

The Consumer Takes It All

Global

The real winners and losers from the New Economy

- ▶ **New technologies may have boosted productivity...**
- ▶ **...but they have changed the competitive environment...**
- ▶ **...lifting consumer incomes but hitting profits and shareholders**

Summary

Productivity has been structurally strong but profits have been structurally weak. The main winners from the New Economy have been consumers. Shareholders have lost out and foreign investors who bought into the American Dream are being hit. The economic rebound is underway but the consequences may surprise: among the more obvious implications are weak equities and a weak dollar. Strong housing may be a consequence of strong productivity rather than a cause of higher inflation.

Main points

From the 1950s to the 1980s, there was a strong positive relationship between productivity and profits. Unsurprisingly, therefore, the powerful acceleration in productivity in the second half of the 1990s strongly raised expectations about future profits growth. Yet, profits performance has been very disappointing (even allowing for a decent cyclical rebound this year). The benefits have gone elsewhere, primarily lining the pockets of consumers.

One explanation for these surprising developments stems from changes in industry costs and demand following the introduction of new technologies. At its simplest, companies faced with a new technology might make an accurate assessment of the technology's impact on costs but might be less aware of the impact on sales and pricing. Our assessment suggests that the new technologies have moved industry closer to a perfect competition model, thereby reducing companies' ability to make abnormal profits.

We have analysed the changes to demand structure under three separate headings. First, we look at the changed relationship between demand and inflation. We suggest that a positive asset price shock will lift the level of economic activity, thereby bidding up domestic wage levels. In a global perfect competition model, however, it may prove difficult to pass on higher wages in the form of price increases, thereby constraining profits.

Second, we look at the impact of globalisation. We find compelling evidence to suggest that greater economic openness – partly the result of the revolution in communications technology – has reduced the pricing power of companies in local markets. Prices appear to be increasingly determined at the global level whereas costs are still heavily influenced by the domestic economic cycle.

Third, we look at relative pricing effects. We show that the real winners of the technology revolution have been the users rather than the producers. Collapsing technology prices have boosted the spending power of consumers at the expense of profits within technology sectors. Meanwhile, providers of non-tradable services have won out in the light of rising household incomes and relatively inelastic supply.

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The short version

One of the most fundamental relationships in the global economy in recent decades has been the linkage between productivity and profits. Companies could feel reasonably sure that a pick-up in productivity would lead to rewards in the form of higher profits. During the past five years, however, this linkage has come unstuck. In the US, for example, productivity growth has remained high – certainly higher than we expected – yet profits performance has been dire, even allowing for recent signs of a cyclical recovery (pages 4-6).

US data suggest that, in the late 1990s, the rewards of higher productivity growth fed through directly to employees. Real employee income growth was surprisingly robust, leaving unit labour costs growing at rates similar to the late 1980s, an era of generally higher inflation. Firms, however, were unable to pass on these cost increases in the form of higher prices. The net result was a dramatic decline in the profit share within GDP. Workers gained but shareholders and companies lost out (pages 7-9).

We argue that these corporate losses may have stemmed from a false assessment of the benefits from new technologies. Productivity hopes have, generally, been fully realised. Yet profits have not expanded in the appropriate way. In our view, the failure of companies to deliver decent profits reflects a shift in demand conditions facing individual companies. Put simply, companies have found themselves moving closer and closer to a world of perfect competition and have found it increasingly difficult to generate abnormal profits. Meanwhile, consumers have benefited from rapidly declining prices (pages 10-12).

Technology innovations often produce both winners and losers. Consumers are more likely to benefit over the medium term than producers. As innovations take hold, typically prices collapse, allowing consumers to benefit from a significant and sustained improvement in the terms of trade. There is nothing new about this story: similar conclusions applied at the time of the UK railway boom in the mid-19th century (pages 13-16).

This time around, three dominant global themes have combined to allow consumers to gain at the expense of producers. We assess each in turn. First, we examine the impact of profit expectations and asset price shocks within an open economy with high capital flows. Second, we look at the effects of globalisation on the competitive environment facing a typical firm. Third, we assess the distribution of relative price shocks associated with both the introduction of, and use of, new technologies (pages 17-19).

We argue that profit expectations and associated increases in asset prices lead to a short-term increase in demand over and above the short-term increase in supply. In effect, the bet on higher future incomes leads to higher spending today. This gives rise to an overly tight labour market, implying higher wages and, hence, higher consumer incomes.

Inflation, however, does not pick up. If the host country is able to raise funds from abroad – a key feature of the US story in recent years – excess demand is likely to leak out through the current account deficit. Meanwhile, higher capital inflows imply a stronger currency that, in turn, should force a redistribution of income away from producers (who have to compete in a global market place) towards consumers (who benefit from falling import prices). This process must, necessarily, have a time limit attached to it. Eventually, rates of return on capital will be forced down to the cost of capital, implying that profits growth will not be as strong over the medium term as asset markets might initially imply (pages 20-23).

The short version

Globalisation has had profound effects on domestic inflation determination. For the majority of industrial countries, we show that the correlation between domestic inflation and global inflation was a lot higher in the 1990s than in earlier decades. Equally, the correlation between domestic inflation and domestic unit labour costs was a lot lower in the 1990s than in earlier periods. We conclude that much of the change reflects globalisation effects.

In particular, new technologies have increased price transparency, have broken down barriers to entry and have combined with the introduction of cheap labour from newly integrated parts of the world economy (notably China and former Communist countries). Companies have found themselves in a deflationary environment that has provided a significant terms of trade gain for consumers (pages 24-27).

Relative price movements have been destructive for technology producers. We use US data for both consumer spending and profits to analyse the winners and losers on a sectoral basis. Volume gains in technology goods have been extraordinary over the past 10 years but no more extraordinary than the coinciding collapse in prices. The price declines appear to have promoted a substitution of household expenditure in favour of technology goods. The flip-side, however, has been a complete collapse in profits within this sector.

The price declines in technology have also led to positive income effects both for households and for producers of supply-inelastic services (and, for that matter, housing). One implication of this effect is a general increase in service sector pricing: we conclude that, rather than being a threat to inflation, these price increases are an inevitable consequence of price destruction in other areas (pages 28-35).

A number of key implications stem from these arguments. First, changes in industrial structure, if sustained, may lead to medium term disappointment on profits levels. Second, because of this disappointment, capital returns may be poor. When this is recognised, consumers may have to save more out of current income to fund their longer-term requirements for pensions and foreign investors may reduce their exposure to the US, thereby pushing the dollar to lower levels. Third, companies may find themselves in coming years with an excessive level of capital stock. This is likely to act as a medium term constraint on profits performance.

Fourth, company strategies are likely to vary considerably. Some companies will simply exit their respective industries, unable to cover their fixed costs over the medium term. Others will choose to consolidate, merging in an attempt to pool market share and recreate barriers to entry (think of the automobile industry over the past 80 years). Still others will be forced to invest, not because they expect decent returns but, rather, because they will need to generate ongoing cost reductions in order to survive. Finally, there will be those who choose to cut costs. Some will cut wages or reduce employment, a strategy that will be easier if the economic rebound is weak. Others will invest more heavily in regions offering cheap labour, limiting US current account deficit funding and, hence, undermining the dollar (pages 36-37).

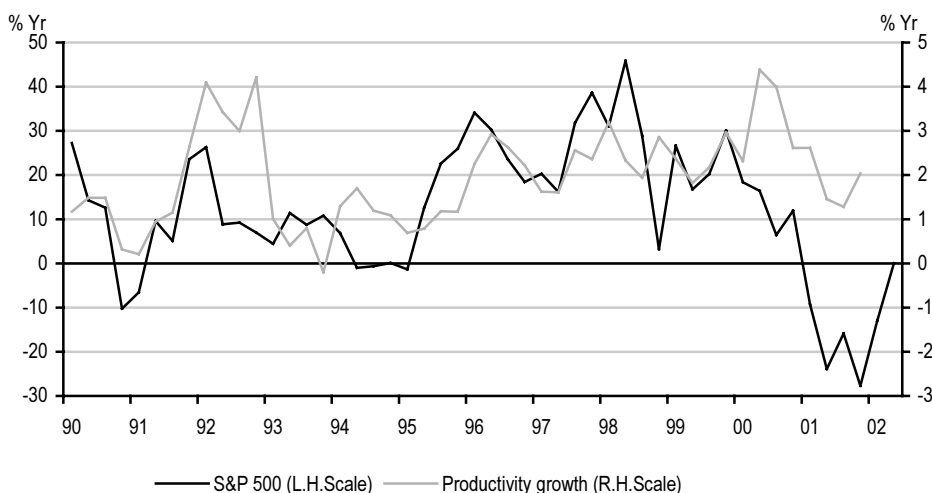
Profits may rebound in the short term for straightforward cyclical reasons. The medium term outlook, however, is not encouraging if our assessment of the changes in industrial structure is well-founded. Ultimately, it is consumers (and the providers of non-tradable services) that emerge as the real winners from the New Economy.

Puzzles and contradictions

A story of inconsistencies

The New Economy has been founded on a mass of contradictions. In the US, there appears to have been a definite improvement in productivity performance (whether labour productivity – as these charts show – or total factor productivity) yet, at the same time, we have lived through both an asset price bubble and subsequent bust (chart 1). The pick-up in productivity growth has been partially maintained through the US economic downswing yet corporate America has seen the biggest collapse in profits in 50 years. Unemployment has risen, a corporate response to the collapse in profitability, yet consumers have cut back their spending to only a limited degree (chart 2).

1. Impressive productivity but poor stock market



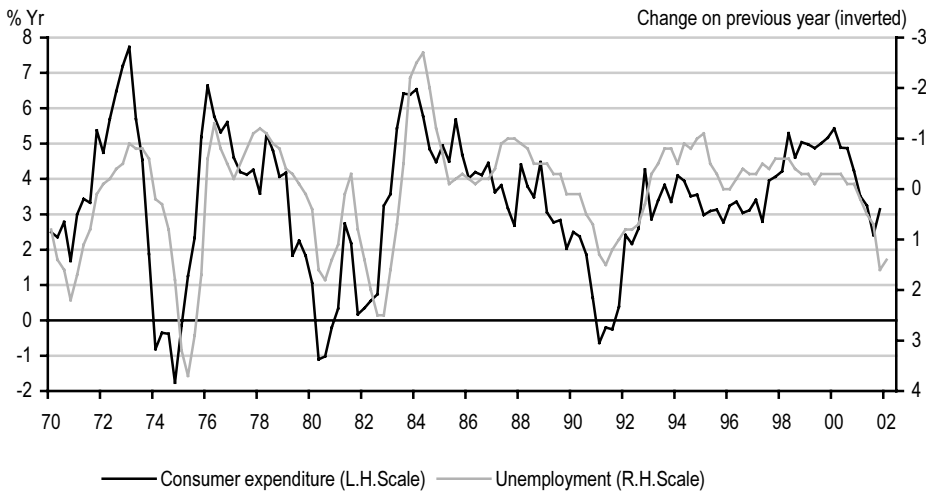
Source: Thomson Financial Datastream

These are puzzling results. The 1990s view of the New Economy was straightforward. The pace of technological change had accelerated significantly. The US, with its flexible labour markets and deep capital markets, was well placed to take advantage. A rapid pace of innovation enabled the US to pull away from its competition in both Europe and Japan, leading to an exceptional period of strong economic growth with low inflation. The gains in productivity seemed to imply higher profits, both immediately and sustainably over the medium term. As a result of these higher profits, asset prices could rise to permanently higher levels. Thus the equity market entered a powerful bull trend in the second half of the 1990s.

The belief in this process was strengthened by a persistent absence of inflation. If inflation was quiescent, there was little reason to worry about the risk of a cyclical downswing in profits or in economic activity more generally. Moreover, there would be little risk of an aggressive tightening of monetary policy, thereby reducing the dangers to interest rate-sensitive areas of the US economy. On that basis, the confidence in future growth could be that much higher, thereby justifying even more elevated levels for asset prices.

