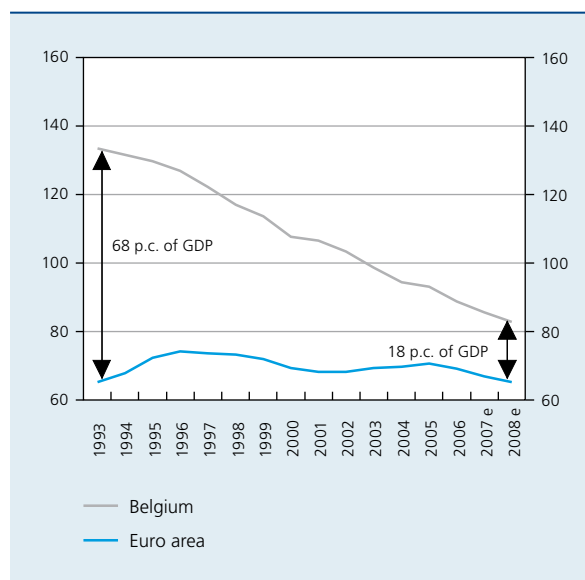
(1) Effects caused by the difference between the actual indexation of public sector wages and social security benefits and the increase in the HICP.

### 4.4 Debt

Since 1993, when the public debt had peaked at 133.5 p.c. of GDP, the debt ratio has fallen steadily by an average of 3.4 percentage points per annum. At the end of 2006, the general government debt ratio stood at 88.8 p.c. of GDP.

The public debt is expected to continue to decline, dropping to 85.6 and 82.7 p.c. of GDP respectively by the end of 2007 and 2008. The difference between Belgium's debt ratio and the euro area average should thus continue to reduce, reaching 18 p.c. of GDP at the end of the projection period.

**CHART 10** CONSOLIDATED GROSS DEBT  
(percentages of GDP, according to the view taken by Eurostat<sup>(1)</sup>)



Sources: EC, NAI, NBB.

(1) According to the view taken by the NAI, the Railway Infrastructure Fund (RIF), set up in the context of the BNRC restructuring on 1 January 2005, comes under the non-financial corporations sector. According to the view taken by Eurostat, that Fund forms part of the general government sector.

## 5. Assessment of the uncertainty of the projections

Under current economic conditions, the economic projections for Belgium for the next eighteen months seem to rest on a sound, stable foundation. The growth of global activity – particularly the increased momentum in the euro area – should be sustainable, and inflation expectations should remain firmly anchored. Moreover, financial conditions look set to remain favourable. Belgium should be able to take advantage of that in a context of wage moderation in line with the central agreement for 2007-2008, the sound financial health of companies, and public finances which are more or less in balance.

However, this outlook is subject to several risk factors.

As regards world growth, the slowdown in the United States is so far largely confined to the residential construction sector. It could persist, and may have contagion effects on the rest of the US economy, possibly spreading to the global economy. The property market situation is also strained in some European economies, although there have recently been signs that it is easing.

The oil markets are also highly volatile. In a context of low reserves of production capacity, both spot and forward prices are very sensitive to movements in demand and to production conditions and decisions by the main producers, but they also react to the geopolitical situation. A further sustained rise in the price of oil would depress growth and risk rekindling inflationary pressures.

More fundamentally, such pressures could also grow if the world economy were to approach the limits of its production capacity. In that case, continuing vigorous growth could cause accelerating wage and price inflation, which would be likely to drive up interest rates. Moreover, large current account imbalances should persist in 2007 and 2008. A sudden exchange rate or interest rate correction would be detrimental to the global economy.

In Belgium, tensions are liable to appear on certain segments of the labour market, as more of the labour reserves are mobilised. That could curb growth and speed up the rise in labour costs and inflation.

**TABLE 11** COMPARISON OF THE FORECASTS FOR BELGIUM  
(percentage changes compared to the previous year)

	Real GDP		Inflation <sup>(1)</sup>		Budget balance <sup>(2)</sup>		Publication date
	2007	2008	2007	2008	2007	2008	
NBB – Spring 2007 .....	2.5	2.2	1.6	1.8	-0.1	-0.2	June 2007
<i>p.m. Autumn 2006</i> .....	2.1	-	1.9	-	-0.4	-	December 2006
Federal Planning Bureau (FPB) .....	2.3	2.2	1.8	1.9	0.1	-0.5	May 2007
IMF .....	2.2	2.0	1.9	1.8	0.0	0.0	April 2007
EC .....	2.3	2.2	1.8	1.8	-0.1	-0.2	May 2007
OECD .....	2.5	2.3	1.5	1.8	0.2	0.0	May 2007
Belgian Prime News .....	2.3	2.2	1.9	1.9	-0.1	0.0	March 2007
Consensus Economics .....	2.3	2.1	1.7	1.8	n.	n.	May 2007
The Economist's Poll .....	2.5	2.3	1.8	1.9	n.	n.	June 2007
<i>p.m. Actual figures 2006</i> .....	3.0		2.3		0.2		

(1) HICP, except FPB and OECD: private final consumption deflator.

(2) Percentages of GDP.

TABLE 12 COMPARISON OF THE ASSUMPTIONS

	2007					2008				
	NBB	EC	IMF	FPB	OECD	NBB	EC	IMF	FPB	OECD
Export markets .....	5.9	7.5	n.	7.3	n.	6.2	6.9	n.	7.2	n.
Oil (dollars per barrel) .....	65.0	66.2	60.75	61.0	64.7	69.9	70.3	64.75	61.9	65.0
Short-term interest rate .....	4.2	n.	3.8	3.8	4.1	4.5	n.	3.7	3.9	4.3
Long-term interest rate in Belgium .....	4.2	n.	n.	4.2	4.2	4.3	n.	n.	4.3	4.3
Dollars per euro .....	1.34	1.33	1.30	1.305	1.34	1.36	1.34	1.31	1.31	1.35

Incorporating the recent national accounts figures, and underpinned by the current expansion in the euro area, the Bank's growth forecasts for 2007 are slightly higher than those of the other institutions. The inflation forecasts for the same year are at the lower end of the range, probably because they take account of the downward

pressure exerted by the liberalisation of the gas and electricity markets, and the new method of recording those prices in the index. The same factors also account for the revisions compared to the projections drawn up by the Bank in December 2006. For 2008, the results are comparable to those of the other institutions.



## Annex

### PROJECTIONS FOR THE BELGIAN ECONOMY: SUMMARY OF THE MAIN RESULTS

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

	2004	2005	2006	2007 e	2008 e
<b>Growth</b> (calendar adjusted data)					
GDP in volume .....	2.8	1.4	3.0	2.5	2.2
Contributions to growth:					
Domestic expenditure, excluding change in stocks .....	2.8	1.3	2.8	2.3	2.3
Net exports of goods and services .....	-0.1	-0.4	-0.8	0.4	0.1
Change in stocks .....	0.1	0.5	1.0	-0.2	-0.2
<b>Prices and costs</b>					
Harmonised index of consumer prices .....	1.9	2.5	2.3	1.6	1.8
Health index .....	1.6	2.2	1.8	1.6	1.7
GDP deflator .....	2.4	2.0	2.0	2.0	2.1
Terms of trade .....	-0.3	-0.7	0.4	0.7	0.2
Unit labour costs in the private sector .....	-0.4	1.5	1.1	1.6	1.6
Hourly labour costs in the private sector .....	2.4	2.2	2.7	2.4	2.6
Hourly productivity in the private sector .....	2.9	0.6	1.6	0.8	0.9
<b>Labour market</b>					
Domestic employment (annual average change in thousands of units) .....	26.5	40.8	46.4	60.1	55.1
Harmonised unemployment rate <sup>(1)</sup> (p.c. of the labour force) ...	8.4	8.4	8.2	7.6	7.2
<b>Incomes</b>					
Real disposable income of individuals .....	-0.1	0.9	3.2	2.4	1.8
Savings ratio of individuals (p.c. of disposable income) .....	13.2	13.2	13.8	14.1	14.0
<b>Public finances</b> <sup>(2)</sup>					
Overall balance (p.c. of GDP) .....	0.0	-2.3	0.2	-0.1	-0.2
Primary balance (p.c. of GDP) .....	4.7	2.0	4.3	3.8	3.7
Public debt (p.c. of GDP) .....	94.3	93.2	88.8	85.6	82.7
<b>Current account</b> (p.c. of GDP according to the balance of payments) .....					
	3.5	2.6	2.0	2.7	3.0

Sources: EC, NAI, NSI, NBB.

(1) Adjusted series (Eurostat).

(2) According to the methodology used in the excessive deficit procedure (EDP) and according to the Eurostat point of view (see table 8).

# Direct investment and Belgium's attractiveness

P. Bisciari  
Ch. Piette<sup>(1)</sup>

## Introduction

With the expansion of international trade, foreign direct investment (FDI) is both one of the most visible manifestations of the globalisation of the economy and a development factor for a good many countries. For the emerging countries, in particular, it is a catalyst of economic growth. In the industrialised countries, it is a way of adapting production capabilities to meet the challenges presented by international competition and seize the opportunities offered by the emergence of new markets. FDI therefore represents an option to be considered by firms in defining their strategy.

In view of the small size of the Belgian economy and its very open character, FDI plays a significant role. That is partly reflected in the financial structure of resident firms. In fact, according to the results of the survey of direct investment conducted annually by the Bank, 47.6 p.c. of the equity capital invested in Belgian companies as a whole on 31 December 2005 was owned directly or indirectly by foreign shareholders. Moreover, 14 p.c. of the interests owned by those same companies in other businesses consisted of foreign investments.

The purpose of the article is to analyse these direct investment links and to view them in perspective, both over time and in relation to other developed countries, especially neighbouring countries. In addition, it aims to identify the main factors determining recent developments and Belgium's relative position in 2005, the latest year for which exhaustive data are available. An attempt will also be made to identify which of these factors are common to other countries and which are more specific

to Belgium, thus constituting comparative advantages or disadvantages.

The first section of the article will outline the global trends in foreign direct investment which have also affected Belgium. Once the international context has been defined, the importance of FDI in Belgium can be ascertained at the start of the second section. FDI appears to play a greater role in Belgium than in most other developed countries, and an attempt will be made to explain the reasons, e.g. by reference to the specific nature of certain FDI flows.

Although the Belgian economy has long been more open to trade and capital flows with the rest of the world than other developed countries, it seems that in recent times Belgium has once again distinguished itself from its neighbours, and from the EU<sup>(2)</sup> countries in general, with a larger increase in its outward FDI and an at least equally substantial increase in its inward FDI. That finding at the end of the second section prompts a more detailed examination of Belgium's outward FDI in section 3 and its inward FDI in section 4.

Section 3 will focus in particular on showing the countries and industries to which Belgium has devoted the most FDI, and examining whether there have been signs of any changes recently, such as an increase in labour-intensive investments in emerging countries.

(1) The authors would like to thank Luc Dresse, Annick Bruggeman and Benoît Robert for their valuable advice, and Nadine Feron and Jean-Marie Van den Berghe for their statistical support.

(2) In this article, the abbreviation 'EU' is used to mean the twenty-seven Member States making up the European Union.

In section 4 we aim to determine the industries and business functions attracting more or less FDI in Belgium than elsewhere in the EU. In the light of that information, section 5 will focus on the reasons why foreign investors may be interested in locating a project in Belgium rather than in another EU country.

## 1. Global trends in foreign direct investment

Following an initial expansion during the 1980s, particularly during the preparations for the single European market, the total amount of FDI in the world surged during the 1990s. This rise was due in particular to the lifting of barriers to foreign trade and capital movements, and to the liberalisation or privatisation of previously pro-

tected sectors, which boosted the degree of competition on certain markets. To cope with these developments and safeguard their competitiveness, firms had to revise their strategies by securing a presence in the largest possible number of markets, and – if appropriate – cutting their costs through international fragmentation of production. The adoption of these new strategies was reflected, for instance, in the creation of new foreign subsidiaries, particularly in the emerging economies, where they are the commonest method of foreign investment, and also in cross-border mergers and acquisitions, which account for the bulk of the FDI flows in the industrialised countries. The expansion of direct investment and the creation of foreign subsidiaries were also facilitated by the progress of information and communication technologies, which favours the integrated management of multinational groups.

### FDI statistics

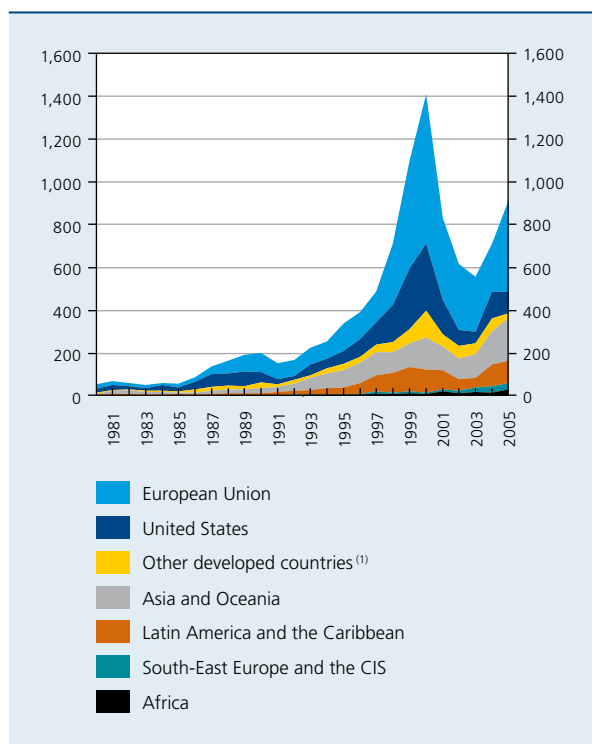
FDI is a phenomenon whose scale and contribution to economic development are still difficult to grasp and to quantify. It is generally measured on the basis of the flow statistics obtained from the balances of payments compiled by each country in accordance with the principles laid down by the International Monetary Fund (IMF, 1993). The IMF defines direct investment as a situation where a resident entity in one economy (direct investor) obtains a lasting interest in an enterprise resident in another economy (direct investment enterprise), implying the holding of at least 10 p.c. of the ordinary shares or voting power. The amounts of the flows recorded in the balance of payments relate not only to investment in the equity capital, which establishes this relationship of lasting interest, but also in capital contributions in the form of reinvested earnings and inter-company loans.

In Belgium, in addition to the flows recorded in the balance of payments, the direct investment links of resident enterprises are also recorded via an annual survey conducted by the Bank. That survey aims more particularly to compile statistics on FDI stocks as estimated on the basis of the book value of the equity capital – which comprises both investments in the capital stock and reinvested earnings – held by direct investors in direct investment enterprises, and that of the inter-company loans which they grant them. In comparison with the statistics available in the balance of payments, the range of variables covered by the survey is considerably extended. In particular, the survey also takes account of interests which direct investors control via indirect ownership links, i.e. through one or more related companies. In addition, it provides information on the scale of the activity of foreign subsidiaries of Belgian enterprises and subsidiaries of foreign enterprises in Belgium, measured on the basis of their turnover and the number of persons employed. Although they concern only enterprises in which foreign investors directly own more than 50 p.c. of the equity capital, these data on foreign subsidiaries provide valuable information on the economy activity which can genuinely be attributed to direct investment capital.

However, the FDI data have a number of drawbacks, connected mainly with their financial nature. In particular, the figures relating to inward FDI in an economy may be considerably overestimated as a result of capital transfers for which a resident company is merely acting as intermediary. Moreover – and that is a drawback which they share with the statistics on foreign subsidiaries – the FDI data do not permit any distinction between the share of the investments relating to the acquisition of interests in existing companies and those which give rise to a real expansion of the production facilities.

**CHART 1** FOREIGN DIRECT INVESTMENT INFLOWS  
BY GROUPS OF COUNTRIES

(billions of US dollars)



Source : UNCTAD.

(1) Australia, Canada, Gibraltar, Iceland, Israel, Japan, New Zealand, Norway and Switzerland.

Having peaked in 2000, the volume of FDI contracted sharply between 2001 and 2003. That fall is attributable partly to the decline in economic activity during that period. It is also due to a debt reduction phase following the wave of mergers and acquisitions which occurred in the late 1990s. Finally, since FDI flows are recorded on the basis of the market value of the assets involved in the transactions, both their decline in 2001 and their very rapid growth rate in the late 1990s largely mirrored the stock market movements, especially the financial bubble which burst in 2001.

The developed countries are not only the source of the vast majority of FDI, they are also its main recipients. However, the past two decades have also seen the emergence of new players among the developing countries, such as China and India, and among the East European countries which recently joined the EU. Those countries, which offer both new markets for firms from industrialised countries and opportunities to cut their production costs, contributed more particularly to the global revival of FDI in 2004, but its continuation in 2005 was driven mainly by new mergers and acquisitions in the developed countries.

The recent FDI revival is also due to the rising price of commodities, especially oil, which triggered more investment in countries rich in natural resources (UNCTAD, 2006). The higher cost of energy also pushed up transport costs. This prompted some firms to expand the number of their subsidiaries, particularly in activities relating to transport and logistics (Cushman & Wakefield, 2006).

FDI flows also feature a growing proportion of investment on the part of service companies, thus reflecting the sectoral changes and the progressive expansion of the tertiary sector in the global economy.

## 2. Belgium, a key player in FDI

### 2.1 Importance of FDI in Belgium

Between 2003 and 2005, FDI in- and outflows recorded in Belgium's balance of payments averaged 10.6 and 9.8 p.c. respectively in relation to GDP. The FDI flows in Belgium thus substantially exceeded those seen in the majority of other European countries in relation to the size of the economy.

These differences are due largely to the fact that many companies based in Belgium act as financial centres for the multinational groups to which they belong. That applies, in particular, to the coordination centres which represent a significant proportion of Belgium's FDI flows. Enjoying special tax status, these companies are primarily intended to centralise the financial transactions of enterprises belonging to the same multinational groups as themselves. A very large part of the foreign capital which they receive is thus reinvested outside Belgium. As a result, the funds passing through the coordination centres greatly amplify the volume of Belgium's inward and outward FDI.

Excluding the capital movements attributable to the coordination centres<sup>(1)</sup>, both FDI in- and outflows would average only 5.8 p.c. of GDP over the period 2003-2005. Nonetheless, Belgium's FDI flows are still well in excess of those generally seen in the EU, where FDI inflows averaged 2.5 p.c. of GDP and FDI outflows 3.1 p.c.

The fact that Belgium is more open to direct investment is also reflected in the statistics on FDI stocks. According to the results of the Bank's survey of direct investment, FDI stock in Belgium, excluding the figures for the

(1) Namely the 224 companies licensed as coordination centres in March 2005.

**TABLE 1** DIRECT INVESTMENT FLOWS AND STOCKS IN THE VARIOUS GEOGRAPHICAL REGIONS<sup>(1)</sup>  
(percentages of GDP)

	Inward				Outward			
	1997-1999	2000-2002	2003-2005	Stock in 2005	1997-1999	2000-2002	2003-2005	Stock in 2005
Developed countries .....	2.1	2.5	1.4	21.6	2.6	2.6	2.0	27.7
European Union <sup>(2)</sup> .....	3.3	4.2	2.5	33.9	4.8	4.6	3.1	40.2
of which:								
Belgium .....	9.2	8.2	10.6	103.9	6.4	9.3	9.8	98.6
<i>p.m. Belgium, excluding       coordination centres</i> .....	7.9	4.9	5.8	65.0	4.7	4.3	5.8	53.0
Germany .....	1.5	3.9	0.6	18.0	3.8	1.6	0.7	34.6
France .....	2.2	2.7	2.3	28.5	4.6	5.9	3.8	40.5
Netherlands .....	6.8	9.3	3.8	74.1	9.0	10.5	10.5	102.6
United Kingdom .....	4.1	3.6	3.9	37.1	8.0	6.2	4.2	56.2
Twelve new members .....	3.8	4.0	4.7	37.5	0.2	0.2	0.7	3.2
United States .....	1.8	1.7	0.8	13.0	1.4	1.2	1.0	16.4
Other developed countries <sup>(3)</sup> .....	0.8	1.2	0.6	13.5	1.4	1.8	1.6	23.8
Developing countries .....	2.9	2.8	3.0	26.4	1.0	1.1	1.1	12.4
Asia and Oceania .....	2.4	2.4	2.8	23.2	0.9	1.1	1.1	13.0
of which:								
China (excluding Hong Kong) ...	3.4	3.2	3.5	14.3	0.2	0.2	0.2	2.1
India .....	0.5	0.8	0.8	5.8	0.0	0.2	0.2	1.2
Latin America and the Caribbean ....	4.9	4.3	3.8	36.7	1.6	1.8	1.2	13.5
South-East Europe and CIS .....	1.7	1.4	3.2	20.6	0.5	0.5	1.5	11.7
of which:								
Russian Federation .....	1.0	0.7	2.1	17.3	0.6	0.7	2.1	15.7
Africa .....	1.8	2.1	2.8	28.2	0.4	0.0	0.2	5.8
<b>Total</b> .....	<b>2.3</b>	<b>2.6</b>	<b>1.8</b>	<b>22.8</b>	<b>2.3</b>	<b>2.3</b>	<b>1.8</b>	<b>23.8</b>

Sources: UNCTAD, NBB.

(1) The groupings by geographical regions used here correspond to those generally given in UNCTAD reports (cf. UNCTAD, 2006). However, Bulgaria and Romania have been transferred to the group of the new EU member countries.

(2) Including FDI between member countries.

(3) Australia, Canada, Gibraltar, Iceland, Israel, Japan, New Zealand, Norway, Switzerland.

coordination centres, came to 65 p.c. of GDP for 2005, while Belgium's FDI stock in other countries came to 53 p.c. of GDP. The inward and outward FDI stocks for the EU as a whole, calculated according to the statistics published by UNCTAD, are estimated at 33.9 and 40.2 p.c. respectively of GDP. The differences are also very marked when Belgium's FDI is compared with that of the economies which are relatively more comparable, especially its main neighbours. Of those countries, only the Netherlands has higher ratios than Belgium.

The role played by foreign investment in the Belgian economy is therefore significant. According to the results of the survey of direct investment for 2005, the capital controlled directly by foreign investors represents 35.1 p.c. of the total equity capital of Belgian firms. By adding the capital which they control via indirect ownership, i.e. through one or more related companies in which they also own shares, that proportion is increased to 47.6 p.c. However, that figure tends to overvalue somewhat the actual level of foreign involvement in the Belgian production set-up, as the coordination centres alone account for 19.5 p.c. of the total equity capital of resident enterprises.

**TABLE 2** SIGNIFICANCE OF DIRECT INVESTMENT IN THE BELGIAN ECONOMY IN 2005  
(percentages)

<b>Foreign direct investment in Belgium</b>	
Share of foreign direct investment in the capital of Belgian enterprises	
Direct ownership only .....	35.1
of which coordination centres .....	12.1
Direct and indirect ownership .....	47.6
of which coordination centres .....	19.5
Direct investment enterprises (in which a foreign investor owns 10 p.c. or more of the equity capital)	
Share in the turnover of resident enterprises .....	50.4
Share in the employment of resident enterprises .....	21.6
Subsidiaries of foreign enterprises (in which a foreign investor owns more than 50 p.c. of the equity capital)	
Share in the turnover of resident enterprises .....	37.7
Share in the employment of resident enterprises .....	15.2
<b>Direct investment by Belgium in other countries</b>	
Direct investment in foreign equity capital as a percentage of total shareholdings in related companies .....	
	14.0
Foreign subsidiaries of resident enterprises (in which a resident investor owns more than 50 p.c. of the equity capital)	
Turnover of subsidiaries as a percentage of the turnover of resident enterprises .....	16.6
Employment in subsidiaries as a percentage of employment in resident enterprises .....	14.6

Source: NBB.

Resident direct investment enterprises account for over half of the turnover of Belgian companies taken as a whole. Those same companies also employ 21.6 p.c. of the total number of employees in resident enterprises. Enterprises considered to be subsidiaries of foreign firms, i.e. those in which foreign shareholders own more than 50 p.c. of the capital via direct shareholdings, in themselves account for 37.7 p.c. of the turnover of resident enterprises and 15.2 p.c. of their workforce, namely 357,600 employees.

