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## The international environment

- *This article discusses developments in the world economy since the February 2000 Quarterly Bulletin, as well as the outlook for output and inflation over the next two years.<sup>(1)</sup>*
- *Forecasts of world economic activity in 1999 have been revised up repeatedly over the past twelve months, and GDP growth for the year as a whole is now estimated to have been around 3.5%. Underlying this, activity was stronger than was earlier forecast in a broad range of countries.*
- *Growth in the United States in the first quarter of 2000 has, again, been above estimates of the trend rate of most forecasters. The euro area saw a period of weaker growth in the first half of 1999 followed by a marked strengthening in the last six months of the year. The recovery has strengthened in many emerging market economies, including a broad range of countries in South East Asia and Latin America. In contrast, while Japan shows some distinctive signs of recovery, the most recent data, for the fourth quarter, indicated a fall in measured output.*
- *Oil and related energy prices continued to rise up to the middle of March, when OPEC member countries agreed to increase production. Evidence of stronger inflationary pressures has been seen in producer input and output prices, and to some extent in export prices. But further along the price chain consumer prices have generally risen by considerably less, although there has been some pick-up in inflation measures in the United States and euro area.*
- *This more muted response to date of consumer prices may have a number of causes, including the reduction in the intensity of oil usage in many of the industrialised economies over the last 20 years or so. But it has also come at the same time as continuing discussion of possible changes in potential output, especially in the United States, reflecting, at least in part, the influence of new technologies.*
- *Since the February 2000 Quarterly Bulletin, official interest rates in the United States and the euro area have been raised by 0.25 and 0.5 percentage points respectively, and are now at 6% and 3.75%. The Bank of Japan has maintained the zero interest rate policy implemented in February 1999.*
- *According to almost all forecasters, the medium-term outlook is for continued strength in the world economy, and most projections for GDP growth have been revised up since the previous Quarterly Bulletin. It is now not untypical to see projections for world GDP growth to rise by somewhat less than 4.5% in 2000 and around 4% in 2001.*
- *Nevertheless it is also not untypical for forecasts to indicate that the balance of risks around the projection is on the downside, primarily for reasons linked to the possibility of asset markets falling.*

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(1) Based on data available up to 27 April (the February 2000 *Quarterly Bulletin* was based on data up to 3 February 2000).

**Table A**  
Forecasts for GDP growth

Per cent

	IMF (a)				Consensus Economics (b)			
	2000		2001		2000		2001	
United States	4.4	+1.8	3.0	n.a.	4.6	+1.0	3.1	+0.1
Japan	0.9	-0.6	1.8	n.a.	1.0	+0.3	1.5	+0.2
Euro area	3.2	+0.4	3.2	n.a.	3.2	+0.2	3.0	+0.1

n.a. = not available.

(a) IMF *World Economic Outlook*, April 2000 (differences from October 1999 in italics; percentage points).(b) *Consensus Forecasts*, April 2000 (differences from January 2000 in italics; percentage points).

**Table B**  
Consensus forecasts for GDP growth<sup>(a)</sup>

Per cent

	1999		2000		2001	
	Latin America	0.0	+0.3	3.7	+0.3	4.2
North East Asia (b)	7.5	+0.4	7.2	+0.4	6.6	n.a.
South East Asia (c)	3.1	+0.1	5.1	+0.2	5.3	n.a.

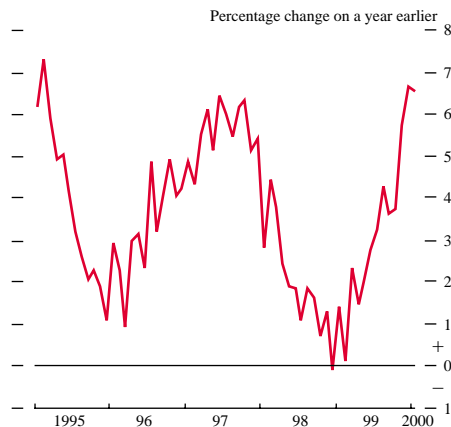
n.a. = not available.

(a) April 2000. Figures in italics are differences from December 1999 (Latin America) and from January 2000 (Asia); percentage points.

(b) Peoples' Republic of China, Hong Kong SAR, South Korea and Taiwan.

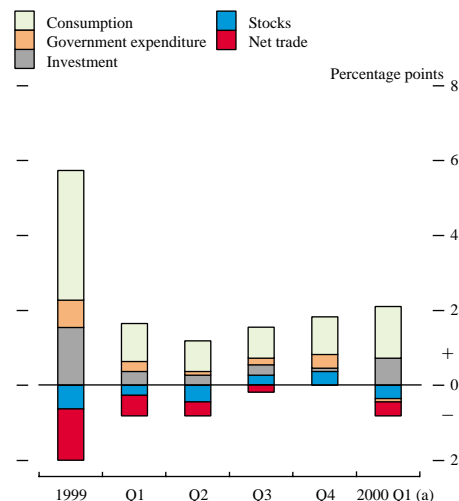
(c) Indonesia, Malaysia, Singapore, Thailand and the Philippines.

**Chart 1**  
World industrial production



Sources: Primark Datastream and Bank of England.

**Chart 2**  
United States: contributions to GDP growth



Source: Primark Datastream.

(a) Advance estimates.

## Demand and output

The picture since the February 2000 *Quarterly Bulletin* has been one of stronger growth in world activity. World GDP is estimated to have grown by around 3.5% in 1999, compared with 2.7% in 1998, and an average of 2% across the 1990s as a whole. Among the major economies, the United States grew by 4.1% last year, its third consecutive year of growth at or above 4%. Output in the euro area grew by 2.2% last year; although this was lower than the 2.8% achieved in 1998, activity picked up quite strongly during the second half of the year. Japan's growth remained sluggish, at 0.3%, but was an improvement on the contraction suffered in 1998, when activity fell by 2.5%.

Looking forwards, growth in the United States is now expected by the IMF to reach 4.4% this year, 1.8 percentage points higher than was forecast in October.<sup>(1)</sup> The overall picture of strengthening activity is broadly based, with growth forecasts for the euro area, non-Japan Asia and Latin America also revised upwards (see Tables A and B). The IMF now forecasts world activity to grow by 4.2% this year and by 3.9% in 2001, broadly in line with the Monetary Policy Committee's central projection in the May 2000 *Inflation Report*.

In the final quarter of 1999 world GDP is estimated to have grown by around 1.2%.<sup>(2)</sup> This reflects continued strong domestic demand growth in the United States and a continuing recovery in domestic demand in the euro area, but a second successive quarter of negative output growth in Japan (where all the components of output except investment made a negative contribution to growth). In the other Asian economies output is estimated to have grown by around 1.9% in 1999 Q4, continuing the picture of strong recovery, while output is estimated to have grown by around 0.7% in Latin America, as the region showed clear signs of recovering from its earlier slowdown.

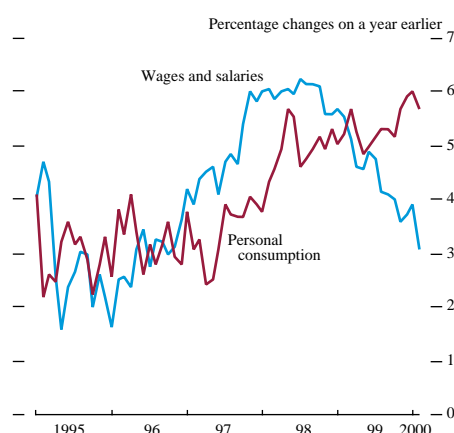
On the most recently available data, world industrial production is estimated to have grown by 6.5% in the year to January (see Chart 1). This reflects strong contributions from the United States and the emerging market economies, with growth of 5.5% and 10.6% respectively. January saw a slowdown in the rate of growth of world industrial production, but this may have reflected millennium-related influences.

### The United States

Strong growth in the US economy has continued to reflect robust domestic demand. In 1999 Q4 consumption contributed 1 percentage point to overall growth of 1.8% (see Chart 2), which was possibly boosted by spending associated with the millennium. Growth was also supported by strong government spending, although the preliminary data for 2000 Q1 suggest that this was probably an erratically high outturn. Conversely, investment spending was weak in the fourth quarter, possibly reflecting a pause in investment spending following earlier outlays associated with preparations for the century date change.