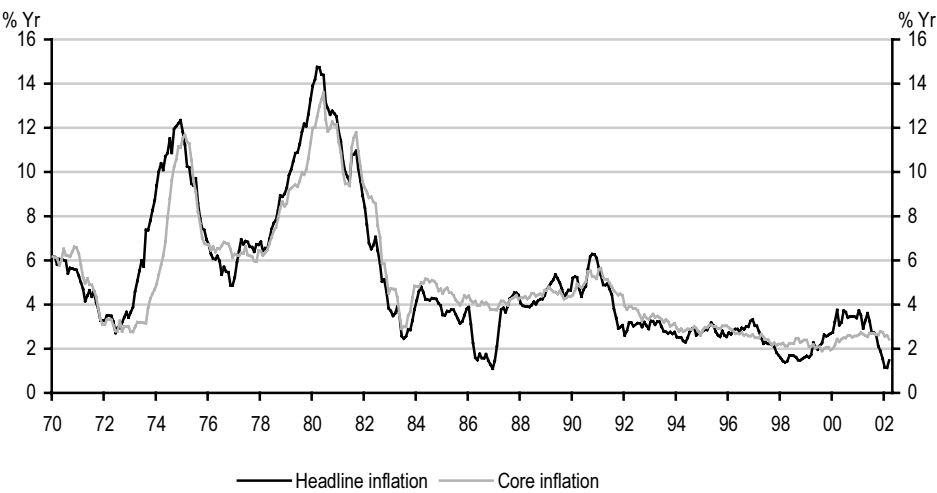
Puzzles and contradictions

2. US consumers have carried on spending despite higher unemployment



Source: Thomson Financial Datastream

3. The era of low inflation



Source: Thomson Financial Datastream

Yet, through the second half of the 1990s, the accumulating evidence suggested that some of these simplistic links were not working terribly well. The productivity story did look very good and continues to do so, even after a slump in economic growth. Yet, despite all the hopes, the corporate profits story has been very disappointing. The profit share within US GDP peaked in 1997 and, thereafter, was stuck in a persistent downward trend (note that S&P profits peaked a lot later). All the while, productivity growth continued at a pace that had not really been sustainably seen during the previous 35 years (see chart 5).

Puzzles and contradictions

Ultimately, the performance of the stock market was tied in more closely with profits than with productivity. Meanwhile, despite the implied sharp declines in household wealth, consumers have, on the whole, continued to spend. With a relatively stable saving ratio, the main reason has been strong growth in real incomes, another puzzling result given rising unemployment in 2001.

These supposed inconsistencies boil down to one issue: the distribution of the benefits of productivity growth within the broader economy. Contrary to expectations, the beneficiaries of strong productivity growth have not been shareholders. Rather, the biggest gains have accrued to workers. Remarkably enough, the period of rapid productivity growth has coincided with one of the worst ever performances for company profits yet one of the best ever performances for real wage growth. Why is it that workers have managed to receive virtually all the benefits of faster productivity growth while companies and shareholders appear, so far, to have received virtually no rewards for their entrepreneurial risk-taking?

This is a key question because it reaches at the heart of the debate about the New Economy. Knowing the path for productivity over the past few years, it would have been difficult to have been sufficiently pessimistic about profits. Equally, knowing the path for profits, it would have been difficult to have been sufficiently optimistic about productivity. How can we rationalise this dichotomy?

This paper attempts to do so. We have tried to tie together a series of “macro” themes that appear to have dominated economic development around the world over the past decade or so. These include the productivity miracle, the boom and subsequent collapse in profits and equity prices, the move towards globalisation and the generally low level of inflation. We suggest that, over the past 10 years, the structure of the world’s economies has changed significantly. The productivity pick-up has been more real than we had imagined. The changing structure of global industry – particularly the competitive environment – suggests that the ability to make profits out of this period of technological innovation is much worse than commonly supposed.

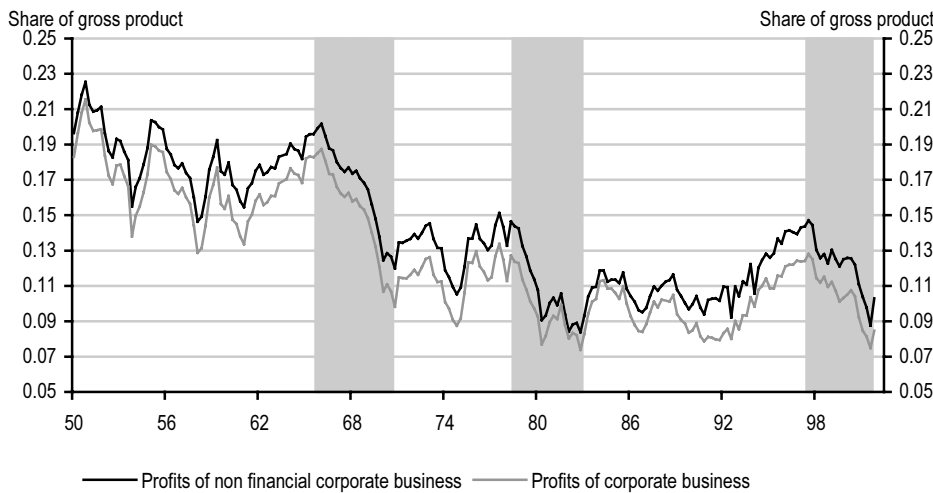
The overall conclusion suggests that – despite a reduction in union power, despite an increase in worker uncertainty – workers in some countries have grabbed hold of the benefits from productivity gains. “Workers of the world unite” may seem like an odd phrase to use in a global free-market environment but, at the end of the day, workers appear to have gained hugely from the productivity surge of recent years. Unfortunately, the same cannot generally be said of shareholders and companies. Investors in the New Economy have ultimately not benefited from their huge outlays, raising questions about the sustainability of high investment spending over the medium term.

Profits and productivity

Rising productivity, collapsing profits

The profits puzzle can be seen graphically. Chart 4 shows the profit share within US corporate GDP, both from an overall corporate perspective and also from a non-financial perspective. Over the past 40 years, there have been three specific occasions in which the profit share has collapsed. The first collapse came in the mid-1960s. The second came at the end of the 1970s. The third began in the late 1990s. On the first two occasions, the profit share subsequently remained depressed for a prolonged period of time. Even though economic growth rebounded, companies lost out. Obviously, profits rose in line with GDP but the overall share remained depressed compared with earlier highs.

4. Three periods of profit share decline



Source: Thomson Financial Datastream

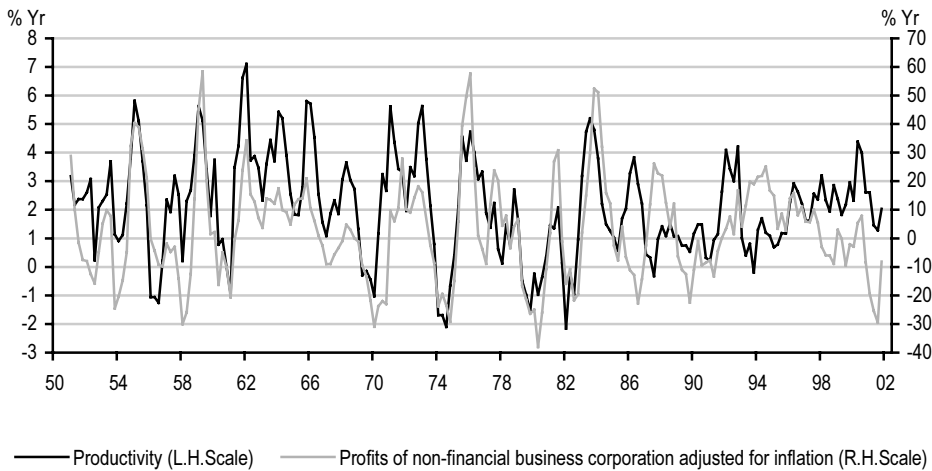
In each of these earlier periods, the collapse in profits signified a major structural shift in the underlying performance of the US economy. The collapse in the mid-1960s presaged a rise in wage costs, a gradual pick up in inflationary pressures and, at the end of the day, the economic upheaval at the beginning of the 1970s. The collapse at the beginning of the 1980s was associated with the attempts by the Federal Reserve and other central banks around the world to squeeze inflation out of the system. In each case, there were ongoing effects on asset prices. Poor returns for all asset classes became the dominant feature of the financial landscape in the late 1960s and through the 1970s. Good returns on financial assets became the dominant theme during the 1980s as declining interest rates dominated the impact of a relatively low share of corporate profits within GDP.

The recent decline in the profits share – and, indeed, in the level of profits – has been particularly puzzling given the evidence outlined in chart 5. The chart shows productivity growth – in this case, output per hour for the non-farm business sector – over the past 50 years against growth in non-financial corporate profits, adjusted for inflation. From the 1950s through to the 1980s, the two series were closely correlated: stronger productivity growth

Profits and productivity

was invariably associated with faster profits growth. Part of this relationship was simply a cyclical story: rapidly rising demand could be associated with both expanding profit margins and cyclical increases in output per hour. Overall, however, it seemed to be the case that companies would invariably be rewarded for exploiting productivity opportunities.

5. Productivity no longer gives profits



Source: Thomson Financial Datastream

The relationship between profits and productivity inverted during the 1990s. Coming out of recession, profits growth was reasonably strong, despite a relatively poor productivity performance. In the second half of the decade, a very powerful productivity performance was associated with a very poor profits performance. This is a particularly surprising result: in earlier periods of strong productivity growth – the early 1960s, for example – substantial rewards fed through to companies and, hence, shareholders. The 1990s experience is, therefore, truly remarkable. Those that took risks – the companies and shareholders – eventually lost out. Those that kept their jobs – and those that were sucked into the labour market during the period of economic boom – benefited enormously.

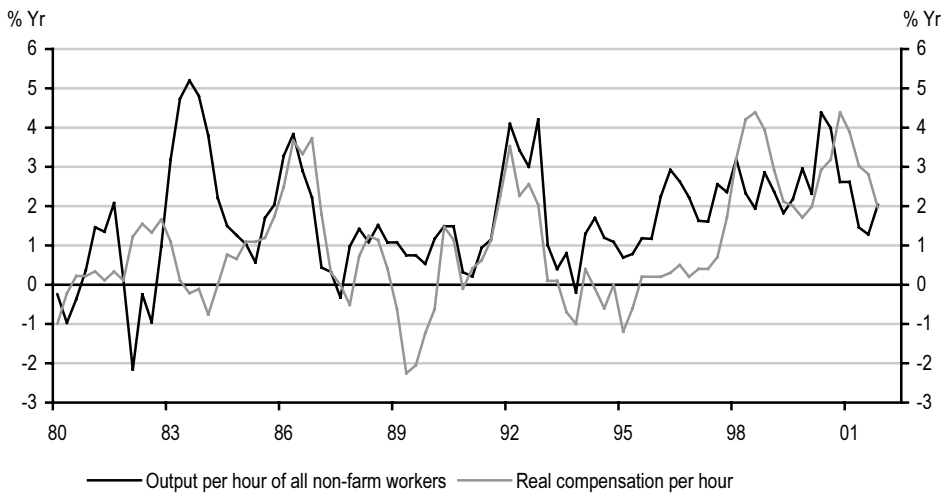
The benefits feeding through to workers can be seen clearly in chart 6. Once again, the chart shows productivity growth but, this time, it is tracked against growth in real employee incomes. For the most part, the relationship has been close but productivity has typically outstripped employee incomes. In other words, some of the gains of productivity growth have accrued to shareholders rather than workers.

That story changed dramatically in the mid-1990s. Both productivity growth and real employee income growth accelerated strongly but, at the margin, employee growth moved ahead more quickly. As a result, the gap between the growth rates of the two series closed up, leaving employees as virtually the sole beneficiaries of the New Economy. The story can be summarised in chart 7. This shows unit labour costs – employee income growth offset by changes in productivity – against inflation. Unit labour cost growth at the tail end of the

Profits and productivity

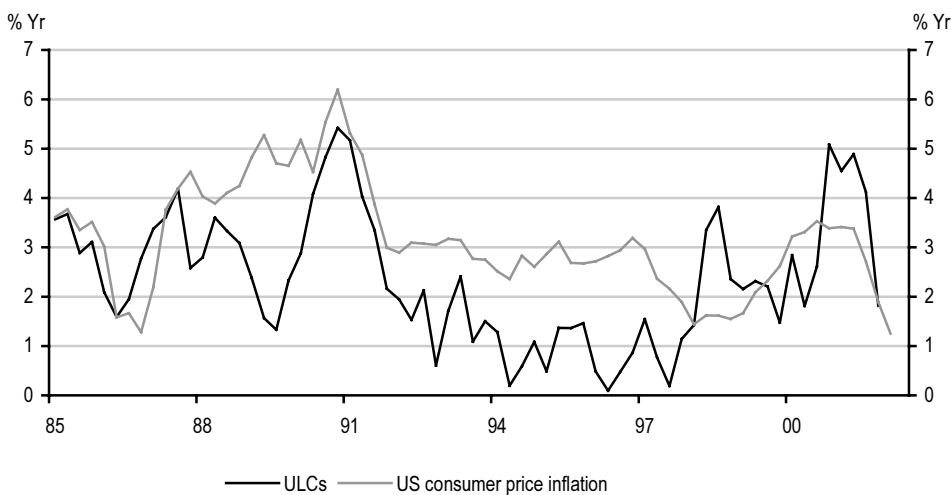
1990s was as strong as it was at the tail end of the 1980s yet inflation was a lot lower. In other words, despite faster productivity growth, the cost story for companies was little changed from the higher inflationary era of the late 1980s. Productivity gains may have been extracted but profitability rewards simply did not materialise. Something odd has happened. Either companies have lost pricing power or they have lost control of costs or, more likely, they have suffered on both counts.