Belgium's FDI in other countries represents 14 p.c. of the interests held by resident enterprises in related companies<sup>(1)</sup>. The scale of the economic activity generated by these foreign investments is still far less than that effected within the country. On the basis of the statistics for subsidiaries of Belgian firms based abroad, which employed 343,864 staff in 2005, the volume of this activity outside national territory can be estimated at around 15 p.c. of that taking place within Belgium.

(1) That percentage is unaffected by the direct investments of coordination centres. Since the latter are not authorised to hold shares in other companies, inter-company loans are the only means by which they transfer capital.

The relative importance of FDI in the Belgian economy is due to its small size and its longstanding openness to both capital movements and foreign trade. In that regard, Belgium's central location in western Europe certainly played a major role in the establishment of the first foreign subsidiaries on Belgian soil, where they enjoyed easy access to the European market, with the added facility of efficient transport and communication infrastructures. The industrial policies pursued in Belgium, notably via the economic expansion laws of 1959, and later the special tax status granted to coordination centres since 1982, also enhanced the country's attractiveness for foreign investors.

## 2.2 Recent developments

In recent years, Belgium's FDI in other countries has grown steadily. Flows thus increased from 9.3 to 9.8 p.c. of GDP between the sub-periods 2000-2002 and 2003-2005, in a context in which FDI outflows declined from 4.6 to 3.1 p.c. of GDP in the EU as a whole. This relative dynamism led to an increase in the total foreign shareholdings of Belgian

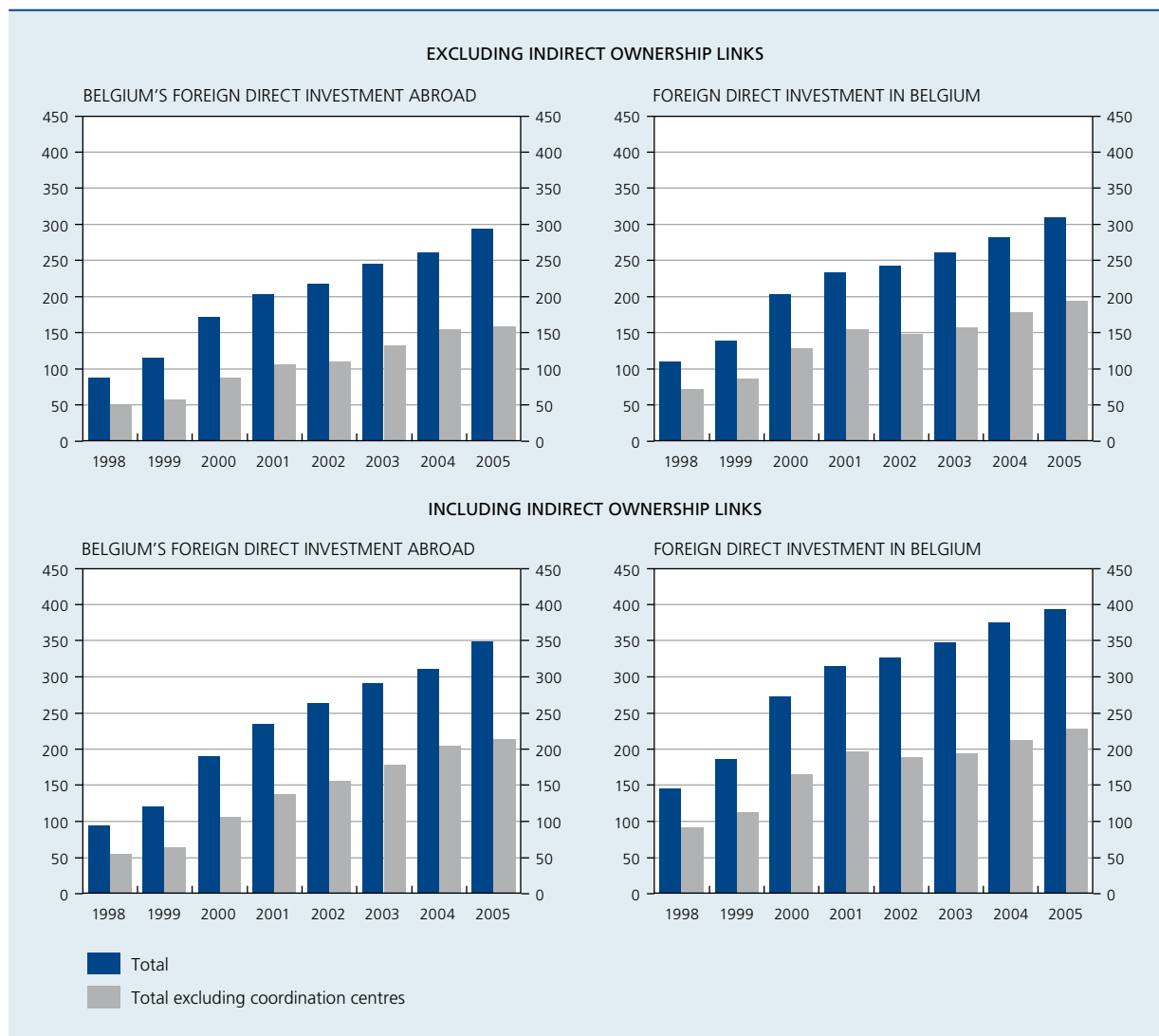
companies. Funds passing through the coordination centres certainly made a major contribution, but the FDI stock held directly by other enterprises tripled between 1998 and 2005. That growth appears even stronger if account is taken of the rising importance of capital owned via indirect ownership, which represent almost 16 p.c. of the FDI stock of Belgian enterprises in 2005.

While the total amount of foreign shareholdings in Belgian companies already exceeded that of Belgium's FDI in other countries, its expansion was more modest between 1998 and 2005. In particular, leaving aside the coordination centres, stabilisation occurred in 2002 and 2003. The flow figures presented in table 1, recorded by an accounting method different from that used for the stock statistics

– namely on the basis of the market value of the capital transferred, and not its book value – present a slightly more favourable picture, as FDI inflows expressed as a percentage of GDP continued to increase in Belgium over the period 2003-2005 compared to previous years, rising from 4.9 to 5.8 p.c. of GDP, excluding the coordination centres. Over the same period it declined from 4.2 to 2.5 p.c. of GDP in the EU as a whole, despite the increase recorded in the twelve new member countries.

However, the picture of a general rise in direct investment flows from and to Belgium needs to be qualified. Apart from the fact that it was greatly influenced by capital channelled through the coordination centres, other financial transactions also played a role. These include a

**CHART 2** DIRECT INVESTMENT STOCKS  
(billions of euro)



Source : NBB.

number of mergers and acquisitions, particularly in the banking sector towards the end of the 1990s, and more recently at the time of the creation of a Belgian-Brazilian brewery group in 2004 and the takeover of the main Belgian electricity operator by a foreign investor in 2005. As a general rule, these sporadic large-scale deals are not directly reflected in the formation of physical capital.

Investments which may actually lead to the creation or expansion of activities are commonly known as greenfield investments. They are recorded in the microeconomic databases set up mainly by consultancies or public agencies which promote FDI on the basis of publicized projects. Unlike the FDI statistics, these data take no account of disinvestments. Therefore, they cannot be used to illustrate relocations in the form of a simple transfer of activities from one country to another.

According to the figures published by UNCTAD on the basis of data collected by Locomonitor, the number of greenfield projects increased in Belgium between 2002 and 2005, but at a rate similar to that for the EU as a whole. Over the same period, the number of projects conducted by resident enterprises outside the country increased constantly in the case of Belgium, and at a slightly faster rate than in other EU countries. Consequently, Belgium's share in the total outward projects of EU countries, including flows within the EU, increased from 1.9 to 2.7 p.c. between those two years.

### 3. Motives behind Belgian investments abroad

For a business, the motives for embarking on a foreign direct investment are generally very diverse, and may vary considerably from one project to another. It is nevertheless possible to allocate them to various categories such as those used by Dunning (1998), who distinguishes between resource-seeking, market-seeking, efficiency-seeking and strategic asset-seeking investments.

Resource-seeking investments concern the exploitation of natural resources, and their location is therefore determined by the presence of those resources. Market-seeking FDI is motivated by the opportunity to tap new markets. It usually takes the form of production units encompassing the entire process of value added creation, and the choice of location is determined exclusively by proximity to the markets where the output is sold. Conversely, the choice of destination for efficiency-seeking investments depends on the possibility for achieving efficiency gains by fragmenting the production process internationally in order to take advantage of differences between countries

in the cost of factors such as labour, or other comparative advantages whose relevance varies according to the type of activity in question. In this case, the decision to locate a production unit in a particular country is therefore closely linked to the potential advantages of that country for a particular segment of the value added chain. Strategic asset-seeking investments, effected by the acquisition of shares in existing businesses, are aimed essentially at appropriating elements such as patents or market position, as a way of increasing the competitiveness of the underlying businesses. In practice, the investment and location strategies of firms active in a number of countries are often far more complex, and these various types of motives may be combined.

In the absence of direct information on the motives behind the foreign investments of Belgian enterprises, the reasons can be deduced from their location and the industries behind them.

Just as other developed countries are the main source of FDI in Belgium, most of Belgium's FDI stock is located in those same countries with which it has long-standing trade links, especially neighbouring countries and the United States. In 2005, the four neighbouring countries and the United Kingdom accounted for some 60 p.c. of the total, partly owing to cross-shareholdings linking resident enterprises with sister companies in neighbouring countries. The United States accounted for a substantial proportion of the activities of foreign subsidiaries (36 p.c. of total employment and 18 p.c. of turnover), owing to some large retail chains owned by a Belgian distribution group.

The close links between companies in nearby countries are not only due to strategic interests but also reflect the real expansion of activities. More than half the greenfield investment projects<sup>(1)</sup> initiated by Belgian firms in 2005 were located in developed countries, and over 40 p.c. of that total in nearby countries, namely France, the United Kingdom, Germany and the Netherlands, in descending order of importance. However, these projects are relatively less labour-intensive than those in other geographical regions, representing only just over one-fifth of jobs created by foreign greenfield investment initiated by Belgian firms.

(1) The data giving a geographical breakdown of greenfield investment projects by Belgian firms in other countries were obtained from IBM-Plant Location International.



**TABLE 3** GEOGRAPHICAL BREAKDOWN OF THE FDI OF BELGIAN ENTERPRISES

(percentages of the total, unless otherwise stated)

	Direct investment stock <sup>(1)</sup>		Subsidiaries established abroad 2005 <sup>(2)</sup>			<i>p.m.</i> GDP growth expected for the period 2007-2011
	1998	2005	Turnover	Employment	Share of manufacturing employment <sup>(3)</sup>	
Developed countries	92.4	88.9	85.3	82.4	24.6	2.5
European Union	73.4	74.3	62.8	44.4	35.0	2.0 <sup>(4)</sup>
of which:						
Germany	7.0	4.8	7.9	4.6	33.2	1.5
France	12.6	10.0	17.5	10.5	39.3	2.0
Luxembourg	9.6	17.7	4.9	6.2	3.6	<i>n.</i>
Netherlands	27.7	24.1	4.0	3.5	25.7	2.4
United Kingdom	5.5	3.7	11.7	7.7	41.5	2.2
Twelve new members	1.2	7.4	3.5	5.8	49.5	4.5 <sup>(5)</sup>
United States	14.2	11.9	18.4	35.7	10.4	3.0
Other developed countries <sup>(6)</sup>	4.7	2.7	4.1	2.3	44.6	2.3 <sup>(7)</sup>
Developing countries	7.6	11.1	14.7	17.6	21.8	6.0
Asia and Oceania	1.2	4.4	10.8	9.7	24.9	6.9 <sup>(8)</sup>
of which:						
China (excluding Hong Kong)	0.6	0.4	0.6	1.3	88.1	8.8
South Korea	0.1	2.2	8.4	2.1	4.5	4.8
India	0.1	0.0	0.1	0.8	84.7	7.5
Latin America and the Caribbean	4.9	4.9	1.2	3.4	22.5	4.0 <sup>(9)</sup>
South-East Europe and CIS	0.1	1.2	1.7	0.5	41.4	5.6 <sup>(10)</sup>
of which:						
Russian Federation	0.0	0.8	1.6	0.3	55.9	5.7
Africa	1.4	0.6	1.0	4.0	11.4	<i>n.</i>
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>24.1</b>	<b>3.2</b>

Sources: Consensus Forecasts (October 2006), NBB.

(1) Including capital indirectly owned, excluding coordination centres.

(2) Enterprises in which over 50 p.c. of the capital stock is directly owned.

(3) The breakdown is based on the industries of the resident enterprises initiating the FDI.

(4) Excluding Luxembourg.

(5) Czech Republic, Hungary, Poland, Romania and Slovakia.

(6) Australia, Canada, Gibraltar, Iceland, Israel, Japan, New Zealand, Norway and Switzerland.

(7) Australia, Canada, Japan, New Zealand, Norway and Switzerland.

(8) China, Hong Kong, India, Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand and Turkey.

(9) Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela.

(10) Russia and Ukraine.

Between 1998 and 2005, a growing proportion of FDI was going to the twelve newest EU members. There, manufacturing industry represents half of the employment in subsidiaries of Belgian enterprises, whereas it represents only a third of jobs in subsidiaries established in the initial fifteen EU Member States. The manufacture of machinery and equipment in itself represents around 17 p.c. of total jobs in subsidiaries in those countries.

Part of Belgium's FDI is also focused more on the developing countries. However, in 2005 they represented only 11 p.c. of the FDI stock of Belgian firms. Among this group of countries, the proportion of FDI going to South-eastern Europe and the Commonwealth of Independent States has risen slightly, following investments in various industries, usually in service industries.

The share of the Asian countries in the FDI stock has also increased, though that of China and India is still marginal. The increase in stocks in the Asian countries was concentrated particularly in South Korea, Singapore and Hong Kong. Service businesses were the main driving force. The developing countries, especially in Asia, represent a larger share in the geographical breakdown of employment and turnover of subsidiaries than in the breakdown of total FDI stock, and that share has also risen in the past few years. In the Asian countries, manufacturing industry accounts for a quarter of jobs in subsidiaries, of which 11.5 p.c. is in metalworking.

The developing countries have become a leading destination for labour-intensive investments. That characteristic is evident in the fact that employment in subsidiaries located in developing countries, as a percentage of total employment in foreign subsidiaries of resident enterprises, is generally greater than their share in turnover. Similarly, while greenfield projects initiated by Belgian firms were less numerous in those countries than in the developed countries in 2005, they represented around 60 p.c. of the jobs created by such new investment in that year. Projects launched by Belgian enterprises generated particularly large numbers of jobs in China, Latin America, Russia and North Africa.

According to the stock statistics, firms involved in services accounted for almost 60 p.c. of Belgian FDI abroad in 2005, mainly business services and the financial sector, which include holding companies. Trade also held a significant position<sup>(1)</sup>. Manufacturing industry, which has represented a declining share of FDI by Belgian firms in other countries since 1998, accounted for only just over a third of Belgium's outward FDI stock and a fifth of the employment and turnover of subsidiaries. The manufacturing industry investing most heavily abroad is the chemical industry, whose foreign greenfield investments have been more job-intensive than those effected in Belgium. Among the other manufacturing industries, there have been labour-intensive greenfield investments in the food industry, textiles, rubber and plastic products and other non-metallic products.

FDI in developed countries, which still account for the bulk of the total foreign investment of Belgian firms, seems to be intended mainly to establish a presence in prosperous markets, in particular via mergers and acquisitions.

In regard to the factors which may encourage Belgian firms, in common with those of many EU-15 countries, to invest in emerging countries such as China, Russia and the countries which have joined the EU since 2004, it is also worth mentioning the importance of the factors determining market-seeking investments. These countries, which have enjoyed above-average growth in preceding years, also offer good growth prospects for the years 2007-2011, still better than those for the rest of the world.

Apart from sales opportunities, FDI in these countries may also be justified by efficiency-seeking arguments, mainly because the cost of labour is much lower in the emerging countries than in developed countries. The structure of Belgium's FDI seems to indicate that investments aimed at cutting production costs represent only a relatively small proportion at present. In fact, the low wage countries only account for a fairly modest proportion of the employment and turnover of subsidiaries located abroad, which suggests that the amount of FDI motivated by the relocation of activities to those countries is still small. However, the FDI statistics take no account of the other form of relocation, namely international outsourcing.

#### 4. Structure of foreign investment in Belgium

The industry structure of FDI in Belgium is fairly similar to that of Belgium's FDI abroad, the main reason being the large number of cross shareholdings between firms belonging to the same international groups. Thus, as in other developed countries, the FDI of foreign enterprises in Belgium is concentrated mainly in the service industries. Business services, in particular, represent no less than 22 p.c. of the inward FDI stock, even without the coordination centres. These are followed, in descending order of importance, by trade, financial activities, transport, storage and communication services. One-third of inward FDI goes into manufacturing industry. Nevertheless, according to the statistics on foreign subsidiaries only, this industry accounts for about half of the economic activity they generated.

Compared to other developed countries, the industries comprising chemicals, electricity, gas and water production, trade, transport and communications, and business services are more strongly represented in the FDI received by Belgium. Conversely, the manufacture of machinery and equipment, manufacture of transport equipment, financial intermediation services and construction work appear to be under-represented in the FDI in Belgium. However, the share of manufacturing activities is greater

(1) The share represented by trade in the statistics on subsidiaries increased from 2005 onwards as a result of the inclusion of firms in the United States owned by a Belgian distribution group.

**TABLE 4** BREAKDOWN BY INDUSTRY<sup>(1)</sup> OF DIRECT INVESTMENT IN 2005  
(percentages of the total)

	Direct investment stock			Turnover		Employment	
	By Belgium in other countries <sup>(2)</sup>	By other countries in Belgium <sup>(2)</sup>	<i>p.m. FDI in developed countries in 2004</i>	Foreign subsidiaries of Belgian enterprises	Subsidiaries of foreign enterprises in Belgium	Foreign subsidiaries of Belgian enterprises	Subsidiaries of foreign enterprises in Belgium
Agriculture, hunting, forestry .....	0.0	0.3	0.1	0.0	0.0	0.0	0.0
Mining and quarrying .....	1.8	3.6	3.5	1.7	0.1	2.7	0.2
Manufacturing industry .....	34.2	33.6	32.7	22.4	54.2	24.1	51.2
Food products, beverages and tobacco .....	5.2	3.3	3.2	3.5	4.2	2.4	4.6
Chemical, rubber and plastic products .....	11.3	14.4	9.4	6.9	13.5	7.7	13.1
Basic metals and fabricated metal products ...	1.9	2.7	2.4	2.7	5.0	3.1	7.3
Manufacture of machinery and equipment ...	0.6	0.9	2.2	3.6	2.0	4.2	3.9
Manufacture of electrical and electronic equipment .....	0.6	0.8	3.5	1.8	1.8	2.8	4.1
Manufacture of transport equipment .....	0.2	0.7	3.8	0.7	6.9	0.7	10.8
Other manufacturing industries .....	14.4	10.8	8.2	3.2	20.7	3.1	7.4
Construction work .....	0.4	0.4	0.8	0.9	0.5	3.5	1.4
Electrical energy, gas, steam and hot water ....	4.0	4.5	2.3	1.1	0.4	0.2	0.1
Services .....	58.9	57.1	59.8	73.2	44.8	69.0	47.1
Trade and repair .....	9.0	15.0	11.7	40.7	34.3	44.9	15.7
Transport, storage and communication services .....	6.7	7.4	5.0	3.0	4.3	3.2	5.4
Financial intermediation services .....	10.1	11.5	20.6	16.4	0.5	5.8	0.9
Real estate, renting and business services ....	32.1	22.2	14.3	12.4	5.2	13.6	21.7
Other services .....	1.0	0.9	8.2	0.8	0.5	1.6	3.3
Unspecified or other activities .....	0.5	0.5	0.8	0.6	0.0	0.5	0.0
<b>Total</b> .....	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Sources: UNCTAD, NBB.

(1) Breakdown based on the industry of resident enterprises.

(2) Including capital indirectly owned, excluding coordination centres.

if the statistics on subsidiaries are taken into account. For example, the manufacture of transport equipment, especially motor vehicle assembly, represented almost 11 p.c. of employment in subsidiaries of foreign firms based in Belgium in 2005.

The Locomonitor data on greenfield investments effected between January 2002 and February 2007 in the EU countries largely confirm Belgium's sectoral strengths and weaknesses as indicated by the structure of FDI, and permit a more detailed diagnosis, particularly by extending it to include a breakdown of projects by business function. This database has listed 521 greenfield projects

in Belgium over the period considered, out of a total of 17,032 projects for the EU as a whole. Belgium thus attracted 3.1 p.c. of inward projects in the EU, whereas in terms of population it represents only 2.1 p.c.

Since greenfield investments are recorded on the basis of their real impact on the economy, manufacturing industry represents a greater share here than in the aggregates relating to FDI stocks, which also cover financial links. Thus, for the EU as a whole, almost 60 p.c. of the projects initiated are manufacturing-related, the remaining 40 p.c. leading to the establishment of service activities.

**TABLE 5** BREAKDOWN BY INDUSTRY AND BY KEY BUSINESS FUNCTION OF GREENFIELD PROJECTS CONDUCTED IN THE EU BETWEEN JANUARY 2002 AND FEBRUARY 2007

(percentage share of each country in the EU total, unless otherwise stated)

	Belgium	Five neighbouring countries	Twelve new EU countries	<i>p.m.</i> Weight of the industry or key business function in the EU total
<b>By industry</b>				
Industry .....	3.3	31.6	41.5	59.7
of which:				
Chemicals, plastics and rubber .....	7.8	39.0	29.2	4.7
Life sciences .....	4.4	43.2	18.4	4.9
Transport equipment .....	4.1	27.6	50.5	9.3
Heavy industry .....	3.1	34.8	42.9	10.4
Light industry .....	2.5	31.6	40.4	10.0
Food, beverages and tobacco .....	2.2	19.6	55.1	8.2
Electronics .....	2.1	36.0	40.6	7.1
Consumption goods .....	1.8	27.7	37.5	5.1
Services .....	2.7	42.8	27.9	40.3
of which:				
Logistics and distribution .....	7.0	38.9	30.3	3.8
Information and communication technologies (ICT) .....	2.8	54.1	16.4	15.8
Financial business and services .....	2.7	43.2	27.4	12.1
Property, tourism and leisure .....	0.8	22.8	48.9	8.5
<b>Total .....</b>	<b>3.1</b>	<b>36.1</b>	<b>36.0</b>	<b>100.0</b>
<b>By key business function</b>				
Logistics and distribution .....	7.8	37.8	32.7	6.3
Testing .....	4.2	39.4	28.2	0.4
Training .....	4.1	52.7	24.3	0.4
R&D .....	3.6	42.2	21.3	4.6
Customer support centre .....	3.6	47.7	18.6	1.6
Manufacturing production .....	3.6	26.6	52.4	26.6
Headquarters .....	3.5	62.3	7.3	4.0
Sales, marketing and support .....	3.0	55.0	17.8	18.1
Internet or ICT infrastructure .....	2.9	37.7	29.5	1.2
Technical support centre .....	2.9	38.5	33.7	0.6
Business services .....	2.9	43.9	26.7	10.6
Electricity .....	2.4	34.5	33.9	1.0
Shared services centre .....	1.9	19.6	50.6	0.9
Maintenance service .....	1.5	42.3	39.4	0.8
Retail .....	1.3	22.2	42.7	17.2
Extraction .....	0.8	24.2	39.5	0.7
Construction .....	0.7	17.8	59.3	4.8
<b>Total .....</b>	<b>3.1</b>	<b>36.1</b>	<b>36.0</b>	<b>100.0</b>
<i>p.m.</i> Population .....	2.1	47.3	21.2	

Source: Locomonitor.

In the service sector, Belgium attracted only 2.7 p.c. of the greenfield projects coming into the EU. It is under-represented in property, tourism and leisure, an activity for which it is less well-endowed with natural resources than other European countries with the exception of its neighbours, but also – albeit to a lesser extent – in financial and business services, and in information and communication technologies. These two Belgian weaknesses correspond to strengths in the five neighbouring countries taken as a whole. On the other hand, logistics and distribution, activities associated with transport and communication services, are one of Belgium's strengths.

