II. Developments in industrial countries

Highlights

Macroeconomic conditions in the industrial countries changed sharply in the course of 2000. Following a strong expansion during the first half, output growth in the United States slowed abruptly during the second. The slowdown was led by an inventory correction and by lower investment in high-tech equipment. It spread quickly from the United States to other countries and regions, particularly to the emerging Asian countries reliant on exports of electronic equipment. With exports stagnating and domestic demand weak, output in Japan declined. Helped by a less indebted corporate sector and a sounder banking system, the euro area proved more resilient to the downturn. However, near-term prospects for the global economy are particularly uncertain at this juncture. One structural, and crucial, factor is the nature of productivity growth in the United States. If the surge in labour productivity growth over the past few years reflects structural improvements which can spread to other countries and buoy future profits, there is a greater chance that the slowdown will be mild and short-lived.

A pleasant surprise last year was that inflation remained moderate despite strong growth during the first half and higher oil prices. Inflation tended to be lower than expected throughout the 1990s despite increased demand pressure and falling rates of unemployment. While stability-oriented monetary policies have played a major role in anchoring expectations of inflation, other temporary and possibly reversible factors have also influenced inflation behaviour.

A further widening of certain financial imbalances in major economies raises several questions. In the United States, dissaving by the private sector rose to more than 6% of GDP, pushing up the current account deficit and raising questions about the sustainability of the resultant build-up of debt in the private sector. In Japan, concerns about unsustainability have focused on the public sector as several years of progressively higher deficits have raised the public sector debt to over 120% of GDP. At the same time, persistent uncertainty about the health of the banking sector and a growing net saving surplus in the private sector in part explained why domestic demand growth remained so weak. In contrast, private and public sector financial balances in the euro area gradually converged towards zero last year.

It is also notable that national investment ratios seem to have become progressively more independent of national saving rates, particularly in Europe. This could imply that international financial markets have become less focused on external imbalances as such and more focused on allocating capital to countries where the rates of return are expected to be higher.

Buoyant economy through the first half of 2000

Strong growth driven by US demand

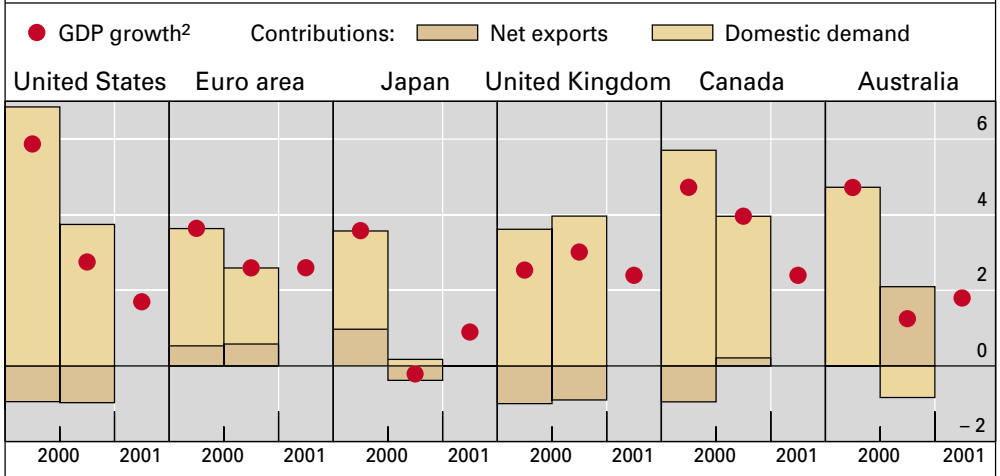
Propelled by strong domestic demand, notably in the United States and other English-speaking countries, output growth in the industrial countries increased to an annual rate of almost 5% during the first half of 2000 (Graph II.1). This was the fastest rate of increase since the late 1980s. As in previous years, US demand growth was mainly driven by consumption, supported by strong income growth arising from favourable labour market conditions as well as sizeable wealth gains. Reflecting the low cost of capital and high prospective rates of return, the growth of investment was also substantial. Investment also grew rapidly in Canada, while in Australia consumption and residential construction accelerated sharply in anticipation of a new indirect tax structure with effect from 1 July. Output growth in the United Kingdom was more moderate, though still high enough to widen the estimated positive output gap. Household spending, supported by employment gains, was the fastest-growing demand component. In contrast, business investment slowed from the rapid expansion of the previous year.

Growth also strong in continental Europe

The euro area also expanded strongly in the first half of 2000. While the average annual growth rate of 3½% was well below that of the United States, it nevertheless represented a marked improvement compared with the 1990s. Helped by a competitive exchange rate and favourable global conditions, net exports not only provided a positive contribution to growth but also stimulated investment spending. In addition, with employment growing at an annual rate of more than 2% and unemployment falling, private consumption was another source of strength. Growth was also strong in other European countries during the first half of 2000. Output in Switzerland increased by almost 4%, with business investment being particularly buoyant. Supported by fiscal stimulus and favourable labour market conditions, Sweden also

Contributions to GDP growth[1]

In percentages and percentage points

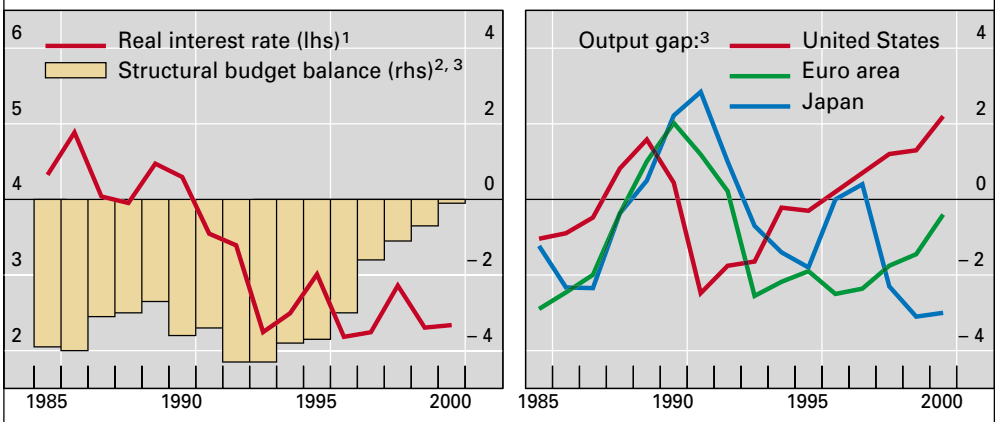


[1] Changes from previous period, seasonally adjusted at annual rates. [2] For 2001, forecasts for the whole year, made in April.

Sources: ECB; © Consensus Economics; national data. Graph II.1

Real interest rate, structural budget balance and output gaps

In percentages



1 Weighted average, based on 1995 GDP and PPP exchange rates, of OECD countries' short-term interest rates deflated by annual consumer price inflation. 2 General government in the OECD countries. 3 As a percentage of potential GDP.

Sources: OECD; national data. Graph II.2

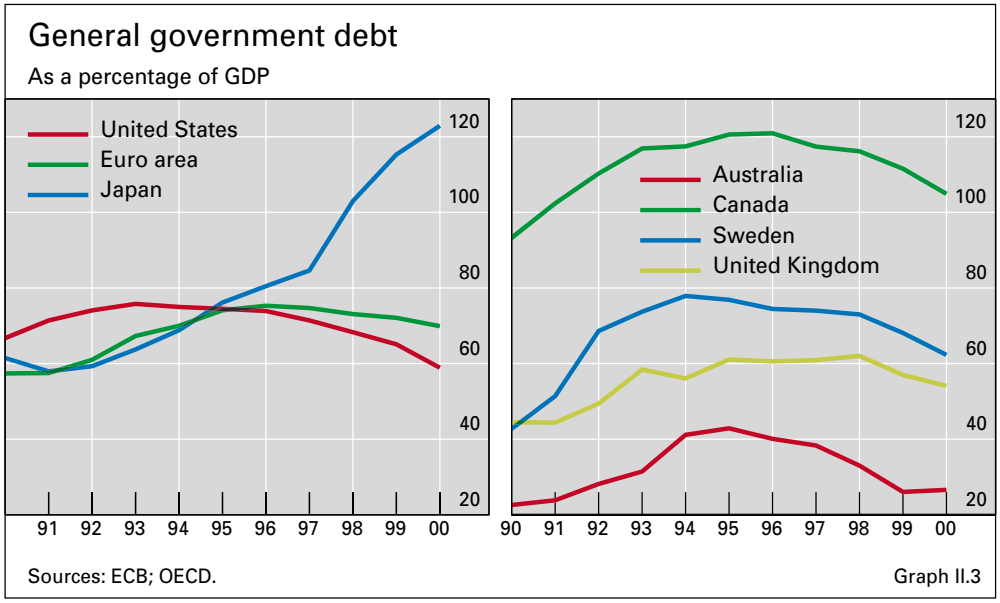
recorded a high rate of expansion. In Norway, the rebound of growth since the middle of 1999 continued, driven mainly by net exports and terms-of-trade gains arising from higher oil prices. However, with the economy approaching (or perhaps even exceeding) full employment, monetary policy had to be tightened to curb inflationary pressure.