6. Benefits of productivity have been seen in wages



Source: Thomson Financial Datastream

7. Unit labour cost growth as high as late 1980s, inflation not



Source: Thomson Financial Datastream

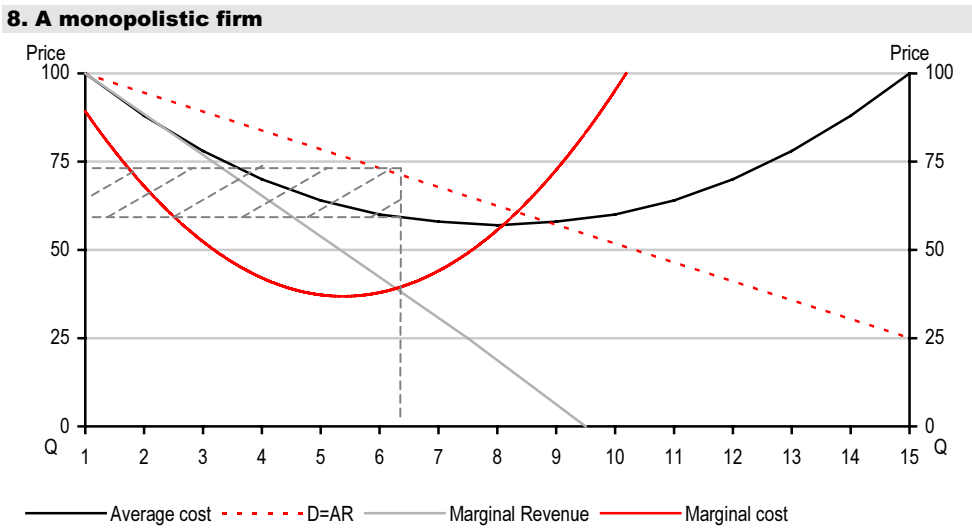
Some possible explanations

A bit of theory

[For those readers not interested in theoretical considerations, this section can be missed out. The main conclusion is that technology can change both the cost and the demand situation facing a firm, implying that abnormal profits may be more difficult to make. Technology innovations may reduce barriers to entry, lead to excessive investment and heighten price transparency.]

Some simple microeconomics might help to set out some of the issues that need to be addressed. Chart 8 shows a standard textbook chart of a firm that has some degree of pricing power or, put another way, has a monopolistic position. Of course, this is an extreme example but, nevertheless, it serves to demonstrate the key issues behind the profits/productivity dichotomy.

The horizontal axis shows the quantity of goods sold and the vertical axis shows the price of goods sold. The firm faces a downward sloping demand curve, indicating that there is pricing power but that the quantity of goods sold will depend on the elasticity of demand as price changes. The cost curves reflect the usual textbook assumptions, namely that the average cost curve falls initially and, thereafter, rises as capacity constraints start to come through. Profits are maximised at the level of output where marginal revenue equals marginal cost and are represented by the shaded area on the chart.



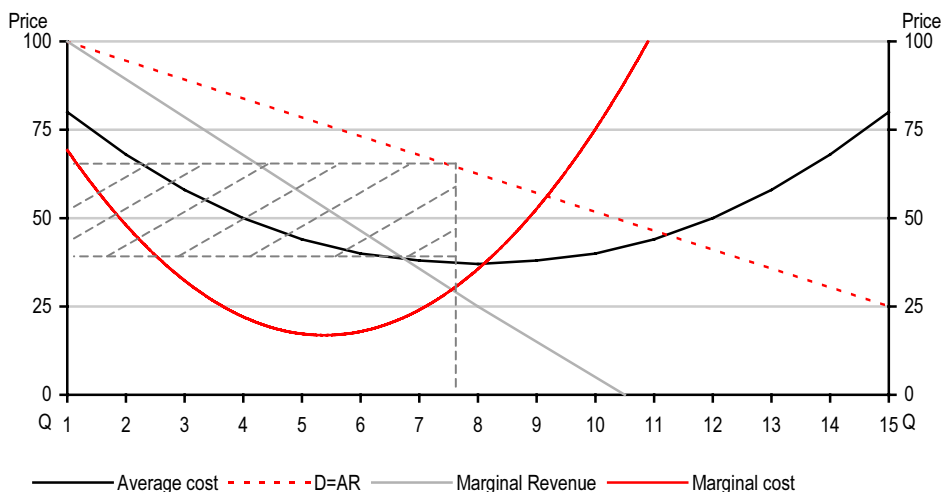
Source: HSBC

The arrival of a new production technology will be seen by the individual firm as an attractive way of reducing costs and, therefore, boosting profits. In other words, the marginal and average cost curves should shift downwards for a given quantity of production. These shifts are shown in chart 9. Assuming no change in demand curves, the net result is an increase in profits. The shaded area is significantly larger than in chart 8. The reduction in costs is, in effect, an improvement in productivity. Output per hour, or output per head, may be raised as a

Some possible explanations

result of the introduction of the new technologies. Other things being equal, the result seems to be a dramatic increase in profits. The incentive for firms to innovate is, therefore, very large.

9. The monopolistic firm's profit expectation faced with new technology



Source: HSBC

Threats to industrial structure

Yet the assumption that other things are equal may not be correct. The new technologies could have a significant impact on industrial structure and the scope for competition. One way in which these effects might feed through is via changes in the demand situation facing the individual company. There are a number of ways in which these changes might occur:

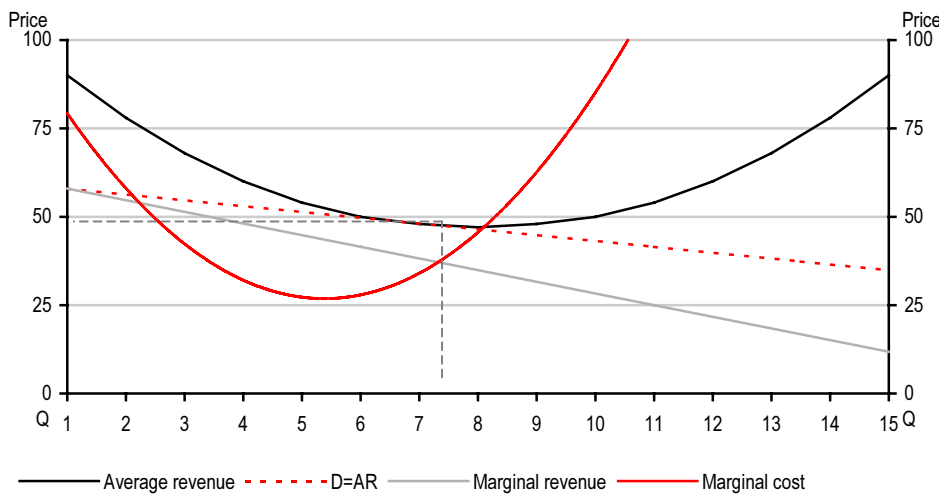
- ▶ **New entrants:** A reduction in the level of costs might attract new entrants into a specific industry. As a result, the incumbents' ability to earn abnormal profits could be seriously undermined. The greater the number of new entrants, the more each individual company would face a flatter demand curve with a lower quantity of output.
- ▶ **Over-investment:** Similar to the new entrants argument, new investment could leave companies with excessive levels of capacity. Overall supply would be unusually high relative to demand, implying that firms might be unable to cover their fixed costs. As a result, they might stay in business in the short term but leave the industry over the medium term.
- ▶ **Greater price transparency:** Moves towards electronic transmission of price information could reduce the ability of companies to engage in price discrimination and other market distorting tactics. As a result, the ability to earn abnormal profits could be seriously reduced.
- ▶ **Globalisation:** The use of technology may have "shrunk the world". Incumbents in individual countries might find it difficult to maintain monopoly profits faced with an

Some possible explanations

undercutting of their cost base by foreign competitors. Of course, this story can work both ways: incumbents could outsource their costs to countries elsewhere in the world, thereby enabling them to maintain relatively high levels of profitability. Nevertheless, on balance, it seems likely that globalisation would imply an increase in competition and, hence, a reduction in the ability of all companies to earn abnormal profits.

These effects are shown in chart 10. The cost curves are held at the same level as chart 9, but the demand and revenue curves have changed shape considerably. At low levels of demand, the demand curve is much closer to the origin, indicating that pricing power is significantly lower than was the case previously. For all levels of demand, the demand curve is much more elastic, suggesting that the industry in which the company operates has moved closer to conditions of perfect competition. In other words, abnormal profits increasingly become a thing of the past and prices are, generally, a lot lower.

10. Monopolistic disappointment in the light of technology advances



Source: HSBC

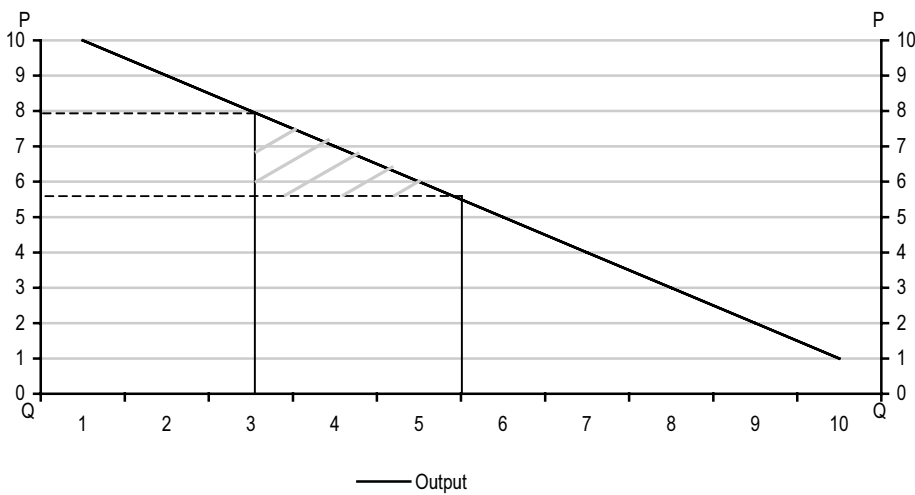
A return to normal profits

Some companies will, of course, do better than others. Those that cover both their fixed and variable costs will be able to remain in business over the long haul. Those, however, that are only able to cover their variable costs will eventually leave the industry altogether. Other things being equal, those that have brought in the greatest cost efficiencies will be those that survive. Note, however, that the changed competitive structure of the industry implies that it will be difficult for the majority of survivors to earn anything other than “normal” profits. In effect, the benefits of the new technology have ultimately been passed onto consumers.

Winners and losers

Earlier periods of technological innovation have often been associated with huge shifts in capital spending, overall economic growth and the performance of equities. Yet, on each occasion, there has been little lasting impact on corporate profits. As the IMF argued in its October 2001 World Economic Outlook “the gains went largely to users, not producers. The benefits were mostly transferred to users through the fall in the relative price of goods embodying the new technology, while profits and wages in producing industries were rarely exceptional by comparison. The classic case is textiles production in the industrial revolution in Britain, where about half of the benefits from falling prices were exported via worsening terms of trade”.

11. As prices fall, the consumer wins



Source: HSBC

These declines in relative prices imply that GDP (in volume terms) is not the best way of gauging the scale of benefits that is likely to accrue to a particular country. In a forthcoming article by Bayoumi and Haacker¹, a different approach is used to assess the distribution of benefits associated with the IT revolution. Rather than focusing on output gains – that tend to accrue to those countries that have an abundance of IT producers – Bayoumi and Haacker also take into account the price declines of IT goods relative to other goods. The idea is to focus on the terms of trade winners and losers stemming from the IT revolution.

The concept is demonstrated in chart 11, which shows the change in the “consumer surplus” associated with a given fall in prices along the demand curve (in this case, from \$8.00 down to \$5.50). The consumer surplus simply shows the extent to which consumers gain as a result of a fall in prices. The concept is straightforward. All consumers pay a single price yet, apart from the marginal consumer at the new, lower, price, all other consumers would have been prepared to pay a higher price. The difference between the price paid and the price

¹ “It’s not what you make, it’s how you use IT: Measuring the welfare benefits of the IT revolution across countries”, December 2000, revised March 2002, IMF

Winners and losers

that marginal consumers would have been prepared to pay is reflected in the shaded area in chart 11.

12. The real winners from new technologies

Country	Impact of IT productivity gains: contribution to real GDP growth 1996-00	Change in social saving 1992-99 (% GDP)
US	0.28	4.1
Singapore	6.71	4.0
Australia	0.03	3.6
United Kingdom	0.30	3.5
Sweden	-0.10	3.2
Korea	0.85	3.2
Switzerland	0.03	3.1
Netherlands	0.13	2.8
Ireland	2.10	2.7
Finland	-0.09	2.7
Japan	0.37	2.6
Malaysia	3.31	2.5
Taiwan	1.50	1.9

Source: Bayoumi and Haacker, 2002

In reality, it is not just consumers that benefit from the falling relative price of IT goods. IT-using producers within an economy should also benefit. As a result, Bayoumi and Haacker have widened the consumer surplus concept to a “social surplus”, reflecting the benefits to all areas of an economy associated with the falling relative price of IT equipment.

