EUROFRAME - European Forecasting Network

Economic Assessment of the Euro Area: Forecasts and Policy Analysis

Autumn Report 2005

Special Policy Issue:

The Future of Corporate Taxation in the EU

October 2005

www.euroframe.org

CONTENTS

EXECUTIVE SUMMARY

Euro Area growth prospects are weak – dampening effect of higher oil prices …

EUROFRAME - European Forecasting Network predicts that the Euro Area economic growth will remain weak relative to other major economies, with GDP projected to rise by just 1.2 per cent in 2005, compared to growth of 2.6 per cent in the OECD area. Private sector investment and trade growth were particularly disappointing in the first half of 2005 in the Euro Area, where our projections for GDP growth have been revised downwards by roughly 0.2-0.3 percentage points per annum since the Spring Report. This revision may seem relatively modest given a rise in the oil price of roughly $20 per barrel over this period. While the oil price rise lifts inflationary pressures in the Euro Area, the negative impact on growth is largely offset by the combined effects of a fall in both real and nominal long-term interest rates and by a modest depreciation of the euro. These two developments should help stimulate investment growth and external demand, offsetting the downward pressure on consumer demand from higher prices.

Summary of Key Forecast Indicators for Euro Area

	2002	2003	2004	2005	2006	2007
Output Growth	0.9	0.7	1.8	1.2	1.8	2.0
Inflation Rate	2.3	2.1	2.1	2.2	2.0	1.9
Unemployment rate	8.2	8.7	8.9	8.6	8.4	8.3
Govt. Balance as % of GDP	-2.5	-3.0	-2.7	-2.8	-2.7	-2.4

* Inflation rate is the HICP measure and unemployment is the EUROSTAT standardised rate

… offset by lower long-term interest rates and depreciating currency

EUROFRAME-EFN forecasts for GDP growth in major regions show a modest downward revision for 2005 reflecting a weaker outlook for both North America and the Euro Area, while outside the OECD we also see weaker prospects in China. Our forecast for world growth is unchanged for 2006, at 4.3 per cent but we do see a downward revision to prospects for the Euro Area, offset by slightly stronger prospects outside the OECD, primarily in oil exporting economies, which benefit from high revenues thanks to oil prices of over $60 per barrel.

Three key developments over the last six months have influenced the revisions to our forecast since the Spring Report. The oil price has risen by roughly $20 per barrel; long-run interest rates have come down by about 0.6 percentage points in the Euro Area; and the euro exchange rate has fallen by around 5 per cent against the dollar as well as a basket of currencies since March. Real oil prices facing Euro Area consumers are now higher than at any time since 1986, and have exceeded the levels seen in the 1970s. With real prices roughly triple their average value in the 1990s, this will inevitably impact on inflation and demand in the Euro Area.

There exist a number of tentative explanations for the current low long-term interest rates. Low inflation expectations associated with pessimism about growth prospects or increased central bank credibility may be reducing interest rates in the euro area, as may the ending of a period of rapid US technical progress. In the shorter term, Asian central banks have been buying up more US Treasury bonds than ever before and hence US Treasury bond yields fallen, and this has affected the securities of other governments. In addition, there is the view that a significant increase in the global supply of savings helps to explain the relatively low real interest rates in the world today.

Interest Rates to remain low…

We expect that the ECB will keep interest rates constant for some time because the economic expansion will remain modest and the perspectives for inflation will probably not worsen in the near future. All in all, the actual interest rate will be fairly close to the Taylor rate. In our judgment, however, key interest rates will be raised in the medium term because they are lower than the "neutral" rate according to all calculations. We expect that the ECB will start to tighten policy at the end of next year.

..fiscal policy to remain slightly contractionary

Lower than expected growth for 2005 leads us to anticipate the Euro Area fiscal deficit will be higher by about 0.2 percentage points of GDP this year at 2.8 per cent of GDP, or 3.1 excluding one-off measures, while the fiscal stance will be slightly contractionary. We expect fiscal policy to remain slightly contractionary until 2007 at the euro area level, reflecting somewhat contractionary measures in countries running higher than 3 per cent of GDP deficits, while fiscal policy will be neutral or slightly expansionary in the other countries. But the Euro area government deficits will remain at around 2.4 per cent in 2007, under the moderate expectations for growth.

… oil prices to remain high but inflation and growth at moderate rates

We expect oil prices to remain at around $60 until 2007, and the Euro Area effective exchange rate to remain almost unchanged, at a level more than 25% higher than in 2002. We expect the euro area to record inflation rates at or close to 2 per cent. GDP growth is expected to reach 1.8 in 2006 and 2.0 in 2007, with the unemployment rate decreasing but still in the order of 8.3 per cent in 2007

No major negative effects from Katrina ..

The two largest economies in North America, the US and Canada, began 2005 at a healthy pace. The slowdown in Mexico, where growth fell sharply from a solid rise of 4.9 per cent per annum in the final quarter of last year to just above 2.4 per cent in the first quarter of 2005, contributed to a relatively soft outcome for NAFTA growth in the opening quarter of this year, as compared to 2004. We expect growth in North America to decelerate by about ¾ percentage point from the rate recorded in 2004, to about 3¼ per cent per annum in 2005 and 2006. Hurricane Katrina will have some minor negative effect on US output in the short term, but activities relating to reconstruction will boost output measures over the medium term.

… but risks remain from higher oil prices

A significant risk to the EUROFRAME-EFN forecast is from a permanent rise in the oil price by US$20 per barrel. This would increase inflation and inflationary expectations requiring a monetary authority response. Output growth would be reduced by about 0.3 percentage points a year for each of the three years following the shock. Even with a response from the monetary authorities, raising rates by 0.7 percentage points at the end of 2005 and into 2006 and 2007, inflation would still be 0.5 per cent higher on average over these three years. A stronger reaction of monetary authorities than suggested in

our scenario would bring inflation down significantly but the output effects would increase in size and duration.

… Chinese currency appreciation nor demand rebalancing a panacea for

The role of China in reducing the burden currently placed on Europe from a global rebalancing is also considered in the EUROFRAME-EFN report. A 10 per cent Chinese Renminbi appreciation against the US dollar will dampen China's exports and output but this impact will be short-lived as domestic prices adjust rapidly moving the real exchange almost all the way back to initial levels. A Renminbi revaluation will not in itself provide a panacea for lifting the burden from Europe but a permanent increase in Chinese domestic demand would have an impact, albeit limited.

Corporate tax competition in Europe intensifying

Further integration in the EU is bound to intensify tax competition, which is the special topic of this Report. One of the most evident signs of tax competition has been the widespread and continuous reduction in the statutory rates of companies' taxation. Moreover, the share of corporate tax revenue over GDP began to decline since the beginning of the new millennium, adding strain on the keeping of fiscal balances. If globalisation induces the progressive vanishing of corporation tax, other sources of revenue should be found, or expenditures cut, and the overall systems of direct taxation traditionally adopted by the EU member states should be consequently reformed to provide a coherent setting.

This Report's special topic focuses on the potential costs of tax competition in the field of corporate taxation and discusses the potential benefits of different types of tax policy coordination.

… different tax bases an obstacle to internal market integration

The existence of 25 different tax systems increases transaction and compliance costs, penalising companies operating in the EU, relative to purely domestic companies. Another obstacle to internal market integration is caused by the fact that cross-border loss compensation in the EU is usually not allowed by the national tax systems currently adopted. The 2001 Commission's proposal for a common consolidated corporate tax base goes in the direction of reducing these costs. This levels the playing field both within the EU, for companies operating either domestically or in more than one member state, as well as between the EU and its worldwide competitors.

To the extent that consolidated profits are subsequently allocated by an automatic formula, as envisaged in the Commission's proposal, rather than by separate accounting, other problems could be solved, in particular the convenience to shift profits from high to low tax countries. Despite the still limited empirical evidence on the quantitative importance of profit shifting in the EU, the use of transfer pricing, thin capitalisation or similar tax planning devices are widely known and used by multinational companies to minimise their tax burden. However, implementing a system of formula apportionment in the EU would not usually, depending on the formula adopted, be able to entirely solve this problem.

… common consolidated tax base unable to address possible misallocation of capital

A common consolidated tax base with formula apportionment would also be unable, again with differences depending on the formula adopted, to properly face the problem of the possible misallocation of capital, which could be induced by tax rates differentials. The Report shows that there is a wide dispersion of effective tax rates among EU countries and there is evidence that foreign direct investments are sensitive to these differentials. The risk of tough tax competition to attract FDI is limited by the prominent importance on non-tax factors in the location of FDI, but does exist in the European Union.

… a common capital tax rate is neither necessary nor desirable

The Commission's proposal is strictly limited to tax base coordination: each member state would be left free to set the desired tax rate on apportioned profits. Moving in this direction would be an important step towards greater integration and a better functioning of the internal market, but would not constitute a complete and entirely satisfactory solution to all the relevant issues. To fully solve the problem of profit shifting, tax base coordination should be accompanied by tax rate harmonisation. To prevent misallocation of capital, a common rate is not necessary and could even be harmful, as long as higher rates are accompanied by location specific rents (including those induced by agglomeration forces, or efficient public services or infrastructure), and as long as the common rate will force small, peripheral countries to increase their rates.

… but a minimum tax rate could be desirable.

That is why the proposal of a minimum tax rate tends to have a greater support in the literature. The level should be low enough to encourage growth in the EU and prevent losses for the less advantaged-low taxed countries. Another suggested policy is a two-tier approach with a higher minimum tax rate for old and a lower minimum tax rate for new member states, with the latter progressively increasing as countries converge. Otherwise, other solutions should be devised in order to compensate these countries losing from tax rate coordination.

1. OUTLOOK FOR THE EURO AREA

1.1 Overview

The Euro Area remains weak relative to other major economies, but nonetheless GDP growth accelerated to 1.8 per cent in 2004. The outlook for 2005 is less favourable, with output projected to rise by just 1.2 per cent. Private sector investment and trade growth were particularly disappointing in the first half of 2005. Our projections for Euro Area growth have been revised downward by roughly 0.2 percentage points per annum since spring. This revision may seem relatively modest given a rise in the oil price of roughly $20 per barrel over this period. While the oil price rise lifts inflationary pressures in the Euro Area, the negative impact on growth is largely offset by the combined effects of a fall in both real and nominal long-term interest rates and a modest depreciation of the euro. These two developments should help stimulate investment growth and external demand, offsetting the downward pressure on consumer demand from higher prices.

Table 1.1: Summary of Key Forecast Indicators for the Euro Area

	2001	2002	2003	2004	2005	2006	2007
Output Growth Rate	1.7	0.9	0.7	1.8	1.2	1.8	2.0
Inflation Rate (Harmonised)	2.4	2.3	2.1	2.1	2.2	2.0	1.9
Unemployment Rate	7.8	8.2	8.7	8.9	8.6	8.4	8.3
Govt. balance as % of GDP	-1.9	-2.5	-3.0	-2.7	-2.8	-2.7	-2.4

Euro Area export growth has been restrained by the strength of the euro since 2002, with the effective exchange rate roughly 25 per cent stronger than at the beginning of that year. Accompanying the exchange rate appreciation, relative export prices rose in all the Euro Area economies in 2002 and 2003, with significantly higher rises experienced in Greece, Italy and France over this period. Hence, net trade is expected to have a negative impact on GDP growth in 2005. But external demand is projected to strengthen in 2006, thanks to a slight improvement in external competitiveness and a relatively high level of exports to oil exporting countries such as Russia, Norway and the members of Opec where windfall receipts from high oil prices are recycled into high import demand. We project a modest positive impact of net trade on growth in 2006 and 2007.

The rising oil price puts upward pressure on inflation in the Euro Area, although this is offset to some extent by the strength of the euro. We have revised our forecast for inflation up by 0.2 percentage points since March, and we do not foresee the harmonised inflation rate falling below 2 per cent before

2007. The outlook for unemployment, on the other hand, has improved in the last six months, as the unemployment rates in Spain, and to some extent France and Germany, have come down more rapidly than anticipated. The fiscal outlook remains disappointing, and the dampened outlook for growth combined with statistical revisions to the historical data make the prospects for achieving a budget of close to balance this decade more remote.

1.2 Global Outlook

World growth accelerated to its fastest pace in 28 years in 2004, reaching 5.1 per cent. Global growth well above trend reflected strong domestic demand in the US, France, the UK, Canada and Spain, as well as oil exporting nations such as Russia, Mexico and Opec members. Japan and China also benefited from a strong boost to net trade, with world trade growth rising to 7.9 per cent following 3 years of sub-trend growth. Growth in both the US and Japan rose well above recent trends last year, while the UK and Canada also performed relatively well. We also saw a strong acceleration in South America and Africa.

The outlook remains buoyant on a global level, with world GDP expected to rise by 4¼ per cent in both 2005 and 2006. Nonetheless, this represents a marked slowdown, with US growth projected to slow by nearly 1 percentage point this year. Output growth in the UK is projected to slow by more than 1 percentage point, to 2 per cent, while the outlook for Japan remains strong. World trade growth is expected to moderate this year relative to 2004, with growth of 6.1 per cent projected, but a recovery towards 6¾-7 per cent per annum is foreseen for 2006 and 2007.

1.2.1 KEY DEVELOPMENTS

Table 1.2 reports EUROFRAME-EFN forecasts for GDP growth in major regions in spring and autumn of this year. We have made a modest downward revision to our projection for 2005 since March. This reflects a weaker outlook for both North America and the Euro Area, while outside the OECD we also see weaker prospects in China. Our forecast for world growth is unchanged for 2006, but we do see a downward revision to prospects for the Euro Area, offset by slightly stronger prospects outside the OECD, primarily in oil exporting economies, which benefit from high revenues thanks to oil prices of over $60 per barrel.

Table 1.2: GDP Growth Forecasts in Spring and Autumn 2005

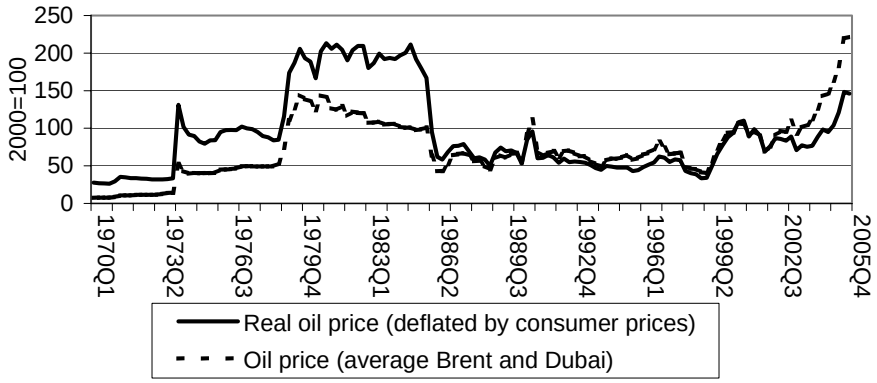
	World		OECD		NAFTA		Euro Area	
	Spring	Autumn	Spring	Autumn	Spring	Autumn	Spring	Autumn
2004	4.6	5.1	3.2	3.4	4.3	4.1	1.8	1.8
2005	4.5	4.2	2.7	2.6	3.6	3.3	1.5	1.2
2006	4.3	4.3	2.9	2.7	3.3	3.2	2.0	1.8

We identify three key developments over the last six months that influence the revisions to our forecast since the Spring Report: the oil price has risen by roughly $20 per barrel; long-run interest rates have come down by about 0.6 percentage points; and the dollar has appreciated against the euro by roughly 5 per cent. Each of these developments is analysed below, and their net impact on our forecast is assessed.

OIL PRICES

Oil prices have risen further this year and in September reached a new nominal record level of $67 per barrel for Brent crude. On top of this, a shortage of refinery capacity has pushed up profit margins for oil refineries, raising the price of final oil products by more than the crude price. Real oil prices facing Euro Area consumers are now higher than at any time since 1986, and have exceeded the levels seen in the 1970s. With real prices roughly triple their average value in the 1990s, this will inevitably impact on inflation and demand in the Euro Area.

Chart 1.1: Oil Price in the Euro Area



The high oil price is the result of a steep increase in global demand in recent years in combination with a limited increase in supply. As a result, spare capacity of the Opec producers is very low. Furthermore, the oil price was boosted by temporary disruptions such as the hurricane Katrina and possibly to some extent by speculation. The limited rise in supply up to now is due to the long period it takes to develop new oil fields and the current strong discipline within the Opec-cartel preventing a sharp investment reaction in this crucial region.

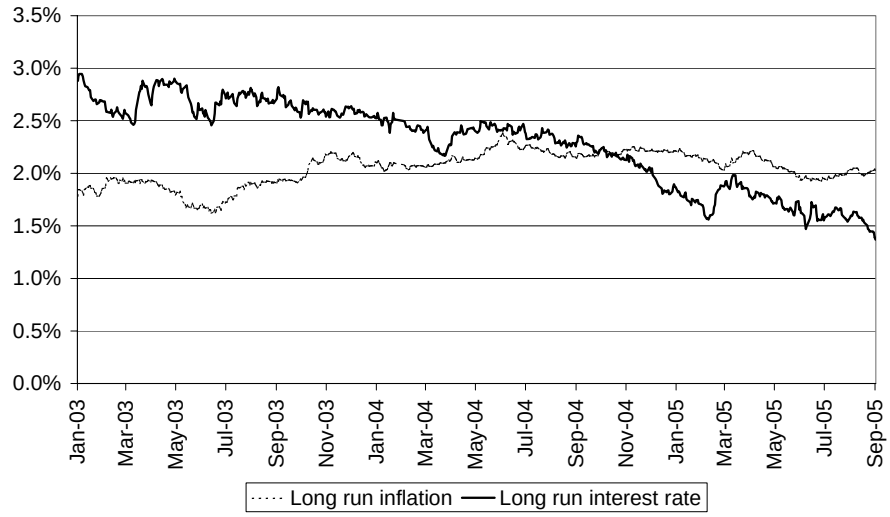
As indicated by the rise in the number of oilrigs in operation, oil supply is expected to increase further in the near future. However, this rise in supply will only be sufficient to cover the expected increase in demand and the oil price is projected to drop only marginally, from $62 per barrel for a weighted average of Brent and Dubai in 2006 to $57 per barrel in 2007. With the oil market tight and reserve capacity limited, temporary drops in oil production, caused for instance by international political tensions or more events like damaging hurricanes in the Gulf of Mexico, could easily lead to substantially higher oil prices.

WHY ARE LONG-TERM INTEREST RATES SO LOW?

Long-term interest rates reflect a combination of expectations of inflation and of the medium to long-term real interest rate. These latter rates should in turn reflect the expected growth rate of the economy, and in the longer term we would expect them to exceed the combined rates of growth of the labour force and of technical progress. As we can see from chart 1.2 on indexed French government bonds (OATi), inflation expectations have not moved much in the last year or so, and remain at an average of 2 per cent per annum over the next

10 years. However, real interest rates expected to prevail over the same period have fallen markedly. Longer-term real rates have also fallen, with long real rates in the Euro Area settling at around 2 per cent per annum if expected inflation remains at 2 per cent. Elsewhere, the difference between a US government indexed bond maturing in 2008 and one maturing in 2028 imply that real rates in the US will also average 2 per cent over this period.

Chart 1.2: 10-Year Inflation Indexed Bonds, France



There exist a number of tentative explanations for the current low long-term interest rates. Low inflation expectations associated with pessimism about growth prospects may be reducing interest rates in Europe. Perceptions that labour market reform in Europe is slow may also be reducing perceptions of longer-term growth prospects[1], as may the ending of a period of rapid US technical progress. In the shorter term, Asian central banks have been buying up more US Treasury bonds than ever before and hence US Treasury bond yields fallen, and this has affected the securities of other governments. In addition, there is the view prominently advocated by Ben Bernanke, former Governor of the Federal Reserve Board, that a significant increase in the global supply of savings helps to explain the relatively low real interest rates in the world today.[2] The non-OECD world especially has ample savings but few profitable investment opportunities. Recent changes in prudential supervision of institutional investors may have also helped reduce long-term rates. Prudential supervisors require more and more pension funds and life insurance companies to match the duration of their assets and liabilities. As a result, pension funds and life insurance companies are demanding more government bonds. Finally, investors probably perceive central banks to be more effective in maintaining price stability. Going from a period of high and volatile inflation to a period of low and stable inflation has certainly contributed to a fall in inflation risk premiums, and hence lower long-term interest rates.

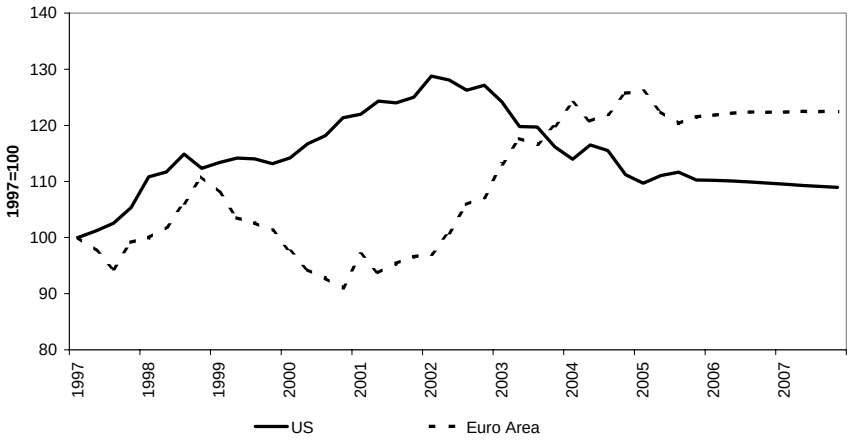
[1] This view is not shared by OFCE.

[2] Ben S. Bernanke, The Global Saving Glut and the U.S. Current Account Deficit, at the Homer Jones Lecture, St. Louis, Missouri. Governor Ben S. Bernanke presented similar remarks at the Sandridge Lecture, Virginia Association of Economists, Richmond, Virginia, on March 10, 2005.

EXCHANGE RATES

The euro nominal effective exchange rate rose sharply in 2002 and 2003, and now stands roughly 25 per cent higher than in early 2002. The strong exchange rate has hampered competitiveness and has been an import factor behind weak export growth in several Euro Area economies. However, it also reduces the cost of commodities, such as oil and manufacturing equipment, which are priced in US dollars, easing costs to manufacturers, and has helped keep under control the inflationary pressures that were emerging in the Euro Area until 2002.

Chart 1.3: Nominal Effective Exchange Rates



While the euro remains strong, we have seen a modest depreciation since March, and the exchange rate assumptions embedded into our forecast see the euro about 5 per cent weaker than anticipated in our Spring Report. We do not see any significant change in the exchange rate over the forecast, and it moves broadly in line with the path indicated by interest differentials between the US and the Euro Area. Our interest rate projections in turn broadly reflect the shape of the yield curve on both sides of the Atlantic.

DECOMPOSING THE CHANGE IN OUR FORECAST

Forecasts are revised in the light of developments in both the national accounts and because of a changed environment. Since our forecast in March 2005 we have revised down growth prospects for the Euro Area by 0.2-0.3 percentage points in 2005 and 2006, whilst we have revised our inflation forecast upward. Prospects for long rates, the exchange rate and for oil prices have all changed markedly since our March evaluation of the Euro Area, and it is useful to decompose the effects of these changes. Chart 1.4 shows the rise in the oil price relative to our projections in March, with a differential of about $20 per barrel. Of course the rise in oil prices will have reduced our growth projections and increased our inflation forecast, and this is discussed in more detail in Section 1.4 of this Report. But the financial market developments may not have worked in the same directions. Since our last forecast long rates (both real and nominal) have fallen everywhere, but more in the Euro Area than in the US, as we can see from the projections in Chart 1.5. In total they have come down by roughly 1 percentage point over last 18 months. As we can see from Chart 1.6, the euro exchange rate has also fallen by around 5 per cent against a basket of currencies since March, and in combination these two

events in the financial market should cause us to revise upward our forecasts for output growth and inflation.

Chart 1.4: Revision to Oil Price since March

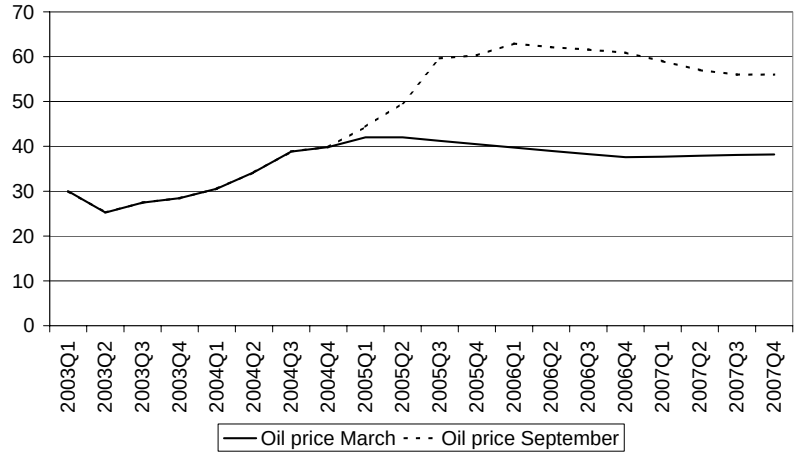


Chart 1.5: Revision to Long Rates since March

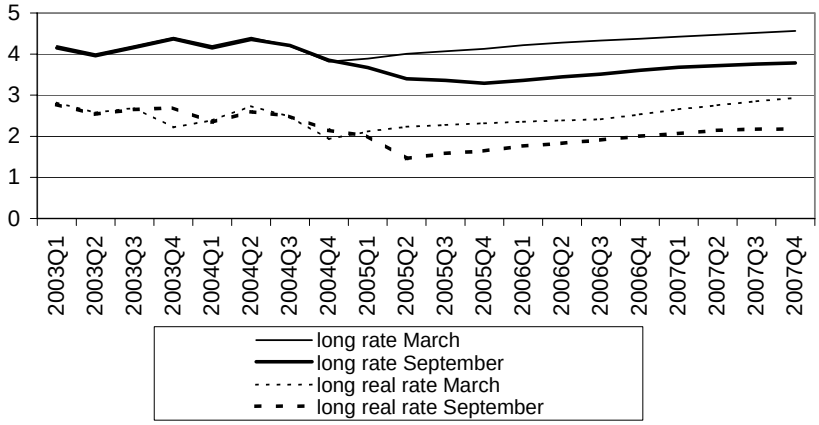
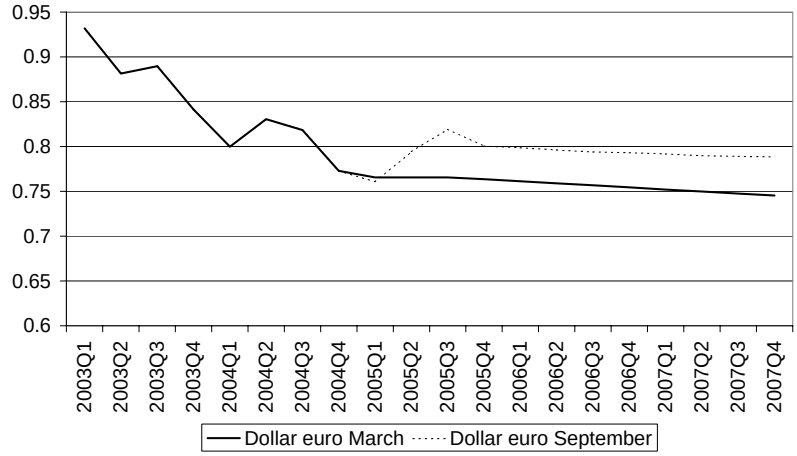
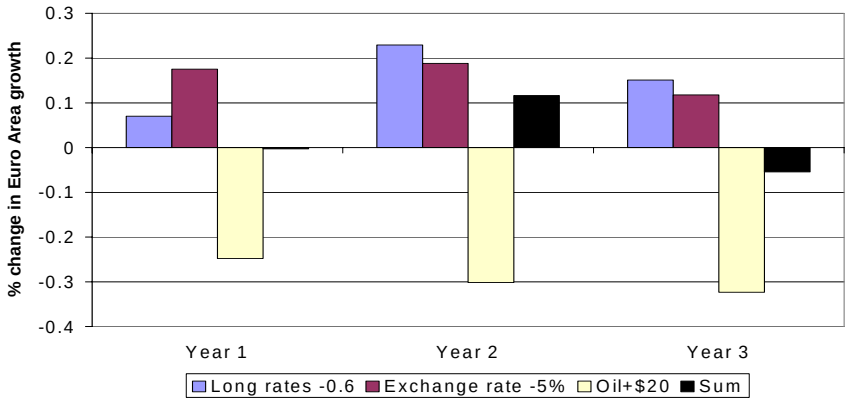


Chart 1.6: Revision to €/$ rate since March



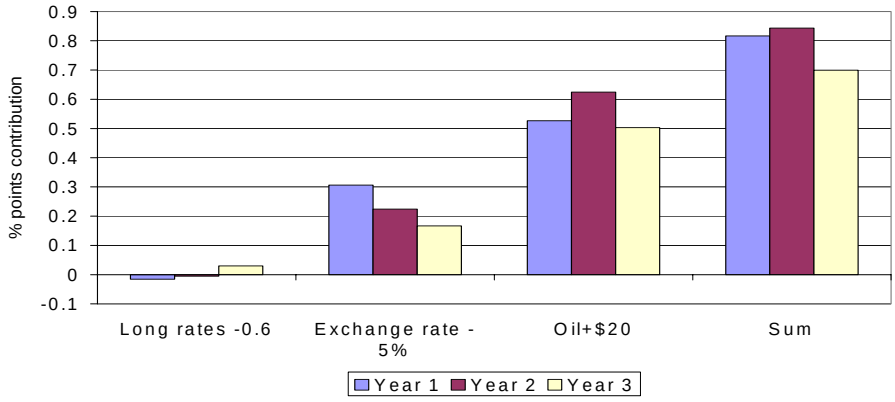
It is relatively clear that financial market developments have largely offset the impact of the oil price on Euro Area. Using our model, NiGEM, we have simulated the impact of these three major changes to our forecast, and cumulated them. We started with a cut of 0.6 percentage points in long real rates (long rates) everywhere in forward mode, allowing bond prices and wealth to respond. We then simulated a 5 per cent depreciation of the euro against the dollar, but in backward mode as the exchange rate is a jump variable and had to be held fixed in the first period. Finally, we have simulated a $20 per barrel rise in the oil price in forward mode with policy reactions in place. The impacts of these on output and inflation are plotted in the two charts 1.17 and 1.18 below.

Chart 1.7: Cumulating Impact on Growth



Looking first at growth, we can see from the chart that the fall in long rates and in the euro exchange rate would have boosted growth since March, and in the first 12 months after such a combined shock their expansionary effects just offset the impact of the increase in the oil price. Hence we would argue that these factors together would not lead us to revise down our forecast for 2005, and as we can see they may have led us to revise up our growth forecast in 2006 but not 2007. Overall prospects look rather weaker than they did, and we would argue that this has come more from developments in trade and in domestic conditions than from oil and financial market developments.

