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Overview

The Singapore economy deteriorated further in Q3 2001 amidst the worsening external environment. The latest advanced GDP estimates by the Ministry of Trade and Industry (MTI) indicated that the economy contracted by 5.6% in Q3 2001, after recording modest 2.0% growth in H1 2001. On a seasonally adjusted quarter-on-quarter basis, the economy contracted for the third consecutive quarter in Q3. This is the worst economic downturn Singapore has experienced, exceeding in extent the recession of 1985.

The current economic downturn took place against the backdrop of a concomitant slowdown in the economies of Singapore's major trading partners and a collapse in global electronics demand. Growth in the US and the Euro zone economies decelerated during Q2 2001. Although consumer spending in these economies remained relatively healthy, it was more than offset by the significant decline in business investments and exports. The Japanese economy continued to languish, with contractions registered in almost all components of aggregate demand in Q2 2001. The regional economies continued to be weighed down by the collapse in exports during the quarter, amidst signs of weakening in domestic demand.

The external economic environment has deteriorated significantly since Q2 2001, especially following the terrorist attacks in the US, and the subsequent counter-terrorist strikes. The events are likely to further dampen consumer confidence in the US going forward, possibly tilting the economy into recession. In addition, the outlook for the global electronics industry remains bleak. While there are continued adjustments on the supply side, demand remains subdued. The weaker growth prospects for the US economy, at least in the short term, could further delay the recovery in the IT sector.

The deterioration of the external environment has clouded the near-term outlook for the domestic economy, though it is obvious that the downturn will be more protracted and severe than earlier anticipated.

The recovery of the domestic electronics industry is likely to be postponed, and this will have negative knock-on effects on the electronics-supporting manufacturing industries as well as the trade-related services sectors. In addition, the air transport and tourism industries would be directly hit by the fall-out from the 11 September events.

Lacklustre stock market activity and weakness in the offshore and domestic banking sectors are expected to drag down growth of the financial services sector, on the back of the increased uncertainty in the global and domestic economic environment. Support from the insurance business is also expected to diminish, as the one-time boost from the liberalisation of the CPF Investment Scheme (CPFIS) tapers off.

CPI inflation, which has already come down since May 2001, is likely to recede further with the weakness in domestic demand and the benign external inflationary environment. Headline CPI inflation is expected to remain below 0.5% for the rest of the year. At the same time, conditions in the labour market are expected to soften further. The seasonally adjusted unemployment rate is expected to rise to around 4.5% in Q4, and may increase further in H1 2002.

Monetary conditions in the economy have eased. Domestic interest rates have generally fallen with the decline in global interest rates. The trade-weighted nominal effective exchange rate (S\$NEER) has also gradually weakened. These easier monetary conditions are consistent with the downturn in the economy and the absence of inflationary pressures. Greater uncertainty in the external environment, particularly in light of the recent anti-terrorism strikes, is likely to lead to more volatile market conditions. The MAS has therefore decided to widen the policy band to allow greater flexibility in managing the exchange rate. The widened policy band will continue to be centred on a zero percent appreciation of the S\$NEER.

In addition, on 12 October 2001, the government unveiled its second package of off-Budget measures this year to help the economy tide over the downturn. The total size of the package amounted to \$11.3 billion (7% of GDP), and followed of the heels of an earlier \$2.2 billion package announced in July 2001. The comprehensive package includes measures aimed at reducing costs, increasing infrastructure spending and providing income support to businesses and households, such as through tax rebates and specific programmes to assist the unemployed and retrenched.

The Singapore economy is expected to contract by about 3% this year. We expect the economy to recover in the second half of 2002. This is predicated on a turnaround in external demand, especially within the global electronics industry. Given the uncertainties in the outlook, MTI forecast GDP growth for 2002 at between -2% and 2%, centered on zero growth.

This issue of the Quarterly Bulletin contains several special focus articles. A box item in Chapter One

examines in greater depth the concepts and terminology associated with characterising an economic recession. We also make use of statistical methods to date the Singapore business cycle. In addition, we have included a box item in Chapter Three that investigates the underlying relationship between exchange rates and prices of internationally traded goods, commonly referred to as the exchange rate pass-through relationship. Finally, Chapter Five is devoted to a Special Feature comparing the current downturn to the recessions of the past two decades. We present the comparison from a number of perspectives, highlighting the differences in external environment surrounding the three downturns, the impact of the recession on different sectors and policy responses in each of the downturns.

This will be the last issue of the MAS Economics Department Quarterly Bulletin. In 2002, the Bulletin will be published twice a year to coincide with the release of the MAS Monetary Policy Statement in January and July.

1 Macroeconomic Developments

1.1 External Developments

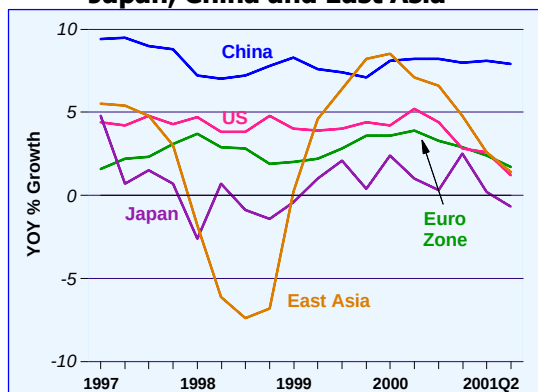
The global economy weakened considerably in Q2 2001, with major industrialised countries and the majority of East Asian economies reporting slower growth. (Chart 1.1) World electronics demand remained depressed and continued to dampen the prospects of the regional economies.

The G3 economies slowed significantly

The US economy continued to decelerate, with real GDP growth slowing to 1.2% in Q2 2001 from 2.5% in Q1 2001. Business investment and exports were the main drags on growth. Firms reduced capital spending sharply in response to weaker demand and over-capacity, particularly in the technology sector. This was reflected by the low capacity utilisation rate in the personal computer and communications industry, which stood at only 63% in August compared to 89% a year earlier. Businesses also drew down inventories sharply, shaving 1.3 percentage points off real GDP growth during Q2. Net exports worsened from a year ago due to a contraction in real exports for the first time since Q3 1998. Consumer spending was the only source of support. It increased by 3.2% in Q2 2001, buoyed by falling mortgage rates and continued growth in disposable income. This, however, was insufficient to offset the weakness in the other components of demand.

Growth in the Euro zone economies moderated to 1.7% in Q2 2001 from 2.4% in Q1 2001. Germany, the region's largest economy, led the downturn, recording anaemic growth of just 0.6%. All components of demand in the Euro zone expanded at a slower pace. Gross fixed capital formation growth was flat, while the growth of real exports almost halved from that of a quarter earlier. Similar to the US, household consumption continued to be the main pillar of strength, contributing one percentage point to the Euro zone's overall economic growth in Q2 2001.

Chart 1.1
GDP Growth in the US, Euro Zone, Japan, China and East Asia *



* Includes Indonesia, Malaysia, Philippines, Thailand, Hong Kong, South Korea and Taiwan

Japan moved closer to a recession, with the economy contracting by 0.9% in Q2 2001 after growing by 0.3% in Q1 2001. All components of demand except government consumption declined. External demand contracted at the fastest pace since Q4 1998. Domestic consumer spending continued to be weighed down by uncertainty in the labour market, as the unemployment rate rose to a record high of 5% in August. The fall in equity prices also exerted strong negative wealth effects on household spending. Private investment in plant and equipment registered surprisingly robust growth of 4.2%, despite a fall in corporate profits and excess capacity, but this could not offset the sharp drop in private residential and public sector investment.

East Asia was also not spared from the downturn...

Against the backdrop of the global economic slowdown and continuing world electronics slump, the East Asian economies generally experienced slower growth in Q2 2001. Real GDP growth averaged 2.2% during the quarter, down from 3.3% in Q1 2001. Many of the regional economies were dragged down by sharp falls in their exports.

...experiencing sharp contractions in their electronics exports...

The sharp fall-off in global electronics demand has adversely affected the electronics exports of East Asian economies.¹ They had recorded nearly 30% growth in Q3 2000, but contracted sharply by 21% in Q2 2001. Compared with the previous IT downturns in 1996 and 1998, the magnitude of decline this year has been more pronounced. (Chart 1.2)

Table 1.1 and Chart 1.3 provide data on the performance of the electronics exports of the selected Asian countries. They show that exports region-wide have been hit by the sharp fall in external demand. As at Q2 2001, electronics exports of the Philippines were the most badly hit (with export contraction of about 30%), followed by Korea (-25%), Taiwan (-23%), Singapore and Malaysia (both contracting by 18%). Thailand, which recorded a 5% contraction in electronic exports, was the least affected.

¹ In the discussion on East Asia's electronics exports, we only focus on a subset of countries, which include Singapore, Malaysia, Thailand, Philippines, Thailand and Korea.

Chart 1.2
US Electronics Imports and Asia's Electronics Exports

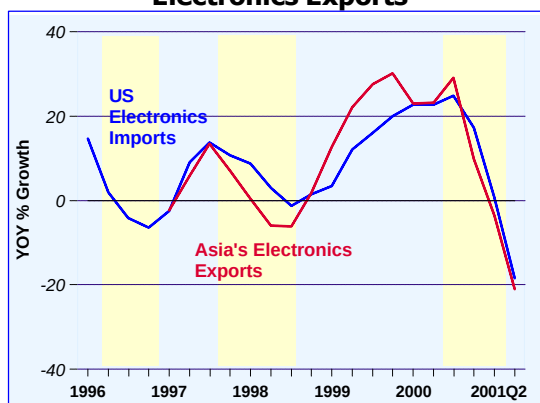


Chart 1.3
Comparison of Electronics Exports

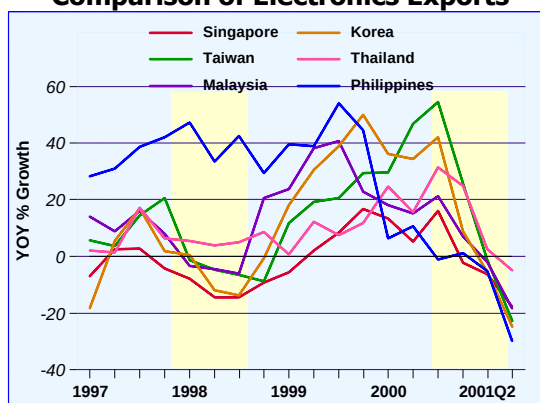


Table 1.1
Year-on-Year Growth of Electronics Exports in H1 2001

Singapore	Philippines	Taiwan	Korea	Malaysia	Thailand
-12%	-18%	-13%	-16%	-11%	-1.1%

Chart 1.4 shows a disaggregation of US total electronics imports from East Asia into the three main product subcategories of SITC 75 (computers and peripherals), SITC 76 (consumer electronics and telecommunications equipment) and SITC 776 (semiconductors). At the product level, the current contraction in electronics exports has been fairly widespread across the main electronics goods. This contrasts with the two previous downturns when growth of US imports of SITC 76 goods continued to be healthy, while that of the other two groups slowed down significantly.

From a comparative perspective, a number of points on the recent electronics export performance of the Asian countries are worth highlighting.

First, the severity of the deterioration in export performance appears to be related to the strength of their growth rates during the boom period of H2 1999-H1 2000. At one end, electronics exports of South Korea were extremely volatile. In the aftermath of the Asian financial crisis, they recovered strongly to register record high growth, before losing all their gains in an equally rapid downfall early this year. On the other end, Singapore's exports were less volatile. The pace of their recovery from the crisis was more moderate; this partially cushioned their fall during the current slowdown. (Table 1.2) Apart from this uneven export performance by countries, there was also a difference in the timing of the downswing. The Philippines and Singapore were among the first to show signs of weakening in Q3-Q4 2000, about one to two quarters earlier than the other countries. In Singapore's case, the early decline was due to a fall-off in exports of consumer electronics and telecommunications equipment, which could have reflected structural factors such as relocation of production out of Singapore.