As regards manufacturing industry, 3.3 p.c. of greenfield projects coming into the EU were located in Belgium. It specialises in particular in chemicals, including plastics and rubber, life sciences and the manufacture of transport equipment. For the majority of these activities, especially vehicle assembly, the Central European countries – the Czech Republic, Hungary, Poland and Slovakia – are serious competitors. Conversely, Belgium is under-represented in greenfield projects concerning the production of consumer goods, electronics and, to a lesser extent, the food industry.

The business function in which Belgium is by far the most specialised is logistics and distribution. It attracted no less than 7.8 p.c. of this type of greenfield project conducted in the EU. Some Central European countries, such as Poland and Hungary, are making increasing inroads into these activities.

In addition, as in the five neighbouring countries taken as a whole, Belgium is relatively specialised in various high value-added support activities, such as testing, training, customer support, R&D and headquarters. Its share of manufacturing projects (3.6 p.c.) also exceeds its share of total greenfield projects. This strength distinguishes Belgium from each of its five nearest neighbours. On the other hand, manufacturing is the dominant activity in most of the countries which have joined the EU since 2004. Taken together, these new EU Member States have received over half of the greenfield projects concerning the production of goods, whereas their share in total greenfield projects is only 36 p.c.

The activities in which Belgium is under-represented are construction, extraction, retail, maintenance services and shared service centres. Also, in contrast to its five neighbouring countries, Belgium does not specialise in sales, marketing and support.

In the opinion surveys such as the Ernst & Young Attractiveness Barometer (2006), business leaders also consider that Belgium is relatively good at attracting activities such as storage and logistical centres, headquarters, R&D centres, and back offices. Yet the ability which Belgium has demonstrated in attracting manufacturing units is at odds with the opinion expressed by business leaders in these surveys. That paradox could be due partly to the fact that the majority of the greenfield projects launched in Belgium concern the expansion of existing activities, rather than the establishment of new entities. Ernst & Young and Amcham Belgium (2005) have noticed that the country's image is more positive for business leaders already operating there than for those active elsewhere.

Analysis of the greenfield projects effected in Belgium and in the other European countries also provides further information. First, the number of jobs created per project is relatively small in Belgium, especially in comparison with the Central and East European countries which joined the EU in 2004 and 2007, and with Russia. Belgium shares this characteristic with other countries where hourly labour costs are high, such as France, the Scandinavian countries and Switzerland. On the basis of the Ernst & Young data, it seems that this smaller proportion of job creation in Belgium is due mainly to the fact that the projects are small in scale, the amounts invested per project being particularly low in Belgium, in contrast to most of the large European countries. On the other hand, over 1,000 jobs are evidently created for every million euros invested, a performance surpassed only by the Central and East European countries and Ireland.

## 5. FDI attractiveness of Belgium

To understand why firms effect FDI in Belgium it is first necessary to explain what prompts them to invest in Europe. As shown, in particular, by the scoreboard of Europe's attractiveness, produced jointly under the auspices of the Agence française pour les investissements internationaux and Invest in Germany (2007), Europe's main attraction for FDI lies in the size of its economy, as the EU is to date the biggest market in the world, ahead of the United States, Japan, China and India. The European market has achieved a high degree of integration, and the EU's national income is particularly high. In addition, its transport infrastructures are considered to be the best in the world, and the telecommunication infrastructures are very efficient. Finally, labour force there is productive and highly skilled, and the social climate is generally calm.

TABLE 6 INVESTMENT LOCATION CRITERIA: RELEVANCE AND BELGIUM'S POSITION

	Percentage of business leaders considering the criterion to be very important	Type of criterion	Belgium's position in the European ranking <sup>(1)</sup>
Transport and logistics infrastructures .....	54	operational	6
Labour charges and costs .....	52	financial	18
Scope for productivity gains .....	48	financial	15
Telecommunication infrastructures .....	48	operational	5
Clear and stable legislative and administrative environment .....	47	environmental	8
Tax burden on businesses .....	46	financial	16
Standard of education of the labour force .....	45	operational	6
Presence of a local market .....	44	operational	10
<b>Average of operational criteria .....</b>	<b>42</b>	<b>operational</b>	<b>8</b>
Flexibility of labour laws .....	41	operational	10
Stable social environment and climate .....	40	environmental	10
<b>Average of financial criteria .....</b>	<b>35</b>	<b>financial</b>	<b>13</b>
<b>Average of environmental criteria .....</b>	<b>34</b>	<b>environmental</b>	<b>9</b>
Expertise specific to the country or region .....	33	environmental	9
Land availability and prices, regulations .....	31	operational	n.
R&D, availability and quality of poles .....	29	operational	12
Language, culture and values .....	29	environmental	8
Social systems for international managers and head offices .....	27	financial	8
Government aid, subsidies and assistance .....	24	financial	10
Membership of the euro area .....	23	financial	yes
Quality of life .....	23	environmental	8
Proximity to financial investors .....	22	financial	8

Sources: Ernst & Young Europe and Belgium (2006).

(1) The twenty countries considered are the fifteen initial EU Member States excluding Finland, Greece and Luxembourg, plus Bulgaria the Czech Republic, Hungary, Poland, Romania, Russia, Slovakia and Switzerland.

In that context, since the European market can be served from any EU country, Belgium needs to distinguish itself from the others in order to consolidate its ability to attract FDI.

According to the results of a survey by Ernst & Young (2006), the criteria which decision-makers consider to be the most important are operational, and that is the criterion category where Belgium scores best in relation to other EU countries. Those criteria include proximity to markets, the quality of infrastructures and the quality of the labour force.

Belgium's central location is an advantage, because a very large market comprising some of the most highly developed regions of Europe, which therefore have high purchasing power, is situated within a 3 hour radius by road. Overall, according to Cushman & Wakefield (2006, op. cit.)<sup>(1)</sup>, Belgium is still the country with the easiest market access. However, the EU's enlargement, particularly towards the East, has changed that to some extent. According to our calculations based on the market

(1) Cushman & Wakefield (2006, op. cit.) ranks fifteen countries (the initial fifteen members of the EU excluding Greece, Finland, Denmark and Luxembourg, plus the Czech Republic, Hungary, Poland, and Russia) on the basis of the following criteria, in descending order of weight: ease of access to the market, quality of the transport system (density, congestion, freight), costs of storage spaces, business premises and labour, supply of building for logistics and planned stock of commercial land.

proximity indicator devised by the CEPII<sup>(1)</sup>, Belgium has dropped to eleventh place, just behind the Netherlands, if account is taken of all bilateral relations between EU countries and two developed countries close to the EU, namely Switzerland and Norway, and of the presence of several centres of economic activity in certain countries. The countries offering best access to the European market defined in those terms are the Czech Republic, Austria and Germany, in that order. However, the differences between the first twelve countries in the ranking are minor. Moreover, unlike some of those countries, Belgium has the advantage of sea ports, which may favour trade outside Europe.

Belgium's relatively advantageous geographical position is the main reason why the country is rated as the most attractive for transport and logistics functions, another significant factor being the density and quality of the transport infrastructures, which are also viewed by the majority of business leaders as a very important factor in their choice of location. In particular, according to the Institute for Management Development (IMD, 2006), Belgium has the densest road network among the EU countries considered and, after the Czech Republic, the densest rail network in that same group of countries. The opinion on the quality of the infrastructures is generally favourable, although road congestion<sup>(2)</sup> is now a real problem and the availability of international air links<sup>(3)</sup>, particularly to the United States, seems to be lower than in the three main neighbouring countries and the United Kingdom.

The criterion, again operational, for which Belgium achieves the best score among the business leaders polled by Ernst & Young is the quality of its telecommunication infrastructures. That result is particularly interesting as this is one of the five decision criteria most frequently considered in the selection of a location. However, that opinion contrasts with the results of the WEF and the IMD which generally place Belgium more towards the average for the EU countries.

On the other hand, the quality of the Belgian labour force – another criterion which the majority of business leaders consider to be very important – is highly rated in the surveys, and is confirmed by the statistics on the education systems, at least taking the country as a whole.

The flexibility of the labour laws is considered by business leaders to be fairly important in the choice of location. Opinions on Belgium are mixed in this regard. This is doubtless due to a compromise between the impression of a very rigid labour market indicated by a number of surveys, and the fairly considerable flexibility noted by the

World Bank (2006), e.g. in regard to working hours, the difficulty of hiring and firing staff, and the firing cost in terms of the number of weeks of salary, especially in relation to other EU countries.

Another operational factor enhancing Belgium's attractiveness, particularly for logistical functions, is the cost and availability of premises and land. Belgium apparently offers some of the cheapest rents for storage space among the countries considered by Cushman & Wakefield (2006, op. cit.).

The criterion concerning the quality and availability of R&D wins approval from business leaders in the industries where research is crucial, but is rated less highly by managers in the total set of industries. Belgium appears to have a rather poor image in regard to this factor, and that is now confirmed by the quantitative indicators relating to innovation. Thus, following the decline in its score and ranking between 2005 and 2006, Belgium's position is now only mediocre according to the innovation scoreboard drawn up for the EC<sup>(4)</sup> and according to the innovation indicator of the Deutsches Institut für Wirtschaftsforschung<sup>(5)</sup> (DIW). This poor performance puts Belgium below the average for the EU 15. According to the innovation scoreboard, however, Belgium is still well ahead of the EU average, since it scores better than each of the twelve new member countries. Belgium's downgrading is due to a less favourable assessment of its research input. For example, according to the Eurostat data<sup>(6)</sup>, R&D spending as a proportion of Belgian GDP declined from 2.08 p.c. in 2001 to 1.2 p.c. in 2005, whereas for the EU as a whole the figure only fell from 1.88 to 1.84 p.c.

Business leaders accord the same importance to the two other broad categories of criteria influencing the selection of a location, namely financial and environmental criteria. Some 35 p.c. of decision-makers consider them to be very important.

In terms of importance for the decision on the location of an investment, the financial criteria category displays a wide dispersion between elements such as labour costs, potential productivity gains and tax burden imposed on

(1) See Mayer and Zignano (2006) for a methodological explanation and a presentation of the data.

(2) Belgium is in a poor eleventh place out of fifteen in the Cushman & Wakefield ranking (2006, op. cit.) for this criterion.

(3) Cf. Amcham Belgium (2006).

(4) Cf. Pro Inno Europe (2007).

(5) According to the DIW (2006), the normalised score for Belgium (United States = 7) has recorded the sharpest decline among the countries already considered in the first ranking produced in 2005. It has in fact fallen from 4.21 to 3.75, whereas it has risen slightly in most other countries. As a result, Belgium – which was in seventh place among the eleven EU countries considered in 2005 – has been overtaken by the Netherlands and Austria. It is now in ninth place out of twelve, Ireland – which was added in 2006 – scoring only 3.58.

(6) Provisional figures for 2005.

businesses, which about half of the respondents consider to be very important, other elements such as government aid, seen as fairly important, and finally, the proximity of financial investors, a category considered to be of minor importance.

Belgium is one of the countries least well placed in terms of labour costs and outlook for productivity gains. The negative view of the level of labour costs is confirmed in the available quantitative data, where Belgium appears among the five countries with the highest hourly labour costs in the EU, mainly because of the indirect labour cost components, particularly the social contributions but also bonuses and holiday pay. This adverse position is offset at least in part by the high level of productivity, particularly in the manufacturing industry. On the other hand, business leaders take a rather unfavourable view of the outlook for additional productivity gains in Belgium.

Among the financial criteria, Belgium is also ranked at the bottom of the European league table in terms of the tax burden on businesses<sup>(1)</sup>. Although, according to Amcham Belgium (2005), the comparison with the four main neighbouring countries leads to a more negative view in regard to personal taxation than for taxes on companies, the nominal rate of corporation tax in Belgium is above the average for the EU. True, it was cut from 40.17 to 33.99 p.c. in 2003, but it has also been reduced in many EU countries, and a number of countries – in some cases the same ones – are considering further rate cuts. In fact, what matters is the effective rate of taxation on companies. In that regard, the Belgian tax system has long been more advantageous for certain activities, thanks to the favourable tax treatment of coordination centres. Although that tax system is to be finally abolished by 2010, other systems have been introduced to enhance Belgium's fiscal attractiveness. This mainly concerns the notional interest deduction<sup>(2)</sup> on part of the capital, which took effect in 2006. Another important aspect for businesses is the assurance of a predictable tax burden. In that regard, Belgium has developed rulings. In 2005, however, business leaders questioned by Amcham Belgium (2005, op. cit.) still felt that they were less effective than the systems used in the Netherlands and the United Kingdom.

In the opinion of business leaders, Belgium is rated slightly above the average of the European countries in regard to environmental criteria relating to the framework conditions which affect the conduct of business without directly influencing the costs or the activity (e.g. regulatory framework), or 'soft' values such as quality of life. That opinion applies to all the criteria considered, namely the clarity and stability of the political, legislative and administrative environment, the stability of the social environment and

the climate, the availability of specific expertise, language, culture and values, and quality of life.

As regards the regulatory framework, business leaders often view it as slightly more negative than it evidently is according to examination of the economic regulations on the basis of specific cases and quantitative variables (World Bank, 2006, op. cit.) or on the basis of a detailed questionnaire sent to national authorities (OECD, 2005 and Conway et al., 2005).

## Conclusion

Belgium, which has long had direct investment links with other countries, is participating fully in the increasingly global economy. The ratio between FDI flows or FDI stocks and GDP is significantly higher in Belgium than in the majority of other developed countries, including most of its main neighbours. This stronger presence of foreign players reflects both Belgium's role as a financial centre, particularly via the coordination centres, and its status as a small, open economy in a European Union where integration began much earlier – and has progressed farther – than in other free trade areas.

In the past ten years, Belgium's FDI has expanded constantly and at a faster pace than domestic economic activity. While outward FDI has, like that of other developed countries, focused more on developing countries, driven by the search for new markets and lower costs, particularly for labour-intensive activities, it is nevertheless still concentrated mainly on the developed countries, including the new EU members. The main protagonists in these capital transfers, effected partly via mergers and acquisitions, are Belgian firms active in the service sector.

Over the same period, inward FDI seems to have grown a little more slowly. In terms of stocks, it actually stagnated in the early years of this century. However, the significance of foreign investment in Belgium's economy remains substantial, and the recent dynamism of FDI inflows in Belgium has been at least as favourable as in the other European countries taken as a whole, and especially the neighbouring countries. The number of greenfield projects launched in Belgium is rising, and at a similar rate to that of projects developed in the EU as a whole. Belgium's main strengths in terms of industries are chemicals – including life sciences – and transport and communications, and, in terms of business functions,

(1) For a detailed assessment of recent trends in the taxation of companies in Belgium and the EU, see the article on the subject in this issue of the Review.

(2) For more details on this system and its implications, see box 17 in the Bank's Annual Report 2006.



logistics and distribution. The fact that Belgium specialises in attracting FDI for these industries and business functions is due to its particular strengths: proximity to the European markets, density and quality of its transport and communication infrastructures, the standard of training of the labour force and labour productivity.

In general, the main motive for foreign direct investment in Belgium appears to be to serve the European market, or at least its most highly developed core, which includes Belgium. When a location is being selected for a project, Belgium is therefore competing with other EU countries and, more particularly, with its neighbouring

countries whose economic characteristics are comparable, notably in regard to their standard of living. Compared with these countries, Belgium needs to perform well over the whole range of criteria, including labour costs and taxation. In particular, labour costs must stay in line with those in the main neighbouring countries. Compared to other EU countries, especially the new members whose economies are less advanced, Belgium has a handicap in terms of hourly labour costs but, at the same time, it offers high productivity and various advantages as regards environmental and operational criteria, especially the quality of its infrastructures.

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# The flattening of the yield curve : causes and economic policy implications

M. Collin<sup>(1)</sup>

## Introduction

The risk-free yield curve, namely the graph representing the link between the interest rate and the time to maturity of government bonds, is an important information source for central banks. For example, the slope of the yield curve – measured as the difference between long-term and short-term interest rates – is traditionally regarded as a relatively reliable leading indicator of economic activity. Thus, a narrowing of the rate differential is usually followed a few quarters later by a marked slowdown of the economy, while a widening is generally accompanied by an acceleration of economic growth. Long-term yields also provide an indication of long-term inflation expectations, and hence of the credibility of monetary policy.

Since mid 2004 there has been a marked flattening of the risk-free yield curve in the euro area and in other industrialised countries, raising numerous questions about the future economic trend and, to a lesser extent, about inflation expectations. This article examines the reasons for that flattening in the euro area and its economic policy implications. In view of the size of the American financial markets and the growing financial integration, the article also takes a look at the situation in the United States.

The article is arranged as follows. In the first section, the current situation is viewed in a historical perspective. This section also examines the extent to which recent developments may have affected the quality of the yield curve as an indicator of future economic fluctuations and inflation expectations. The second section analyses the various factors which may have caused the flattening of the yield curve. The final section presents the conclusions.

## 1. Flattening of the yield curve

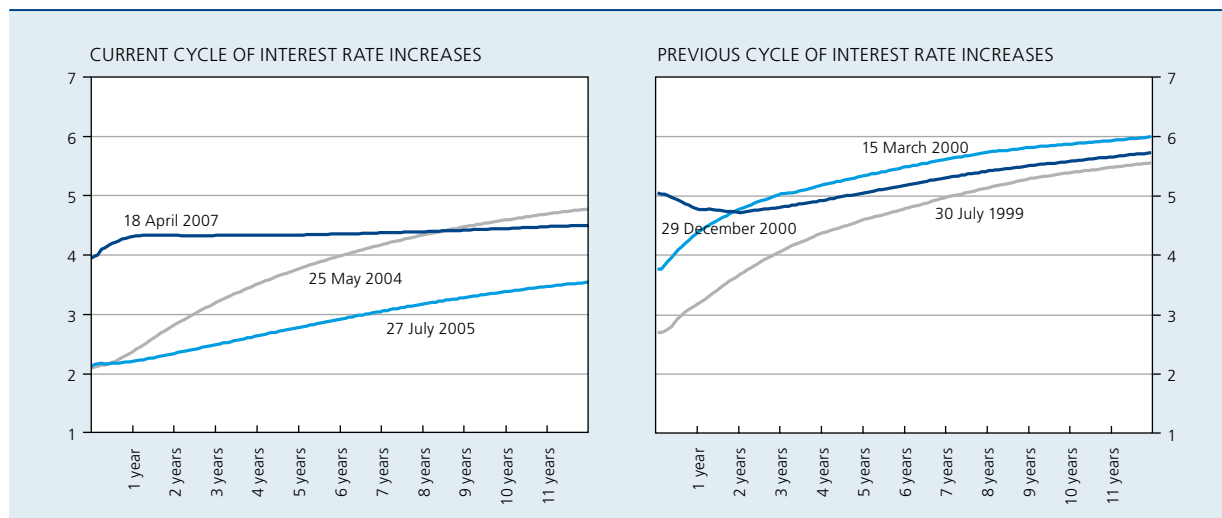
### 1.1 Historical perspective

Since mid 2004, there has been a marked flattening of the yield curve in the euro area. The spread between the ten-year interest rate on euro area government bonds and the three-month interest rate (EURIBOR) narrowed from 233 basis points in June 2004 to 28 basis points in April 2007. At that time, the curve was virtually flat, with interest rates hovering around 4 p.c. regardless of their term. Such a flat curve is a rather singular phenomenon, particularly if the current situation is compared with the previous cycle of interest rate increases, or if it is viewed in a historical perspective.

A more detailed analysis reveals that this flattening reflects two separate movements. First, it is due to a steep decline in long-term interest rates between mid 2004 and mid 2005, period during which short-term interest rates – in contrast – remained stable. The ten-year interest rate on euro area government bonds contracted by 119 basis points during that period, while the three-month interest rate remained unchanged, thus causing a marked flattening of the risk-free yield curve. Second, the flattening of the yield curve was amplified by the tightening of monetary policy in the euro area, beginning in December 2005. The ECB Governing Council raised the minimum bid rate for the main refinancing operations to 3.75 p.c. in March 2007, compared to 2 p.c. in December 2005. During that period, long-term interest rates increased by only 60 basis points.

(1) The author would like to thank A. Bruggeman and L. Aucremanne for their contribution.

**CHART 1** THE YIELD CURVE IN THE EURO AREA  
(percentage points)



Source : Datastream.

While the first factor is rather unusual, the second is normal. When the monetary authorities decide to tighten monetary conditions, notably in response to inflationary pressures, the main effect is an increase in short-term interest rates, as longer-term interest rates also increase but to a lesser extent. In fact, looking at maturities beyond the cycle, the expected short-term interest rate corresponds to the neutral interest rate which hardly changes over time, so that long-term rates are generally less volatile than short-term rates.

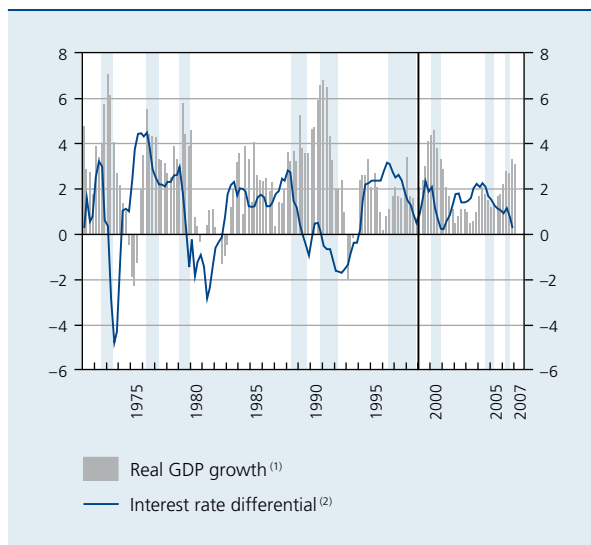
Thus, the yield curve also became flatter in the previous cycle of tighter monetary policy which began at the end of 1999. The flattening of the curve during the upward phase of the previous cycle of interest rate rises was, however, less pronounced than that seen since mid 2004. In March 2000, although short-term interest rates were at a level comparable to current rates, long-term interest rates were well above their present level so that the slope of the yield curve was still largely positive, though there was some cyclical flattening. After that, the Governing Council continued to increase interest rates, causing a more marked flattening of the yield curve and, furthermore, an inversion in the case of medium-term maturities. That inversion of the medium-term yield curve mainly reflected the fact that the markets considered that the cycle of increases had come to an end, and expected a relaxation of the monetary policy stance; that relaxation did in fact materialise subsequently. However, for longer-term horizons, the yield curve continued to exhibit

a rising profile. The current situation differs mainly in regard to the movement in long-term interest rates.

Taking a longer-term perspective, the evolution of the yield curve is traditionally analysed via the movements in its slope, measured as the spread between the ten-year interest rate and the three-month interest rate. In this article, the historical analysis will be based on German data for the period preceding stage 3 of EMU and on data relating to the euro area for the period beginning in January 1999. The spread was positive overall in the period from the first quarter of 1970 to the first quarter of 2007, averaging 105 basis points. This generally positive slope of the yield curve reflects the fact that investors traditionally demand a higher return on longer-term investments, owing to the risk associated with that type of investment (see box 1 for more details). The slope of the yield curve nevertheless fluctuated considerably around that average. It is possible to distinguish nine periods characterised by a narrowed spread, the last two corresponding to the periods giving rise to the current flattening already described. In the past, periods of yield curve flattening were generally followed by a substantial slowing of economic activity. In particular, periods when the yield curve was inverted tended to be followed by a recession after 4 to 6 quarters.

The yield curve is in fact generally regarded as a relatively reliable leading indicator of economic activity in many industrialised economies, such as the United States

**CHART 2** THE YIELD CURVE AND GROWTH IN GERMANY AND IN THE EURO AREA  
(percentage points, unless otherwise stated)



Sources: BIS, EC, OECD.