Chart 1.8: Cumulating Impact on Inflation



The three shocks together should have had an upward impact on inflation, as we can see from the chart. Given the timing of the shocks, which took place during the year, some of year 1 has to be allocated to 2006, and we would have expected to see inflation 0.4 higher in 2005 and 0.8 higher in 2006. Our

forecast revision to inflation is about half this size[3], reflecting in part the impact of the excess weakness in growth discussed above. In general we would say that weaker growth prospects account for about half of the difference between our forecast revisions and that implied in the simulations, with the remainder reflecting the combined judgement of the member Institutes in the group.

We have also revised our US forecast in the light of these and other events, and we would judge that oil prices, the exchange rate and long rates have probably reduced growth in the US by around 0.3 per cent a year between 2005 and 2007. This in part reflects the facts that the dollar has appreciated and that long rates in the US have fallen by around half as much as in the Euro Area. However, offsetting the downward influence, house price growth has been 5 per cent stronger in 2005 than we expected in March, boosting output growth by 0.3 to 0.6 per cent, with the effects come through wealth effects in consumption and Q effects in housing investment. Overall we see little reason for significant further downward revisions in the US, except those discussed below in relation to hurricane effects.

1.2.2 NORTH AMERICA: OUTLOOK REMAINS FAVOURABLE EVEN AFTER KATRINA

The two largest economies in North America, the US and Canada, began 2005 at a healthy pace. The slowdown in Mexico, where growth fell sharply from a solid rise of 4.9 per cent per annum in the final quarter of last year to just above 2.4 per cent in the first quarter of 2005, contributed to a relatively soft outcome for NAFTA growth in the opening quarter of this year, as compared to 2004. We expect growth in North America to decelerate by about ¾ percentage point from the rate recorded in 2004, to about 3¼ per cent per annum in 2005 and 2006.

Stemming mainly from private consumption, US real GDP growth has remained high in the first semester (3.5 per cent at an annual rate). This pace is broadly unchanged from the two previous semesters and somewhat lower than the second semester of 2003 when the recovery really got under way. Strong private consumption growth is triggered by sizeable wealth effects, caused by the pronounced rise in house prices as well as strong equity prices. This development has created additional risks. Households have become financially more vulnerable: last year, almost half of the new mortgages had a variable rate, up from a quarter in 2000-2002; around 60 per cent of the new bigger mortgages were interest-only, up from 5 per cent in 2001; household debt reached a record level of 86 per cent of GDP, 10 percentage points more than in 2001; the saving ratio has dropped to only 0.5 per cent of disposable income. The current financial position of households should, however, be no major problem during the projection period, unless house prices collapse or mortgage rates jump up substantially. Both developments are not projected for the short term, but cannot fully be excluded.

The US economic outlook is seen as favourable even after the hurricanes Katrina and Rita. Loss of wealth in the region hit by the hurricane at the end of August is substantial. But, while the region is as big as the UK, its share in US GDP is only 3 per cent. Moreover, lower production of manufactured goods and services will to a great extent, and with some delay be offset by the

[3] It is difficult to evaluate the inflation forecast revision from the tables, as an accounting shift resulting from healthcare reforms in the Netherlands will move some health-related costs from the private sector to the public sector. This reform will only impact 2006 and is expected to translate into a deflation rate of 2.5 per cent in the Netherlands and a net effect of -0.2 percentage points on the Euro Area HICP. This masks some of the rise in our inflation forecast for the Euro Area since March, which otherwise would rise by 0.2 percentage points in 2005 and 0.4 percentage points in 2006 and 2007.

positive impact of reconstruction efforts. Real GDP growth in 2006 is projected at 3¼ per cent. Although no further drop in the saving ratio is expected, private consumption growth is likely to remain strong as the labour market should improve further. Business investment will be boosted by high capacity utilisation, high profitability (especially in the service sector), strong balance sheets and low capital costs. With domestic demand growth remaining high, import growth is projected at almost 5.9 per cent in 2005. As a result, the current account deficit should average around the record level of 6 per cent GDP over our forecast.

Hurricanes Katrina and Rita Unlike Other Natural Disasters

Hurricanes and other great natural disasters cause significant human and material losses. From the point of view of the business cycle, such calamities usually decrease growth opportunities at first but ensuing reconstruction tends to compensate for a great deal of the loss in growth. Effects of even a large catastrophe are usually relatively small on the world economy. First Katrina and later Rita differ from most other natural disasters in that its impact was felt strongly in the main energy production region of the United States. The hurricanes and the flooding stopped or seriously damaged a considerable part of energy output in Louisiana, Mississippi and Texas.

In the direct aftermath of Katrina, some 90 per cent of the production of crude oil in the region (the share of the Gulf producers is 29 per cent of total output in the USA) stopped. About 70 per cent of the output of gas (19 per cent share of US output) also came to a halt. Some 12 per cent of all US refining capacity stopped in the areas affected by the hurricane. Hurricane Rita followed Katrina and added to the damage. In the end of September 72.4 % of 819 manned platforms, 47.8 % of 134 rigs, 100 % of oil production and 80.3 % of gas production was still stopped in the Gulf of Mexico according to the Mineral Management Service. After the hurricane, output has started to recover and reconstruction is under way.

At first, problems in oil production raised the world market prices of crude oil, gas and fuels considerably. Since then, oil prices have declined because some of the oil or oil products in global strategic reserves has been released and sold to the market and Saudi Arabia has promised to increase its output. The major problem caused by these hurricanes is, however, the extensive damage to refinery capacity and perhaps for the gas production capacity.

There already was a shortage of refining capacity before the hurricane. Consequently, the difficulties that are anticipated in starting up the refineries will keep the petrol market tight. The price of petrol (gasoline) in the US rose by about 40 per cent during the first couple of days in September and exceeded three dollars to the gallon, but has since fallen back. The rise in gasoline prices alone may raise the US inflation rate temporarily by one percentage point.

Katrina's impact is buffered by the good performance of the US economy before the hurricane struck. It is likely that the Federal Reserve and the Federal government will react rapidly if any signs of a recession appear. The increase in fuel prices will decrease households' purchasing power both in the US and worldwide and raise firms' costs. Indeed, Katrina will cause a dip in economic activity. The risk will further intensify if the winter proves to be a particularly cold one.

1.2.3 ASIA WILL REMAIN THE SECOND MOTOR OF THE WORLD ECONOMY

Despite robust headline economic growth in China and a strong rebound in Japanese domestic demand, export growth decelerated across most of the East Asia region in the first half of 2005. Global demand, especially in the IT related

industries, has weakened, while Asian currencies such as that of South Korea and Taiwan have seen notable appreciation in the last year. However, the deceleration in Asian exports is mainly due to the slowdown in import demand from China, although the value of Chinese exports continued to grow by around 30 per cent in the first half of 2005. In the first half of 2005, Chinese economic growth was unchanged at 9½ per cent year-on-year. India, the other awakening Asian giant, also showed high growth as it benefited from strong demand from oil-producing countries in the Middle-East. However, economic growth in the rest of emerging Asia diminished somewhat due to softer Chinese import demand and an inventory correction in the IT-sector.

The outlook for Asia is very favourable. With the integration into the world economy continuing, economic growth is projected to again outpace growth in the rest of the world. The recent revaluation of the Chinese renminbi is small and will only have a minor negative impact on Chinese economic growth. The Chinese current account surplus has risen from 1.5 per cent of GDP in 2001 to 4.2 per cent in 2004, and is likely to rise further. Government administered curbs on domestic investment growth since the middle of 2004, coupled with overcapacity in many industries, has reduced China's import demand, especially of capital goods and primary goods such as raw materials. Japan, which exports mainly machinery and equipments to China, is likely to take the bulk of the burden in China's inventory adjustment, while the newly industrialised Asian economies, which export processing goods to China, will be only mildly affected. Nonetheless, we expect some softening in East Asian growth in the next 2 years from the robust expansion in 2004.

The Japanese economy appears to have made a rapid turnaround since the beginning of 2005 from the technical recession experienced in the second half of 2004. There is a danger that Japan will follow the stop-start pattern seen in most of its past economic cycles, as the important electronics sector is still suffering from inventory overhang, growth prospects in Europe are weak and import demand from China is falling off. But the recent surge in investment spending points to strong domestically driven demand, and the Japanese cyclical rebound is projected to continue. The period of mild deflation since 1999 could end by late 2006, although our projection of a further strengthening of the yen will restrain any inflationary pressures in Japan.

1.2.4 OTHER EUROPEAN ECONOMIES

The outlook for European growth outside the Euro Area has been revised down since our Spring forecast. Marked downward revisions to growth projections for the UK and Sweden have contributed to a reduction in our EU-25 growth projection from 2 per cent to 1.6 per cent for 2005. The revised outlook for the UK reflects a significant revision to the historical data, showing the economy decelerating in the second half of 2004 and into the first half of 2005. The UK economy is becoming better balanced, with growth of consumer and government spending easing and a projected recovery in export growth. This rebalancing is partly due to the stabilisation of house prices, which will moderate consumer demand, while rising demand from oil producing countries will stimulate UK exports, which are highly exposed to oil-exporting economies. Prospects for investment are buoyed up by strong profits and high equity prices, and we expect business investment growth to average above 4 per cent over the forecast period, but growth is likely to be held back, especially in 2005, by weak housing investment which is expected to growth at less than 1 per cent a year over the same period.

The Scandinavian economies of Sweden and Denmark are on track to record growth rates above 2 per cent this year. In Sweden, economic activity weakened in the beginning of this year, but has since gathered considerable momentum. Favourable developments in private consumption and investment, supported by strengthening household purchasing power and low interest

rates, will continue to bolster Swedish growth over the next couple of years. Indeed, with the net wealth position and saving rate of Swedish households comparatively high, there is considerable scope for consumer spending growth in the future. In Denmark, economic growth has been driven by private consumption over the past two years, with low interest rates, tax cuts and rising housing prices supporting household expenditure. The combined impact of these factors on private consumption is now set to fade, and private consumption growth is forecast to moderate during the forecast period. Private investment activity will nevertheless accelerate next year, bolstered by investment in the oil and gas industries in response to high energy prices. Oil revenues will continue to provide a significant boost to the Danish current-account position, and the same is true for Norway. Norway's economy is currently in the midst of a strong upturn. Last year, GDP growth accelerated noticeably in response to heavy oil-related investment activity, looser monetary policy and expansionary fiscal policy. Growth this year will continue to be driven by massive investment in the country's oil industry, which accounts for approximately one-fifth of GDP and half of total exports.

Russia has also benefited from the high oil price, and economic growth has become more balanced, supported by strong increases in investment and exports. Rising household purchasing power, spurred by nominal wage gains and generally moderating inflation, has also led to a revival in private consumption in recent times. Russia has followed Norway's lead in establishing a stability fund with unexpected oil revenue, with which it hopes to prevent a decline in industrial activity in the longer term. Russia has also been paying off foreign debt rapidly. With oil prices expected to remain high, the Russian economy is projected to continue expanding at rates of 6-7 per cent over the next few years.

After high growth rates in most of the EUs New Member States (NMS) in 2004, in large part due to one-off effects connected with accession and the modest recovery in the Euro Area, we expect growth to slow down to 4.1 per cent in 2005 and accelerate slightly to 4.4 per cent and 4.5 per cent in 2006 and 2007, respectively. Most countries are expected to grow in the range of 4-5 per cent per annum, with the Baltic States maintaining their higher rates of 6-8 per cent. In medium-term in most countries, investment demand (including the part covered by EU funds) and exports will be strong elements of GDP growth. However, exports face a weakened short-term outlook resulting from slow growth in the Euro Area and the recent strengthening of some currencies against the euro, most notably in the Polish zloty and the Hungarian forint.

In all NMS (with the exception of Latvia) we expect a fall in inflation in the coming years. Inflation for the 10 countries should average 2-2½ per cent per annum, allowing a small inflation differential above the other Member States. After 4.3 per cent inflation in 2004, this moderation is partly a reflection of strengthening currencies in biggest countries, while the influence of accession-related hikes of food prices in May, June and July 2004 is wearing off from the annual rate of inflation.

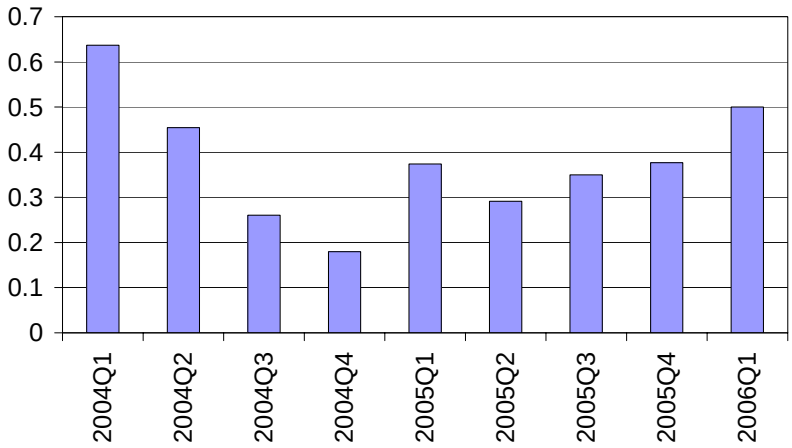
1.3 Euro Area Detail

Economic growth in the Euro Area remains rather weak, and is projected to slow from 1.8 per cent in 2004 to 1.2 per cent in 2005, before rising to 1.8 per cent in 2006 and 2.0 per cent in 2007.[4] The outturn for GDP growth in the first half of 2005 was disappointing. Although there was a modest acceleration of growth in the first quarter of the year, after growth of just 0.2 per cent in the final quarter of 2004, growth dipped back slightly in the second quarter of 2005. Private sector investment and trade growth were particularly

[4] All GDP data and forecasts discussed in the text and reported in the tables are adjusted for working-day variation. There were approximately four extra working days in 2004 compared to 2003 and the unadjusted numbers show Euro Area GDP growth of 2 per cent in 2004, as opposed to 1.8 per cent on an adjusted basis.

disappointing, and as a result we have revised our projection for Euro Area growth down by 0.3 percentage points since March. We expect to see little, if any, acceleration in the second half of the year, with GDP projected to rise by 0.3-0.4 per cent per quarter.

Chart 1.9: Euro Area Output Growth



The delayed investment recovery and rising inflation also weigh on the outlook for 2006, and we have revised our forecast for Euro Area growth next year down by 0.2 percentage points since March.

Table 1.3: Euro Area Forecast[a]

	2001	2002	2003	2004	2005	2006	2007
Consumption	1.8	0.9	1.0	1.4	1.0	1.2	1.9
Private investment	-0.2	-3.0	0.5	1.9	1.6	2.8	2.5
Government expenditure	2.2	2.4	1.5	1.0	1.0	2.3	1.8
Stockbuilding[(b)]	-0.5	-0.3	0.3	0.4	0.2	-0.1	0.0
Total domestic demand	1.0	0.2	1.4	1.8	1.4	1.6	1.9
Export volumes	4.1	1.9	0.7	6.0	3.3	5.9	6.7
Import volumes	2.2	0.3	2.7	6.1	3.7	5.7	6.6
GDP	1.7	0.9	0.7	1.8	1.2	1.8	2.0
Average earnings	3.8	3.5	2.9	2.2	2.5	2.9	2.9
Harmonised consumer prices	2.4	2.3	2.1	2.1	2.2	2.0	1.9
Private consumption deflator	2.5	2.1	2.0	1.9	1.9	2.2	1.9
Real personal disposable income	2.5	1.5	0.9	1.6	1.6	0.8	1.4
Standardised Unemployment, %	7.8	8.2	8.7	8.9	8.6	8.4	8.3
Govt. balance as % of GDP	-1.9	-2.5	-3.0	-2.7	-2.8	-2.7	-2.4
Govt. debt as % of GDP	69.3	69.2	70.4	70.8	72.2	72.3	71.7
Current account as % of GDP	-0.1	0.9	0.3	0.6	-0.3	-0.6	-0.8

a GDP data shown in table are adjusted for working-day variation.
b change as a per cent of GDP.

The downward revision to Euro Area growth is due to a number of factors, both country-specific and area-wide. We discussed developments in oil prices, interest rates and exchange rates in the previous section, and taken together these developments largely offset each other and have little impact on the outlook for GDP growth. However, the investment recovery, which we expect to accompany the very low long-term interest rates, has been slow to materialize.

Germany, Italy, and Finland have all recorded technical recessions marked by two consecutive quarters of decline at some point in the last year. Weakness in Germany stems from domestic demand, while Italy has suffered from extremely weak external demand, as well as poor export performance. Finnish economic growth will slow sharply this year, reflecting the impact of the nearly two-month-long paper industry labour dispute on the country's second largest manufacturing industry. The production stoppage in the paper industry will reduce total output growth by around one percentage point this year and raise growth next year by roughly the same amount. Abstracting from this exceptional factor, the economy is performing relatively well; there is considerable momentum in private consumption, private investment activity is set to accelerate, export prospects are good, and the labour market has improved noticeably.

The forecast is based on the following assumptions:

The oil price is projected to remain above $60 per barrel next year, but will recede to average $57 per barrel in 2007.

The exchange rate between the US$ and the euro is expected to remain relatively stable, averaging $1.26 in 2005 and 2006 and $1.27 in 2007.

The short-term interest rate in the Euro Area is projected to be 2.1 at the end of 2005, 2.3 at the end of 2006 and 2.5 at the end of 2007.

The forecasts are based on data available up to 19th September 2005.

The assumptions for commodity prices, exchange rates and interest rates used in the forecast were constructed by consensus, as the average projections of the 10 member Institutes. These are broadly consistent with current financial market expectations and forward markets, as the majority of Institutes use this information in constructing their own forecasts.

Our forecast for GDP growth in France for 2005 has been revised downward by over ½ percentage point since March, and this is largely attributable to the unexpected declines in both consumer spending and investment recorded in the second quarter of 2005. Export growth in the first half of the year was also weaker than anticipated. We have also made a sharp downward revision to our forecast for Italy, due to both weaker investment and exports than anticipated. The outlook for Portugal has worsened over the last 6 months, as the revealed budget crises, with the deficit projected to reach over 6 per cent of GDP this year, will require significant fiscal tightening in 2006 and 2007. On the upside, domestic demand in Spain will remain robust this year, but is projected to wane in the near term as investment growth is set to slow.

The harmonized index of consumer prices is expected to grow by 2.2 per cent this year up slightly from 2.1 per cent in 2004 and from our forecast of 2.0 per cent made last March. This measure of inflation, which is tracked by the ECB, continues to reflect the higher cost of energy inputs and other commodities. However, core inflation, which excludes the most volatile components, remains subdued. A negative output gap and strong exchange

rate helps keep inflation in check. Nonetheless, we are expecting a modest acceleration in wage growth in 2006, allowing real wages to rise slightly. But real wage growth will remain below 1 per cent in 2006 and 2007, restraining growth in real disposable incomes. An accounting shift resulting from healthcare reforms in the Netherlands will move some health-related costs from the private sector to the public sector. This reform will only impact 2006 and is expected to translate into a deflation rate of 2.5 per cent in the Netherlands and a net effect of -0.2 percentage points on the Euro Area HICP. This masks some of the rise in our inflation forecast for the Euro Area since March, which otherwise would rise by 0.2 percentage points in 2005 and 0.4 percentage points in 2006 and 2007.

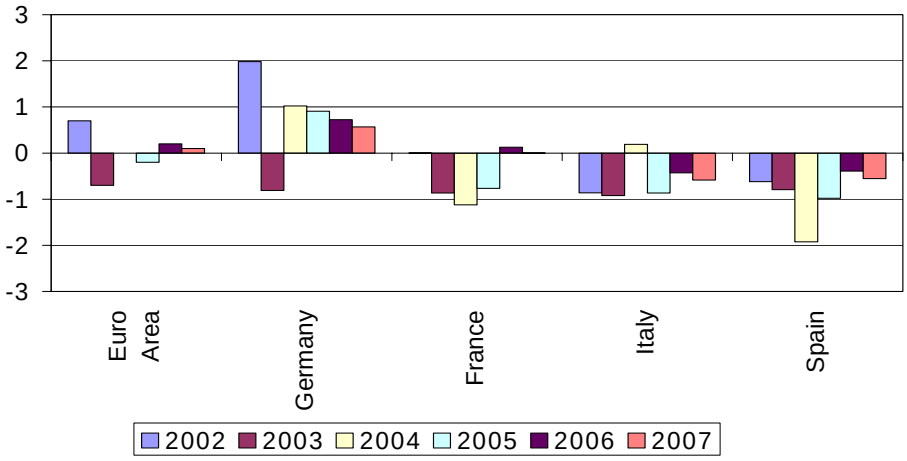
Fiscal balances in the Euro Area remain a contentious issue among Member States and our projections show some progress in fiscal consolidation over the short-term horizon. The overall Euro Area deficit stood at 2.7 per cent of GDP in 2004, a modest improvement on the 3 per cent recorded in 2003. Deficits in France, Germany, Greece, Italy and Portugal are projected to remain above 3 per cent of GDP in 2005 and 2006, while tight policy in the Netherlands will bring the deficit below to 2 per cent of GDP in 2005. Fiscal policy is discussed in more detail in the next section of the report. Constraints of the Stability and Growth Pact mean that fiscal policy in the Euro Area will tighten in 2006 and 2007, despite the subdued growth prospects. However, we anticipate only a modest improvement in the Euro Area deficit ratio by 2007, to 2.4 per cent of GDP.

While growth has been modest, the unemployment rate in the Euro Area has managed to come down slightly. The unemployment rate dropped from an average of 8.9 per cent in 2004 to 8.6 per cent in July 2005. This can be partly attributed to a slowdown in labour force growth, and we foresee a further small reduction in the unemployment rate to 8.4 per cent in 2006 and 8.3 per cent in 2007. Unemployment remains higher in Greece, France, Germany and Spain.

EXTERNAL DEMAND AND GROWTH

Euro Area export growth has been restrained by the strength of the euro since 2002, with the effective exchange rate roughly 25 per cent stronger than at the beginning of that year. While we saw an impressive rise in export volumes of 6 per cent in 2004, this apparent recovery did not carry over into 2005, and trade growth in the first half of this year was much weaker than anticipated. As a result, net trade is expected to have a negative impact on GDP growth in 2005. We expect export volumes to grow by 3.3 per cent this year while import volumes should rise by 3.7 per cent. As the exchange rate has now stabilised, we expect Euro Area export volumes to move more closely with world trade growth from 2006, rising by 5.9 per cent next year and 6.7 per cent in 2007. With domestic demand expected to grow more slowly than in other major economies, this should allow a small positive impetus from net trade to GDP growth.

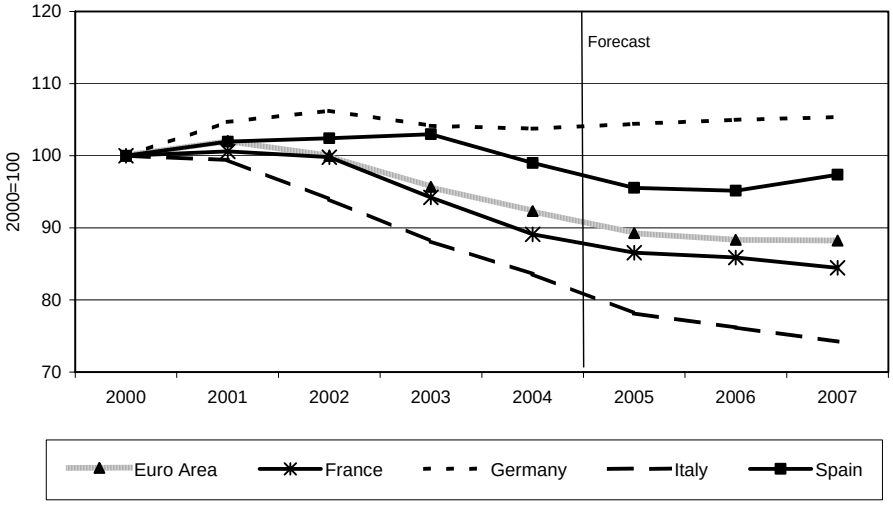
Chart 1.10: Net Trade Contribution to GDP Growth



As shown in Chart 1.10, of the four largest Euro Area countries, only Germany has been supported by external sector in recent years. In the case of Spain this reflects strong domestic demand growth relative to other major economies, pulling in import demand. In the case of France and Italy, however, this is more a reflection of deteriorating competitiveness.

The Euro Area as a whole has lost a significant level of external trade share since the euro began to strengthen, with a loss of nearly 10 per cent between 2001 and 2004. As Charts 1.11 and 1.12 show, this masks considerable differences across the Euro Area economies, and also developments in intra-Euro Area trade. The charts show export volumes as a share of import volumes in each country's main export markets, based on 2000 trade patterns[5].

Chart 1.11: Export Market Shares



Notably, Germany has done well to retain its external competitiveness despite the strong euro. Spain has only suffered a minor deterioration of less than 3 per cent, while France and especially Italy have suffered significant losses. The French export market share was down by about 11 per cent by 2004, while Italy had lost 16 per cent. A further deterioration is projected for the largest

[5] All trade figures reported in this section refer to trade in goods and services, unless otherwise specified.

Euro Area economies this year, with the exception of Germany, which continues to perform relatively well.

Chart 1.12: Export Market Shares

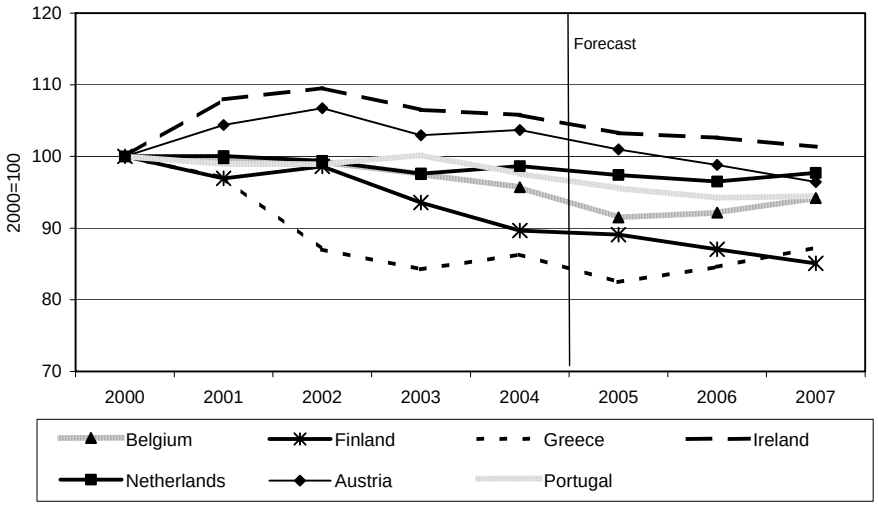


Chart 1.12 shows the shift in export market shares for the other Euro Area economies. The smaller economies have generally held up rather well against the strong euro, with the exception of Finland and Greece, who by 2004 had lost 7½ per cent and 11 per cent, respectively, of export market share.

The winners and losers in terms of export market share depend on a number of factors, including export price competitiveness, the destination of each economy's exports, the product make-up of each economy's exports, and with whom each economy competes in terms of both product and location. Relative export prices rose in all the Euro Area economies in 2002 and 2003 with the exchange rate, but significantly higher rises of 13-16 per cent were experienced in Greece, Italy and France over this period. Serious impediments to competition in the industrial sector of Italy have seen this country's competitiveness shrink markedly. Since the end of 2003, relative export prices have come down significantly in Germany, Austria and Finland, bringing relative prices roughly back to their level at the start of 2002. We also saw significant declines in French and Irish relative export prices over this period, leaving French prices about 7 per cent above their level at the start of 2002, while Irish prices are about 2 per cent below this level. Further rises in relative export prices have been recorded in Spain and Greece since the end of 2003, and can be expected to weigh on their performance in the next few years. Relative export price developments can account for a significant share of the deterioration in the export shares of Italy and Greece, and the relatively strong performance of Germany and Ireland, but they cannot explain the relatively favourable outcome for Spain and the more significant deterioration in Finland.

Chart 1.13: Relative Export Prices

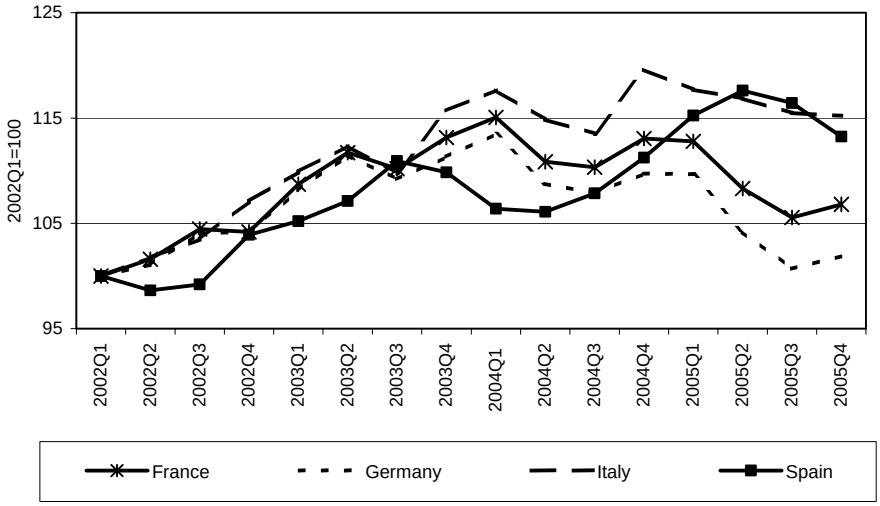
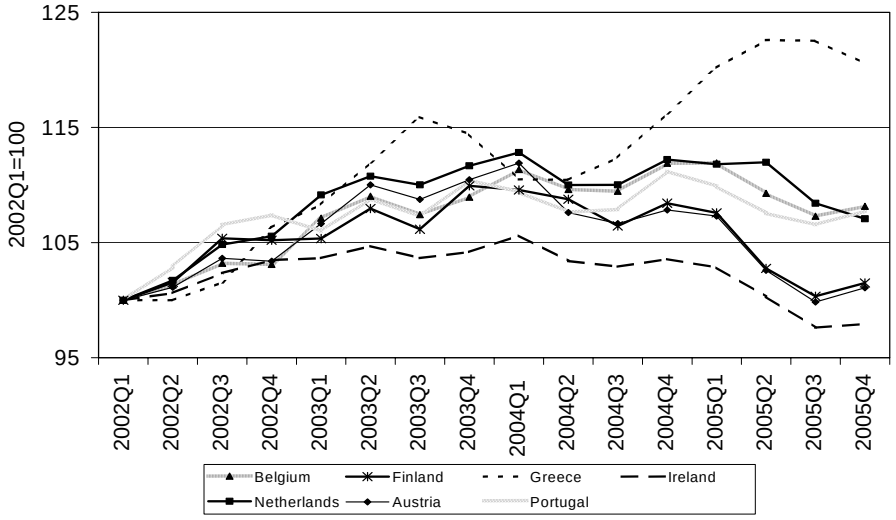


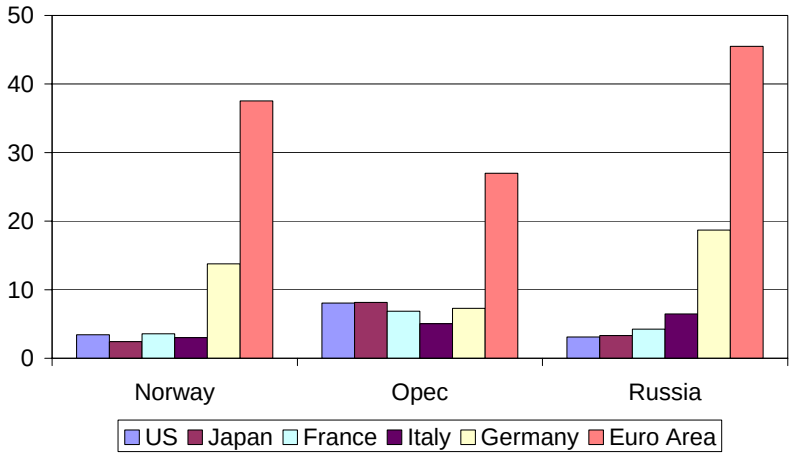
Chart 1.14: Relative Export Prices



For Germany, France and Italy, the greatest loss in trade share has occurred in North America, with US importing more from China and other Asia as well as other countries in North and South America. Within the Euro Area, only Ireland has gained trade share in North America. Italy has been most significantly affected by the loss in North American trade, and has also lost greater trade share within the Euro Area. Finland has also suffered a significant lost of trade share within the Euro Area. A relatively high level of exports to oil exporting countries such as Russia, Norway and the members of Opec have helped sustain market share for countries like Germany, as windfall receipts from high oil prices are recycled into high import demand. Germany accounted for 18.7 per cent of Russian goods imports in 2004 and 13.8 per cent of Norwegian imports. As Chart 1.15 shows, this is significantly greater than the shares accounted for by France or Italy. The Euro Area as a whole is much more exposed to oil exporting nations than either the US or Japan, with

the Euro Area accounting for over 30 per cent of goods imports into Opec, Norway and Russia in 2004, compared to just over 6 per cent for the US and Japan. Germany has also benefited from trade exposure to the relatively dynamic New Member States and other Eastern European economies, as well as emerging economies such as China, where imports rose by 26 per cent in 2003 and 16 per cent in 2004.