Chart 1.4
US Electronics Imports from East Asia by Components

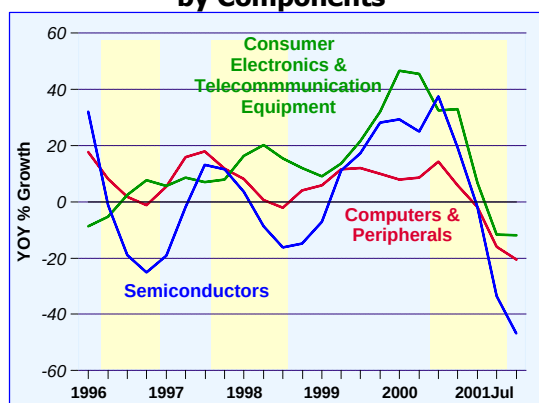


Table 1.2
Standard Deviation of Growth Rates of Electronics Exports Over the Period Q1 1997-Q2 2001

Singapore	Philippines	Taiwan	Korea	Malaysia	Thailand
10%	23%	20%	23%	15%	10%

Second, the weakness in electronics exports has spilled over to the total export performance of these countries, albeit by different extents, reflecting the varying importance of electronic goods in their respective export baskets.² (Table 1.3 and Chart 1.5)

Table 1.3
Year-on-Year Growth of Total Exports in H1 2001

Singapore	Philippines	Taiwan	Korea	Malaysia	Thailand
-7.0%	-9.2%	-10.8%	-5.0%	-3.6%	-0.2%

Among the five countries, the share of electronics in Thailand's total exports is the lowest at 25%, contrasting with 68% in Singapore and 60% in the Philippines. The rest of the countries' shares average about 40%. Given that the weakness originated from the electronics sector, the smaller exposure of Thailand's exports to electronics would have lessened the dampening effects from the slowdown in electronics exports, resulting in a less severe decline in total exports. Malaysia has also benefited from a more diversified export base, as its exports of commodities, especially palm oil, surged on the back of higher prices.

Third, slower growth in G3 and regional markets have weakened the Asian countries' total exports. The G3 economies, which account for an average of some 50% of the Asian countries' total exports, experienced average GDP growth of 1.2% in H1 2001 compared with 2.7% in H2 2000. (Table 1.4) Exports to the Asian region (ex-Japan) are also faltering, and in Singapore, Malaysia and the Philippines, these declines are more acute than in their exports to G3 economies.

Chart 1.5
Comparison of Total Exports

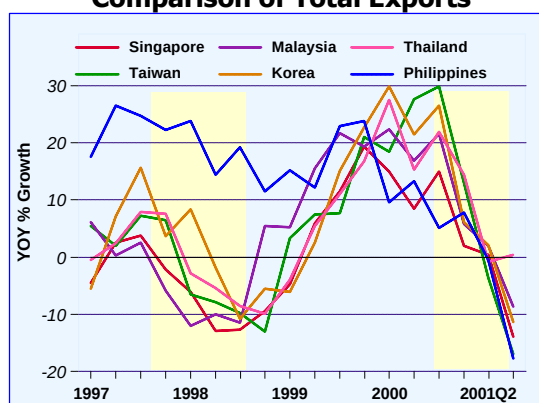


Table 1.4

Proportion of Total Exports to G3, China and Intra-Asia for Selected Countries in Year 2000

	Singapore	Philippines	Taiwan	Korea	Malaysia	Thailand
G3	48%	63%	50%	46%	47%	52%
China	4%	2%	3%*	11%	3%	4%
Intra-Asia**	47%	46%	46%	33%	50%	42%

* Due to trade restrictions between Taiwan and China, most of the goods are exported to China via Hong Kong.

** Countries included are Japan, NIEs, Thailand, Philippines, Malaysia and Indonesia.

² Data for total exports from Singapore refers to non-oil domestic exports.

...and spillovers to the domestic demand in the economies

Due to the relative openness of their economies, the impact of the slowdown in external demand filtered down swiftly to the domestic economy. Except for a selected few countries such as Hong Kong and Korea, private consumption across the region generally weakened as a result of falling consumer confidence and worsening labour market conditions. (Chart 1.6) Investment spending was hit even more strongly. (Chart 1.7) Of the seven economies monitored (excluding China, which does not have data on GDP expenditure), two witnessed contractions in capital spending (Korea, Taiwan) while another two had virtually flat growth (Hong Kong, Malaysia).

Firms were cutting back on new investment, or worse, shutting down plants and retrenching workers. However, Indonesia recorded an impressive 18% jump in gross fixed capital formation. Also, there was a surge in public construction in the Philippines after government funds were approved for release in March, while capital spending rebounded in Thailand, led by an increase in public investment.

China remained the only bright spot in the region

China continued to stand out amongst the East Asian economies, remaining relatively immune to the external downturn due to the immense size of its domestic economy. China registered real GDP growth of 7.7% in Q2 2001, down only marginally from 8.1% in Q1 2001. The strong headline growth was driven mainly by domestic demand following three years of expansionary fiscal policy.

Indeed, the relatively healthy Chinese economy has given some support to the faltering East Asia exports. Chart 1.8 shows that exports to China from the regional economies were more resilient, although some signs of moderation have emerged most recently. During the period of Jan-May 2001, East Asian exports to China grew by 14%, compared to the 4.3% decline in total East Asian exports to the world.

Chart 1.6
Real Private Consumption Growth

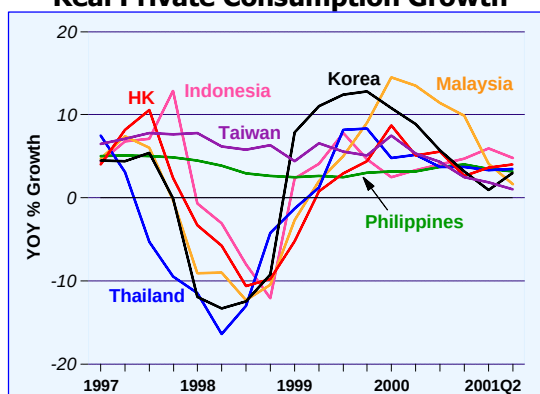


Chart 1.7
Real Investment Growth

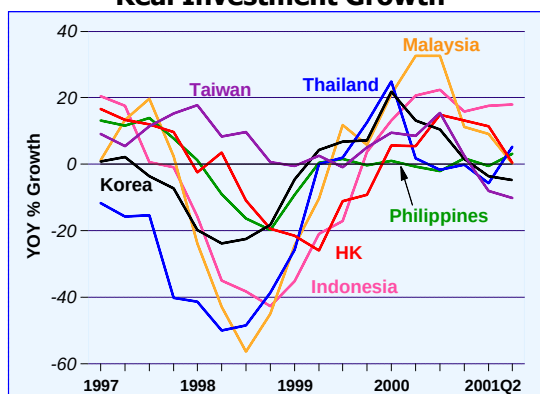
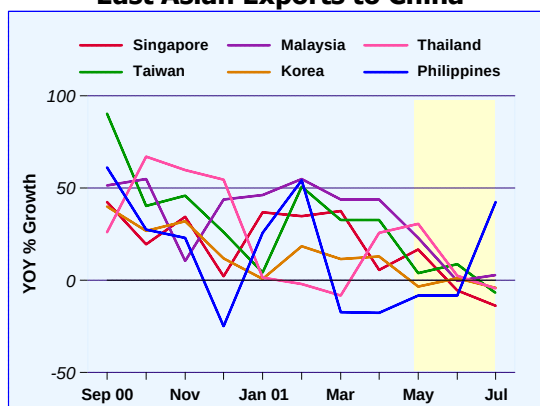


Chart 1.8
East Asian Exports to China



1.2 Domestic Output

The Singapore economy contracted further in Q3

On the back of a collapse in global electronics demand and faltering external economies, Singapore's GDP fell by 0.7% in Q2 2001, reflecting sharp declines in the manufacturing sector and significant moderation in the trade-related services sectors.

The economy deteriorated further in Q3 2001. Advance estimates for GDP growth in Q3 2001 showed that the economy contracted by 5.6%. Goods-producing industries (which include the manufacturing and construction sectors) fell by a hefty 15%, following 6.5% contraction in Q2. Services-producing industries registered the first contraction since Q4 1998, reflecting spillovers from the weak manufacturing sector, as well as the disruption in economic activity arising from the terrorist attacks in the US. In the first three quarters of 2001, Singapore's GDP has contracted by 0.6% and MTI's latest forecast released on 10 October envisages a full year contraction of around 3%. (Box Item 1.1 contains a discussion of the economic characteristics of a recession.)

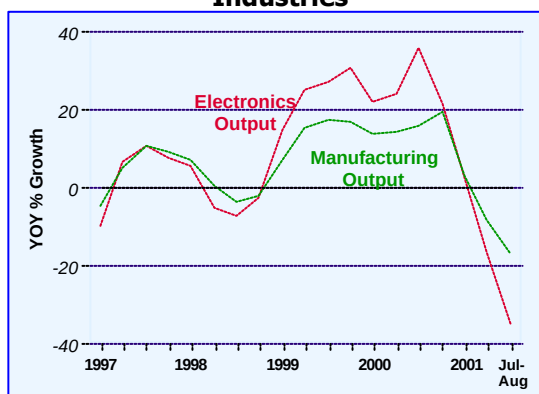
The global electronics downturn worsened in Q2 and in early Q3 2001

The correction in the global technology sector intensified in Q2 2001 and accelerated in early Q3 2001. Key industry indicators experienced some of the worst contractions in history. For instance, global chip sales plunged by a whopping 31% and 47% in Q2 2001 and Jul-Aug 2001 respectively. DRAM prices tumbled by a hefty 54% and 80% over the same respective time periods. US new orders for electronics also showed sharp contractions of 31% and 33% over the same respective time periods, led by the semiconductor and telecommunication equipment segments. There was also a steady stream of news on layoffs and cost-cutting measures by large multinational electronics firms.

The full impact of the IT downturn has taken its toll on domestic exports and production in the manufacturing sector

Manufacturing output deteriorated significantly in Q2 and early Q3 2001. Overall manufacturing output fell by almost 8.8% in Q2 and 18% in Jul-Aug, compared with

Chart 1.9
Output of Manufacturing and Electronics Industries

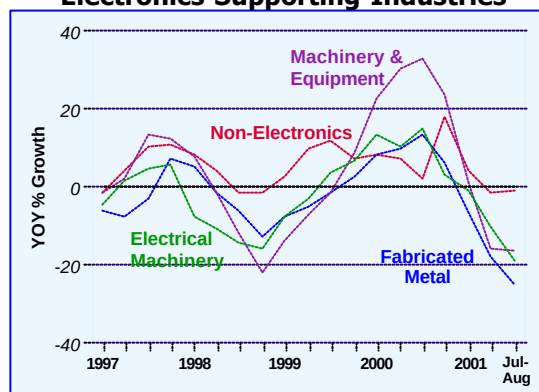


2.7% growth in Q1. (Chart 1.9) Electronics output contracted by 17% in Q2 and 35% in Jul-Aug 2001, after 1.9% growth in Q1. The average level of activity in the electronics industry in H1 2001 has fallen to just 75% of that in the last six months of 2000. The decline in production was fairly widespread across the main electronics product categories, although the sharpest decline was in the semiconductor segment. Semiconductor output sank deeper into negative territory, on the back of plant shutdowns by a few major semiconductor manufacturers in Singapore.³ Capacity utilisation rates have fallen to less than 30% for some of the semiconductor manufacturers, a sharp contrast to the close to 100% rates registered late last year.⁴

The non-electronics industries have been dragged down by the slowdown in the electronics sector

The slowdown in the electronics industry has spilled over to the non-electronics industries, with non-electronics output shrinking by 2.2% in Q2 and 1.6% in Jul-Aug, following nine quarters of expansion. (Chart 1.10) In particular, output of the electronics supporting industries contracted by 16% in Q2 and 21% in Jul-Aug, in tandem with the decline in electronics output over the same period. These industries are mainly from the engineering cluster, which include output from the fabricated metal and machinery segments, as well as the printing/publishing and rubber and plastic segments. As the backbone for the electronics industry, these supporting industries produce the machinery and equipment needed by electronics manufacturers, and offer services such as tooling, metal stamping, die-casting, injection moulding and printing. These electronics supporting industries together are estimated to account for about 15% of manufacturing output and 36% of total manufacturing employment.