Return to positive growth in Japan

Japan returned to positive growth after the recession of 1998 and stagnation in 1999. Aided by the booming US market, as well as the strong recovery in emerging Asia, net exports added 1% to total GDP. Moreover, stronger profits stimulated business fixed investment, notably in high-tech equipment. Public investment also rose, reflecting the effects of budgetary measures adopted towards the end of 1999. Despite publicly guaranteed credit schemes in favour of small and medium-sized firms, credit to the private sector continued to contract. Furthermore, continued uncertainty about job prospects as well as concerns about future pensions, social security and health benefits limited household spending growth.

Policy mix supported growth ...

The combination of healthier fiscal positions and relatively low real interest rates in most of the industrial countries helped growth (Graph II.2). Despite monetary tightening in the three major economic areas, real short-term interest rates remained low, particularly in relation to the vigour of demand. Real long-term interest rates were only slightly higher and even decreased during the course of the year. Fiscal consolidation and resultant declines in public debt ratios undoubtedly contributed to this and helped "crowd in" private investment. In the United States, a progressive improvement of the fiscal balance led to a reduction in the public debt/GDP ratio (Graph II.3). Government receipts in the euro area have benefited from the strengthening of growth as well as from one-off revenues (eg from the sale of UMTS licences). This generated a broadly balanced budget which, given the closing of the output gap, was in line with the Stability and Growth Pact and thus allowed several major countries to go ahead with fiscal reforms and



cut tax rates. Debt reduction has also been a prominent feature of fiscal developments in the United Kingdom, Canada, Australia and Sweden. In Japan, by contrast, the public debt ratio has continued to rise and low interest rates can mainly be attributed to high private saving and an accommodating monetary policy.

... as did favourable financial market conditions

Favourable conditions in asset and credit markets were also a factor in the strong growth performance. This was evident in the United States but was also observed in countries such as Canada, Australia, the Netherlands and Sweden. In all cases, wealth gains, combined with low nominal interest rates, encouraged and enabled households to take on more debt to finance purchases of durable goods and housing.

Slowdown in the second half of the year

Major slowdown in the United States due to higher oil prices ...

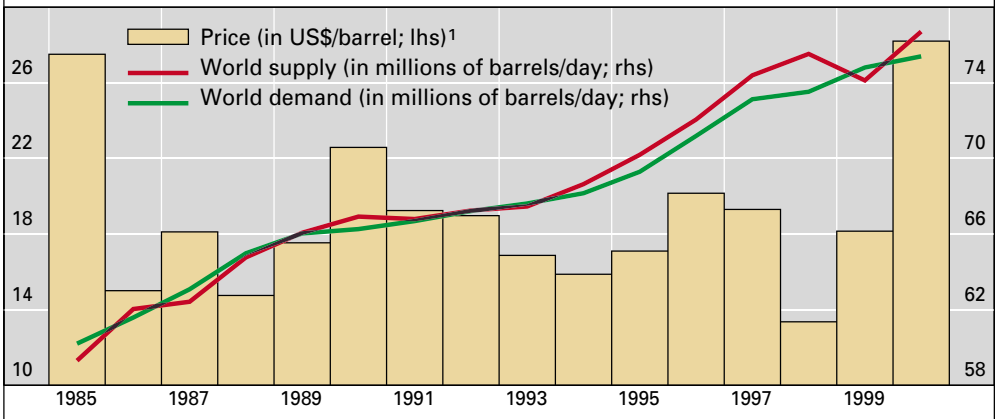
Signs of a significant slowdown emerged in the second half of 2000 (Graph II.1). US economic activity decelerated sharply, with growth falling to only 1% in the fourth quarter. Several factors contributed to this turnaround. First, from their trough in 1998, oil prices have increased threefold, representing a "tax levy" equivalent to 1½% of GDP. The reasons why oil prices rose to such a high level are not entirely clear. As can be seen from Graph II.4, the global demand for oil declined in relation to global supply in 2000, following the increase in output quotas by OPEC countries. One explanation might be that, after a decade of low or falling investment in the energy sector, limited refining capacity in the United States led to shortages of light oil in the North American market. In addition, low inventory levels of oil and little excess capacity outside Saudi Arabia, allied with a sharp rise in the price of natural gas and expectations that the United States would continue to grow rapidly, might have added a speculative element to the market price for crude oil.

... tighter credit conditions ...

Second, the progressive tightening of monetary policy since mid-1999, together with a growing perception that the United States was close to

Oil: price, production and demand

Annual averages



[1] Unweighted average of the price of Dubai Fateh, UK Brent and West Texas Intermediate.

Sources: International Energy Agency; Standard & Poor's DRI. Graph II.4

a cyclical peak, led to a significant deterioration in capital markets and borrowing conditions for enterprises. As discussed in Chapter VI, US equity prices fell substantially from their peak in March 2000, resulting in wealth losses for households and a sharp rise in the cost of equity funding. Moreover, a significant tightening of banks' credit standards compounded the effects of widening spreads in the corporate bond market.

... and negative accelerator effects

Third, and perhaps most importantly, various accelerator effects reinforced the downturn, once the US economy had reached a turning point. The demand for automobiles fell sharply and firms faced with excess inventories cut back their orders. Moreover, as future earnings prospects deteriorated and signs of excess capacity emerged, firms cut back investment plans, especially for computers and other high-tech equipment. Indeed, after an unbroken nine-year expansion, equipment investment actually fell in the fourth quarter. In addition, wealth losses, combined with a significant rise in job cut announcements, led to a steep decline in consumer confidence and lower household spending growth.

Downturn spread to other countries ...

While the speed with which economic conditions deteriorated in the United States came as a surprise, so too did the extent and coincidence of the slowdown in other countries. In some cases, the weakening could be attributed to country-specific factors (for instance the slump in residential investment following the introduction of a new goods and services tax in Australia) or strong trade links to the slowdown in the US high-tech sector (as in the case of emerging Asian economies; see Chapter III). However, in most other cases, developments during the second half of last year implied that the transmission channels between countries went well beyond direct trade linkages.

... including Canada ...

One striking example was Canada. The deceleration in output during the second half was apparently due to slower domestic demand, which actually declined in the fourth quarter as firms cut back on inventories and capital spending. However, direct as well as less visible transmission channels were

also at work. Thus the rise in net exports was mostly the result of lower imports. Moreover, cutbacks in orders and output were most pronounced among companies specialised in supplying components to those sectors in the United States (automobiles and telecommunications) most affected by the slowdown.

... Japan ...

Japan, where GDP fell during the second half, presented a similar picture. Lower exports to other Asian countries and the United States partly explained the decline of net exports. However, an acceleration of import volumes in conditions of weaker domestic demand contributed even more. Weaker household spending growth also played a role. But the main source of the deterioration in domestic demand conditions was a cutback in public investment. While business investment continued to grow until the end of 2000, the latest *Tankan* survey by the Bank of Japan shows a significant deterioration in business confidence and demand expectations and substantial cutbacks in capital spending plans. These cutbacks could be exacerbated by a decline in banks' ability or willingness to lend. With bankruptcies rising sharply, banks' stock of non-performing loans has started to increase again while their scope for writing off such loans has decreased as unrealised capital gains on their equity portfolio have turned into losses. To restore banks' ability to lend, the authorities proposed a scheme which would encourage banks to dispose of loans to bankrupt or nearly bankrupt companies. The authorities also proposed to create a new agency with the purpose of purchasing up to one quarter of bank-owned equities.

... and the euro area

The euro area also experienced a significant cooling during the second half. It was, however, less pronounced than in the United States and Japan and differed widely across member countries. Reflecting its reliance on exports of manufactured goods and an actual decline in private consumption, Germany's GDP growth fell from 4% in the first half to 2% in the second. Business confidence also weakened. In France, by contrast, economic activity gained strength as the year progressed, with consumer confidence remaining high and business investment accelerating. Producers in both countries had to face worsening growth prospects and stricter borrowing conditions after the global slowdown in the high-tech sector, with shares in the European telecoms sector tracking the decline in US IT stocks. However, having been more aggressive in acquiring US firms, German enterprises were more exposed to potential losses of sales by their affiliates.