- (1) Percentage changes compared to the corresponding quarter of the previous year.  
(2) Measured as the difference between the ten-year interest rate on government bonds and the three-month interest rate.

and Germany, but also in the euro area as a whole<sup>(1)</sup>. The steep decline in the differential seen recently therefore prompts fears of a substantial downturn in the cycle. That explains why this phenomenon has given rise to questions about the economic outlook, not only in the euro area but also in the United States, where the yield curve is currently inverted.

As explained in box 1, the information provided by the yield curve on future economic fluctuations is based essentially on the fact that it incorporates expected short-term interest rates which in turn reflect economic agents' expectations regarding future economic activity. The signals provided by the yield curve may, however, be distorted by significant fluctuations in the risk premium. It is therefore important to understand the key factors behind the behaviour of the yield curve, and especially the low level of long-term interest rates.

(1) See in particular Ang et al. (2006), ECB (2006), Kremer and Werner (2006).

### Box 1 – The expectations theory of the term structure of interest rates

According to the expectations theory of the term structure of interest rates, the yield on a government bond with a maturity  $N$  ( $I^N$ ) may be regarded as the yield expected on a succession of  $N$  short-term bonds ( $I^1$ ), to which is added a risk premium ( $RP^N$ ) specific to the term of the bond.

$$I_t^N = \frac{1}{N} \left[ I_t^1 + \sum_{i=1}^{N-1} E_t(I_{t+i}^1) \right] + RP_t^N$$

The existence of a risk premium reflects the fact that investors are generally risk averse, i.e. they prefer relatively secure investments to riskier investments. To invest in the latter, they therefore normally demand some compensation, commonly known as the "risk premium". In general terms, the risk premium depends on the issuer's quality, investors requiring a higher risk premium for securities issued by a less sound entity. In the case of government bonds, the issuer is of good quality so that the associated risk premium depends essentially on the term. That is why this risk premium is also known as a "term premium".

The risk premium primarily reflects the size of the risk, which in turn depends on the covariance between the return on the investment and the macroeconomic developments. In the case of assets which have a high covariance with the economic cycles, a significant risk premium is generally demanded, as investors attribute greater value to assets which, on average, secure a higher yield when economic activity is weak than when it is strong. Since covariance is the product of a correlation and two standard deviations, the risk premium is higher the greater the correlation between the bond yield and the macroeconomic evolution, on the one hand, and the greater the standard deviations of the bond yield and the macroeconomic trend, on the other hand. This therefore

means that the risk premium is a positive function of the term, thus explaining why the yield curve tends to slope upwards, on average. A second consequence is that, *ceteris paribus*, greater macroeconomic stability will depress the level of the risk premium.

The risk premium is also a positive function of the investor's risk aversion. Moreover, that degree of aversion may fluctuate over time. In particular, in certain circumstances, investors may have very low risk aversion, so that they demand a smaller risk premium. In exceptional circumstances, the risk premium may even become negative. In the case of government bonds, the risk premium is sometimes compressed by portfolio shifts reflecting a "flight to quality".

The total risk premium, like nominal interest rates, can be separated into two distinct elements: an inflation risk premium which compensates the investor for the uncertainty about future inflation, and a real risk premium which compensates for the uncertainty about future movements in real interest rates.

## 1.2 Flattening of the yield curve since mid 2004

To gain a better understanding of the low long-term interest rates seen since mid 2004, it is useful to break down the interest rate on a ten-year government bond into a five-year interest rate and an implied five-year forward rate five years ahead<sup>(1)</sup>. The latter represents the yield expected on a five-year investment which will begin in five years' time and therefore incorporates a risk premium associated with a five-year investment, and an additional risk premium due to the fact that a commitment is being made today for a five-year investment starting five years ahead. The risk premium will therefore be greater for the implied five-year forward interest rate five years ahead. That is confirmed in practice as, during the period under review, the implied five-year forward interest rate five years ahead always exceeded the five-year interest rate. In view of this higher risk premium, the implied five-year forward interest rate five years ahead may therefore be affected to a greater extent by any changes in this risk premium.

During the period 2004-2005, it was specifically the implied five-year forward interest rate five years ahead that declined considerably to reach a historically low level. It dropped from 5.4 p.c. in June 2004 to 4 p.c. in June 2005, a decline of 1.4 percentage points, before stabilising since then at around 4 p.c. Although such a contraction may reflect a downward revision of expectations regarding future interest rates, box 2 shows that this is unlikely, and that the sharp contraction of the implied five-year forward interest rate five years ahead is due essentially to a decline in the risk premium.

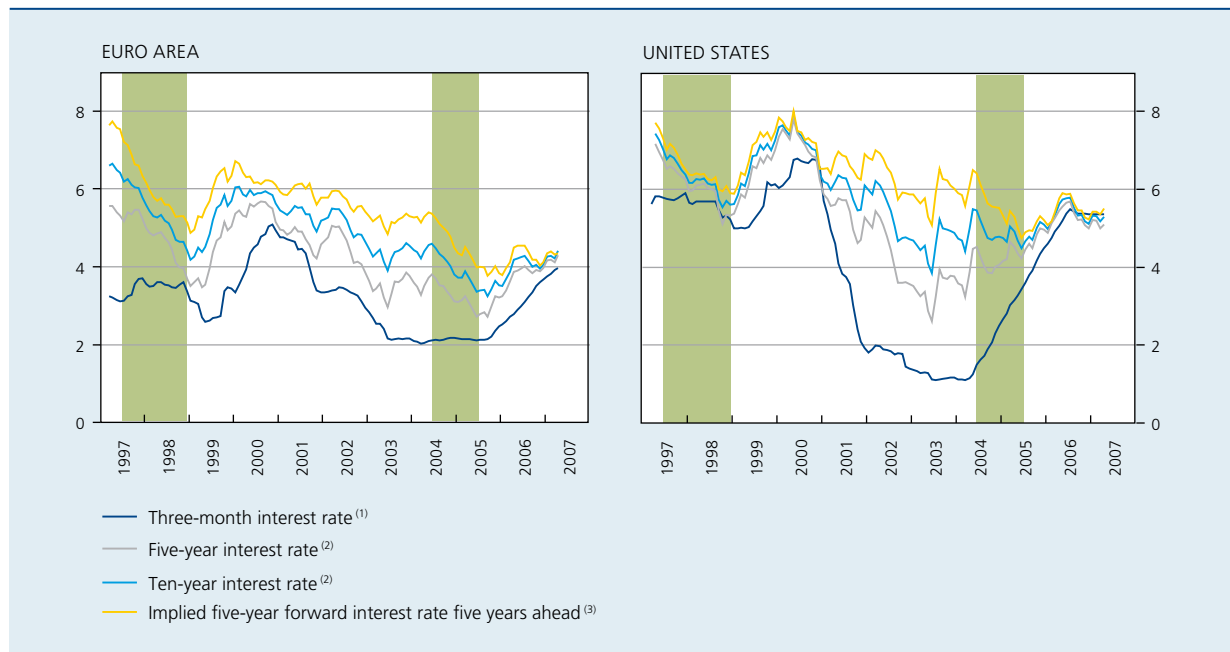
Such an explanation seems consistent with the fact that a largely comparable development was seen in the United States, where the implied five-year forward interest rate five years ahead recorded a 1.7 percentage points fall during the period from June 2004 to June 2005. If the period 2004-2005 is compared with the preceding cycles of tightening US monetary policy, it is evident that the rate increases which began in 2004 seem to have had a rather similar effect on the five-year interest rate on US bonds. Conversely, the ten-year interest rate remained abnormally insensitive, prompting Alan Greenspan, then chairman of the Federal Reserve, to call this phenomenon a "conundrum".

The flattening of the yield curve in the euro area and in the United States therefore seems to be due to similar factors, namely a contraction of the implied forward rate which in turn probably reflects a reduction in the risk premium, and a tightening of monetary policy. While the first factor occurred simultaneously in the two economies, owing to the increasing integration of the financial markets, US monetary policy was tightened sooner than that of the euro area, so that the flattening of the yield curve in the United States preceded that in the euro area; since mid 2006, the US yield curve has actually been inverted.

In the past, both the euro area and the United States had seen a similar period of sudden decline in the implied five-year forward interest rate five years ahead. Thus, between mid 1997 and the end of 1998, that rate had fallen sharply, whereas short-term interest rates had remained relatively stable. The decline in the implied five-year forward interest rate five years ahead between mid 1997 and the end of 1998 essentially reflects a "flight to quality" triggered

(1) This breakdown is based on zero-coupon interest rates on government bonds.

**CHART 3** BREAKDOWN OF 10-YEAR INTEREST RATES IN THE EURO AREA AND THE UNITED STATES  
(percentage points)



Sources: Datastream, NBB.

(1) Rate on three-month interbank deposits.

(2) Zero-coupon rate on government bonds.

(3) Measured by the zero-coupon rate on ten-year and five-year government bonds.

by various events. The Asian crisis from mid 1997 sparked the large-scale repatriation of capital invested in Asia and, more generally, in emerging countries. From mid 1998, the Russian crisis and the bankruptcy of the LTCM hedge fund in the United States further depressed government bond yields, as investors preferred secure and liquid

investments rather than corporate bonds and equities. In 1999, these portfolio movements began to be reversed, causing a correction of long-term interest rates. The situation prevailing at present might be slightly different. As will be explained and illustrated in section 2, the strong demand for government bonds in recent years has mainly

**TABLE 1** ESTIMATES OF THE REDUCTION IN THE RISK PREMIUM: RESULTS OF SOME EMPIRICAL STUDIES  
(basis points)

	Type of model	From June 1997 to December 1998	From June 2004 to June 2005
<b>Euro area</b>			
Kremer and Werner (2006)	Purely financial model, with three factors	-150	-83
ECB (2006)	Purely financial model, with two factors	n.	-99
<b>United States</b>			
Kim and Wright (2005)	Purely financial model, with three factors	-106	-107
Rudebusch, Swanson and Wu (2006) on the basis of the models:			
Bernanke, Reinhart and Sack (2005)	Macro-financial model, based on VAR	n.	-106
Rudebusch and Wu (2004)	Neo-Keynesian macro-financial model	n.	-57



come from atypical investors, such as Asian central banks and pension funds, and could be more persistent.

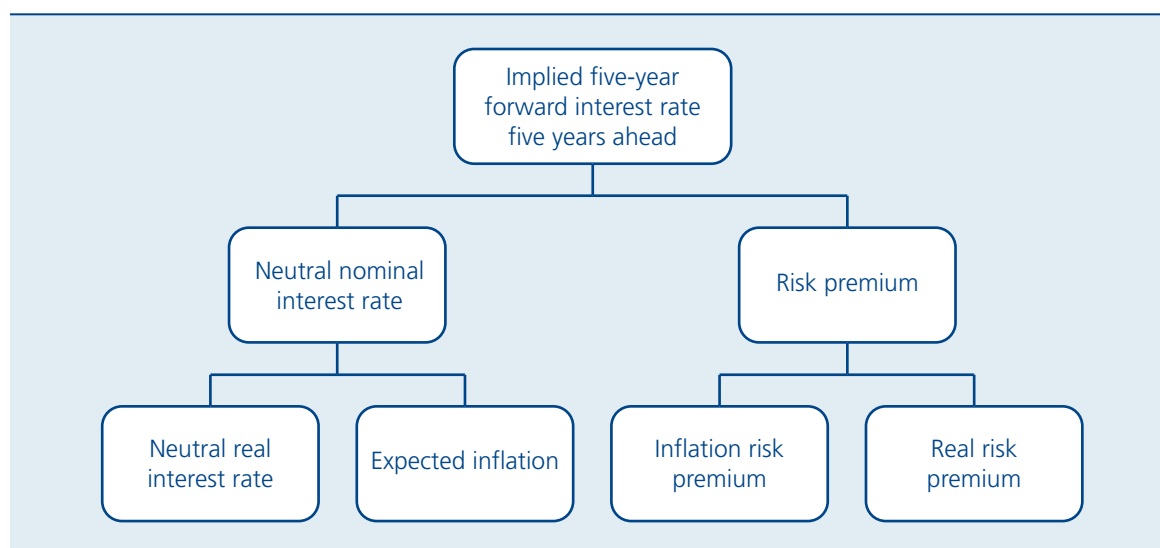
The argument that the low level of long-term interest rates is due mainly to a reduction in the risk premium is amply borne out by the results of various empirical studies conducted recently for the United States, Germany and the euro area. Thus, the results of these empirical studies show that the risk premium which investors demand on ten-year investments declined by 83 to 99 basis points over the period from June 2004

to June 2005, whereas it dropped by 150 basis points between June 1997 and December 1998. In the United States, the results obtained were generally similar. This implies that around 75 p.c. of the reduction in long-term interest rates seen between June 2004 and June 2005 was due to a decline in the risk premium. However, the models used provide no explanation of the potential reasons for this behaviour. Section 2 of this article describes the various factors which may have caused a reduction in the risk premium incorporated in long-term interest rates.

## Box 2 – Is the risk premium responsible for the low level of long-term interest rates?

This box aims to determine the components of long-term interest rates which explain their low level, and in particular to analyse the contribution of the risk premium during the period from June 2004 to June 2005. For this purpose, a methodology similar to that of Kozicki and Sellon (2005) is used. That methodology is based on a breakdown of ten-year interest rates into a five-year rate and an implied five-year forward interest rate five years ahead. These two rates reflect, on the one hand, expectations relating to future movements in interest rates over the next five years and over the five years after that, and – on the other hand – a risk premium. That premium is higher for the implied five-year forward interest rate five years ahead. As regards interest rate expectations, the five-year interest rate mainly reflects expectations regarding the response of the monetary authorities to the economic cycle. The movement in the implied five-year forward interest rate five years ahead reflects the expectations of the economic agents on two points: the outlook for growth in five to ten years' time, which depends on structural factors determining potential growth, and long-term inflation expectations which depend on the central bank's inflation target. The expectations incorporated in the five-year rate in five years' time therefore correspond overall to the neutral nominal interest rate. Fluctuations in the risk premium may also affect the implied forward interest rate.

FIGURE 1 BREAKDOWN OF THE IMPLIED FORWARD INTEREST RATE



During the period 2004-2005, the implied five-year forward interest rate five years ahead declined sharply, dropping from 5.4 p.c. in June 2004 to 4 p.c. in June 2005, a fall of 140 basis points. A breakdown of the forward rate explains the underlying factors, as the neutral interest rate and the risk premium can be separated into a real and an inflation component.

Using financial data and survey findings, it is possible to calculate the contribution of these four components to the decline in the forward interest rate. The neutral real interest rate and the inflation expectations of the economic agents can be estimated via the results of the quarterly ECB Survey of Professional Forecasters (SPF). That survey provides information on experts' expectations for growth and inflation in the long term. In certain circumstances, the neutral real interest rate coincides with long-term growth, so that growth expectations at distant horizons may be regarded as an approximation of the neutral interest rate. If the inflation expectations as measured by the SPF are subtracted from the five-year break-even inflation rate five years ahead<sup>(1)</sup>, an estimate of the inflation risk premium might be obtained (for more details on the break-even inflation rate, see below). The real risk premium can be calculated as a residual.

The SPF results indicate that growth expectations at a horizon of five years were only adjusted very slightly – from 2.3 p.c. to 2.2 p.c. – between June 2004 and June 2005 in the euro area, whereas inflation expectations at a horizon of five years remained unchanged at 1.9 p.c., thus in line with the ECB's definition of price stability. The neutral nominal interest rate therefore declined by only 10 basis points during the period 2004-2005. Thus, the main part of the decline in the forward rates seems to be attributable to a contraction of the risk premium. However, it is necessary to distinguish between the nominal component and the real component. As the five-year break-even inflation rate five years ahead showed a fall of 40 basis points while inflation expectations measured by the SPF remained unchanged, the inflation risk premium also contracted by 40 basis points. The real component of the risk premium, obtained as a residual, is therefore the key factor accounting for the decline in the overall premium. According to estimates, it fell by 90 basis points between June 2004 and June 2005. The real risk premium was therefore slightly negative in June 2005. This considerable reduction in the risk premium, which is confirmed by the results of more complex empirical studies, is probably due to the strong demand on the part of atypical investors, such as the Asian central banks and pension funds (see section 2 for more details).

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**ATTEMPT TO QUANTIFY THE FACTORS RESPONSIBLE FOR THE FALL IN THE IMPLIED FORWARD INTEREST RATE**

(percentage points)

	June 2004	June 2005	Difference
<b>Neutral nominal interest rate</b>			
Neutral real interest rate .....	2.3	2.2	-0.1
Expected inflation .....	1.9	1.9	0.0
<b>Risk premium</b>			
Inflation risk premium .....	0.6	0.2	-0.4
Real risk premium .....	0.5	-0.3	-0.9
<b>Implied five-year forward interest rate five years ahead . .</b>	<b>5.4</b>	<b>4.0</b>	<b>-1.4</b>

Sources: SPF, ECB, NBB.

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(1) The five-year break-even inflation rate five years ahead is calculated as the difference between twice the ten-year break-even inflation rate and the five-year break-even inflation rate.



### 1.3 Influence of the decline in the risk premium on the quality of the yield curve as a leading economic indicator

The ability of the yield curve to anticipate future economic fluctuations is based essentially on the fact that the expectations of the economic agents are incorporated in the long-term interest rates. In particular, market expectations regarding future real interest rate movements essentially reflect their expectations concerning the monetary authorities' response to the business cycles. For example, if the economic agents expect an improvement in economic activity, that traditionally causes an increase in long-term interest rates which, *ceteris paribus*, immediately results in a steeper yield curve. If the expectations are fulfilled, the widening of the spread should therefore be accompanied by an economic expansion. However, the reliability of the yield curve as a leading indicator of economic activity may be affected by sizeable changes in the risk premium, as any significant increase or decrease in the risk premium tends to distort the signals provided by that indicator.

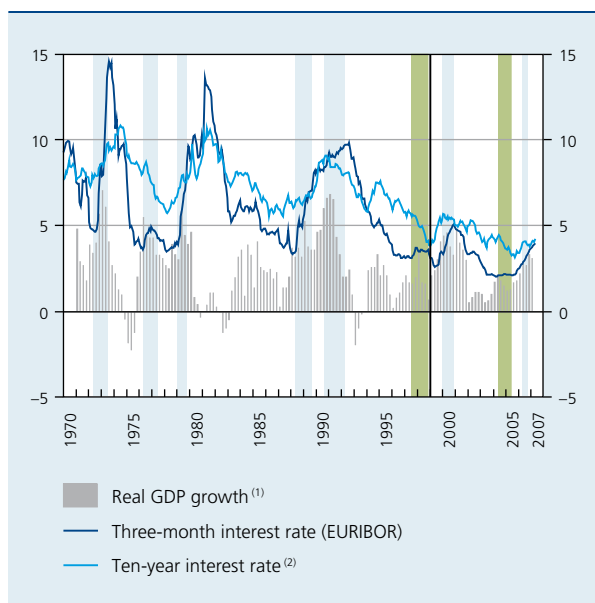
The two periods of significant decline in the risk premium analysed above, namely mid 1997 to the end of 1998 and mid 2004 to mid 2005, are also atypical, in historical

terms in that, during those periods, it is mainly a reduction in long-term interest rates that causes the flattening of the yield curve, while short-term interest rates remained relatively stable. As explained above, these reductions were most likely due to a contraction in the risk premium, and not to a downward adjustment of growth or inflation expectations. In contrast to other periods when the yield curve became flatter, these two specific periods were not accompanied by any economic slowdown. On the contrary, since the reduction in the risk premium causes financial conditions to ease, it was one of the factors contributing to the acceleration of economic activity during the quarters which followed those two periods.

These findings suggest that the spread should be adjusted for fluctuations in the risk premium when it is used as a leading indicator of business cycles. Empirical studies<sup>(1)</sup> have shown that the spread adjusted for the risk premium – i.e., the spread after deduction of the estimated risk premium – provided signals regarding future economic activity which were more accurate than those offered by the non-adjusted indicator. In that context, it is noteworthy that the flattening of the yield curve caused by the tightening of monetary policy since December 2005 is additional to a flattening caused by a sharp decline in the risk premium. The consequences for future economic activity of the current flattening of the yield curve therefore need to be significantly qualified. On the basis of the estimated risk premia obtained by Kremer and Werner (2006), the ECB (2006) shows that the yield curve adjusted for the risk premium does not currently appear to herald any major slowdown in economic activity, but rather the expectation of a return to sustainable growth, close to potential, after several quarters of particularly strong growth.

Traditionally monitored leading indicators of the business cycle tend to corroborate the conclusions deduced from the spread adjusted for the risk premium. Both business and consumer confidence indicators have reached record levels in recent months; furthermore, the majority of them are still rising. Also, the projections produced by various bodies are generally optimistic. The recent projections produced by the Eurosystem in June 2007, for example, predict euro area growth close to potential growth for the period 2007-2008.

**CHART 4** INTEREST RATES AND GROWTH IN GERMANY AND IN THE EURO AREA  
(percentage points, unless otherwise stated)



Sources: BIS, EC, OECD.

(1) Percentage changes compared to the corresponding period of the previous year.

(2) In Germany's case, this is the ten-year German Bund. In the case of the euro area, it is an average of the yields on bonds issued by euro area member countries, weighted by their respective levels of public debt.

(1) See in particular Ang, et al. (2006) for the United States and Kremer and Werner (2006) for Germany.

#### 1.4 Influence of the reduction in the risk premium on the quality of the break-even inflation rate as an indicator of inflation expectations

Since the aim of the ECB's monetary policy is to maintain price stability in the medium term, the European monetary authorities keep a very close eye on an indicator of inflation expectations known as the break-even inflation rate. It is defined as the difference between a nominal bond yield and the real yield on an inflation-indexed bond with a similar maturity and issuer. The break-even inflation rate therefore provides information on the average inflation rate expected during the term of the bond on which the calculation is based. At that inflation rate, the nominal yield expected by the investor will be the same whether the money is invested in a nominal bond or in an inflation-indexed instrument.

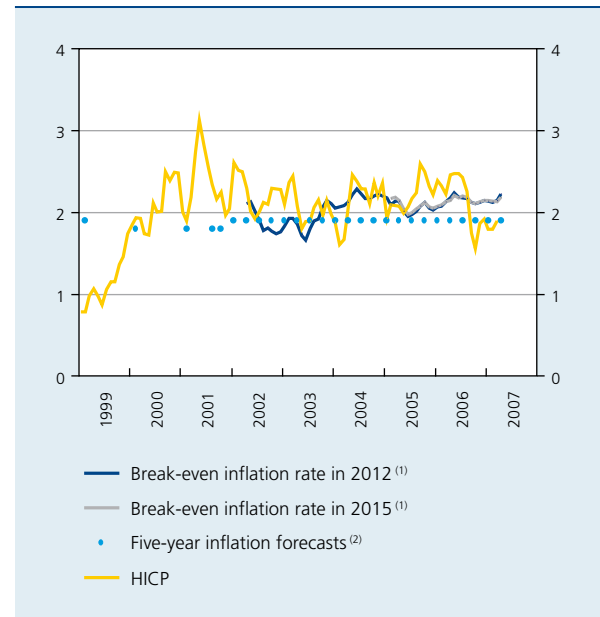
Nonetheless, this indicator of inflation expectations is not perfect, as it incorporates two types of premium which cannot be observed. First, the break-even inflation rate contains an inflation risk premium which offers the investor in nominal bonds compensation for the uncertainty over inflation. That premium therefore implies that the break-even inflation rate tends to overestimate inflation expectations. Second, it also comprises a liquidity premium which compensates the index-linked bond investor for the lower liquidity on this type of market, compared to the market in traditional nominal bonds. Unlike the inflation risk premium, the existence of the liquidity premium causes the inflation expectations of economic agents to be underestimated. Although it is impossible to determine precisely the level of the overall premium, it nevertheless appears that the liquidity of the indexed bond market has greatly improved in recent years, witness in particular the sizeable increase in the outstanding volume of this type of financial instruments<sup>(1)</sup>. That improvement therefore probably does much to explain the increase in the break-even inflation rate in the second half of 2003. In view of these developments, it is currently thought that the inflation risk premium tends to exceed the level of the liquidity premium, so that the break-even inflation rate probably overestimates somewhat inflation expectations of economic agents.