Chart 1.10
Output of Non-electronics and
Electronics Supporting Industries



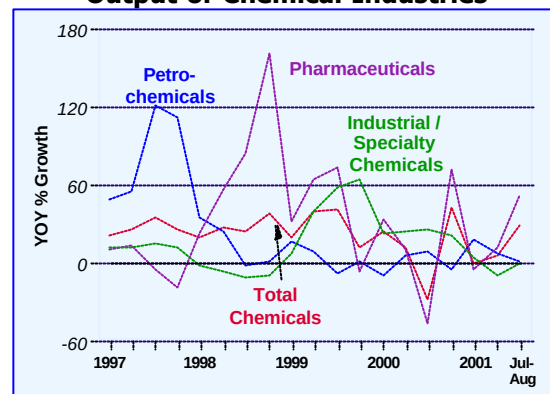
³ Chartered Semiconductors announced on 27 June 2001 that it would shut down one of its three wafer fabrication plants for two weeks. ST Microelectronics also shut down two wafer foundries for three weeks in June/July 2001, and ST Assembly announced additional plant shutdowns and mandatory vacation days for employees beginning in August 2001 to cut costs.

⁴ For example, Chartered Semiconductors announced on 20 July 2001 that they expected capacity utilisation rate to fall to mid-20% in Q3 2001, down from 31% in Q2 2001.

The chemical sector's performance also weakened in Q2 2001 but subsequently rebounded in Jul-Aug 2001

The chemical sector, which was a pillar of strength for the manufacturing sector during the last downturn in 1998, turned in disappointing growth in Q2 2001, as it too was not spared the negative spillovers from the electronics downturn. It grew by a modest 4.7% in Q2, dragged down by the contraction in the industrial/specialty chemical segment, which reflected the decline in demand for electronic chemicals. (Chart 1.11) Growth of the petrochemical sub-segment was also dampened by several maintenance related shutdowns during the quarter. The pharmaceutical sub-segment was the only bright spot, expanding by 11% in Q2 and 51% in Jul-Aug 2001, as a key pharmaceutical manufacturer ramped up production of higher value-added intermediate compounds. The strong growth in the pharmaceutical sub-segment provided some support to the overall growth of the chemical segment in Jul-Aug 2001, which rebounded by 28% during this period.

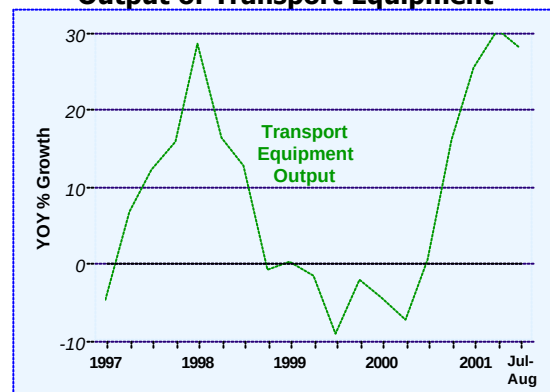
**Chart 1.11
Output of Chemical Industries**



The transport equipment industry continues to expand strongly

The transport equipment industry bucked the trend in the electronics and chemical industries, and recorded double-digit growth rates in Q2 and Jul-Aug 2001. (Chart 1.12) The strong performance of the marine transport sub-segment partly reflected its improved competitiveness, as well as relatively firm oil prices, which have underpinned demand for oil rigs and conversion work. The aviation sub-segment also continued with its double-digit expansion, on the back of more orders for the repair of commercial aircraft. Nevertheless, the strong surge in transport equipment output was more than offset by sharp declines in the electronics and supporting industries.

**Chart 1.12
Output of Transport Equipment**



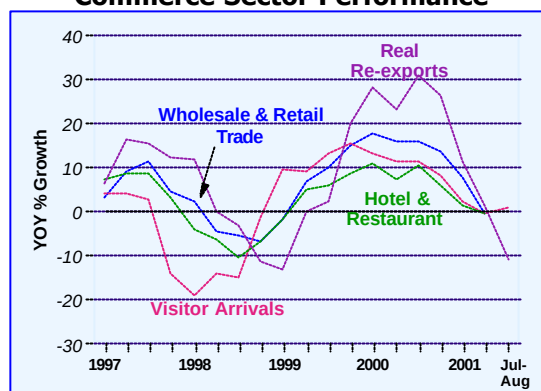
Spillovers from the manufacturing sector to the services sector deepened

The knock-on effects of the contraction in the manufacturing sector on the services sectors intensified in Q2 2001, with growth in the services sectors halving to 2.3% in the second quarter of this year, compared to 5.5% growth in Q1.

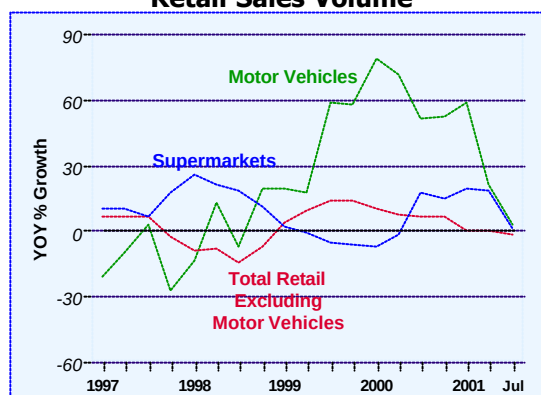
The commerce sector was hardest hit among the services sub-sectors, dragged down by lacklustre wholesale and retail activity. (Chart 1.13) Re-exports saw meagre growth of 0.8% in Q2 compared to 11% growth in Q1, on the back of slower global electronics demand. Activity in the domestic economy also slowed significantly. Growth in domestic retail sales fell by a third to 8.9% in Q2 and subsequently contracted by 0.1% in July this year, due mainly to the significantly slower growth in motor vehicle sales. Reflecting more cautious spending as a result of the uncertain economic outlook, growth of motor vehicle sales slowed from an average of 62% between Q1 2000 and Q1 2001 to 20% in Q2 and a modest 2.5% in July. Excluding motor vehicles, retail sales fell by 0.4% in Q2 and 2.3% in July, with most other retail items continuing to register either modest or negative growth. The weakness in retail sales was also due to the fall in visitor arrivals, which has hit the hospitality industries as well. Visitor arrivals fell by 0.8% in Q2, and grew only at a glacial pace of 0.3% in Jul-Aug, pushing occupancy rates below 80% in Jan-Aug 2001. (Chart 1.14)

In tandem with the decline in exports, the transport sectors saw weaker growth in Q2 2001. The steep declines in electronics exports caused air cargo handled at the Changi Airport to fall by double-digit rates in Q2 and Jul-Aug, a far more severe decline than during the Asian crisis. (Chart 1.15) Sea cargo was also adversely affected by the slowdown in regional trade, with cargo handled at Singapore's ports declining for the third consecutive quarter in Q2, before picking up slightly in Jul-Aug.

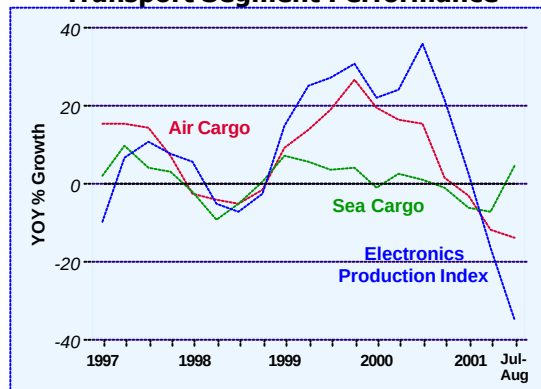
**Chart 1.13
Commerce Sector Performance**



**Chart 1.14
Retail Sales Volume**



**Chart 1.15
Transport Segment Performance**



The communications industry was a pillar of support

The communications industry remained a pillar of support, with growth resulting from aggressive rate cuts for international calls, as well as attractive broadband and mobile subscription packages. International call minutes surged by more than 140% in Jan-Aug this year, while growth in mobile phone subscriptions remained strong. The growth of internet dial-up subscriptions however has tapered off. (Chart 1.16) This could partially be due to dial-up subscribers upgrading to broadband access for wider bandwidth.

Growth of financial services sector was more broad-based

Growth of the financial services sector improved marginally to 2.6% in Q2 2001, following 2.4% growth in the preceding quarter. (Chart 1.17) Unlike the past three quarters, where the insurance business segment was the only support for growth, the various segments contributed more evenly towards the overall performance in Q2.

The commercial banks saw improved performance in Q2 2001, buoyed by stronger earnings from fee-based activities. Despite a lacklustre IPO equity market so far this year, the corporate finance teams of banks were kept busy with a record level of bond issuances in Q2 2001 on the back of low interest rates. (Chart 1.18) Also contributing to the increase in commercial banking activity, albeit to a smaller extent, was the bancassurance business, which involves the bundling of insurance and banking products by banks. Tapping on CPF savings with the liberalisation of CPFIS (Central Provident Fund Investment Scheme), the banks offer consumers a complete wealth management solution.⁵ In contrast, interest income from loans and advances of commercial banks weakened, partly reflecting the lower interest rate margin as a result of intense price competition, especially in the housing loan market.⁶

Chart 1.16
Internet, Mobile and IDD Subscriptions

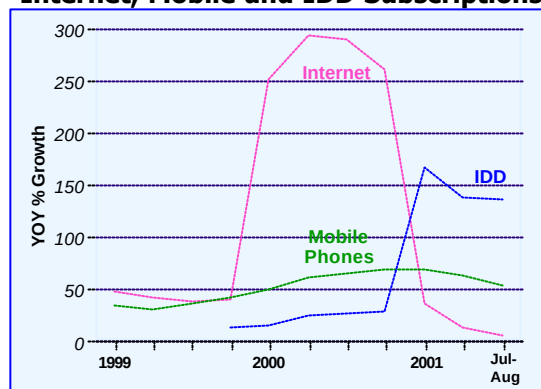


Chart 1.17
Financial Sector Performance

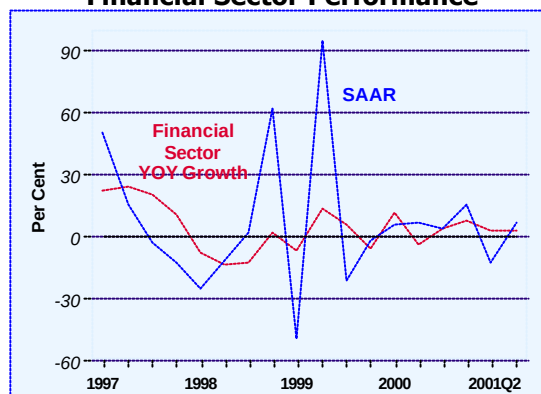
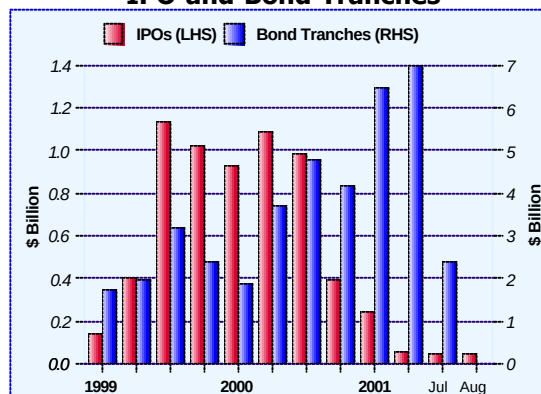


Chart 1.18
IPO and Bond Tranches



⁵ Already, the bancassurance arm of OCBC has reported a 77% increase in income in H1 2001.