Chart 1.15: Share of Oil Producer's Goods Import Volumes, 2004



An important distinction between Finland and Spain is their relative exposure to Euro Area export markets. Exports within the Euro Area are sheltered from exchange rate developments and in 2004, nearly 60 per cent of Spanish exports were destined for other Euro Area economies. This compares to only 30 per cent of Finnish exports, making Finnish exports roughly twice as sensitive to exchange rate developments as Spanish exports.

The product make-up of exports, and competitors in these markets, can also explain some of the differences in trade share developments across countries. Italy exports a relatively low share of high-tech goods, which capture an increasing share of world trade. This puts Italy at a disadvantage relative to countries such as Germany, France and Ireland, where high-tech goods account for a more significant share of exports. Italy exports a relatively high share of textiles, clothing and shoes, and these products compete with the more dynamic low-cost economies of Asia. Spanish exports, on the other hand, are more strongly oriented towards services, such as tourism, than many other Euro Area economies, with services capturing over 30 per cent of Spanish exports in 2004.

Box 1.1 Different Stories Behind the Weak Growth in Germany and Italy

The German and Italian economies have been the weakest performers in the Euro Area in recent years. Over the past 5 years (1999-2004) real GDP growth has averaged only 1.2 per cent and 1.3 per cent, respectively, compared to 2.1 percent in the rest of the Euro Area. While overall growth performance has been very similar, the pattern of growth in terms of demand components has been very different. The same is true when it comes to the factors that are judged to be at the root of the growth problem in these countries.

The relatively poor economic performance in Germany is due to slow domestic demand growth; exports have been supportive and net exports contributed the bulk of 1.0 percentage points to growth on average. With the rise in unit labour costs significantly below the Euro Area average, the competitive position of the German economy has improved in recent years. As a result of strong exports, German

industrial production has outperformed that of the other large Euro Area economies by a substantial margin. This is the mirror image of the situation in Italy, where industrial production was relatively weak and net exports made a substantial negative contribution to GDP growth. As the Italian economy has traditionally been export led, slow export growth and rising import penetration resulted in sluggish investment activity, while housing investment and household consumption have held up relatively well.

In the case of Germany, the weakness of domestic demand is partly related to wage moderation that, while contributing to a recovery in German competitiveness, is slowing income growth and weighing on private consumption. Against this background and with income perspectives depressed probably also because of a grim outlook for public finances in general and the public pension system in particular, the personal savings rate has increased in recent years in contrast to many other countries in the Euro Area. There is also no relief from increased net wealth related to house prices as in some other countries. Investment activity has still to start a recovery from the recession following the burst of the IT bubble despite substantially improved profitability. With monetary conditions favourable given low real interest rates – even if relatively low inflation in Germany gives a somewhat higher real rate than for most other Euro Area countries – an important element in this context is that companies have been eager to improve their balance sheets and have therefore been slow in increasing demand for credit. Increasingly, disappointing demand by private households is also contributing to hesitation on the corporate side. A special factor dragging down investment is the multi-year recession in the German construction sector following the unification boom that has still not fully bottomed out.

Growth of German potential output is not only low, perhaps in the region of 1.0 to 1.75 percent, but has also displayed a downward trend in the past few years. This is in contrast to the rest of the Euro Area taken together where potential output growth has perhaps been more or less stable at around 2 percent. An important difference to most other OECD countries is the behaviour of labour input which is on a declining trend, suggesting the labour market is one of the root causes of slow trend growth. The supply side has been tackled by recent labour market reforms, but the reforms have not succeeded in improving significantly the incentives to work in terms of the marginal tax rate (including both the explicit tax rate from income tax and social security contributions and the implicit tax rate from withdrawal of benefits). However, substantially tightened eligibility criteria for unemployment benefits should lead to a rising labour supply.

In the case of Italy, there are several tentative explanations for the dismal export performance and low levels of trend growth. First, relatively fast increases in labour costs and general (administrative, legal, public utilities, etc.) costs in combination with low productivity growth have led to an erosion of price competitiveness of Italian firms in the context of a fixed exchange rate with respect to the Euro Area countries and an appreciating currency with respect the others. Second, product specialisation has become unfavourable as most traditional export goods belong to low-growth traditional consumer goods and capital equipment sectors, while shares in high-growth sectors (such as information technology, consumer electronics, chemicals, pharmaceuticals) are comparatively low.

There are, however, signs that things are changing. An aggressive relocation of production toward cheap labour countries is underway. The short-term effect is to reduce domestic production but, at the same time, also to increase profits and improve the financial position of Italian firms. Corporate restructuring has started, with the disappearance of less competitive companies (usually very small) and sectors. In macroeconomic terms, it is a move towards services at the expense of manufacturing, a

phenomenon which has been recorded in most industrialised countries in the past but has been very modest in Italy so far. Not only economists but also policymakers, general public, associations of employers and unions are aware of the problems and the debate is lively. However, it is unlikely that the government will pass unpopular measures at this late stage of the electoral cycle. The measures would require a huge amount of resources, in order to support ICT and advanced sectors, to enhance R&D and investments in education and infrastructure. Given the strict budget constraints, this would imply an unpopular reduction of other expenditure, namely social and welfare. A policy package for enhanced competitiveness (it is a long menu, which ranges from financing the Olympic games to boosting investment in R&D, to strengthening incentives to the corporate world) passed some months ago, but it is only a first limited step.

All in all, we expect that both the Italian and the German economy will grow less than the Euro Area average for some more years. In Italy we have to wait until next summer for a newly elected government to undertake structural measures to improve competitiveness, and structural adjustment in the corporate sector will take more time. In Germany, the best we can hope for as a result of recent reforms is to arrest the downward trend in potential output growth. Faster growth in the coming years would require both a combination of increased labour supply and stronger domestic demand. The incoming government can, however, be expected to be slow in making progress on these fronts given the conflicting views on how best to bolster growth.

DOMESTIC DEMAND AND GROWTH

The economic slowdown projected for 2005 can largely be attributed to domestic demand, with both consumer spending growth and investment growth slowing relative to last year. We expect growth in Euro Area consumption to remain subdued this year at 1 per cent and to rise modestly to about 1.2 per cent in 2006[6]. A more robust recovery is forecast for 2007, with consumer spending projected to rise by 1.9 per cent. While real disposable income growth is projected to remain moderate, we have seen strong growth in the value of household financial wealth as well as tangible wealth in several economies such as Ireland, Spain and France. This will support consumer spending over the medium-term, as households readjust their savings. Investment growth will moderate slightly this year to 1.6 per cent down from 1.9 per cent growth recorded last year. However, we are projecting an upturn in investment from next year, with growth of 2½-2¾ per cent per annum projected in 2006 and 2007, supported by low financing costs.

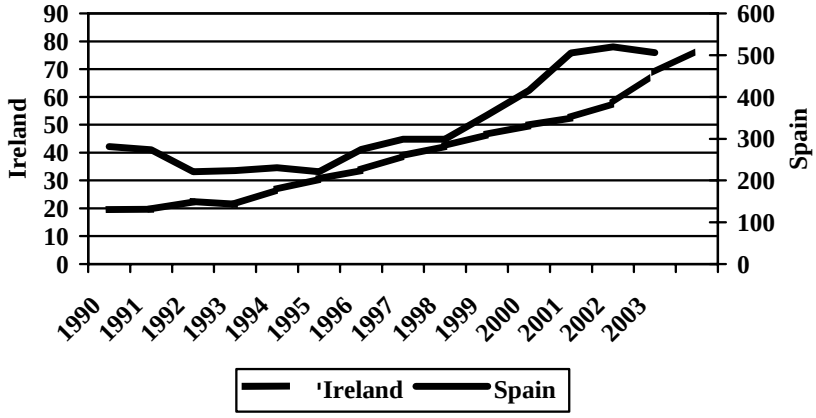
Government spending is also expected to record weak growth this year of just 1 per cent. The lack of fiscal stimulus, despite lacklustre growth, stems from the fiscal crises facing many of the Euro Area economies, and the constraints imposed by the Stability and Growth Pact. The rise in Euro Area government spending growth to 2.3 per cent in 2006 is distorted by a statistical revision to the national accounts in the Netherlands, which shifts some health-related costs from the private sector to the public sector. This adds roughly 0.4 percentage points to Euro Area government spending growth in 2006, bringing our adjusted projection for government spending more in line with the outlook for 2007, when we expect a rise in government spending of 1.8 per cent.

[6] Adjusting for the statistical manoeuvre in the Netherlands, which shifts some health-related costs from the private sector to the public sector, adds roughly 0.2 percentage points to Euro Area consumer spending growth in 2006.

Exposure to Housing Market Shocks: Spain and Ireland

A significant concern for policy-makers in the Euro Area is the possibility of asset-market bubbles developing, in particular in the housing market. The very different real interest rates facing the household sector across the Euro Area in recent years have provided rather different incentives for housing investment. Not surprisingly in Spain and Ireland the low (and even negative) real interest rates for households that have resulted from EMU membership have provided a very strong stimulus to the housing market. As shown in Chart 1.16, housing completions in Ireland and Spain have more than doubled in number since the mid-1990s so that today they are at a record high level.

Chart 1.16: Housing Completions, thousands



The result of this boom in house building is that the construction of dwellings accounts for a substantially larger share of GDP in Ireland and Spain than is the case for the rest of the EU. As shown in Table 1, while housing activity has increased its share of GDP in the EU between 1996 and 2004, the increase has been particularly large in Spain and Ireland. In both these economies the housing sector accounts for a significant share of economic activity. In the case of Ireland it is now approaching an eighth of all economic activity.

With the housing sector accounting for such a large share of overall economic activity in these two economies they are especially vulnerable to any shock to the sector. Experience in Scandinavia and the United Kingdom in the late 1980s indicates that this sector of the economy can suffer from sudden and dramatic reversals in fortune. Any such reversal in fortune in Spain and Ireland would have a very significant direct impact on economic activity in those countries.

Table 1.2: Investment in Dwellings as a per cent of GDP

	1996	2004
European Union (25)	5.1	7.2
Germany	7.6	6.4
Spain	4.8	8.3
France	4.1	4.7
Ireland	6.1	11.4
United Kingdom	2.9	7.0

Source: Eurostat National Accounts

The direct impact of a shock to the housing market in Spain and Ireland would be magnified by the fact that housing investment tends to have a

relatively low import content. Thus the indirect impact of a fall in housing output on the rest of the domestic economy would be significant, including the negative impact on the public finances. If government, in turn, had to respond to the deterioration in its budget balance by raising taxation or cutting expenditure, this could further accentuate the deflationary impact on the economy. From the point of view of the ECB, while the exposure of Spain and Ireland to shocks to the housing market is of some concern, there is clearly no danger to the wider Euro zone economy.

1.4 Risks

Our forecast is for relatively weak growth during 2005 and into 2006, as is also suggested by the EUROFRAME indicator but even this prospect may be optimistic, and there remain substantial risks that could reduce growth below our projection.

- The oil market is an important source of uncertainty for the global economic outlook in the short term. Lower supply than in the baseline projection would lead to higher oil prices with negative consequences for global economic growth.
- Another uncertainty concerns both short term and long-term interest rates, which are very low. Both rates could rise more than in the baseline projection and this would probably have a negative impact on global economic growth.
- The current scale of the US current account deficit is unsustainable in the longer term and exchange rate adjustments are likely to play a role in the reduction of the US deficit. This would have a negative impact on Euro Area output growth.
- A realignment of the renminbi would have only a small impact on US imbalances, which can only be corrected by US actions.Any adjustment of US imbalances, either from lower US domestic demand or from a lower dollar exchange rate, would be likely to reduce growth in the Euro Area.
- In Europe there is a debate on the future development of the European Union. In general, political uncertainty has a negative impact on output growth in the medium term, and if the malaise over both the constitution and the budget continues growth prospects could weaken.

On the other hand, a stronger rebound in the Euro Area cannot be excluded.

- The response of supply and demand from the strong oil price rise in recent years is uncertain; a bigger positive impact on supply or negative impact on demand could ease the oil market and dampen the oil price in the near future.
- With profitability strong, balance sheets improved and capital costs low, business investment could drive such a stronger rebound.
- US import growth is projected to slow, and net trade is expected to make a neutral impact on growth in 2005 and 2006, whereas it has had a significant negative impact for the past several years. Underestimating US import demand is an upside risk to the forecast for Euro Area growth.

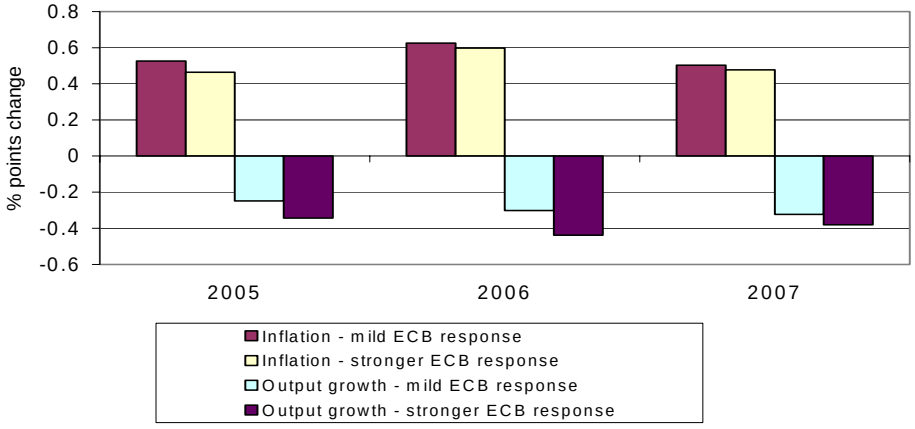
THE OIL PRICE IS A MAJOR DOWNWARD RISK TO THE FORECAST

The oil price, measured as the average of Dubai and Brent prices, is projected to remain fairly high next year (at $61.9 per barrel) before easing somewhat in 2007 (to $57 per barrel). In the current situation of very limited excess capacity in oil production and oil refining, oil price developments in the near future are

uncertain and an important risk to the forecast. We have simulated a much higher oil price with the NiGEM.

The simulation shows the impact of a permanent increase in the oil price of $20 per barrel. Such a jump in oil prices will increase inflation in the Euro Area by around 0.6 percentage points in the first year. This will reduce real disposable income of households, causing a drop in private consumption. Multiplier and accelerator effects will enhance the negative impact on domestic demand. Business investment will also be affected by the drop in trend output resulting from the higher oil price. Oil producing countries will step up imports only with a delay, while lower domestic demand in other industrial countries will have a negative impact on exports from the Euro Area. Real GDP in the Euro Area will be reduced by almost 0.4 per cent in the first year. This is less than the anticipated impact on the US, as production and consumption in the Euro Area are less oil intensive and as Opec imports more from Europe than from the US. The impact on the Euro Area is also less than it was in the seventies and eighties as oil intensity of output has halved and the economy is more flexible.

Chart 1.17 Response to $20 Permanent Rise in Oil Prices



The NiGEM model contains policy rules for monetary authorities, while long-term rates are the forward convolution of short-term interest rates. Thus, central banks raise their key rates in reaction to higher inflation and nominal long-term rates rise as well. After the first year, the inflation impact depends on both policy and the role of expectations, which in part reflects the estimated degree of inertia in the labour market. As NiGEM has forward-looking agents and forward-looking policy rules, inflation expectations are assumed to be well-anchored and the inflation impact of an oil price shock diminishes from the third year onwards. To explore the importance of the reaction of the monetary authorities, we repeat the simulation allowing a stronger reaction of the monetary authorities to the rise in inflation instead of the standard reaction of the previous simulation. Feedbacks have been increased to twice normal in the stronger response. Our choice reflects signals coming from the ECB that indicate that it is more concerned about the prospects for inflation than are the members of the EUROFRAME-EFN group. A stronger reaction of the monetary authorities would mean a rise in real interest rates and would increase the negative output effect in the first two years. Interest rates rise by 0.4 points more in the first year and 0.3 points more in the second year in the stronger response. Output growth is 0.1 per cent lower in each of the first 2 years in the stronger case. Inflation is 0.04 points lower in each year on average over the same period, and second round effects are reduced. From these simulations can be concluded that the reaction of

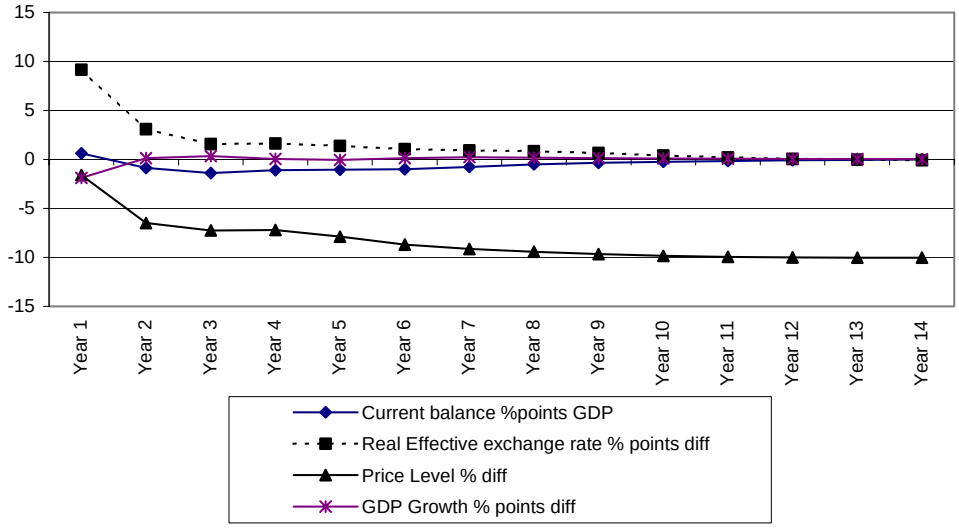
monetary authorities is highly relevant for output impacts in the short run, and dominate the longer-term inflation effects.

THE ROLE CHINA CAN PLAY IN REDUCING EUROPE'S BURDEN FROM A GLOBAL BALANCE OF PAYMENTS CORRECTION

As analysed in detail in the EUROFRAME-EFN Spring Report, the current global current account positions are not sustainable in the longer term and need to be reduced. There is fear in Europe that it has to bear a more than proportional share of the burden of this coming correction. The euro has appreciated much more than the yen vis-à-vis the US dollar, while until recently the Chinese renminbi was pegged to the dollar. The US is calling for a major renminbi realignment to help solve its problems. In this box we analyse an appreciation of the renminbi vis-à-vis the US dollar and argue that it is no more than a short term palliative. The NiGEM model contains an estimated model for the Chinese economy that reflects the rapid response of prices to the exchange rate that we have seen in the last decade, and we would expect to see this pattern repeated.

We simulate a 10 per cent appreciation of the renminbi vis-à-vis the US dollar. This is much more than the appreciation of around 2 per cent since July when the Chinese monetary authorities officially ended the peg with the dollar. A 10 per cent appreciation will hurt the competitive position of Chinese exporters and will lead to an initial fall in exports and therefore a drop in output, as we can see from the chart. Due to J-curve effects, the Chinese current account position initially improves but in the third year the external surplus is 1.3 per cent of GDP below baseline. However, the slump in exports and output is short lived as Chinese domestic prices react very quickly to the appreciation and to the lower import prices, and inflation falls by 2½ percentage points on average in the first three years of the scenario, moving the real exchange rate almost all the way back to where it would have been.

Chart 1.18: Impact of a Chinese Realignment



Much has happened after the appreciation that followed the 1998 Asian crisis, the deterioration in price competitiveness is quickly undone and exports and output converge to the initial baseline. Hence the Chinese current account surplus also returns to where it would have been within a few years. The only permanent impact of the appreciation is a drop in the Chinese price level of

around 10 per cent. Given the risk of overheating in China and the risk of real estate bubbles, a further appreciation of the renminbi will serve the Chinese monetary authorities well because of this drop in prices. From these simulation outcomes it can be concluded that an appreciation of the renminbi will not contribute to a correction of global current account imbalances and therefore will not limit Europe's burden from the inevitable correction.

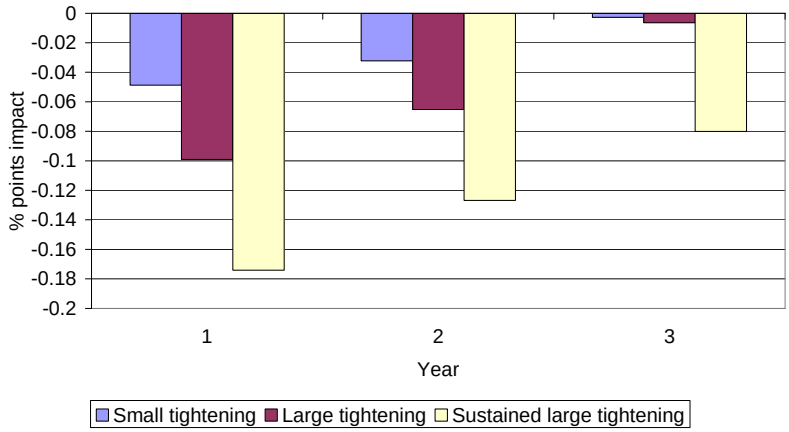
A permanent increase in Chinese domestic demand due to higher private consumption, housing investment and government expenditures would change the fundamental determinants of the current account surplus, and would help remove some of the world imbalances. However, as Al Eyd, Barrell and Choy (2005) argue[7] a reduction of the Chinese current account surplus of 1 per cent of GDP would lead to an improvement of the US current account of less than 0.1 per cent of GDP. Therefore, it can be concluded that a permanent increase in Chinese domestic demand can only contribute to a limited extent to a correction in the global current account imbalances and is not likely to change Europe's burden from the expected correction.

THE IMPACT OF AN INCREASE IN INTEREST RATES IN THE EURO AREA

The ECB has been clear that it is concerned about the inflationary impact of increases in oil prices, and one risk we face is that interest rates may move upward more rapidly than we anticipate, slowing growth. In order to investigate the potential impact of such a tightening we have undertaken three scenarios. In the first, interest rates are higher than projected by 0.5 in the first year and 1.0 in the second year. In the second scenarios the interest rate is increased by 1.0 in the first year, and 2.0 in the second, whilst in the third scenario the ECB makes it clear that it will hold rates 2.0 higher in the third year as well. As we are using a model with rational expectations, the policy rule in place after the change does matter, and it is designed not to offset the effects of the tightening. In addition, in this style of model the length of time for which the interest rate is expected to stay high matters, even in the first year, as it affects both the rational expectations based jump in the exchange rate in the first period and the scale of the increase in long term interest rates at the start of the scenario.

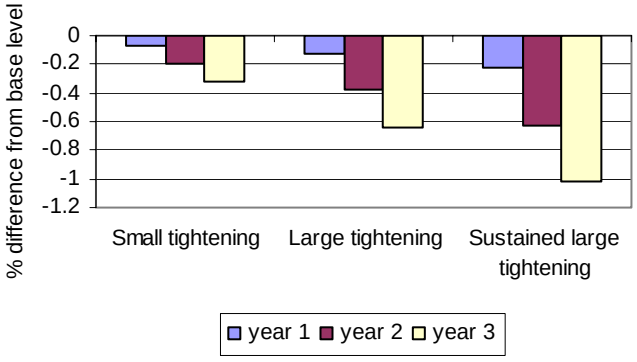
[7] Ali Al-Eyd, Ray Barrell and Amanda Choy, (2005) 'Global Realignment of Exchange Rates: Asia's Dilemma' National Institute Economic Review, July 2005.

Chart 1.19: Impact of Interest Rates on Inflation in the Euro Area



An increase in short interest has its main effect on inflation in the first year, as we can see from the chart, and doubling the size of the innovation doubles the effect, and the duration is the same. However, if the ECB is firm about its intentions, and is clear that rates will stay high for some time, then inflation will come down more markedly. Around half of the impact comes from the change in the exchange rate that the innovation induces. As we can see from the chart, output effects also increase with the size and duration of the innovation, but they increase over time, with growth being reduced by about a third of a percentage point in each of the three years in the most extreme contraction we consider, whilst inflation is only reduced by around half of this in the first year, and by less in subsequent years.

Chart 1.20 Impact of Monetary Tightening on GDP



Interest rate policy should be used with care, but would be more effective if wage bargaining was more forward looking. The Euro Area has some distance to go before reactions are as fast as in the US, where monetary policy impacts on inflation are perhaps twice as high as those observed in Europe.

Forecast Tables

Annex Table 1: Summary of Key Forecast Indicators for Euro Area[a]

	2002	2003	2004	2005	2006	2007
Output Growth Rate	0.9	0.7	1.8	1.2	1.8	2.0
Inflation Rate	2.3	2.1	2.1	2.2	2	1.9
Unemployment Rate	8.2	8.7	8.9	8.6	8.4	8.3
Gov. Balance as % GDP	-2.5	-3	-2.7	-2.8	-2.7	-2.4

a GDP data shown in the tables are adjusted for working-day variation.

Annex Table 2: Real GDP in Major Economies

	World	OECD	NAFTA	China	EU -25	Euro Area	USA	Japan	Germany	France	Italy	UK
	Annual percentage changes											
1995-2001	3.6	2.9	3.4	8.5	2.7	2.5	3.4	1.2	1.9	2.6	2.0	3.0
2002	3.0	1.7	1.7	8.3	1.1	0.9	1.6	-0.3	0.1	1.3	0.4	2.0
2003	4.0	2.1	2.6	9.3	1.1	0.7	2.7	1.4	-0.2	0.9	0.4	2.5
2004	5.1	3.4	4.1	9.5	2.1	1.8	4.2	2.6	1.1	2.0	1.0	3.2
2005	4.2	2.6	3.3	9.1	1.6	1.2	3.3	2.4	0.8	1.5	0.0	2.0
2006	4.3	2.7	3.2	8.1	2.1	1.8	3.2	2.3	1.3	2.1	0.9	2.2
2007	4.3	2.6	3.0	8.5	2.2	2.0	3.0	1.7	1.7	2.2	1.1	2.3

Annex Table 3: Private Consumption Deflator in Major Economies

	OECD	NAFTA	China	EU	Euro Area	USA	Japan	Germany	France	Italy	UK
	Annual percentage changes										
1995-2001	3.3	3.3	4.5	2.1	2.0	1.9	-0.2	1.0	1.2	3.2	2.4
2002	2.0	2.0	-0.8	2.0	2.1	1.4	-1.2	1.2	1.0	3.1	1.5
2003	1.9	2.3	1.2	2.0	2.0	1.9	-0.7	1.5	1.1	2.5	2.0
2004	1.7	2.8	3.9	1.7	1.9	2.6	-0.6	1.4	1.5	2.2	1.3
2005	1.8	2.9	3.5	1.9	1.9	2.8	-0.6	1.3	1.5	2.1	1.9
2006	2.1	3.2	3.6	2.2	2.2	3.4	-0.5	1.6	2.1	2.7	2.3
2007	2.1	3.0	2.8	2.0	1.9	2.9	0.6	1.4	2.0	2.1	2.2

Annex Table 4: World Trade Volume and Prices

	World trade volume	World export prices in $	Oil price ($ per barrel)[a]
	Annual percentage changes		
1995-2001	7.4	-1.5	19.3
2002	3.4	0.6	24.4
2003	4.8	8.9	27.8
2004	7.9	8	35.9
2005	6.1	5.3	53.5
2006	6.7	2	61.9
2007	6.9	2.1	57

[a] Based on the unweighted average of the Brent, WTI (West Texas Intermediate) and Dubai oil prices.