(1) According to the Direction générale du Trésor et de la politique économique française (2005), the outstanding amount of indexed bonds issued by the French government increased from about 4.3 billion euro in 1998 to 29.5 billion in 2003, and over 90.35 billion at the end of 2005. Stronger demand from investors (pension funds, etc.) and improvements made by issuers (reform of the regulations, more regular tenders) have made this market much more efficient.

(2) See in particular box 2 and ECB (2007).

(3) Bonds indexed to the HICP (excluding tobacco) of the euro area, issued by the French government.

CHART 5 INFLATION EXPECTATIONS IN THE EURO AREA  
(annual percentage change)



Sources : SPF, ECB, EC.

(1) The break-even inflation rate corresponds to the difference between the yields on nominal government bonds and the yields on government bonds linked to the HICP (excluding tobacco) of the euro area, issued by the French government and maturing at the horizon indicated.

(2) Quarterly ECB Survey of Professional Forecasters.

As stated in boxes 1 and 2, the risk premium on a traditional bond can be broken down into two elements: a real risk premium and an inflation risk premium. That breakdown shows that it is mainly the real component of the risk premium that declined considerably in the period 2004-2005. Although the inflation risk premium also declined somewhat<sup>(2)</sup>, that fall seems to be relatively small compared to the decline in the real component. Therefore, the quality of the break-even inflation rate as an indicator of inflation expectations seems to have been little affected during the period of the flattening of the yield curve.

Since January 2004, the break-even inflation rate – measured via indexed bonds maturing in 2012<sup>(3)</sup> – has hovered around 2.1 p.c. A broadly similar picture emerges from indexed bonds maturing in 2015. If the risk premium incorporated in the break-even inflation rate is taken into account, this pattern appears largely comparable to that shown by inflation expectations measured on the basis of the quarterly ECB Survey of Professional Forecasters (SPF). Those expectations have remained steady at 1.9 p.c. since January 2002, despite a succession of exogenous shocks which have hit the European economy in recent years (oil, BSE crisis, increases in indirect taxation, etc.)

and have pushed inflation in the euro area above the 2 p.c. threshold for the past seven years running. It is also important to note that the decline in long-term interest rates cannot be attributed to a downward drift of inflation expectations. Although the deflation risk emerged mainly in the United States in 2002-2003, fears also intensified to some extent in the euro area, prompting the ECB Governing Council to clarify among others its monetary policy strategy in May 2003.

## 2. Factors potentially responsible for the reduction in the risk premium

Two main factors may explain the contraction of the risk premium in recent years. First, that reduction may be due to a decline in the risk associated with investments in long-term bonds, reflecting less uncertainty about future interest rate movements. A reduction in risk aversion is a second factor which may have contributed to the low bond yields. While the first factor affects the size of the risk, the second has an impact on the risk valuation. The next two sub-sections examine these two factors in more detail.

### 2.1 Reduction in uncertainty over future interest rate movements

Two complementary factors may be put forward to explain the decline in uncertainty over future interest rate movements. First, for a number of years now there has been greater macroeconomic stability, reflected in particular in lower volatility of economic growth and inflation. This phenomenon is commonly known as the “great moderation”<sup>(1)</sup>. Thus, the difference between economic growth and inflation on the one hand and their trend levels – measured by an HP filter – can be regarded as an indicator of the economic cycle or inflation. On the basis of the data for Germany covering the period 1970-2007<sup>(2)</sup>, a significant reduction in the amplitude of these cycles is apparent. The standard deviation of this difference declined from 1.9 percentage points over the period from the first quarter of 1970 to the last quarter of 1984 to 1.1 percentage points over the period from the first quarter of 2000 to the last quarter of 2006 for economic growth, and from 1 to 0.5 percentage point for inflation. In the United States, a broadly similar decline in

**TABLE 2** VOLATILITY OF GROWTH AND INFLATION IN GERMANY

(standard deviation of the difference in relation to the trend<sup>(1)</sup>)

	1970-1984	1985-1999	2000-2006
Real GDP growth . . . . .	1.9	1.4	1.1
Inflation . . . . .	1.0	0.7	0.5

Sources: EC, NBB.

(1) Measured by an HP filter.

volatility was also observed<sup>(3)</sup>. Various factors may explain this “great moderation”.

First, the economy has gradually undergone major structural changes which have increased its flexibility and fostered its ability to absorb shocks. Those changes include the structural reforms designed to increase the flexibility of the product, labour and financial markets, the improvement in organisation and stock management, and world trade growth. Second, as a result of the improvement in the conduct of monetary policy, which is now geared to price stability, and the accompanying institutional reforms, the inflation expectations of economic agents are now more firmly anchored, thus reducing inflation volatility. Finally, it is also likely that the macroeconomic stability may be due to the fact that, in recent years, the shocks hitting the economy have been more infrequent, or smaller than those which occurred in the 1970s and 1980s. In that case, the “great moderation” would be due to chance rather than to any intrinsic stability of the economy, or more effective economic policies.

Apart from the greater macroeconomic stability, the efforts made by the central banks in terms of communication and transparency may also account for the reduction in uncertainty over future interest rate movements. In recent years, many central banks have endeavoured to improve communication about their monetary policy strategy, particularly by announcing an explicitly quantified inflation target so that inflation expectations can be firmly anchored. In latter years, a number of central banks have also offered detailed explanations of their monetary policy decisions, by issuing press releases in which they justify their decisions on the basis of macroeconomic and financial data and by organising press conferences after every monetary policy meeting, as is the case for the ECB, for instance. Finally, certain central banks have recently begun announcing information on movements in future interest rates. While the New Zealand, Norwegian and Swedish monetary authorities have decided to publish

(1) Bernanke (2004).

(2) In this particular case, only data for Germany covering the entire period are used, as the calculation of the standard deviation could imply an artificial downward bias if data for the euro area since 1999 were used. The reason is that shocks limited to certain national economies tend to cancel one another out at the euro area level.

(3) See in particular Stock and Watson (2002).

their forecasts for the future trend in interest rates, other central banks such as the Federal Reserve and the ECB have recently provided qualitative information.

Nonetheless, it should be noted that, while these two factors – namely macroeconomic stability and a more predictable monetary policy – may explain the downward trend in the risk premium, they probably played a much less important role in the sudden reduction in the risk premium between mid 2004 and mid 2005. In that regard, the reduction in risk aversion is regularly cited as the reason for this behaviour on the part of the risk premium.

## 2.2 Reduction in risk aversion

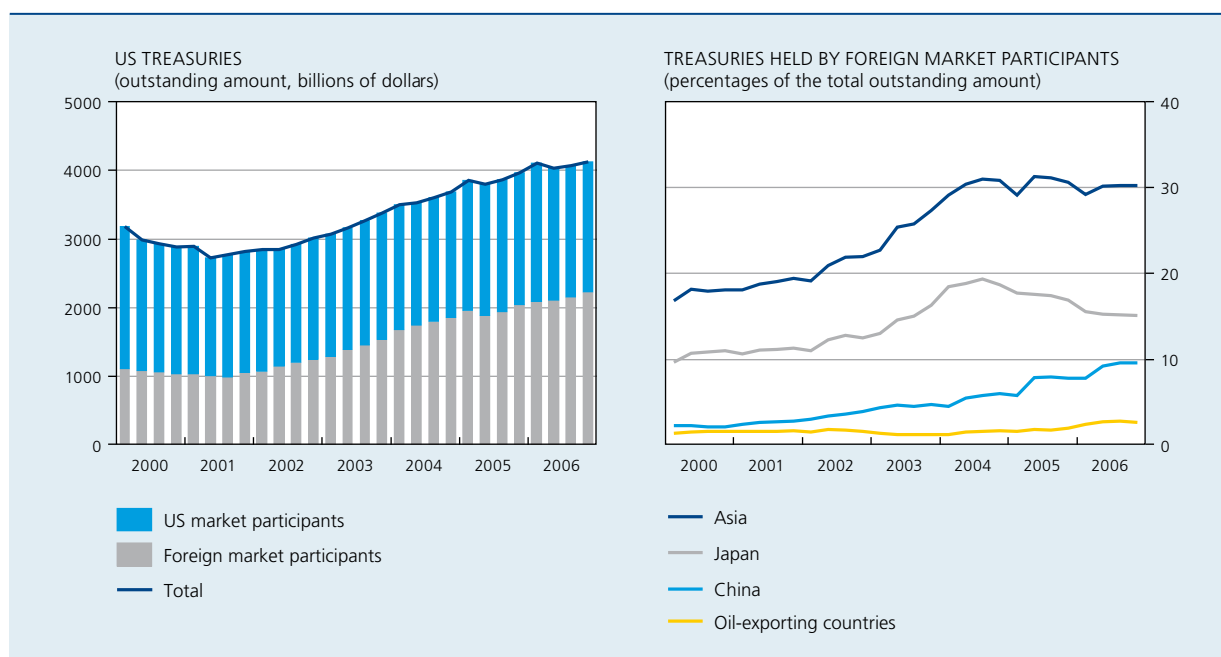
### 2.2.1 Strong demand for bonds on the part of Asian economies and oil-exporting countries

The reduction in the risk premium between mid 2004 and mid 2005 seems to be due mainly to a decline in risk aversion. A key factor here is the substantial increase in demand for long-term government bonds, principally on the part of atypical investors whose demand is generally rather price inelastic. In particular, Asian central banks, and to a lesser extent oil-exporting countries, have exhibited very strong demand for government bonds in

recent years, more specifically for long-dated bonds issued by the US Treasury. The Asian governments conduct policies which are essentially oriented to the development of foreign trade, enabling them to record substantial trade surpluses. They also establish ample foreign exchange reserves in order to prevent the appreciation of their currency which could result from those trade surpluses. According to International Monetary Fund data, the foreign exchange reserves accumulated by China and Japan increased respectively from 286 to 1,066 billion dollars and from 451 to 875 billion dollars between 2002 and 2006. Moreover, although exact figures are not available, these reserves seem to consist largely of government securities denominated in dollars, as the US currency is still the major currency used in international trade. The recycling of surplus savings recorded by oil-exporting countries following the steep rise in oil prices is also regularly cited as an additional factor which may have contributed to the low level of long-term interest rates.

These factors are borne out by the Treasury International Capital System (TICS) figures, which indicate that foreign market participants' demand for US Treasury securities more than doubled between March 2002 and December 2006, whereas the public debt increased by only 45 p.c. Consequently, the proportion of US government securities held by foreigners stood at 54 p.c. in December 2006, against 37 p.c. in March 2002. More detailed figures

CHART 6 FOREIGN DEMAND FOR US TREASURY SECURITIES



Source : U.S. Department of the Treasury.

show that, among the foreign market participants, China, Japan and oil-exporting countries held over 53 p.c. of US government securities in December 2006. But demand from China and Japan is the main factor contributing to the increase in the total amount of US government securities held by foreign operators; while the demand from oil-exporting countries has risen, the increase is small. Finally, it seems that it is mainly official market participants, particularly central banks, that have contributed to this growth of foreign demand for US government securities, over 85 p.c. of which are held in the form of securities at over one year. Although Asian central banks and oil-exporting countries have displayed a strong preference for US securities, the increasing integration of the financial markets implies that the decline in US interest rates resulting from that stronger demand has also been transmitted to Europe via arbitrage mechanisms.

### 2.2.2 Strong demand for bonds from pension funds

Apart from the emerging economies, pension funds and life insurance companies have also shown increasing interest in long-dated government securities. Various factors have contributed to this development. First, population ageing in the industrialised countries has caused individuals to become more interested in life insurance products and in the second and third pillars of the pension system, particularly in view of the growing uncertainty over the medium- and long-term viability of the pay-as-you-go pension system, and hence on the ability of governments to guarantee future pension payments. Second, as the 'baby boom' generation will retire in the coming years, these institutional investors have given preference to secure investments, i.e. primarily government securities. Third, in recent years, pension funds have restructured their assets in favour of long-term government securities in order to improve the matching between the duration of their liabilities, which are mainly long term, and those of their assets. These movements were encouraged by the IAS/IFRS accounting reforms introduced recently, and by the heavy portfolio losses sustained at the time of the bursting of the technology bubble in 2001.

However, if it is sufficiently substantial, this stronger demand for long-term government bonds could lead to an actuarial pension fund deficit, i.e. a situation in which the actuarial value of the assets is less than the actuarial value of their liabilities. In that case, they would therefore be forced to invest more in long-term securities, thus amplifying the decline in long-term interest rates and their actuarial deficit. One currently considers that demand from institutional investors is still insufficient to produce that effect. However, in view of population ageing, demand for such financial assets is expected to

increase significantly in the future, and that could have a considerable impact on long-term interest rates. But at the moment, there are few figures available to illustrate that trend.

### 2.2.3 Abundance of liquidity

Leaving aside the strong demand from atypical investors, which tends to have a more structural downward effect on interest rates, the abundance of liquidity on financial markets caused partly by the fact that monetary policy has been accommodating in most industrialised countries over a relatively long period may also have helped to reduce the risk premiums incorporated in long-term interest rates. There are two channels through which the accommodative monetary policy has encouraged low interest rates.

First, in the past, ample liquidity was generally accompanied by substantial increases in the price of certain assets, such as equities and real estate. Although speculative bubbles on the bond market are less common, since the prices of these securities are fixed at maturity, bond prices may also be subject to very steep increases in certain circumstances. Given the relatively great risk aversion following the 2001 stock market crash and the decline in interest rates in the United States and Europe from 2001, market participants favoured short-term borrowing and investments in long-term securities, remunerated at higher interest rates. Part of the liquidity may therefore have boosted demand for long-term securities and hence encouraged the fall in long-term interest rates.

Second, by encouraging carry trade transactions on the foreign exchange markets, the accommodating monetary policy in certain economies may also have held long-term interest rates down to a relatively low level. These transactions consist in borrowing a low-interest currency and investing it in securities denominated in a currency which yields a higher interest rate. From 2004, the Federal Reserve gradually began tightening its monetary policy, thus causing a widening differential between the remuneration of dollar-denominated securities and that of securities denominated in other currencies such as the yen. These movements encouraged the rise in the price of dollar-denominated securities, thus depressing their yield. Moreover, these carry trade transactions contributed to the depreciation of currencies attracting low remuneration, thereby amplifying this phenomenon. Although there are few figures on these speculative transactions and their potential impact on long-term interest rates, the turbulence on the financial markets at the end of February showed that these portfolio movements could be considerable.



However, it should be noted that the combination of abundant liquidity and low interest rates need not imply that ample liquidity depresses interest rates. The reverse causality could also be valid. Thus, the low level of long-term interest rates reduces the opportunity cost of holding short-term financial assets, and therefore encourages investors to put their money into short-term assets such as time deposits, which are included in the monetary aggregates.

## Conclusions

Since mid 2004, the yield curve has become considerably flatter, not only in the euro area but also in the United States, where it has even been slightly inverted since mid 2006. Analysis has shown that, apart from the tightening of monetary policy, reasons for this phenomenon lie in a substantial fall in the risk premium and, in particular, its real component over the period from mid 2004 to mid 2005. Analysis also suggests that this contraction, which has since been consolidated, was caused mainly by strong demand for government bonds on the part of atypical investors, and particularly Asian central banks and pension funds. These investors, especially the Asian central banks, have preferred to hold US securities. However, the progressive integration of the financial markets means that these factors have also had an impact in the euro area.

This article also examined how the reduction in the risk premium affected the quality of the signals provided by the yield curve as a leading indicator of the business cycles, and by long-term interest rates as an indicator of the inflation expectations of economic agents.

As the reduction in the inflation risk premium makes only a small contribution towards lowering the overall risk premium, the reliability of the break-even inflation rate as an indicator of inflation expectations is not really affected. However, the existence of an – admittedly small – inflation premium incorporated in the break-even inflation rate does render that indicator imperfect. Since

2004, break-even inflation has hovered around 2.1 p.c. which, taking account of this risk premium, corresponds to price stability as defined by the ECB Governing Council. This therefore suggests that the European monetary authorities have been successful in firmly anchoring inflation expectations.

Conversely, the analysis showed that the quality of the yield curve as a leading indicator of the business cycles is affected by the contraction of the risk premium. It is precisely because the flattening of the yield curve is due to a change in the risk premium rather than a revision of interest rate expectations that the current behaviour of the yield curve should not be interpreted as a sign heralding a marked slowdown in economic activity. After several quarters of exceptional growth, however, a return to sustainable growth may be expected, and that is consistent with the tightening of monetary policy which began in December 2005. In the current context featuring significant variations in the risk premium, it is therefore essential to consider these changes when the yield curve is used as a leading indicator of economic activity.

Finally, the flattening of the yield curve may also have more direct implications for the conduct of monetary policy. Generally speaking, the contraction of the risk premium is accompanied by an easing of financial conditions, which tends to stimulate aggregate demand. Such a situation may therefore generate inflationary pressures. Consequently, the monetary authorities need to exercise greater vigilance in order to ensure medium-term price stability. That increased vigilance is particularly necessary if the reduction in the risk premium is not due to a change in the macroeconomic fundamentals. In the latter case, there is also the risk of a possible upward correction to long-term interest rates. However, it should also be noted that, at present, the demand displayed by atypical investors might be more structural than the demand resulting from the “flight to quality” which caused the decline in the risk premium during 1997-1998. The reduction in the risk premium between June 2004 and June 2005 therefore might be more persistent than that seen between mid 1997 and the end of 1998.



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# Recent trends in corporate income tax

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## Introduction

In Belgium – as in other European countries – corporate income tax is confronted by changes in the international environment. The advent of the global economy and the ensuing increase in capital mobility could lead to competition in terms of corporate income tax rates between countries aiming to attract direct investment and highly mobile profit flows. The corporate tax rate is actually a key point which firms consider when seeking an investment location (apart from such factors as the presence of a good infrastructure, labour and the proximity to raw materials and markets). That competition could cause erosion of the tax base in other countries, forcing them to cut their rates in turn. There are therefore fears that this will culminate in a “race to the bottom” for tax rates, with corporate profits taxed at rates which society considers too low, potentially obliging governments to cut worthwhile public expenditure or transfer the tax burden to other sources of revenue, such as labour or consumption.

This article aims to describe the changing international context as regards the tax burden on corporate profits and the way in which the Belgian public authorities are trying to respond. For this purpose, the article begins by discussing the various indicators which measure the tax burden on corporate profits. Next, it describes the recent international developments concerning rates of corporate income tax before analysing corporate taxation in Belgium, paying particular attention to the reforms made to this system. Another chapter will focus on the European coordination in the field of corporate income tax. Finally, it summarises the main conclusions.

## 1. Measuring the tax burden on corporate profits

It is useful to outline the indicators which will be used in this article to measure the tax burden on corporate profits. The literature on the subject of corporate taxation identifies various indicators which measure the tax burden, each presenting advantages and disadvantages. They complement one another, and a detailed analysis therefore entails using most of them.

### 1.1 Nominal standard rate

The best known yardstick is the nominal rate of corporate income tax, which is generally used for the purpose of international comparisons. This standard rate is the sum of the highest federal rate and any taxes levied at lower levels of government. Owing to its simplicity and availability, this rate plays a key role. It is a decisive factor in regard to the transfer of profits among the various entities belonging to a multinational company and based in various countries. Multinationals will in fact try to reduce the profits declared in countries with high nominal rates and transfer them to countries where nominal rates are low.

However, a survey of the highest nominal rates recorded in a number of countries provides only a partial picture of the true tax burden on companies. The reason is that the basis for levying corporate income tax may vary to a large extent from one country and company to another, owing to tax allowances, depreciation methods or the existence of preferential schemes, thus influencing the effective tax ratio. In addition, many countries (including Belgium) charge lower rates in certain cases.

(1) The authors would like to thank C. Valenduc for his comments.

Various other criteria have therefore been developed which try to provide a clearer picture of the effective tax ratio, taking account of the tax base. In this connection, a distinction can be made between criteria based on statistics and those based on parameters derived from the tax laws.

## 1.2 Implicit rates

Criteria based on statistics are generally called implicit rates. They indicate the tax burden imposed on corporate profits during a period in the past. They are highly diverse in terms of both the firms examined and the definition of the tax base. It is possible to calculate implicit rates on the basis of national accounts, annual accounts or tax returns.

In the case of implicit rates based on the national accounts, corporate income tax levied by governments is divided by a macroeconomic indicator corresponding as closely as possible to the tax base. This is often the sum of the net or gross operating surpluses of companies and an approximation of the financial result. This method has the advantage of using the most exhaustive statistics containing data on all companies, including quasi-corporations. It also takes account of all the characteristics of the tax system, such as tax expenditure or preferential schemes. However, it has the disadvantage that the macroeconomic base used may sometimes differ to a considerable extent from the basis on which the tax is actually calculated, e.g. because of the varying concepts used in regard to depreciation. The fact that these measurements are sensitive to the business cycle is another disadvantage. The operating surplus recorded in the national accounts is in fact the sum of corporate profits and losses. In periods of weak economic activity, the losses will be relatively larger, reducing the firm's total pre-tax income in the national accounts and pushing up the implicit rate calculated. To limit sensitivity to the business cycle, these rates are generally calculated in the form of averages over long periods.

The implicit rates calculated on the basis of the annual accounts do not have this last disadvantage since it is possible to identify the companies which are making a profit. These measurements are generally based on the individual sets of annual accounts, since that information is usually easy to obtain, unlike the consolidated annual accounts. This method could distort the implicit rate, since the dividends paid to the recipient company are included in the tax base, whereas they are largely tax free since the tax has already been charged to the company paying the dividends. This augments the tax base considered in the calculations, thus reducing the implicit rate.

Implicit rates can also be calculated on the basis of tax returns. These statistics cover all companies whose returns are processed within the specified time. It is also possible to divide the companies into those making a profit and those sustaining a loss, and to make adjustments for dividends received. However, comparable international data of this type do not exist.

## 1.3 Effective rates

The rates based on parameters of the tax laws are generally known as effective rates. These indicators take account of a number of important parameters specified by law, such as the nominal rate, the treatment of stocks, authorised methods of depreciation, any investment subsidies or allowances, the method of financing and the expected or required return. These rates are affected by the parameters considered. However, they have the advantage of being able to show the impact of taxation on new investment projects. For an investment with a given pre-tax return, the average effective rate indicates how much of that return has to be paid as taxes. The marginal effective rate shows the tax ratio applied to an investment which, after tax, generates only the minimum return required for proceeding with the investment.

# 2. International developments in corporate taxation

## 2.1 Overview of the current situation

The "old" Member States of the EU-15 still differ widely in terms of their maximum nominal rates of corporate income tax. In most countries, these rates range between 25 and 35 p.c. Germany and Italy charge the highest tax rate on corporate profits, with rates of 38.6 and 37.3 p.c. respectively in 2006. At the other end of the spectrum is Ireland, which has for some years now been adopting a favourable taxation strategy, with a rate which currently stands at 12.5 p.c. Apart from the Scandinavian countries, where the rate has remained more or less unchanged in recent years, Portugal and Austria are at the lower end of the range, having cut their rates in 2004 and 2005 respectively<sup>(1)</sup>. Although the nominal rate cut applied in 2003 reduced Belgium's corporate income tax rate to 33.99 p.c., this rate is higher than the unweighted average rate for the EU-15 which stood at 29.5 p.c. in 2006.

(1) The relatively low rates of corporate income tax charged in the Scandinavian countries contrast with the relatively high charges on other bases of taxation such as consumption or labour.