⁶ The combined net interest income of the Big Four local bank groups in H1 2001 fell by 1.5% compared to the same period a year ago. They also reported lower average interest margins in their financial results for the first six months of this year.

In line with the downturn in the economy, credit growth to non-bank customers weakened significantly to 2.7% in August 2001, down from 4.4% in Q2 and 4.7% in Q1.⁷

Offshore lending activity in the Asian Dollar Market (ADM) continued to contract in Q2 2001, with non-bank lending remaining sluggish in the face of a weak economic outlook for the regional economies. (Chart 1.19) Similarly, the fund management business was hit by heightened aversion towards poor-performing global equities in the midst of the downturn. According to Standard and Poor's Fund Services, the net asset values of unit trusts in Singapore fell by an average of 17% in the year ending June. Concomitantly, funds managed in such instruments rose by a smaller amount of \$1.4 billion during H1 2001, compared with \$1.7 billion in the same period a year ago.⁸

The stockbroking business saw some support from businesses earnings outside Singapore, while fees and commissions derived from domestic operations continued to decline. Average daily volume of shares traded in Singapore picked up in the second quarter, partly due to speculation over the mergers among local banks. However, the value of these transactions tumbled 15% year-on-year, reflecting softer equity prices. Foreign exchange trading recorded positive growth for the second consecutive quarter on the back of increased volatility in the major currencies. (Chart 1.20)

While the insurance industry continued to record positive growth in Q2 2001, the boost from the liberalisation of the CPFIS appears to be tapering off, reflecting the slower withdrawal of funds from the CPF SA (Special Account) and OA (Ordinary Account) for insurance-related investments. Total funds withdrawn from the CPF for investment in insurance products fell to \$2.1 billion during the quarter, some \$657 million lower than in Q1 2001. At the same time, total single premium sales slid 23% in the second quarter to \$2.6 billion from

Chart 1.19
ACU Loans

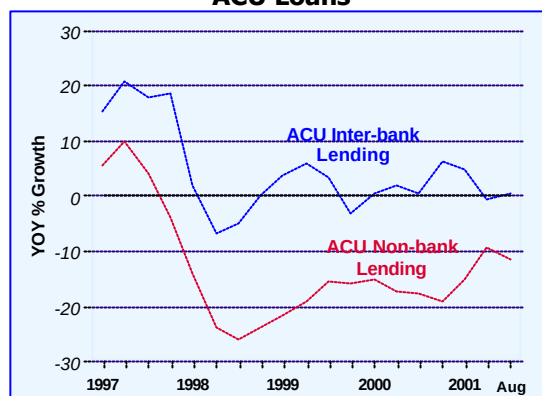
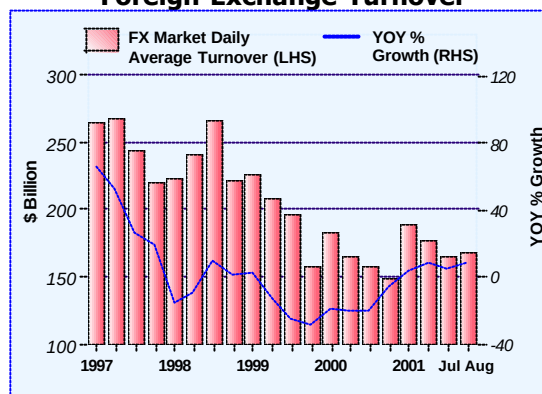


Chart 1.20
Foreign Exchange Turnover



⁷ The data is adjusted for DBS Finance's integration with DBS Bank by incorporating the full DBS Finance data a year ago. No adjustment was made for the breakdown by industrial classification.

⁸ Due to the languishing equities prices and uncertain outlook of the global electronics demand, funds managed in guaranteed or protected unit trusts rose by \$1.48 billion in H1 2001, accounting for the bulk of the increase in funds managed in unit trusts.

the previous quarter.⁹ Nevertheless, the outflow of such CPF funds during the quarter continued to take up nearly 80% of new single premium sales, accounting for the bulk of the demand.

Growth of the business services sector decelerated further

Growth of the business services sector decelerated further to 3.4% in Q2 2001, bringing growth in H1 2001 to 4.4%, which was significantly weaker than the 7.3% growth achieved in H2 2000. Measured in terms of a seasonally adjusted quarter-on-quarter annualised rate (SAAR), Q2 2001 saw the sector record its first contraction in ten quarters. (Chart 1.21)

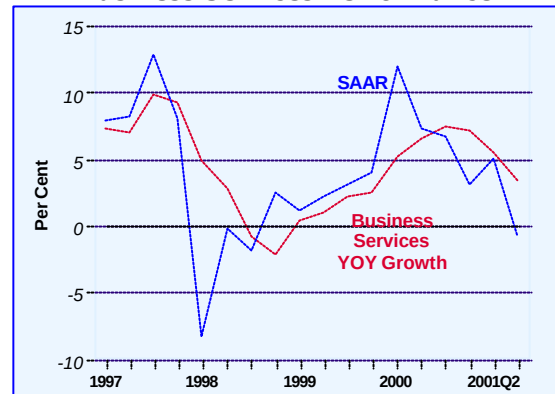
The weaker growth in business services reflected slower activity in the real estate, as well as the professional services industries. According to the Department of Statistics' Quarterly Business Receipts Index, year-on-year growth in earnings in the real estate industry was flat in Q2, following average growth of 4.3% in Q4 2000-Q1 2001. Weak sentiments in the private residential segment saw the total number of transactions fall by 15% amidst a 10% price decline on a year-on-year basis. Commissions earned by housing agents were also dampened by the decline in prices of HDB resale flats. The non-residential property market remained lacklustre, with prices of both industrial and commercial space at an average of 6% lower at end-H1 2001 compared to at the end of last year.

Among the professional services, one of the worst affected was IT professional services. Demand for these services faltered in tandem with the bust that followed the Internet-related boom, as well as on the back of cutbacks in IT investment spending by corporations. Similarly, the demand for legal and accounting professional services moderated, although increased corporate restructuring and consolidating activities sustained business somewhat.

The construction sector turned in modest growth

The construction sector grew mildly by 0.4% in Q2 2001, its second quarter of positive growth following ten consecutive quarters of contraction. Similar to the previous quarter, support came mainly from civil

**Chart 1.21
Business Services Performance**



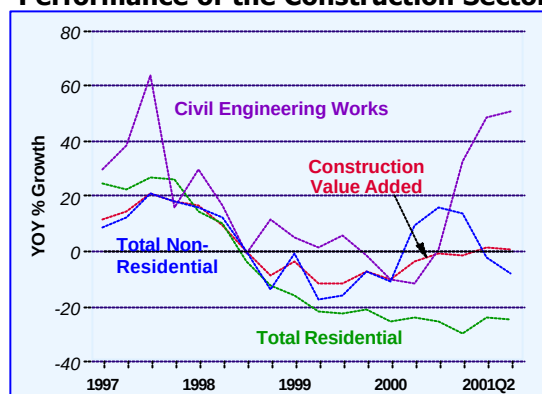
⁹ Data from Life Insurance Association.

engineering works, reflecting the flow-through of the 400% expansion in such contracts awarded last year, much of which were reclamation projects.¹⁰ Growth was also underpinned by strength in the public non-residential building segment, mainly in the form of MRT and LRT works, upgrading projects and the building of schools. (Chart 1.22)

However, the strong growth in civil engineering works was more than offset by the weakness in the other segments. Weighed down by weak sentiments, activity in the public and private residential construction segments slowed down further in Q2, contracting for the 11th and 12th quarter respectively. Prices in the private residential property market also continued to decline in Q2, albeit at a more moderate rate of 0.9% on a quarter-on-quarter basis compared with 4.0% in the previous quarter. In the public housing market, HDB resale prices declined by 1.5% in Q2, after falling 3.2% in Q1.

The slowdown in private non-residential construction intensified in Q2, following a mild contraction in Q1 and strong growth in 2000. The slowdown of the manufacturing sector, and the economy at large, dampened demand for industrial and office space, leading to price declines of 4.7% and 3.1% in the respective segments. Office rentals also fell in Q2, after rising for the past six quarters.

Chart 1.22
Performance of the Construction Sector



¹⁰ These include Jurong Island and the Tuas View Extension, as well as the \$1.8 billion reclamation project in Pulau Tekong and Pulau Ubin.

Box Item 1.1: Identifying an Economic Recession**Introduction**

There have been some discussions lately on the definition of an economic recession. Various commentators have referred to this phenomenon rather loosely using different definitions and characteristics, and terms such as "technical recession" and "full-blown recession". The first part of this box item seeks to shed some light on the economic interpretation of recessions. In the second part, we apply a statistical method to pick out business cycle dates from Singapore's real GDP and investment series.

The characterisation of a recession is closely tied to business cycle analysis. The earlier works of business cycle analysis were developed by researchers from the US National Bureau of Economic Research (NBER). In one of their papers to describe a business cycle, Burns and Mitchell (1946, pg. 3) posit that:

"A cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions and revivals which merge into the expansion phase of the next cycle; this sequence of changes is recurrent but not periodic; in duration business cycles vary from more than one year to ten or twelve years; they are not divisible into shorter cycles of similar character with amplitudes approximating their own."

Conventions in Recession Terminology

In contrast to this rather detailed definition of a business cycle, there exists the more ad hoc and commonly referred to "technical recession" - two consecutive quarters of negative growth in GDP. The term was popularised by a famous American economist, Arthur Okun, in a speech he gave in the early 1960s. Okun said he had studied the past recession dates the NBER had nominated and discovered they had one thing in common: all included at least two successive quarters of negative growth in GDP. (Gittins, 2001) In addition, by convention, it is common to characterise an economy as experiencing a full recession if it suffers a negative year-on-year growth rate for the year as a whole.

The "two-quarter contraction" definition of a recession, albeit simple and easy to use, is a simple generalisation based on empirical observation of the past. This "rule of thumb" may not be applicable to all slowdowns and cannot be used as a hard and fast rule. As Gregory Mankiw of Harvard University argues, if there was a big enough contraction in the first quarter, then that could be termed a recession too.