Annex Table 5: Interest Rates

	Short-term interest rates				Long-term interest rates			
	USA	Japan	Euro Area	UK	USA	Japan	Euro Area	UK
2002	1.7	0.1	3.3	4	4.6	1.2	4.9	4.9
2003	1.2	0	2.3	3.7	4	1.1	4.2	4.5
2004	1.6	0	2.1	4.6	4.3	1.5	4.1	4.9
2005	3.4	0	2.1	4.7	4.2	1.2	3.4	4.4
2006	4.3	0.2	2.2	4.3	4.5	1.4	3.5	4.3
2007	4.5	0.4	2.4	3.9	4.7	1.6	3.7	4.4
2005Q1	2.8	0	2.1	4.9	4.3	1.3	3.7	4.7
2005Q2	3.2	0	2.1	4.8	4.2	1.1	3.4	4.4
2005Q3	3.4	0	2.1	4.7	4.2	1.2	3.2	4.4
2005Q4	4	0	2.1	4.5	4.2	1.3	3.3	4.1
2006Q1	4.2	0	2.1	4.4	4.3	1.4	3.4	4.2
2006Q2	4.4	0.1	2.2	4.4	4.4	1.4	3.4	4.2
2006Q3	4.4	0.2	2.2	4.3	4.5	1.5	3.5	4.3
2006Q4	4.4	0.3	2.3	4.2	4.6	1.5	3.6	4.3
2007Q1	4.4	0.3	2.3	4.1	4.6	1.6	3.7	4.4
2007Q2	4.5	0.4	2.4	4	4.7	1.6	3.7	4.4
2007Q3	4.5	0.4	2.4	3.8	4.7	1.7	3.8	4.4
2007Q4	4.5	0.5	2.5	3.9	4.8	1.7	3.8	4.5

Annex Table 6: Effective Exchange Rates

	USA	Japan	Euro Area	Germany	France	Italy	UK
	Annual percentage changes						
2002	3	-0.5	7.4	2.9	3.3	4.8	2.5
2003	-6	3.9	13.7	6.6	6.4	7.1	-2.7
2004	-4.7	4.2	5.4	2.3	2.3	2.7	5.3
2005	-3.2	-1.7	-0.4	-0.5	0	-0.2	-1.1
2006	-0.6	-0.1	-0.3	-0.3	-0.2	-0.2	0.2
2007	-0.7	3.5	0.2	0.2	0.1	0.2	-0.4
2005Q1	-1.4	-0.2	0.3	0.1	0.2	0.2	0.1
2005Q2	1.3	-2.2	-2.9	-1.3	-1.4	-1.5	0.8
2005Q3	0.5	-2.4	-1.7	-0.8	-0.7	-0.9	-2.2
2005Q4	-1.3	1.1	1	0.2	0.4	0.5	2
2006Q1	0	0	0.2	0.1	0.1	0.1	-0.1
2006Q2	-0.1	0.4	0.3	0.2	0.1	0.2	-0.2
2006Q3	-0.2	0.7	0.2	0.1	0.1	0.1	-0.2
2006Q4	-0.2	0.9	0	0	0	0	-0.1
2007Q1	-0.2	1	0	0	0	0	-0.1
2007Q2	-0.2	0.9	0.1	0.1	0.1	0.1	-0.1
2007Q3	-0.2	0.9	0	0	0	0	0
2007Q4	-0.1	0.8	0	0	0	0	0.1

Annex Table 7: Euro Area, Main Features of Forecast[a]

	2001	2002	2003	2004	2005	2006	2007
	Annual percentage changes						
Volumes							
Consumption	1.8	0.9	1	1.4	1	1.2	1.9
Private investment	-0.2	-3	0.5	1.9	1.6	2.8	2.5
Government expenditure	2.2	2.4	1.5	1	1	2.3	1.8
Stockbuilding[b]	-0.5	-0.3	0.3	0.4	0.2	-0.1	0
Total domestic demand	1.0.	0.2	1.4	1.8	1.4	1.6	1.9
Export volumes	4.1	1.9	0.7	6	3.3	5.9	6.7
Import volumes	2.2	0.3	2.7	6.1	3.7	5.7	6.6
GDP	1.7	0.9	0.7	1.8	1.2	1.8	2.0
Average earnings	3.8	3.5	2.9	2.2	2.5	2.9	2.9
Harmonised consumer prices	2.4	2.3	2.1	2.1	2.2	2.0	1.9
Private consumption deflator	2.5	2.1	2.0	1.9	1.9	2.2	1.9
Real personal disposable income	2.5	1.5	0.9	1.6	1.6	0.8	1.4
	Levels						
Standardised unemployment %	7.8	8.2	8.7	8.9	8.6	8.4	8.3
Government financial balance[c]	-1.9	-2.5	-3.0	-2.7	-2.8	-2.7	-2.4
Government debt[c]	69.3	69.2	70.4	70.8	72.2	72.3	71.7
Current account[c]	-0.1	0.9	0.3	0.6	-0.3	-0.6	-0.8

[a] See footnote a of Annex table 1.

[b] Change as percentage of GDP.

[c] As a percentage of GDP.

Annex Table 8: Real GDP in the European Union [a]

	2002	2003	2004	2005	2006	2007
	Annual percentage changes					
Austria	1.2	0.8	2.2	1.5	1.8	1.5
Belgium	0.9	1.3	2.7	1.3	1.7	2.4
Denmark	0.5	0.7	2.4	2.6	2.1	2.1
Finland	2.2	2.4	3.5	1.7	3.8	2.9
France	1.3	0.9	2.0	1.5	2.1	2.2
Germany	0.1	-0.2	1.1	0.8	1.3	1.7
Greece	3.8	4.6	4.7	3.1	2.6	3.2
Ireland	6.1	4.4	4.5	5.7	5.1	5.1
Italy	0.4	0.4	1.0	0.0	0.9	1.1
Netherlands	0.1	-0.1	1.7	0.6	2.1	2.3
Portugal	0.4	-1.1	1	0.8	1.6	1.6
Spain	2.7	3	3.1	3.3	2.8	2.8
Sweden	2.0	1.6	3.1	2.4	3.2	2.7
United Kingdom	2.0	2.5	3.2	2.0	2.2	2.3
Euro Area	0.9	0.7	1.8	1.2	1.8	2.0
EU-15	1.1	1.0	2.0	1.5	2	2.1
NMS-10	2.4	3.7	5.0	4.1	4.4	4.5
EU-25	1.1	1.1	2.1	1.6	2.1	2.2

[a] GDP data shown in the tables are adjusted for working-day variation.

Annex Table 9: Inflation in the European Union

	2002	2003	2004	2005	2006	2007
	Annual percentage changes					
Austria	1.7	1.3	2	2	1.7	1.9
Belgium	1.6	1.5	1.8	2.7	2.4	1.8
Denmark	2.4	2	0.9	1.8	2.5	2.3
Finland	2	1.3	0.2	0.8	1.7	1.8
France	1.9	2.2	2.3	1.9	2	2
Germany	1.3	1.1	1.7	1.9	1.7	1.4
Greece	3.9	3.4	3	3.5	3.4	2.4
Ireland	4.7	4	2.3	2.2	2.7	2.6
Italy	2.6	2.8	2.3	2.2	2.6	2.1
Netherlands	3.8	2.2	1.4	2.2	-2.5	1.2
Portugal	3.7	3.3	2.5	2	2.7	1.7
Spain	3.6	3.1	3.1	3.1	3.1	2.5
Sweden	2	2.3	1	0.8	2.3	2
United Kingdom	1.3	1.4	1.3	2.1	2.3	2
Euro Area	2.3	2.1	2.1	2.2	2	1.9
EU-15	2.1	2	2	2.1	2	1.9
NMS-10	2.7	2.1	4.3	2.4	2.1	2.3
EU-25	2.1	2	2.2	2.2	2.1	1.9

Annex Table 10: Fiscal Balances in the European Union

	2002	2003	2004	2005	2006	2007
			% GDP			
Austria	-0.4	-1.2	-1	-1.8	-2	-2
Belgium	0	0.1	0	-0.6	-0.7	-0.7
Denmark	1.4	1	2.3	2.1	3	2.3
Finland	4.3	2.5	2.1	1.8	1.7	1.6
France	-3.2	-4.2	-3.6	-3.2	-3.2	-3
Germany	-3.8	-4.1	-3.7	-3.8	-3.4	-2.9
Greece	-4.9	-5.7	-6.6	-4.6	-4.3	-4.2
Ireland	-0.4	0.2	1.4	0.3	-0.4	-0.7
Italy	-2.7	-3.2	-3.2	-4.2	-4.4	-3.7
Netherlands	-2	-3.2	-2.1	-1.8	-1.8	-1.5
Portugal	-2.8	-2.9	-3	-6.2	-5	-3.8
Spain	-0.3	0	-0.1	0.7	0.6	0.2
Sweden	-0.3	0.2	1.6	1	1	0.9
United Kingdom	-1.6	-3.2	-3.1	-2.9	-2.7	-3.1
Euro Area	-2.5	-3	-2.7	-2.8	-2.7	-2.4

Annex Table 11: Standardised Unemployment Rate in the EU-15

	2002	2003	2004	2005	2006	2007
			% Total labour force			
Austria	4.1	4.3	4.8	5.1	5.1	4.9
Belgium	7.3	7.9	7.8	8	7.8	7.9
Denmark	4.6	5.6	5.4	4.9	5	4.4
Finland	9.1	9	9	8.4	8.1	7.8
France	8.9	9.4	9.7	9.7	9.5	9
Germany	8.2	9.1	9.5	9.5	9.2	9.1
Greece	10.3	9.7	10.5	10.1	10.2	10.1
Ireland	4.4	4.6	4.5	4.3	4.2	4.1
Italy	8.6	8.4	8.1	7.7	7.7	7.7
Netherlands	2.8	3.7	4.6	4.9	4.7	4.1
Portugal	5	6.3	6.7	7.3	7.4	7.3
Spain	11.5	11.5	11	9.6	9.2	9.2
Sweden	4.9	5.6	6.3	6.2	6.3	6
United Kingdom	5.2	5	4.8	4.8	4.9	5
Euro Area	**8.2**	**8.7**	**8.9**	**8.6**	**8.4**	**8.3**

2. EUROPEAN POLICY MONITORING

2.1 Monetary Policy in the Euro Area

Monetary conditions in the Euro Area have hardly changed in recent months. The ECB's key interest rate (the minimum bid rate on the main refinancing operations of the Eurosystem) has remained at 2.0 percent since June 2003. Money market rates (3-month EURIBOR) were only marginally higher than the rate for overnight deposits; apparently, markets expect that interest rates will not be raised in the near future. This is confirmed by the implied rates of LIFFEs euribor contracts (at the end of September the rates implied were 2.2 per cent in December 2005 and 2.5 per cent in September 2006).

The real short-term interest rate (nominal rate adjusted for actual core inflation) has increased somewhat since the beginning of this year and amounts to about ½ percent, after having been close to zero for about one year. Nevertheless, it is still well below its long-term average and monetary policy can therefore be characterised as accommodative. Moreover, long-term interest rates have continued to decline in recent months. The yields for 10-year government bonds are about 100 basis points lower than one year ago. In real terms, the long rates are well below their historical average independent of the inflation measure used, be it the core rate of inflation or be it inflationary expectations (approximated by the ten-year break-even inflation rate for the Euro Area).

As discussed in chapter 1, there are several reasons for the low level or the decline of long-term interest rates. Among them are the high level of worldwide liquidity as well as the weak economic activity in the Euro Area; in recent months, the forecasts for real GDP growth in 2005 and 2006 have been reduced continuously. Monetary aggregates, which play a role in the monetary policy strategy of the ECB, have accelerated considerably; the rate for M3 has reached 8.1 percent in August. Also, credit growth has strengthened further. This indicates that the transmission of monetary impulses is working even though this shows up not so much in aggregate demand for goods and thus in consumer prices, but rather for housing and on financial markets. The increase of stock prices implies that financial conditions for firms have improved. Besides, monetary conditions are positively affected by the depreciation of the euro. Since the Spring of 2005, the European currency lost ground against major world currencies, in particular against the US dollar. In real and effective terms (EER-42, CPI basis), the depreciation amounted to about 5 percent during the past six months; this is a minor correction from the appreciation of around a quarter in the four previous years.

In spite of the recent small increase of the short-term real interest rate, current short-term rates are still slightly below the range of rates derived from the Taylor rule and still clearly less than the range of estimated neutral rates

(see Table).[1] Even though estimates concerning potential output growth vary, the calculated Taylor rates do not differ much.[2] For the neutral real rate of interest we assume, following theoretical considerations, that it is equal to the estimated growth rate of potential output. Given Phelps' golden rule, this rate should prevail when the output gap is closed and the inflation rate is on target. The calculated "neutral" rate of interest do not differ much either. According to various calculations, this neutral rate is between 3.3 and 3.7 percent.

The ECB has not given in to demands to cut interest rates in response to the slowdown of economic expansion due to the rise of oil prices. In a similar vein, some have argued that rates should be raised because inflation accelerated due to the surge in oil prices. However, a change of monetary policy in response to higher oil prices alone would not be appropriate as is also discussed in the literature. The ECB was correct in not raising rates in response to the pickup of inflation because the inflation perspectives have not deteriorated; neither core inflation nor inflationary expectations have increased in recent months. However, there has been some reaction by the ECB in the following sense: in the fall of 2004, the central bank had prepared markets for a rate hike which did not take place in the light of the developments on oil markets. Therefore, monetary policy is probably more expansionary today than it would have been otherwise.

We expect that the ECB will keep interest rates constant for some time because the economic expansion will remain modest and the perspectives for inflation will probably not worsen in the near future. All in all, the actual interest rate will be fairly close to the Taylor rate. In our judgment, however, key interest rates will be raised in the medium term because they are lower than the "neutral" rate according to all calculations. We expect that the ECB will start to tighten policy at the end of next year.

Table 2.1*:* Various Calculations of the Taylor Rate and the Neutral Interest Rate in the Euro Area 2005[a]

Method	Potential growth (approx. real rate)	Output gap	Taylor rate	Neutral rate
OECD estimate	1.9	–2.1	2.2	3.7
HP filter	1.5	–0.4	2.6	3.3
IfW estimate	1.8	–1.7	2.3	3.6
IMF estimate	1.9	-1.6	2.5	3.7
NiGEM	1.5	-0.5	2.6	3.3

[a] The inflation target is assumed to be 1.8 percent. The Taylor rate is calculated for the core rate of inflation (HICP excluding energy, food, alcohol and tobacco); we assume the core rate to be 1.5 percent in 2005.

2.2. Fiscal Policy in the Euro Area

This section provides a brief assessment of the short-term budgetary prospects in the Euro Area. Our Spring report focused on budgetary prospects as compared with the perspectives of the updates of the Stability programmes

[1] As in our previous report, we use the Taylor rule in its original version (Taylor 1993):

(1) $i = r + \pi + 0.5\,(\pi - \pi^*) + 0.5\,(y - y^*)$,

with i being the nominal interest rate, r the equilibrium real interest rate, π the rate of inflation, π^* the inflation target, y actual real GDP, and y^* potential real GDP. We assume an inflation target of 1.8 percent, which is consistent with the ECB's target of inflation close to but below 2 percent. The core rate of inflation (HICP excl. unprocessed food and energy) is used because it appears to be a better orientation for monetary policy because volatile prices are largely excluded. For the output gap, various estimates are reported in the table.

[2] This is due to the fact that there are compensating factors. For example, a high growth rate of potential output implies that the negative output gap is larger which would lead to a lower interest rate according to the Taylor rule. However, the Taylor rate is raised by the fact that the equilibrium real rate of interest is higher.

(SP) released at the turn of the year. We wish to address in our Autumn reports on the latest budgetary developments, highlighting any major reforms underway and considering if recent developments are in line with the latest SPs. We will start with changes of GDP and deficits prospects since our Spring report before providing an assessment of the expected fiscal stance.

GROWTH PROSPECTS

Our Autumn 2005 forecast expects Euro Area GDP to grow by 1.2 per cent this year and 1.8 in 2006, slightly below our Spring forecast (respectively 1.5 and 2.0) and hence further below the forecasts of the SPs where Euro Area GDP was expected to grow by 2.3 per cent this year and 2.4 next (see Table 2.2).

Our forecasts for GDP growth in 2005 have been revised downwards since last Spring in a majority of Euro Area countries, by up to 1 percentage point in Italy, Portugal and Finland. However, lower GDP growth prospects in Finland for this year reflect more the effects of the disruption of production in the paper industry earlier this year than major changes in economic prospects. In this more depressed context for Euro Area growth, the exceptions are Germany, with GDP prospects unchanged at 0.8 for this year, Spain where our forecast has been upwards (from 2.6 to 3.3) and Ireland (from 5.4 to 5.7). We have also lowered our forecasts for 2006 for almost all Euro Area countries at the major exception of Spain where we expect growth of 2.8.

We expect a slight acceleration of Euro Area GDP growth in 2007 that would help stabilising the cyclical component of the deficits. However, GDP growth prospects are not sufficiently robust to allow for any significant improvement in fiscal balances up to 2007.

GOVERNMENT BALANCES

Lower than expected growth for 2005 leads us to anticipate deficits higher by about 0.2 percentage points of GDP this year at -2.8 per cent of GDP, or -3.1 excluding one-off measures (see Table 2.2).

Deficit targets announced in the SPs are unlikely to be met in 2005 at the Euro Area level. This is especially true for the countries running higher than 3 per cent of GDP deficits: France, Germany, Italy, Greece and Portugal. In France, the government deficit to GDP ratio is higher than expected due to lower than expected growth. In Germany, the fiscal stance seems less contractionary than announced. In Italy, the deficit has risen under much lower than expected growth, and the government has not planned any contractionary measures for this year. One-off measures are expected to reduce deficits in Germany (0.4) and France (0.5) this year. The Greek government has announced contractionary measures that would also leave the deficit well above 3 per cent of GDP while the revised deficit figures for Portugal, low growth prospects and the government's announcement not to rely on one-off measures makes the deficit likely to stand around 6 per cent of GDP this year.

In the other Euro Area countries, deficits targets will almost be met. In the Netherlands, this will result from contractionary measures, whereas stronger than expected growth keeps on reducing automatically the deficit in Spain.
Deficits will remain at around -2.7 per cent of GDP next year under our assumptions, or -2.8 excluding one-off measures. The expected phasing out of one-off fiscal measures (-0.3 per cent of GDP in 2005, -0.1 in 2006) masks a 0.3 per cent of GDP decrease in deficits in 2006. The French deficit is likely to remain slightly above 3 per cent in 2006, German and Italian deficits will remain above 3 per cent too. The situation is likely to remain almost unchanged in 2007. The three largest Euro Area countries are likely to implement restrictive measures, of at least 0.5 percentage point a year on average, but they seem unlikely to introduce any major additional corrective

measures to bring more rapidly their deficits below 3 per cent, in the current contexts of weak activity and recent (Germany) or upcoming (Italy in 2006, France in 2007) elections.

Although no new major fiscal measures have been announced since our Spring report, it is worth noting that a rising number of Euro Area countries have implemented or announced cuts in domestic corporate tax rates in order to strengthen the attractiveness of their countries for the location of productive activities: Germany, Austria, Greece, Portugal...The special topic of this report is dedicated to this issue.

Table 2.2. Euro Area GDP Growth & General Government Balances according to the Stability Programmes

	GDP growth assumptions (%)								General government balance (% GDP)							
	Stability Programmes							Actual	Stability Programmes							Actual
	J99	J00	J01	J02	J03	J04	J05		J99	J00	J01	J02	J03	J04	J05	
98	2.8							2.9	-2.1	-1.9						-2.3
99	2.5	2.2						2.8	-1.7	-1.4	-1.2					-1.3
00	2.6	2.8	3.3					3.5	-1.5	-1.1	-0.7	-0.8				-1.0
01	2.6	2.5	3.1	1.7	1.5			1.6	-1.0	-0.8	-0.6	-1.2	-1.6			-1.7
02		2.5	2.9	1.9	1.0			0.9		-0.6	-0.3	-0.9	-2.2			-2.5
03		2.5	2.8	2.6	2.1	0.6		0.7		-0.2	0.0	-0.5	-1.8	-2.7		-2.9
04			2.8	2.6	2.6	1.9	2.0	1.8			0.4	0.1	-1.1	-2.4	-2.7	-2.8
05				2.6	2.6	2.5	2.3	1.2[1]				0.3	-0.6	-1.8	-2.3	-2.8[1]
06					2.6	2.5	2.4	1.8[1]					-0.2	-1.3	-1.8	-2.7[1]
07						2.5	2.4	2.0[1]						-0.9	-1.3	-2.4[1]
08							2.4	–							-1.0	–

1. EUROFRAME-EFN, Autumn 2005 Forecast.

Memo: Spring 2005 forecast: GDP growth: 1.5 in 2005 and 2.0 in 2006; Deficits: 2.6 in 2005 and 2.5 in 2006.

Sources: EUROFRAME-EFN, Stability programmes, Eurostat, own calculations.

EXPECTED FISCAL STANCE

The assessment of the fiscal stance depends not only on GDP growth and government balances, but also on potential growth estimates that may vary significantly from one method to another (see table 2.1). Table 2.3 shows two estimates of the fiscal stance in the Euro Area, based on our forecasts for GDP and government deficits. One uses potential output growth taken from the SP's, leading to a potential growth close to 2.2 per cent for the Euro Area as whole, the other one uses NiGEM estimates that suggest Euro Area trend output growing by around 1.5 per cent this year before rising to almost 2 per cent in 2007. The two associated fiscal stances are given to provide bounds of the fiscal stance underway in the Euro Area.

Both measures suggest that fiscal policy will have a dampening effect on economic growth at the Euro Area level over the forecast horizon. According to the first measure, the Euro Area fiscal stance will be restrictive on average by an annual 0.4 percentage point of GDP from 2005 to 2007, while it will be slightly less contractionary according to the second measure, amounting to an average 0.2 percentage points.

Both measures also suggest that policy would become slightly more restrictive in 2006 and 2007 than in 2005. This would be especially true for most of the countries currently running the larger deficits: Germany, Italy, Portugal. In France the election year and the recently announced cuts in personal income taxation could make it difficult for the government to

significantly reduce the structural deficit in 2007. Over the forecast horizon, we expect the fiscal stance to be restrictive in all countries running higher than 3 per cent of GDP deficits as well as in the Netherlands, while it will be neutral or slightly expansionary in the other countries: Austria, Belgium, Finland, Ireland and Spain. We do not expect the change in the implementation of the SGP introduced in the March 2005 Council to affect the conduct of fiscal policy in member states.

Table 2.3 GDP Growth, Fiscal Balances in the EUROFRAME-EFN forecast & Fiscal Impulses Under Two Estimates

	2003	2004	2005	2006	2007
Real GDP growth, %					
Germany	-0.2	1.1	0.8	1.3	1.7
France	0.9	2.0	1.5	2.1	2.2
Italy	0.4	1.0	0.0	0.9	1.1
Spain	3.0	3.1	3.3	2.8	2.8
The Netherlands	-0.1	1.7	0.6	2.1	2.3
Belgium	1.3	2.7	1.3	1.7	2.4
Austria	0.8	2.2	1.5	1.8	1.5
Finland	2.4	3.5	1.7	3.8	2.9
Portugal	-1.1	1.0	0.8	1.6	1.6
Greece	4.6	4.7	3.1	2.6	3.2
Ireland	4.4	4.5	5.7	5.1	5.1
Euro Area-11 (1)	**0.8**	**1.8**	**1.2**	**1.8**	**2.0**
General government balance, % GDP					
Germany	-4.1	-3.7	-3.8	-3.4	-2.9
France	-4.2	-3.6	-3.2	-3.2	-3.0
Italy	-3.2	-3.2	-4.2	-4.4	-3.7
Spain	0.0	-0.1	0.7	0.6	0.2
The Netherlands	-3.2	-2.1	-1.8	-1.8	-1.5
Belgium	0.1	0.0	-0.6	-0.7	-0.7
Austria	-1.2	-1.0	-1.8	-2.0	-2.0
Finland	2.5	2.1	1.8	1.7	1.6
Portugal	-2.9	-3.0	-6.2	-5.0	-3.8
Greece	-5.7	-6.6	-4.6	-4.3	-4.2
Ireland	0.2	1.4	0.3	-0.4	-0.7
Euro Area-11	**-3.0**	**-2.7**	**-2.8**	**-2.7**	**-2.4**
One-off measures, % GDP					
Germany	0.0	0.1	0.4	0.2	0.0
France	0.0	0.0	0.5	0.0	0.0
Italy	2.0	1.5	0.5	0.0	0.0
Spain	0.0	-0.7	0.1	0.0	0.0
The Netherlands	0.0	0.0	0.0	0.0	0.0
Belgium	0.0	0.0	0.0	0.0	0.0
Austria	0.0	0.0	0.0	0.0	0.0
Finland	0.0	0.0	0.0	0.0	0.0
Portugal	2.5	2.3	0.2	0.0	0.0
Greece	0.0	0.0	0.0	0.0	0.0
Ireland	0.0	0.5	-0.4	-0.2	0.0
Euro Area-11	**0.4**	**0.3**	**0.3**	**0.1**	**0.0**
Fiscal impulse, under SP potential output growth assumptions, % GDP (2)					
Germany	-0.7	-0.6	-0.1	-0.8	-0.7
France	0.3	-0.7	-0.3	-0.6	-0.2
Italy	0.8	-0.5	-0.9	-0.8	-1.1
Spain	0.0	-0.2	0.3	-0.1	0.4
The Netherlands	0.1	-1.2	-1.1	-0.1	-0.3
Belgium	0.1	1.0	0.6	0.1	0.3
Austria	0.4	-0.1	0.7	0.1	-0.3
Finland	1.8	0.6	0.0	0.9	0.4
Portugal	-0.1	-0.6	0.5	-1.6	-1.3
Greece	1.9	1.8	-2.1	-0.9	-0.2
Ireland	-1.9	-1.6	-0.2	0.4	0.5
Euro Area-11	**0.1**	**-0.5**	**-0.3**	**-0.5**	**-0.4**

Fiscal impulse, under NiGEM trend output growth assumptions,% GDP [3]					
Germany	-0.2	-0.3	0.2	-0.5	-0.6
France	0.5	-0.5	-0.1	-0.4	-0.1
Italy	0.8	-0.3	-0.2	-0.3	-0.6
Spain	-0.4	-0.6	0.1	0.0	0.3
The Netherlands	0.5	-0.9	-0.5	0.3	-0.1
Belgium	1.0	-0.8	0.3	-0.1	0.1
Austria	0.4	0.1	0.8	0.2	-0.1
Finland	1.9	0.7	-0.1	0.4	0.1
Portugal	0.5	0.2	1.1	-1.2	-1.2
Greece	0.9	1.2	-2.2	-0.5	-0.1
Ireland	-1.1	-1.0	0.5	0.9	0.4
Euro Area-11	0.2	-0.4	0.0	-0.3	-0.3

[1] Excluding Luxembourg. [2] Excluding one-off measures. Fiscal impulse is the opposite of the change in the cyclically-adjusted primary balance, derived from EUROFRAME-EFN Autumn forecasts for GDP growth, fiscal balances and one-off measures, with potential output growth as in the stability programmes. [3] Excluding one-off measures. Fiscal impulse here is the opposite of the change in the cyclically-adjusted balance, derived from EUROFRAME-EFN Autumn forecasts for GDP growth, fiscal balances and one-off measures, with trend output growth as in NiGEM

Sources: EUROFRAME-EFN Autumn 2005 forecast, *Stability programmes*, s*ixth updates*, end 2004, Eurostat, own assumptions.

Table 2.4. GDP Growth, Fiscal Balances in the EUROFRAME-EFN forecast & Fiscal Impulses Comparison: 2005/Autumn 2005

	Forecast for 2005		Forecast for 2006	
	2005	Autumn 2005	2005	Autumn 2005
Real GDP growth, per cent				
Germany	0.8	0.8	1.6	1.3
France	2.1	1.5	2.2	2.1
Italy	1.0	0.0	1.5	0.9
Spain	2.6	3.3	2.3	2.8
The Netherlands	1.0	0.6	2.3	2.1
Belgium	2.2	1.3	2.3	1.7
Austria	2.3	1.5	2.3	1.8
Finland	2.9	1.7	3.0	3.8
Portugal	1.8	0.8	2.3	1.6
Greece	3.0	3.1	3.2	2.6
Ireland	5.4	5.7	5.4	5.1
Euro Area-11 (1)	1.5	1.2	2.0	1.8
General government balance, per cent of GDP				
Germany	-3.5	-3.8	-3.3	-3.4
France	-3.1	-3.2	-3.0	-3.2
Italy	-3.5	-4.2	-3.6	-4.4
Spain	-0.2	0.7	-0.5	0.6
The Netherlands	-2.1	-1.8	-1.9	-1.8
Belgium	0.0	-0.6	-0.4	-0.7
Austria	-1.7	-1.8	-1.8	-2.0
Finland	2.0	1.8	2.0	1.7
Portugal	-2.7	-6.2	-2.0	-5.0
Greece	-4.2	-4.6	-3.3	-4.3
Ireland	0.0	0.3	-0.7	-0.4
Euro Area-11	-2.6	-2.8	-2.5	-2.7
One-off measures, per cent of GDP				
Germany	0.4	0.4	0.2	0.2
France	0.5	0.5	0.0	0.0
Italy	0.5	0.5	0.0	0.0
Spain	0.0	0.1	0.0	0.0
The Netherlands	0.0	0.0	0.0	0.0
Belgium	0.0	0.0	0.0	0.0
Austria	0.0	0.0	0.0	0.0
Finland	0.0	0.0	0.0	0.0
Portugal	1.4	0.2	0.7	0.0
Greece	0.0	0.0	0.0	0.0
Ireland	-0.4	-0.4	-0.2	-0.2
Euro Area-11	0.3	0.3	0.1	0.1
Fiscal impulse, per cent of GDP (2)				
Germany	-0.4	-0.1	-0.5	-0.8
France	-0.2	-0.3	-0.6	-0.6
Italy	-0.3	-0.9	-0.8	-0.8
Spain	0.6	0.3	0.1	-0.1
The Netherlands	-1.1	-1.1	-0.2	-0.1
Belgium	0.3	0.6	0.8	0.1
Austria	1.0	0.7	0.3	0.1
Finland	0.3	0.0	0.4	0.9
Portugal	-0.9	0.5	-1.2	-1.6
Greece	-1.0	-2.1	-1.5	-0.9
Ireland	-0.7	-0.2	0.7	0.4
Euro Area-11	**-0.2**	**-0.3**	**-0.4**	**-0.5**

(1) Excluding Luxembourg. (2) Excluding one-off measures. Fiscal impulse is the opposite of the change in the cyclically-adjusted primary balance, derived from EUROFRAME-EFN /Preliminary Autumn Forecasts for GDP growth, fiscal balances and one-off measures, with potential output growth as in the stability programmes.

Sources: EUROFRAME-EFN Autumn and 2005 forecasts *Stability programmes*, s*ixth updates*, end 2004, Eurostat, own assumptions.

SPECIAL POLICY TOPIC:

THE FUTURE OF CORPORATE TAXATION IN THE EU

3. THE FUTURE OF CORPORATE TAXATION IN THE EU[1]

3.1 Introduction

Tax competition is a complex and controversial phenomenon, which is difficult to investigate and is bound to intensify along with further integration in the EU. It may concern a wide range of taxes, including: consumption taxes, mainly through cross-border shopping and e-commerce of digital product; personal taxation, above all to attract skilled and more mobile workers, the wealthy and businesspeople; some special subject or area of taxation (e.g. shipping, the taxation of capital gains from share disposal by parent companies). Not surprisingly however, given the high and increasing capital mobility in the EU, the most important area of concern has been tax competition on capital and corporate income taxation. The latter is considered as particularly important, since company taxation is an easily available instrument employed by national governments competing for increasingly mobile firms, investment, and profits. Several recent studies estimating tax reaction functions between countries (e.g. Brueckner and Saavedra, 2001; Devereux, Lockwood and Redoano, 2002; Devereux and Griffith, 2003) support the hypothesis of strategic interaction of tax policies on mobile factors. It is often expected that the accession of ten new member states (NMS) in May 2004 will increase the downward pressure on company tax rates in the EU. The NMS on average already have considerably lower company tax rates than the old member states (OMS), and it is highly probable that they will reduce company taxation further. Also European Court of Justice (ECJ) litigation, with its general aim of eliminating existing barriers to the four fundamental freedoms, is a driver behind increasing tax competition for mobile capital or profits.