Resilience of the euro area

Several factors explain the resilience of the euro area compared with the United States and Japan. First, given robust domestic demand, a corporate sector not overburdened by debt and a strong financial sector, the euro area was better placed to withstand unfavourable external shocks than was Japan. Second, the euro area has less trade with the United States and emerging Asia than Japan, and probably drew strength from continued growth of intra-area trade and capital flows. Third, while the downward correction of equity values in the euro area was even more pronounced than in the United States, the effects on household spending and investment were modest: the proportion of households owning stocks is much smaller and firms are more reliant on retained earnings and banks in financing their investment. This difference in wealth effects helps to explain why consumer confidence has

remained high in the euro area. Finally, most countries in the euro area are less reliant on the production of high-tech equipment than the United States and emerging Asia, and have seen only a modest rise in IT investment. Consequently, with the exception of telecommunication equipment and services, the euro area faced a smaller risk of potential downward corrections of capital stocks and company debt levels.

Developments in other countries

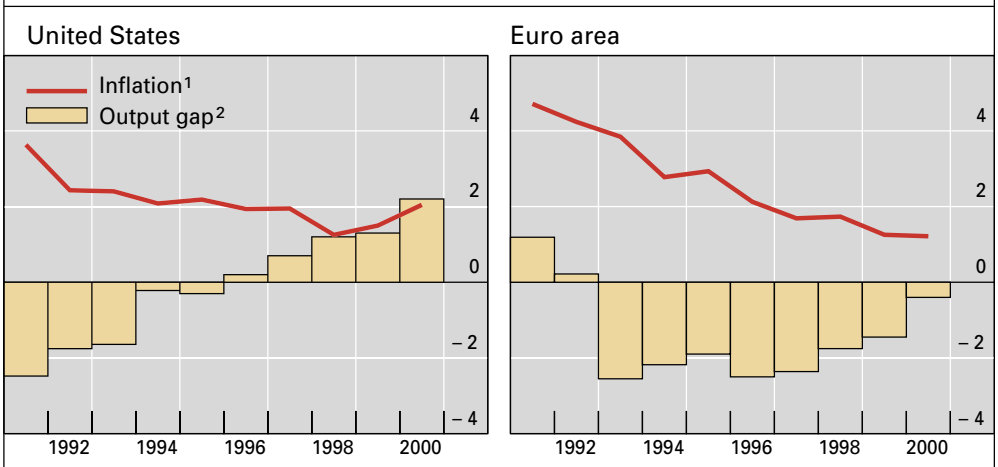
Other European countries also experienced only a modest slowdown. Despite some weakening towards the end of 2000 and a relatively high trade share with the United States, growth in the United Kingdom actually increased during the second half of the year, mainly on the strength of household spending and an expansionary fiscal policy. In Switzerland, robust household spending and an exceptionally good labour market performance also limited the externally induced slowdown. Sweden experienced a somewhat larger decline in growth, as it has a relatively large IT sector and is more reliant on exports to the United States. Moreover, with more than half of all Swedish households owning equities, the exposure to equity market developments is among the highest in Europe.

Recent behaviour of inflation

Only moderate inflationary pressure in 2000

The industrial countries experienced only a moderate rise in inflationary pressure in 2000 despite rapid output growth and higher oil prices. Headline (CPI) inflation rose to 2¼%, but underlying inflation changed only little and the increase in the GDP deflator, the broadest measure of inflation, was only 1¼%. This was somewhat above the outcome for 1999 but well below the average for the 1990s. Inflation was slightly higher than the average in the United States, while in the euro area, exchange rate depreciation aggravated the effect of higher oil prices. In some other countries, indirect taxes led to large one-off price level increases. By contrast, inflation in the United Kingdom was below target for most of last year. In Japan, prices continued

Inflation and output gaps



[1] Annual percentage change in the GDP deflator. [2] As a percentage of potential GDP.

Sources: ECB; OECD; national data. Graph II.5

to fall, contributing to the divergence of inflation rates across the industrial countries which has been observed since 1997.

Low inflation in the 1990s may be attributable to ...

The favourable inflation performance last year prolonged a trend of persistent overpredictions of price changes that had been observable throughout the 1990s. In fact, an unusual characteristic of economic behaviour was the extent to which prices continued to decelerate in an environment of generally rising activity and tightening labour markets (Graph II.5).

In addition to monetary policies with price stability as their overriding target, explanations of the recent inflation performance can be classified into three broad categories. The first asserts that some factors affecting the inflation process have *permanently* changed. Consequently, models that economists have traditionally used to forecast inflation are no longer applicable. At the other end of the spectrum are claims that traditional models are still valid as long as various *temporary*, and possibly reversible, supply shocks are allowed for. Explanations of the third category, essentially hybrids of the first two, comprise arguments that the traditional models still hold but that some of the key determinants have changed and produced long-lasting (though not permanent) shifts in the behaviour of inflation.

... better functioning product markets ...

The first category would include arguments that the greater influence of market forces has improved and continues to improve the growth-inflation trade-off. In less regulated product markets, the demand curves facing firms are likely to be more elastic, encouraging or forcing them to both lower their mark-ups and intensify efforts to reduce costs. In a similar vein, it could be argued that advances in electronic commerce and data communications are leading to changes in how competitive markets function. In effect, supply functions have also become more responsive to changes in prices, with long-lasting implications for firms' price setting behaviour. In addition, there is increasing evidence that various structural changes have helped to reduce inflation and that such changes will continue. Deep price cuts have been seen in European utility sectors (notably telecommunications and energy), following deregulation and privatisation. Furthermore, the creation of a single market with a common currency has progressively reinforced competitive forces throughout the euro area. Likewise in Japan, negative inflation is often attributed to the effect of restructuring and deregulation as well as technological progress and a greater openness to imports.

... and the influence of more temporary factors

Turning to the second category of explanations, some have claimed that a traditional Phillips curve model tracks inflation quite well as long as the significant fall in primary commodity prices during the 1990s is taken into account. Others have stressed that additional, though still temporary, price or supply shocks also need to be considered. These would include the sharp declines in computer prices and, in the case of the United States during most of the last decade, the modest growth in the cost of medical care and the correction of upward biases in the measured rate of inflation. Leaving aside ambiguities about the precise size of these factors, one implication is that the shocks generating the favourable inflation outcomes are only transitory and may well be subject to reversal. Indeed, the rise in oil prices since 1998

illustrates how gains from favourable but temporary supply shocks may have to be paid back. Similarly, some of the changes in wage behaviour discussed below may prove only temporary and reversible. This contrasts sharply with the polar "new economy" view that low inflation represents a more fundamental and longer-lasting change in wage and price setting behaviour.

Other explanations include a lower NAIRU ...

At its simplest level, the third category would attribute the low inflation of the 1990s to the declines in structural rates of unemployment (or NAIRUs) observed in several countries. The principal difference compared with the second category of explanations is that the change in the NAIRU is permanent rather than temporary. Yet the traditional model of inflation is still valid and the reduction in inflation is only observable as long as the actual rate of unemployment has not yet reached the new and lower NAIRU. Declines in the NAIRU are frequently attributed to a greater influence of market forces. The functioning of labour markets has greatly improved in the English-speaking countries and more recently in some continental European countries as well. In both the United States and the United Kingdom, the rate of unemployment has fallen below levels that used to be associated with accelerating wage pressure. Likewise, the impressive employment gains and falling unemployment rates in continental European countries have been accompanied by only slightly higher wage pressures to date.

... higher productivity growth ...

Other explanations of how determinants of inflation may have changed have their roots in the way that information technology has altered traditional relationships between economic agents. Probably the most frequently mentioned change of this kind is the acceleration of productivity growth in the United States and a few other countries over the course of the 1990s (see below). Similar to the lower NAIRU, a sustainably higher rate of productivity growth will only reduce inflation as long as demand in the economy has not yet reached the new, higher level of potential output. Moreover, this explanation presumes that expectations of future earnings do not rise excessively such that demand increases ahead of output, as observed in the United States in early 2000.

... and a low-inflation regime

According to still another set of hypotheses, the behaviour of inflation depends on the actual level of inflation. In particular, in a low-inflation regime with monetary policies aimed at price stability, expectations tend to be better anchored and inflation thus more sticky. On this view, the erosion in firms' ability to raise prices in excess of the expected rate of inflation, and the lower pass-through of costs into prices, have mainly resulted from a decline in the persistence of actual inflation. Thus, during periods of low inflation, workers and firms partly ignore upward shocks to current inflation in determining future wages and prices. Similarly, in a low-inflation environment, exchange rate changes are more likely to be regarded as temporary and reversible, with the result that domestic prices become less sensitive to exchange rate shocks. The experiences of Canada during 1991–93, Italy, the United Kingdom and Sweden following the ERM crisis in 1992 and Australia in the aftermath of the Asian crisis and again last year suggest that the pass-through of exchange rate changes has indeed fallen over the last decade or so.