Economic Characterisation of a Recession

The US is probably the only country with a body that makes authoritative announcements about the timing of recessions. The Business Cycle Dating Committee of the NBER uses a variety of indicators to pinpoint the turning points in the business cycle of the US economy on an ex-post basis. The committee does not determine the start or end of a recession until it has at least six months of data beyond the peak date. The NBER's method offers a more comprehensive and systematic way of defining a recession period although it essentially depends heavily on the judgements of the panel of researchers. The NBER acknowledges that although most of their identified recessions do consist of two or more quarters of falling real GDP, not all of them do. In general, researchers use a two-step process in dating business cycles. First, cyclical peaks and troughs are determined for individual series. These turning points are determined judgmentally, but the process can be well approximated by a computer algorithm developed by Bry and Boschan (1971). Second, common turning points are determined by comparing these series-specific turning points. If the cyclical movements associated with the common turning points are judged to be sufficiently persistent and widespread across sectors, then an aggregate business cycle is defined and its peaks and troughs are dated.

The NBER defines a recession as "a recurring period of decline in total output, income, employment, and trade, usually lasting from six months to a year, and marked by widespread contractions in many sectors of the economy." The NBER emphasised that recessions are macroeconomic in nature. Therefore, a severe decline in an important industry or sector of the economy may involve sharp declines in output and employment in that industry, but would not be considered as a recession.

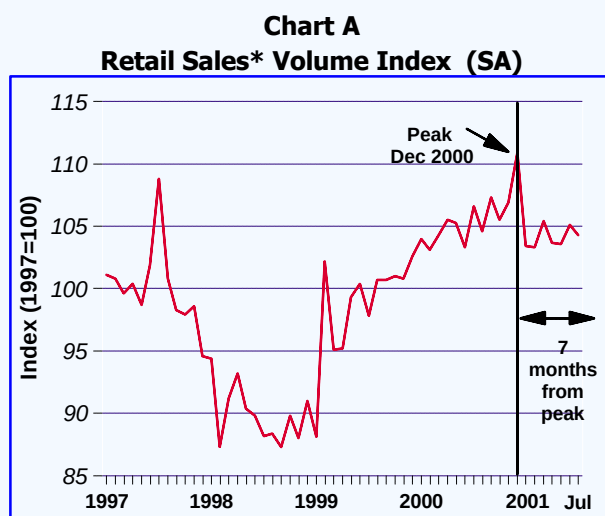
In the light of current uncertainty over the path of the US economy, the NBER posted another memo on their website recently to further explain the Bureau's procedures for dating recessions. They further defined recessions as "a significant decline in activity spread across the economy, lasting more than a few months, visible in industrial production, employment, real income, and wholesale-retail trade. A recession begins just after the economy reaches a peak of output and employment and ends as the economy reaches its trough." It should be noted that although these four variables are important, other indicators are also considered.

Besides the NBER's definition, downturns are sometimes characterised by economists as exhibiting the three P's: Pronounced, Pervasive and Persistent. The characterisation is largely consistent with the NBER's definition. Anirvan Banerji from the Economic Cycle Research Institute (ECRI) noted that cyclical changes tended to be pronounced in magnitude, compared to non-cyclical blips or noises. Also, in times of cyclical downturns, the slowdown in economic activity is pervasive, i.e. well spread from industry to industry, and from region to region. In addition, a downturn is persistent, usually lasting more than five months. In sum, the accepted economic characterisation of a recession would seek to establish the persistent weakness in a broad range of economic indicators. Typically, this would involve the coincidence of turning points across the set of four indicators identified above, and sequential weakness in these series over a six-month period or so.

Is Singapore currently in a recession?

Singapore's GDP has recorded three consecutive quarters of quarter-on-quarter contractions on a seasonally adjusted basis. Hence, by Okun's definition, Singapore is currently in a technical recession.

We also apply the NBER's criterion on Singapore data. The five charts below show the movement of industrial production, non-oil domestic exports, employment, average monthly earnings and retail sales. The charts below suggest that activity in the Singapore economy has generally fallen from its peak and entered a period of general weakness. With the GDP growth rate for 2001 expected to contract by 3%, this year is therefore likely to be added to the list of "recession years" in Singapore's economic history.



* Excluding motor vehicles

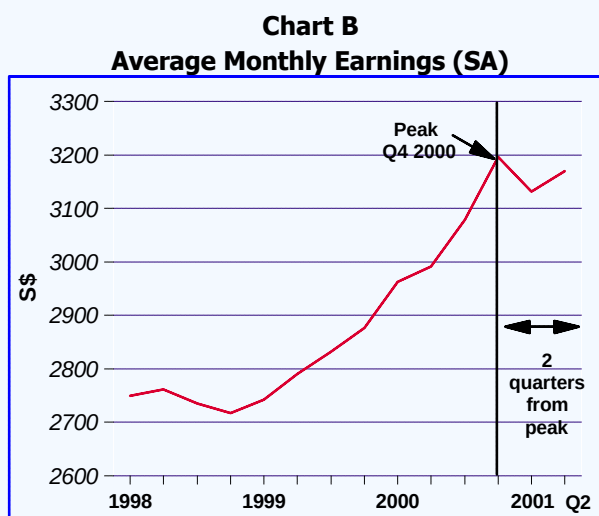


Chart C
Changes in Employment

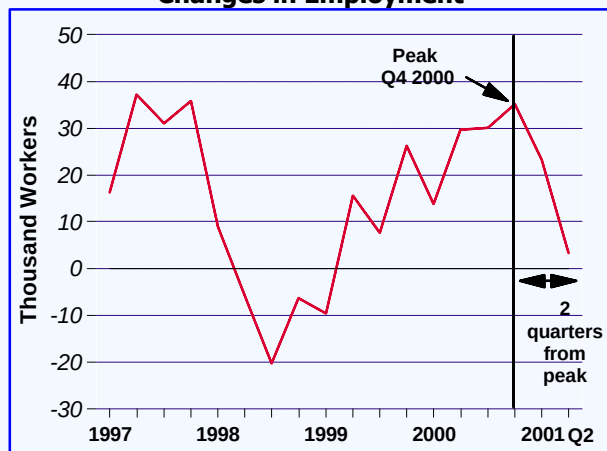


Chart D
Index of Industrial Production (SA)

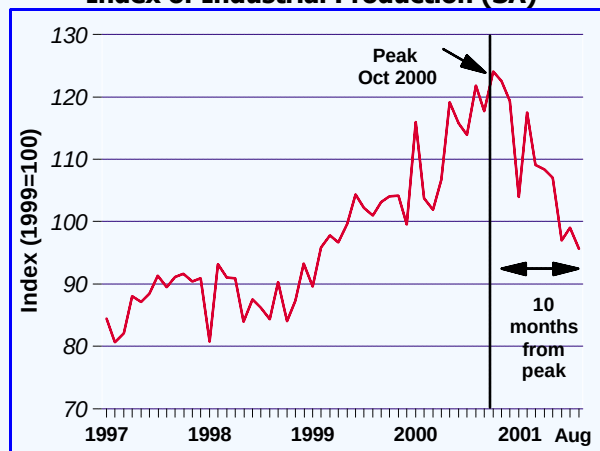
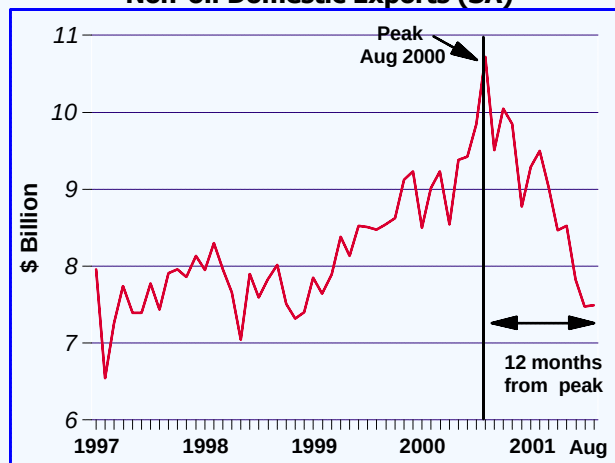


Chart E
Non-oil Domestic Exports (SA)



Characterising Singapore's Business Cycles

There also exists a number of fairly complex statistical methods for identifying business cycles, which make use of information on the time series properties of macroeconomic variables.

One such method is the Markov-Switching (MS) model. This is a non-linear model that can generate asymmetric persistence and asymmetric duration for a particular time series. Many variables experience episodes in which the behaviour of the series changes quite dramatically, and the two-regime MS model we use here allows the variable to follow a different time series process over different sub-samples. The expected duration in a particular regime or phase is estimated by the transitional probabilities of staying in the same regime as opposed to shifting to a new state. This allows for real GDP to follow regimes of expansions and recessions, and thus provides a method allowing for the identification of business cycles. The model developed here is in the spirit of Hamilton (1994).

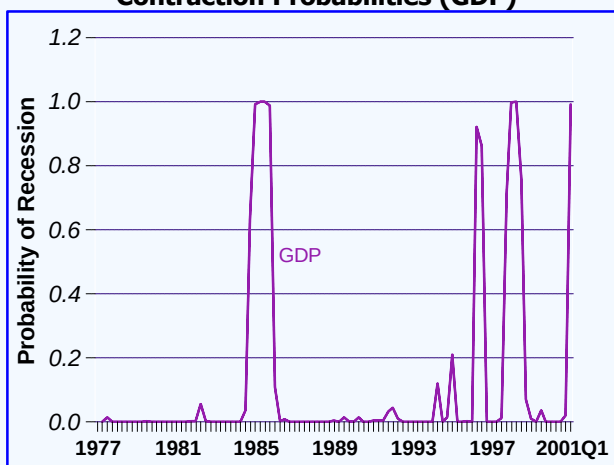
A two-state/regime MS model has two important parameters. First, it assumes that a time series can be represented by a two-state stochastic process. For example, if the time series is the growth rate of GDP, then each different state represents a different mean rate of growth, with state $S_t = 0$ representing a low growth/recession phase and $S_t = 1$ representing a high growth/expansion phase in the business cycle. Second, the MS model is characterised by state transitional probabilities, i.e. the probability that a period of low growth

will be followed by another period of low growth (P_0) and the probability that a period of high growth will be followed by another period of high growth (P_1).

A two-state MS model was estimated using quarterly (quarter-on-quarter) growth rates of Singapore's real GDP over the period Q1 1976 to Q1 2001. The results are as follows: in the regime represented by ($S_t = 0$), the average growth rate of GDP is equal to -0.93% implying a -3.72% annualised growth rate. Expansions, ($S_t = 1$) are associated with a positive high growth rate of output equal to 2.27% , implying a 9.08% annualised growth rate. There is also evidence that the probability of remaining in recession states is significantly lower than the probability of an expansion continuing. This is consistent with the business cycle being asymmetric. In other words, the expansion stages are more persistent than the recession stages. The transition probability of recessions (the probability that a recession will be followed by another quarter of recession, P_0) equals 0.67 , which indicates a recession phase of the business cycle with an expected duration $(1-P_0)^{-1}$ of around 3 quarters. Similarly, P_1 indicates an expansion phase of the Singapore business cycle to persist for around 20 quarters.

Next, the inferred probabilities¹ from the MS model are used to construct business cycle dates. To date the business cycle, we simply use the inferred probabilities of ($S_t = 0$), labelling a quarter as being in recession whenever this probability is greater than 0.5 . The inferred probabilities are graphed in Chart F. Chart F shows that recession cycles in Singapore occurred most notably during the 1985 recession, the global electronic slowdown in 1996, the 1998 Asian crisis and the current global electronics downturn beginning in Q1 2001.