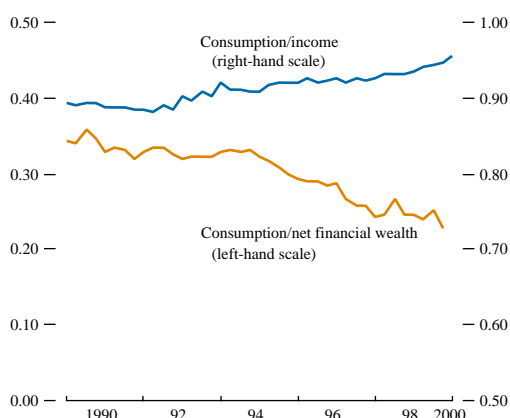
(1) IMF *World Economic Outlook*, April 2000.(2) The quarterly numbers for world growth are estimates. Where reliable quarterly data are available from national sources, these are used. Otherwise, quarterly estimates are calculated by interpolating estimates of annual growth, taken from the April 2000 IMF *World Economic Outlook*.

**Chart 3**  
**US consumption**



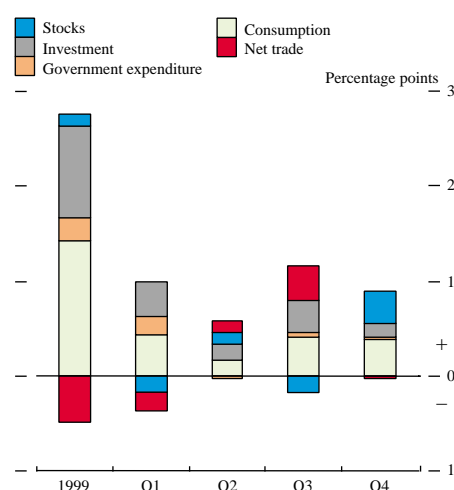
Source: Primark Datastream.

**Chart 4**  
**US consumption ratios**



Source: Primark Datastream.

**Chart 5**  
**Euro area: contributions to GDP growth**



Source: Eurostat.

Indicators of domestic demand remained strong in Q1. Retail sales rose by 3.7% in the three months to March. And though it fell after the record level achieved in January, consumer confidence remains very high. Capital goods orders rose in March, and the twelve-month growth rate remained strong, suggesting likely robust investment growth after the weakness in Q4. The advance estimate of GDP growth in Q1 supports this picture.<sup>(1)</sup> GDP is estimated to have grown by 1.3% compared with the final quarter of 1999, with strong positive contributions from private consumption and investment, in part offset by negative contributions from net trade, stockbuilding, and government expenditure.

Productivity growth in the United States has continued to accelerate, even though the economy has now experienced its longest period of unbroken growth in recorded history. Non-farm business labour productivity rose by 1.5% in the fourth quarter, its strongest quarterly rise since 1992 Q4. The average annual growth rate of labour productivity since 1996 has been 2.6%, compared with 1.6% during 1991–95. Although the strength of recent productivity growth has led many commentators to revise up their estimates of potential US growth, the degree to which the recent IT-driven pick-up in productivity growth reflects cyclical factors remains uncertain.<sup>(2)</sup>

Federal Reserve Board chairman Alan Greenspan has noted the link between the upturn in US productivity growth and the strength of US domestic demand, observing that ‘productivity-driven supply growth has, by raising long-term profit expectations, engendered a huge gain in equity prices. Through the so-called ‘wealth effect’, these gains have tended to foster increases in aggregate demand beyond the increases in supply’.<sup>(3)</sup> But there is considerable uncertainty about the size and timing of the impact of these wealth effects on US consumption.

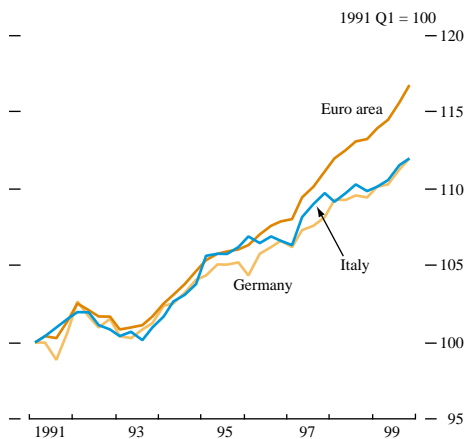
Real personal consumption continued to grow strongly last year, while the growth rate of wages and salaries eased (see Chart 3). This suggests that wealth effects boosted consumption growth above that implied by the growth of wages and salaries. Moreover, despite strong consumption growth in recent years, the consumption-wealth ratio has fallen quite markedly (see Chart 4), suggesting that—in the absence of a sharp fall in wealth—there could be further scope for consumers to spend out of accumulated wealth.

#### *The euro area*

In the euro area, GDP growth of 0.9% in the fourth quarter mainly reflected strong domestic demand (see Chart 5), with consumption

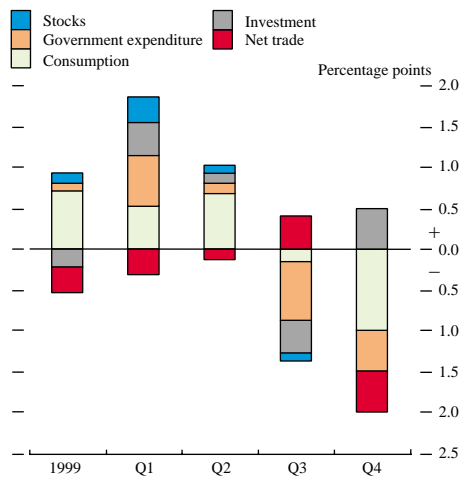
- (1) ‘Advance’ estimates are based on source data that are incomplete or subject to further revision. They are released near the end of the first month after the end of the quarter; more detailed estimates are released near the end of the second and third months.
- (2) There has been much debate about whether recent strong productivity growth reflects the effect of the use of IT within the wider economy, or the effect of rapidly increasing productivity in the computer producing sector. Recent research suggests that the IT sector has accounted for 0.7 percentage points of the increase in productivity growth from the first to the second half of the 1990s. Of this just under 0.5 percentage points is attributed to an increased use of IT and a little over 0.2 percentage points to increased total factor productivity in the computer industry. See Oliner, S and Sichel, D E, ‘The Resurgence of Growth in the late 1990s: Is Information Technology the Story?’, paper given at the conference on Structural Change and Monetary Policy at the Federal Reserve Bank of San Francisco, 3–4 March 2000.
- (3) Greenspan, A, ‘The revolution in information technology’, 6 March 2000.

**Chart 6**  
**GDP since 1991**



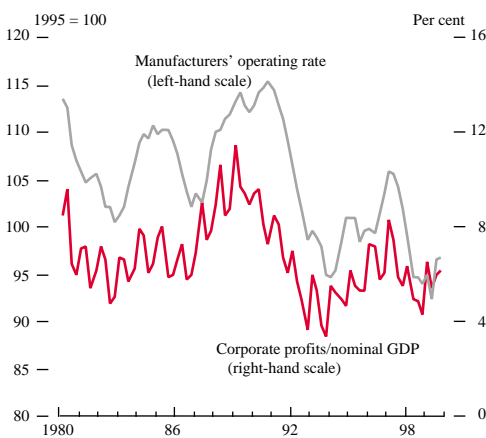
Source: Eurostat.

**Chart 7**  
**Japan: contributions to GDP growth**



Source: Economic Planning Agency.

**Chart 8**  
**Corporate profits and manufacturers' operating rate**



Sources: Primark Datastream and Japanese Ministry of Finance.

contributing 0.4 percentage points to growth. The picture of stronger consumption seems to have continued into the first quarter, with monthly indicators showing both consumer and retail confidence rising between December and March. Investment contributed 0.1 percentage points to GDP growth in the fourth quarter, and increased by 4.7% over 1999 as a whole, the fastest annual rate of increase since the start of this area-wide series in 1991. Moreover, the outlook for investment appears favourable, with capital goods production in the euro area increasing by 0.5% in January, and the European Commission survey of industrial confidence continuing to rise.

Net trade made a small negative contribution to growth in the fourth quarter. Export volumes increased by 1.5% after very strong growth of 3.2% in Q3, while imports grew by 1.7%. Looking over the longer term, it is notable that since 1997 Germany and Italy have grown more slowly than the euro area as a whole (see Chart 6). One reason for this appears to have been the weaker net trade performance of Germany and Italy compared with the other euro-area member countries, which may partly be due to the greater degree to which Germany and Italy were affected by the slowdown in the emerging market economies.

### Japan

Activity in Japan fell in the fourth quarter, by 1.4%. Of its components, only investment made a positive contribution to growth. Consumption and government expenditure were strong in the first two quarters of 1999 before weakening in the second half of the year (see Chart 7). This indicates that much of the ¥17.8 trillion supplementary budget passed in November 1998 was spent in the early part of the year, supporting private consumption over the same period but with no substantial lasting effect.

The possibility of a recovery led by private investment is indicated by corporate profits, which were 42% higher in the fourth quarter on an all-industry basis than in the same quarter a year earlier. It has been suggested by the Bank of Japan (BoJ)<sup>(1)</sup> that a recovery in corporate profitability is a precondition for self-sustaining economic recovery in Japan. In this scenario such a recovery could lead to further growth in private non-residential investment as Japanese firms typically fund new investment from retained profits (see Chart 8). With a longer lag, corporate profitability could also lead to an increase in private consumption as employment and incomes stabilise.