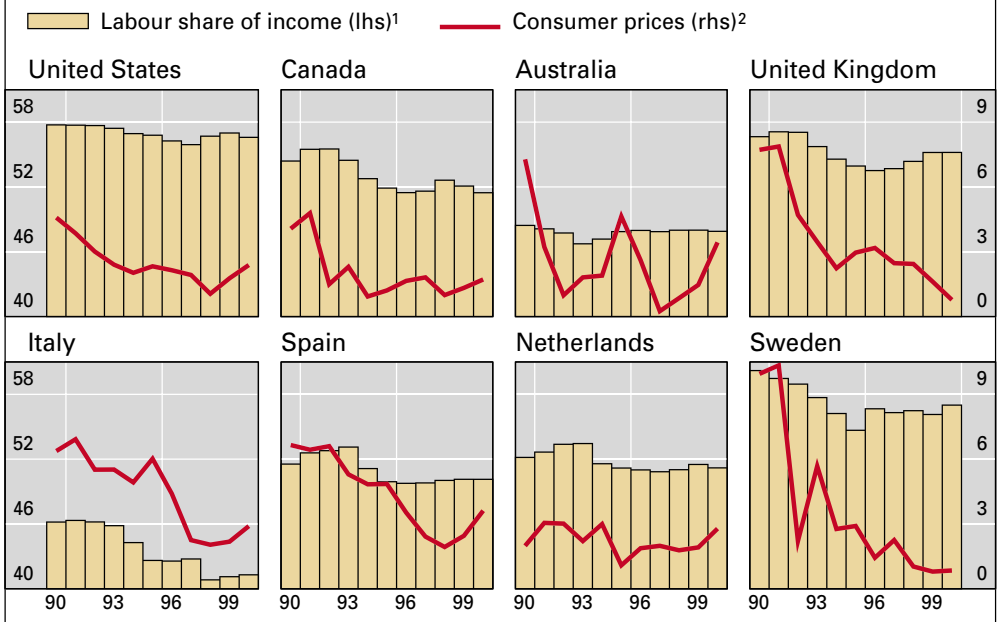
No single explanation ...

Against this background, it is not possible to attribute the favourable inflation performance in the 1990s to one single factor. Rather, it seems to be the result of several factors and how they have interacted. Many observers have focused on firms' loss of pricing power (and lower mark-ups) in increasingly competitive national and international markets. If this were the only change, however, low and stable inflation would have been accompanied by a rise in labour's share of income. Yet labour's share of income has been stable or tended to decline over much of the last decade (Graph II.6). Indeed, one striking observation is that, for all the countries shown, inflation rates and wage shares are significantly and positively correlated.

... but shifts in relative market power change the response to shocks

One plausible explanation of the trend decline in labour's share of income might be that it has resulted from shifts in relative market power in both product and labour markets. Sellers no longer dominate both markets as they did in the 1970s and 1980s. As already noted, firms (sellers) have lost their pricing power in output markets. At the same time, workers have lost much of their pricing power in labour markets, as various regulations and restrictions in labour markets have been abolished or relaxed, as the proportion of the labour force that is unionised has shrunk, and in some cases also in response to high unemployment. In such an environment, unfavourable shocks (for instance higher import prices) are likely to have only a moderate impact on inflation, as firms cannot shift higher costs into prices and have the power to resist compensatory wage demands. Similarly, an autonomous increase in productivity growth will primarily lead to lower prices and an associated rise in real wages without any adjustment of nominal wage growth.

Labour share of income and inflation



[1] Compensation of employees as a percentage of GDP. [2] Annual percentage change in the consumer expenditure deflator (for Australia, consumer prices excluding the effect of the new tax system in 2000).

Sources: OECD; national data. Graph II.6

Productivity trends and prospects for the world economy

Issues related to productivity growth

While the good inflation performance in the United States and other industrial countries has increased the scope for expansionary policy measures, another factor with implications for the severity and duration of the downturn now under way is the nature of recent developments in productivity. Three questions are key. Has stronger productivity growth been seen in countries other than the United States? To what extent has the surge in US productivity growth been driven by investment in IT capital and developments in the high-tech sector? And how large is the cyclical component in the recent surge in labour productivity growth?

Productivity growth in the United States and Australia

As regards productivity developments in other industrial countries, only Australia recorded higher increases in labour productivity than the United States during the second half of the 1990s (Table II.1). Australia is also the only country outside the United States which experienced an acceleration in labour productivity over that period, compared with the first half of the 1990s and the 1980s. It is also notable that, in both countries, the acceleration is mainly attributable to an apparently higher rate of technological progress, as measured by multi-factor productivity growth (ie the growth in output that cannot be attributed to increases in labour and capital input), and would thus seem more sustainable. Though partly dependent on the data used (see below), the contribution of capital deepening (ie the increase in capital per worker) appears to have been more modest.

Changes in labour productivity in the business sector

	Output per hour	of which:		Output per hour	of which:		Output per hour	of which:	
		Capital[1]	MFP[2]		Capital[1]	MFP[2]		Capital[1]	MFP[2]
	1996–99			1990–95			1981–89		
	annual rates, in percentages and percentage points								
Australia	3.1	1.0	2.1	1.8	0.6	1.2	1.5	0.5	1.0
United States	2.3	0.5	1.8	1.0	0.2	0.8	1.3	0.2	1.1
Germany	2.1	1.0	1.1	2.2	1.2	1.0	…	…	…
Japan	2.1	1.2	0.9	2.9	1.6	1.3	3.1	1.1	2.0
Switzerland	1.9	1.0	0.9	0.7	1.2	–0.5	…	…	…
Sweden	1.7	0.6	1.1	2.1	0.9	1.2	1.5	0.6	0.9
France	1.6	0.5	1.1	2.3	1.4	0.9	3.4	1.1	2.3
United Kingdom	1.5	0.5	1.0	1.8	0.6	1.2	3.4	0.5	2.9
Norway	1.4	0.3	1.1	3.2	0.7	2.5	1.4	0.9	0.5
Canada	0.9	0.6	0.3	1.4	1.1	0.3	1.4	1.3	0.1
Denmark	0.9	0.6	0.3	3.7	1.3	2.4	2.5	…	…
Italy	0.7	0.8	–0.1	2.7	1.4	1.3	2.3	0.9	1.4
Netherlands	0.4	–0.2	0.6	2.9	0.9	2.0	3.4	…	…
Spain	0.4	0.3	0.1	2.6	2.0	0.5	3.9	…	…

[1] Capital deepening. [2] Multi-factor productivity.

Source: US *Federal Reserve Bulletin*, October 2000 (based on OECD data). Table II.1

In all the euro area countries included in the table, labour productivity growth declined during the second half of the 1990s. The fall was most pronounced in those countries (France, Italy, the Netherlands and Spain) which have been most successful in improving the functioning of labour markets and promoting employment growth. In France, job creation seems to have been fostered by the decrease in social security taxes for low-skilled workers. Italy, Spain and the Netherlands have reduced previously prohibitive layoff costs and facilitated the employment of temporary and part-time workers. The success of these measures is welcome, but the other side of the coin has been a marked increase in the labour intensity of output and a corresponding fall in the rate of labour productivity growth. The Nordic countries might also be included in this group, while developments in Switzerland are more difficult to interpret. Switzerland has managed to reduce its rate of unemployment from more than 5% to less than 2% in just three years. Yet, contrary to the experience of the euro area countries, labour productivity growth has actually increased compared with the first half of the 1990s.

Lower productivity growth but better functioning labour markets in Europe

Apart from the effects of labour market reforms, the slow rate of labour and multi-factor productivity growth in the euro area compared with the United States may reflect the varying impact of the IT revolution. The United States has benefited far more from the production and use of high-tech equipment than countries in the euro area. Moreover, the benefits from innovation were undoubtedly augmented by the highly competitive US market. In Europe, by contrast, the IT producing sectors as well as the use of high-tech equipment are less advanced and markets less competitive. However, by continuing to liberalise their product and labour markets and duplicating US innovation processes, European countries might still be expected to achieve faster productivity growth over the medium term.

The IT revolution

The United Kingdom and Canada have both experienced a fall in labour productivity growth, possibly because the effects of deregulating labour markets have more than offset those stemming from higher capital spending. Japan has also seen slowing productivity gains, both in the course of the 1990s and relative to the 1980s. Given the low rate of output growth during the last 10 years, this was, perhaps, to be expected. But most of the deceleration in labour productivity can be attributed to an apparently lower rate of technological progress (or increase of multi-factor productivity) and may thus be longer-lasting. By contrast, the contribution of capital deepening has remained relatively stable.