A summary of some of their main results is shown in table 12. Although the numbers are subject to considerable uncertainties, they suggest that those countries that benefit from the IT revolution are those which are more IT using than IT producing. Countries like Singapore, Malaysia and Ireland have seen big improvements in GDP associated with the IT revolution but many of these benefits have subsequently dissipated as a result of falling prices of IT equipment. Lower export prices imply a terms of trade deterioration for these countries but, equally, a significant terms of trade improvement for technology using countries elsewhere.

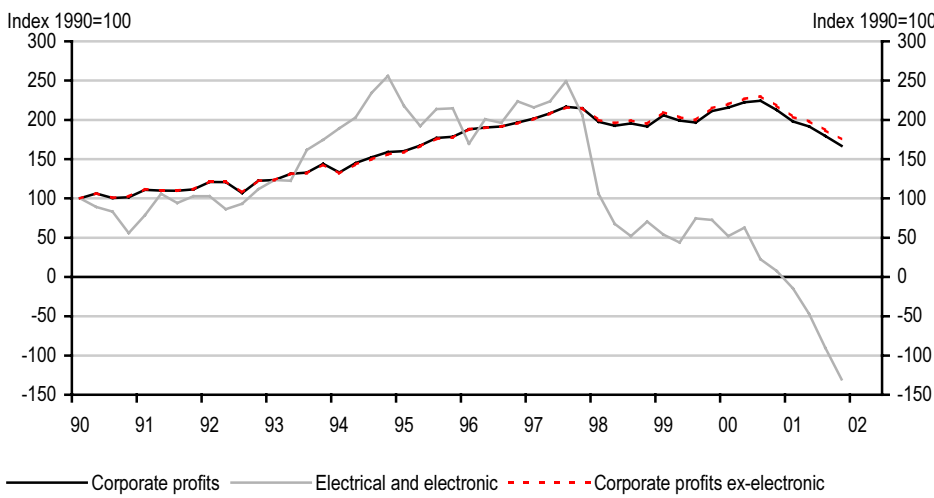
This geographical explanation is based on the assumption that, as a result of conditions approaching perfect competition within IT producing industries, the benefits of the new technologies will ultimately accrue to the consumers of the new technologies. Yet this still fails to explain a key component of the US mystery of recent years, namely the disconnect between profits and productivity. To the extent that the US apparently is an “IT using” country, it should have seen benefits for both households – through rising real incomes – and companies – at least outside the IT producing sector – via higher profits.

The reality, however, is rather different. Household incomes certainly have risen dramatically in recent years but, within the corporate sector, there have been no such benefits. Chart 13 shows three categories of profits for the US economy, indexed to 100 in 1990. The biggest shifts have taken place within the electrical and electronics sectors of the US, where strong profits growth at the beginning of the 1990s was followed by a total collapse from 1997 onwards and, by 2001, a move into outright losses. Total profits excluding this sector have

Winners and losers

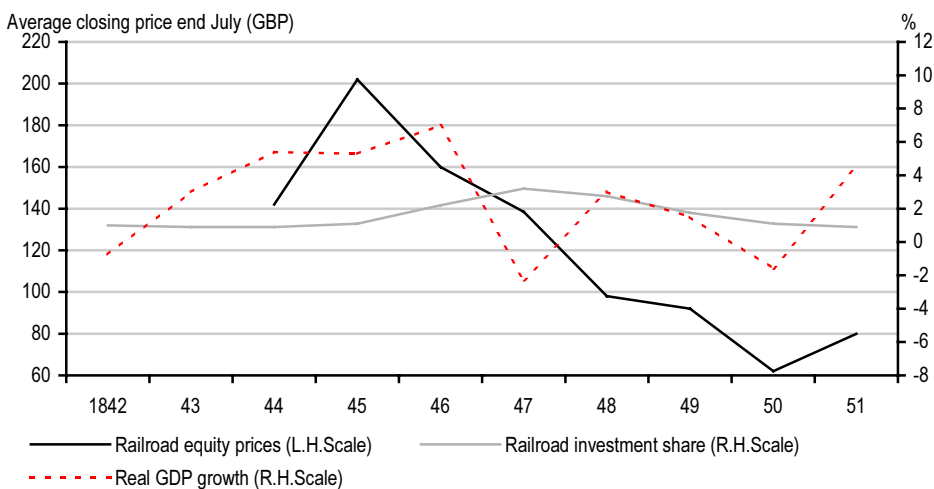
done a lot better in a relative sense but, nevertheless, have not shown any signs of benefiting from “social surplus” effects. Since 1997, there has been no growth in non-IT profits in nominal terms, thereby implying a sustained decline in the profit share within GDP. If there has been a social surplus, it has been taken entirely by households, perhaps explaining their lack of spending restraint despite the significant wealth losses that have occurred in recent years.

13. Profits stalled even excluding the effects of technology



Source: Thomson Financial Datastream

14. The UK railway boom and subsequent slump



Source: HSBC, IMF

Winners and losers

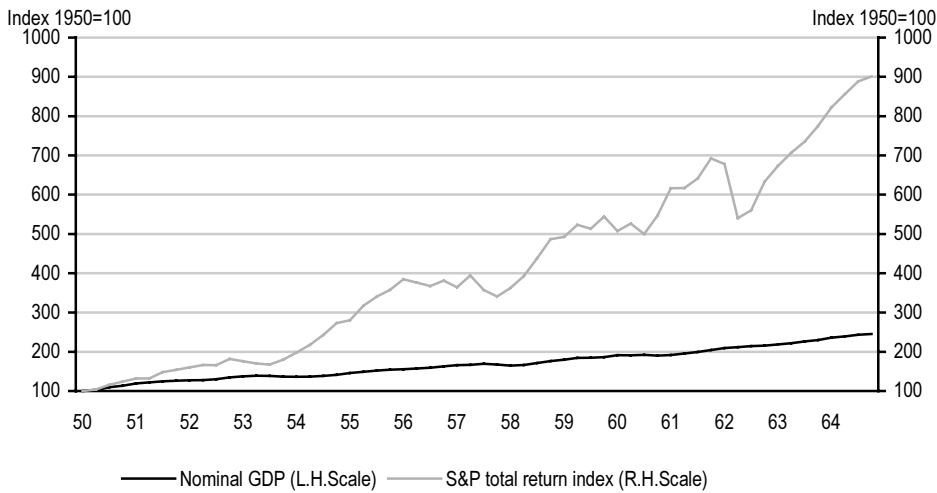
In other words, there is a problem with profitability that goes beyond relative price shifts within the IT-producing sectors of the economy. In the US, the share of profits within GDP has fallen both including and excluding profits made within the IT-producing sector. This suggests that other forces are at work, a conclusion supported by other periods of technological innovation. The expansion of the rail network in the UK in the 1840s led to a very bumpy profile not just for rail profits – and, hence, for rail company equity prices – but also for GDP as a whole.

Chart 14 shows that, during the early 1840s, there was a rapid increase in rail company share prices that led to a significant increase in the share of investment heading in the direction of rail projects. Associated with this increase in investment was a sizeable acceleration in GDP growth. In the late 1840s and into the 1850s, however, the story changed. Relative price declines for rail services led to persistent declines in rail share prices. Rail investment began to fall back as a share of total investment. And GDP growth slumped: the apparent improvement in the trend rate of growth in the early 1840s was not sustained over the medium term. Ultimately, consumers won out – cheap third class tickets were a big growth area – but, nevertheless, the railway boom led to significant macroeconomic disturbances.

The railway mania suggests that the true winners and losers from the introduction of a new technology may take time to emerge, suggesting that expectations and reality could diverge significantly. The railway mania also suggests that there may be disruptions to the path for economic activity that may be difficult to deal with through economic policy or, alternatively, may be exacerbated by policy mistakes. These disruptions may reflect not just the introduction of a new technology but, in addition, changes both to expectations for future profits growth and changes in economic structure either caused by, or coincident to, the arrival of the new technology.

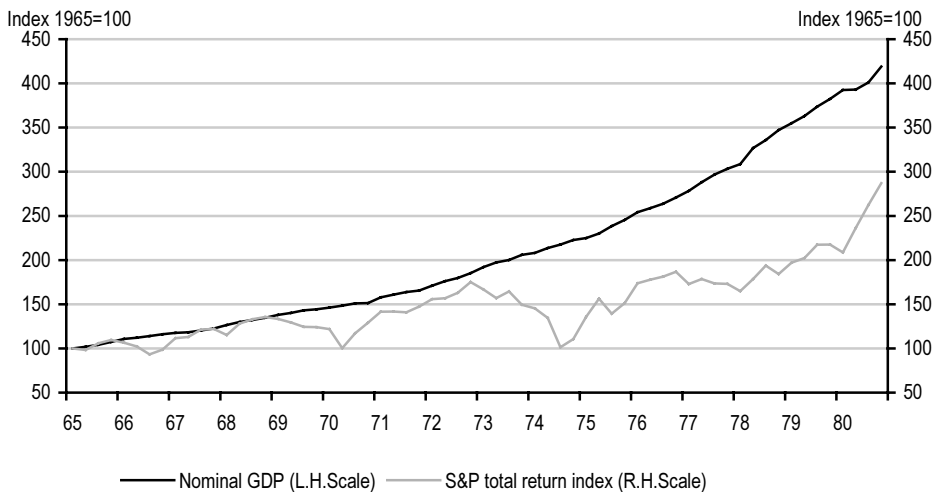
A unified approach

15. Shares outperformed the economy in the 1950s and early 1960s



Source: Thomson Financial Datastream

16. Shares underperformed the economy in the late 1960s and 1970s



Source: Thomson Financial Datastream

Any explanation of the path for profits and productivity over the past 10 years has to say something about income distribution. It has to be able to explain why the rewards of higher productivity have boosted household incomes at the expense of corporate incomes. It also has to explain why, as household incomes have risen, companies have been unable to pass on these cost increases in the form of higher prices. These issues matter. As the global economy recovers, it is important to establish which sectors of the economy will benefit from this recovery. A further redistribution of income towards households alone might lead to

A unified approach

upside surprises for consumer spending but, at the same time, could be associated with a further reduction in the ability of companies to earn decent profits. Under these circumstances, recovery might be associated with poor financial market returns. This would be a repeat of the experience of the late 1960s when strong economic growth was associated with a persistently low profit share within GDP and a very strong period of income growth for households. Asset returns over that period were very poor relative to the experience of the 1950s and the first half of the 1960s and, ultimately, marked the end of an era of golden economic performance (charts 15 and 16).

One way to approach this problem is to think about the various effects associated with the introduction of a new technology. In table 17, we have focused on three main categories:

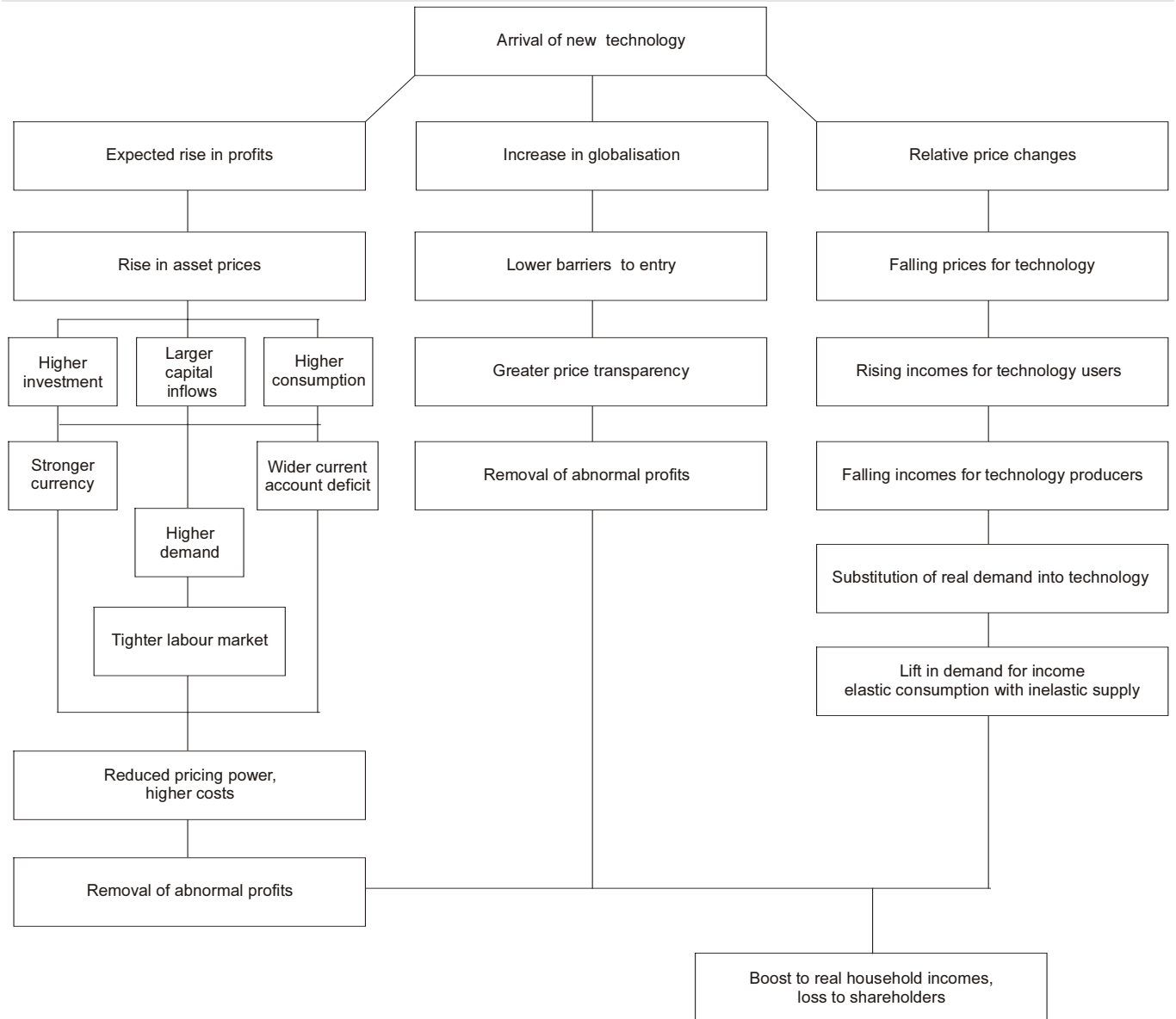
- ▶ First, we have a straightforward demand category. The introduction of a new technology typically leads to heightened expectations for corporate profits. As a result, asset prices – notably equities – begin to rise in value. The increase in asset values may be fuelled by domestic investors but may be augmented by capital inflows from abroad. The gains in asset prices lead to a number of key effects. First, they boost domestic demand. Consumer spending rises through positive wealth effects. Capital spending rises through a reduction in the cost and an increase in the availability of capital. Second, by raising the level of economic activity, they lead to a tighter labour market than would otherwise be the case. Third, they lead to a significant widening of the current account deficit and, simultaneously, a rise in the value of the home currency. Other things being equal, the rise in the currency should suppress domestic inflation pressures by reducing pricing power. At the same time, however, currency strength should imply a redistribution of income towards consumers.
- ▶ Second, we have a “globalisation” category. This is a modern version of the information benefits that stemmed from, for example, the introduction of the railways in the 19th Century. Electronic dissemination of information appears to have acted to reduce pricing power in a whole range of industries, from airlines to banking, from insurance to cars. One of the key assumptions with regard to perfect competition is, of course, perfect and cost-free access to information. To the extent that the new technologies have enabled this to happen, there is an implied redistribution of income from companies to consumers. This suggests that there should be an overall lower share of profits within total income and a reduced ability for producers to deliver abnormal profits.
- ▶ Third, we have a category to assess changes in relative prices, in particular, the price destruction within the new technology areas. This should lead to an improving terms of trade for all non-technology sectors – both consumers and producers – both within countries and across countries. These rising incomes should, at the same time, boost overall demand: for a given inflation rate this, in turn, will imply a rise in the price of non-technology goods and services relative to technology goods and services.

If these factors are relevant, there should be five key implications. Consumers should benefit relative to producers and shareholders. Company profits will fall to permanently lower levels as a share of GDP. The capital spending boom will not generate the expected level of profits. Therefore, initially high levels of capital spending may be followed by a prolonged slump as some companies are unable to cover their fixed costs and eventually leave the

A unified approach

industry. Income for workers and companies within income elastic but supply inelastic non-tradable areas should benefit from the general increase in consumer demand. For consumers in general, they should end up income-rich but capital returns-poor. In other words, they may need to put away more of their current income to build up a stock of assets for later in life.

17. The conceptual impact of a new global technology



Source: HSBC

Demand and inflation

A useful way to think about the demand and inflation nexus is with regard to deviations of unemployment around the non-accelerating inflation rate of unemployment (NAIRU). In the standard model of the 1970s and 1980s, attempts to boost demand above and beyond supply would leave unemployment too low relative to the NAIRU, thereby leading to a pick-up in wages and price inflation. If policy makers knew roughly where the NAIRU was, they could realistically only reduce unemployment to the point at which the NAIRU was reached. Further reductions in unemployment would depend on microeconomic reforms or changes in labour market behaviour that would lead to a reduction in the NAIRU itself.

Implicit within this model was an assumption that excessive levels of demand would lead to a pick-up not only in wages but also in prices. In other words, companies would be able to control their profit margins to some degree. It is conceivable, however, that companies could be in a position where the ability to raise prices in response to a cost shock is seriously undermined. Under these circumstances, the NAIRU concept might apply to wages but not to prices, at least in the short to medium term. Profit margins would be subject to greater volatility and excess demand might ultimately be associated with weak profits as domestic costs rose relative to global prices.

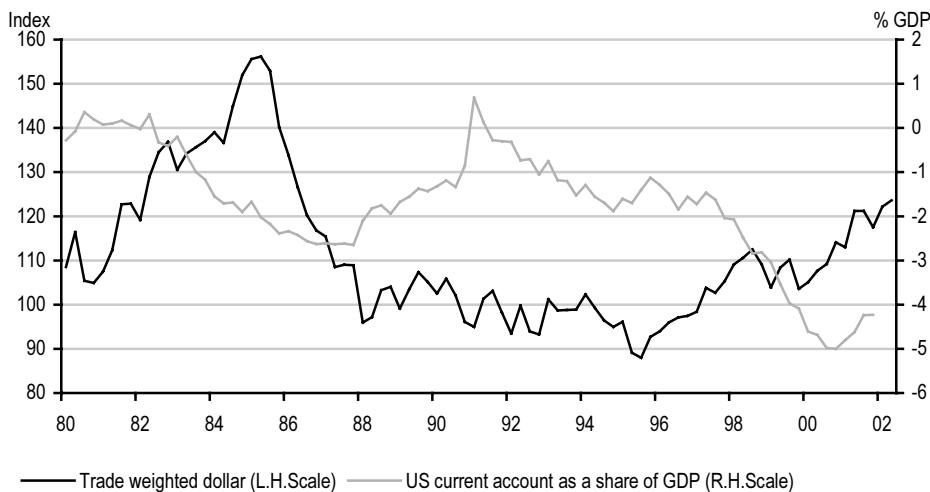
Two factors that might contribute to this result are the globalisation and relative price effects outlined in the previous section and discussed in detail in pages 24 through to 35. In addition, however, the increased openness of modern economies may have led to a breakdown in the relationship between domestic costs and prices. Excess demand pressures, traditionally seen as a cause of higher inflation, could instead be hidden through current account deficits and rising currencies. They could also lead to an automatic redistribution of income via terms of trade effects away from exporters towards domestic consumers: in the short term, this could be bad news for shareholders but good news for homeowners.

A simple way to demonstrate this problem comes from the impact of a new technology that is seen to have far-reaching consequences for the performance of a particular economy. As illustrated in the flow diagram on page 19, the new technology leads to a belief in both higher growth and higher profits and, in response, asset prices rise strongly. These gains boost domestic demand via both wealth effects (supporting consumer spending) and cost of capital effects (supporting capital spending). In a closed economy, the likely consequence would be a rise in inflationary pressures. In other words, anticipated supply tomorrow would lead to excessive demand and, hence, higher inflation today. In an open economy, however, different arguments apply. So long as the "host" economy appears to offer better returns than elsewhere, additional supplies of capital may come from other countries. Under these circumstances, the overall macroeconomic impact is not a pick up in inflation but, rather, a deterioration in the current account of the balance of payments and, at the same time, a rise in the currency that effectively dents domestic inflationary pressures.

Note, however, that this process cannot go on forever. The inflows of capital should ultimately ensure that the rate of return falls to the effective cost of capital. At that point, capital inflows should lessen, domestic demand should weaken and the currency could come under significant downward pressure. What, initially, appeared to be a virtuous circle could then go into reverse.

Demand and inflation

18. The current account deteriorates but the dollar keeps rising



Source: Thomson Financial Datastream

In effect, countries can “live beyond their means” in the short to medium term as a result of large international capital flows. These capital flows have enabled countries to run large current account deficits for sustained periods of time without having to worry about adverse currency effects. The US experience through the 1990s is an obvious case in point. The current account deficit rose rapidly through the second half of the 1990s yet, rather than falling back, the dollar continued to make strong gains. The combination of a strong dollar with a large current account deficit could only mean one thing: voluntary inflows of capital were high enough to fund the current account deficit with something left in reserve.

These balance of payments and currency trends are new features of the global economy, reflecting private sector capital flows and private sector borrowings. In the 1980s, current account imbalances emerged but were primarily the result of public sector borrowing. The US government was the primary global borrower and, to attract the relevant funds, competitive interest rates had to be offered. The net result was a substantial increase in the dollar’s value in the first half of that decade. Back then, lending was relatively risk-free. Admittedly, there was always the danger of a dollar decline but, as an overseas investor, you could always be sure of getting your money back in dollar terms. Over the past 10 years, the same has not been true. The risk faced by foreign investors in buying US assets has been substantially greater. Holding corporate bonds or equities is a lot riskier than holding Treasuries.

Does this matter? From a US perspective, it makes a huge difference. In the 1950s and 1960s, when the Bretton Woods system was in place and countries operated capital controls, it would have been impossible to have run a current account deficit on the scale seen in recent years. Moreover, there would have been no possibility of currency appreciation. Under these circumstances, strong domestic demand growth would have increased cost and inflationary pressures. Competitiveness would have deteriorated and, for

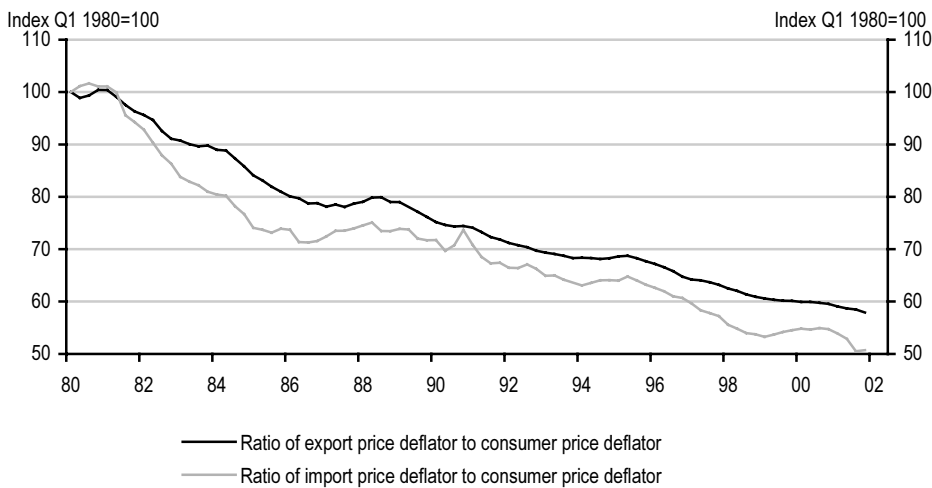
Demand and inflation

the currency to remain stable, domestic demand would have to be deflated. There was no possibility of a country living beyond its means for an extended period of time.

This story has changed dramatically over the past 30 years, reaching its apotheosis in the second half of the 1990s. Over that period, the US managed to attract huge amounts of capital from elsewhere in the world, allowing an expansion of the current account deficit and, at the same time, a significant increase in the dollar's value against currencies elsewhere in the world. This has had two key effects on pricing:

- ▶ The widening of the current account deficit has provided a safety valve on scarce resources. As a result, strong demand growth in the US could be met by higher imports, supported by investors from abroad re-allocating their capital towards the US. The inflationary consequences of strong demand growth may, therefore, have been muted.

19. Import and exports prices relative to domestic prices



Source: Thomson Financial Datastream

- ▶ The persistent strength of the dollar may have reduced the ability of US companies to control both prices and costs. As the economic cycle went into over-drive in the second half of the 1990s, the dollar's strength contributed both to lower import prices and to the suppression of producer output prices. The dollar's strength may have contributed to a breakdown in the relationship – potentially only on a temporary basis – between costs and prices. Higher costs, determined by excess demand growth domestically, would have to be taken on the chin by producers because of the lack of pricing power associated with persistent dollar strength.

Put another way, strong capital inflows and a strong dollar may have acted not just to sustain economic growth over a longer period than might otherwise have been the case but also may have led to a redistribution of income within the US economy. The main winners would be consumers, benefiting from the implied gains in asset prices associated with a belief in the New Economy, a significant tightening of the labour market associated with the

Demand and inflation

demand boost stemming from the period of asset price inflation and, finally, a boost to real incomes associated with a stronger currency and, hence, improving terms of trade. This winning streak for consumers would have further knock-on consequences for the domestic economy, notably a significant lift to housing, house prices and consumer durables.

The main losers would be companies. Profits would be squeezed as a result of the strong dollar. Domestic markets would be penetrated in response to dollar strength. Meanwhile, both domestic and foreign shareholders would lose out, reflecting the increased dependence of the domestic boom on foreign inflows from abroad.