Tax competition in the field of corporate taxation has potentially significant costs. First of all, the existence of different tax systems increases transaction and compliance costs for tax administrations and firms and creates an obstacle to internal market integration. Second, the existence of diverging effective tax rates might lead to misallocation of real capital. In addition, statutory tax rates differentials provide incentives to shift the tax base from high to low tax countries. To the extent that profits, rather than factors move towards low taxed jurisdictions, efficiency costs are limited, but nevertheless tax revenue from corporate taxation would be lower than optimal. Hence, tax competition

[1] Alfred Boss (IfW), Malgorzata Markiewicz (CASE), Margit Schratzenstaller (WIFO) contributed to Section 2.
Albert van der Horst (CPB) to Section 3, Silvia Giannini (Prometeia) to Section 4. Henri Sterdyniak to Appendix 2, Alfred Boss expressed a dissenting view in Appendix 3. Silvia Giannini ensured the coordination of the report.

might eventually lead to under-provision of public goods, and particularly social expenditure, thus potentially hampering the redistribution of income (Huber, 1999; Sorensen, 2000).

Not surprisingly, the issue of corporate taxation is also a priority on the EU policy agenda. After the 1997 Monti Package - including the Code of conduct, the parent subsidiary directive on interest payments and royalties and the directive on saving income, in the form of interest payments, definitely approved in June 2003 - the most important initiative subsequently undertaken by the Commission is in the field of corporate taxation, more precisely corporate tax base harmonisation. This initiative was launched with the publication of the 2001 Commission services' study on "Company taxation in the Internal Market" (SEC (2001) 1681) and the accompanying Communication (COM (2001) 582 final). There are signals that time could be ripe to allow progress to be made in this field. The EU Commission has endorsed the introduction of common accounting standards (IAS/IFRS), for the time being limited to consolidated accounts[2], but potentially useful at the individual company level as a starting point to compute a common EU definition of taxable profits.[3] Moreover, the business community strongly supports a move in the direction of a common tax base, along the lines suggested by the Commission (see, for example, UNICE, 2000).

Corporate taxation is a controversial tax and as extensively discussed in the literature, is not the most efficient, nor the simplest way of taxing companies. There are also conceptual difficulties, above all since it is not clear who actually bears the burden of this tax. As we will mention at the end of this Report, there might be better alternatives, which could deserve attention. However, the corporate tax systems traditionally adopted by the majority of countries, including the EU member states, with the only exception of Estonia, is still an important source of revenue, which would be difficult to substitute and is an important component on which the coherence of the systems of direct taxation is based. Radically reforming the way in which companies are taxed would require an overall reform of the system of direct taxation.

For all the above mentioned reasons, this special report on tax competition focuses on the present system of company taxation, its effects on the location of capital and profits, and its likely future development in the EU in the light of the Commission's proposal.

In assessing the effects of corporate taxation on location decisions, it is important to bear in mind that a variety of different factors interact and that competition to attract foreign direct investment (FDI) may also occur through public expenditure competition or regulatory competition (including, for example, corporate governance rules). Moreover, for a comprehensive analysis one should consider not only corporate taxation, but the whole range of taxes impinging on the company, including taxes on labour and other productive factors as well as property taxes and on the final owner of capital, like personal taxation of dividends and capital gains, gift and inheritance taxes, personal taxation on individual owners, as well as the taxation of intermediaries that convert households' saving into financial flows to finance companies'

[2] The compulsory use from 2005 of International Financial Reporting Standards (IFRS), formerly known as International Accounting Standards (IAS), was introduced by the "IFRS Regulation" (EC (1606) 2002). As the Commission recognises: " Although only the consolidated accounts of some 7 000 companies are directly affected, the IFRS influence is much wider. All the subsidiaries of the 7 000 companies will have to maintain IFRS records, credit institutions can be expected to press for IFRS style information, some Member States are already permitting wider usage and national accounting standards are confidently expected to converge towards IFRS". (COM (2003), 726 final, p.16).

3 In February 2003 the EU Commission's services (TAXUD) released a consultation document on "The application of International Accounting Standards (IAS) in 2005 and the implications for the introduction of a consolidated tax base for companies' EU-wide activities". The document was discussed in a workshop with member states on 18 March 2003.

investment. One should also take into account the wide range of incentives and allowances that are granted for each possible type of investment and location choice and last but not least, the variety of arrangements that could be planned, exploiting the different tax provisions of the various jurisdictions as well as double taxation agreement provisions ('treaty shopping'), in order to minimize the company's tax burden. Needless to say, facing all these issues would go beyond the feasible scope of this report, which rather than providing an overall overview of all possible relevant issues, aims at deepening the analysis on the specific question of corporate tax competition and coordination in the enlarged EU. Extending the analysis in the previously mentioned directions should however be objective of further research.

As is the case with many other tax coordination issues, there is much disagreement among member states, particularly but not exclusively, on tax rate coordination. Therefore, it is not surprising, in the light of the unanimity decision rule still governing EU decisions in tax matters, that so little progress has been made up to now in coordinating company taxation. Enlargement, along with the persistence of the unanimity decision rule, will make decisions even more difficult, if not impossible, in the future. This situation explains the new strategy of the Commission towards more flexible approaches, such as the peer pressure procedure under the Code of Conduct on business taxation.
It is also recognised that further progress towards integration in the Union can be facilitated by the possibility of proceeding through new institutional procedures, as Enhanced Cooperation[4] between a subgroup of member states. (COM (2003), 726 final).

It is well known that EU countries have different attitudes towards tax coordination: some countries, notably the UK, Ireland and some of the new small member states are generally more inclined to favour tax competition. With regard to corporate tax harmonisation, some member states are in favour of tax base, but not tax rate harmonisation. In contrast, some countries, mainly among OMS, not only large countries like Germany and France, but also smaller ones, such as Denmark, are in favour not only of tax base, but also some kind of tax rate coordination.

These different opinions are grounded on the many qualifications of the theoretical literature which makes it difficult to adequately measure both the costs of tax competition and the benefits of tax coordination, above all when the models get more sophisticated in order to encompass the complexities of the real world. At the same time, the results of the existing empirical studies are still too fragile to be able to solve the dispute. There are also different, if not contrary, beliefs about the need to develop (in NMS) and maintain (in OMS) the European social model. Countries in favour of higher coordination are usually those OMS where the welfare state intervention is more developed and grounded in the socio-institutional context. These countries are concerned about the possible impact of tax competition on their ability to collect the necessary tax revenue, in the desired amount and desired composition, to finance the preferred level of public social expenditure. Frequently, behind different attitudes towards tax coordination are diverging opinions concerning the role of the state and the behaviour of governments. If one believes that governments act as a revenue-maximizing Leviathan, as is often suggested in

[4] The concept of "enhanced cooperation" was introduced with the 1997 Amsterdam Treaty, in order to enable a group of willing member states to integrate further, on matters covered by the Treaty. The Treaty of Nice (2001) facilitates "enhanced cooperation". Nevertheless, there are strict conditions. At present, a minimum of eight member states are required to launch the procedure. Enhanced cooperation must not create a barrier to or discrimination in trade between the Member States and must not distort competition between them. Moreover, according to art. 43a, it "may be undertaken only as a last resort, when it has been established within the Council that the objectives of such cooperation cannot be attained within a reasonable period by applying the relevant provisions of the Treaties".

the public choice literature, one is inclined to welcome tax competition as an indirect way of arresting the over-expansion of the public sector.[5] By contrast, if one believes that the democratic process works efficiently and governments act in the interest of their citizens, maximising social welfare rather than tax revenue, one is inclined to underline the negative externalities of tax competition and the resulting inefficiencies, calling for some tax harmonisation. In reality, both views as they stand, seem too extreme, but at the same time both are able to explain part of the story. In their seminal work trying to encompass these opposing views, Edwards and Keen (1996) outline that tax competition is "good" (i.e. increases consumer welfare) if the elasticity of the tax base, with respect to the tax rate is lower than the part of marginal public spending that can be regarded as wasteful. Moreover, they conclude that over time the elasticity of the tax base is bound to increase due to further integration, presumably more than political rent-seeking, thus increasing the possibility that tax competition is costly, rather than beneficial. Since it is impossible to provide a reliable empirical estimate of these countervailing factors, "the controversy on the vices and virtues of tax competition can easily degenerate in an unproductive exchange of political article of faith" (Sorensen, 2004a, p. 104). To avoid this risk, and to provide a fruitful contribution to the debate, this Report will not discuss the general question of whether tax competition is "good" or "bad"[6], rather it will try to focus only on the results that are grounded in the literature and in the empirical evidence. The scope is not to provide a unique interpretation of facts and to support a specific EU corporate tax strategy, but to review the empirical evidence and provide concrete elements to evaluate the pros and cons of alternative tax coordination strategies currently under discussion.

The Report is organised as follows. Section 2 by looking at different tax indicators, collects the empirical evidence on the existence and nature of tax competition and tries to interpret them in the light of the theoretical literature. Section 3 reviews the effects of tax competition on base and factor shifting, by comparing the results of empirical studies on FDI and profit shifting. Finally, Section 4, on the basis of the theoretical and empirical evidence, as well as the experience of other countries, will discuss the pros and cons of different tax coordination policies concerning corporate tax base and tax rate coordination.

3.2 Does tax competition exist in the EU?

The aim of this Section is to discuss, on the basis of the theoretical literature and existing empirical evidence, the evolution and particularly the long-run development of company taxation that may be expected in the enlarged EU.

[5] It has been argued (for example, Ceriani and Giannini, 2004; Sorensen, 2004a) that this argument is weak. "If the political process is imperfect, allowing rent seeking by policy-makers, the cuts in public spending would tend to take place in areas where politicians have less "rents" to defend, rather than in those where the public sector is less efficient. Tax competition would be a very indirect and poorly targeted instrument: the appropriate response would be to reform the political process and the public sector institutions, curbing the disproportionate power of some interest groups." (Ceriani and Giannini, 2004, p. 980). Moreover, one may think that each people must keep the freedom to choose its level of redistribution and its level of public sector as well as the responsibility to elect efficient governments.

[6] See however Boss, 2005a,b.

3.2.1 COMPANY TAX COMPETITION IN THE ENLARGED EUROPEAN UNION – THE THEORY

Two hypotheses concerning the long-term effects of international tax competition on national company taxation were put forward in the tax competition literature of the nineties: The "race-to-the-bottom-" hypothesis (e.g. Frey, 1990; Sinn, 1997) predicted the complete disappearance of capital and company taxes. This expectation was somewhat moderated by a "convergence-" hypothesis (Pluemper and Schulze, 1999), according to which capital and therefore also company taxes are moving gradually downwards towards a similar or identical (and rather low) level.

The theoretical framework on which both hypotheses draw is the basic tax competition model as summarised recently by Zodrow (2003) and Wilson and Wildasin (2004).[7] It was initially formulated for a scenario of interregional tax competition between a large number of identical jurisdictions within one country; by assumption, capital is completely mobile across jurisdictions (e.g. Zodrow and Mieszkowski, 1986). Governments dispose of two tax instruments: a source-based property tax on capital income and a lump sum tax on immobile production factors (land or labour) to finance public services. The model implies that international tax competition will lead to a "race to the bottom" within capital taxation: taxes on capital income will vanish completely, and the tax burden will be shifted onto the immobile factor. If governments are allowed to raise a limited amount of lump-sum taxes only and therefore also depend on the capital tax as a revenue source, public services will be underprovided as jurisdictions – for fear of driving capital abroad – will lower their capital tax rates and consequently their expenditures for public services to an inefficiently low level (Janeba and Schjelderup, 2002). Within this theoretical framework, the downward pressure on tax rates and levels of public services increases with the number of competing jurisdictions (Hoyt, 1991). Consequently, the EU eastern enlargement, which increased the number of competing jurisdictions considerably, should accelerate the "race to the bottom" of company tax rates or at least their downward convergence within the enlarged EU.

However, some of the rather strong assumptions underlying the basic tax competition model may not hold for the case of the enlarged EU. The EU 25 represents an economic area consisting of two heterogeneous country clubs, which may change the predictions suggested by the basic tax competition model with respect to the working of company tax competition itself and its potential effects on the levels of company taxation and public services in the EU member states. Three extensions of the basic tax competition model (Zodrow, 2003) should be particularly relevant for the case of the enlarged EU: (1) jurisdictions of different size; (2) existence of agglomeration economies; (3) imperfectly mobile capital. It remains to be investigated empirically which of the extensions reviewed in what follows (which are only partly complementary[8]) may serve as an explanation for potentially persisting tax rate differentials between OMS and NMS.

(1) Size differentials: The reality in the enlarged EU is characterised by a twofold asymmetry concerning the size of the competing jurisdictions. Firstly, and most obvious, individual member states' sizes differ largely in terms of GDP and population. Secondly, the OMS club and the NMS club can be

[7] The first tax competition model that inspired many of the following theoretical contributions was formulated by Tiebout (1956).

[8] Whereas the theoretical results expected from asymmetrical tax competition rest on the assumption of high capital mobility, agglomeration and other location-specific rents create mobility barriers which allow the maintenance of high tax rates.

conceived as a large jurisdiction competing against a small one. Thus, tax competition between the OMS club and the NMS club can be characterised as "asymmetrical". Such constellations are theoretically treated in models of asymmetrical tax competition (e.g. Bucovetsky, 1991; Wilson, 1991). In contrast to large countries, small ones cannot influence the international equilibrium after-tax rate of return to capital through their corporate tax rates, but have to take it as given. This in turn implies a higher elasticity of the tax base in small countries, as a tax-induced reduction of the national after-tax rate of return to capital must be compensated by a higher before-tax rate of return to capital, brought about by capital outflows. Therefore possible outflows of capital as a reaction to company tax rate differentials are a larger concern for small countries than for large ones, which will choose higher company tax rates accordingly. In turn, tax rate reductions will cause a larger inflow of capital in small countries that accordingly have a stronger incentive to underbid the large countries' tax rates. Thus, the different overall size of the two country clubs forming the enlarged EU may be one factor to prevent the elimination of the existing tax rate differential (and at the same time the elimination of the existing differences in the levels of public services) between them.

(2) Agglomeration economies: In the last few years tax competition has been analysed from a different theoretical perspective building on the framework of the new economic geography (e.g. Kind, Knarvik and Schjelderup, 2000; Ludema and Wooton, 2000; Borck and Pflueger, 2004; Baldwin and Krugman, 2004). In the model of Baldwin and Krugman (2004), the competing jurisdictions differ with respect to the degree of industrialisation. In the core country (region) agglomeration economies exist, whereas the peripheral country (region) offers no (or only low) agglomeration rents. Agglomeration rents enable the core (within certain limits) to set higher company tax rates than the periphery without risking capital flight. Applied to the enlarged EU in which the OMS club can be viewed as the core and the NMS club as the periphery, this implies the sustainability of a certain tax rate differential as long as the peripheral NMS have not caught up to the OMS.

(3) Imperfectly mobile capital: It may be assumed that the mobility of capital (FDI) between the OMS club and the NMS club in effect is limited; e.g. by the agglomeration rents already mentioned or by location-specific rents, particularly rents created by public inputs provided for companies (e.g. Haufler, 1998). Given the prevailing deficits in public infrastructure in the NMS club, existing tax rate differentials may be maintained.
Based on this short theoretical discussion, two hypotheses may be suggested. Firstly, a "convergence"-hypothesis concerning the development of company taxation within the two country clubs and predicting a downward convergence of company tax rates within each of the two clubs consisting of rather homogeneous and integrated countries between which capital should be rather mobile. Secondly, a "tax-rate-differential-persistence"-hypothesis concerning the relationship between the two country clubs, where agglomeration economies and imperfectly mobile capital may allow substantial and sustained tax rate differentials.

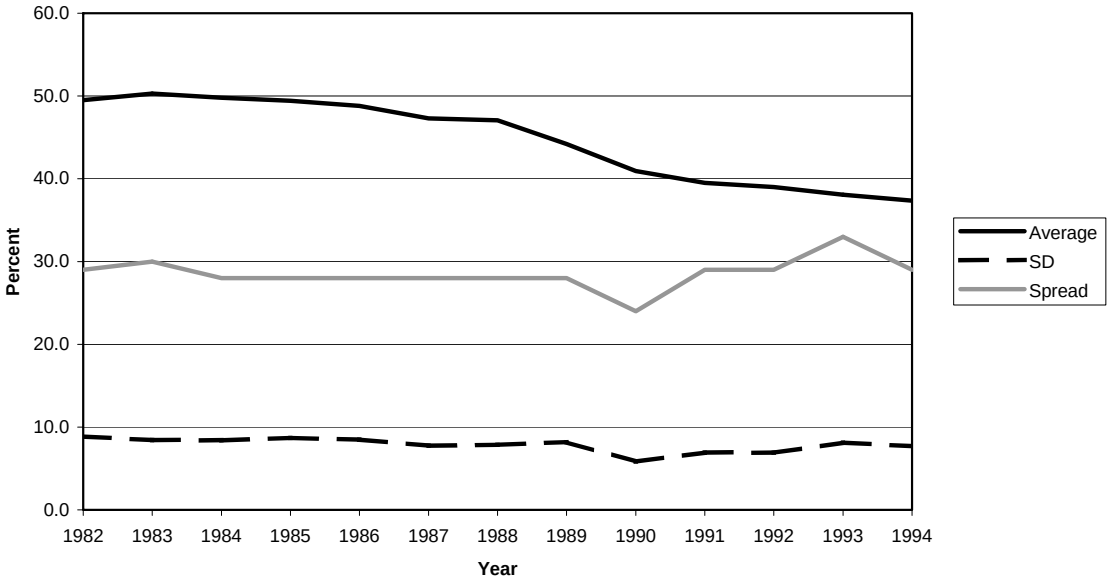
3.2.2 DEVELOPMENT OF STATUTORY TAX RATES

Between 1982 and 1994, statutory tax rates[9] declined in almost all 14 OMS for

[9] Including surcharges and local business taxes.

which data are available[10] (exceptions are Italy and Spain) (see Table 1 in the appendix). Accordingly, the average statutory company tax rate went down by 12.1 percentage points (see Graph 3.1).

Graph 3.1: Statutory company tax rates OMS, 1982 to 1994

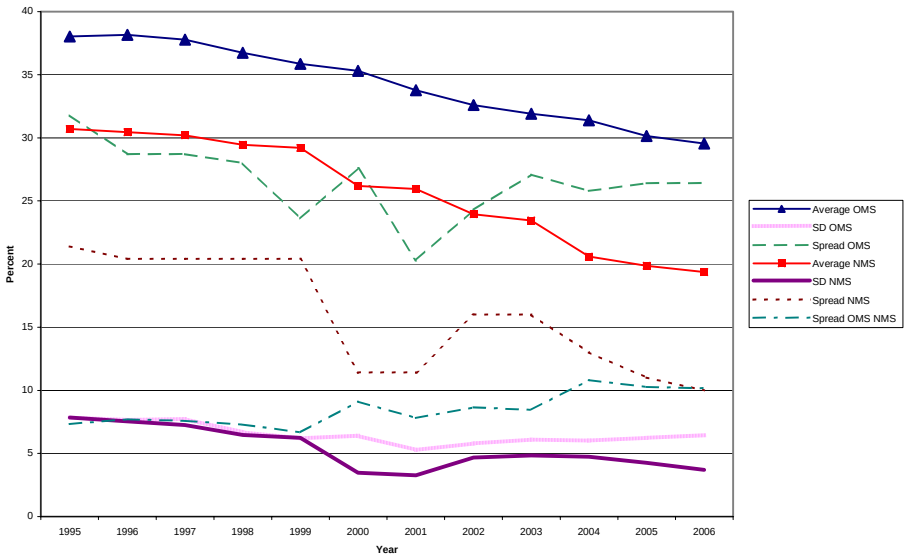


Sources: Institute for Fiscal Studies; Office of Tax Policy Research, University of Michigan; own calculations.

During the time period 1995 to 2006, for which data for all OMS and the eight central and eastern European NMS are available, the downward trend of statutory tax rates is continuing (see Graph 3.2).

[10] No data dating back to 1982 are available for Luxembourg.

Graph 3.2: Statutory Company tax rates in the EU-23, 1995 to 2006



Sources: Institute for Fiscal Studies; Office of Tax Policy Research, University of Michigan; national tax laws; own calculations.

Note: Spread OMS = difference between the highest and lowest tax rate in OMS.
Spread NMS = difference between the highest and lowest tax rate in NMS.
Spread OMS & NMS = difference between the average of the statutory tax rates in OMS and NMS.

In the OMS, the average statutory tax rate goes down by another 8.5 percentage points, in the NMS (which started out from an on average lower level) even by 11.3 percentage points (see table 2 in the appendix). In the long run the standard deviation slightly decreases (from 8.9 in 1982 to 6.4 in 2006 in OMS and from 7.8 in 1995 to 3.7 in 2006 for NMS), indicating some convergence in statutory tax rates in both country clubs.

The tax rate spread between the OMS and NMS average tax rates is substantial in all years regarded, but shows certain fluctuations at the same time. It decreased between 1995 and 1999, as only two NMS, but almost half of the OMS cut their statutory tax rates in this period. After a rather sharp increase in 2000 (due to marked tax rate reductions in the majority of the NMS), the gap slightly narrowed again as a number of OMS followed suit in the years after. In 2004, at the eve of the enlargement, most NMS again reduced their statutory tax rates; due to the following tax rate cuts in the OMS, the tax rate differential is gradually declining. Still, it will amount to 10.2 percentage points in 2006 and thus be higher than in 1995 (7.3 percentage points). Therefore average statutory company tax rates do not seem to be converging over time between OMS and NMS, which provides some support of the "tax-rate-differential-persistence-hypothesis" formulated above.

The gradual decline of statutory company tax rates in the EU is most likely a direct consequence of an intensifying tax competition between member states. For a sample of 21 OECD countries, spanning the period 1983 to 1999, Devereux, Lockwood and Redoano (2002) demonstrate empirically that countries also compete over statutory tax rates. Even if they are not a good proxy for the effective tax burden, since they do not take into account the rules to determine the tax base, statutory tax rates seem to have an important "psychological" function, insofar as they are used by national governments and perceived as signals reflecting a country's general tax environment for international investors. This signalling function is the more important as, due

to the still remarkable differences between national company tax codes, reliable and generally valid effective company tax rates are difficult to determine. In addition, as we will see in Section 3, profit shifting (the transfer of the tax base from high-tax- to low-tax-countries by manipulating intra-firm transfer prices or by a tax-minimising design of intra-firm financial structures, i.e. thin capitalisation) is motivated by cross-country differentials between statutory company tax rates (e.g. Haufler and Schjelderup, 2000; Lammersen, 2002). Moreover, the overall statutory rate is the most important driver influencing the effective average tax rate (EATR), which in turn is the most important tax indicator affecting investment location decisions (European Commission, 2001; Giannini and Maggiulli, 2002).

3.2.3 TAX BURDEN INDICATORS

For measuring the tax burden of companies, a number of different methods and indicators exist; the statutory rate is only one of them. To capture the total effects of corporate taxation, one should apply effective tax rates that consider all factors influencing the tax base or tax liabilities. For the purpose of computing taxable profits, corporate income may be subject to adjustments for exemptions (income excluded from taxation) and allowances (amount deducted from gross income). Hence, the actual tax liability may be influenced by tax rate relief (a reduced tax rate applied to a certain group of taxpayers or activities), tax credits (amount deducted from tax liability), and tax deferral (a relief which takes the form of a delay in paying taxes). Thus, effective corporate tax rates may substantially deviate from statutory ones.

Box 1 briefly describes the most frequently used indicators of the corporate tax burden, distinguishing between backward and forward-looking measures. As the extensive literature on how to measure the tax burden on labour and capital shows (see for example, Sorensen 2004b) there exists no "ideal" unique indicator; each of them has merits and drawbacks and the choice largely depends on the scope of the analysis.

As regards corporate taxation, we can conclude that statutory rates are preferable when trying to capture the impact of taxation on financial and tax planning decisions like profit shifting, but for the analysis of real activity effective measures should be applied. To evaluate investment choice problems and the expected impact of taxes on future earnings, effective marginal tax rates (EMTR) and effective average tax rates (EATR) are considered to be the most useful indicators. More precisely, the former is the relevant concept for decisions on the scale of the investment, while the latter can be important for decisions regarding lumpy investment, investment in the presence of imperfect competition, and for location decisions of firms. Backward-looking indicators, instead, are more useful concepts when the scope of the analysis is to appraise the past and present effective tax burden on companies, taking also into account the administrative capacity to enforce taxation.

BOX 3.1 Corporate tax burden indicators

1. Backward looking indicators

Within this category one should further distinguish between micro and macro measures.

Micro backward-looking measures use financial statements of individual companies and relate taxes paid to pre-tax profits.

Using macro data, the most commonly used backward-looking indicator for effective taxation is the ratio of corporate tax revenues to GDP. It is not a good proxy for the tax burden imposed on capital, as GDP combines income jointly generated by labour and capital (Martinez-Mongay, 2000). As this indicator is highly affected by the cycle, it is difficult to identify the direction of the bias.

More refined macro backward-looking effective corporate tax rates (implicit tax rates) are calculated as ratios of taxes paid by corporations taken from national accounts over a measure of the tax base which can be aggregated: domestic corporate profits, corporate gross operating surplus, gross domestic product, or gross profits reported by corporate tax payers in tax settlements (Jacobs and Spengel, 1999). This approach was applied first by Mendoza et al. (1994) and refined further in a number of subsequent studies (e.g. Martinez-Mongay, 1997; European Commission, 2004a).

Backward-looking measures have some advantages and many shortcomings. On the one hand, it is claimed that backward-looking measures reflect certain complexities of the tax systems that forward measures do not capture, as even the most complex forward-looking methods do not consider all rules to determine the tax base. On the other hand, the main concerns associated with the interpretation of backward-looking indicators are as follows:

(a) difficult to measure: both the numerator (how to split taxes bearing on the different factors) and the denominator (how to find a correct macro proxy of the tax base);

(b) endogenity to the cycle (mainly due to high allowances in the period of high investment);

(c) time inconsistency (taxes are levied on previous year profits, and tax receipts can be reduced by loss carry-over).

Moreover, it is argued in the literature that backward-looking measures are conceptually not adequate to evaluate the effects of taxation on business decision-making, which is based on the future tax burden (Lammersen, 2002). Backward-looking measures reflect the history of investments and of tax systems, but say nothing about the present investment incentives generated by a particular tax system or future tax reforms. Finally, backward-looking indicators are inappropriate to evaluate decisions on the foreign location of investments, since profits from national and international activities cannot be disentangled (Bellak et al., 2005). It is argued that backward indicators are useful when policy makers are concerned with the development of the distribution of the tax burden, for example the shifting of the tax burden from capital to labour or consumption or when the tax

burden is examined across branches or firms (Giannini and Maggiulli, 2002). One important advantage of backward-looking indicators is that they reflect the degree of tax compliance and tax enforcement, respectively, as due to tax evasion the tax actually paid by taxpayers may deviate considerable from the "theoretical" tax liability. In general, it is difficult to interpret backward-looking indicators as there are different forces biasing the results in different directions.

2. Forward-looking indicators

According to the forward-looking approach, the tax burden is calculated for a hypothetical future investment project over the assumed duration of the project. The approach was developed by King and Fullerton (1984) and extended from a closed to an international context by OECD (1991) and from the effective marginal tax rate (EMTR) to the effective average tax rate (EATR) by Devereux and Griffith (1999). The EMTR measures the tax wedge between the pre- and post tax return on a marginal investment project that does not yield an economic rent (the return is equal to the cost of capital). For projects earning more than the capital cost (so-called infra-marginal investment projects), effective average tax rates (EATR) can be calculated as the ratio of future tax liabilities to pre-tax financial profits (in present value terms) over the estimated duration of the project. Both EMTR and EATR assume a mixed structure of assets and financing sources. It is also possible to include personal taxation on dividends, interests and capital gains.

The forward-looking approach is the most appropriate one when analysing incentives for undertaking new investment projects, as the resulting effective tax rates are based on present and future cash flows. Forward-looking indicators allow analysing the impact of the tax system on the decisions of multilateral investors on location, investment strategies, and financing options for subsidiaries. It is also possible to distinguish between domestic and international investment.

The application of EMTR is limited by the fact that in practice only projects with a rate of return above the cost of capital are realized. Therefore EMTRs are relevant for assessing the allocative efficiency of a tax system, the incentives it provides to marginal investments, while EATR are a more suitable concept for decisions regarding lumpy investment, investment in the presence of imperfect competition, or when an investor has to choose between several projects involving different locations. Thus EMTR determine the scale of investment, while EATRs explain the location of investment.

Both forward-looking measures are derived from models, and their level highly depends on the assumptions of these models about the market, investment and financing conditions (e.g. rates of return, interest rate, inflation). The calculations are based on the assumption that the company can take full advantage of the benefits of tax legislation. As only a limited number of important rules to determine the tax base enter the calculations (Jacobs and Spengel, 1999) (e.g. loss carry-over is omitted), certain complexities of the tax systems are not reflected. Despite these shortcomings forward-looking indicators are of high international acceptance and are considered as concepts providing information on the tax-related investment incentives. The credibility and reliability of these indicators is increased by the robustness of their qualitative results to

different assumptions (Giannini and Maggiulli, 2002).

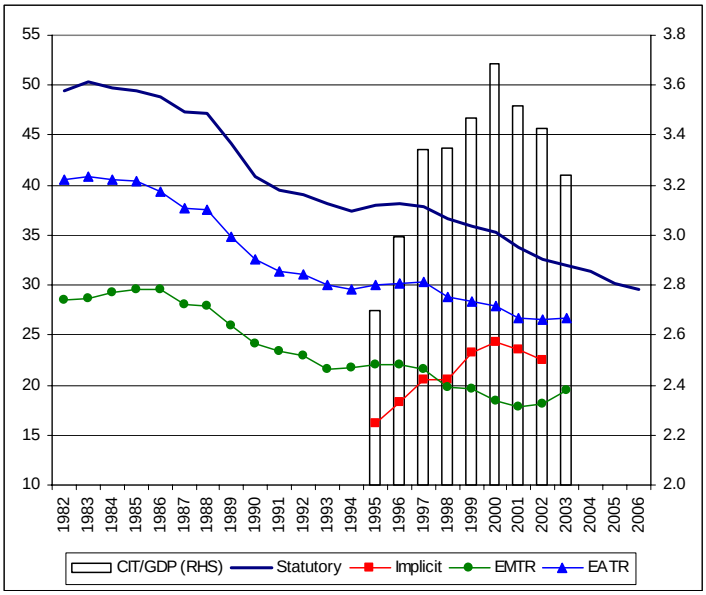
3.2.4 EMPIRICAL EVIDENCE ON TAX COMPETITION

Different empirical measures of effective taxation have been calculated for EU countries, however available time series are short and samples are limited. Implicit tax rates were calculated for 12 OMS by EUROSTAT for 1995-2002 (European Commission, 2004a). Simplified calculations were then repeated by Jakubiak and Markiewicz (2005) for 25 EU countries for 1995-2003.

The most comprehensive research, applying the forward-looking concepts was conducted by Devereux, Griffith and Klemm (2002) for 1982-2003 and 13 OMS. Forward-looking measures were also calculated for the NMS, but only for 2003 and 2004 (Jacobs et al., 2003, 2004; Finkenzeller and Spengel, 2004). There are a number of studies on a limited number of countries and limited samples, which do not allow for comparisons over time or across countries (Gorter and de Mooij, 2001, Nicodeme, 2001, Baker & McKenzie, 1999, 2001, Heinemann and Overesch, 2005). The most detailed analysis computing EATR for inbound and outbound investment was made by the 2001 Commission's services study on corporate taxation (European Commission, 2001), but only for 1999 and 2001 and only for the OMS.