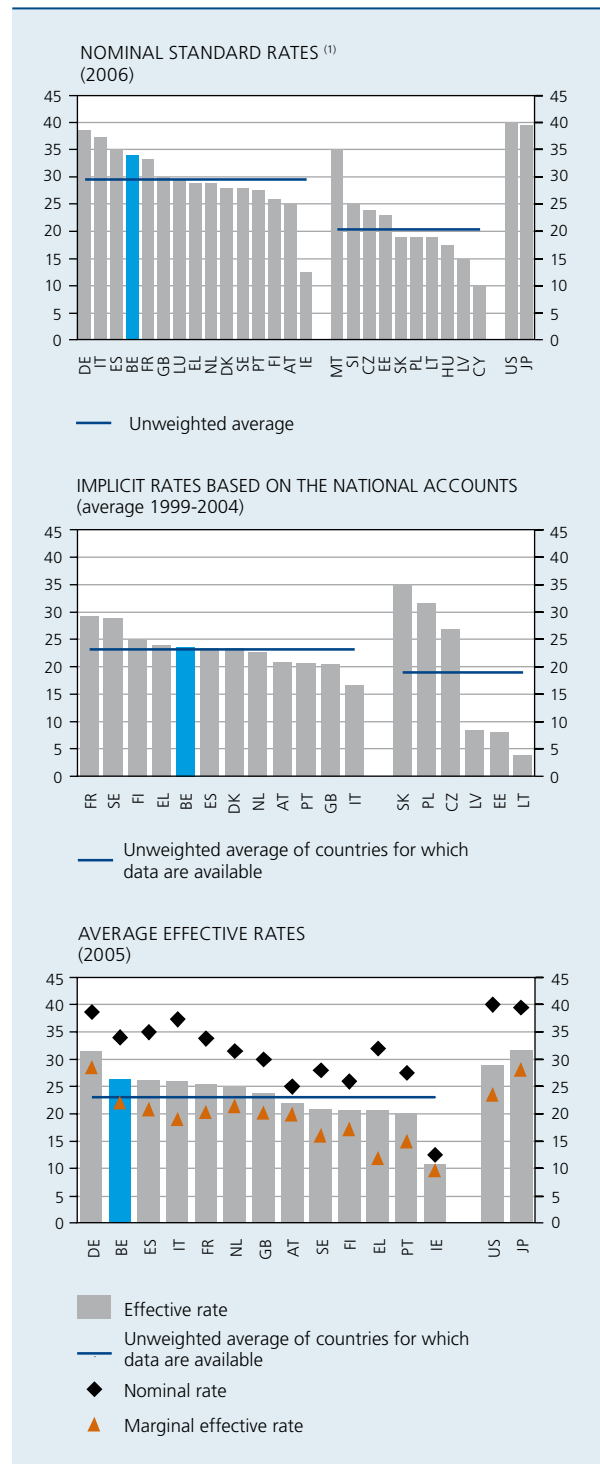
The accession of ten new Member States to the European Union on 1 May 2004 greatly heightened the fears of stronger tax competition. The average rate in force in those new Member States, which was 20.6 p.c. in 2006, was in fact around 10 percentage points below the EU-15 average. Malta, which has a rate of 35 p.c., is clearly an exception. The situation in Cyprus is also remarkable since the nominal rate there is only 10 p.c., i.e. below the rate charged in Ireland. In the other new Member States the rate mainly varies between 15 and 25 p.c. In the case of Estonia, the rate concerns distributed profits, as there is a zero rate applicable to retained earnings.

The nominal rates of corporate income tax charged in Europe are low compared to those charged elsewhere in the world. In the United States and Japan, the nominal rate came to around 40 p.c. in 2006, ten percentage points higher than the average rate in the EU-15 and also higher than the rates in force in each of the Member States. Like a number of European countries, the United States and Japan apply a system of imputation, i.e. multinationals are taxed in their own country on the whole of their profits, wherever they are made<sup>(1)</sup>. However, the companies may obtain a tax credit for taxes paid in other countries.

Comparison of the implicit rates for the period 1999-2004 based on the national accounts reveals that the Belgian rate more or less corresponds to the average for the EU-15 countries for which data are available. The implicit rates therefore present a picture which differs slightly from that offered by the nominal rates. That is due mainly to the existence of the Belgian system for coordination centres which enjoy substantial tax concessions. In contrast, the Scandinavian countries which charge low nominal rates have implicit rates which equal or exceed that average, as the low nominal rates in force in those countries are accompanied by extensive tax bases with few allowances.

The data on average effective rates are published by the Institute for Fiscal Studies (IFS)<sup>(2)</sup>. These measurements are not exhaustive, since they only take account of the impact of the main tax rules; however, they do provide some idea of the complex laws. In 2005, all the average effective rates were below the nominal rates, which means that all countries grant tax concessions, e.g. in the form of accelerated depreciation. The ranking of the countries largely

**CHART 1** INDICATORS OF THE TAX BURDEN ON CORPORATE PROFITS (percentages)



Sources: EC, IFS.

(1) This is the highest marginal rate, including any taxes levied on corporate profits at local or regional level.

(1) Profits made in other countries are not generally taxed unless the dividends are repatriated; moreover, there are generally numerous exceptions.

(2) These calculations are based on large firms in manufacturing industry which are able to raise finance on the international capital market but which are not established in the form of companies enjoying preferential tax status and which invest in five different product categories according to three methods of financing (capital contribution, borrowing and self-financing). The pre-tax return on investment is 20 p.c.

coincides with that based on the nominal standard rates. That is hardly surprising, since the nominal rate plays a greater role if the pre-tax profits are higher, because tax allowances are often limited to a fixed amount. In terms of the average effective rate, Belgium is among the countries with a relatively high rate, being in second place behind Germany. At 26.4 p.c., the Belgian rate is 3.3 percentage points higher than the average of the EU-15 countries for which data are available.

## 2.2 Recent developments

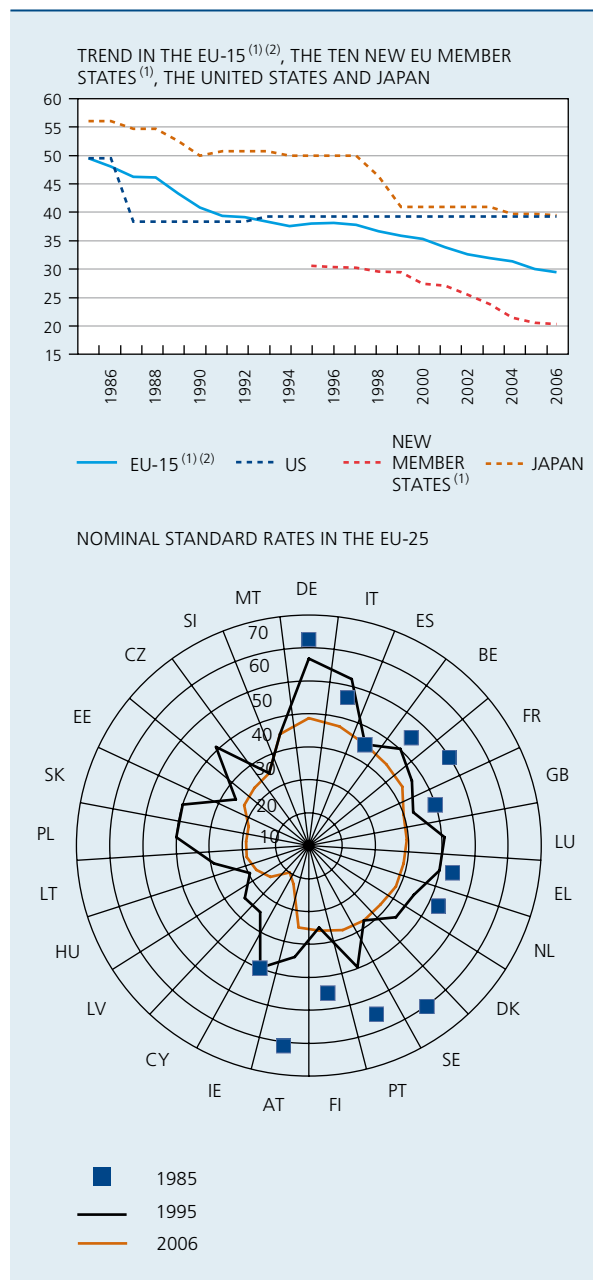
### 2.2.1 Decline in nominal rates

There is undeniably a downward trend in nominal rates of corporate income tax in Europe. However, that is not confined to the most recent period, as the average nominal rate of corporate income tax in the EU-15 has been falling practically continuously, from 49 p.c. in 1985 to just under 30 p.c. in 2006. The biggest reduction occurred between 1985 and 1995: the rate dropped by over ten percentage points during that period to 38 p.c. Between 1995 and 2000, the average rate remained relatively constant, but in the past six years it has resumed its downward trend, falling to 29.5 p.c. In the ten new Member States, the rate has fallen even more sharply, dropping from 30.6 p.c. in 1995 to 20.3 p.c. in 2006. The United States and Japan have also cut their rates below their 1985 values. The last substantial reduction in Japan dates from 1999, whereas the last major reform in the United States already dates from 1987.

The decline in the average rate in the EU-25, down from 35 p.c. in 1995 to 25.8 p.c. in 2006, is not only due to the changes made in a few countries. Since 1995, the nominal rate of corporate income tax has in fact been cut on one or more occasions in almost all the European countries. Finland is the only country where, since 1995, the (low) rate applicable at the time has risen from 25 to 26 p.c. In Spain, Malta, Slovenia and Sweden, the nominal rate has remained constant. Between 2003 and 2005, no less than fourteen of the EU-25 Member States cut their rates. In almost all countries, the nominal standard rate is now at a level well below the 1995 figures, and those were themselves often much lower than in 1985. At that time, Sweden, Austria and Germany were still applying a rate of 60 p.c.

Furthermore, it is highly likely that the downward trend in nominal rates will persist in the near future. A number of countries have either already decided to cut the tax rate in the coming years, or draft laws to that effect are being circulated with government support. That applies

**CHART 2** NOMINAL STANDARD RATES CHARGED ON CORPORATE PROFITS  
(percentages)



Sources: EC, IFS.

(1) Unweighted average.

(2) Up to 1995, excluding Luxembourg and Denmark.

in particular in Germany, the Netherlands, the United Kingdom, Spain, Greece, Estonia, Slovenia and Lithuania. As a result of these changes, the current Belgian rate will probably soon be back among the highest rates in Europe. In the EU-25, only the Belgian, Italian and Maltese rates will exceed 30 p.c. and, unless new measures are taken, the difference between the Belgian rate and the average EU rate will widen once again.

### 2.2.2 No decline in revenues

In recent decades, most of the European countries have cut their nominal rates of corporate income tax. The average nominal rate in the EU-15 has fallen by 19 percentage points since 1985. Nevertheless the real consequences of these cuts need to be qualified.

Despite this nominal rate cut, the average revenue generated by corporate income tax in relation to GDP has not declined in the EU-15. On the contrary, the revenue raised by this tax, which is of course influenced by the business cycle, has actually risen sharply since 1985.

That finding indicates the substantial expansion of the tax base during that period. However, on the basis of the available information on the net operating surplus, it is impossible to state that the movement in that surplus is the sole factor accounting for the rise in corporate tax revenues. That shows that the nominal rate cuts have also been accompanied by expansion of the base used to calculate corporate income tax. In practice, that may mean that compensatory measures have been taken, such as the abolition of tax relief or preferential schemes offering tax concessions. That information could also indicate that the measures to control tax avoidance and evasion have been intensified and become more successful. It also

appears that the new rate reductions announced in certain EU countries will be accompanied by compensatory measures which will largely limit the cost to the budget.

Due to the decline in the rate of corporate income tax combined with the expansion of the tax base, corporate taxation has become more neutral, in that it causes less distortion in the allocation of resources, an aspect which is to be encouraged with a view to economic efficiency.

## 3. Corporate taxation in Belgium

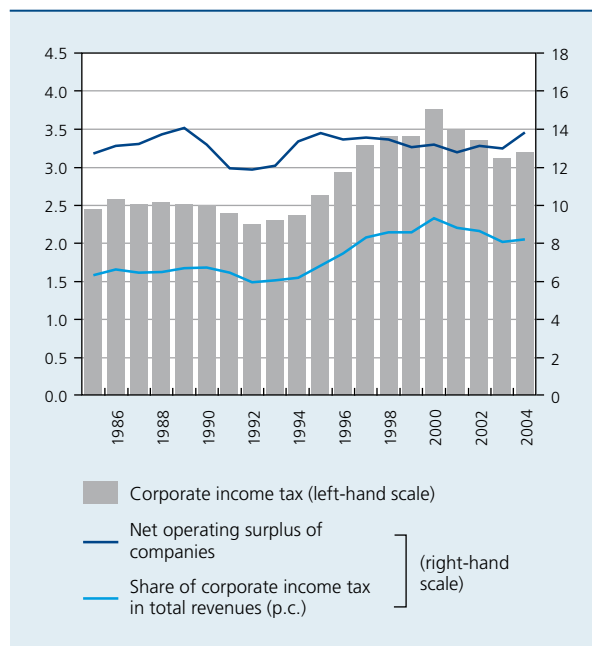
### 3.1 Characteristics of corporate income tax

As in other countries, the calculation of the corporate income tax payable in Belgium is a complex matter. Tax is charged on the basis of the book profits or losses. However, these have to be adjusted in various respects, e.g. to take account of foreign profits, non-taxable components, dividends on shares in other companies (by the deduction for participation exemption), previous losses and the investment allowance<sup>(1)</sup>.

The standard tax rate applied to the tax base thus defined is currently 33 p.c. Owing to the complementary crisis contribution of 3 p.c. payable on that tax, the highest nominal rate is in fact 33.99 p.c. Under certain conditions, reduced rates may apply to SMEs.

Apart from this general system of corporate income tax, Belgium also has a series of exceptional schemes, the main ones being those applicable to coordination centres<sup>(2)</sup> – scheduled for abolition at the end of 2010 – and to mutual funds with fixed or variable capital (SICAFs and SICAVs).

**CHART 3** TAX REVENUES AND TAX BASE IN THE EU-15  
(percentages of GDP, unless otherwise stated)



Sources: EC, OECD.

(1) For a detailed explanation of the method of calculation used, see the Tax Survey (Deloddere *et al.*, 2006).

(2) A coordination centre must belong to an international group with consolidated capital of at least 24 million euro and consolidated annual turnover of at least 240 million euro. The foreign equity capital must be a minimum of 12 million euro or 20 p.c. of the group's consolidated foreign equity. After two years, a coordination centre must employ at least ten full-time staff. Since 1993, a coordination centre has had to pay tax of 10,000 euro per full-time worker per annum. The profits which coordination centres make are tax free, but the standard rate of tax is charged on a percentage (generally 8 p.c.) of part of their operating expenses. Those expenses are calculated exclusive of staff costs or financial expenses. Apart from this advantageous definition of the tax base, coordination centres are exempt from the withholding tax on property incomes and the withholding tax on income from movable assets in respect of dividends paid to their shareholders or the interest paid to their creditors. As a result of these tax concessions, the implicit tax rate applied to coordination centre profits is around 1 to 2 p.c.

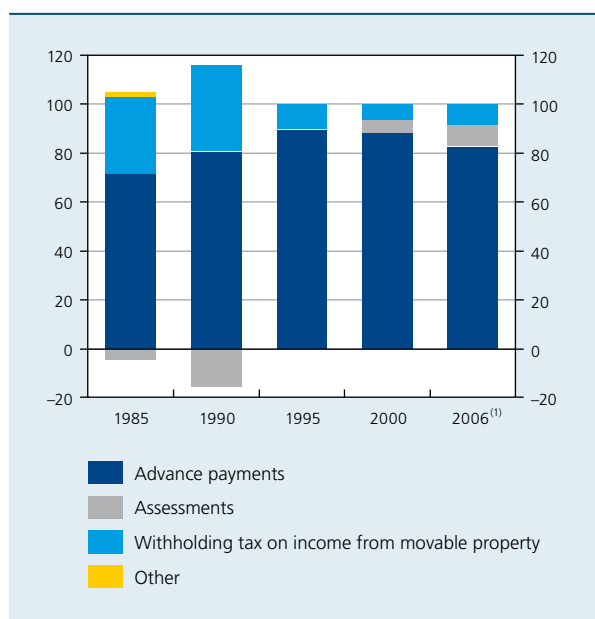
### 3.2 Components of corporate income tax

In Belgium, corporate income tax receipts comprise three main components: advance payments, withholding tax on income from movable property, and assessments.

The major part of corporate income tax is paid in the form of advance payments effected by firms at set intervals during the year. If the firms' advance payments are insufficient, they are subject to a substantial tax surcharge. In 2006, advance payments represented 82.7 p.c. of the total corporate income tax levied by the government.

The withholding tax which companies pay on income from movable property is a genuine advance deduction, in contrast to that payable by individuals which constitutes payment in full discharge. That withholding tax represented 8.8 p.c. of corporate income tax in 2006. However, in 1985 that figure was as high as 31.2 p.c. This sharp decline is due to the reduction – from 25 to 10 p.c. – in the rate of the withholding tax charged on new fixed-income financial assets in 1990 and the introduction of the directive on parent companies and subsidiaries on 23 July 1990, which stipulates that dividend payments effected by a subsidiary to its parent company are exempt from the withholding tax under certain conditions.

**CHART 4** COMPONENTS OF CORPORATE INCOME TAX  
(percentages of total corporate income tax)

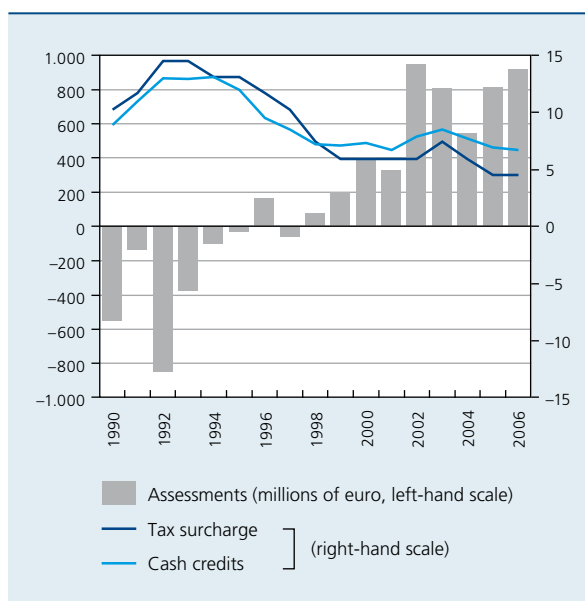


Sources: NAI, NBB.

(1) For 2006, the assessments have been adjusted for the accelerated rate of collection.

**CHART 5** CORPORATE INCOME TAX ASSESSMENTS AND SURCHARGE RATES<sup>(1)</sup>

(percentages, unless otherwise stated)



Sources: NAI, FPS Finance, NBB.

(1) For 2006, the assessments have been adjusted for the accelerated rate of collection.

The final corporate income tax bill is settled via the assessments. If the amount of tax ultimately due is higher or lower than the sum of the advance payments and the withholding tax paid, the difference is settled in the form of a tax refund (in the case of negative assessments) or supplement (in the case of positive assessments). In 2006, net assessments generated government revenue totalling 8.4 p.c. of corporate income tax<sup>(1)</sup>. That outcome is in sharp contrast to the situation in the early 1990s when the assessments were decidedly negative. The main reason for this change is that, before the introduction of the directive on parent companies and subsidiaries on 23 July 1990, certain firms – mainly active in the financial sector – were paying a substantial withholding tax on amounts which had already been taxed and were exempt when the tax was calculated by the systems designed to prevent double taxation. Moreover, for companies lacking adequate liquidity, it has become less attractive to obtain a short-term loan from a bank and effect advance payments in order to avoid the tax surcharge. The decline in short-term interest rates has in fact led to a marked reduction in the rate of the tax surcharge, whereas the average

(1) For 2006, the assessments have been adjusted for the accelerated rate of collection.



interest rate applied to cash credits has also fallen, though to a much smaller degree<sup>(1)</sup>.

### 3.3 Recent tax reforms

The highest nominal tax rate on corporate profits has also fallen sharply in Belgium in recent decades. In 1983 it was cut from 48 to 45 p.c., putting it slightly below the EU-15 average. However, in the ensuing period the average rate in the EU-15 was reduced far more rapidly than the Belgian rate, even though the Belgian rate was cut further in 1987 and during the period 1990-1991<sup>(2)</sup>, causing a gap which persisted throughout the 1990s. However, after 2000 that gap widened to 7 percentage points owing to further cuts by some EU-15 members. Since then, Belgium has implemented two corporate income tax reforms within a short space of time. The main objectives of these reforms were to narrow the gap in relation to other European countries and make Belgium more attractive to potential investors.

The corporate income tax reform which took effect on 1 January 2003 greatly reduced the nominal tax rates on corporate profits in Belgium<sup>(3)</sup>. The standard rate dropped from 40.17 to 33.99 p.c. (including a 3 p.c. complementary crisis contribution), and the reduced rates for SMEs were also cut. In addition, this reform provided

for exemption in the case of profits which SMEs reserved for investment.

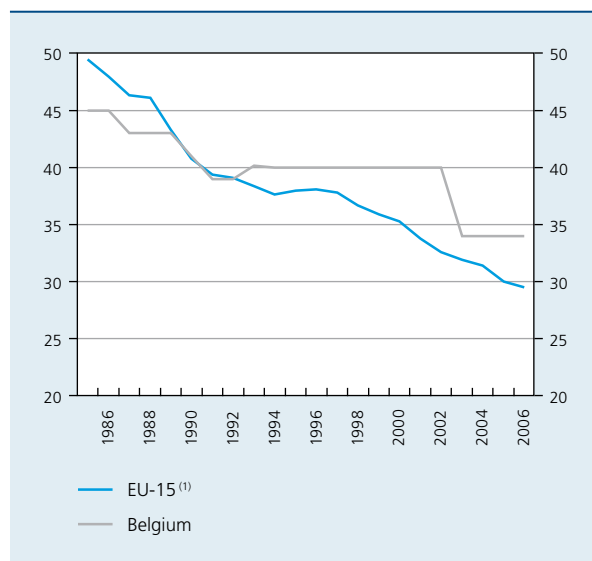
However, since this reform had to be introduced in a framework which was neutral for the budget, several compensatory measures were adopted. Thus, the rules on depreciation were modified, the conditions for applying the deduction for participation exemption were tightened up, and the liquidation bonuses applicable to a company's repurchase of its own shares or the apportionment of all or part of the company's assets are now subject to a 10 p.c. withholding tax. On the basis of an *ex post* analysis, the Court of Auditors considered it almost certain that the impact of this reform on the budget was at least neutral (Court of Auditors, 2005).

This reform considerably reduced the gap in relation to the average nominal rate in the EU-15. However, following recent rate cuts in a number of countries, the difference between the Belgian standard rate and the EU-15 average has once again widened to around 4 to 5 percentage points. In all probability, that differential will continue to grow in the coming years, unless the Belgian government adopts new measures.

Despite the steep reduction in the nominal rate in 2003, a further reform was quite soon seen to be needed. Rather than cutting the nominal rate again, it was decided to introduce a tax allowance for venture capital in the 2007 tax year (2006 income). This measure is better known as the "notional interest deduction". It was also decided to abolish the 0.5 p.c. registration fees for contributions to companies<sup>(4)</sup>.

The venture capital allowance was introduced in order to reduce the differences of treatment between debt financing and equity financing. In contrast to interest which, in principle, is tax deductible and is thus not included in the tax base of a company, profits are an integral part of the tax base and are therefore taxed.

**CHART 6** NOMINAL STANDARD RATE IN BELGIUM AND IN THE EU-15  
(percentages)



Sources: EC, IFS, NBB.

(1) Unweighted average; excluding Luxembourg and Denmark up to 1995.

(1) The basic interest rate used in calculating the tax surcharge is the marginal borrowing rate applied by the ECB in the penultimate year preceding the tax year concerned. That interest rate is multiplied by an average factor of 2.25. Thus, for the 2006 tax year, the tax surcharge comes to 6.75 p.c. of the underlying shortfall; since the time elapsing between the advance payments and the assessments averages about 18 months, this gives a tax surcharge of 4.45 p.c. on an annual basis.

(2) The rate only increased in 1993 following the introduction of the 3 p.c. complementary crisis contribution charged on the rate of 39 p.c. applicable at the time.

(3) The law of 24 December 2002 amending the rules on companies in regard to tax on income and establishing a system of prior decisions on tax matters.

(4) The law of 22 June 2005 introducing a tax allowance for venture capital.