Chart F
Contraction Probabilities (GDP)



We also estimated the MS model on quarterly growth rates of private real consumption and private real machinery and equipment investment (MEI) over the same sample period. The inferred probabilities are graphed in Chart G and Chart H respectively. The most notable difference is that the estimation results show that the variances of the MEI cycle are much more pronounced than that of real consumption. Also, while the expected duration of contraction periods for consumption and MEI are similar (2.3 quarters for consumption and 2.7 quarters for MEI), the expected duration of an expansion phase of the consumption cycle is about 25 quarters, more than three times longer than that of MEI (7.3 quarters). Comparing Chart G and Chart H we find that there are more peaks in the MEI cycle. For example, the peaks in contraction probabilities around 1983 and 1990 for MEI were not present for the consumption series. The peak in contraction probabilities around 1990 could have been due to the insecurity of the global economy created by the Gulf war.

¹ The inferred probability of say $S_t = 0$, as opposed to the transition probability, is the probability that GDP growth in a particular quarter is in state $S_t = 0$.

The higher volatility of the MEI cycle compared to the consumption cycle is not uncommon, with studies on the US business cycle, for example, yielding similar results. (Stock and Watson, 1999) One factor commonly cited to explain this finding is that individuals and households base their consumption patterns on permanent income (or the annuity value of lifetime resources), rather than on current income. This results in consumption smoothing, i.e. since consumption depends on lifetime income, it is unlikely to fluctuate much in response to short-term fluctuations in income, and hence will be 'smoother' than current income. In comparison, investment or MEI is dependent on business sentiments and the expected return of the investment. Thus, MEI is likely to be susceptible to changes in the economic or business environment and fluctuations in interest rates and risk premiums. The longer average duration of the expansion phase of the consumption cycle compared to the MEI cycle could be due to the fact that consumers are unlikely to lower their consumption unless the drop in income is significant or of a permanent nature, whereas MEI is likely to fall if business sentiments or outlook turns negative.

Chart G
Contraction Probabilities (Consumption)

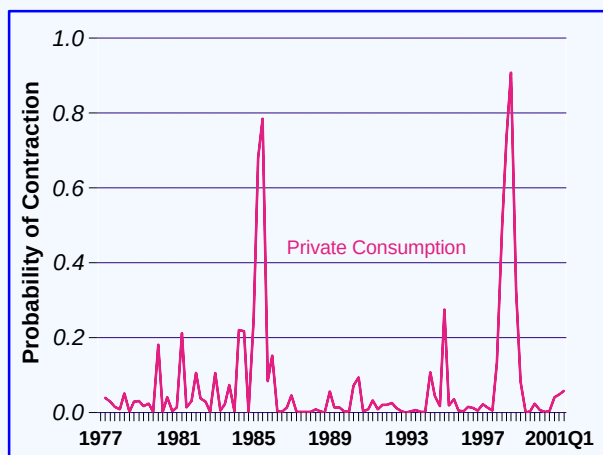
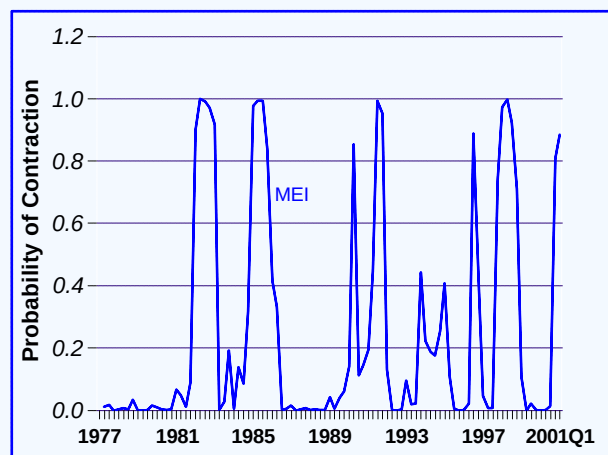


Chart H
Contraction Probabilities (MEI)



In summary, the contraction periods found using the consumption and MEI MS models have reinforced the downturn phases of Singapore's real GDP growth (business) cycle extracted from the model, with the recession periods estimated in 1985 and 1998 coinciding with contractions in consumption and MEI. Hence, the results indicate that a common cycle exists between the real GDP, consumption and MEI series, which lends strong support to the dating of the business cycle in Singapore presented in Chart F.

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1.3 Aggregate Demand

From an expenditure perspective, the slowdown was largely due to a sharp drawdown in inventory, amidst weakening domestic and external demand

From an expenditure perspective, the deterioration in economic growth reflected largely a drawdown in inventory, amidst weakening domestic and external demand. (Chart 1.23) Public consumption and investment, however, gave some support to the softening private demand. (Chart 1.24)

External demand contracted by 4.2% in Q2 2001, following an expansion of 7.5% in Q1. Import compression was also particularly sharp, with total merchandise imports falling by an even deeper 10% in Q2, compared to the 4.4% decline in total merchandise exports over the same period.

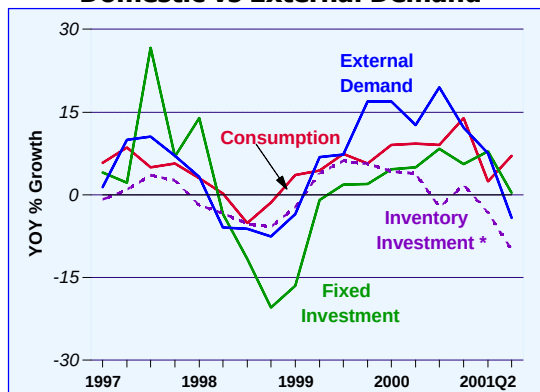
The current contraction in imports was largely due to a fall in non-oil retained imports of intermediate goods and capital goods. In particular, manufacturers cut back their imports of intermediate goods significantly on the back of the plunge in manufacturing output. (Chart 1.25) This is similar to the situation in H2 1998, when regional demand fell sharply due to the Asian financial crisis. While total merchandise exports declined by 4% in H2 1998, total merchandise imports contracted by a steeper 18% during the same period. As a result, net exports contributed to an overall increase in real GDP growth in H2 1998.

Strong public spending supported overall consumption and investment

Economic activity in Q2 was supported by the more than 20% surge in public spending. Together, public consumption and investment added 1.2 percentage points to total demand in Q2. Our estimations show that if public spending had registered flat growth in Q2, GDP growth would have contracted by 1.4%, instead of by 0.9% as was actually recorded.¹¹

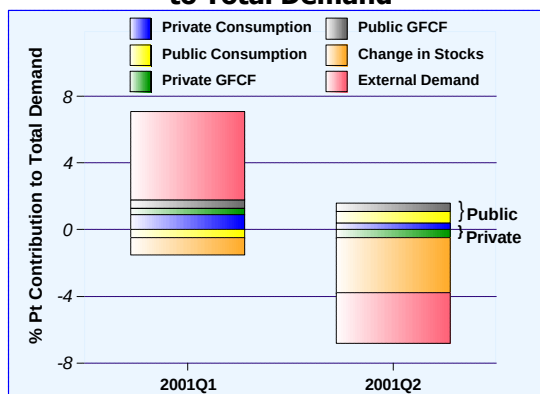
¹¹ In our estimations, we also took into account the effects of import leakages.

**Chart 1.23
Domestic vs External Demand**

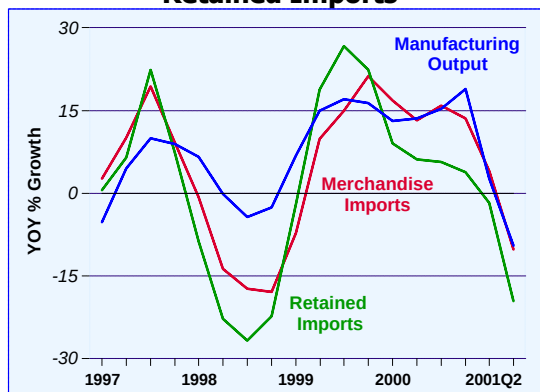


* Refers to the change in the increase in stocks as a percentage of GDP of the previous year.

**Chart 1.24
Percentage Point Contribution to Total Demand**



**Chart 1.25
Manufacturing Output and Retained Imports**



Growth was dragged down by a large inventory drawdown...

On the domestic front, private fixed investment and consumption have softened considerably amidst the weak external environment. Inventories fell sharply, as manufacturers drew down stocks substantially with the sharp drop in demand. The sharp correction in inventories alone reduced GDP growth by 10 percentage points.

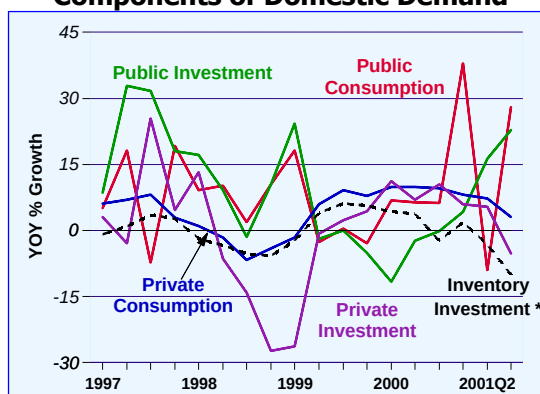
...as well as weaknesses in private investment and consumption

Private fixed investment contracted by 5.3% in Q2 2001, following the 5.3% growth in the preceding quarter. (Chart 1.26) In particular, private machinery and equipment investment (MEI) contracted sharply, as companies cut back on investment spending and scaled back investment plans. (See Box Item 1.2 for a discussion on the underlying factors driving MEI in Singapore.) At the same time, private investment in non-residential buildings fell markedly as demand for commercial and industrial space slumped. Private investment in residential buildings also contracted due to the protracted weakness in the property market.

Private consumption growth more than halved from Q1 to 3.0% in Q2. Nevertheless, this rise was still fairly strong for the current stage of the business cycle and reflected continued strong growth in private disposable income. Estimates from our model show that while growth of private disposable income has moderated from the double-digit rates seen in the last five quarters, it continued to grow by a relatively robust 8.3% in Q2. In contrast, during the 1998 recession, private consumption started declining one quarter before the fall in GDP. Meanwhile, retail sales slowed, mirroring the weaker private consumption growth. Singaporeans have also curtailed their expenditure overseas, with growth of travel payments moderating sharply in Q2. (Chart 1.27)

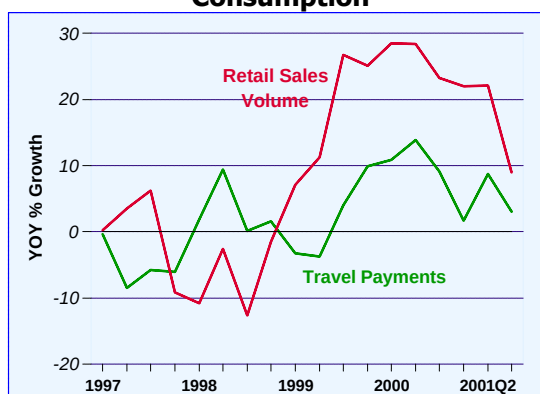
Exceptional strength in the public components partially offset the weakness in the private components of domestic demand. Public consumption surged by almost 30% in Q2, on the back of a large increase in security spending (which comprises defence, home affairs and civil defence spending). Public investment also recorded robust growth, reflecting an escalation of government spending on major civil engineering and non-residential building projects – the two segments behind the small

Chart 1.26
Components of Domestic Demand



* Refers to the change in the increase in stocks as a percentage of GDP of the previous year

Chart 1.27
Selected Indicators of Private Consumption



positive growth of the construction sector in Q2 2001. The bulk of government spending on civil works reflected the flow-through of the 400% jump in such contracts awarded last year that was mentioned earlier.