In the last two decades, the fall in the average statutory rate in OMS was accompanied by a fall in effective taxation measured by forward-looking indicators (see Graph 3). The effective tax rates on profitable investments (measured by EATR) fell by more than those on investments that break even (measured by EMTR) (Griffith and Klemm, 2004). The fall in average statutory rates was accompanied by a base broadening strategy. As regards backward looking indicators (the share of corporate tax revenues to GDP and implicit corporate tax rates), they both show a similar pattern, which is however notably different from forward-looking indicators: they both increase up to 2000 and only afterwards start decreasing. The reason for the different trend of backward and forward looking tax burden indicators may lie in the fact that they capture the base broadening strategy to a differing extent, which might be better reflected in implicit tax rates developments than in the forward looking indicators (which apply only limited features of the tax regulations). The similar trend of corporate tax revenues in GDP and implicit rates could also be caused by the similar sensitiveness of these indicators to the business cycle. Another explanation for the increase, up to 2000, of macro backward looking indicators, could be the expansion of the corporate sector in the economy. Since the beginning of the new century, all these counteracting factors seem to have lost their ability to prevent the continuing decline in statutory rates also produce a decline in both tax revenue and implicit tax rates.

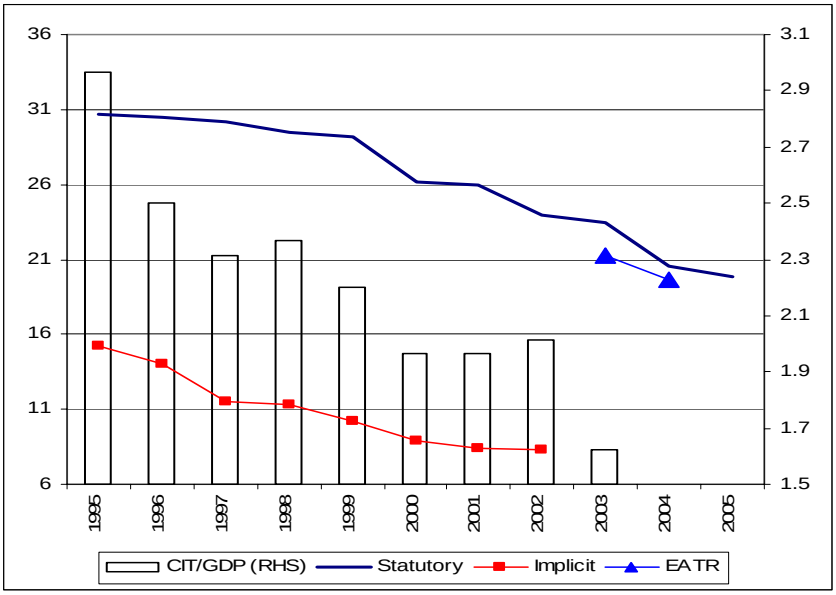
Graph 3.3: Development of statutory and effective tax indicators in OMS



Source: Statutory, implicit and corporate taxation/GDP: Structures of the taxation systems in the European Union. Data 1995-2002, Eurostat, 2004, 2003-2006: OECD Tax Database and Country Sources. EMTR and EATR: Devereux, Griffith and Klemm (2002).

The situation differs for the sample of NMS, as all indicators moved in the same direction. Forward-looking indicators as well as implicit tax rates and statutory rates fell from 1995 to 2004 (see Graph 4). The average level of corporate tax revenues in GDP decreased as well. NMS granted many tax incentives, most of which had to be abandoned as they were in conflict with European law; this happened mainly in the last two years before the EU accession (Jacobs et al, 2003). The decline in all indicators may suggest that the fall in statutory rates was not compensated by base broadening strategy, at least not to such an extent as in OMS.

Graph 3.4: Development of statutory and effective tax indicators in NMS



Source: Statutory and corporate taxation/GDP: Structures of the taxation systems in the European Union. Data 1995-2002, Eurostat, 2004. Data 2003-2006: OECD Tax Database and Country Sources. Implicit: Jakubiak and Markiewicz (2005), EATR: (Jacobs et al., 2003, 2004)

As different measures of effective taxation for OMS moved in opposite directions, the empirical analyses on tax competition may lead to different conclusions depending on the indicator applied.

On average, implicit corporate tax rates as well as corporate tax ratios and particularly statutory company tax rates (averaged over the period 1995 to 2003) are higher in OMS compared to NMS (see table 3 in the appendix). Of course, this finding does not say anything about the reasons behind the tax rate differential between OMS and NMS as a whole. Moreover, the limitations of the corporate tax ratio as a measure to compare cross-country effective tax burdens have to be kept in mind: for example, cross-country differentials may simply be caused by differences in the structure of the enterprise sector; i.e. by a different degree of incorporation within the enterprise sector. It may be assumed that the on average lower corporate tax ratios in the NMS date back to a relatively higher weight of non-incorporated firms. Unfortunately, there are no long-time series for EATR and EMTR for OMS and NMS, but only cross-country comparisons for one or two years, which, however, also show a tax rate differential in favour of NMS, thus altogether supporting the assumption that the size differential between OMS and NMS me be one of the factors sustaining the observable tax rate differential between the two country clubs.

3.2.5 TESTING HYPOTHESES FOR INTERNATIONAL TAX RATE DIFFERENTIALS

This section tries to find some empirical evidence for several of the issues and questions related with the working and the effects of company tax competition in the enlarged EU.

Differences in country size

Following the approach used by Chennells and Griffith (1997), in what follows we try to test the proposition that size differentials[11] across countries may result in company tax rate differentials. Table 1 gives an overview of OMS and NMS included, grouped by country size and the degree of openness.[12]

Table 3.1: Old and new member states by size and degree of openness

	Old Member States		New Member States	
Large	**Open**	**Closed**	**Open**	**Closed**
	Germany United Kingdom	France Italy Spain	Czech Republic Hungary	Poland
Small	**Open**	**Closed**	**Open**	**Closed**
	Belgium Ireland Luxembourg Netherlands	Denmark Finland Greece Austria Portugal Sweden	Estonia Slovak Republic	Latvia Lithuania Slovenia

Statutory tax rates, EMTR and EATR (averaged over 1995 to 2003) are slightly higher in the large OMS, whereas implicit corporate tax rates and corporate tax ratios are smaller in comparison to the small OMS (see table 4 in the appendix). Confirming theoretical expectations, large countries are able to maintain higher company tax statutory and effective (forward-looking) tax rates than small ones. Despite this, tax revenue and implicit tax rates are relatively lower in large countries. This apparently paradoxical effect may in fact be explained by, for example, the shifting of profits and factors to countries with lower rates and presumably also a higher tax evasion in countries with higher rates. Calculations done for NMS (using statutory tax rates, implicit corporate tax rates and corporate tax ratios) show that all three tax burden measures indicate a lower level of company taxation in the small NMS compared to the large ones (see table 5 in the appendix): a result that is in line with theoretical expectations.

Differences in country size and degree of openness

Just looking at country sizes as an explanatory factor for tax burden differentials is misleading, however, as other influences that may also cause tax differentials across countries, notably the degree of openness, are neglected. One proposition often put forward in the literature (see Section 2.1) is that large closed countries can set the tax rate at a higher level than small open ones.

Based on the classification in Table 3.1, first we compare the available measures for the effective tax rate (averaged over the period 1982 to 2003) for OMS (see table 6 in the appendix). Statutory tax rates as well as EMTR and corporate tax ratios hardly differ between large closed countries and small open ones. Only EATR are considerably lower in the small open country sample, although it has to be noted that (judging from the standard deviation) their variance is rather large, so that it can be doubted whether the difference between small and open countries on the one hand and large and closed ones on the other hand is statistically significant. Somewhat counter-intuitively at first sight, implicit corporate tax ratios are higher in the small OMS considered.

[11] Country size is captured by GDP and population; both measures lead to an identical classification of countries as small or large.
[12] The degree of openness is captured by the sum of exports and imports related to GDP.

The latter finding may again hint at both tax evasion and profit shifting from the larger countries. Interesting is also the finding that statutory tax rates, EMTR and EATR within the large country group are markedly higher in the open countries compared to the closed ones; which is not in line with theoretical expectations. On the other hand, EMTR and EATR are considerably smaller in the open small countries than in the closed ones, which is in line with expectations.

Within the group of NMS, statutory tax rates as well as implicit corporate tax rates are markedly higher in Poland, the only closed large country, than in the open small ones (see table 7 in the appendix). Again, however, a rather large variance of these measures has to be considered within the group of small open NMS.

Before concluding, a number of caveats of these comparisons must be briefly mentioned. First of all, the number of countries included in these comparisons is relatively small. This holds particularly for the NMS, where there is only one large closed country (Poland), whereas the other three sub-groups consist of three countries at maximum. Moreover, often the variance of the effective burden indicators used is quite large within the individual sub-groups. Also the variance of some of the measures used to divide the countries considered into sub-groups (particularly the openness-measure) must be taken into account – the countries assigned to the individual sub-groups are heterogeneous themselves. Finally, the openness measure applied may not be appropriate; it might be useful to conduct these tests with several alternative openness measures (e.g. the export ratio).

Given these limitations, the analysis conducted above yields only weak results. Focusing on statutory company tax rates, which should be given particular attention as tax competition mainly seems to take place through statutory company tax rates and as they are the main driver behind the development of EATR, several rather clear conclusions can be drawn however. First, statutory company tax rates on average are markedly higher in OMS compared to MNS. Second, statutory company tax rates are higher in large countries than in small countries – within OMS as well as within NMS. Third, large closed countries tend to have higher statutory company tax rates than small open ones. The same holds for EATR, at least for OMS (no long-term data are available for NMS), which are also used as a tax parameter countries are applying to compete for FDI (see also section 3 below).

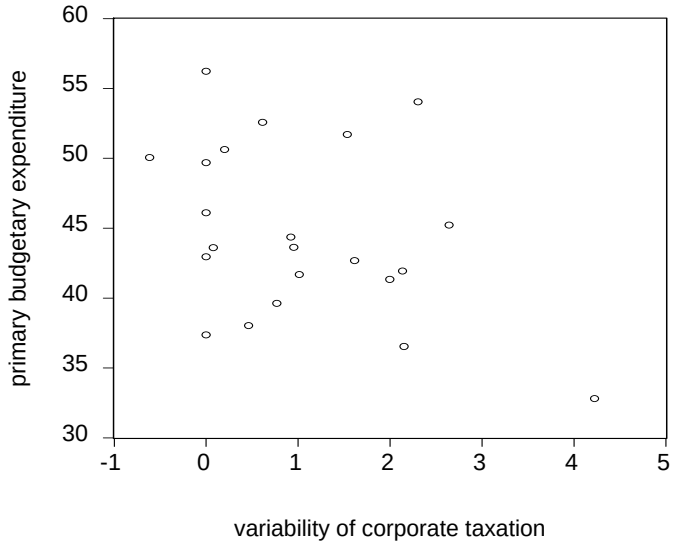
Differences in the level of public goods

According to the theoretical tax competition model, as a consequence of tax competition the corporate tax rate is set at an inefficiently low level, and if there are no compensatory increases of other taxes, tax revenues and therefore public expenditures will be inefficiently low. The risk of an under-provision of public goods is perceived mostly by countries with high levels of social expenditure. According to this theoretical prediction, countries with high levels of public expenditures, which they would like to sustain, should resist the temptation to enter tax competition as they have too much to lose.

Graph 5 examines the relationship between the variability of statutory corporate rates in relation to the changes in average rates in the enlarged EU and the level of primary general government expenditures (expenditures less interest payments) over the period 1995-2003 (see: note below the graph). It may be hypothesized that countries with high average levels of public expenditures should be characterized by a lower variability of statutory corporate tax rates. The correlation is indeed negative but very low (-0.39) which means that an under-proportional fall in corporate taxation (compared to the EU average) in EU countries is not strongly connected with high levels of primary budgetary expenditures. Similar conclusions may be reached

considering 'productive' expenditures (see Graph 6). 'Productive' expenditures are those public inputs that enhance the productivity of capital. The proxy for 'productive' expenditures applied here is the sum of public investment and education expenditures expressed as percent of GDP. The correlation is again negative and weak (-0.39). It therefore seems that a fall in statutory rates is not strongly connected with the average level of 'productive' expenditures. Rather the majority of countries are engaging in statutory tax rates competition, and even those with high levels of public expenditures do not resist this pressure.

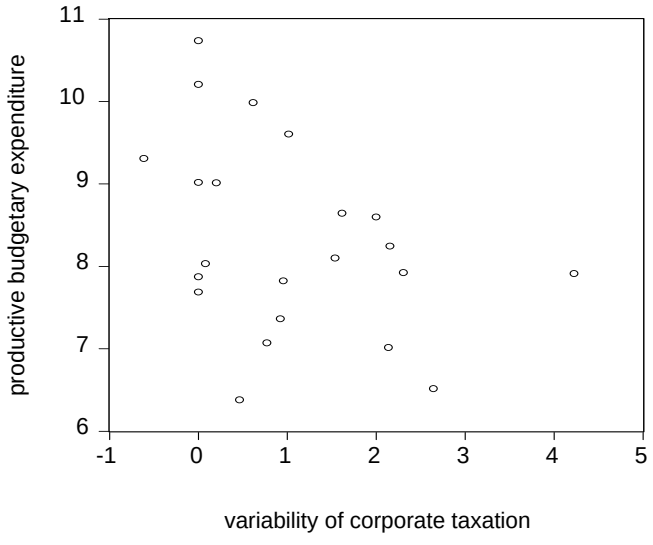
Graph 3.5: Variability of corporate taxation versus primary public expenditure



Source: Eurostat, own calculations

Notes: primary expenditure – general government, % of GDP, variability of corporate taxation – change in statutory corporate tax rate in 1995-2003 in country i over the change in average statutory corporate tax rate for EU (22 countries considered), positive value indicates that country i decreased the corporate tax rate by more than EU countries on average.

Graph 3.6: Variability of corporate taxation versus 'productive' public expenditure



Source: Eurostat, own calculations

Notes: productive expenditure – general government, % of GDP, variability of corporate taxation – see note on graph 5.

According to theoretical considerations, countries are able to sustain higher corporate tax rates if they provide services and infrastructure of high quality that create location-specific rents. Thus countries with high levels of public goods like Germany and France could preserve their attractiveness for foreign capital despite high tax rates. The empirical literature is inconclusive in this respect. Benassy-Quere et al. (2005) examined double competition via both corporate tax rates and the provision of public factors with FDI data from the US to the EU[13] and found evidence of the coexistence of high tax/spending countries and low tax/spending ones. However, no strong evidence can be found for an important role of public expenditures in shaping locational attractiveness for FDI flows within Europe (Büttner, 2002). This could explain some involvement of countries with high public expenditures level in tax competition, as observed above. No research has been done yet on the role of public expenditures for corporate tax competition within an enlarged Europe.

3.2.6 CONCLUSION

According to the basic theoretical tax competition model, tax competition will lead to a disappearance of company taxes in the long run. However, an important distinction has to be made between tax competition to attract profits, which may lead to a "race to the bottom", and tax competition to attract foreign investment, which may be cushioned, for example, by the presence of location rents and by the higher provision of public services and infrastructures offered in countries with higher rates.

Empirical investigations and analyses for OMS and NMS provide mixed results on tax competition. On the one hand, there is evidence of some sort of competition, above all over statutory tax rates that have been falling considerably in the OMS and the NMS over time. Also forward-looking effective tax rates show a declining trend. On the other hand, actual tax revenues have not declined on average and in the majority of OMS, at least not until the last few years. This may be due to the strategy of tax-cuts-cum-base broadening pursued by most countries, but also to the increasing weight of incorporated firms, or, in general, to a low elasticity of tax yield to tax revenue, due for example, to the way in which taxable profits are defined. The slight decline of the corporate tax ratio that can be observed for the last few years may date back to tax competition, but may also reflect low growth rates resulting in low taxable profits, as well as other factors.

There are still considerable tax rate differentials between OMS and NMS that could be sustained by countervailing factors, such as agglomeration rents, a high level of public inputs, or differences in country size and the degree of openness. There is some evidence that large closed countries are able to maintain higher statutory and forward-looking company tax rates than small open ones. That the former tend to experience falling tax ratios and implicit corporate tax rates is only seemingly a contradiction: high tax rates in those countries may induce the shifting of profits or economic activities to low-tax countries and therefore lead to an erosion of the tax base.

It may be too shortsighted, however, to conclude from these observations that the tax rate differential between OMS and NMS can be sustained in the long run. The countervailing factors that currently seem to prevent the convergence of company taxes between OMS and NMS may lose in importance over time, as the experience within the group of the OMS suggests. Here the tax gap between the core and the peripheral countries has narrowed over time. Moreover, the options to broaden the tax base further are limited in

[13] EU15 plus the Czech Republic, Hungary and Poland.

the long run, so that finally continuing tax rate reductions should be expected to cause a fall in actual tax revenues. The consequences will depend on the share of corporate taxation in tax revenues. In general this share in NMS is below the average level of EU15, but there are many exceptions like the Czech Republic with extremely high level of CT/Tax revenues and on the other hand Germany with the lowest share in the whole EU.

3.3 Economic consequences of tax differentials

How important are international differences in the taxation of corporate firms for the location of firms, foreign direct investment and for profit shifting? High responsiveness of multinational firms implies that governments have a strong incentive to compete with their corporate tax rate. Tax differentials are, however, sustainable if the corporate income tax is only a minor determinant of firm location.

As discussed in Section 3.2, differences in the statutory tax rate create incentives for firms to relocate their profits to low-tax countries; for incremental investment and location decisions however, the most important indicators are the effective marginal (EMTR) and the effective average tax rates (EATR) respectively. Unfortunately, empirical studies are unable to distinguish between the location and incremental investment decisions of multinational firms. They are put together under the heading of (FDI). Studies do, however, distinguish between alternative measures of the corporate tax rate, as we will show below.

This section summarizes the empirical evidence on the impact of the corporate income tax on FDI and profit shifting.

3.3.1 TAXES AND FOREIGN DIRECT INVESTMENT[14]

FDI has become increasingly important. While FDI outflows in the European Union represented less than 5% of total investments in the early 80s, they have mounted to about one-third in recent years (UNCTAD). How sensitive is FDI to differences in corporate taxes?

Devereux and Griffith (2002) divide the empirical studies on taxation and foreign investment in four main categories, distinguished with respect to the type of capital data used.

1. Time-series data on FDI. This category contains the early studies for especially the US, starting with the article of Hartman (1984).
2. Panel data on FDI. Starting with Devereux and Freeman (1995), a large number of recent studies have used this methodology.
3. Cross-section data on the allocation of assets by US multinationals. Studies by Grubert and Mutti (1991) and Hines and Rice (1994) are examples of this category.
4. Discrete choice models where count data on location choice is regressed on tax rate variables. Studies by Bartik (1985) and Papke (1991) were among the first using this methodology.

The first study on the impact of taxation on FDI is Hartman (1984) who investigated for the United States FDI inflows financed out of retained earnings or by a transfer of funds. Hartman argues that if a tax change makes it more attractive for domestic firms to invest, it becomes more expensive for foreign investors to acquire a US firm. He claims that retained earnings should be more sensitive to US taxes because mature firms will use retained earnings as the marginal source of finance (which is cheaper than the transfer of new funds). Hartman's empirical results imply that, indeed, the tax rate elasticity for retained earnings is significant while for transfers the results are insignificant.

[14] This section draws heavily on De Mooij and Ederveen, 2005.

Slemrod (1990) criticizes Hartman's specification as it lacks a properly specified model. He argues that the marginal effective tax rate should be used instead of the statutory rate. With this alternative measure, Slemrod shows that, in contrast to Hartman, retained earnings are not responsive to US taxes, while for transfers a significant elasticity is found. The results suggest that taxes exert a significant negative effect on FDI.

Another contribution by Slemrod (1990) is that he controls for the tax system in the home country of the parent firm. In particular, he argues that the tax response by investors from credit countries (Japan, UK and Italy) should be different from those of exemption countries (Germany, Netherlands, Canada and France).[15] To explore this claim, he considers the bilateral investments flows from seven industrialized countries in the US and then looks for a systematic difference between the two types of investors. The picture that emerges from this exercise is not clear, though. In fact, the country-specific evidence yields mixed results on the tax effect on FDI, including many insignificant coefficients.

The papers by Hartman and Slemrod are two examples of time-series studies on the relation between corporate taxation and FDI. De Mooij and Ederveen (2005) show that 111 time-series regressions in 7 different studies generally point at a negative impact of the corporate income tax on FDI, but the variation across different studies is large.

An extension to the time-series literature is to combine the FDI-responsiveness of different countries in a panel regression, based on either aggregate or bilateral FDI flows. The evidence for the few studies employing a panel of aggregate FDI flows is remarkably mixed. Swenson (1994) reports a significantly positive effect of high average effective tax rates on FDI. A likely explanation for this result is that high tax rates raise FDI from investors in tax credit countries, if they are not in excess credit. Others observe a negative impact of taxes on FDI. For example, Broekman and Van Vliet (2001) report semi-elasticities in the order of -2, based on a study for aggregate FDI inflows in 15 EU countries. The evidence from several studies on bilateral FDI flows is more conclusive: 102 regression in 10 studies generally point at a negative tax-effect on FDI. For example, Büttner (2002) shows that a 1%-point reduction in various tax measures raises inward FDI flows by 1.5%. This estimate is obtained for FDI flows financed by a transfer of funds (not retained earnings) in the EU between 1991 and 1998.

Grubert and Mutti (1991) were the first to use an alternative measure for FDI, namely investments in property, plant and equipment (PPE) which is believed to be more closely related to real investment, but leaves out several other components of FDI. The advantage of using a more uniform measure of FDI shows in the empirical results. The available evidence from 78 regressions in 5 studies indicates that the negative impact of the AETR is stronger on PPE than on broader measures of FDI.

The final type of literature focuses on the probability that multinationals locate subsidiaries in a particular country. These studies abstract from the size of FDI flows, but only investigate the go / no go investment decisions of multinationals only. A typical study in this literature is Devereux and Griffith (1998), who investigate the location of US firms in France, Germany and the UK. They show that firms are less likely to invest or locate in a country with a high average effective tax rate, whereas the statutory tax rate has no significant impact. Büttner and Ruf (2004) perform a similar analysis for the location decisions of German multinationals in European destination countries. They are however unable to identify a significant impact of either the effective or the

[15] In the first case, the relevant tax rate is the one of the residence country of the parent (unless the latter is smaller than the rate in the investing country and profits are retained); in the second case, the relevant tax rate is that of the source country.

statutory tax rate on FDI. This points to a general observation in the survey of De Mooij and Ederveen (2005), namely that studies for intra-EU capital flows yield smaller responses than studies for FDI within or outside of the US. There is no evidence, yet, that the European internal market stimulates the responsiveness of FDI to tax differentials.

Table 3.2: Impact of tax differentials on FDI

Study	Type	Semi-elasticity
Büttner, 2002	2, panel data	-1.52
Büttner and Ruf, 2004*	4, discrete choice	-0.42
Cassou, 1997	1, time series	-7.46
Gorter and Parikh, 2000*	2, panel data	-4.56
Hines, 1996	3, cross section	-12.37
	4, discrete choice	-6.71
Pain and Young, 1996*	2, panel data	-1.51
Slemrod, 1990	1, time series	-5.47
Stöwhase, 2005*	2, panel data	-5.26
Swenson, 2001	4, discrete choice	-3.51
De Mooij and Ederveen, 2005	*Typical semi-elasticity*	*-4.28*

Source: De Mooij and Ederveen (2005); we selected the studies which include regressions for European FDI. The studies marked with * are based on European data only.
The typical semi-elasticity is based on 33 studies in the meta-analysis.
Elasticity: %-change in FDI in response to %(-point) change in the corporate tax rate.

Table 3.1 summarizes the studies based on data for European FDI outflows. The table reveals that the relation between the corporate income tax and FDI is generally negative, meaning that a higher tax in the country of destination reduces FDI towards that country. Next, the variation in estimates between studies, but also between different regressions within a single study, is quite large. Among others, this variation depends on:

- Type of data: cross-section studies show higher elasticities (in absolute terms) than discrete-choice models.
- Definition of FDI: data for plant extensions produce larger elasticities than estimates with merger-and-acquisition data.
- Definition of the tax rate: the effective tax rate has a stronger impact on FDI than the statutory rate.

The latter observation is worth stressing. Theoretically, plant relocation should be determined by EATR, measuring the average tax bill on profits in the destination country. Incremental investment in foreign countries should be influenced by EMTR. As previously mentioned, it is impossible to distinguish between these types of FDI empirically. However, the combined hypothesis that FDI should be more sensitive to the (marginal or average) effective tax rate than to the statutory rate is clearly confirmed by the empirical evidence, as shown in Table 3.2.

Table 3.3 The impact of various tax measures on FDI

	Semi-elasticity
Statutory tax rate	-2.05
Marginal effective tax rate	-3.48
Average effective tax rate	-5.90
Micro average tax rate	-2.03
Macro average tax rate	-4.23
Mean	*-4.28*

Source: De Mooij and Ederveen (2005)

Table 3.3 distinguishes between the backward and forward-looking measures of average tax rates. The backward measures (micro and macro average tax rates) are able to take account of tax planning activities, complex tax provisions and discretionary administrative practices of tax authorities, as they are calculated from the actual payments by firms in the past. The effective tax measures (EMTR and EATR) are calculated from tax codes. In particular the forward-looking effective average tax rate (EATR) appears to influence FDI heavily, as expected.

As an aside, we now turn to a few words on the NMS. To our knowledge, only two studies have investigated the impact of the corporate taxation on FDI towards these countries. Jakubiak and Markiewicz (2005) analyse a panel with investors from OMS and eight NMS as receiving countries. They do not find strong evidence that comparative tax advantages of NMS expressed by lower statutory and effective corporate tax rates influences the location of FDI coming from OMS.

A similar conclusion is drawn by Bénassy-Quéré and Lahrèche-Révil (2005), who do not find any significant impact of taxes for EU investment in NMS. Possible explanations are that FDI in these new EU states has not yet reached its long-term pattern or that the lower tax rates do not compensate for location disadvantages that these countries still have compared to more mature EU economies.

Overall, the risk of tough tax competition to attract FDI does exist in the EU. This risk is however limited by the prominent importance of non-tax factors in the location of FDI.

3.3.2 TAXES AND PROFIT SHIFTING

Profit shifting is a well-known reality, widely used by multinationals to reduce their tax burden. To get an impression of its size, we cite Sullivan (2004): "U.S. multinational corporations are increasingly shifting tens of billions of dollars of their profits to such tax havens as Bermuda, Ireland, Luxembourg, and Singapore." Profit shifting might be induced by tax-rate differentials, as we argue in section 2. What does the empirical literature tell us about the size of this relation?

The empirical studies on the impact of corporate taxation on profit shifting can be divided in two categories, focusing directly on the link between taxes and profits, or investigating the channel by which profits are shifted, namely transfer pricing or thin capitalisation.

The direct route is to investigate the impact of the statutory tax rate on the gross profitability reported by firms. Of course, these studies have to control for several other factors affecting firm profitability, like differentials in GDP per capita and firm size. The empirical studies summarized in Table 3 are generally limited to one or a few sectors. These studies reveal that a higher statutory tax rate goes hand in hand with a reduction in reported profits. A plausible explanation for this phenomenon is profit shifting within multinational firms.

Table 3.4 reports for five empirical studies the semi-elasticity of profits to the tax rate, which measures the percentage change in profitability to a percentage point change in the corporate tax rate. In many cases, these semi-elasticities are not reported in the studies, but have to be calculated from the empirical results. We have used an average tax rate of 34.5%, which is the unweighted average of the statutory tax rate for OMS in 1999. In addition, we have used the profitability of Dutch firms between 1992 and 2002, as these data were easily available. Different assumptions regarding the tax rate and profitability would not affect the ranking in estimates, and would only slightly change the numbers.

Table 3.4 Semi-elasticity of reported profits to the legal corporate income tax rate

Study	Application	Semi-elasticity
Grubert and Mutti (1991)	Industry sector, 1982	-2.3
	Multinational subsidiaries from the US in 33 countries	
Hines and Rice (1994)	Non-financial corporations, 1982	-2.5
	Multinational subsidiaries from the US in 73 countries	
Klassen and Shackelford (1998)	All firms, 1983-1991	-0.1
	10 Canadian provinces and 50 US-states	
Bartelsman and Beetsma (2003)	15 manufacturing industries, 1979-1997	-3.5
	22 OECD countries	
Mintz and Smart (2004)	Non-financial firms in 7 industries	-1.4
	6 Canadian provinces, 1986-1999	

Source: De Mooij (2005)

Both the mean and the median estimate point at a semi-elasticity of -2. This implies that a 1%-point higher statutory tax rate would reduce profitability firms report in that country by about 2%. Of course, this would only apply to multinational firms, able to shift profits to low-tax countries. The lowest estimate for the semi-elasticity is derived in the study by Klassen and Shackelford (1998), based on profit shifting between the United States and Canada, using data for all firms (including domestic ones). On the other extreme is the study by Bartelsman and Beetsma (2003), who base their estimate of profit shifting on the link between value-added per industry and the corporate tax rate.

One problem with the aggregate studies in Table 3.3 is that the estimates may simply reflect systematic differences in the characteristics of firms that invest in low-tax countries, rather than profit shifting. Moreover, other variables affecting profit levels may be correlated with statutory tax rates. In these cases, the coefficient for the tax rate would pick up the impact that should be attributed to these omitted variables. Tax rates may also endogenously depend on profit levels, causing a bias in parameters estimated by OLS. Finally, the results may not necessarily reflect the impact of profit shifting if differences in tax rates have other implications on profit levels. For instance, high tax rates may encourage risk taking if losses can be offset. In that case, the average rate of return to investment rises. The positive coefficient would then wrongly be interpreted as evidence for profit shifting. An additional limitation of the estimates in the table is that the calculated semi-elasticities are based on empirical studies for the United States and Canada, with the exception of Bartelsman and Beetsma (2003). In addition, several studies are based on 20-year-old datasets. For these reasons, the outcomes in Table 3.4 should be interpreted with caution: the qualitative conclusion seems warranted that tax differentials induce profit shifting, but the size is unknown yet.

A most recent study, however, based on micro data for European multinationals (Huizinga and Laeven, 2005), finds "an average (semi-)elasticity of the pre-tax profits with respect to the tax rate of 1.43 in Europe" and concludes that "this elasticity is large enough for international profit shifting to

be a serious issue for the European tax authorities. This is confirmed by some estimates of the corporate tax revenue losses (or gains) that European Treasuries currently experience on account of international profit shifting" (p. 5).