Taken together, these factors might suggest that the NAIRU should be re-engineered. The productivity miracle alone is not sufficient to explain the low levels of inflation recorded in recent years. Unit labour costs in the US have grown as quickly in the second half of the 1990s as they did in the second half of the 1980s. Yet inflation has been considerably lower. The implication must be that the link between costs and inflation has broken down. If this proves to be a permanent feature of the economic landscape, it may simply be the case that periods of excess demand no longer present a threat to inflation but rather to profits. Moreover, to the extent that this is not recognised, economic booms could give rise to a legacy of excess capital stock, associated with a lack of decent returns.

This model could also lead to policy errors. These errors would not so much be cyclical errors associated with undershoots or overshoots of inflation but, rather, errors leading to a misallocation of resources over time. During the period of expansion and strong capital inflows, it might be possible to argue that the economy had entered a new phase of higher growth in productive potential, leading to overly optimistic beliefs in returns on financial assets. Once this period of adjustment was over, however, asset values might be left at too high a level, thereby leaving asset holders nursing much weaker returns than in the past. This, in turn, could lead to sudden shifts in savings from current income, undermining the stability of economic performance. Meanwhile, attempts to engineer an early recovery in economic activity could be self-defeating if this left companies in a position whereby they were unable to reduce their costs against a background of a relatively tight labour market.

One way to guard against these effects might be to include asset prices more explicitly within any decision-making process on interest rates. An alternative would be to target costs rather than prices. A non-accelerating cost rate of unemployment (NACRU) could deal with the disconnect between costs and prices. An acceleration in unit labour costs could be regarded as a sign of excess demand even if there were no immediate risk of higher inflation. The central bank could choose to respond to this cost increase, regarding it as a sign of excessive tightness in the labour market. By doing so, it might avoid wild increases in asset prices and, as the same time, reduce the risk of distortions to the path for domestic demand from one economic cycle through to the next.

Globalisation effects

Globalisation associated with the emergence of better communications technologies should reduce the costs of doing business. Barriers to entry should come down, price transparency should increase, companies should be able to compete across borders and consumers should benefit from this increase in competition.

In our model of globalisation, we make the following assumptions:

- ▶ Domestic wages, in the short term, are a function of domestic demand. Domestic demand, in turn, is a function of global demand, domestic asset prices and the domestic policy stance. The higher the level of demand, the higher the level of wages.
- ▶ Domestic prices are increasingly a function of global, rather than domestic, demand. Manufactured goods prices are increasingly influenced by a global law of one price, reflected in higher trade flows around the world. Formerly non-tradable services – telecoms, insurance, brokerage services – also become increasingly influenced by a global law of one price as the communications revolution encourages trade in these areas.²

If this model is right, companies cannot easily contribute to a “wage-price” spiral. Activity within the domestic economy determines labour costs. Activity in the global economy determines prices. Given this disconnect, the ability to control margins is significantly reduced. Margin expansion will be achievable only through cost cutting, not through price increases (unless all economies in the world are booming at the same time). Cost cutting will only be achievable during periods of economic weakness. During periods of strong domestic expansion, margins are likely to be compressed.

What evidence can support this view? To be consistent, we would expect to see the following results:

- ▶ The linkage between domestic price movements and domestic cost movements should weaken, at least in the short term.
- ▶ Domestic price movements should become increasingly correlated with price movements elsewhere.

Table 20 presents the key evidence. Within the table, we have shown the correlation coefficients of domestic inflation both with domestic business sector unit labour costs (including private sector manufacturing and services) and with inflation in the OECD area. We have spilt the results both across countries and across four different decades. The following conclusions apply:

- ▶ For the majority of countries, the correlation between domestic inflation and unit labour costs has declined over the past 30 to 40 years.
- ▶ For the majority of countries, the correlation between domestic inflation and OECD inflation has risen over the past 30 to 40 years.

² For a more detailed discussion of some of these issues from a UK perspective, see “The Pricing Behaviour of UK Firms” by Nicoletta Battini, Brian Jackson and Stephen Nickell, External MPC Unit Discussion Paper No. 9, 2002

Globalisation effects

20. Domestic and international determinants of domestic inflation: correlation coefficients across countries and over time

	1960s	1970s	1980s	1990s
US CPI correlated with				
1. Domestic ULCs	0.954	0.921	0.839	0.543
2. OECD inflation	0.739	0.920	0.759	0.826
Japanese CPI correlated with				
1. Domestic ULCs	n/a	0.954	0.814	0.867
2. OECD inflation	n/a	0.571	0.701	0.594
German CPI correlated with				
1. Domestic ULCs	0.592	0.796	0.434	0.742
2. OECD inflation	n.a.	0.179	0.734	0.335
French CPI correlated with				
1. Domestic ULCs	n.a.	0.841	0.979	0.596
2. OECD inflation	n.a.	0.963	0.754	0.835
Italian CPI correlated with				
1. Domestic ULCs	0.440	0.835	0.978	0.682
2. OECD inflation	-0.168	0.873	0.798	0.821
UK CPI correlated with				
1. Domestic ULCs	-0.297	0.836	0.678	0.637
2. OECD inflation	0.501	0.686	0.555	0.819
Canadian CPI correlated with				
1. Domestic ULCs	0.078	0.748	0.909	0.743
2. OECD inflation	0.858	0.841	0.832	0.727
Belgian CPI correlated with				
1. Domestic ULCs	n.a.	0.918	0.671	0.583
2. OECD inflation	n.a.	0.555	0.607	0.725
Dutch CPI correlated with				
1. Domestic ULCs	n.a.	0.688	0.373	0.332
2. OECD inflation	n.a.	0.172	0.768	0.337
Spanish CPI correlated with				
1. Domestic ULCs	0.406	0.504	0.796	0.679
2. OECD inflation	0.085	0.601	0.673	0.771
Swedish CPI correlated with				
1. Domestic ULCs	0.677	0.818	0.475	0.370
2. OECD inflation	0.281	0.508	0.672	0.811

Source: OECD, Thomson Financial Datastream, HSBC calculations

Globalisation effects

- ▶ For eight countries out of the 11 examined, the correlation coefficient of domestic inflation against OECD inflation was higher in the 1990s than the correlation coefficient of domestic inflation against domestic costs. During the 1980s, the position was exactly reversed, with eight countries out of the eleven having a higher correlation coefficient between domestic prices and domestic unit labour costs.
- ▶ The two countries where the results are generally at odds with this overall conclusion are Japan and Germany. In both cases, there are good reasons. For Japan, the peculiarities of deflation have led to a very different performance for the Japanese economy over the past 10 years relative to countries elsewhere. For Germany, the shocks associated with reunification gave rise to spikes in both unit labour costs and final demand, leading to a breakdown in the relationship between the German and international price level (in other words, Germany suffered a massive loss of competitiveness at the beginning of the 1990s as its price level rose relative to prices elsewhere – it is difficult to imagine this kind of effect in the absence of such a massive internal shock that was associated with a dramatic easing of fiscal policy).

There are a number of possible explanations for these results. Some are consistent with a move towards greater globalisation. Some may have more to do with a greater consistency of policy aims. But each of them has to explain why the process of de-linkage between domestic prices and domestic costs has been particularly sizeable through the 1990s. Here are some of the possibilities:

- ▶ **The technology revolution has, in general, reduced barriers to entry in all fields.** Thus, for airlines, banks, insurance companies and other service sector activities, there has been a significant increase in the competitive environment both within borders and across borders.
- ▶ **The introduction into the global economy of cheap labour from former Communist countries and from China may have led to a significant deflationary impetus on the prices of the majority of tradable goods.** Given that the scope for trade may have increased at the same time, this will have exerted significant downward pressure on pricing and may have reduced the link between the domestic costs of high income countries and global prices. Thus, although strong domestic demand may have contributed to a significant increase in US costs in recent years, the global competitive environment may have reduced the ability of US companies to pass on these increases in the form of higher prices.
- ▶ **The Japanese deflation has led to persistent downward pressure on global pricing and global interest rates.** As a result, companies have found it difficult to raise prices but have, nevertheless, been given access to relatively cheap capital, leading in the first instance to an investment boom but, subsequently, to an excessive capital stock with fixed costs that cannot ultimately be justified. In turn, this has promoted downward pressure on pricing at the global level.

Globalisation effects

- ▶ **The Asian crisis may have led to a one-off downward shock to prices relative to domestic costs.** Certainly, this is a possible explanation but it is not fully consistent with the apparently strong relationship between domestic prices and domestic costs in the 1970s. Back then, an upward price shock (as opposed to the Asian-inspired downward price shock) should have led to a weakening in the relationship between domestic prices and domestic costs yet this manifestly never transpired.
- ▶ **Policy makers are now jointly committed to the achievement of low inflation and, as a result, prices should be more closely correlated around the world.** This is a perfectly reasonable argument but would it not also be the case that unit labour costs would also be closely correlated with domestic prices? After all, a credible anti-inflation approach should affect inflation expectations in all parts of the economy, including both the goods market and the labour market. The peculiarity of developments in the 1990s is the shift away from national towards global influence for domestic inflation determination.

Of these explanations, the most plausible appear to be the impact of new technologies and the introduction of cheap labour from elsewhere in the world. The implication is straightforward. Expected profits associated with new technologies have not fully transpired because of greater competition. On the whole, the cost benefits have not been retained by shareholders but, instead, have been passed onto consumers. Real household incomes have risen in many parts of the world, a combination of relatively tight domestic labour markets and relative price declines within the technology sectors.

Ultimately, by ensuring a graduated move towards a perfect competition model, profits have been forced down to normal levels and, as a result, companies are facing demand curves very different from the past. Their only option, given this demand background, is to reward shareholders by aiming for cost reductions. Future competition will be all about cost efficiencies against a background where monopoly pricing power is under attack from both technology and new entrants. This could encourage the emergence of monopsonies, whereby a single buyer forces its suppliers to tender for business.

Relative price effects

According to Bayoumi and Haacker, the real winners from the advent of a new technology should be the users, rather than the producers, of the technology. This should lead to significant shifts in relative prices within a stable inflation environment. The combined effects of product innovation (implying falling prices) and globalisation (flattening demand curves) should lead to sizeable shifts in pricing within each economy. Those goods and services that are direct products of the new technologies should fall in price. Those goods and services where barriers to entry are reduced as a result of the new technologies should also fall in price. Other goods and services – and, for that matter, factors of production – that are not affected by these technologies should rise in price, particularly those that have an income elasticity of demand greater than 1.

Evidence to support these relative price effects is relatively compelling. Using data from the US Bureau of Economic Analysis on personal sector expenditure, we have been able to derive some rough and ready indications of shifting consumer preferences, based on a combination of relative price effects and rising income effects. We have been able to come up with three main categories:

- ▶ Those goods and services where the volume of sales has risen but where the price has fallen substantially. If the “relative price effect” works, then this category should include areas of significant technological innovation together with areas where barriers to entry may have fallen as a result of technological innovation (under this category, we could also add the effects of globalisation).
- ▶ Those goods and services where the volume of sales has fallen in line with a fall in price. These areas of expenditure might be considered to be income inelastic or, alternatively, have been displaced by expenditure in other areas.
- ▶ Those goods and services where the volume of sales has been stable or has risen but where the price has risen substantially. These areas of spending might be regarded as income elastic and should probably be regarded as the true beneficiaries of a leap forward in technology.

Overall, we are interested in both income and substitution effects. As prices of certain goods fall, demand for them should rise both because of a cheaper relative price (a substitution effect) and because of a higher level of income in real terms (lower price of outgoings). Prices and volume demand for other goods and services may also rise through the income effect, assuming that demand is income elastic for these items.

The consumer front

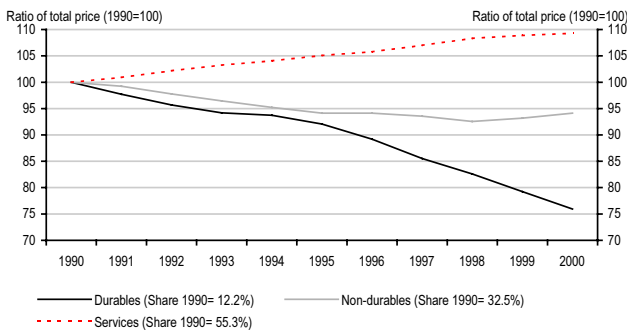
From a consumer perspective, the results are presented in charts 21 through to 34. We have shown price and volume effects for different categories of consumer spending, starting with the broadest possible categories (durable goods, non-durable goods and services) and then moving into more detail for those categories that have been prone to substantial price or volume movements. The price levels are all expressed relative to the overall index for the consumers’ expenditure deflator: in other words, they purely show movements in relative prices rather than movements in the price level as a whole. A similar approach has been

Relative price effects

adopted for the volume charts. In each case, the figures quoted in brackets on the chart labels refer to the share within total nominal consumption in 1990.