While corporate profits appear to be improving in aggregate, the picture is not even across all sectors. In the fourth quarter, the growth in corporate profits was limited to large manufacturers (whose profits were 93% higher than a year ago), while those of small non-manufacturers remained broadly unchanged. The latest BoJ Tankan survey of business, released in March, gave a similar picture of uneven recovery. On an all-industry basis, the diffusion index of business conditions (a confidence indicator) improved on three months earlier, and was forecast by respondents to improve further over the next three months. Large firms continued to be more optimistic than small firms. And there remained a divergence between manufacturers and non-manufacturers, with the

(1) Minutes of the Monetary Policy Meeting, 24 February 2000.

## World import proxy

The Bank tracks developments in UK export markets in order to help explain and forecast movements in UK exports. These developments are approximated by adding together total import growth across UK trading partners, using weights determined by each country's share of UK exports. Where possible, staff use national accounts data to compile the UK export market series. However, restricting the series to national accounts would exclude many trading partners for which these series are published only with a lag, if at all. Recent Bank work has looked at incorporating customs data where appropriate to construct a world trade activity proxy.

Customs data report import values, in domestic currency or in US dollars, rather than volumes information as in national accounts series. But the data can be deflated using an import price index where available, or else an appropriate producer price index, to give an approximation for import volumes. Another issue is that goods pass through customs but services do not. However, goods comprise around 75% of total world trade, so quarterly growth rates from deflated customs series can be used to approximate the growth rates required for goods and services import volumes.

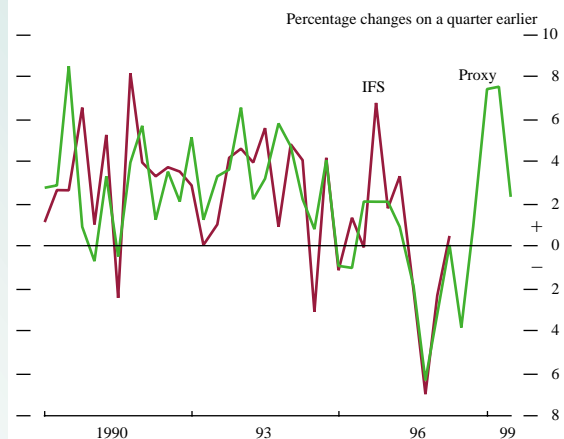
### Methodology

In order to compile import proxies, the non-OECD world is divided into regions, and a sample of countries chosen from each region. Countries are chosen on the basis of their relative trading importance. For example, the proxy for Asia comprises Hong Kong SAR, Singapore, Malaysia, Thailand, India and the Philippines, representing around 60% of UK exports to the region.<sup>(1)</sup> All available national accounts imports data are collected, and where they are not available, customs data are compiled, deflated and the quarterly growth rates spliced on to available national accounts series. These data are then aggregated together to obtain an import volumes proxy for each region.

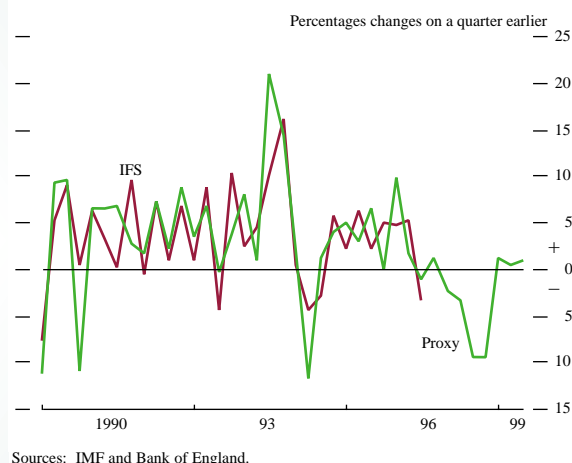
Charts A and B show the import proxies for Asia and Latin America (which excludes Mexico), compared with import volumes data computed from the IMF *International Financial Statistics* (IFS) series.<sup>(2)(3)</sup>

As the charts show the proxy series give a good approximation to import volumes growth for the different regions. These proxies are then weighted together with national accounts imports series for OECD countries to give a UK-weighted world imports series. Chart C shows this measure with UK export volumes growth. With the proxy data incorporated into the export markets measure, the 1999 Q4 data point includes data for countries representing approximately 87% of UK export markets.

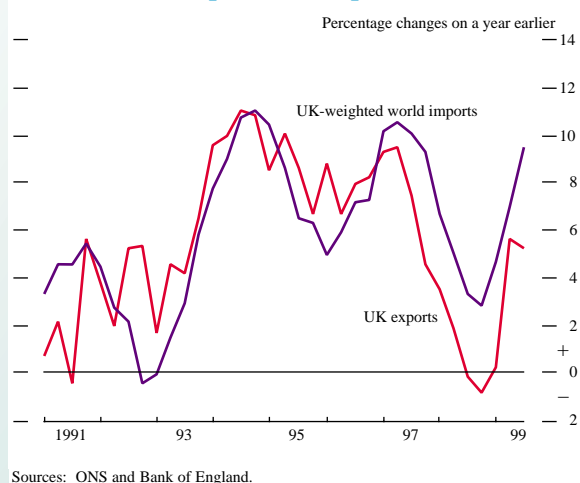
**Chart A**  
Asia import volume growth



**Chart B**  
Latin America import volume growth



**Chart C**  
Growth of UK exports and export markets



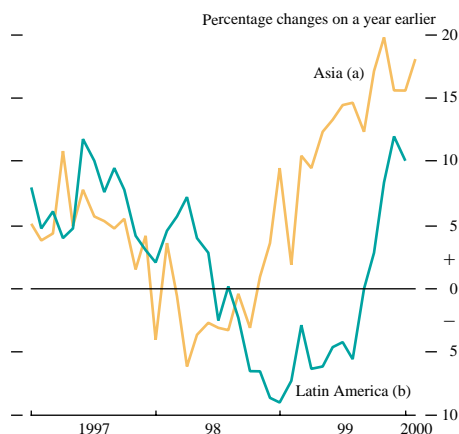
(1) The 'Asia' region excludes Peoples' Republic of China, Japan and South Korea, which are considered separately.

(2) As incorporated in the National Institute for Economic and Social Research Global Economic Model.

(3) The IFS series publishes US\$ import values and import unit values for IMF member countries, which can be used to compile import volumes series.



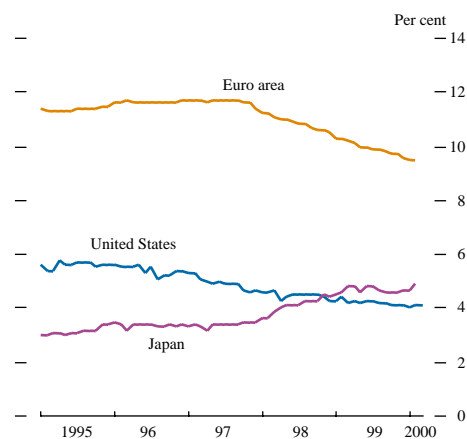
**Chart 9**  
Industrial production in Latin America and Asia



Sources: Primark Datastream and Bank of England.

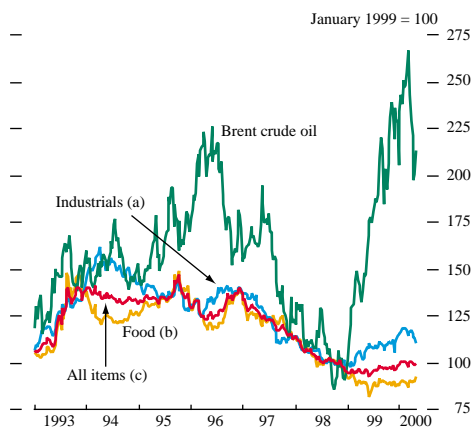
(a) India, Korea, Taiwan and Thailand.  
(b) Argentina, Brazil, Chile, Mexico, Peru and Venezuela.

**Chart 10**  
Unemployment rates



Source: Primark Datastream.

**Chart 11**  
Commodity prices



Source: Primark Datastream.

(a), (b), (c) *The Economist* index, all items and industrials excluding oil.

former possibly more optimistic because of an improvement in overseas markets, despite concerns about the strength of the yen.<sup>(1)</sup>

### Emerging markets

Prospects for the Latin American and Asian economies have improved in recent months, as illustrated by Table B, which shows the revisions to Consensus forecasts since the time of the February 2000 *Quarterly Bulletin*. But the two regions are at different stages of economic recovery, with the Asian recovery more advanced. In January Asian industrial production was nearly 16% higher than a year earlier (see Chart 9),<sup>(2)</sup> while Latin American industrial production grew by 10% in the twelve months to January. The stronger recovery in Asia may partly reflect the severity of the crisis in 1998 when, according to IMF estimates,<sup>(3)</sup> the worst-hit economies of Indonesia and Thailand both contracted by more than 10%. Stronger growth has also been supported by the pick-up in world demand and Asian intra-regional trade.