Productivity growth in other countries

The central point of the second question (the role of the IT sector and IT investment in the United States) is that the higher contribution of capital deepening during the second half of the 1990s can be entirely explained by investment in IT capital (Table II.2). The contribution from other investment in the business sector (non-IT equipment and structures) remained stable at a level well below that of the 1974–90 period. The increased contribution from technological progress seems to have been about equally divided between producers and users of IT equipment. Among the latter, particularly large productivity improvements have been recorded in wholesale and retail trade

The role of IT investment and the IT sector in the United States

Contribution to labour productivity growth in the US non-farm business sector			
	1996–99	1991–95	1974–90
	annual rates, in percentages and percentage points		
Labour productivity	2.6	1.5	1.4
Capital deepening	1.1	0.6	0.8
Information technology capital[1]	1.0	0.5	0.4
Other capital	0.1	0.1	0.4
Labour quality	0.3	0.4	0.2
Multi-factor productivity	1.2	0.5	0.3
High-technology sectors[2]	0.7	0.3	0.2
Other sectors	0.5	0.2	0.1

Note: Authors' calculations based on Bureau of Labor Statistics and Bureau of Economic Analysis data.

[1] Hardware, software and communication equipment. [2] Computer and semiconductor sectors.

Source: S D Oliner and D E Sichel, "The resurgence of growth in the late 1990s: Is information technology the story?", *Journal of Economic Perspectives*, Fall 2000. Table II.2

and in the financial sector. In contrast, productivity growth has fallen in transportation and communications as well as in the manufacturing of non-durable goods.

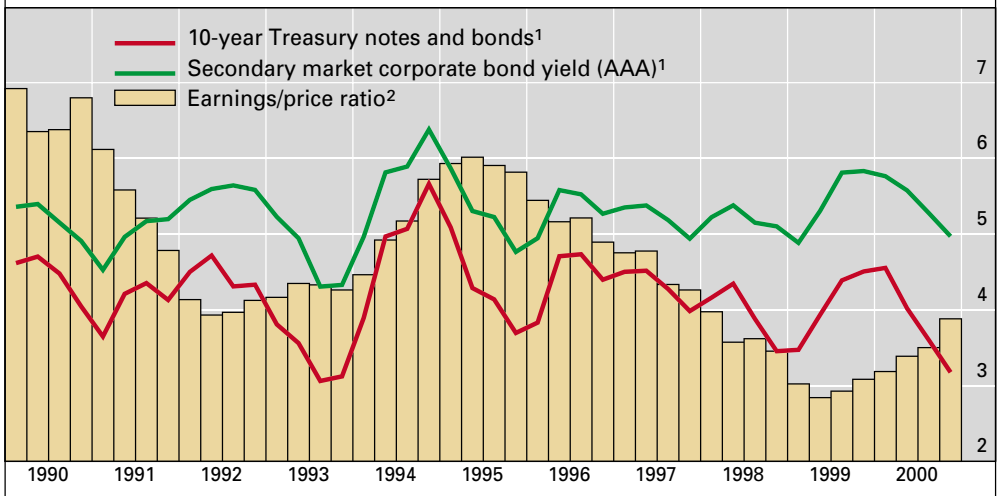
How high is US potential growth?

The third question (the size of the cyclical component of productivity growth) is, perhaps, the most important as regards the near-term prospects for the US economy. Unfortunately, it is also the most difficult to answer. Potential growth in the United States is estimated by many to have increased to around 3.5–4% from 2–2.5% during the 1980s and the first half of the 1990s. With the labour force expanding at just above 1% per year, this would imply continuing labour productivity growth of 2.5–3%. However, this rate was only achieved towards the end of the 1995–2000 period. Moreover, maintaining it would require that capital spending continue to grow at the high rate recorded until the middle of last year. If the potential rate of growth has indeed increased to about 4%, profits and share prices would have a firmer basis of support. Were consumer spending to revive in consequence, the current slowdown in the United States would be shorter-lived, perhaps mostly comprising an inventory correction. In contrast, if the above estimate of long-run output and productivity growth is overstated, current expectations of future earnings growth are also likely to be overstated. In such a scenario, both consumption and investment spending would probably remain sluggish and might even decline further.

Estimates of the cyclical component

Assessments of the permanent or trend component of labour productivity growth based on recent experience suffer from another problem. It is possible that cyclically high levels of demand might have boosted labour productivity only temporarily. This problem is clearly evident in current estimates, which differ widely depending on the assumptions made and the methods used. According to estimates made by the US Council of Economic Advisors, the improvement in labour productivity during 1995–2000 is almost entirely structural, implying that the higher estimates of potential output

Real interest rates and earnings/price ratio in the United States



[1] Nominal rate minus annual percentage change in the GDP deflator. [2] Based on the S&P 500.

Source: National data. Graph II.7

growth are justified. By contrast, some private analysts attribute one third to one half of the increase to cyclical factors. Current economic indicators would suggest a relatively large cyclical component. Developments in capacity utilisation rates in industry lend some support to the view that investment (notably in high-tech equipment) may fall back, thus removing one element of support to the labour productivity growth rate seen to date. During the last three years, when industrial output expanded at an annual rate of 5–6%, the capacity utilisation rate remained below the long-run average. And it declined sharply during the second half of 2000 when growth slowed. Moreover, the recent problems faced by many high-tech start-up companies in financing their activities could imply that, in addition to a smaller contribution from capital deepening, labour productivity might be adversely affected by a lower rate of technological progress. Finally, the most recent data on labour productivity growth provide grounds for concern. While hourly productivity was still growing at around 4½% when the economy started to slow last year, it actually declined in the first quarter of this year. Nonetheless, given the speed with which output decelerated and the constraints on adjusting employment, even in an economy with a flexible labour market, the latest figures provide only a partial and imperfect measure of long-term productivity trends.

Financial market indicators

Current financial market indicators for the United States seem to suggest that investors – rightly or wrongly – have accepted the view that potential growth might be close to 4% (Graph II.7). Following the downward correction of price/earnings ratios since early last year, the implicit return on equities would point to a long-term growth rate of around 3½%, not far below the consensus estimate. This could suggest that equity investors view the recent downward revision of future earnings as only temporary. Using long-term real bond rates as an approximation to long-term growth is more problematic. The outcome depends not only on the nominal rate applied but also on the measurement of inflation expectations.

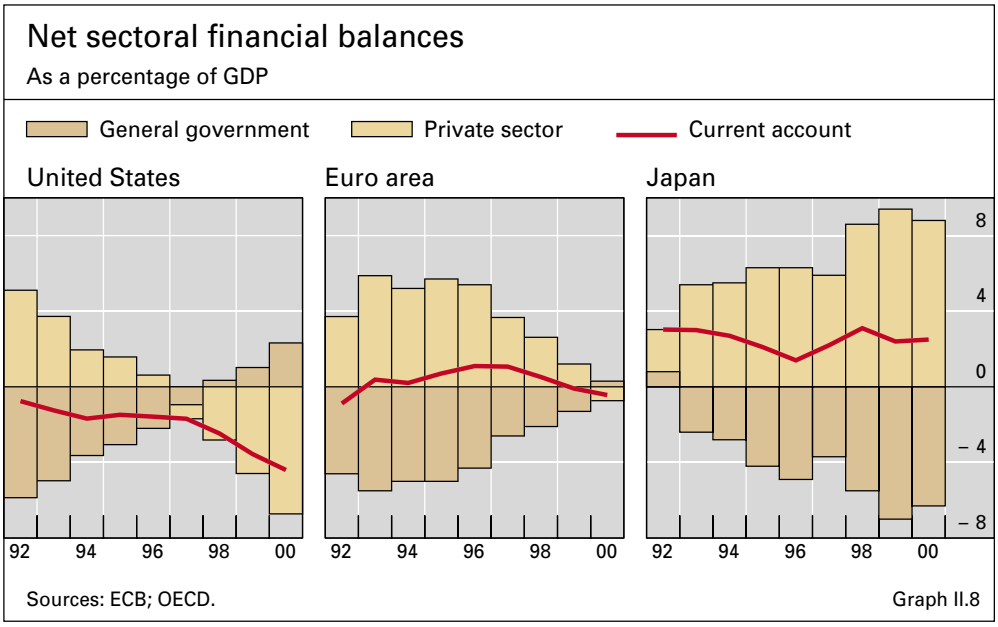
Developments in financial balances, saving and debt