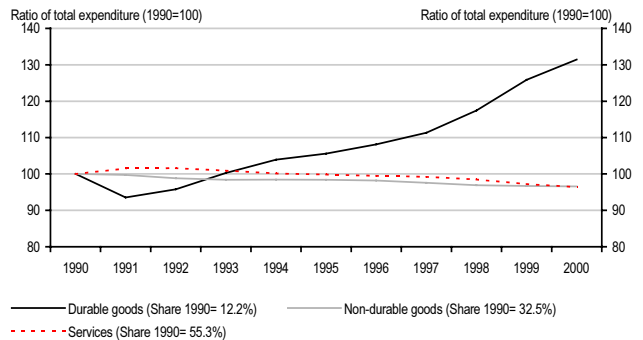
Within the overall categories, there have been substantial shifts. Prices of durable goods (which made up roughly 12% of total consumer spending in 1990) have collapsed in relative terms over the past 10 years. At the same time, the volume of consumer durables consumed has increased dramatically. Consumption of non-durable goods has shown no exciting trends: prices have fallen a little relative to the overall picture but so have volumes. Services consumption has been different again. Price rises have outstripped the average although the volume share of consumer spending has fallen back relative to the total.

21. The overall split: prices



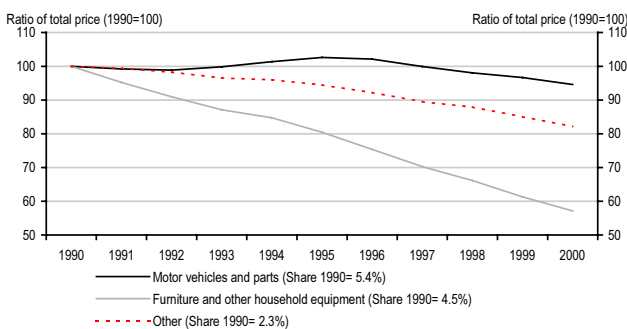
Source: BEA

22. The overall split: volumes



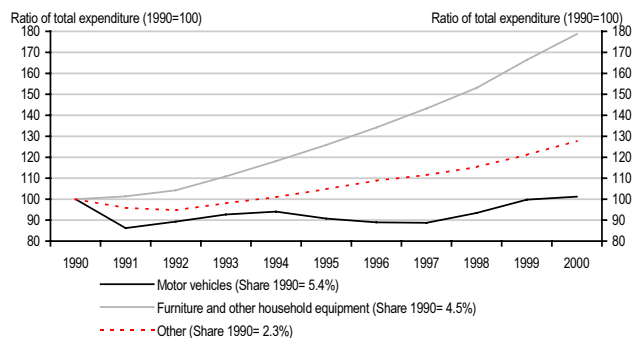
Source: BEA

23. The durables split: prices



Source: BEA

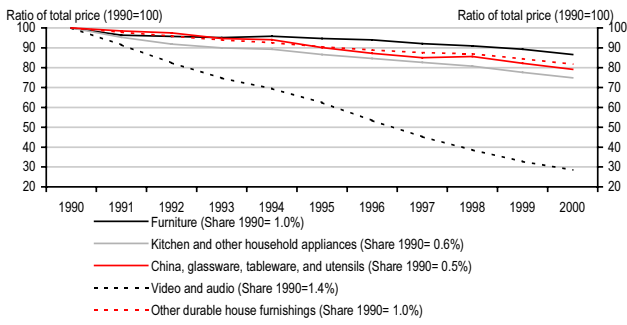
24. The durables split: volumes



Source: BEA

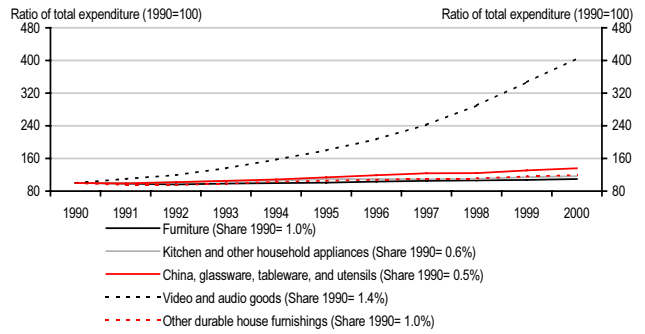
Relative price effects

25. The household split ex-computers: prices



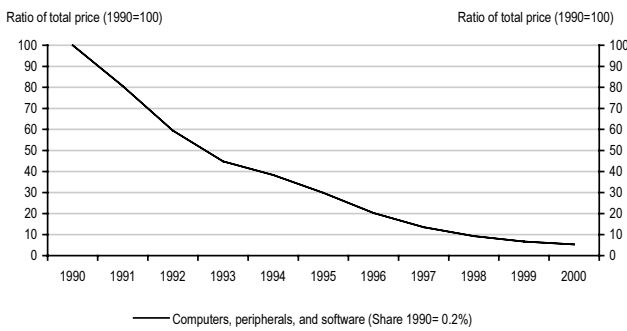
Source: BEA

26. The household split ex-computers: volumes



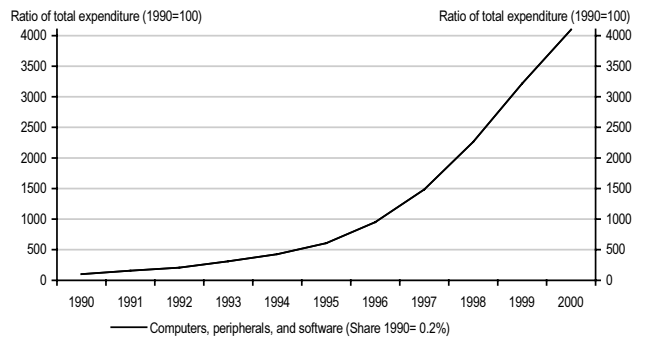
Source: BEA

27. Computers: prices



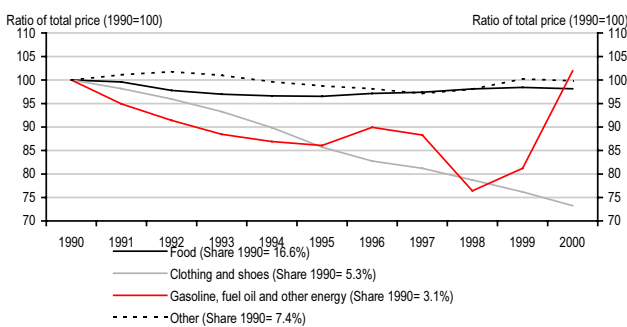
Source: BEA

28. Computers: volumes



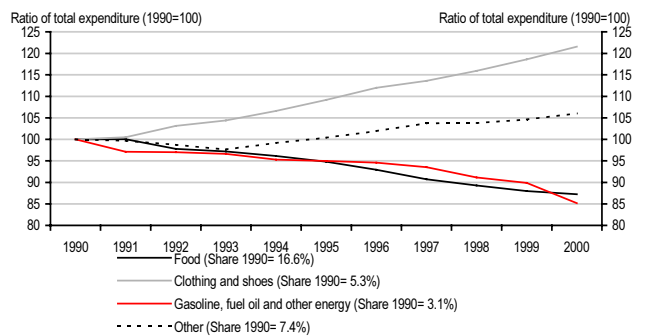
Source: BEA

29. Non-durable goods: prices



Source: BEA

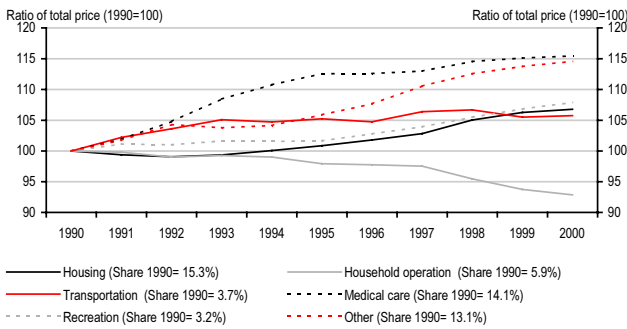
30. Non-durable goods: volumes



Source: BEA

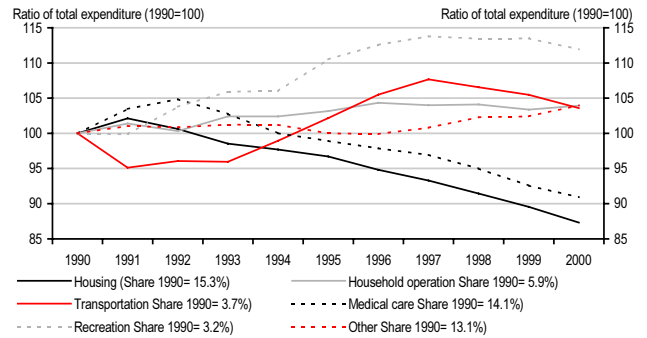
Relative price effects

31. Total services: prices



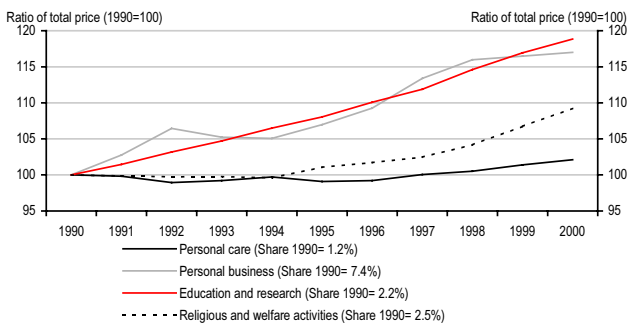
Source: BEA

32. Total services: volumes



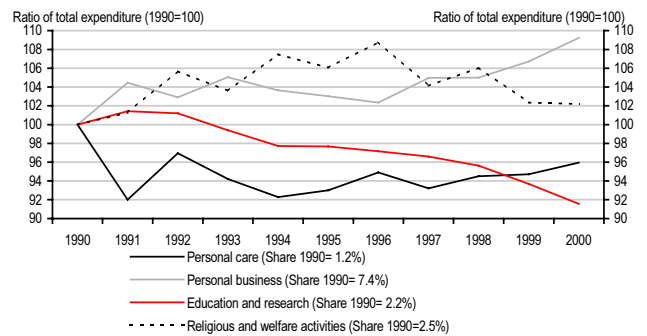
Source: BEA

33. "Other" services: prices



Source: BEA

34. "Other" services: volumes



Source: BEA

Within durable good sales, the main area of interest has been furniture and household equipment, a category that includes everything from bone china to computers and software. Within this category, prices fell relative to the overall index by a total of 45% through the 1990s, and volume gains amounted to 80%. Other categories – including sales of motor vehicles – have behaved in less spectacular fashion.

A breakdown of the furniture and household equipment category reveals some extraordinary changes. Prices of computer equipment have fallen almost 95% relative to the levels seen back in 1990s, a result of lower selling prices and assumed quality adjustments in terms of processing power. There have also been substantial declines in the prices of televisions and video equipment. For the most part, prices have also declined in most other categories, although to nothing like the same degree. Corresponding with the price declines, computer volume growth has been absolutely extraordinary through the 1990s, rising 400 times over and completely dominating gains in other areas.

As for non-durable goods, the primary shift has taken place in clothing, where significant price declines have been matched by equally significant volume gains. This may reflect both

Relative price effects

the impact of globalisation (an increase in the sourcing of clothing supplies from overseas factories) and the application of technology to domestic distribution.

Over the past 10 years, service sector prices have risen. Service sector volumes, however, have not maintained their share of total consumer spending. Although they have risen in absolute terms, they have fallen back relative to the spectacular gains seen in expenditure on consumer durables.

Within services, the main winner has been financial services, where both prices and volume consumed have risen over the past 10 years, corresponding with the powerful bull markets in equities and bonds. Recreation has also performed well over the past 10 years.

Given these developments, the following conclusions apply:

- ▶ First, there have been powerful substitution effects associated with collapsing prices in technology. Volumes have increased at an extraordinary rate over the past 10 years, emphasising that the terms of trade have shifted against IT producers and in favour of IT consumers.
- ▶ Second, despite significant increases in service sector prices, service sector volumes in some cases have held up reasonably well. This might suggest that demand for services is income elastic: in other words, people are prepared to pay more for the same level, or proportion, of services as their income levels rise.
- ▶ Third, durable goods in general have seen a mixture of strong volume growth and sustained price declines. Although it is difficult to be precise about the reasons for this mix, a number of key observations can be made. The price reductions may be the result of greater price transparency, reflecting a greater use of new technologies. Price reductions may reflect moves towards greater competition within the US retail sector, reflecting moves towards better inventory control from the likes of Walmart. The globalisation effects mentioned in earlier sections may have increasingly led to a global “law of one price” for tradable goods (clothing)
- ▶ Fourth, a puzzle remains over why service sector consumption has not risen significantly relative to gains in non-durable goods. On the services front, it may be the case that the real beneficiaries have not been the consumers of services but, rather, the suppliers of services. In a situation where productivity gains are rapid in one sector of the economy, other sectors should also benefit from a general increase in wage levels. A simple international comparison supports this view. It may be the case that a haircut in China provides the same utility as a haircut in the US but there is little reason to think that the price should be the same. The key issue is one of opportunity cost. The opportunity cost of a haircut in parts of China might be relatively low to the extent that other occupations do not offer a substantially higher wage. The opportunity cost of a haircut in the US, however, is likely to be substantially higher. The money required to persuade people to enter the hairdressing profession in the US is, therefore, likely to be a lot greater than in China and other countries where income per head is significantly lower.