Box Item 1.2: Explaining Machinery and Equipment Investment (MEI) in Singapore - A Dynamic Modelling Approach

Introduction

The success of Singapore's export-oriented industrialisation strategy has been underpinned by the rapid accumulation of the country's capital stock. The gross fixed capital formation (GFCF) to GDP ratio has averaged 37% since the late 1970s, the highest in the world, far exceeding for example, Japan and the other dynamic Asian economies. Investment in MEI is directly related to the build-up of manufacturing capacity in the economy, and accounted for more than 40% of GFCF in 2000.

Romer (1996) identifies two main factors that explain the importance of investment expenditure relating to short term and long term considerations in the economy. First, investments are a potentially important determinant of the country's income level over the medium to long term. Investments expand and renew the stock of plant and equipment, and thereby increase the productive and income-generating capacity of the economy. A 1995 IMF study estimated that in Singapore, capital generated a positive contribution to output growth in each year in the period 1961-1991, accounting for an average of 4.3 percentage points, or more than half of GDP growth. (Bercuson, 1995) This falls in line with our internal estimates, which show that for the period 1979-2000, capital deepening accounted for about 4.7 percentage points, or 55% of GDP growth. Second, in the short term, investment can be volatile and as such, may be important in contributing to short-run fluctuations in GDP. In an econometric study to characterise the business and investment cycle in Singapore, we found that MEI exhibited more cycles than GDP, and also exhibited much more pronounced swings during business upturns and downturns. (Refer to Box Item 1.1 for a more detailed discussion of this study.)

A Model of MEI in Singapore

Our econometric model of MEI in Singapore is based on the conventional neoclassical model of the determination of the optimal capital stock, and follows the approach in Bean (1981). Assuming a constant elasticity of substitution (CES) production function and perfect competition, we obtain the following long-run equilibrium relationship linking investment to output and the user cost of capital:

$$\log(\text{inv}) = \log(y) - \sigma c + a$$

where a is a generic constant, $\log(y)$ and $\log(\text{inv})$ denote the natural logarithms of output and investment respectively, and c is the user cost of capital. The coefficient of the user cost of capital, σ , is the constant elasticity of substitution.

In general, the user cost of capital incorporates:

- (1) the real opportunity cost of having funds tied up in capital, which equals $(i_t - p_t)P_{k_t}$, where P_{k_t} denotes the price of new capital goods, p_t denotes the GDP deflator, and i_t denotes the nominal interest rate; and
- (2) the depreciation cost per period, which equals dP_{k_t} , assuming that capital decays at a constant rate of $d\%$ per period.

Using quarterly, seasonally adjusted data from Q1 1976 to Q2 2001, we estimated using non-linear least squares, an error-correction model (ECM) which embeds the above long-run model in a specification that allows for short-run dynamics. The real effective exchange rate (REER) is included in the estimation as an exogenous

variable to proxy Singapore's export competitiveness in the short-run specification, reflecting the fact that a substantial portion of MEI is concentrated in the tradable goods sector. The lag terms of changes in the three variables were chosen using the general to specific modelling approach. We have also incorporated dummies to account for seasonality in the data. Diagnostic test results show that there is neither auto correlation nor heteroscedasticity. Prior to this, we had conducted the standard prerequisite tests, which found that all three series – c , $\log(\text{inv})$ and $\log(y)$ – are integrated of order one and co-integrated. The estimated equation is given in Table A below.

The signs and the coefficients obtained are in line with our theoretical model. Diagnostic test results show that all key variables included in the model are statistically significant and that the corresponding residuals are normally distributed, with neither serial correlation nor heteroscedasticity. The long-run coefficients show that on average, a 1% increase in non-construction GDP leads to a 1.2% increase in MEI, suggesting that the accelerator effect has a very large impact on MEI. The effect of a change in the user cost of capital is more muted, with MEI increasing by 0.04% in response to a 1% decrease in the user cost of capital. The error correction term of -0.21 implies an adjustment of around 20% per quarter, or a deviation half-life of around three quarters. This means that following a shock, the deviation of MEI from long-run equilibrium halves after around three quarters.

Table A: Estimation and Test Results

<u>Variable</u>	<u>Coeff.</u>	<u>Std. Err.</u>	<u>T-stat.</u>	<u>P-value</u>		
error-correction term	-0.210	0.090	-2.328	0.023		
$\log(y(-4))$, within error-correction	-1.216	0.025	-47.88	0.000		
$\log(c(-4))$, within error-correction	0.038	0.006	5.967	0.000		
constant, within error-correction	4.059	0.059	81.99	0.000		
$d\log(\text{inv}(-1))$	0.558	0.078	7.147	0.000		
$d\log(\text{inv}(-4))$	-0.287	0.082	-3.489	0.001		
$d\log(\text{inv}(-8 \text{ to } -12))^*$	-0.152	0.054	-2.834	0.006	R-squared	0.747
$d\log(y(-1 \text{ to } -12))^*$	0.486	0.109	4.442	0.000	adjusted R-squared	0.713
$d\log(c(-2))$	-0.006	0.003	-2.171	0.033	Jarque-Bera Normality test (P-value)	0.068
$d\log(c(-6))$	-0.007	0.003	-2.189	0.032	Serial Correlation LM test (P-value)	0.475
$d\log(\text{reer}(-1))$	-0.260	0.140	-1.855	0.068	White's Hetero test (P-value)	0.763

* Not all of the lag terms are included; they are chosen using a general to specific approach.

Effect of High GDP Growth Rates on MEI

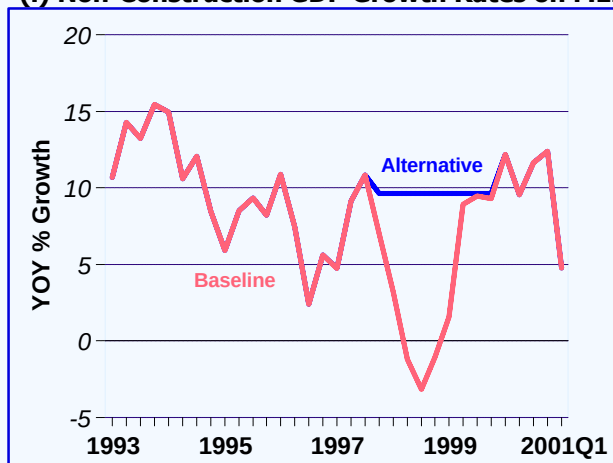
The equation that we have estimated provides us with a useful way of isolating the role of the accelerator effect on the MEI, taking into account both the long-run effects and the short-run dynamics. To obtain a quantitative feel for the impact of output changes on MEI, we run a counterfactual simulation, assuming that high GDP growth rates prevailed during the period of the Asian crisis, instead of the sharp slowdown in growth.

In this simulation exercise, the baseline is the actual outcome, where GDP growth fell sharply from its peak in Q3 1997 to register two quarters of contraction in H2 1998, before recovering fairly quickly to above 7% growth in H2 1999. In the alternate scenario, we assume that the high average growth rate of 9.6% experienced during Q1 1993 to Q3 1997 was sustained during the Asian crisis period of Q4 1997 to Q4 1999 before returning to the actual growth rates thereafter.¹ Chart A shows that if Singapore had continued to grow at a rapid pace of 9.6%, the accumulated MEI would be a maximum of 8.6% higher on a cumulative basis by Q4 2000. This illustrates the relatively large accelerator effect of output changes on MEI.

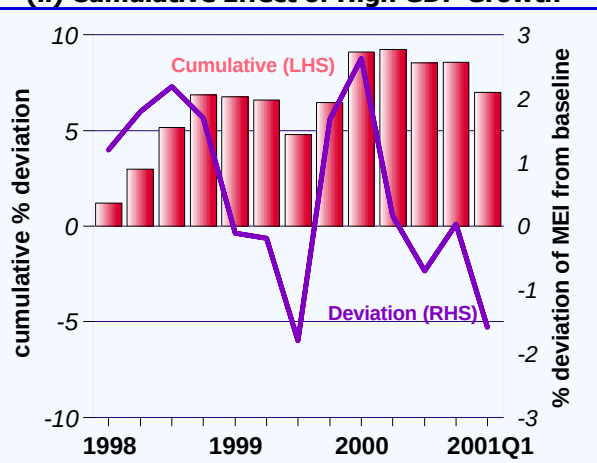
¹ Note that the GDP figures used exclude the construction and housing sectors.

Chart A

(i) Non-Construction GDP Growth Rates on MEI



(ii) Cumulative Effect of High GDP Growth

**Summary**

In this study, we find that the traditional neoclassical model provides a useful explanation of MEI in Singapore. The two key components – output changes and the user cost of capital – play a useful role in determining MEI. In particular, changes in output influence MEI significantly, with MEI remaining weak in the absence of a pick-up in GDP growth. MEI is also affected by the user cost of capital, although by a much lesser extent.

References

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1.4 Fiscal Developments

The government accumulated a surplus in Q2 2001

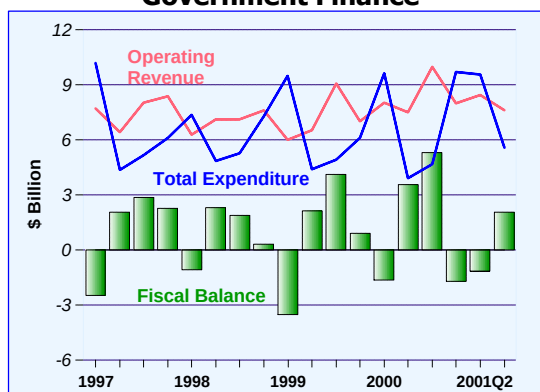
The Singapore government accumulated a surplus in the second quarter of 2001, following two consecutive quarters of deficits.¹² (Chart 1.28) Despite a fall in operating revenue, the fiscal balance shifted from a deficit position of \$1.1 billion in Q1 2001 to a surplus position of \$2.1 billion in Q2, due principally to a decline in expenditure. As such, for the first half of 2001, the government surplus stood at \$911 million, compared to \$1.9 billion over the same period last year.

The decline in non-tax revenue more than offset the increase in tax revenue collection

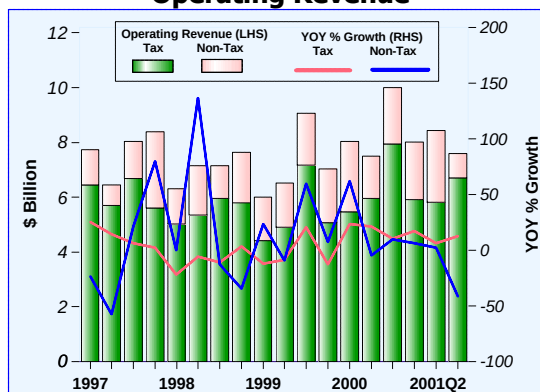
In tandem with the slowdown in the economy, operating revenue decreased from \$8.4 billion in Q1 2001 to \$7.6 billion in Q2. (Chart 1.29) The sharp decline in non-tax revenue more than offset the increase in tax revenue collection. Revenue from COE premiums, which comprises a significant share of non-tax collection, declined sharply reflecting the unusually low premium of \$101 for the month of June. At the same time, the re-classification of interest from loans to statutory boards since April 2001 (the start of the fiscal year)¹³ also contributed to the shrinking of overall non-tax revenue.

Compared to a year ago, operating revenues rose by 1.5% in Q2 2001. Tax revenue was supported by direct tax sources. Reflecting the lags in income tax collections, the robust performance of the economy in 2000 continued to have an impact on personal and corporate tax revenue, which grew by 16% in Q2 to \$3.8 billion. (Chart 1.30) Revenue from asset taxes was also higher, supported by the reduction in property tax rebates from 55% to 25% in July 2000, as well as by the one-time collection of property tax arrears.