Episodes of major declines in net private saving

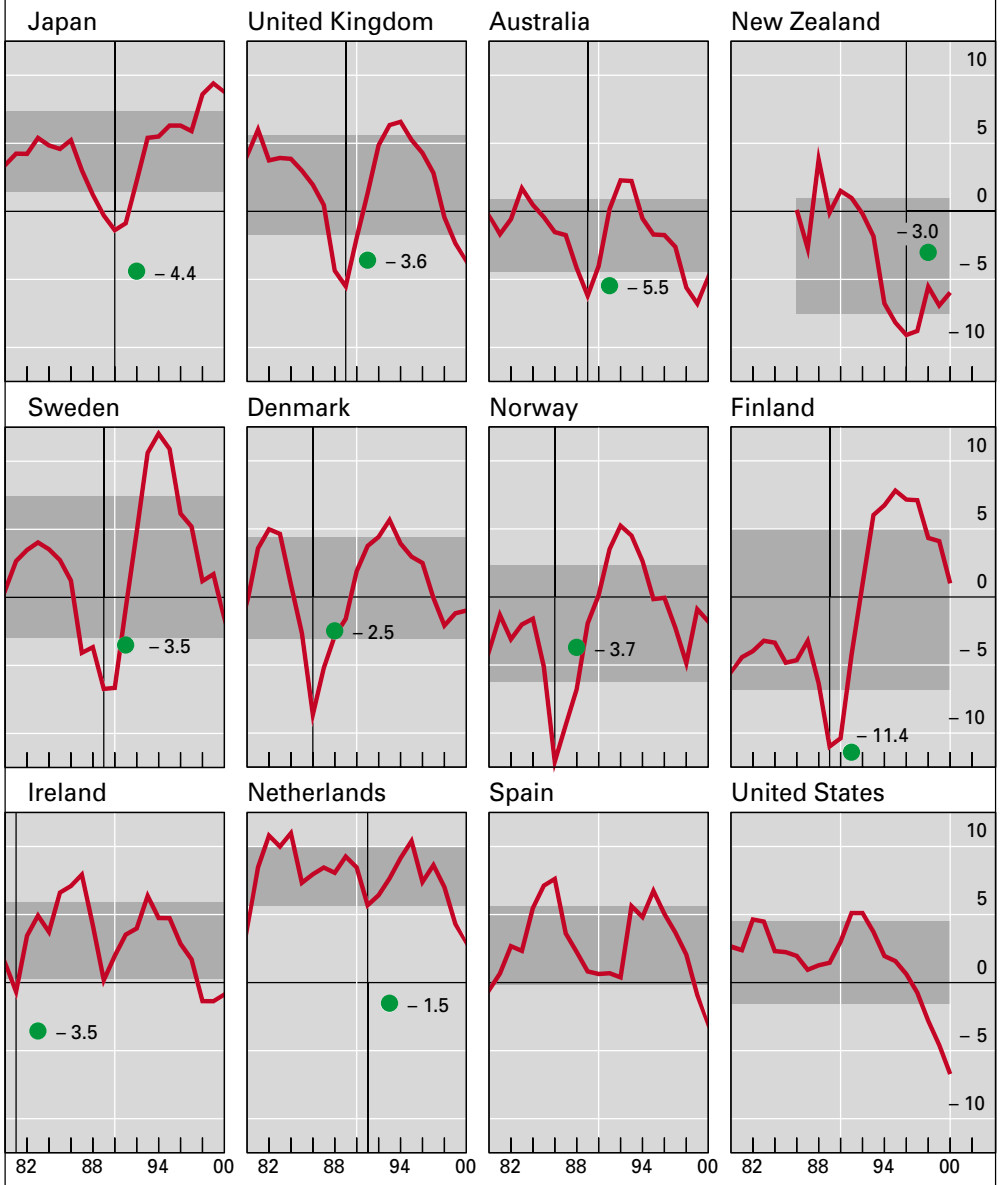
As the US economy slowed during the second half of 2000, the question arose of whether any excesses and fragilities masked by the rapid growth over the preceding years would be exposed. This question needs to be approached from several angles. One perspective starts from the observation that net saving (ie saving minus investment) of the private sector fell to –6½% of GDP in 2000 (Graphs II.8 and II.9), compared with a persistent surplus throughout the 1980s and early 1990s. Although this deficit was easily financed by government and foreign saving, problems could, nevertheless, still emerge. Historically, years in which private sector net saving has fallen significantly below its long-run average (and credit growth to the private sector has been particularly high; see Chapter VII) have typically been followed by a marked slowdown in GDP growth (Graph II.9). This was the case in Denmark and Norway after 1986, in the United Kingdom, Australia and Finland in the late 1980s and in Japan after 1990. Furthermore, in some of the other industrial countries where net private saving was significantly below its long-run average last year (Ireland, the Netherlands and Spain), fears of overheating and financial imbalances have also progressively increased.

Tighter credit conditions

The US private sector financial imbalance also stands out by virtue of the speed with which it emerged: by almost 12% of GDP since 1992. The associated increase in debt (Graph II.10) and fears that slower growth of nominal income and cash flow might cause debt servicing problems were among the factors leading to tighter credit market conditions and stricter lending standards imposed by banks. The proportion of banks which implemented stricter credit standards last year was the highest since the 1990–91 recession. Moreover, by the end of last year, corporate bond spreads were wider than at the height of the 1998 crisis (see Chapter VI). In addition to rising debt levels, the faster technological changes associated with the new economy may have



Net private saving[1]



Note: The shading represents ±1 standard deviation around the mean of the observation period, and the dots the change in GDP growth two years after the indicated trough.

[1] As a percentage of GDP.

Sources: OECD; national data. Graph II.9

contributed to bondholders' concern about the creditworthiness of previously highly rated borrowers. Companies which have invested heavily in high-tech equipment face uncertain earnings prospects and are unlikely to generate stable cash flows. In addition, their depreciation costs will initially rise sharply, and even precipitously, if new technologies actually make their capital stock obsolete.

Developments in national saving

Of course, trends in net private saving and debt in the major economies need to be seen in the light of changes in total saving and investment as well as in their sectoral composition. First, US national saving as a percentage of GDP remained relatively stable during the 1990s. Given the traditionally

procyclical behaviour of saving and the rapid expansion of income, this apparent stability may conceal a deterioration in the underlying saving rate. Nonetheless, it appears that the rise in the aggregate saving deficit can mainly be attributed to the buoyancy of investment spending. This is in marked contrast to developments in Japan, where uncertainty about the future has kept private saving relatively high and prevented the aggregate saving rate from falling as steeply as the aggregate investment ratio. The euro area presents yet another picture as the aggregate saving and investment ratios have been largely stable over the last decade.

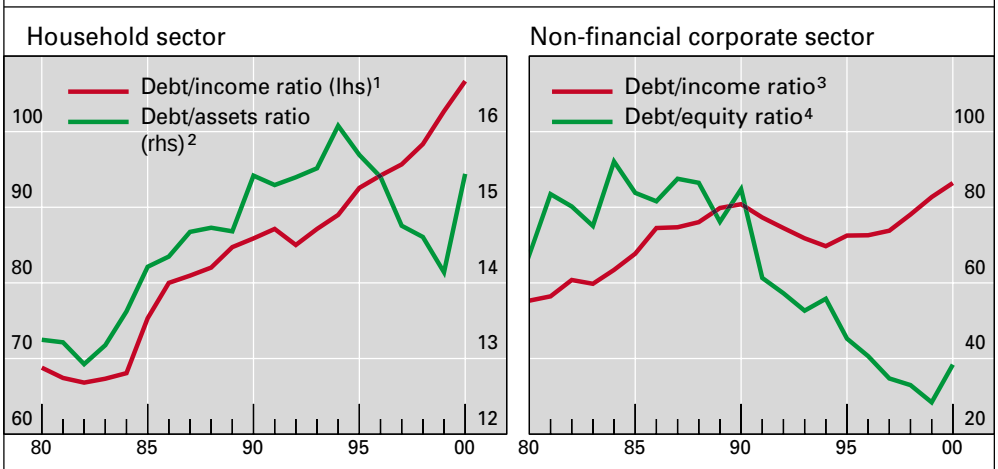
General decline in household saving

Second, the decline in private saving (and the associated rise in financial imbalances and debt) has generally been more pronounced for the household sector (Table II.3). Since its peak in 1992, the saving rate of US households has fallen by almost 9 percentage points and even sharper declines have been observed in Canada, Finland and Sweden. The indebtedness of US households relative to GDP has risen more sharply than that of the corporate sector. Similar developments have been observed in the Netherlands and Australia and, to a lesser extent, in Italy and Canada. Nevertheless, lower mortgage rates in many countries have helped to contain debt servicing costs despite rising indebtedness. In addition, household indebtedness has been stable or declining when measured relative to wealth although, in some cases, this may have changed with the recent sharp fall in equity prices.