The service sector effect is consistent with the “demand and inflation” and “globalisation” themes explored in earlier sections. Globalisation should have a bigger effect on tradable goods prices

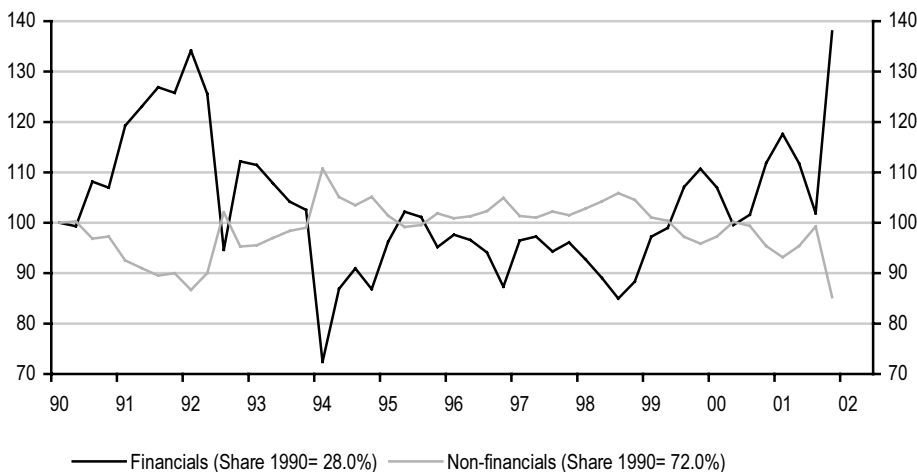
Relative price effects

than on service sector prices (although services that can be provided remotely will, of course, be affected by trade). As a result, there should be a tendency for the price of durable goods, for example, to fall relative to services. As far as demand and inflation are concerned, the key issue is the extent to which demand is raised as a result of asset price inflation and as a result of inflows from abroad. Other things being equal, higher demand should lead to a tighter labour market, placing upward pressure on non-tradable prices and wages.

The producer winners and losers

To support the consumer conclusions, we have put together profits data broken down by industry. Once again, these numbers come from the US Bureau of Economic Analysis. As with the consumer charts, the numbers have been re-indexed to equal 100 in 1990. Chart 35 shows that, within overall industry, financial services have won out at the expense of all others.

35. Financial profits gain, others lose

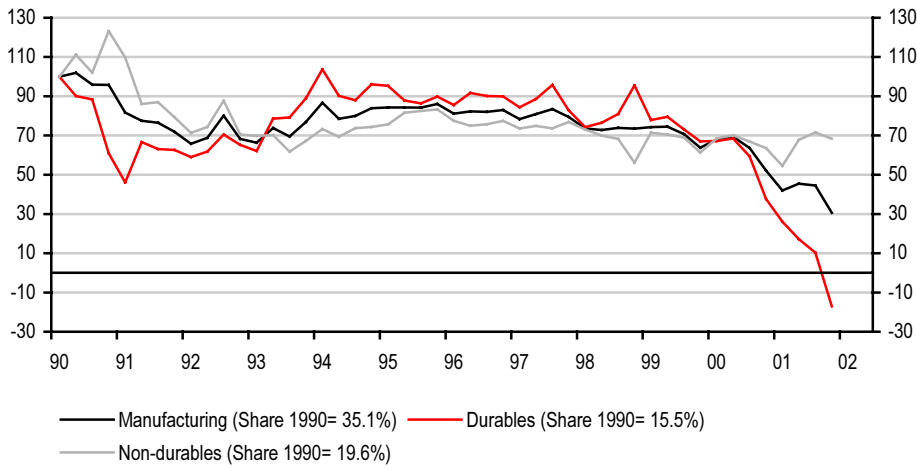


Source: Thomson Financial Datastream

Chart 36, which focuses specifically on manufacturing, suggests that the biggest losses have occurred within the production of durables. Chart 37 shows that, within durables, the biggest losses have been in industrial machinery and electrics and electronics. Within services, wholesalers and retailers appear to have performed well. Communications – a new technology area – have performed poorly. In line, therefore, with the evidence coming from consumer data, the primary winners over the past few years have been service sector providers – financial services, retail and wholesale distributors – while the biggest losers have been those most closely tied to the New Economy.

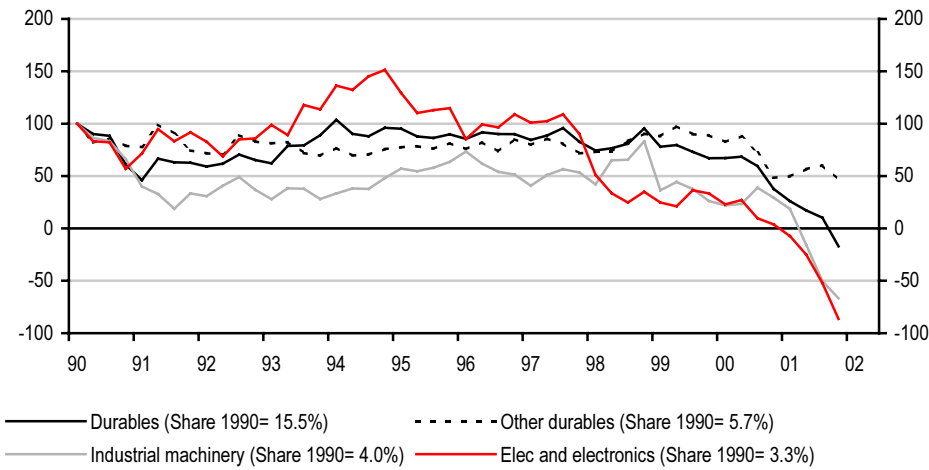
Relative price effects

36. Durable manufactured foods have seen big profit declines



Source: Thomson Financial Datastream

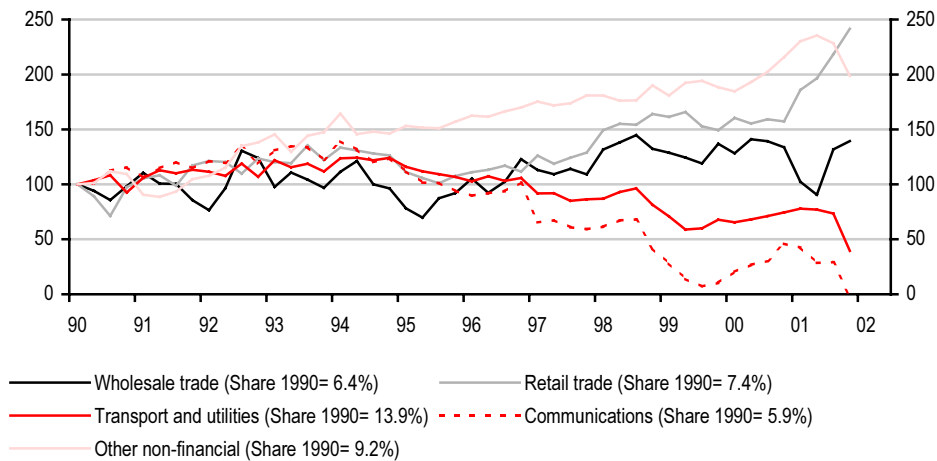
37. Electrical and electronics have seen big losses



Source: Thomson Financial Datastream

Relative price effects

38. Retailers and wholesalers have done well



Source: Thomson Financial Datastream

The key implications

If our analysis is right, the world has moved closer to perfect competition. The ability of companies to generate “abnormal” profits has, in general, been reduced. Barriers to entry may still exist – whether it be public monopolies, brand dominance (eg Microsoft) – but, generally, the advent of new technologies appears to have benefited users at the expense of producers.

The overall result has been a redistribution of income share from shareholders towards consumers. There may have been a substantial negative wealth effect for households in the US as share prices have fallen but the wealth losses have been partially offset by income gains. The biggest single threat to demand growth has come from capital spending, where profit expectations have proved overly optimistic.

As with previous examples of technology booms, the rewards of product innovation have not, ultimately, gone to the risk takers. The increased levels of competition through the direct impact of new technologies together with heightened trends towards globalisation have left companies with excess capacity and an inability to cover their fixed costs.

The consumer story has been good but there is a sting in the tail. In the US, consumers spent in the late 1990s on the back of both strong income gains and a dramatic decline in the saving ratio. The decline in the saving ratio was strongly correlated with the powerful equity price gains seen during that period. It was almost as if consumers had the best of both worlds: strong income gains and rapid rises in wealth. If, however, the strength of income growth has been at the expense of company profits, it is difficult to see why asset returns should continue to be so powerful in the future as they were in the late 1990s.

If true, consumers will not be able to meet their future pension obligations through capital appreciation alone. Instead, a higher proportion of the income benefits accruing to them today should be saved, implying a permanently higher saving ratio. This theme also fits with the US balance of payments position, where the current account will be difficult to fund if companies cannot generate the kinds of profits that were so widely expected in the late 1990s. That could imply a fall in the dollar, undermining the terms of trade improvements that have accrued to consumers over the past 10 years.

There are a number of other key implications:

- ▶ Attempts to maintain the level of demand above the “non-accelerating cost rate of unemployment” might not be able to trigger a significant rise in inflation but could imply persistent disappointment on corporate profits. “Expectations management” may have to become an increasingly important part of central bank strategy: if profits expectations prove overly optimistic, economies will be subject to prolonged periods of boom followed by prolonged periods of stagnation.
- ▶ Strong gains in consumer incomes imply substantial increases in the prices of all things that are supply inelastic. The most obvious is housing in urban conurbations. Under these circumstances, strong house price gains may be less a sign of inflationary pressures and more a consequence of income gains associated with productivity benefits. On this basis, policy makers should place a relatively low weight on house prices as a forward indicator of inflationary pressures unless there is clear evidence that rapid house price gains are

The key implications

being used as an excuse for additional consumer spending in the short term (latest equity withdrawal figures in the UK are a potentially worrying sign in this regard).

- ▶ Focusing on either service sector inflation or goods inflation as the “true” indicator of underlying inflationary pressures is likely to provide false indications of pricing pressure. Service sector inflation may be relatively high at the moment but this is an inevitable consequence of the massive downward shifts in goods prices associated with the advent of new technologies. Higher service sector inflation is simply a consequence of shifts in relative pricing and provides no immediate threat to price stability. Put another way, should goods price deflation recede, perhaps because of slower productivity growth, there should be an automatic reduction in price pressures within the service sector as income growth slows.
- ▶ If our arguments are correct, companies will be faced with a series of difficult challenges in the months and years ahead. The primary challenge comes from the “gap” between expected profits and actual profits and the implication that companies may fail to cover their fixed costs.
- ▶ Six possible strategies may be pursued. First, companies may choose simply to extend the life of their capital stock, thereby spreading their depreciation costs more thinly in a hope of regaining profits. This strategy would imply a persistently lower growth rate of capital spending compared with the late 1990s.
- ▶ Second, some companies may choose – or be forced - to exit an industry altogether if they are unable to cover their fixed costs over the medium term.
- ▶ Third, other companies may choose to hang around in the hope that others will be forced to exit, thereby increasing the profits available for each of the survivors. Indeed, to hasten this trend, there could be a decision to engage in profitless investment in the short term in the hope of gaining market share.
- ▶ Fourth, companies could merge in an attempt to recreate barriers to entry and hence move industries away from perfect competition.
- ▶ Fifth, companies could choose to lay off workers: this might help to reduce variable costs but, by lowering revenues, could reduce the ability to cover fixed costs.
- ▶ Sixth, companies may choose to increase their investments in low cost countries at the expense of jobs and wages in those countries – notably the US – that have been the main beneficiaries of the technology boom to date. This could, however, lead to problems for the dollar and for the funding of the US current account position. Ultimately, any strategy is likely to be one of “survive” rather than “thrive”.
- ▶ Our final conclusion is that periods of technology innovation associated with rapid price declines in certain sectors may make it easier for central banks to hit their inflation targets. The typical argument against a low inflation target is the presence of downward stickiness on prices and wages. Periods of exceptional productivity gains clearly help to remove this stickiness. As a result, there may be less conflict between output and inflation objectives. However, to the extent that hitting an inflation target is easier,

The key implications

perhaps more time and effort should be spent thinking about some of the longer-term consequences of resource misallocation effects. Throughout this paper, we have argued that expectations and reality can differ significantly, leading to periods of either over-investment or over-consumption. Central banks should perhaps place more weight on these issues: the control of inflation is, on its own, not sufficient to guarantee lasting economic stability.

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