Transfer pricing and thin capitalization are the main mechanisms for firms to shift their profits towards low-tax countries. We have no evidence on thin capitalization and know of only two empirical studies directly investigating the impact of the statutory tax rate on transfer prices. First, Swenson (2001) investigates the impact of tax differentials between 5 OECD countries on the product prices in 18 manufacturing industries. She shows that a 1%-point tax gap reduces the product price by only 0.005%. Clausing (2003) finds much larger elasticities in a study on US intra-firm trade prices. She shows that a 1% increase in the statutory tax rate reduces the transfer price of intra-firm trade to other countries by about 4%. The single conclusion we can draw from these two empirical studies, is that the impact of tax differentials on transfer pricing is highly inconclusive.

3.3 CONCLUSION

An increase in the tax burden on corporate firms, by raising the tax rate or broadening the tax base, affects FDI significantly. A one percent reduction in the tax rate (with unchanged tax base) would on average stimulate FDI-inflows by about 4%. However, the variation in reported estimates is large and about half of them are insignificant. For Europe, there is weak evidence that the sensitivity of FDI to the corporate tax rate is less than average. Moreover, there is no empirical evidence yet that taxes affect FDI in NMS.

As expected, forward-looking effective average tax rates appear to be the most useful tax indicators to explain FDI. The statutory tax rate, instead, may trigger profit shifting through transfer pricing or thin capitalization. The few empirical studies on this issue, however, do not permit a firm conclusion. There is some evidence of profit shifting, but the volume is highly uncertain.

Despite the increasing amount of empirical work, further effort should be dedicated to both research areas, above all for the enlarged EU. To make progress, though, more reliable and detailed data for all the 25 EU countries should be made available.

3.4. Do we need corporate tax coordination in the EU?

As we have seen in Section 2, countries compete primarily over statutory tax rates and EATR. This is not surprising since these indicators are the most important tax driving forces affecting respectively profit shifting and investment location decisions (Section 3).

The question to be answered at this point is whether this situation calls for corporate tax coordination in the EU.

To provide a contribution in this direction, this section evaluates, on the basis of the theoretical and empirical economic literature and the experience of other countries, the pros and cons of different tax coordination policies, by focusing separately on the two major issues in corporate taxation presently under discussion in the EU: tax base coordination and tax rate coordination. It also distinguishes between different ways and different degrees of tax rate and tax base coordination, in as far as each type of policy would be able to solve different problems. The coordination strategy chosen largely depends on the objectives one wants to pursue.

3.4.1 TAX BASE COORDINATION

The Commission's Proposal

Four types of tax base coordination proposals have been recently put forward in the EU debate. They have been extensively examined under the comprehensive solutions suggested in the 2001 Commission study on corporate taxation (European Commission, 2001). Two of these proposals, the Harmonised tax base (HTB) and the European Union company income taxation (EUCIT), are based on a compulsory common tax base, which would apply to all enterprises, and replace the existing national tax codes. These compulsory solutions, independently of their merits and drawbacks, are at present considered politically unfeasible alternatives. That is why the debate focused on two more flexible options suggested in the literature and extensively analysed in the Commission Study: Home state taxation (HST) and Common (consolidated) tax base (CTB), both leaving Member States the option to introduce a common tax base

Under HST, corporate enterprises would have the option to apply the domestic tax code of the state where their headquarters are located to all the activities carried out in other member states by their subsidiaries or permanent establishments. The tax code would then be different depending on the location of the parent company, but for each single company the definition of the tax base would be the same independently of the states where it operates. The main advantage claimed in favour of HST is that it does not require participating Member States to agree in advance on a common system of accounting and taxation. All that is needed is a sort of "mutual recognition" of national tax laws whereby the Member States participating in the system would allow group companies operating within their borders to be taxed (in contrast to the present situation) on the basis of the rules of the country of residence of the parent company.

Under CTB, a new common optional tax code would be adopted. All (or a group of) Member States would have to agree on a common set of rules for establishing the tax base. Companies headquartered in any member state belonging to the system would have the option to adopt this common (European) tax base as an alternative to the domestic one, and apply it to all their activities in participating member states. A possible problem with this approach is that it might discriminate between multinationals and purely domestic companies. In case, to avoid possible discriminations, the latter could be given the option for the common EU system. The common tax rules could take the agreed European accounting standards (IAS/IFRS) as a starting point.

In addition to suggesting a common tax base, the Commission's proposal goes further by suggesting consolidation of profits and losses for companies operating in the EU and subsequent allocation of those profits by an apportionment formula. Each one of the elements of the proposal (common tax base, consolidation, formula apportionment) is aimed at removing specific obstacles to the functioning of the internal market, as we will see below.

Since 2004 the Commission's Directorate-General TAXUD has evoked the usefulness of a pilot scheme allowing SMEs to apply, on an experimental basis for five years, the principles of HST. Moreover it has created a working group with representatives of all Member States to discuss and examine the technical possibility to define a Common consolidated corporate tax base (CCCTB) for companies operating in the EU. All 25 EU member states, including those that are not in favour of tax base coordination, agreed to participate in the Working group.

THE OBJECTIVES OF TAX BASE COORDINATION

(a) reducing tax compliance costs

A first important reason supporting tax base coordination is to reduce compliance costs for companies operating in more than one member state and costs incurred by tax administrations. At present these companies have to deal with up to 25 different accounting and tax rules, different arrangements for collection, administration and control of tax payments, and a whole set of different tax treaties networks. As a consequence, compliance costs are higher for companies operating in more than one EU member state than for purely domestic companies. Moreover, these costs tend to be much higher for SME operating at the EU level, than for large companies. According to a recent survey conducted by the TAXUD EU Commission services (European Commission, 2004b), they are 1.9% of tax payments for large multinationals, but reach 30.9% of tax payments for SME. Thus, compliance costs represent an obstacle for EU integration and cross-border economic activities, particularly for SME. In addition, EU multinationals are also at a disadvantage with respect to other competitors, such as the US, where companies operating in more than one state benefit from the presence of a common federal tax system.

A reduction of the costs presently incurred due to the existence of 25 different accounting and tax rules would be beneficial for both companies and the tax administration. It could be fairly readily achieved by adopting a unique tax base definition for companies operating in the EU. In principle, to reduce compliance costs for companies, compulsory approaches like HTB and EUCIT would be unnecessary, and more flexible solutions like HST and CTB could be sufficient.

However, to properly judge these proposals and their ability to reduce compliance costs (for both taxpayers and tax administrations), one should enter into a deeper analysis, considering all the relevant issues.

At first sight the HST proposal appears simpler than the CTB alternative, because it can be implemented "on a current legislation basis". In contrast, CTB requires the definition of a new system, with all the complications this may involve not only in defining the items to be included in the tax base, but also in applying a new set of rules by companies and tax administrators. However, as the discussion in the Commission's 2001 Study makes clear, on closer examination it would seem that HST will require those countries participating in the agreement to find detailed solutions to a series of problems in the accounting, tax and administrative fields. For example, if auditing and assessment were left to the tax authority of the subsidiary's host country, each administration would need to know and apply no less than 25 sets of income

tax rules. To avoid this complication, auditing and assessment should be left to the authority of the parent company's home country, but this would limit the power of the subsidiary's host country. The right of each national administration have access to an assessment of the activity of each company operating within its territory, is a basic principle which should be protected somehow.

CTB does not solve all these problems, but alleviates some of them, above all administrative costs, since each tax administration would have to know and apply only two sets of rules: the domestic ones and the European one. Auditing and litigations could be carried out as they are today, in the country where the company operates.

Summarising, to reduce compliance costs a fully harmonised compulsory tax base would be the best solution; if a more flexible approach is envisaged, because of political and institutional constraints, CTB seems to be preferable to HST.

(b) Cross-Border Loss Offset

Cross border activities in the EU are disadvantaged, compared to similar domestic operations or to similar activities undertaken, for example, by multinational operating in the US, since cross-border loss compensation in the EU is usually not allowed. Most Member States permit companies to consolidate, for tax purposes, domestic profits and losses of the group, but only in few cases (Denmark, and, in limited circumstances, France, plus, more recently, Italy and Austria) this possibility is extended to cross-border losses. In the case of Italy, different rules apply to domestic and foreign subsidiaries of the group. Also the rules for domestic consolidation vary widely among MS. The possibility that these systems progressively evolve towards extending loss offset to companies of the group operating in other Member States would only partially solve the problem, since the consolidation rules will remain highly different. The recent ECJ cases in the field, and particularly the forthcoming judgment on the Marks & Spencer case (Case C-446/03), expected for the end of 2005, will induce Member States to take action, in order to make their systems coherent with the Treaty principles. However, if the Court will confirm the Advocate General conclusions of April, 7, 2005, Member States will not necessarily have to extend loss consolidation to foreign (EU) subsidiaries. Other solutions are possible, in addition to the extreme one of abolishing group relief for domestic companies. Moreover, different methods of allowing cross border loss offset may be compatible with the Treaty.

The Commission, in 1997after having withdrawn the directive proposal of 1991 on cross border loss offset (COM (1990) 595), has recently announced new initiatives to remove what is considered "a fundamental obstacle to the proper functioning of the Internal Market", with the main aim of "deepening the analysis of the issue and try to develop guidance on Member States' respective obligations under the EU Treaty." (COM (2003) 726 final).

Despite all these efforts, it can hardly be expected that the problem of cross border loss compensation will be properly solved unless countries agree on a common tax base, with a common definition of losses. Cross-border loss offset could then be achieved right from the beginning, for all the solutions involving the creation of a new set of common rules (as for CTB), by extending these rules to allow for cross-border loss offset. The latter could be granted, for example, according to the "deduction reintegration" method, already considered by the Commission in the 1991 proposal: the parent company would deduct losses of foreign subsidiaries from the tax base, but when the subsidiary will make profits the previously deducted losses should be added back to profits and taxed in the country of the parent. Symmetrically the subsidiary would be allowed to carry forward losses. The system would be compatible with the Treaty principles, it would avoid double deduction of

losses, and it would reassure Member States that they are giving relief for a subsidiary's losses whose subsequent profits they would be able to tax (EU Commission, 2001, p. 476).

As for HST, Member States' tax systems should include the existence of group consolidation and loss offset as a prerequisite for joining. However, because those differ, problems might arise unless member states quickly align their rules.

The 2001 Commission's proposal for comprehensive solutions like HTB or CTB and HST goes beyond this approach by suggesting a more radical solution: full consolidation of profits and losses with subsequent allocation of profits through formula apportionment rather than by separate accounting. In addition to solve the problem of cross-border loss offset, this comprehensive approach to corporate tax base coordination is suggested in order to remove other important obstacles to internal market integration, as discussed in the next section.

(c) Reducing Profit Shifting

As we have seen in section 3.3.2, different statutory tax rates induce companies to shift profits to countries with lower rates. This problem is bound to become more important after some current ECJ decisions. For example, several EU countries introduced thin capitalisation rules in order to prevent companies from shifting their profits towards low tax jurisdictions, by using debt finance to deduct interests in high tax countries and tax them in low tax ones. However, the well-known German Lankhorst-Hohorst case (C-324/00), the ECJ held that member states cannot apply thin-capitalization rules that discriminate between domestic and other EU lenders. The response to this ruling was different across the various countries. Germany, Denmark, Italy and the UK have all acted to protect their tax base by extending thin-capitalization rules to domestic lenders, at the cost of high complexities. The UK has in fact, gone even further in this process to counter the ECJ discrimination argument, by widening the scope of its transfer-pricing rules to domestic transactions. Spain on the other hand, moved in the opposite direction and eliminated thin-capitalization rules when the lender is resident in any EU country.

This example shows that ECJ decisions might increasingly restrict the ability of each member state to devise unilateral anti-avoidance measures to limit profit shifting and protect tax revenue from tax rate competition within the EU, to the extent that these measures are in contrast to the Treaty.[16] The guiding criterion of the most recent ECJ judgments is increasingly the non-discrimination principle. Defence by member states based on the fiscal cohesion principle, the need to ensure effective fiscal supervision and to prevent tax avoidance are no more considered valid justifications.

Transfer pricing is another issue of increasing concern in the EU. Not only because of the fear of profit shifting, but also because the complex rules of transfer pricing significantly add to compliance costs and may even lead to double taxation, creating barriers to full integration.

Eliminating these obstacles, as well as the opportunity to undertake tax planning operations though transfer pricing or thin capitalisation, is another major scope of the comprehensive solutions suggested by the Commission, all of which (apart from a pure EUCIT, which would in fact be a truly European "federal" tax) includes formula apportionment of consolidated profits.

[16] Another example is the French exit tax, levied on holders of substantial interests in a company who transfer their residence abroad. In its judgment on March 11, 2004 the ECJ considered that the French tax provisions restrict the freedom of establishment – a principle established in Article 43 of the EC Treaty.

The definition of a common tax base is therefore only a first step, capable of reducing compliance costs, but itself is unable to remove other important obstacles to capital market integration, such as the absence of cross-border loss offset. Neither is it capable of avoiding the under-taxation of profits by means of "artificially" planned transactions. To simultaneously resolve all these issues, the suggested solution is the apportionment of consolidated profits according to a formula. Adopting this solution would entail a radical change in the separate accounting system (based on arm's length principles), according to which the tax base of each member state is presently defined. The proposed system is similar to those already adopted by federal states like the United States or Canada (see, for example, McLure and Weiner, 2000; Hellerstein and McLure, 2004). As the analysis of these countries' experiences outlines, the system is not marked by advantages alone. It raises both complex questions in need of resolution and has various drawbacks, mainly depending on the choice of the allocation factors in the formula. A point worth reminding, at this stage is that a tax levied on a base that is apportioned according to a given formula corresponds to a set of taxes levied on the various different factors included in the formula (McLure, 1980). Hence the choice of these factors, (which should be done by considering a variety of implications, including one's beliefs on what is the ultimate purpose of levying corporate income taxes), will affect incentives to allocate factors included in the formula. It will also affect the capability of the system to adequately prevent profit shifting from high to low tax jurisdiction. For example, one of the most interesting allocating factors proposed for the EU is a measure of origin value-added of the net-income type (Lodin and Gammie, 2001). This concept of value-added has notable conceptual and practical advantages over the use of distinct apportionment factors, such as payroll, property and sales adopted in the USA, since it allocates profits where the value-added of the company is produced. Moreover, as distinct from the US, it could be fairly easily implemented in the EU, using as a starting point the information collected for the traditional consumption-Vat operations.[17] The limit of this solution however, is that it would only remove the incentive of profits shifting through thin capitalisation (since interest payments are included in value-added), but not through manipulation of transfer prices. This problem would be exacerbated if labour costs were excluded from the measure of value-added used for allocation, as suggested by Hellerstein and McLure (2004), since these costs are usually the most important component of value-added. The implementation of other formulae will not entirely remove the incentives for tax planning and profit shifting. (see, for example, Sorensen, 2004a; Weiner, 2005).

(d) Increase Neutrality in the Allocation of Capital

Section 3 concluded that investment location may be driven by tax rather than economic considerations, in which case would lead to the misallocation of capital.

The question then arises whether a consolidated common tax base with formula apportionment as envisaged in the Commission's proposal would be able to remove these inefficiencies in the allocation of capital. The economic literature is quite clear on the issue: a common consolidated tax base with formula apportionment will not, by itself, result in economic neutrality, as long as tax rates differ (among the most recent studies, see Hellerstein and McLure, 2004; Sorensen, 2004a; Weiner, 2005). As previously mentioned, the exact types of distortions, with regard to the

[17] Value-added as reported for VAT purposes should be adjusted for exports, imports, acquisitions from other Member States and depreciation rather than immediate deduction of the investment costs.

allocation of the factors of production within the EU (to which the system of formula apportionment would be restricted) will depend on the factors included in the formula. The magnitude of the welfare losses will be a function of the tax rate differential between countries and of the elasticity of the taxed factor to these tax rate differentials. If property or capital income is included in the formula, the location of capital would continue to be driven by tax considerations and countries would continue to have incentives to compete over tax rates to attract FDI. It is no coincidence that in federal states such as the United States and Canada, the fiscal autonomy of member states is limited by the floor effectively provided by federal taxation. Moreover, the variation in rates is much smaller than in the EU. Here, tax rates range from a minimum of zero, on retained earnings in Estonia or 12.5% in Ireland, to around 40% in Germany and Italy. The comparable state rates for the United States range from 0% to 8%, whereas in Canada the provincial tax rates range from 14% to 17%.[18]

Looking at the specific case of the EU, it is not easy to evaluate what the efficiency gains of moving from separate accounting to formulary apportionment would be. According to Mintz and Weiner (2003) "since it is not clear whether the inefficiencies that apportionment introduces are empirically more important than those that it removes, the efficiency gains in moving from the existing system to an optional formula apportionment system are unknown" (Weiner, 2005, p. 43)

Other important questions should be considered in order to evaluate the efficiency implications of the proposal.

First, efficiency calls for a common formula. In the US, where states can change the weights given to the various allocating keys, an increasing number of them have moved from the traditional three factors formula (labour, capital and sales) to a destination-based sales formula, in order to attract investments from other states (Edmiston, 2002). Competition moved from tax rates to factor weights in the formula. To avoid this risk, the EU countries should adopt a common formula, but such an agreement may be difficult to reach since each formula will have a different impact on tax revenue distribution across countries.

Second, for efficiency reasons it would be preferable to have a truly EU common base, without exceptions and permitted divergences from the common rules. This means, for example, that member states should be prevented from granting additional fiscal incentives, such as accelerated depreciation allowances, that reduce the tax base. This would not however mean denying their sovereignty to use fiscal tools to pursue national public policy aims, if desired. Fiscal incentives could take the form of tax credits, or cash grants, rather than deductions from the tax base. The result could be equivalent, but the tax base would not be affected; the incentive would be more transparent and it would be easier and more straightforward to check for its compatibility with state aid provisions. A similar lesson can be drawn from the different experiences of the US and Canada.

Finally, by looking at the efficiency content of the individual tax base coordination proposals, CTB turns out to be superior to HST. The latter may induce countries to compete over the tax base for headquarters – obviously by narrowing the tax base, which would be negative from an efficiency point of view, as generally moderate tax rates plus a broad tax base seem to be advantageous from an efficiency perspective. Moreover, HST may imply distortions of competition as subsidiaries operating in a given country are taxed on a different overall tax base depending on the

[18] European Commission (2001), p. 512.

country of residence of their parent company and depending on the tax code existing there (Mintz and Weiner, 2003).

3.4.2 TAX RATE COORDINATION

The consolidated common tax base coordination policy examined in the previous section, and suggested by the Commission as a comprehensive solution to remove the main obstacles of the internal market, will leave Member States full autonomy to apply their own freely chosen tax rates on apportioned profits. This proposal, as we have seen in the previous section, would reduce compliance costs, and if accompanied by a consolidation of profits with formula apportionment, would solve the problem of cross-border loss offset. Depending on the formula adopted, it could also reduce although would be unlikely to fully eliminate the incentive to manipulate transfer pricing and use other profit shifting and tax planning devices to reduce the tax burden. Moreover, the question of the costs to be paid in terms of efficiency losses, due to the observed divergences of statutory and effective tax rates. As the tax policy scenarios simulated in the 2001 Commission Study demonstrate, in some circumstances potential distortions, measured by dispersions in effective tax rates, might even increase by harmonising the tax bases whilst leaving tax rates untouched. Thus the Commission's proposal for a common consolidated tax base is not a complete and satisfactory solution to all relevant issues.

Arguments in favour and against tax rate coordination

The above mentioned results suggest that a common consolidated tax base with formula apportionment should be accompanied by tax rate coordination: only a common tax rate would entirely remove the incentive of profits shifting, within the EU; moreover, some kind of tax rate coordination would also be necessary to reduce tax distortions of cross-border EU investment, which could arise when tax differentials are not matched by cross-country differences in the value of productive public expenditure, agglomeration forces or other location rents. As the Commission study underlines, about three fourths of the observed dispersion of effective corporate tax rates, is due to difference in statutory rates.

Despite these findings in favour of statutory tax rate coordination, the Commission's 2001 Communication accompanying the study (COM (2001) 528 final) concludes that: "at this point in time there is no convincing evidence for the Commission to recommend specific actions on the appropriation of the national corporate tax rates or the fixing of a minimum tax rate" (p. 9). Since then, the Commission has continuously assured Member States that the objective of coordinating the tax base does not entail any kind of tax rate coordination.

This apparently contradictory position has in fact more than one justification.

Firstly, making progress, above all reducing compliance costs, is given priority in the policy agenda. The Commission seems more concerned with facilitating firms' operations in the internal market, than reducing distortions of cross-border investment in Europe, with preventing avoidance and tax planning and preserving the capacity of Members States to collect revenues. As we have seen, reducing compliance costs requires a common tax base, but not necessarily a common tax rate.

Secondly, subsidiarity calls for the highest possible level of member state fiscal autonomy. The setting of tax rates is probably the strongest symbol of fiscal sovereignty, one which countries are reluctant to give up. This is an important argument, but the question of fiscal sovereignty in a common market is a subtle issue: on the one hand, this national freedom has to be compatible with

an efficient functioning of the internal market, so that a trade-off between the two conflicting objectives of autonomy and efficiency must be chosen; on the other hand, it must be recognised that in a tax competition setting tax autonomy may easily turn out to be an illusion, since the tax rate will be determined as a reaction to other countries' tax policies rather than based on autonomous decisions on the level and composition of the total tax burden.

A third reason for which tax rate coordination is controversial, and at present not supported by the EU Commission, lies in the difficulty to precisely estimate the quantitative effects of diverging tax rates on FDI and, more general, on national and Community welfare. The 2001 Commission study does not try to quantify the impact s of different statutory and average tax rates on location decision. In briefly reviewing the literature, it concludes that it is "difficult to have 'the' quantitative measure of this impact even if the existence of such a relation is generally undisputed" (p. 152). Since the Report was written, further evidence has been provided on this effect and its quantitative importance, as section 3 demonstrated. However, still much work has to be done, above all for the enlarged EU. With regard to the more general issue of the welfare losses that may be due to tax differentials, and potential welfare gains from harmonisation, empirical evidence is even more fragile, given the complexity of the issue. The most comprehensive simulations undertaken in the literature, provided by Sorensen with an applied general equilibrium model for 24 OECD countries (including the 15 EU member states) show a small welfare gain from corporate tax rate harmonisation (around 0.1-0.2 per cent of GDP). Moreover, some countries would gain and others would loose from harmonisation. Overall, the small simulated welfare gain due to tax rate harmonisation does not seem sufficient to balance the loss of national tax autonomy nor the need to compensate the losing countries (Sorensen, 2004a). However, as the same author outlines, this conclusion should be better qualified.

For example, when taking into account the "social welfare gains which would arise if corporate tax harmonisation enabled governments with egalitarian preferences to implement more redistributive policies than would be possible by unfettered tax competition, tax harmonisation in the EU would raise social welfare by about 0.1-0.4 percent of GDP, (depending on the assumed degree of capital mobility between the EU and the rest of the world)."(Sorensen, 2004a, p.111-112). More recently, further insights have been provided by examining the quantitative predictions of capital income tax competition in a two-country dynamic, neoclassical general equilibrium model with perfect capital mobility (Mendoza and Tesar, 2005). The results depend on whether labour or consumption taxes are used to compensate for the decline in capital taxation, but in general they indicate tiny welfare gains from tax coordination.

A fourth reason of controversy with regard to the benefits and costs of tax rate harmonisation lies in the uncertainty of the existence and effects of tax competition. As we have seen in section 3.2, the empirical evidence is mixed: there is fairly clear evidence that there is competition over statutory and effective average tax rates, but there has not been the "race to the bottom" predicted by the basic tax competition model, nor a long-term decreasing trend in tax revenue. On the basis of this evidence, it is frequently argued that tax competition to decrease effective and mainly statutory tax rates is not a problem; on the contrary, it might also be beneficial to the extent that the same tax revenue is obtained with lower rates, since this would tend to increase efficiency. However, as discussed again in section 3.2, several factors explain the stability and, for some countries, the increase in corporate tax revenue over GDP, and what has happened in the past might not be a good guide for what we might expect in the future. On the one hand, there are reasons, briefly discussed in the next section, for which one could expect tax competition for statutory rates to become even fiercer in the future; on the other hand, some

countervailing factors that in the past have prevented the decline in tax rates to be reflected in lower tax revenue (e.g. cyclical factors, an increasing degree o incorporation of the enterprise sector, or reforms aimed at broadening the tax base) may not be at work in the future. The decline in the corporate tax ratio since the beginning of the new millennium might be a first signal in this direction.

What can be expected for tax competition in the future?

The application of the Code of Conduct and of state aid rules, by limiting the possibility by member states to adopt preferential or discriminatory regimes, may exacerbate tax competition over regular tax rates and regular tax systems, respectively. According to some authors (e.g. Keen, 2001), restrictions on preferential tax regimes might even render tax competition more severe in terms of negative spillovers. Ireland is often cited as an example of EU action against preferential regimes leading to a reduction of the general taxation level. More recently, also NMS have reacted in a similar way to the prospect of having to abolish most of their incentives because of the Code of Conduct and state aid restrictions.

Another example of competition via the general tax system, as a response of having to abolish preferential regimes, is the progressive extension of the participation exemption, according to which both inter-company dividend and capital gains are fully exempt from tax. The evolution of tax systems towards full exemption of capital gains and dividends, and the consequent abolition of the tax credit on dividends, is increasingly characterising the corporation tax as a source tax. In turn, this might contribute to enhancing competition over tax rates.

Further alignment of the EU tax bases towards tax base harmonisation, as discussed in section 3.4.1, would create an additional stimulus to engage in statutory tax rate competition, since this would be the only competition instrument left in the corporate tax field.[19]

Enlargement, as we observed, may be another explanation for increasing tax competition, since NMS have very low and still decreasing tax rates.

More generally, one can expect that a deeper integration will induce a downward tendency of rates. As integration increases, agglomeration forces tend to weaken and with them also the possibility of countries to tax these rents will vanish. At the same time, however, increased integration implies an increase in foreign ownership of capital and might induce countries, above all small ones, with a higher share of foreign ownership, to apply higher taxes in the desire to export the tax burden (Huizinga and Nicodème, 2005). The balance of these countervailing effects is uncertain.

Finally, as mentioned above, past and future ECJ decisions might increasingly restrict the ability of member states to devise unilaterally their own preferred policy and to introduce anti-avoidance measures to preserve their setting of tax rates from tax rate competition. By removing obstacles to the four fundamental freedom of the Treaty, the ECJ judgments will also increase integration, potentially intensifying tax competition.

The fear of increasing tax rate competition has led some EU countries, most prominently France and Germany, to raise the issue of corporate tax rate coordination. Whether or not one agrees on the position of these Member States, the issue of tax rate coordination should be a matter of debate and careful study, in order to evaluate the pros and cons of different solutions.

[19] It is controversial however whether the passage from separate accounting to formula apportionment will increase tax competition or reduce it (Weiner, 2005).

Different degrees of tax rate coordination

As for tax base coordination, also in the case of tax rates, there are different degrees of possible coordination, each of them meriting their own advantages and disadvantages that should be carefully evaluated.

From both the theoretical and empirical literature one might conclude that a unique, common tax rate is not only politically unfeasible, but also economically unnecessary, and even mistaken, despite its effectiveness in definitely removing the incentive for tax planning and profit shifting in the EU. The costs of such a strong limitation of fiscal autonomy is not clearly compensated by gains in terms of increased efficiency. For example, as mentioned in section 2, higher tax rates do not affect efficiency if there are location specific rents (Keen, 1993, 1999; Genser and Haufler, 1996, Haufler, 1999), including the advantages of agglomeration forces (Baldwin and Krugman, 2004). Moreover, larger countries can sustain higher rates with less detrimental effects than smaller countries (Bukovetsky, 1991, Wilson, 1991). Under these circumstances, a common (intermediate) tax rate might reduce, rather than increase welfare in high-tax as well as low-tax countries.

More interesting is the proposal to introduce a minimum tax rate (or a lower and upper bound). Detractors of this proposal underline that also under a minimum corporate tax rate smaller countries, with lower rates, might loose. To be feasible, any proposal in this direction should consider the legitimate need of small peripheral countries to compensate for their location disadvantages. Forcing these countries to increase their tax rate might contradict the EU subsidy policy in favour of these countries and slow down or even arrest their catching up process. To avoid this, the minimum tax rate set at the Community level should be very low, e.g. 15%. This tax rate would be competitive with other countries' tax rates and highly favourable to investment and growth in the EU, in accordance with the Lisbon strategy. Its main scope would be to prevent extreme tax competition up to the vanishing of the corporate tax rate. Another suggested policy is a two-tier approach (Sterdyniak, 2005, Schratzenstaller, 2005), with a higher minimum tax rate for old and a lower minimum tax rate for new member states, with the latter progressively increasing as countries converge. A different solution could be to compensate for the losses that a tax rate coordination policy would impose on small and peripheral member states, by allowing "peripheral countries meeting certain objective criteria to grant special investment tax credits for a limited time period, subject to approval by the European Commission" (Sorensen, 2004a, p. 107). This would be a means of recognizing that corporate taxation is not an appropriate tool to attract firms to locate in less developed countries or deprived areas, due to risks of profit shifting (companies may benefit from low tax rates in a country while producing mainly elsewhere). This strategy would amount to trading off corporate taxation convergence against greater leeway given to Member States to subsidize their companies. Company subsidies could also be allowed more easily for regions or economic sectors in difficulty, and for state aid for innovation and research.

Further investigations are necessary for a proper appraisal of these proposals. Hence, in what follows, attention is limited on the most convincing arguments put forward in the literature to support a minimum tax rate. [20]

First, a minimum tax rate would be particularly useful in extracting the economic rents of foreign investment in the EU (Haufler, 1998, 1999). International economic studies show that foreign investment is mainly driven by non-tax factors, such as the benefits of agglomeration and the extent of the

[20] Also an upper bound could be set, to reassure investors that the government will not increase the tax rate (not beyond a certain limit) once the investment has been undertaken. Another argument in favour of an upper bound is that formula apportionment could lead to inefficiently high rates of corporate income tax (Sorensen, 2004a).

market. Foreign investment in the Internal Market, principally made in order to take advantage of the benefits of this market, would not be discouraged by this minimum tax provided it were internationally competitive and withdrew only part of the rents that could not be produced elsewhere. At the same time, it could guarantee a higher overall tax revenue than the one achieved by the EU as a whole if the various member states were totally free to compete for that investment. In turn this revenue may be used to improve infrastructures and other expenditures that might contribute to attract investment.

Second, with a minimum tax rate, all countries would be put on a similar footing, but they would still be free to apply higher rates. The latter would be sustainable as long as they reflect better services or infrastructures offered by the host country, or the presence of location rents that are not wiped out by formula apportionment.