Increased indebtedness of US corporations

Third, while the ratio of US corporate debt to corporate value added has indeed increased to an all-time peak, the debt/equity ratio has fallen significantly during the last decade despite large debt-financed equity buybacks (Graph II.10). If investment has been excessive and equity prices have overshot future earnings prospects, this debt/equity ratio would of course provide a false picture. However, using accounting values instead of market values, the debt/equity ratio last year would still have been below its

Private sector indebtedness in the United States



[1] Gross debt as a percentage of personal disposable income. [2] Gross debt as a percentage of total assets. [3] Gross debt as a percentage of GDP in the corporate sector. [4] Gross debt as a percentage of market value of equities issued by the corporate sector.

Sources: Board of Governors of the Federal Reserve System; US Department of Commerce. Graph II.10

Developments in household saving rates

	in percentages and percentage points							
	Canada	Sweden	Finland	United States	Italy	New Zealand	Denmark	United Kingdom
1990s peak	13.2	11.5	10.0	8.7	18.7	5.5	11.2	11.4
(year)	(1991)	(1993)	(1992)	(1992)	(1991)	(1991)	(1990)	(1992)
2000	3.2	2.0	0.7	–0.1	10.4	–1.9	4.2	4.4
Change[1]	–10.0	–9.5	– 9.3	–8.8	–8.3	–7.4	–7.0	–7.0
Debt/GDP[2]	*16.2*	*–4.7*	*–15.8*	*18.2*	*14.3*	*…*	*8.2*	*16.4*
	Australia	Netherlands	Japan	Belgium	Germany	Spain	Switzerland	France
1990s peak	9.3	14.9	15.4	18.4	13.1	14.4	10.8	16.2
(year)	(1990)	(1995)	(1991)	(1992)	(1991)	(1993)	(1993)	(1997)
2000	3.1	9.4	11.1	14.3	9.8	11.6	8.1	15.8
Change[1]	– 6.2	–5.5	– 4.3	–4.1	–3.3	–2.8	–2.7	–0.4
Debt/GDP[2]	*30.0*	*22.4*	*12.6*	*13.5*	*18.8*	*16.0*	*…*	*–0.2*

[1] From 1990s peak to 2000. [2] Change in household debt/GDP ratio, 1981–90 (for Finland, 1992; for Denmark and the Netherlands, 1995; for the United Kingdom, 1987; for Australia, 1988; for Germany, 1991) to latest observation.

Sources: OECD; national data. Table II.3

long-run average. In addition, the ratios of net interest payments to cash flow and current assets were largely stable during the 1990s. Nevertheless, when the debt and liquidity measures are disaggregated by firm size, there is evidence of rising vulnerabilities for small firms. Such firms are more likely to be "squeezed" in financial markets, particularly if they have no established earnings record.

Comparison with Japan in the late 1980s reveals similarities …

It is interesting to compare developments in the United States since the mid-1990s with those in Japan during the second half of the 1980s. As Table II.4 shows, there are a number of similarities but also significant differences. In both cases, average GDP growth rose compared with the previous five-year period and labour productivity growth as well as the rate of technological progress increased. Both countries also saw the ratio of investment in machinery and equipment to GDP increase, with capital deepening contributing significantly to the growth of labour productivity. In both cases, the investment surge can probably be attributed to higher anticipated rates of return in conditions of low costs of capital. Long-term real interest rates remained stable or fell during the expansion and, when the rise in price/earnings ratios (or the implicit decline in the equity premium) is also taken into account, the overall cost of capital is likely to have been very low. Despite the higher pace of output growth, inflation declined in both countries as faster productivity gains and an appreciating currency helped to dampen cost pressures. Both countries also saw an improvement in the budget balance and a decline in net private saving.

… as well as differences …

Turning to the differences, the annual average growth of broad money relative to that of nominal GDP during the boom years was somewhat higher in Japan (4.1 percentage points) than in the United States (2.6 percentage points). Moreover, the extent to which the additional liquidity boosted asset

prices was more pronounced in Japan, notably for property but also for equity. The rise in leveraging of the private sector was also sharper in Japan than in the United States and, since most of the corresponding credit growth during 1986–90 can be attributed to bank lending, Japanese banks increased their risk exposure more than US banks during 1996–2000. This is particularly true with respect to the sectoral distribution of loans, as bank lending in Japan was highly correlated with the speculative rise in property prices. By contrast, in the United States, lending to goods and service producers accounted for most of the growth in bank credit.

... notably with respect to the external balance

Another key difference concerns developments in the external account. While Japan experienced a rise in its current account surplus and in net capital outflows during 1986–90, the US expansion was accompanied by a widening current account deficit and a growing need to attract foreign capital. While probably not sustainable in the long run, the external imbalance may have had some benefit in that US enterprises were put under constant pressure – domestically as well as internationally – to improve their profits and rates of return. Japanese firms were also exposed to competitive pressure, particularly from other Asian countries. Nonetheless, their main challenge was to look for favourable investment opportunities abroad.

Correcting the capital stock

The drop in the Japanese investment ratio during 1991–95 may indicate that the investment boom, which included machinery as well as structures, went too far and that the downward correction of a capital stock with a

Comparative developments in Japan and the United States

	Japan			United States	
	1981–85	1986–90	1991–95	1991–95	1996–2000
GDP volume[1]	3.3	4.9	1.4	2.4	4.3
Labour productivity[1]	2.3	3.4	0.8	1.4	2.7
Consumer prices[1]	2.8	1.3	1.4	3.1	2.5
Non-residential investment/GDP[2]	15.7	17.9	16.7	10.4	12.5
Real interest rate[3]	4.8	4.2	3.6	4.2	4.1
Price/earnings ratio[4]	35.2	69.5[5]	86.5	17.5	32.4[5]
Imports/GDP[2]	12.5	8.1	7.5	11.1	13.2
Residential property prices[6]	131	190	172	113	147
Equity prices[6]	211	563[5]	314	187	452[5]
Nominal effective exchange rate[6]	129	154	208	99	122
Net private saving/GDP[2]	4.7	1.6	3.7	3.5	–2.8
Budget balance/GDP[2]	–2.8	1.3	–1.1	–4.5	0.1
Current account/GDP[2]	1.8	2.8	2.6	–1.0	–2.7
Net capital inflows/GDP[2, 7]	–1.3	–3.6	–0.9	0.1	3.3
Household saving/disposable income[2]	22.0	17.6	14.0	7.2	3.1
Household debt/GDP[8]	47	61	63	67	74
Enterprise debt/GDP[8]	99	131	132	69	73
Broad money[1]	8.3	10.4	2.1	1.8	8.7

[1] Average annual percentage change. [2] Percentages, average for period. [3] Ten-year nominal rate less annual rate of inflation (consumer expenditure deflator), average for period. [4] End of period. [5] Peak in final year. [6] Index (1980 = 100 for Japan; 1990 = 100 for the United States), end of period. [7] Net direct investment and portfolio flows. [8] Percentages, end of period.

Sources: OECD; national data; BIS. Table II.4

relatively long economic life is both protracted and painful. By contrast, the US investment expansion has mostly been confined to high-tech equipment with a relatively short economic life. Hence, potential excesses can be more quickly corrected, though potential losses to creditors and investors may still be high.

Developments in world trade and external balances

Marked increase in world trade and in foreign trade shares of output

With the pickup in global growth to the highest rate in more than 15 years, world trade (in volumes) increased by 13½% compared with 1999 (Table II.5). Foreign trade as a proportion of global output thus rose further last year, continuing a trend that has been evident throughout the postwar period. To a large extent, this trend reflects changes in firms' production processes (Table II.6). Due to more intensive competition in global goods markets, and reinforced by firms' attempts to reap the benefits of increasing returns to scale at the plant level, production processes have become increasingly decomposed, vertically as well as horizontally. Compared with the past, each process now involves a growing number of intermediate stages which are spread across countries and thus contribute to the growing trade shares by country. Thanks to technological progress and lower communication costs, more and more services have also become tradable and this too has contributed to the rise in foreign trade shares. Nonetheless, and somewhat surprisingly, the measured proportion of services in world trade has remained remarkably stable.

Continuing decline in goods prices

Despite the acceleration of trade volumes, the decline in international trade prices (in dollars as well as in SDRs) for manufactured goods observed throughout the 1990s continued last year, providing further evidence of firms' loss of pricing power in global goods markets. Given the sharp rise in oil prices and the turnaround in prices of other commodities, the terms of trade of the industrial countries deteriorated last year. In contrast, developments in foreign trade prices provided a significant boost to real income developments in oil-exporting countries as well as in countries reliant on exports of metals.