In practice, the new allowance is calculated as notional interest on the adjusted equity capital<sup>(1)</sup>, which is deducted from the tax base. The rate used to calculate the notional interest is equal to the average interest rate (published monthly by the Securities Regulation Fund) on ten-year linear bonds issued by the Belgian government, prevailing during the penultimate year preceding the tax year. The average interest rate for 2005, namely 3.442 p.c., is therefore used for the calculations performed in the 2007 tax year. However, the rate cannot exceed 6.5 p.c. and the annual change is capped at 1 percentage point. For SMEs, the basic rate is increased by 50 basis points. Also, SMEs can opt not to apply the notional interest deduction for venture capital and to continue using the old investment reserve system.

The venture capital allowance reduces the effective rate of corporate income tax. That reduction is dependent on the company's return on equity. Thus, in the case of a company achieving a return on equity of 5, 10 or 15 p.c. and subject to the nominal rate of 33.99 p.c., this allowance reduces the effective tax rate for the 2007 tax year to 10.6, 22.3 and 26.2 p.c. respectively, leaving aside other possible deduction items.

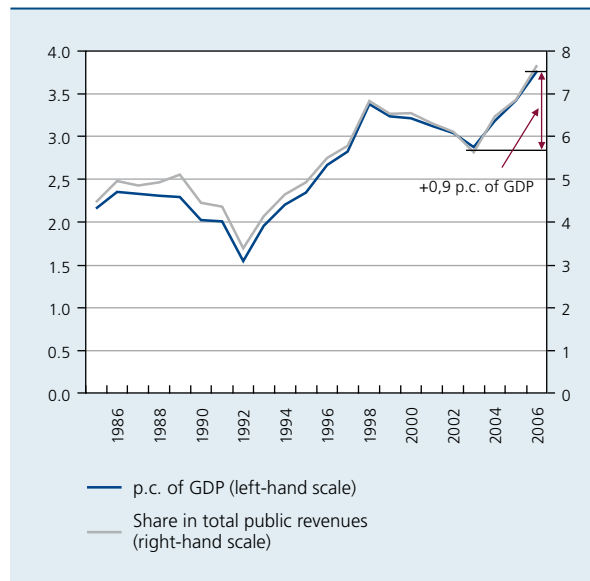
In order to offset the loss of revenue resulting from the introduction of the venture capital allowance and abolition of the registration fees for contributions to companies, various measures were adopted, the main one being the stricter definition of realised capital gains.

One of the aims of the venture capital allowance is to augment the business capital. Since the data on capital increases in 2006 indicate a very sharp rise, that objective seems to have been achieved. By introducing the venture capital allowance, the government also tried to offer a credible alternative to the coordination centres (that tax scheme is to be abolished by 2010) with a system conforming to the rules of European law.

### 3.4 Revenues generated by corporate income tax

In 2006, corporate tax revenues represented 3.8 p.c. of Belgium's GDP. That is a relatively small percentage compared to the taxes on wages (25.4 p.c. of GDP) and taxes on goods and services (11.5 p.c. of GDP). In 2006, corporate income tax represented about 7.7 p.c. of total

**CHART 7** REVENUES GENERATED BY CORPORATE INCOME TAX<sup>(1)</sup>



Sources: NAI, NBB.

(1) In 2006, the accelerated rate of collection augmented the assessments by 0.3 p.c. of GDP.

public revenues. In 2006, both the corporate tax revenues and their share in public revenues were at their highest level for 35 years. It is also worth mentioning that these tax revenues have increased by no less than 0.9 p.c. of GDP since 2003.

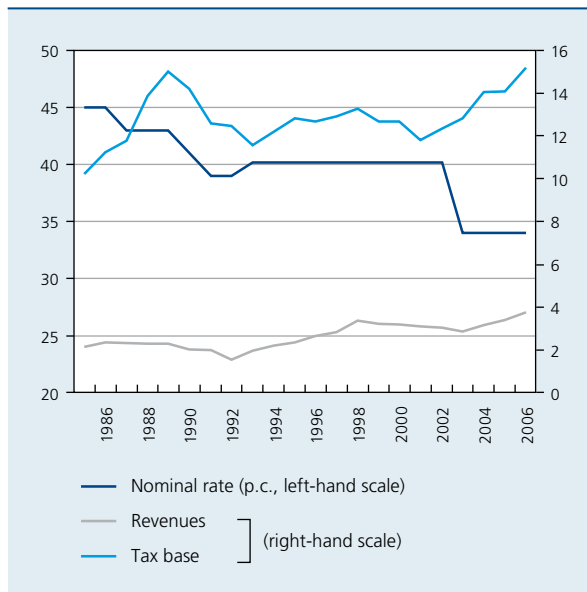
During the period 1985-1990, corporate income tax revenues fluctuated between 2.1 and 2.4 p.c. of GDP. The reduction in the nominal rate during that period was more than offset by the strong expansion of the approximate macroeconomic tax base<sup>(2)</sup>. While the nominal rate remained relatively constant between 1990 and 2003 and the approximate macroeconomic base declined slightly in the early 1990s, before hovering around a slightly lower level, Belgian corporate income tax revenues increased from 2.1 p.c. of GDP in 1990 to 2.9 p.c. of GDP in 2003. During the most recent period, revenues have continued to rise, despite the recent reforms reducing the effective rate.

These findings indicate that, since the early 1990s, various reductions and preferential schemes have been largely eliminated so that the effective tax burden on corporate profits has increased. Comparison of the movement in the various implicit rates shows that the implicit rate based on tax statistics and the Central Balance Sheet Office dropped to around 20 p.c. in 1989. The implicit rate based on tax returns and the national accounts increased up to the end of the 1990s, whereas the implicit rate based on

(1) The equity capital as shown on the balance sheet is adjusted in certain respects to prevent cascade effects and potential abuse.

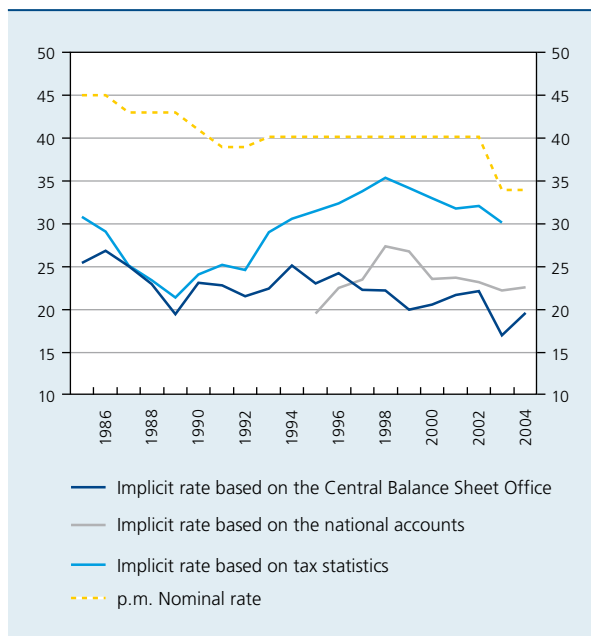
(2) This is estimated as the sum of the gross operating surplus and net interest received or paid, less depreciation. This is only an approximate tax base, and differs considerably from the base actually used to calculate the tax. The pre-1995 data were obtained by retropolation on the basis of older data, in the absence of these data in the new national accounts.

**CHART 8** CORPORATE TAXATION: TAX BASE, TAX REVENUES AND NOMINAL STANDARD RATE  
(percentages of GDP, unless otherwise stated)



Sources : NAI, NBB.

**CHART 9** IMPLICIT RATES OF CORPORATE INCOME TAX  
(percentages)



Sources : EC, FPS Finance, NAI, NBB.

the Central Balance Sheet Office annual accounts fluctuated around a constant level. This divergence is due to the increasing significance of the deduction of losses carried forward and the deduction of finally taxed incomes during this period. In the case of losses carried forward, it is not possible to make an adjustment on the basis of the Central Balance Sheet Office statistics, while only an approximate adjustment can be made to the figures for the deduction for participation exemption. In 2003, all indicators point to a reduction in the tax burden on corporate profits following the tax reform<sup>(1)</sup>.

## 4. Corporate tax coordination in the EU

### 4.1 Tax competition versus tax coordination

The Member States of the European Union seem divided on the issue of whether tax harmonisation or coordination of corporate taxation is necessary, or whether tax competition is desirable, as the two options both have advantages and disadvantages.

Tax competition has the advantage of enabling Member States to retain their powers of taxation and hence their financing resources. In principle, the preferences of the national legislative authorities reflect the preferences of their own population better than those of a supranational legislative authority. Moreover, the Member States can use the tax, if so desired, as an instrument in their stabilisation policy. Also, some people consider tax competition to be a means of disciplining governments – which, by their nature, always want to spend more – by restricting the scope for levying taxes. It is thought that this would give them a strong incentive to operate more efficiently.

In the context of national strategies aimed at attracting investments and profits, tax coordination or total or partial harmonisation could prevent a “race to the bottom”, which could put pressure on worthwhile public expenditure or cause taxation to shift towards less mobile sources of revenue. The tax rate might then cease to reflect the preference of a country’s residents. Harmonisation or a high degree of coordination generates substantial efficiency gains for multinationals, which no longer have to comply with a number of tax systems. Moreover, the effective tax burden on companies will become much more transparent in the various Member States.

(1) This does not contrast with the neutral impact of this reform on the budget. A number of compensatory measures (such as those to combat tax evasion or the changing rules on depreciation) increase both the tax base and the taxes payable without affecting the methods of calculating the implicit rates described in this article.

Examination of the literature reveals that, according to most studies, total harmonisation would enhance the community's prosperity, compared to the current situation. However, opinions are divided on whether these improvements in prosperity would be substantial or rather small, and on how they would be distributed among the various countries (Nicodème, 2006).

Tax competition will not occur unless a rate reduction triggers shifts in foreign direct investment or shifts in the bases of taxation. Econometric analysis has shown that it is primarily the effective rates that play a role in attracting foreign direct investment (De Mooij *et al.*, 2006). Cuts in the effective rate can therefore be used to attract or retain foreign direct investment. Furthermore, empirical studies show that a reduction or increase in the nominal rate affects the reported profits of multinationals in a country, and hence also the tax revenues (Huizinga *et al.*, 2006). Ways of shifting profits include the manipulation of transfer prices in respect of intra-group transactions, formulas for apportioning the subsidiaries' overheads (research and development, advertising, etc.), or the debt financing of subsidiaries based in countries with high tax rates.

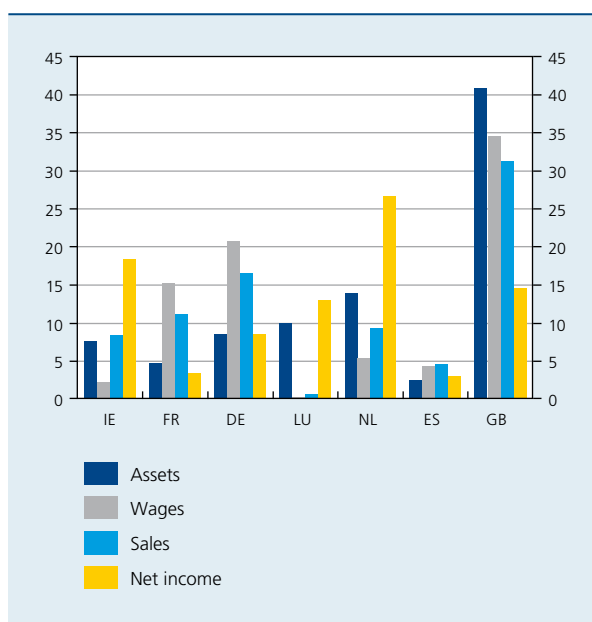
Thus, a study of multinationals with their headquarters in the United States shows that the allocation of these firms' profits is largely influenced by tax considerations, since

there is no real correlation between the activities which these firms pursue in various countries and the net operating result which they report there. High net incomes are reported in Ireland, Luxembourg and the Netherlands in comparison with the activities pursued there, while reported profits are low in Germany, the United Kingdom and France, even though these firms pursue significant activities there (Weiner, 2006a).

As shown by the preceding chapters, the current downward trend in nominal rates of corporate income tax seems to point to a degree of tax competition between the European countries. However, the consequences of such competition ought to be qualified. Expressed as a percentage of GDP, corporate income tax revenues have in fact remained constant or even risen slightly. This is attributable to the expansion of the tax base. Apart from the effects of compensatory measures and, possibly, more efficient collection, the increase in the tax base could also be due to the decline in the nominal rates of corporate income tax. That decline has widened the difference in relation to marginal rates of personal income tax, making it more attractive to pursue certain activities in the form of a company. Companies are also less tempted to try to transfer profits to countries with lower tax rates.

Despite the steep fall in nominal rates in the EU, the difference between the highest and lowest rates in the EU-15 or in the ten new Member States has hardly changed in the past ten years. In both cases that difference was about 25 percentage points. The "agglomeration" theory tries to explain this phenomenon by stressing the importance of agglomerations, the proximity of markets, the presence of skilled staff, transport costs, infrastructure, etc. The presence of these factors appears to confer an advantage on central countries as opposed to peripheral countries, enabling them to charge a higher tax rate without prompting companies to relocate. That might explain why the central countries of the European Union charge higher rates of corporate income tax than the peripheral countries. Thus, large disparities could persist for a number of years between the centre of Europe and its periphery. However, the question is what would happen if a number of central countries were to make substantial cuts in their rates. In one of its reports, the French *Conseil d'analyse économique* estimates the sustainable differences in rates between the fifteen "old" Member States of the EU. According to that study, nominal rate differences in excess of 10 percentage points can be sustained between certain countries. This study also indicates that the rate differences could persist for a time, even though the equilibrium has become less stable owing to the much greater integration since 1995 (Gilbert *et al.*, 2005).

**CHART 10** ALLOCATION OF PROFITS IN MULTINATIONALS WITH THEIR HEADQUARTERS IN THE UNITED STATES (2003)



Source : Weiner (2006a).

## 4.2 Corporate tax coordination in the EU

In principle, like other direct taxes, corporate income tax falls entirely within the autonomous power of the EU Member States. Hence, the Member States are totally free to determine the stipulations of their own corporate income tax. However, the tax laws must respect the four basic freedoms of the EU Treaty (free movement of goods, persons, services and capital) and the restrictions on State aid. Multinationals active in Europe may therefore be confronted by twenty-seven different tax systems.

### 4.2.1 Attempts at harmonisation

Since the European Economic Community was created by the signing of the Treaty of Rome in 1957, some people have considered that the costs which businesses incur as a result of the various national legal systems are a major obstacle to the aims of European integration. Witness the virtually continuous activity of various committees of experts who have formulated proposals for the harmonisation of a number of crucial elements of the corporate income tax system, in particular in order to promote transparency and solve the double taxation problem.

Back in 1962, the Neumark Committee put forward suggestions for harmonising the national systems of corporate income tax by introducing a system of imputation with different rates for retained profits and distributed profits. Later, the Van den Tempel report (1970) proposed that all Member States should introduce a traditional system of company taxation, with a tax payable by both companies and shareholders at the time of the dividend distribution<sup>(1)</sup>. That report was followed by two resolutions in 1971 and 1972, in which the Ecofin Council endorsed the need for tax harmonisation. In 1975, spurred on by these developments, the European Commission formulated a proposal for a directive harmonising the corporate income tax rates, which were to range between 45 and 55 p.c., with a system of partial imputation for dividends. In this connection, the Commission had actually advocated a withholding tax of 25 p.c. on dividends. However, that proposal had been challenged by the European Parliament which considered that it was first necessary to harmonise the tax base<sup>(2)</sup>. Such plans for harmonisation of the tax base had been included in a 1988 proposal by the European Commission. However, owing to the strong opposition of a number of Member States, that proposal

was never officially submitted to the Ecofin Council. The next harmonisation proposal dates from 1992, when the Ruding Report was published. This analysed the extent to which tax differentials influence the location of investments and distort competition. At the same time, minimum standards for the tax base had been proposed, as well as a minimum rate of 30 p.c. and a maximum of 40 p.c. These proposals were never taken up either.

Despite this large number of proposals, corporate income tax has never been harmonised in the EU. There are various reasons for this lack of success, the main one undeniably being that the Council has to be unanimous in approving such tax reforms. There is also a fundamental difference of opinion between the Member States which favour tax competition – represented mainly by the United Kingdom (and recently most of the new Member States as well) – and the majority of the “founding fathers” of the EU, among whom the Franco-German duo represents the driving force in the efforts to achieve tax harmonisation. In view of the reticence displayed by the Member States, the European Commission has since opted to proceed by a more pragmatic approach, with a number of specifically targeted measures which will be explained below.

### 4.2.2 Abolition of tax barriers for multinationals

Special tax barriers affecting cross-border economic activities, such as specific cases of double taxation, are regarded as a major obstacle to firms pursuing cross-border activities in the single market. In 1990, in order to eliminate these obstacles, the Ecofin Council approved two directives which entered into force in 1992. The mergers directive (90/434/EEC) aims to avoid the taxation of capital gains resulting from the restructuring of companies from different Member States. The directive on parent companies and subsidiaries (90/435/EEC) aims to eliminate the double taxation of profits distributed to parent companies in one Member State by subsidiaries established in another Member State.

### 4.2.3 Avoiding harmful tax competition

On 1 December 1997 the Ecofin Council reached agreement on “a package to tackle harmful tax competition in the European Union”. That agreement comprised three elements, one of which concerns a code of conduct on harmful tax competition<sup>(3)</sup>. This package concerns tax measures specially designed to attract foreign firms or investors and reflected in a much lower level of taxation than that normally applied to the average firm in the country concerned. By this “code of conduct”, the Member States agreed that existing harmful tax provisions would be abolished and that no new ones would be introduced.

(1) In a way, this proposal resulted from the Werner Report on economic and monetary union in Europe, which emphasises that tax harmonisation is necessary for the creation of a monetary union.

(2) The European Parliament did not express an opinion on this proposal, but merely produced an interim report in 1980.

(3) The other components of this “Monti package” concern tax on savings incomes and the abolition of the withholding tax on payments of interest and royalties between enterprises.

Following that decision, the “Primarolo” group was set up in 1998 (named after the then British State Financial Secretary to the Treasury) with the task of examining a list drawn up by the European Commission of tax regimes which could be called harmful. In this group’s final report, dated November 1999, sixty-six harmful tax practices had been identified. For Belgium, the main one was the tax regime applicable to coordination centres.

Owing to that decision, the Belgian preferential tax regime applicable to such companies which conduct financial management for the other companies in an international group will be phased out. In 2000, the Ecofin Council classed the coordination centres regime as a harmful tax measure which must be abolished by 31 December 2005. In 2003, that Council stated that the coordination centres regime was incompatible with the rules on State aid, but that centres which came under that regime on 31 December 2000 could continue to make use of it until 31 December 2010. However, approvals expiring after 2005 could not be renewed. This provision was judged discriminatory and cancelled by the European Court of Justice on 22 June 2006.

#### 4.2.4 Towards a single market without corporate income tax obstacles

The European Commission’s current work on corporate taxation mainly follows on from the October 2001 report entitled “Towards an Internal Market without tax obstacles”. That report was based on a European Commission study concerning “Company taxation in the Internal Market” analysing the effective rates in Europe, identifying various tax obstacles which hamper the efficient operation of the single market, and devising a number of solutions to eliminate those obstacles. The European Commission also deduced from that study – and continues to believe – that there is no sign of any real “race to the bottom”, since the rate reductions are accompanied by compensatory measures, and tax revenues have remained stable. It therefore concludes that no action is required at present to harmonise the rates of corporate income tax or to introduce minimum rates.

In order to eliminate tax obstacles, a dual strategy was proposed comprising specific targeted measures for the short term accompanied by the launch of a debate with the long-term aim of achieving a harmonised tax base for companies pursuing cross-border activities in the EU.

The short-term strategy is intended to eliminate the obstacles identified by means of targeted measures. According to its November 2003 communication, the Commission has succeeded in implementing many of

the targeted measures. Thus, the scope of the mergers directive and that of the directive on parent companies and subsidiaries has been extended. In 2005, a minimum stake of 25 p.c. was required for a subsidiary’s dividends to qualify for exemption; that will be gradually reduced to 10 p.c. by 2009. In June 2003, the Ecofin Council approved the directive on the payment of interest and royalties which is intended to prevent tax obstacles in the case of cross-border interest and royalty payments within a group<sup>(1)</sup>. The “Joint Transfer Pricing Forum” contributed to the publication, in June 2006, of a code of conduct which will standardise the documents required in the Member States, in order to reduce the transaction costs. Judgments passed by the European Court of Justice against one Member State in a case concerning a company also affect other Member States with similar legislation. The European Commission issues opinions on the way in which Member States should amend their legislation in order to achieve better harmonisation. Finally, a number of initiatives are also being examined, such as ways of allowing the offsetting of cross-border losses between enterprises and their permanent establishments, and an analysis is being conducted on the consequences for other EU Member States of bilateral treaties between countries (EC, 2003). These directives, decisions and judgments also have an influence on Belgian legislation, which sometimes has to be adapted.

However, the short-term strategy cannot solve all the problems, such as the high transaction costs for companies facing twenty-seven different tax systems. That is why a more permanent solution is being sought in the long term. The European Commission has set itself the aim of introducing a consolidated tax base for corporate taxation by means of a “Common Consolidated Corporate Tax Base” (CCCTB) (EC, 2001)<sup>(2)</sup>. This method would offer international companies the possibility of calculating their tax base at group level. This would then be allocated according to a formula between the Member States which would charge their own rate (and, if so desired, grant tax credits). For companies not opting for the new system, the Member State’s original legislation would continue to apply. This method would eliminate the problems of profit allocation via “transfer pricing” and other techniques by calculating the tax base at group level.

(1) Since 1 July 2005, these payments have been tax-exempt if the recipient company is located in another EU Member State.

(2) Other options which were not adopted concerned “Home State Taxation” (mutual recognition of each country’s tax rules, in which the group of companies can choose to calculate its tax base according to the rules of the Member State where its headquarters is based, after which that tax base is allocated among the Member States which can charge their own rates), an “EU Company Income Tax” (creation of a European tax, possibly in favour of the EU), and a “Single Compulsory Harmonised Tax Base” (elimination of the twenty-seven current tax systems and total harmonisation leaving a single method of calculation which also applies to the smallest businesses).

At the informal Ecofin Council in September 2004 there was widespread support for the creation of a working group to continue developing this proposal for a common tax base. Nevertheless, five countries (Estonia, Ireland, Malta, the United Kingdom and Slovakia) did not endorse the idea. The working group is to propose, by the end of 2008, a legal framework which determines the tax base and also comprises a formula for allocating the tax base among the various Member States. Such a method is already in use in the United States and Canada and their respective federal states and provinces. The formula generally comprises variables such as the proportion of the assets located in the State in relation to the company's total assets, the proportion of sales taking place in the State and the proportion of wages in that State. Application of such a formula means, for example, that a country in which a company records losses, while the group makes a profit at international level, can still be allocated part of the tax base and thus obtain positive tax receipts.

The idea would be to leave freedom of choice for businesses: they could either opt for one of the twenty-seven national systems or for the new CCCTB. That actually means twenty-eight different systems. The underlying idea is that competition will thus develop between the "Community" system and the national systems, and that the majority of firms will opt for the CCCTB, so that eventually the national systems will become irrelevant and only the CCCTB will be used.

However, it is obvious that there are some serious technical problems yet to be overcome, and that it will not be easy to find a formula which gains the approval of the Member States. Some people consider that this plan has more chance of success than earlier initiatives because, in the legislative framework of enhanced cooperation, if eight Member States are willing to apply this method, that is already sufficient to make a start.

## Conclusions

Countries try to attract additional activities and profits by reducing the tax burden on corporate profits. Thus, in the past, there was an obvious trend towards lower nominal rates of corporate income tax in Europe. Tax competition increased still further with the recent accession of the new EU Member States in 2004, which – in comparison with the EU-15 – mostly charge much lower rates. On the basis of the reforms announced in a number of countries, the nominal rate reductions will persist in the European Union in the immediate future.

Up to now, these nominal rate reductions seem to have been at least offset by the expansion of the tax base, so that public revenues generated by corporate income tax have actually increased overall.