Third, given the desire to leave some autonomy to Member States with regard to taxation of corporate income, the introduction of a floor for corporate taxation, like the minimum VAT rate could be the most feasible solution to leave wide autonomy to member states and prevent excessive competition. The federal corporate tax rate in the United States and Canada works in fact as a sort of minimum tax rate. A minimum tax rate would set a limit to tax competition towards increasingly lower rates. De Mooij (2004) draws an interesting lesson from diesel excises, in support for a minimum corporate tax rate as a way to cushion extreme tax competition forces. Despite tax revenue has been fairly stable, this is no guarantee that this will continue in the future. Since 2000 there are in fact signs of a decline. The possibility that the corporation tax will disappear is not so remote. Estonia already limits taxation to profit distribution; in fact it does not have a proper corporation tax. Other countries might follow and a "race to the bottom" cannot be excluded. This possibility opens a very complex question, which we can only mention here. The disappearance of the corporation tax would be welcome for many, since it is well known that this tax is very complex, induces distortions, and it is not clear who really carries the tax burden. However, its disappearance would also create problems. It is questionable, from the point of view of a proper tax design, whether a personal income tax can exist without a corporate income tax. It is true that corporations may be considered as a "veil" behind which individuals are ultimately found who can be taxed based on the profits they receive. But it is also true that without a corporation tax the taxation of undistributed profits could be deferred for a very long time (for ever, at one extreme), thus creating distortions in favour of incorporation. In addition to be a backstop for personal income tax, corporation tax can also be considered a useful, though imperfect, way to tax the benefits deriving from public expenditure on infrastructure and the use of public resources. It must be recognised, however, that under many basic principles (efficiency, simplicity, enforceability, etc.) the traditional definition of corporate profits (revenue from sales less interest payments and depreciation) is not the best way to tax companies. Alternative solutions, like the neutral Cash Flow Tax or the Allowance for Corporate Equity scheme, or a sort of Dual Income Tax, as adopted in the Nordic countries, would be preferable tax systems. In an international context with capital mobility other tax designs are attracting attention, for example, the X-tax suggested by Bradford (2001, 2004), that is a consumption-type tax suitable in an international context.

Other suggestions could be to tax company on the "net operating surplus by moving in the direction of the Italian Irap" (Mintz, 2004; Sterdyniak, 2005).[21] All these alternative tax designs would require a careful consideration of the interaction and coherence between corporate and individual taxation, as well as between the tax burden on labour and capital. Opening the debate on these issues, and on the general principles of taxation would be welcome, since the increasing difficulties of taxing profits where they accrue would maybe call for innovative solutions in the future.

3.4.3 Conclusion

As we have seen in this section, the arguments in favour of corporate tax coordination mainly rest on the need to decrease compliance costs and other obstacles to the internal market, to reduce the incentive towards profit shifting and to promote an efficient location of capital within the EU. Tax competition might also be able to progressively attain these objectives: at the extreme, they all would be solved if the "race to the bottom" would lead to a vanishing of the corporation tax. However, this solution entails high costs, not only in terms of revenue loss, but also from the point of view of equity, since also capital owners should pay taxes, and for the application of the benefit principle, since firms benefiting from good infrastructure should directly or indirectly be charged for it.

If the costs of tax competition are considered higher than the benefits, coordination policies can take different forms, depending on the precise objectives that one wants to pursue.

The proposal suggested by the Commission of a Common consolidated corporate tax base with formula apportionment would be able to remove some important obstacles to internal market integration: common rules to determine the tax base would reduce compliance costs for companies operating in the EU, and the possibility of tax consolidation would solve the problem of cross-border loss offset within the EU. However, this solution raises complex issues and would not be able to completely remove the incentives to manipulate transfer prices.

In addition, in the presence of different tax rates, formula apportionment would not guarantee an efficient allocation of capital.

To fully solve the problem of profit shifting, tax base coordination should be accompanied by some degree of tax rate harmonisation. To prevent misallocation of capital, a common rate is not necessary and could even be harmful, as long as higher rates are accompanied by location specific rents (such as those induced by agglomeration forces, or efficient public services or infrastructure), and the common tax rate will force small, peripheral countries to increase their rates. That is why a minimum tax rate tends to have a greater support in the literature. Otherwise, other solutions should be devised in order to compensate countries losing from tax rate coordination.

[21] The Italian IRAP is at present under scrutiny at the ECJ, since the question has been raised of its compatibility with the European VAT system. However, the features of the two taxes are very different, since IRAP is in fact an origin tax on the factors of production (labour and capital) and does not interfere with the VAT, which is on consumption, and levied at destination. Before its introduction, the Commission's TAXUD services, in response to a specific question of the Italian government introducing the reform, did not raise any question concerning the compatibility of this tax with the Community Treaty and legislation.

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APPENDIX 1. COMPLEMENTARY TABLES AND GRAPHS

Table 3.1: Statutory Company Tax Rates in OMS in %, 1982 to 1994

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1982-1994
Belgium	45	45	45	45	45	43	43	43	41	39	39	39	40	-5
Denmark	40	40	40	40	50	50	50	50	40	38	38	34	34	-6
Finland	60	60	60	60	60	50	50	50	40	40	36	25	25	-35
Germany	62	63	63	63	63	63	63	63	58	59	59	58	54	-8
Greece	43	43	44	44	44	44	44	40	40	40	40	40	40	-3
Spain	33	33	35	35	35	35	35	35	35	35	35	35	35	2
France	50	50	50	50	45	45	42	39	37	34	34	33	33	-17
Ireland	45	50	50	50	50	50	50	47	43	43	40	40	40	-5
Italy	39	46	46	46	46	46	46	46	46	48	48	52	52	13
Netherlands	48	48	43	43	42	42	42	35	35	35	35	35	35	-13
Austria	61	61	61	61	61	61	61	39	39	39	39	39	34	-27
Portugal	55	55	55	55	55	46	46	40	40	40	40	40	40	-15
Sweden	60	60	60	60	52	52	52	57	45	30	30	30	28	-32
Un. Kingd.	52	50	45	40	35	35	35	35	34	33	33	33	33	-19
Average	**49.5**	**50.3**	**49.8**	**49.4**	**48.8**	**47.3**	**47.1**	**44.2**	**40.9**	**39.5**	**39.0**	**38.1**	**37.4**	**-12.1**
Median	**49**	**50**	**48**	**48**	**48**	**46**	**46**	**41.5**	**40**	**39**	**38.5**	**37**	**35**	**-14**
Stand. dev.	**8.9**	**8.4**	**8.4**	**8.7**	**8.5**	**7.8**	**7.9**	**8.2**	**5.8**	**6.9**	**6.9**	**8.1**	**7.7**	**-1.2**
Var. coeff.	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**	**0**
Spread	**29**	**30**	**28**	**28**	**28**	**28**	**28**	**28**	**24**	**29**	**29**	**33**	**29**	**0**

Source: Institute for Fiscal Studies; Office of Tax Policy Research, University of Michigan; own calculations.

Table 3.2: Statutory Company Tax Rates in the EU-23 in %, 1995 to 2006

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1995-2006
Belgium	40,2	40,2	40,2	40,2	40,2	40,2	40,2	40,2	34	34	34	34,0	-6,2
Denmark	34	34	34	34	32	32	30	30	30	30	28	28,0	-6,0
Finland	25	28	28	28	28	29	29	29	29	29	26	26,0	1,0
Germany	56,8	56,7	56,7	56	51,6	51,6	38,3	38,3	39,6	38,3	38,9	38,9	-17,9
Greece	40	40	40	40	40	40	37,5	35	35	35	32	29,0	-11,0
Spain	35	35	35	35	35	35	35	35	35	35	35	35,0	0,0
France	36,7	36,7	36,7	41,7	40	36,7	36,4	35,4	35,4	35,4	35	35,0	-1,7
Ireland	40	38	36	32	28	24	20	16	12,5	12,5	12,5	12,5	-27,5
Italy	52,2	53,2	53,2	41,3	41,3	41,3	40,3	40,3	38,3	37,3	38,3	38,3	-13,9
Luxembourg	40,9	40,9	39,3	37,5	37,5	37,5	37,5	30,4	30,4	30,4	30,4	30,4	-10,5
Netherlands	35	35	35	35	35	35	35	34,5	34,5	34,5	31,5	30,5	-4,5
Austria	34	34	34	34	34	34	34	34	34	34	25	25,0	-9,0
Portugal	39,6	39,6	39,6	37,4	37,4	35,2	35,2	33	33	27,5	27,5	22,5	-17,1
Sweden	28	28	28	28	28	28	28	28	28	28	28	28,0	0,0
United Kingdom	33	33	31	31	30	30	30	30	30	30	30	30,0	-3,0
Average OMS	**38,0**	**38,2**	**37,8**	**36,7**	**35,9**	**35,3**	**33,8**	**32,6**	**31,9**	**31,4**	**30,1**	**29,5**	**-8,5**
Median	**36,7**	**36,7**	**36**	**35**	**35**	**35**	**35**	**34**	**34**	**34**	**30,4**	**30**	**-6,7**
SD OMS	**7,9**	**7,6**	**7,7**	**6,7**	**6,2**	**6,4**	**5,3**	**5,8**	**6,1**	**6,0**	**6,2**	**6,4**	**-1,4**
VC	**0,2**	**0,2**	**0,2**	**0,2**	**0,2**	**0,2**	**0,2**	**0,2**	**0,2**	**0,2**	**0,2**	**0,2**	**0,0**
Spread OMS	**31,8**	**28,7**	**28,7**	**28**	**23,6**	**27,6**	**20,3**	**24,3**	**27,1**	**25,8**	**26,4**	**26,4**	**-5,4**
Czech Republic	41	39	39	35	35	31	31	31	31	28	26	24,0	-17,0
Estonia	26	26	26	26	26	26	26	26	26	26	24	22,0	-4,0
Latvia	25	25	25	25	25	25	25	22	19	15	15	15,0	-10,0
Lithuania	29	29	29	29	29	24	24	15	15	15	15	15,0	-14,0
Hungary	19,6	19,6	19,6	19,6	19,6	19,6	19,6	19,6	19,6	17,7	16	16,0	-3,6
Slovenia	25	25	25	25	25	25	25	25	25	25	25	25,0	0,0
Slovak Republic	40	40	40	40	40	29	29	25	25	19	19	19,0	-21,0
Poland	40	40	38	36	34	30	28	28	27	19	19	19,0	-21,0
Average NMS	**30,7**	**30,5**	**30,2**	**29,5**	**29,2**	**26,2**	**26,0**	**24,0**	**23,5**	**20,6**	**19,9**	**19,4**	**-11,3**
Median	**27,5**	**27,5**	**27,5**	**27,5**	**27,5**	**25,5**	**25,5**	**25**	**25**	**19**	**19**	**19,0**	**-8,5**
SD NMS	**7,8**	**7,5**	**7,2**	**6,5**	**6,2**	**3,5**	**3,3**	**4,7**	**4,8**	**4,7**	**4,3**	**3,7**	**-4,1**
VC	**0,3**	**0,2**	**0,2**	**0,2**	**0,2**	**0,1**	**0,1**	**0,2**	**0,2**	**0,2**	**0,2**	**0,2**	**-0,1**
Spread NMS	**21,4**	**20,4**	**20,4**	**20,4**	**20,4**	**11,4**	**11,4**	**16,0**	**16,0**	**13,0**	**11,0**	**10,0**	**-11,4**
Average EU25	***35,5***	***35,5***	***35,1***	***34,2***	***33,5***	***32,1***	***31,0***	***29,6***	***29,0***	***27,6***	***26,6***	***26,0***	***-9,5***
Spread OMS NMS	***7,3***	***7,7***	***7,6***	***7,3***	***6,7***	***9,1***	***7,8***	***8,7***	***8,5***	***10,8***	***10,3***	***10,2***	***2,8***

Source: Institute for Fiscal Studies; Office of Tax Policy Research, University of Michigan; national tax laws; own calculations.

Table 3.3: Effective Company Tax Rates OMS and NMS, 1995 to 2003[1)]

	Statutory Tax Rates	Implicit Corporate Tax Rates[2]	Corporate Tax Ratios[3]
OMS	35.6 (5.9)	13.6 (3.2)	3.3 (0.5)
NMS[4]	27.7 (5.3)	10.9 (5.3)	2.3 (1.1)

[1] Averages across countries; standard deviations in parentheses. [2] 1995 to 2002. [3] 1995 to 2001; corporate tax revenues as a percentage of GDP. [4] Excluding Hungary.

Source: Own calculations.

Table 3.4: Effective Company Tax Rates by Country Size OMS, 1982 to 2003[1]

	Statutory Tax Rates[1]	EMTR[2]	EATR[2]	Implicit Corporate Tax Rates[3]	Corporate Tax Ratios[4]
Large countries	42.4 (8.0)	24.2 (7.0)	35.2 (7.5)	11.5 (3.2)	2.7 (0.8)
Small countries	40.1 (2.0)	23.3 (7.6)	31.3 (9.0)	14.8 (2.6)	2.9 (1.5)

[1] Excluding Luxembourg. [2] Excluding Denmark, Luxembourg. [3] 1995 to 2002; excluding Ireland, Luxembourg. [4] Excluding Portugal; 1982 to 2002.

Source: Own calculations.

Table 3.5: Effective Company Tax Rates by Country Size NMS, 1995 to 2003

	Statutory Tax Rates	Implicit Corporate Tax Rates[1]	Corporate Tax Ratios[2]
Large countries	29.3 (6.9)	16.7 (1.9)	3.3 (0.6)
Small countries	26.8 (3.8)	8.0 (3.9)	1.9 (1.1)

[1] 1995 to 2002; excluding Hungary, Slovenia. [2] 1995 to 2001; excluding Hungary.

Source: Own calculations.

Table 3.6: Effective Company Tax Rates by Country Size & Degree of Openness OMS, 1982 to 2003[1)]

	Statutory tax rates[1)]		EMTR[2)]		EATR[2)]		Implicit corporate tax rates[3)]		Corporate tax ratios[4)]	
	open	closed	open	closed	open	closed	open	closed	open	closed
Large countries	45.6 (10.6)	40.2 (4.5)	28.7 (9.4)	21.2 (1.0)	39 (10.1)	32.7 (2.9)	10.1 (4.6)	12.5 (0.8)	2.6 (1.0)	2.7 (0.6)
Small countries	39.2 (1.5)	40.6 (2.0)	19.8 (10.7)	25.5 (3.3)	25.4 (12.6)	34.9 (1.2)	15.1 (1.4)	14.8 (2.9)	4.0 (1.9)	2.1 (0.2)

[1] Excluding Luxembourg. [2] Excluding Denmark, Luxembourg. [3] 1995 to 2002; excluding Ireland, Luxembourg. [4] Excluding Portugal; 1982 to 2002.

Source: Own calculations.

Table 3.7: Effective Company Tax Rates by Country Size & Degree of Openness NMS, 1995 to 2003

	Statutory tax rates		Implicit corporate tax rates[1]		Corporate tax ratios[2]	
	open	closed	open	closed	open	closed
Large countries	27.2 (7.6)	33.4 (-)	14.8 (-)	18.5 (-)	3.8 (-)	2.7 (-)
Small countries	30.1 (4.9)	24.6 (0.4)	10.1 (4.3)	5.9 (2.0)	2.8 (1.1)	1.4 (0.4)

[1] 1995 to 2002; excluding Hungary, Slovenia. [2] 1995 to 2001; excluding Hungary.

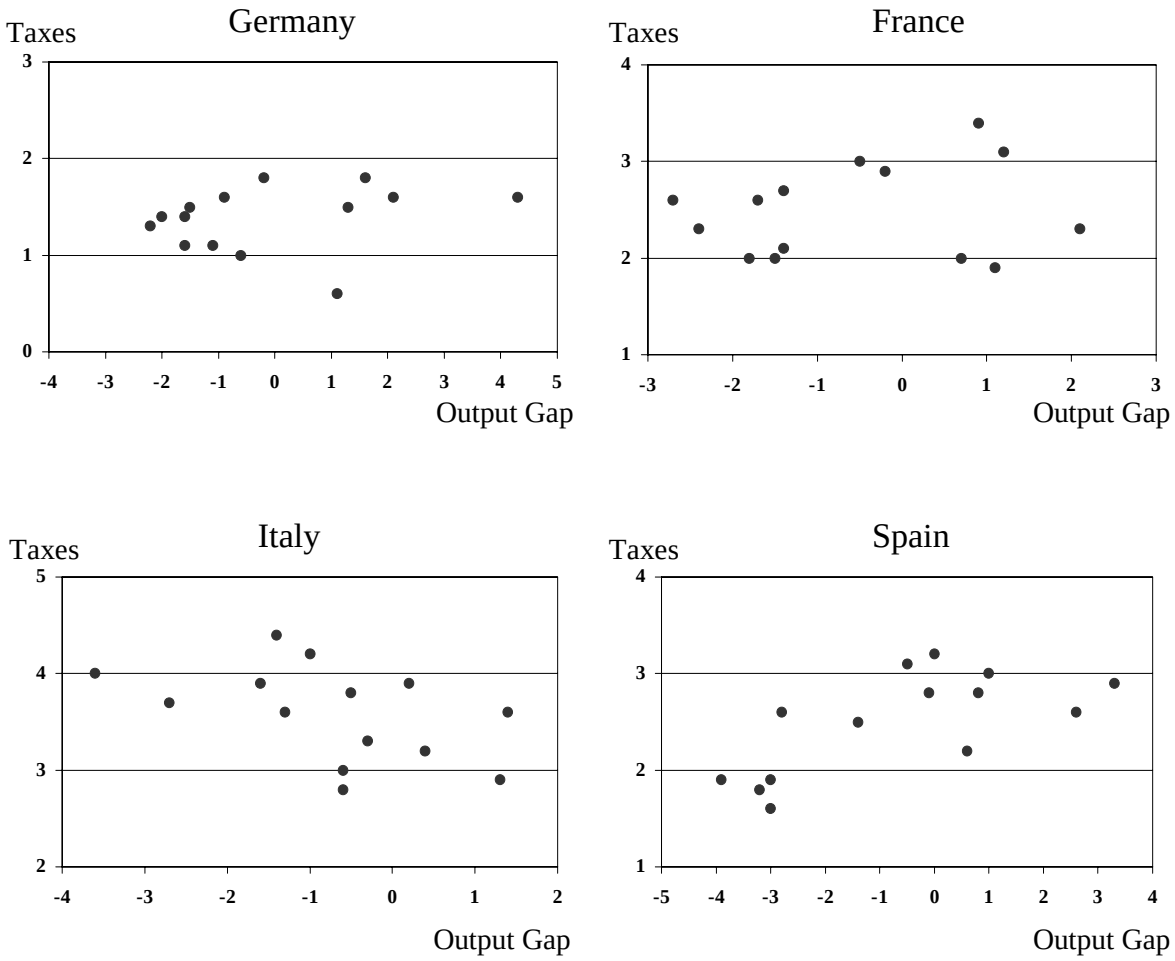
Source: Own calculations.

Table 3.8: Taxes on Corporate Income in Relation to GDP in Selected Countries in %, 1980 to 2003

	1980	1990	1995	2000	2001	2002	2003
Austria	1.4	1.4	1.5	2.0	3.1	2.3	2.0
Belgium	2.2	2.4	2.8	3.6	3.6	3.5	3.4
Czech Republic	.	.	4.9	3.8	4.4	4.6	4.8
Denmark	1.4	1.5	2.0	2.4	3.1	2.9	2.8
Finland	1.2	2.0	2.3	6.0	4.3	4.3	3.5
France	2.1	2.3	2.1	3.1	3.4	2.9	2.6
Germany	2.0	1.7	1.1	1.8	0.6	1.0	1.3
Greece	0.9	1.6	2.0	4.6	3.8	3.8	.
Hungary	.	.	1.9	2.2	2.4	2.4	.
Ireland	1.4	1.7	2.8	3.8	3.6	3.7	3.9
Italy	2.4	3.9	3.6	2.9	3.6	3.2	2.8
Luxemburg	6.6	6.5	7.5	7.2	7.5	8.6	7.9
Netherlands	2.9	3.2	3.1	4.2	4.1	3.5	3.0
Poland	.	.	2.8	2.5	1.9	2.0	.
Portugal	.	2.3	2.5	4.1	3.6	.	.
Slovak Republic	.	.	.	2.8	2.2	2.7	.
Spain	1.2	2.9	1.8	3.0	2.8	3.2	3.1
Sweden	1.2	1.7	2.8	4.0	2.9	2.4	2.0
United Kingdom	2.9	3.6	2.8	3.6	3.5	2.9	2.8
EU 15	2.1	2.6	2.7	3.8	3.6	3.4	.
EU 19	2.1	2.6	2.7	3.8	3.6	3.4	.
Japan	5.5	6.5	4.2	3.6	3.5	3.1	.
United States	2.8	2.4	2.9	2.6	1.9	1.8	2.0

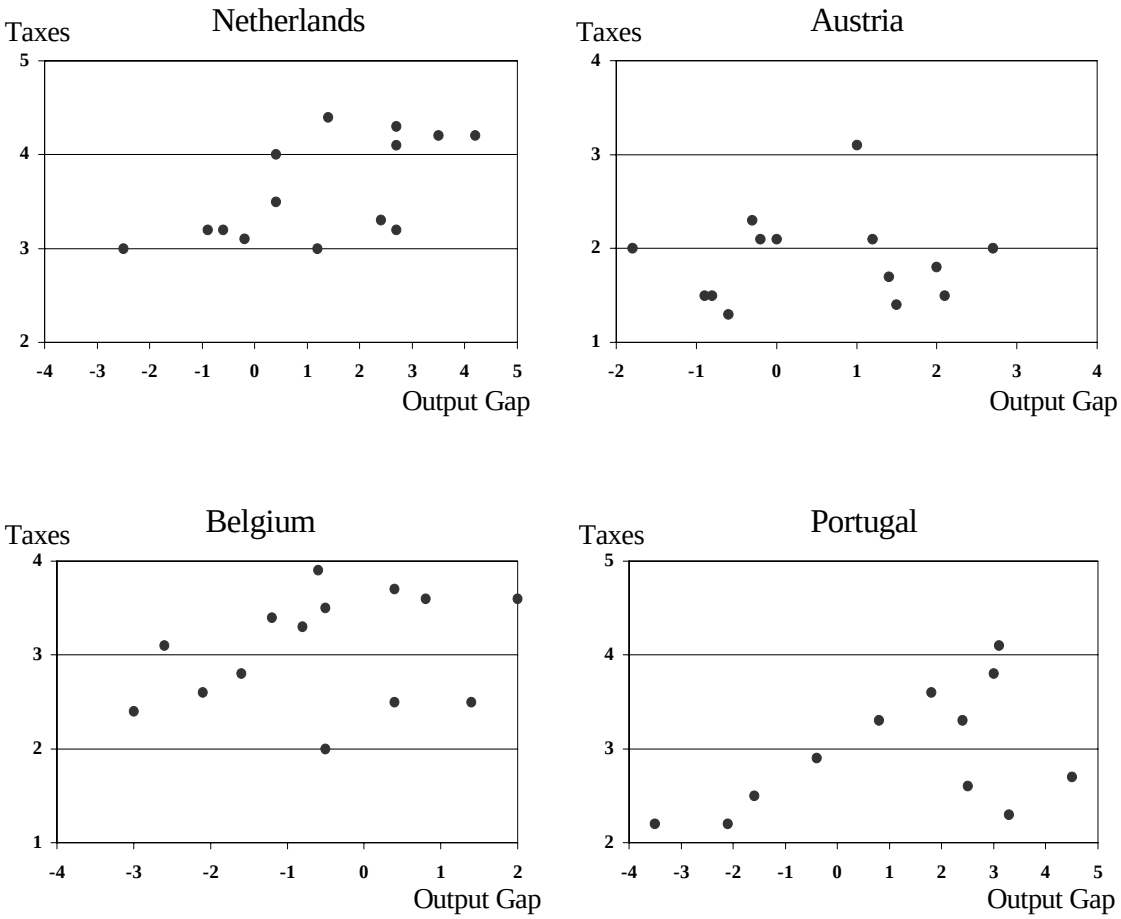
Source: OECD (2004: 73; 2005b); own calculations.

Figure 3.1: Taxes on Corporate Income (percent of GDP) and Output Gap (percent), 1990–2003



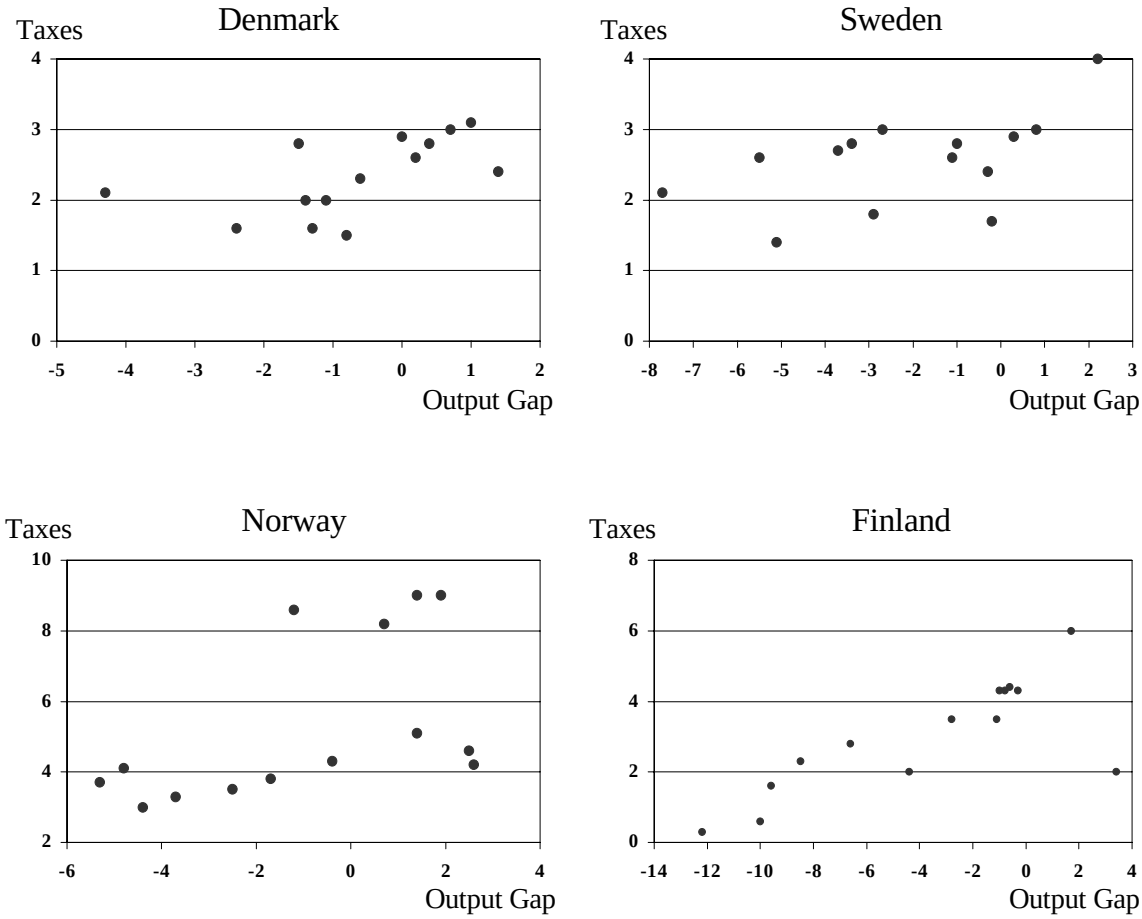
Source: OECD (2004, 2005a, 2005b).

Figure 3.2: Taxes on Corporate Income (percent of GDP) and Output Gap (percent), 1990–2003



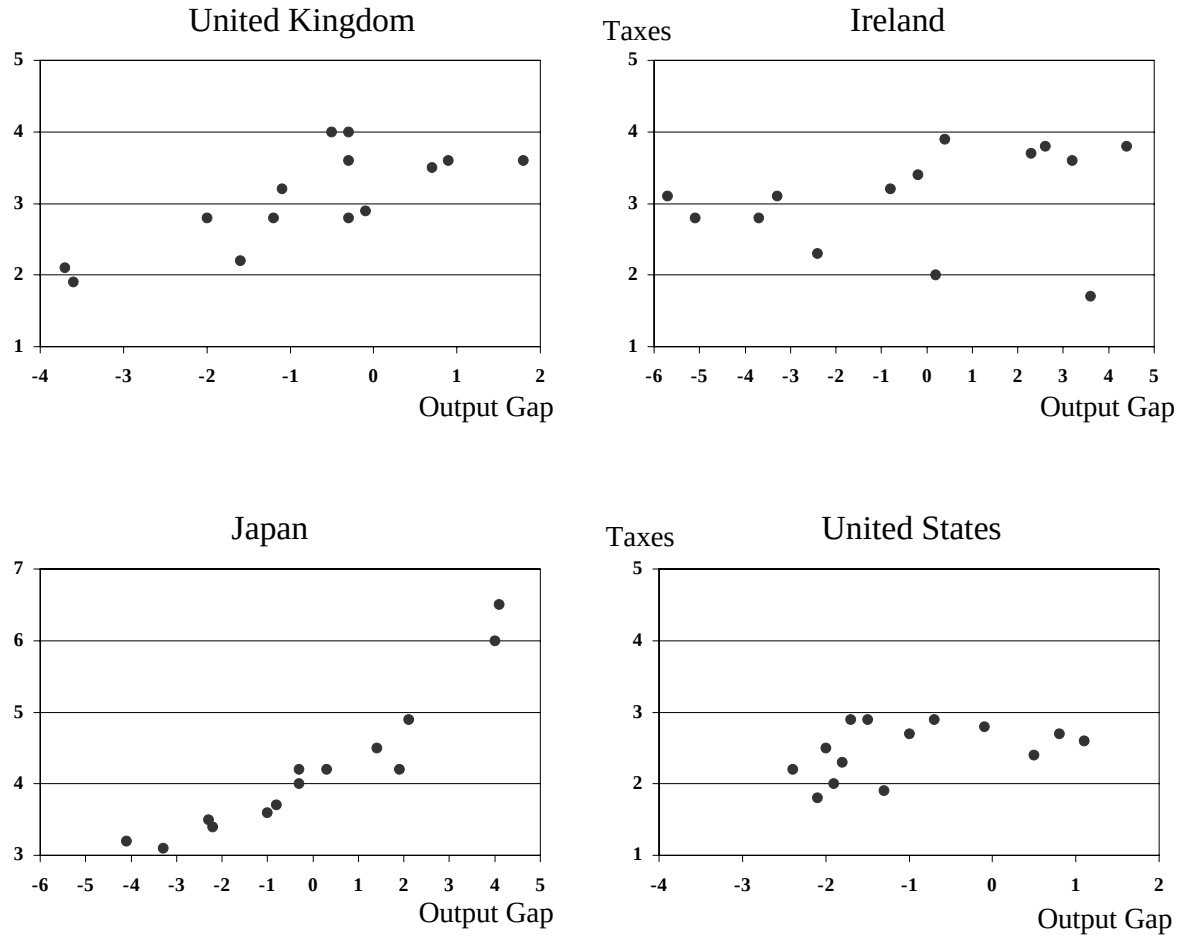
Source: OECD (2004, 2005a, 2005b).

Figure 3.3: Taxes on Corporate Income (percent of GDP) and Output Gap (percent), 1990–2003



Source: OECD (2004, 2005a, 2005b).

Figure 3.4: Taxes on Corporate Income (percent of GDP) and Output Gap (percent), 1990–2003



Source: OECD (2004, 2005a, 2005b).

LIST OF APPENDICES

The following are available to download on the Euroframe homepage (www.euroframe.org)

APPENDIX 2

TAXATION IN EUROPE: TOWARDS MORE COMPETITION OR MORE CO-ORDINATION?

Henri Sterdyniak

APPENDIX 3

IS TAX HARMONISATION DESIRABLE? A DISSENTING VIEW

Alfred Boss