### Labour markets

In the United States, stronger output growth has meant that employment growth has remained robust. The monthly average increase in non-farm payrolls was 272,000 in the first quarter, compared with 283,000 in 1999 Q4, and the unemployment rate, at 4.1% in March (see Chart 10), was unchanged from the previous month and the same as in 1999 Q4, but below the average for previous years.<sup>(4)</sup> The February 2000 *Quarterly Bulletin* discussed the implications of recent labour market developments for estimates of the trade-off between unemployment and inflation in the United States.

In the euro area the unemployment rate was 9.5% in February, 0.8 percentage points lower than a year earlier.<sup>(5)</sup> It has been on a downward trend since August 1997 and is now at its lowest level since October 1992. The decline in the unemployment rate over the past few years is notable, given that previous recoveries have not always translated into similar improvements in labour market conditions. It is possible that some of the reduction in unemployment reflects progress with structural labour market reforms, while in some countries (eg Germany) government schemes continue to provide an alternative to unemployment for the part of the labour force that has most difficulty finding a job.

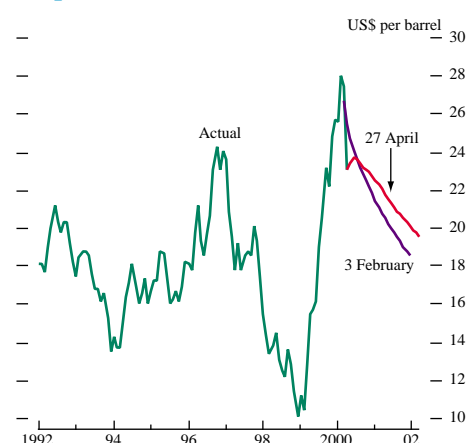
In Japan, the unemployment rate reached 4.9% in February, the highest level on record, having been at an average rate of slightly less than 4.7% in the second half of 1999. Compared with a year earlier, employment has declined in all sectors except wholesale and retail, partly reflecting the effects of continuing corporate restructuring.

### Prices

The dollar-denominated *Economist* non-oil commodity price index fell by 1.3% from 3 February to 27 April (see Chart 11), with a

- (1) The November 1999 *Quarterly Bulletin*, page 349, discusses the possible effects on Japanese export volumes and exporters' profitability of a yen appreciation.
- (2) In February, it was nearly 20% higher than a year earlier (February figures are not yet available for the other areas).
- (3) IMF *World Economic Outlook*, April 2000.
- (4) The average unemployment rate was 4.5% in 1998, 4.9% in 1997 and more than 5% in the three previous years.
- (5) The lowest rates were registered in Luxembourg (2.2%) and Austria (3.5%), the highest in Spain (15.2%) and France (10.4%).

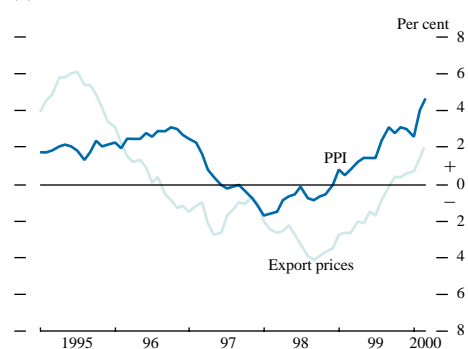
**Chart 12**  
Oil price and futures



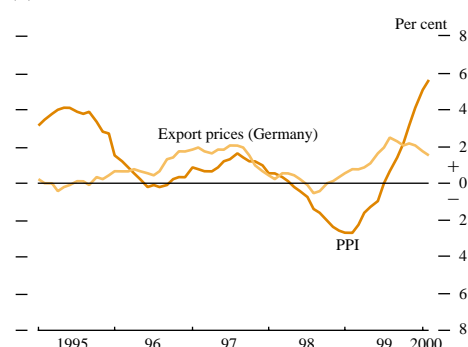
Source: Bloomberg.

**Chart 13**  
PPIs and export prices

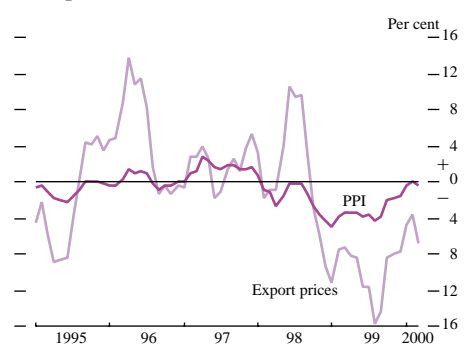
(a) United States



(b) Euro area



(c) Japan



Source: Primark Datastream.

6.0% fall in prices for non-oil industrial commodities outweighing a 2.5% rise in food prices.<sup>(1)</sup> Industrial commodity prices have displayed a steady increase since their trough in January 1999 (up 14.0% to 27 April), while food prices have been on a downward path since May 1997 (down 34.1% to 27 April).

Oil prices peaked at \$30.4 on 6 March, but have since fallen by more than 20% (to \$24.0 on 27 April). At the end of March, members of the Organisation of Petroleum Exporting Countries (OPEC), excluding Iran and Iraq, agreed to raise production targets by 1.45 million barrels per day, equivalent to an increase of just over 6% on the production targets agreed a year earlier.<sup>(2)</sup> OPEC's decision to raise production targets came in the wake of the sharp increase in oil and oil-related product prices, which reflected the stronger increase in world demand and a marked decline in oil and related inventories since the middle of last year following OPEC's decision to lower production in March 1999.

The oil futures curve has flattened since the February 2000 *Quarterly Bulletin*. Chart 12 shows that the contract price for June delivery is now \$0.3 lower at \$23.8 per barrel. The contract for December 2001, however, increased by \$1.5 to \$20.1 per barrel and at a two-year period (March 2002) the price is \$19.6. These movements in futures suggest that the decline in oil prices over the two-year period is expected to be somewhat slower than previously thought.

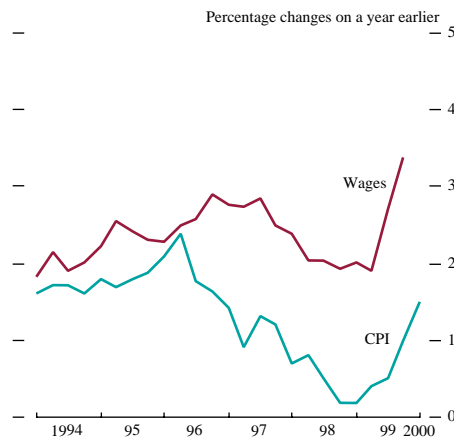
The immediate impact of higher oil prices has been on producer prices. In the United States, intermediate producer prices (where the oil content is higher than in final producer prices) rose by 6.1% in the year to March, while final producer prices rose by 4.6%. In the euro area, intermediate producer prices rose by 9.2% in the year to February, but the increase in final producer prices was 5.7% over the same period.

Chart 13 illustrates the pick-up in producer price inflation as the impact of higher oil prices has begun to work through. It also shows export prices for the major economic areas (goods and services for the United States, goods for Germany and Japan). In the United States export prices have followed the movement in producer prices quite closely. The same is true for Japan, where the relationship between producer and export prices has been less clear-cut in the past.

Turning to consumer price inflation, the oil price rise has meant that core inflation (which generally omits energy costs) in the major economies has increased by less than headline inflation.<sup>(3)</sup> In the United States, headline CPI inflation grew by 3.7% in the year to March, while core CPI inflation was 2.4%. This was somewhat

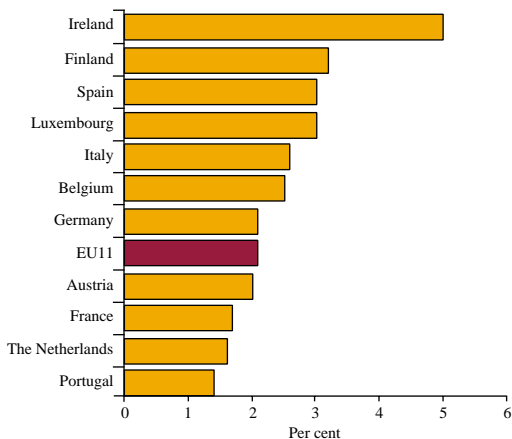
- (1) The chart shows the new *Economist* index, in which the weight of industrials is 42.5% and the weight of food is 57.5%. This compares with previous weights of 47.4% and 52.6% respectively.
- (2) Subsequently Iran stated that it would increase production by an amount equal to the change in target level that it would have achieved under the agreement. This brings the increase in production targets to 1.72 million barrels per day (mbd), equal to the production cut agreed a year earlier, and raises production levels to 24.7 mbd. But OPEC production in 2000 Q1 is estimated to have been around 24.3 mbd, implying that strict adherence to the new target levels would involve a smaller increase in production. Similar production increases have also been announced by those non-OPEC members that had reduced production in line with OPEC last year.
- (3) The note on pages 147–49 discusses the contributions of the energy component to CPI inflation, which are shown in Charts D-F.