Belgium is following the international trend towards lower nominal rates and a wider tax base. The 2003 reform aimed to eliminate the difference between the Belgian nominal rate and the EU-15 average. Despite this substantial cut in the Belgian rate, the difference in relation to the EU average has since widened again to around 4 to 5 percentage points. A further reform of Belgian corporate income tax therefore followed fairly swiftly, with the introduction of the venture capital allowance from the 2007 tax year (2006 incomes). This innovative measure reduces the discrimination between the tax treatment of equity capital and borrowings, and is a good incentive for increasing corporate solvency. Moreover, it is an acceptable European alternative to the coordination centres regime. The difference between the Belgian nominal standard rate and the average for the European Union still persists, however, and – in the absence of new measures – will probably continue to increase in the coming years.

The existence of twenty-seven different corporate tax systems in the European Union entails substantial costs for multinationals. At the same time, there is the fear that tax competition may erode the proceeds of corporate income tax, which could have a number of undesirable consequences. Both the European Commission and a number of committees of experts have therefore published several reports in recent decades, proposing a high degree of harmonisation of corporate income tax. So far, these initiatives have not succeeded, mainly because of the unanimity required for decisions on direct taxes. The European Commission has given up its efforts to introduce minimum rates and is now concentrating on achieving a common consolidated tax base for multinationals. More specific initiatives, such as the directives aiming to abolish tax distortion in the case of cross-border activities, and measures to combat harmful competition, have been more successful.

It is currently still an open question whether a genuine "race to the bottom" will ensue in the future at the level of corporate income tax – not only with rates continuing to fall, but public revenues also declining – or if the decline in nominal rates will be halted – spontaneously or otherwise. Only the future will tell.



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# Summaries of articles

## Economic projections for Belgium – Spring 2007

Since the projections published in December 2006, the international environment has remained buoyant. GDP growth in the euro area, which proved stronger than previously expected over the last months, should keep going at a solid pace in 2007.

In Belgium, economic activity has been particularly strong in 2006. It should slow down slightly in 2007 and 2008, to return to a rhythm more in line with potential. Overall, real GDP growth is projected to decline from 3 p.c. in 2006, the highest rate for six years, to 2.5 p.c. in 2007. It is expected to be 2.2 p.c. in 2008.

Over the whole period covered by the projections, growth should turn out to be more balanced than in 2006, backed by both foreign demand and domestic demand. In particular, although slowing down somewhat in comparison with the vigorous expansion recorded in 2006, private consumption and business investment should expand in line with still supportive demand, income and labour market conditions over the period 2007-2008.

Actually, the rate of employment growth appears to be more sustained than in previous upturns. Following an increase of 46,000 units in 2006, domestic employment should grow by another 115,000 jobs or so over the period 2007-2008. With a cumulative decline of 60,000 jobless, the highest number over a two-year period since 1999-2000, the harmonised unemployment rate is projected to fall from 8.2 p.c. in 2006 to 7.2 p.c. in 2008, prolonging a downward movement that begun in 2006.

Estimated on the basis of the HICP, overall inflation is forecast to fall markedly, from 2.3 p.c. in 2006 to 1.6 p.c. in 2007 and 1.8 p.c. in 2008. This drop can be explained by the moderating influence exerted by the energy component of the index, stemming from some appeasement of the oil price evolution and from the downward impact of the liberalisation of the gas and electricity markets in Brussels and Wallonia, as well as the new method of recording these energy prices in the consumer price index. The underlying trend in inflation is expected to rise moderately, from 1.6 p.c. in 2006 to 1.9 p.c. in 2007, before falling back to 1.7 p.c. in 2008. The slight acceleration in 2007 is almost exclusively due to increases in excise duties on tobacco and the levy on packaging.

Reflecting the slowdown in labour productivity alone, as a result of the net rise in employment, unit labour costs in the private sector are projected to increase somewhat, rising from 1.1 p.c. in 2006 to 1.6 p.c. in 2007 and 2008. Moreover, the growth in hourly labour costs is expected to dip slightly from the 2006 level, coming down from 2.7 p.c. to 2.4 p.c. in 2007 and 2.6 p.c. in 2008. For both of these years, the cumulative increase corresponds to the 5 p.c. target set in the central

wage-bargaining agreement, in the absence of information on the outcome of the wage negotiations being conducted in the various joint committees at sectoral level.

After showing a surplus of 0.2 p.c. of GDP in 2006, general government accounts are likely to show a slight deficit, of 0.1 p.c. of GDP this year and 0.2 p.c. in 2008. Interest charges should continue to drop and tax revenues are expected to benefit from the promising economic outlook, but these elements are more than entirely offset by the disappearance of the favourable impact of non-recurrent factors, as well as by a deterioration of the structural primary balance in 2007. The public debt ratio will continue to fall gradually, coming down by some 6 percentage points of GDP over the two years of the forecasting period, to reach 82.7 p.c. of GDP in 2008.

JEL Code: E17, E25, E37, E66

Key words: Belgium, macroeconomic projections, Eurosystem

### Recent trends in corporate income tax

The article describes the recent international developments regarding the corporate income tax and the way in which the Belgian government is trying to respond. For this purpose, it begins by discussing the various indicators which measure the tax burden on corporate profits. Next, it illustrates the trend towards declining statutory corporate tax rates throughout Europe in the last two decades. It is highly likely that the downward trend in nominal rates will persist in the near future. But these nominal rate cuts seem to have been accompanied by an at least equivalent expansion of the tax base, so that government revenues generated by the corporate income tax have actually increased overall.

Belgium is following the international trend towards lower nominal rates and a wider tax base. The corporate income tax reform which took effect on 1 January 2003 aimed to eliminate the difference between the Belgian nominal rate and the EU-15 average. The most recent reform introduced the venture capital allowance from the 2007 tax year. This innovative measure reduces the discrimination between the tax treatment of equity capital and borrowings. The differential between the Belgian rate and the EU average has however since 2003 widened again to around 4 to 5 percentage points and will – in the absence of new measures – probably continue to increase in the near future.

Finally, the article focuses on the European coordination of corporate income tax. The existence of twenty-seven different corporate income tax systems in the EU entails substantial cost for multinationals. At the same time, there is the fear that tax competition may erode the tax proceeds. Both the EC and a number of committees of experts have therefore published reports in the recent decades, proposing a high degree of corporate income tax harmonisation. So far, these initiatives have not succeeded. More specific initiatives, such as directives aiming to abolish tax distortions in the case of cross-border activities and measures to combat harmful competition have been more successful. The EC is now concentrating on achieving a common consolidated tax base for multinationals.

JEL Code: H25

Key words: corporate tax, tax competition, EU tax coordination

### The flattening of the yield curve: causes and economic policy implications

The article examines the flattening of the yield curve in the euro area since mid 2004, and that in the United States where a slight inversion has actually been apparent since mid 2006. Analysis has shown that, apart from the tightening of monetary policy, this phenomenon is due to a substantial reduction in the risk premium, and especially its real component. It also indicates that this contraction

was caused mainly by strong demand for government bonds on the part of atypical investors, in particular, the Asian central banks and pension funds.

In addition, the study revealed that the reliability of break-even inflation as an indicator of inflation expectations is not really affected by this flattening, since the reduction in the inflation risk premium made only a small contribution to the contraction of the overall risk premium. Conversely, the analysis indicates that the quality of the yield curve as an advanced indicator of the business cycle is affected by the contraction of the risk premium. Since the flattening of the yield curve is due to adjustment of the risk premium rather than revised interest rate expectations, the current behaviour of the yield curve does not signal a marked slowdown in economic activity.

Since, the contraction of the risk premium corresponds to an easing of financial conditions, the monetary authorities need to exercise great vigilance in order to ensure price stability in the medium term. Vigilance is all the more necessary if the reduction in the risk premium is not due to changes in the macroeconomic fundamentals. In that case, there is also the risk of a possible upward adjustment to long-term interest rates. However, it should also be noted that the demand currently exhibited by atypical investors seems to be more structural than that generated by the “flight to quality” which lay at the root of the decline in the risk premium during the period 1997-1998. The risk premium reduction which occurred between June 2004 and June 2005 therefore appears to be more persistent than that seen between mid 1997 and the end of 1998.

JEL Code: E43, G12

Key words: yield curve, risk premia

### Direct investment and Belgium's attractiveness

Belgium, which has long had direct investment links with other countries, is participating fully in the increasingly global economy. At the end of 2005, almost half of the equity capital invested in Belgian companies as a whole was owned directly or indirectly by foreign shareholders.

The purpose of the article is to analyse Belgium's foreign direct investment (FDI) and the incoming investment from abroad, and to view it in perspective, both over time and in relation to other developed countries, especially neighbouring countries. In addition, it aims to identify the main factors determining recent developments and Belgium's relative position in 2005, the latest year for which data on FDI stocks are available.

Although influenced by the same factors as those which determine the development of FDI on a global scale, direct investment links in Belgium differ from those in other developed economies in their magnitude. In fact, the ratio between FDI flows or stocks and GDP is significantly higher in Belgium than in the majority of other developed countries, for both incoming and outgoing FDI. The scale of Belgium's direct investment links with foreign countries reflects both its function as a financial centre, particularly via the activities of the coordination centres, and its status as a small, open economy in a European Union where integration began earlier – and has progressed farther – than in other free trade areas.

In the past ten years, Belgium's FDI has expanded constantly and at a faster pace than domestic economic activity. While outgoing FDI has, like that of other developed countries, focused more on developing countries, driven by the search for new markets and lower costs, particularly for labour-intensive activities, it is nevertheless still concentrated mainly on the developed countries, including the new EU members. The main protagonists in these capital transfers, effected partly via mergers and acquisitions, are Belgian firms active in the service sector.

Over the same period, incoming FDI seems to have grown a little more slowly. In terms of stock, it actually stagnated in the early years of this century. However, the recent dynamism of FDI in Belgium has been at least as favourable as in the other European countries taken as a whole, and especially the neighbouring countries. Looking at greenfield investments, which actually lead to the creation or expansion of activities, the number of projects launched in Belgium has been rising, and at a similar rate to those developed in the EU as a whole. Belgium's main strengths in terms of activity are chemicals – including life sciences – and transport and communications, particularly logistics and distribution.

In general, the main motive for FDI projects in Belgium appears to be to serve the European market, or at least its most highly developed core, which includes Belgium. When a location is being selected for a project, Belgium is therefore competing with other EU countries and, more particularly, with neighbouring countries whose economic characteristics are comparable, notably in regard to their standard of living. Compared to other EU countries, especially the new members whose economies are less advanced, Belgium has a handicap in terms of hourly labour costs but, at the same time, it offers high productivity and various advantages as regards environmental and operational criteria, especially the quality of its infrastructures.

JEL Code: F21, F23

Key words: foreign direct investment, attractiveness

## Abstracts of the working papers series

### 106. R&D in the Belgian pharmaceutical sector, by H. De Doncker, December 2006.

The Belgian pharmaceutical sector has been accorded a leading role in the attainment of the R&D investment targets which the EU Member States set themselves as part of the Lisbon strategy. To gain a better insight into that sector's research activities, the NBB conducted an ad hoc survey in 2005, covering pharmaceutical companies active in Belgium in the field of research, production and distribution of drugs for human use. The analysis of the information obtained from that survey makes up the main body of this working paper. The survey results do not only confirm the importance of the research activities conducted by Belgian establishments, but also indicate the frequent cooperation with other research centres and the crucial importance of expertise as a factor influencing the location of such activities in Belgium. The breakdown of the survey results by kind of establishment on the basis of the type of activities conducted in Belgium reveals further clear differences of emphasis in the nature of the R&D activities pursued in Belgium and divergences in the scale of the resources used. The paper also comprises a number of annexes giving additional information on the sector. More particularly, they deal with added value and employment, the indirect effects and profitability of the pharmaceutical companies, and background information on reference reimbursement of drugs.

### 107. Direct investment in Belgium: extent and trend, by Ch. Piette, January 2007.

The aim of the study is to give an overview of recent developments in Belgium's direct investment relations with the rest of the world. The analysis is based mainly on two sets of statistics drawn up by the NBB, namely, data on direct investment flows from the balance of payments on the one hand, and the results of an annual survey on direct investment carried out among Belgian companies, on the other. Foreign direct investment (FDI) flows between Belgium and the rest of the world have, broadly speaking, followed relatively similar trends to FDI flows observed worldwide, but at the same time have shown some specific characteristics, such as the influence of a few sporadic operations involving large amounts and significant differences within the various components making up FDI inflows and outflows, the former consisting essentially of capital injections in companies and the latter mainly taking the form of intercompany loans. This particular structural pattern stems from the presence of the coordination centres in Belgium and the special tax status that these companies enjoy. Apart from those investment flows attributable to the coordination centres, a large part of the FDI inflows recorded in the balance of payments concern investment by multinationals in third countries, for which resident companies act as intermediaries. Still disregarding funds invested in the coordination centres, the total figures compiled on the basis of the annual survey show that foreign

shareholdings in Belgian firms, as measured on the basis of their book value, have stabilized since 2002. Moreover, statistics for subsidiaries of foreign companies established in Belgium show that there is still a fairly high proportion of them active in relatively labour-intensive industrial sectors. As for Belgium's FDI, the results of the direct investment survey point to a gradual expansion in Belgian companies' activities abroad, which are developing at a faster pace than their domestic business. Both data on outstanding equity and those for subsidiaries abroad indicate that foreign direct investment by resident firms is largely concentrated in other developed countries with similar economic features to Belgium. This would tend to suggest that the extent of straight business relocations to low-wage countries by Belgian firms via investments abroad remains relatively limited.

108. [Investment-specific technology shocks and labor market frictions](#), by R. De Bock, February 2006.

The paper studies the implications of technical progress through investment-specific technical change in a business cycle model with search and matching frictions and endogenous job destruction. The interaction between the capital formation needed to reap the benefits of an investment-specific technology shock and gradual labor-market matching, generates hump-shaped, persistent responses in output, vacancies, and unemployment. The endogenous job destruction decision also leads to small but persistent endogenous fluctuations in total factor productivity. Simulations suggest a limited role for investment-specific technology shocks as a source of business cycle fluctuations compared to a standard real business cycle model.

109. [Shocks and frictions in US business cycles: a Bayesian DSGE approach](#), by F. Smets and R. Wouters, February 2007.

Using a Bayesian likelihood approach, the authors estimate a dynamic stochastic general equilibrium model for the US economy using seven macro-economic time series. The model incorporates many types of real and nominal frictions and seven types of structural shocks. The authors show that this model is able to compete with Bayesian Vector Autoregression models in out-of-sample prediction. They investigate the relative empirical importance of the various frictions. Finally, using the estimated model they address a number of key issues in business cycle analysis: What are the sources of business cycle fluctuations? Can the model explain the cross-correlation between output and inflation? What are the effects of productivity on hours worked? What are the sources of the "great moderation"?

110. [Economic impact of port activity – the case of Antwerp](#), by F. Coppens, F. Lagneaux, H. Meersman, N. Sellekaerts, E. Van de Voorde, G. van Gastel, Th. Vanellander and A. Verhetsel, February 2007.

The economic impact of the port sector is usually measured at an aggregate level by indicators such as value added, employment and investment. The paper tries to define the economic relevance for the regional as well as for the national economy at a disaggregate level. It attempts to identify, quantify and locate the mutual relationships between the various port players themselves and between them and other Belgian industries. Due to a lack of information foreign trade is only tackled very briefly but the method outlined can be used to measure the national effects of changes in port activity at a detailed level. A sector analysis is made by compiling a regional input-output table, resorting to microeconomic data: a bottom-up approach. The main customers and suppliers of the port's key players or stakeholders are identified. A geographical analysis can also be carried out by using data at a disaggregate level. Each customer or supplier can be located by means of their postcode. In so doing, the economic impact of the port is quantified, both functionally and geographically. In the case of the port of Antwerp, the results show important links between freight

forwarders and agents. The geographical analysis suggests the existence of major agglomerating effects in and around the port of Antwerp, referred to as a major transshipment location point.

111. [Price setting in the euro area: Some stylized facts from individual producer price data](#), by Ph. Vermeulen, D. Dias, M. Dossche, E. Gautier, I. Hernando, R. Sabbatini and H. Stahl, March 2007.

The paper documents producer price setting in six countries of the euro area: Germany, France, Italy, Spain, Belgium and Portugal. It collects evidence from available studies on each of those countries and also provides new evidence. These studies use monthly producer price data. The following five stylised facts emerge consistently across countries. First, producer prices change infrequently: each month around 21 p.c. of prices change. Second, there is substantial cross-sector heterogeneity in the frequency of price changes: prices change very often in the energy sector, less often in food and intermediate goods and least often in non-durable non-food and durable goods. Third, countries have a similar ranking of industries in terms of frequency of price changes. Fourth, there is no evidence of downward nominal rigidity: price changes are for about 45 p.c. decreases and 55 p.c. increases. Fifth, price changes are sizeable compared to the inflation rate. The paper also examines the factors driving producer price changes. It finds that costs structure, competition, seasonality, inflation and attractive pricing all play a role in driving producer price changes. In addition producer prices tend to be more flexible than consumer prices.

112. [Assessing the gap between observed and perceived inflation in the euro area: Is the credibility of the HICP at stake?](#), by L. Aucremanne, M. Collin and T. Stragier, April 2007.

The authors find strong econometric support for a break in the relationship between perceived and harmonised index of consumer prices (HICP) inflation in the euro area, triggered by the introduction of euro notes and coins in January 2002. The break is fairly homogeneous across individuals with different socio-economic characteristics. There is no support for the thesis according to which perceptions are systematically formed by frequently purchased products. A similar break is found when national consumer prices indexes instead of HICPs are used as benchmarks. The role of the non-inclusion of owner-occupied housing in the HICP was negligible. Therefore the credibility of the HICP per se is not at stake.

113. [The spread of Keynesian economics: a comparison of the Belgian and Italian experiences](#), by I. Maes, April 2007.

Keynesian economics dominated economic thought and macroeconomic policy-making in the 1950s and 1960s. However, the diffusion of Keynesian economics has been uneven. The author compares the spread of Keynesian economics in two continental European countries: Belgium and Italy. He focuses on the post-World War II period, taking as the main message of Keynesian economics that the market is inherently unstable and that the government has a key role in economic life in steering effective demand. He further follows Coddington's distinction between "hydraulic", "disequilibrium" and "fundamentalist" Keynesianism. The study shows that Belgium and Italy were two countries where Keynesian economics gained ground only relatively late. The breakthrough of (hydraulic) Keynesianism came in areas which were close to the policy-making process: setting up national income accounts, the construction of macroeconomic models and correcting regional imbalances. The main difference between the two countries was the strong position of fundamentalist Keynesianism in the academic world in Italy, while in Belgium, disequilibrium Keynesianism was more influential.

114. Imports and exports at the level of the firm : Evidence from Belgium, by M. Muûls and M. Pisu, May 2007.

The paper proposes a search and matching model with nominal stickiness à la Calvo in the wage bargaining. It analyzes the properties of the model, first, in the context of a typical real business cycle model driven by stochastic productivity shocks and second, in a fully specified monetary dynamic stochastic general equilibrium (DSGE) model with various real and nominal rigidities and multiple shocks. The model generates realistic statistics for the important labor market variables.

115. Economic importance of the Belgian ports: report 2005 Flemish maritime ports and Liège port complex, by F. Lagneaux, May 2007

The Flemish maritime ports – Antwerp, Ghent, Ostend, Zeebrugge – and the Autonomous Port of Liège play a major role in their respective regional economies and in the Belgian economy, not only in terms of industrial activity but also as intermodal centres facilitating the commodity flow.

The paper<sup>(1)</sup> provides an extensive overview of the economic importance and development of the Flemish maritime ports and the Liège port complex in the period 2000-2005, with an emphasis on 2005. Focusing on the three major variables of value added, employment and investment, the report also provides some information about the financial situation in each port. A global indication concerning the financial health of the companies studied is also provided. These observations are linked to a more general context, along with a few cargo statistics.

2005 was a year of steady growth for most Flemish maritime ports, in terms of quantity of cargo handled and value added, although there was a slight deceleration in comparison to the previous year. The employment situation was, by contrast, somewhat mixed, while investment soared, far exceeding the pace recorded since 2000. The current changes in world trade patterns are having a substantial impact on the operations of the Flemish and Liège ports, situated at the heart of one of the wealthiest and busiest trading regions of the world. To cope with the accelerating internationalisation of port competition and the tremendous growth of containerised seaborne transport, the ports concerned need to constantly adapt their infrastructures, through innovation and investment. As major logistic centres, they have to face the challenge of responding to increasing demand in terms of capacity, while adding as much value as possible to the goods passing through them. Accessibility and seamless connections with the hinterland are key to their success and durability. This has become absolutely vital in a climate of growing regional and international competition, accentuated by the booming Asian economies.

The port of Liège is striving to turn a threat into an opportunity. In the wake of the Cockerill Sambre blast furnace closure, the Liège port complex is undergoing a major restructuring. Cargo figures were down sharply in 2005, while the economic situation of the area was dominated by stagnation or decline in terms of value added, employment and investment. However, this fall could be short-lived since the revival expected from the development of value-added logistics will also generate increased activity, traffic and demand for manpower.

(1) Update of Lagneaux F. (2006), *Economic importance of the Belgian ports: Flemish maritime ports and Liège port complex – report 2004*, NBB, Working Paper No. 86 (Document series). All figures have been updated.



# List of abbreviations

## COUNTRIES

BE	Belgium
DE	Germany
IE	Ireland
EL	Greece
ES	Spain
FR	France
IT	Italy
LU	Luxembourg
NL	Netherlands
AT	Austria
PT	Portugal
SI	Slovenia
FI	Finland
CZ	Czech Republic
DK	Denmark
EE	Estonia
CY	Cyprus
LV	Latvia
LT	Lithuania
HU	Hungaria
MT	Malta
PL	Poland
SK	Slovakia
SE	Sweden
GB	United Kingdom
UE-15	European Union excluding the countries which joined in 2004 and 2007
UE-25	European Union excluding Bulgaria and Romania
JP	Japan
US	United States

## OTHERS

BIS	Bank for International Settlements
BNRC	Belgian National Railway Company
BSE	Bovine Spongiform Encephalopathy
CCCTB	Common Consolidated Corporate Tax Base
CEC	Central Economic Council
CEPII	Centre d'études prospectives et d'informations internationales
CIS	Commonwealth of Independent States
DIW	Deutsche Institut für Wirtschaftsforschung
EC	European Commission
ECB	European Central Bank
Ecofin	EU Council of Ministers of Economic Affairs and Finance
EDP	Excessive Deficit Procedure
EEC	European Economic Community
EMU	Economic and Monetary Union
ESA	European System of Accounts
ESCB	European System of Central Banks
EU	European Union
EURIBOR	Euro interbank offered rate
FDI	Foreign Direct Investments
FPB	Federal Planning Bureau
FPS	Federal Public Service
FRA	Forward rate agreement
GDP	Gross Domestic Product
GNI	Gross National Income
HICP	Harmonised Index of Consumer Prices
HP	Hodrick-Prescott
HWWA	Hamburgisches Welt-Wirtschafts-Archiv
IAS	International Accounting Standards
ICT	Information and Communication Technologies
IFRS	International Financial Reporting Standards
IFS	Institute for Fiscal Studies
IMD	Institute for Management Development
IMF	International Monetary Fund
LTCM	Long-term Capital Management
NAI	National Accounts Institute
NBB	National Bank of Belgium
NEMO	National Employment Office
NMS	New Member States
NSI	National Statistical Institute
NSSO	National Social Security Office

## LIST OF ABBREVIATIONS

OECD	Organisation for Economic Cooperation and Development
RIF	Railway Infrastructure Fund
R&D	Research and Development
S&P	Standard & Poor's
SICAF	Société d'investissement à capital fixe (Investment fund with fixed capital)
SICAV	Société d'investissement à capital variable (Investment fund with variable capital)
SMEs	Small and Medium-sized Enterprises
SPF	ECB Survey of Professional Forecasters
TICS	Treasury International Capital System
UNCTAD	United Nations Conference on Trade and Development
VAR	Vector autoregression
VAT	Value Added Tax
WEF	World Economic Forum

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