World trade and prices

	1991–97	1998	1999	2000
	annual percentage changes			
Trade volumes	7.1	4.6	5.6	13.4
Trade prices (in US dollars)	0.2	– 6.1	–1.5	–0.3
Manufactures	0.1	– 1.7	–2.0	–6.2
Oil	–2.5	–32.1	37.5	56.9
Other commodities	1.8	–14.7	–7.1	1.8
Terms of trade				
Industrial countries	0.3	1.7	0.1	–3.4
Emerging market economies	–0.7	– 7.1	5.0	6.4

Source: IMF, *World Economic Outlook*. Table II.5

Foreign trade shares[1]

	1981–90	1995	1999	2000
	as a percentage of GDP			
United States	7.9	11.6	13.9	14.8
Euro area	11.9	14.3	17.6	19.0
Japan	7.1	8.4	9.1	9.9
United Kingdom	22.9	28.5	33.9	35.9
Canada	23.7	35.9	43.7	46.3
Australia	13.3	18.4	20.5	21.6
Sweden	28.4	37.1	45.0	47.7
Switzerland	28.8	33.1	39.2	41.4
Trade in services/total trade	*21.5*	*20.4*	*21.2*	*19.9*

[1] Average of exports and imports in goods and services, national accounts definition (in real terms).

Sources: OECD; national data. Table II.6

Deterioration in the external balance of the euro area

Turning to changes in external balances, one of the more surprising developments in recent years has been the deterioration in the current account balance of the euro area: from a surplus of about $70 billion in 1997 to a deficit of more than $30 billion last year (Table II.7). During 1997–99, when demand growth in the euro area was relatively slow, the rise in imports (in both nominal and real terms) far outpaced that of exports. And last year, when the depreciation of the euro helped significantly to raise export growth, imports expanded even faster owing to the combined effect of higher oil prices and a lower exchange rate. Italy accounts for about one third of the deterioration since 1997, reflecting substantial losses of export market shares and a relatively high reliance on imported oil. Germany and Spain account for about 20% each. In the case of Germany, the deterioration has mainly been the result of increasing deficits on the service and net investment accounts while the larger trade deficit in Spain can be attributed to unusually strong import growth.

The United Kingdom has also seen a large deterioration in its current account (2¼% in terms of GDP since 1997), most of which can be attributed to a rising trade deficit. In contrast, Canada and Norway have experienced improvements equivalent to 3½% and 8¼% of GDP respectively. In the case of Norway, this is mainly the result of higher oil prices, while Canada has

Balance of payments in the three major economic areas

	Current account			Net FDI and portfolio flows			Overall balance[1]		
	1998	1999	2000	1998	1999	2000	1998	1999	2000
	in billions of US dollars								
United States	–217	–331	–435	174	338	487	– 43	7	52
Euro area	35	– 7	– 32	–218	–166	–144	–183	–173	–176
Japan	120	109	118	– 63	– 36	– 60	57	73	58

[1] Calculated as the sum of the first two sets of columns.

Sources: ECB; national data. Table II.7

Estimated relationship between national saving and investment[1]

	α	β	R^2	Σ*Bop*/*Y*
1980–1989	10.5**	0.58**	0.62	2.3
1990–1995	9.3**	0.56**	0.68	2.0
1996–2000	17.2**	0.19*	0.08	3.6
2000	21.9**	0.01	–0.05	4.9

[1] The equation is estimated across 22 industrial countries as $I/Y = \alpha+\beta(S/Y)$ where I/Y and S/Y refer, respectively, to aggregate investment and saving relative to GDP averaged over the periods indicated in the first column. Σ*Bop*/*Y* is the average balance of payments/GDP ratio, calculated without regard to sign, and * and ** indicate significance levels of 90% and 99% respectively. Table II.8

benefited from strong US demand growth, favourable terms-of-trade changes and lower net interest payments.

Lower correlation between national saving and investment ...

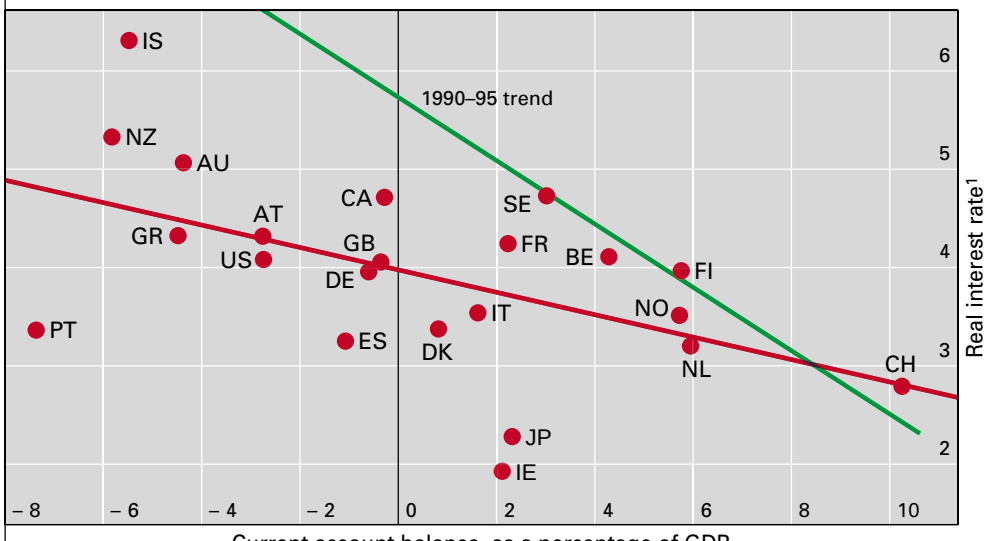
Another interesting, and somewhat puzzling, development is that the historical relationship between national investment and saving ratios appears to have changed in recent years. As indicated by the decline in the estimated regression coefficients from around 0.6 throughout the 1980s and early 1990s to only 0.2 for the second half of the 1990s (Table II.8), investment ratios appear to have become progressively more independent of national saving ratios. The counterpart to this development has been an unprecedented rise in current account imbalances, raising the question as to the forces behind it.

... may reflect the effects of monetary union ...

One explanation might be that as budget imbalances have been reduced, markets have become less concerned about external imbalances. Second, while the move to a monetary union in Europe has significantly increased trade within the region, it has been accompanied by a marked rise in the

Real interest rates and current account imbalances

Over the period 1996–2000



AT = Austria; AU = Australia; BE = Belgium; CA = Canada; CH = Switzerland; DE = Germany; DK = Denmark; ES = Spain; FI = Finland; FR = France; GB = United Kingdom; GR = Greece; IE = Ireland; IS = Iceland; IT = Italy; JP = Japan; NL = Netherlands; NO = Norway; NZ = New Zealand; PT = Portugal; SE = Sweden; US = United States.

[1] Long-term interest rate minus annual change in the consumer expenditure deflator.

Sources: OECD; national data. Graph II.11

Current account balances in the major regions					
	1997	1998	1999	2000	Change 1997–2000
	in billions of US dollars				
Industrial countries	78	–33	–198	–298	–376
Emerging Asia	26	114	112	88	62
Latin America	–67	–90	– 56	– 48	19
Middle East and Africa	– 2	–49	– 9	58	60
Transition economies	–24	–28	– 2	27	51
Total	11	–86	–153	–173	–184

Source: IMF, *World Economic Outlook*. Table II.9

current account imbalances of its members. Indeed, these changes account for about half of the rise in aggregate imbalances between 1990–95 and 1996–2000.

... more accommodating capital markets ...

A third, and related, explanation is that current external accounts have been "driven" or facilitated by the sharp rise in cross-border investment and portfolio flows. This is particularly true for capital flows within the euro area, but also applies to flows between the three major economic areas. As Table II.7 shows, net foreign direct investment and long-term portfolio inflows into the United States have increased in step with the widening of the current account imbalance over the last three years. The overall balance for Japan has also been relatively stable, while the deficit for the euro area has gradually decreased despite the deteriorating current account position. One observation supporting the hypothesis that international capital markets have become more accommodating of saving/investment imbalances is that the sensitivity of real interest rates to current account imbalances appears to have fallen during the 1990s (Graph II.11). In other words, the differentials in real interest rates or expected rates of return required to channel excess saving to countries with favourable investment opportunities and current account deficits seem to have narrowed compared with earlier periods.

... or a widening global discrepancy

Yet a fourth possibility is that the apparent breakdown in the relationship between saving and investment mainly results from measurement errors in global balance of payments statistics. The emergence of a large current account discrepancy for the global economy dates back, at least, to the early 1980s. Since 1997 this discrepancy has been particularly large, with only about half of the deterioration in the aggregate balance of the industrial countries accounted for by improvement elsewhere (Table II.9). However, experience also suggests that as more complete data become available and more countries report their external transactions, the discrepancy tends to shrink compared with initial forecasts and estimates. Consequently, the widening discrepancy shown in the table may prove to be overstated. This would not only imply that the aggregate external position of the industrial countries may have been somewhat stronger than current data suggest but also that the recent relationship between aggregate investment and saving has been more in line with historical patterns.