**Chart 14**  
**French wage and CPI inflation**



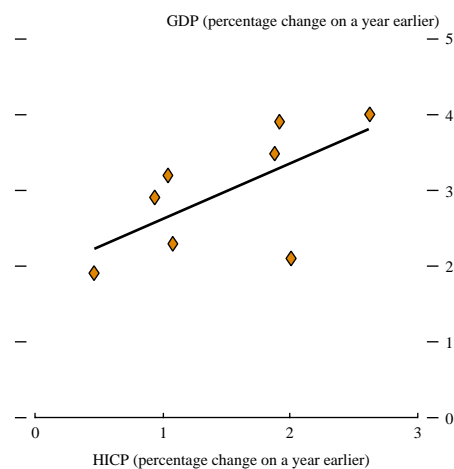
Source: Primark Datastream.

**Chart 15**  
**Euro-area HICP (March 2000)**



Source: Eurostat.

**Chart 16**  
**Growth and inflation in the euro area**



Note: 1994 Q4 for Finland, France, Germany, Italy, the Netherlands and Spain, 1999 Q3 for Belgium and Austria. No data are plotted for Ireland, Luxembourg and Portugal. The line represents a linear trend fitted to the data shown.

Source: Eurostat.

higher than in the previous month, when the numbers were 3.2% and 2.1% respectively. In addition, the rise in the core index in March was more broadly based across categories.

In the euro area, consumer price inflation (measured on a harmonised basis) was 2.1% in the year to March, up from a low point of 0.9% in the twelve months to June 1999, while core inflation (excluding energy prices) was 1.1%, little changed from 0.8% in June 1999. In Japan, headline consumer prices declined by 0.6% in February on a year earlier. However, excluding fresh food (Japan has a different definition of core inflation), prices fell by 0.1%.

Labour costs have started to pick up somewhat in the United States. The growth rate of average hourly earnings rose to 3.7% in the year to March, reflecting an average monthly increase of 0.4% in the first quarter compared with 0.2% in 1999 Q4. But unit labour costs for non-farm businesses fell by 0.6% from 1999 Q3 to 1999 Q4, implying a slowdown in the annual growth rate to 0.7%, its lowest since 1996 Q4. The latest release of the quarterly Employment Cost Index points at a pick-up in wages and salaries in 2000 Q1 (up 4.1% on a year earlier compared with 3.5% in 1999 Q4).

In the euro area labour costs (based on the hours measure) increased by 2.2% in the year to 1999 Q4, unchanged from the previous quarter, and unit labour cost growth was 0.8% in the year to 1999 Q3, the latest quarter for which data are available. There is typically a pick-up in productivity in parallel with the cycle, given that employment follows activity with a lag, and such an increase in productivity has recently tended to limit the increase in unit labour costs in the euro area.

Some commentators have suggested that inflation prospects in the euro area may be affected by the reduction in the working week in France to 35 hours, through a possible effect on French unit labour costs.<sup>(1)</sup> An overly simple calculation suggests a possible step increase of around 11.4% in hourly wages and unit labour costs.<sup>(2)</sup> But several considerations would lead to a lower and more delayed impact. The implementation of the legislation, via incorporation in firm-level agreements, has been quite gradual, and many of the firm-level agreements implementing the law incorporate wage freezes, while around 80% exhibit features designed to increase the flexibility of working agreements. In addition, reductions in social charges and subsidies will further mitigate the impact on labour costs. Chart 14 shows that hourly wage inflation has increased over the past year or so, but not as sharply as the simple calculations would suggest.

Chart 15 illustrates inflation differentials within the euro area. In March, HICP inflation was highest in Ireland and Finland (5.0% and 3.2% respectively) and lowest in Portugal (1.4%) and the Netherlands (1.6%). The dispersion of inflation rates, measured by the standard deviation, has been broadly unchanged since January 1999, having risen somewhat in 1998. To some extent these inflation differentials are attributable to the different cyclical positions. Chart 16 shows a scatter plot of GDP growth rates and HICP inflation in the euro area in the fourth quarter, as well as a linear trend. The upward slope of the trend line illustrates that the

(1) The French weight in the euro-area HICP is 21%.

(2) Assuming unchanged monthly wages and a reduction from 39 hours.



**Table C**  
**Forecasts for CPI inflation**

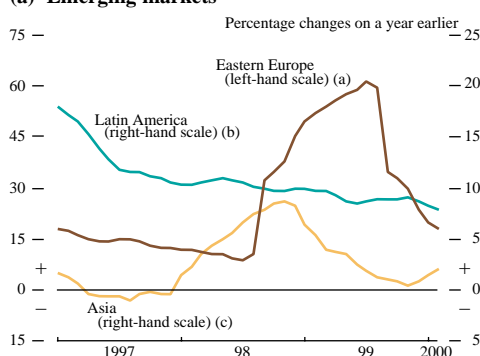
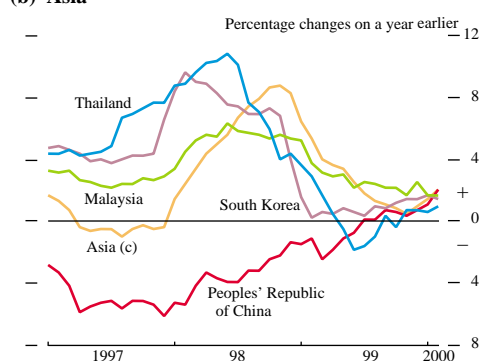
Per cent

	IMF (a)				Consensus Economics (b)			
	2000	2001	2000	2001	2000	2001	2000	2001
United States	2.5	+0.0	2.5	n.a.	2.8	+0.3	2.5	+0.0
Japan	0.1	+0.1	0.9	n.a.	-0.2	-0.1	0.1	+0.2
Euro area	1.7	+0.4	1.6	n.a.	1.7	+0.0	1.6	+0.0

n.a. = not available.

(a) IMF *World Economic Outlook*, April 2000 (differences from October 1999 in italics; percentage points).(b) *Consensus Forecasts*, April 2000 (differences from January 2000 in italics; percentage points).

**Chart 17**  
**Consumer prices**

**(a) Emerging markets****(b) Asia**

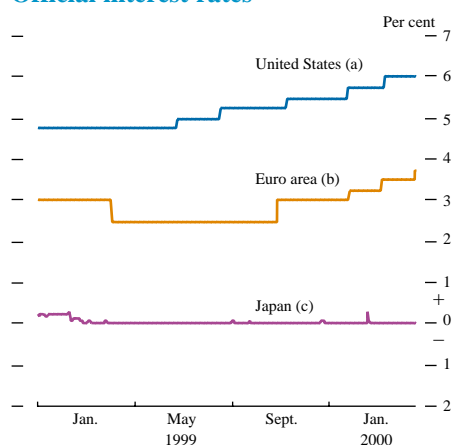
Source: IMF.

(a) Czech Republic, Hungary, Poland and Russia.

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

(c) Peoples' Republic of China, India, Indonesia, Malaysia, South Korea, Taiwan and Thailand.

**Chart 18**  
**Official interest rates**



Sources: Bank of Japan, ECB, Federal Reserve.

(a) Federal Funds target rate.

(b) Refinancing rate.

(c) Uncollateralised overnight rate (market rate).

two variables are positively correlated (ie higher growth tends to be associated with higher inflation). But there are other factors behind changes in inflation differentials, eg changes in indirect taxation, convergence in the prices of tradable goods and the so-called 'Balassa-Samuelson effect'.<sup>(1)</sup>

Looking forwards, Table C shows forecasts for CPI inflation from the *World Economic Outlook* and *Consensus Forecasts*. Since the February 2000 *Quarterly Bulletin*, there have been upward revisions to the inflation outlook in the euro area, which may, at least in part, reflect the improved outlook for growth. There have also been upward revisions to inflation forecasts for the United States, in line with upward revisions to output forecasts (see Table A). For Japan, there have been both upward and downward revisions, which may reflect the uncertainty surrounding the short-term outlook.

Although oil consumption is generally greater per unit of output in the emerging market economies, Chart 17 (a) shows that consumer prices have not yet increased substantially, though there has been some, albeit modest, upward movement in headline inflation rates in Asia, notably in South Korea and the Peoples' Republic of China (see Chart 17 (b)).<sup>(2)</sup> In South Korea this has been accompanied by strong nominal wage growth (14.9% in 1999), slightly higher than the increase in productivity over the same period (14.6%), but the authorities have reduced oil taxes to limit the direct effects of the recent oil price rises.

**Monetary policy and financial markets<sup>(3)</sup>**

In both the euro area and the United States, official interest rates were at their low point in the first half of 1999, following cuts undertaken in the wake of the Asian and subsequent financial crises (see Chart 18). Since then, rates have moved up by 1.25 percentage points in both the United States and the euro area.<sup>(4)</sup> Charts 19 (a) and 19 (b) show that as of 27 April markets expect short-term interest rates in the United States and the euro area to approach 7.25% and 4.75% respectively by the end of the year, implying future increases of 1.25 and 1 percentage points. These expectations are about 0.25 percentage points higher than those of three months ago.

On 21 March, the FOMC raised the Federal Funds target rate from 5.75% to 6% (see Chart 18). The FOMC stated that it remained 'concerned that increases in demand will continue to exceed the growth in potential supply, which could foster inflationary imbalances that would undermine the economy's record economic expansion'. At the same time, it maintained its view that the 'risks are weighted mainly toward conditions that may generate heightened inflation pressures in the foreseeable future'.<sup>(5)</sup>

The ECB raised the refinancing rate for the euro area from 3.5% to 3.75% on 27 April, having raised it to 3.5% on 16 March (see

(1) This predicts that the price of non-traded goods rises by relatively more in countries with higher productivity growth.

(2) In China, monthly inflation fell to -0.2% in March from 0.7% in February (the first positive rate of inflation in almost two years).

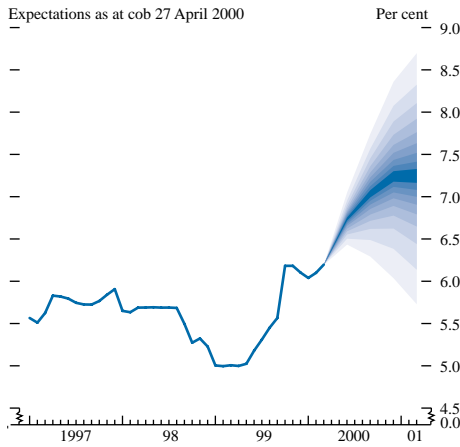
(3) For details on movements in foreign exchange, equity and bond markets see the 'Markets and operations' article on pages 117-34.

(4) Interest rate rises took place in the United States on 30 June (4.75% to 5%), 24 August (to 5.25%), 16 November (to 5.5%), 2 February (to 5.75%) and 21 March (to 6%); in the euro area on 4 November (2.5% to 3%), 3 February (to 3.25%), 16 March (to 3.5%) and 27 April (to 3.75%).

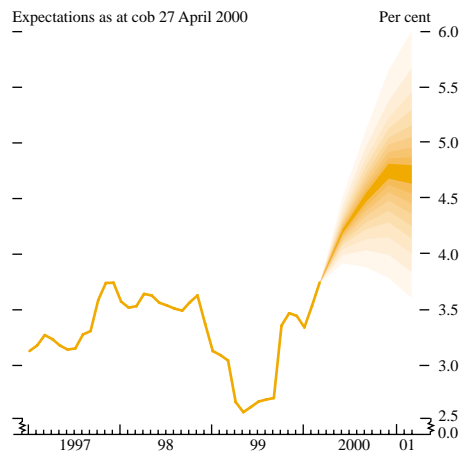
(5) FOMC press release, Washington DC, 21 March 2000.

**Chart 19 (a)**  
**Implied distribution for three-month interest rates**

**(a) Eurodollar<sup>(a)</sup>**



**(b) Euribor<sup>(b)</sup>**

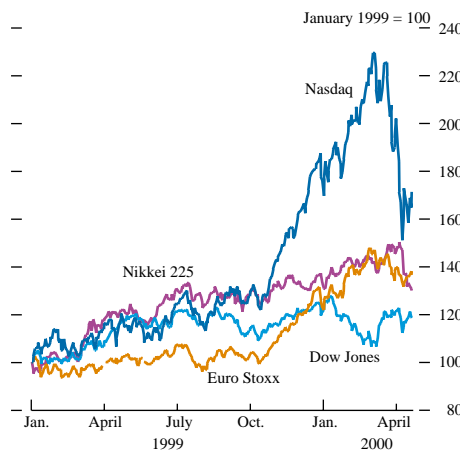


Sources: CME, LIFFE and Bank of England.

- (a) Using options on CME eurodollar futures.
- (b) Using options on LIFFE euribor futures. The historical time series are euromark rates up to January 1999 and euribor rates thereafter.

The chart depicts the probability distribution of short-term interest rates, and is rather like a contour map. So at any given point, the depth of shading represents the height of the probability density function implied by the markets over a range of outcomes for short-term interest rates. The markets judge that there is a 10% chance of interest rates being within the darkest, central band at any date. Each successive pair of bands covers a further 20% of the probability distribution until 90% of the distribution is covered. The bands widen as the time horizon is extended, indicating increased uncertainty about interest rate outcomes.

**Chart 20**  
**Equity prices**



Source: Primark Datastream.

Chart 18). In its statement accompanying the most recent rise, the ECB expressed ‘concern about upside risks to price stability which, given the prospects for strong economic expansion, arise from strong growth in monetary and credit aggregates, as well as from the current level of the euro’. In addition, the ECB noted that it ‘continues its policy of reacting to upside risks to price stability in the medium term in a pre-emptive manner’.<sup>(1)</sup>

Chart 18 shows that the uncollateralised overnight rate in Japan has remained close to zero, as a result of the continued ‘zero interest rate policy’ adopted by the Bank of Japan (BoJ) in February 1999. In the context of this policy the BoJ ‘will flexibly provide ample funds and encourage the overnight call rate to move as low as possible’, in order to ‘assure permeation of the effects of monetary easing’.<sup>(2)</sup>

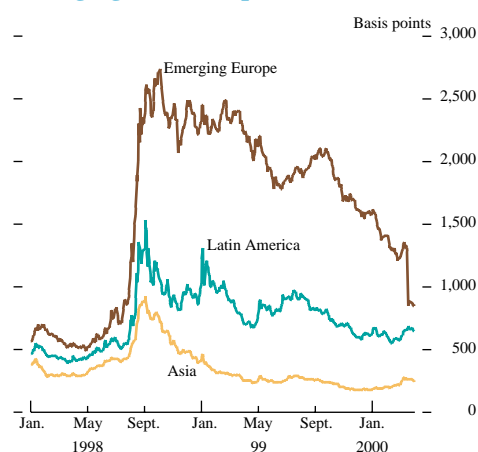
Monetary data for the early part of this year have been influenced to some extent by increased cash holdings around the millennium changeover and leap year dates. In the United States, after the impact of the year-end effect passed, money growth slowed somewhat. The M3 aggregate grew by 7.4% in February relative to a year earlier, whereas it grew by 8.8% for 1999 as a whole. In the euro area, the three-month moving average of M3 grew by 5.9% in the year to January,<sup>(3)</sup> slightly higher than a month earlier, but this was partly due to a base effect linked to the launch of the euro. However, the growth rate of M3 was 6.2% in February compared with 5.2% in the previous month, and private sector credit increased by 10.5% in February compared with 9.5% a month before.

In Japan, the growth of broad money (defined as M2 plus certificates of deposit) has slowed since 1999 Q1. In the year to March 2000, the growth rate was 1.9%, compared with an average of 3.6% over 1999. According to a recent Bank of Japan working paper, the changing relationship between nominal GDP growth and broad money reflects a shift in money demand.<sup>(4)</sup> It suggests that the slowdown in broad money growth has reflected a decline in precautionary demand from households and the corporate sector as fears about financial fragility ease.<sup>(5)</sup> As a result, households are less likely to hold cash outside the banking system, while firms can run down demand deposits and either invest in new equipment or repay debts. If firms decide to reduce holdings of precautionary on-hand liquidity, those funds could be used to repay debt or fund new projects.

Since the February 2000 *Quarterly Bulletin*, the main share indices have changed by –1.1% in the United States (Dow Jones), +0.3% in the euro area (Euro Stoxx) and –8.9% in Japan (Nikkei 225) (see Chart 20). It is unclear, however, to what extent these changes can be attributed to increases in official interest rates (which would argue for more widely spread declines across companies) or to

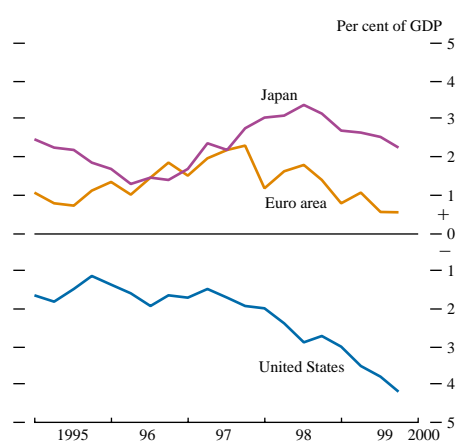
- (1) ECB press release, Frankfurt am Main, 27 April 2000.
- (2) Bank of Japan press release, Tokyo, 27 April 2000.
- (3) The ECB’s reference rate is 4.5%.
- (4) Hayakawa, H and Maeda, E, ‘Understanding Japan’s financial and economic developments since autumn 1997’, *Bank of Japan Working Paper 00-1*, January 2000.
- (5) Recent developments are viewed as reversing earlier changes in money demand occurring between early 1997 and 1999 Q1, when the Japanese economy entered a downturn after fiscal tightening in April 1997, exacerbated by the Asian crisis and by the collapse of three large financial institutions in November 1997. During that period, the increase in precautionary demand (public cash holdings and bank reserves) led to a decline in both the money multiplier and the velocity of circulation.

**Chart 21**  
Emerging markets spreads



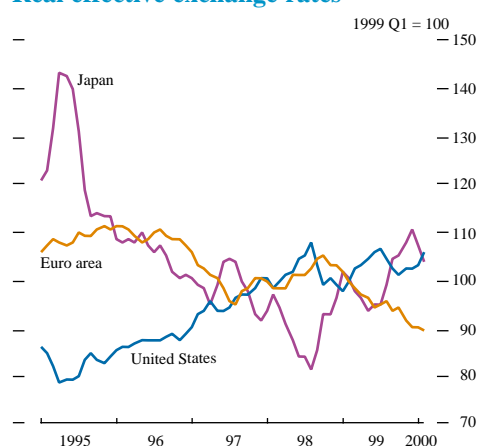
Source: J P Morgan.

**Chart 22**  
Current account balances



Source: Primark Datastream.

**Chart 23**  
Real effective exchange rates



Source: Primark Datastream.

other reasons linked perhaps to perceptions of overvaluation in some sectors. The changes were larger for indices based on technology stocks (in the United States, for example, the Nasdaq fell by 10.4% over the same period), and these had experienced far larger movements than other indices between October 1999 and February 2000 (see Chart 20).

There is little evidence that interest rate increases in the major economies have had a significant influence on sovereign bond spreads in emerging market economies.<sup>(1)</sup> Chart 21 shows these spreads by region. Since the February 2000 *Quarterly Bulletin* the spread has increased by 39 basis points for Asia and decreased by 24 basis points for Latin America, while it fell by 701 basis points for emerging Europe (27 April). The movement in emerging Europe to a large extent reflects the restructuring of Russian debt following successful resolution of Russia's debt negotiations with its London Club creditors.<sup>(2)</sup> Nevertheless, the spreads for emerging Europe and Latin America remain above the levels recorded before the Russian crisis (here defined as 1 June 1998), by 240 and 135 basis points respectively. Spreads for Asia, by contrast, are now 130 basis points below.

### External balances

In the United States, the current account deficit widened to 4.2% of GDP in 1999 Q4 (see Chart 22). For 1999 as a whole, the current account deficit was equal to 3.7% of GDP. Net investment income was negative for the third year running, after being in surplus for the preceding 25 years. There was a current account surplus of 0.6% of GDP in the euro area in 1999 Q4 and 0.7% of GDP for 1999 as a whole. In Japan, for 1999 as a whole, the current account surplus was 2.5% of GDP (2.25% of GDP in Q4).

For the major economies, much of the recent evolution of current accounts is attributable to the difference in growth rates between the United States on the one hand and the euro area and Japan on the other. The current accounts for the euro area and Japan were in surplus over the second half of the 1990s (see Chart 22), while the United States experienced a deficit throughout, which has widened noticeably since 1998. As a result, US net foreign liabilities had built up to 19% of GDP in 1999 and Japanese net foreign assets to 27% of GDP in 1998 (the latest year for which data are available).

The past year has seen a real depreciation of the euro while the real effective exchange rates of the dollar and yen have been more volatile, with less of a detectable trend (see Chart 23). In the previous years since early 1995, real exchange rates have tended to appreciate for the deficit country (the United States) and to depreciate for the surplus countries (Japan and, to a lesser extent, the euro area).

The current account, which equals the difference between savings and investment for an economy as a whole, does not entirely reveal

- (1) The effect on emerging market spreads (through the base to which spreads are calculated) is only one of the possible effects of higher interest rates in the major economies. In addition, higher rates directly affect interest rates in economies linked through currency pegs or currency boards (eg Hong Kong SAR and Argentina, which peg to the dollar). They could also affect economies that have strong trade links with the economies where interest rates have risen.
- (2) Russian principal loans and interest rate arrears loans (both restructured commercial bank loans) were taken out of the index on 14 April and replaced by eurobonds to be issued in exchange.

developments in internal and regional savings-investment balances. In the United States the private sector has been in deficit since 1997, after many years in surplus, while the government balance has recently moved into surplus. In the euro area, some of the smaller economies have had larger current account imbalances than the euro area as a whole. In Japan, recent fiscal packages have led to a government deficit of 7.4% of GDP in 1999, while the private sector had net savings of 9.9% of GDP.

## What do the recent movements in oil prices imply for world inflation?

*Crude oil prices almost tripled from \$11 per barrel at the start of 1999 to more than \$30 per barrel in March 2000. The price then fell back markedly (to \$21 per barrel on 10 April) in the wake of increased production agreed by the Organisation of Petroleum Exporting Countries (OPEC), before returning to \$24 on 27 April. This note considers the channels through which oil price rises pass through to domestic inflation. It compares the current situation with the experience of the oil shocks in the 1970s. It also briefly discusses whether the effects of higher oil prices on domestic prices might differ across the major economies.*

### Recent developments in oil prices

Between 1990 and 1997, nominal oil prices averaged around \$18 per barrel. The fall in global demand during the Asian crisis caused prices to fall well below this level in 1998, down to \$11 per barrel at the start of 1999. During 1999 the rebound in world growth increased the demand for oil. At the same time production was restricted by OPEC as a reaction to the earlier fall in prices, fuelling the sharp rise in oil prices to around \$25 per barrel at the time of the February 2000 *Quarterly Bulletin*. The imbalance in supply and demand also led to a steady decline in OECD countries' oil inventories, which by December 1999 had fallen to their lowest level in a decade. In the first quarter of 2000 the same factors resulted in a further increase in prices, to \$31 per barrel in March, the highest nominal level since 1991. It should be noted, however, that the increase has been less pronounced in real terms than previous oil price hikes (see Chart A).

**Chart A**  
**Oil prices**



Note: The real oil price is the nominal oil price deflated by US producer prices (1995 = 100).

Source: Primark Datastream.

At their meeting in Vienna at the end of March, nine OPEC members agreed an increase in oil production of 1.4 million barrels a day, about 6% of supply. OPEC produce more than 40% of global supply. Iran was not formally party to this agreement, but subsequently indicated that it would

raise production in line with other members. That brought the target increase for OPEC to around 1.7 million barrels per day. The increase in production needed to meet the new target was only about 0.5 million barrels per day, however, as OPEC output in early March was already about 1.2 million barrels per day higher than the previous target. Discrepancies between OPEC's targets and actual production have been a long-standing feature of the oil market, and make it difficult to predict actual future supply.

Markets had discounted some increase in oil production prior to the agreement, but prices subsequently fell back further to \$21 per barrel by mid-April, compared with just over \$24 per barrel at the time of the agreement. As at 27 April the spot price is \$24 and futures markets predict a fall to around \$20 per barrel by the end of next year.

### Pass-through from oil prices to inflation

The impact of higher oil prices on domestic consumer price inflation will depend on a number of factors, including the cause of the rise—whether it reflects stronger world demand and therefore a build-up of inflationary pressure, or a supply-side shock which may reflect a change in relative prices that has an impact on resource allocation but not necessarily on the world price level in the long run. Of course, it is not uncommon for a rise in oil prices to reflect elements of both demand and supply shocks.

It is important to distinguish between the direct or first-round effects of oil price changes on domestic prices and the second-round effects. First-round effects occur because oil, as well as goods and services with a direct or indirect oil content, enters indices of domestic prices. But the importance of oil varies between countries, so the first-round effects are not necessarily uniform, and will also depend on other factors such as margins and exchange rates.

Second-round effects arise when oil price changes feed into inflationary expectations and subsequently wages. Once this happens, there is a possible circular wage-price causality. In the extreme, if the change in oil prices led to an identical change in wages and the CPI, a one-time change in oil



prices would permanently affect the rate of inflation. So for second-round effects, the processes of wage-setting and how agents form inflationary expectations are crucial, and both partly depend on the monetary policy regime and its credibility. There is evidence of an increase in the credibility of many monetary policy regimes over the past 30 years, which suggests that the recent oil price rise may not pass through to inflation expectations as strongly as in the 1970s.

### First-round effects

First-round effects depend on the importance of oil as an input, based on the energy intensity of production, the share of oil in total energy consumption and the share of oil prices in final petrol prices (margins and exchange rates will also impact on first-round effects.) Oil dependence can be inferred from oil consumption per unit of GDP, and is influenced by the production technology and the availability of alternative energies in the long run. Since the 1970s there has been a downward trend in oil dependence in the industrialised world, as Charts B and C illustrate. Indeed, OECD countries' consumption of oil per unit of GDP has fallen by almost a half since 1972, as countries have

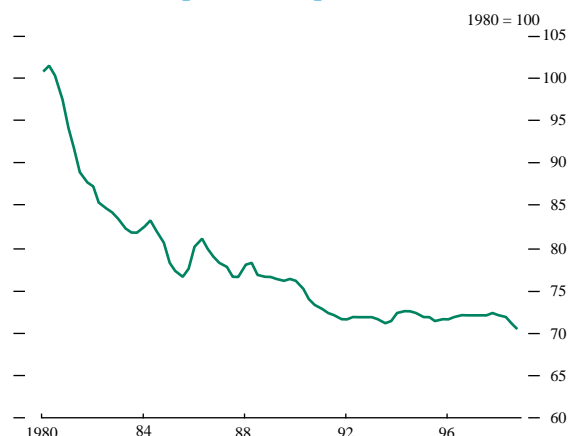
switched to more energy-efficient sources of production and alternative types of energy. So first-round effects in industrialised economies should now be lower.

Oil dependence in some emerging market economies (EMEs) has risen, however, as Chart C illustrates, so the global picture is somewhat different to that for industrialised countries only. In 1997, OECD countries accounted for about two thirds of world oil consumption, and other EMEs almost one third.

Data are not available for the weight of oil, as opposed to energy, in individual countries' consumer price indices (CPI). In the United States, gasoline accounts for 3.1% of CPI, while energy as a whole constitutes 7.0%. Energy has a weight of 9.0% in the euro-area CPI and 5.9% for Japan. But these numbers—which will be affected by differences in the tax rates on energy usage—do not include the oil content of other goods and services, which should also be included to capture first-round effects more fully.

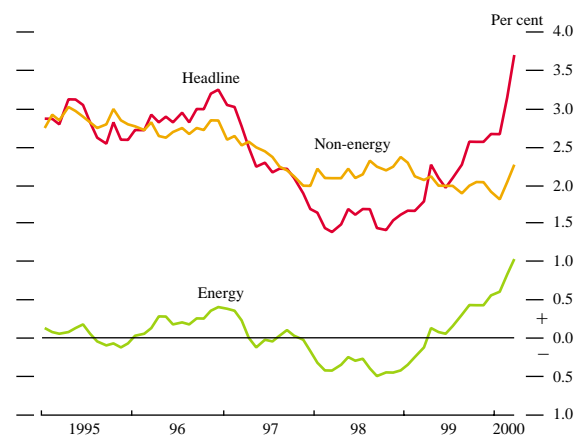
Charts D to F show the simple arithmetical contribution of the energy component to CPI inflation over the past few

**Chart B**  
OECD consumption of oil per unit of GDP



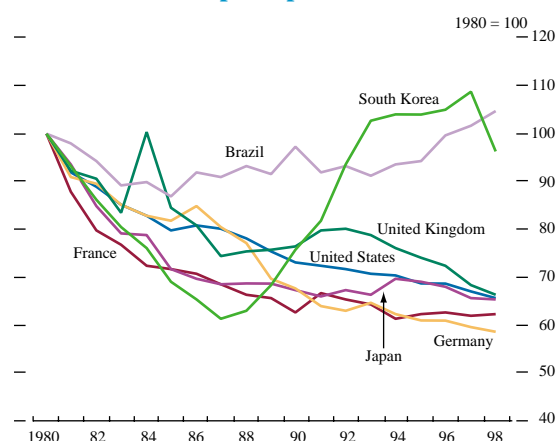
Source: OECD.

**Chart D**  
Contributions to US CPI inflation



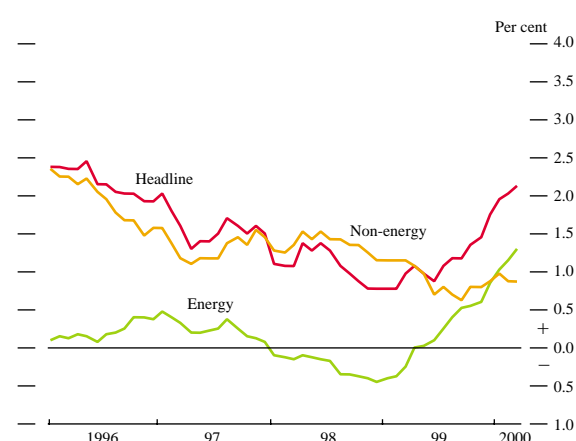
Source: Primark Datastream.

**Chart C**  
Petroleum consumption per unit of GDP



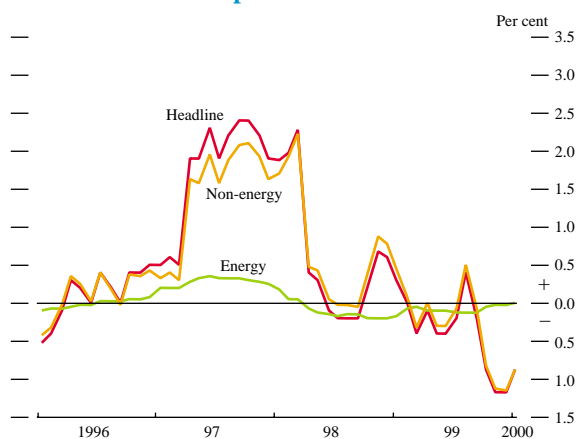
Source: United States Department of Energy.

**Chart E**  
Contributions to EU CPI inflation



Source: Primark Datastream.

**Chart F**  
**Contributions to Japan CPI inflation**



Note: Energy consists of fuel, light and water charges.

Source: Primark Datastream.

years. For the United States and euro area, non-energy inflation has declined slightly over the past two years, while energy inflation has pushed the headline inflation measure up since the beginning of 1999. This is in marked contrast to 1998, when a negative contribution from the energy component pushed headline inflation figures down. In Japan, the contribution from energy has remained close to zero, suggesting that exchange rate developments have worked to offset movements in dollar-denominated oil prices.

### Empirical estimates of the effect of oil prices on domestic inflation

Macroeconomic models can be used to gauge the likely impact of higher oil prices on domestic and export prices in the major economies. The use of such models is often criticised on two counts: first, that models reflect the average behaviour over the past two or three decades, so for example they would give too high a weight to oil based on past consumption patterns; and second, that they suffer from the Lucas critique, in that insufficient account is taken of agents' anticipation of future events. So, if monetary

policy is more credible, inflation expectations may not respond as strongly to an oil price 'shock' as they did previously.

Considerable care is needed in interpreting such simulations, as they can be sensitive to the assumptions chosen. The weights used for the share of oil in input prices, which could be current weights, those of the past or an average over time, will affect the outcome. Another sensitivity would arise from choosing a model that assumes no reaction from the monetary authorities, rather than one in which monetary policy is assumed to respond and wage-setting behaviour to be forward-looking. So such simulations can be only indicative, and are generally accompanied by a considerable degree of uncertainty.

Nevertheless, there is considerable common ground in the results of simulations. They typically suggest that higher oil prices have a greater impact on export prices than on consumer prices, reflecting the higher oil content of exports (which typically have a larger share of goods than services). The more muted impact on consumer price inflation also reflects the reduced dependence of the OECD member economies on oil compared with the 1970s.

Higher oil prices will, other things being equal, increase inflation and lower output in most OECD countries, via lower real income and adverse terms of trade. The loss in output is mitigated to some degree, however, if oil-producing countries are assumed to spend most of their additional oil revenues (in contrast again to the 1970s). This assumption, and the large reduction in oil dependence in the OECD area, produces a much smaller terms of trade loss relative to GDP in the OECD than in previous oil shocks.

In general, the more modest pass-through from oil to wider measures of inflation seems consistent with the lesser dependence of OECD countries on oil than at the time of previous sharp oil price rises. It is also consistent with the higher credibility of monetary policy observed through the more modest rise in measured inflation expectations.