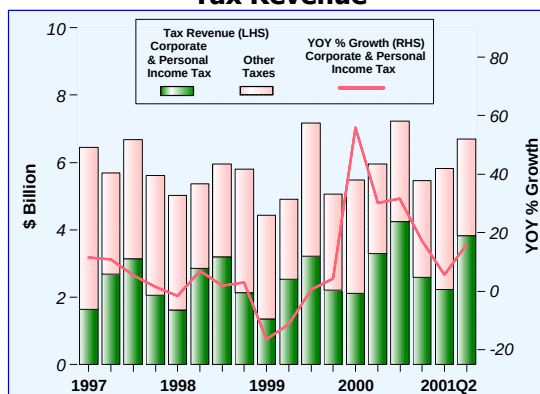
**Chart 1.28
Government Finance**



**Chart 1.29
Operating Revenue**



**Chart 1.30
Tax Revenue**



¹² The shortfall in Q4 2000 was due to compensation paid to telecommunications companies for the earlier than expected further liberalisation of the sector.

¹³ Interest from loans to statutory boards has been incorporated under Net Investment Income.

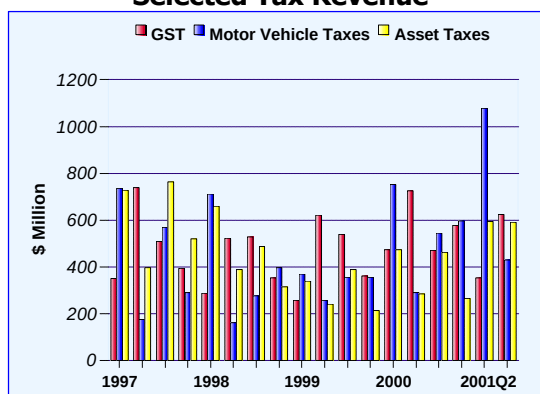
In comparison, indirect tax collection declined by 3.5% in Q2. (Chart 1.31) In particular, revenue from the Goods and Services Tax fell by 14%, following a contraction of 26% in Q1, as consumption growth moderated.¹⁴ There was also a broad-based decline in revenue in Q2 across most categories of indirect taxes compared with the preceding quarter. Revenue from stamp duties, betting taxes, and customs and excise duties all contracted. Motor vehicle tax collection also fell, although on a year-on-year basis, it grew robustly. The latter expansion was evident in all sub-categories of motor vehicle related revenue including that from import duties, road taxes, and Additional Registration Fees (ARF). Revenue from these sources is largely based on the number of new vehicles on the road, which has been boosted by the larger quota of Certificates of Entitlement (COEs) allocated this year. The number of successful bids for COEs was about 20% higher in the first half of 2001, compared to H1 2000.

**Government expenditure in Q2 2001 shrank
quarter-on-quarter but grew strongly
year-on-year**

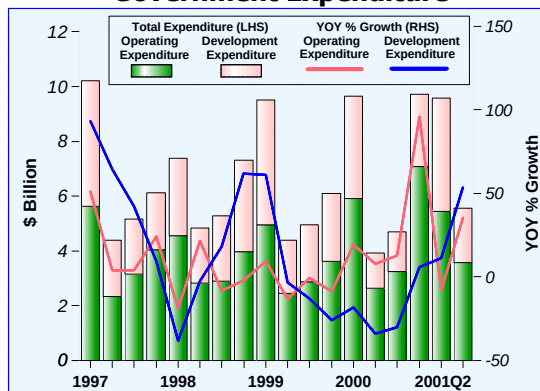
Government expenditure amounted to \$5.6 billion in Q2 2001, a decline from \$9.6 billion in the quarter before. (Chart 1.32) Expenditure is usually higher in the first quarter of each year as ministries typically run down on their budget allocation at the end of the Apr-Mar fiscal year.

Compared with the same period last year, total government expenditure increased by 41%. Both operating and development expenditure rose strongly. Aside from increased spending on security and external relations, the government boosted expenditure across most social development and economic services sectors as well. There were higher outlays for community development and sports, and information and the arts, as the government sought to promote healthy lifestyles and enhance the social environment. Upgrading work to improve public areas such as parks and hawkker centres was also carried out, while communication spending was boosted by on-going road and rail projects.

**Chart 1.31
Selected Tax Revenue**



**Chart 1.32
Government Expenditure**



¹⁴ GST collection was higher in Q2 2001, compared to Q1 due to the Great Singapore Sale held between end-May and early July.

1.5 Balance of Payments

Larger net outflows were seen in the capital and financial account in Q2 2001

Singapore's balance of payments recorded net outflows of \$14.8 billion from its capital and financial account in Q2. (Chart 1.33) Comparatively large outflows were also recorded in the previous two quarters, leading to total outflows of \$36.0 billion in these three quarters. Sustained outflows of this magnitude were last seen during the period of Q4 1997-Q2 1998, as a result of the contagion effect from the Asian financial crisis.

Chart 1.33
Balance of Payments

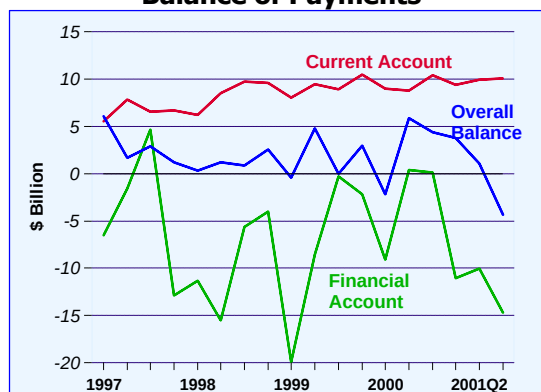
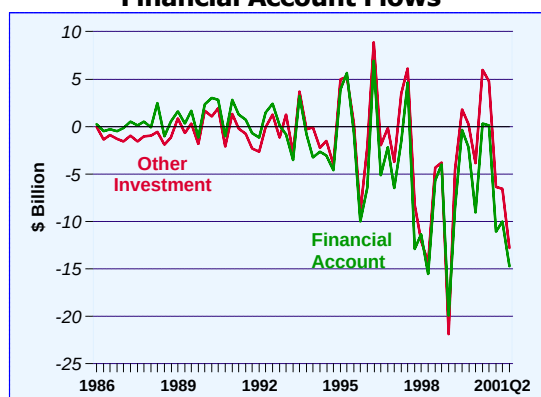


Table 1.5
Summary Accounts

	\$ Billion (% of GDP)		
	2000	Q1 2001	Q2 2001
Goods Balance	19.7 (12.4%)	5.8 (14.7%)	6.4 (16.6%)
Exports of Goods	239.5 (150.6%)	57.6 (146.6%)	55.7 (144.3%)
Imports of Goods	219.9 (138.2%)	51.8 (131.9%)	49.3 (127.7%)
Services Balance	9.7 (6.1%)	2.3 (5.9%)	2.1 (5.3%)
Current Account Balance	37.6 (23.6%)	9.9 (25.2%)	10.1 (26.2%)
Financial Account Balance	-19.7 (-12.4%)	-10.0 (-25.5%)	-14.7 (-38.2%)
Overall Balance	11.8 (7.4%)	1.1 (2.7%)	-4.4 (-11.3%)

However, there have been other periods of significant capital and financial outflows exceeding \$10 billion per quarter in the past, for example in 1995, and more recently in Q1 1999, when outflows reached a peak of \$20 billion. In general, the volatility and magnitude of capital flows have increased over the years in tandem with Singapore's development as an important financial centre and its increased participation in the offshore ADM, through which funds are channelled to and from Singapore.¹⁵ (Chart 1.34)

Chart 1.34
Financial Account Flows



¹⁵ In the capital and financial accounts of the balance of payments, the ADM is regarded as a non-resident entity.

Most of the outflows were due to the shifting of banking sector funds

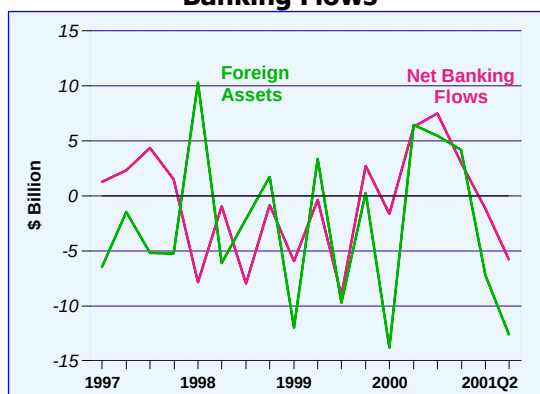
Indeed, most of the outflows in Q2 2001 were due to the shifting of banking sector funds. The movement of these funds comprised the bulk of outflows from the "Other Investment" account, which almost doubled from \$6.5 billion in Q1 to \$12.8 billion in Q2. To a large extent, this was a result of banks accumulating assets offshore. (Chart 1.35) In particular, domestic banks had been depositing funds in the ADM. The banking sector has been relatively flushed with liquidity in the first half of 2001. Banks' average excess holdings of statutory liquid assets were larger than usual, rising to \$9.1 billion and \$5.9 billion in Q1 and Q2 respectively, from an average of \$4.2 billion in 2000. Some of this excess liquidity would have been shifted to the ADM, where it was in turn extended as loans to foreign non-bank customers mainly in Europe.

Another possible reason for the outflow of resident bank funds into the ADM could be related to the merger and acquisition activities of Singapore companies. Funds from these companies (e.g. SingTel, DBS) intended for use in acquisitions of foreign corporations could have been temporarily parked in the ADM while the deals were being concluded. These flows would have been recorded as bank flows instead of as direct investments at this stage.

The non-bank resident sector also contributed to the overall outflows. The repayment of ADM loans by the non-bank sector drove net outflows from the "Other Sectors" account to \$6.7 billion in Q2 2001, from \$4.6 billion in the previous quarter.

In comparison, net portfolio investment outflows declined. Although official outflows rose, there was renewed interest in the local stock market by private foreign investors after two consecutive quarters of withdrawals of funds. The effect was to lower net portfolio investment outflows by about \$1.3 billion to \$2.5 billion. Net foreign direct investments grew from \$303 million in Q1 to \$554 million in Q2.

**Chart 1.35
Banking Flows**



The improvement in the goods balance was partly offset by the weakening in the services balance

The current account surplus rose to \$10.1 billion in Q2 2001, from \$9.9 billion in the preceding quarter, as the goods surplus expanded to its highest level since Q4 1998. The larger goods balance was only partly offset by the weakening in the services balance.

Following a significant drop of \$8.4 billion in Q1 2001, receipts from exports declined by a further \$1.9 billion in Q2. However, payments for imports also dropped by \$2.6 billion, reflecting not only weaker consumption but also poorer prospects for the manufacturing sector and hence lower demand for imported inputs.

In comparison, the increase in payments for imports of services surpassed that of receipts from the exports of services, thus reducing the services balance to \$2.1 billion. Notably, net travel receipts tumbled from \$296 million in the preceding quarter to \$12.9 million, mainly due to deteriorating visitor arrivals from the industrial countries. At the same time, greater domestic demand for foreign transportation services also contributed to the increase in services payments. While the surplus in the income balance continued its trend decline, net current transfers saw a slightly smaller deficit.

OFR absorbed the deficit in the overall balance

The outflows from the capital and financial account more than offset the current account surplus in Q2 2001, resulting in a deficit in the overall balance of \$4.4 billion. The imbalance was absorbed by Singapore's official foreign reserves (OFR). Thus as a whole, Singapore's OFR declined from \$140.3 billion to \$136.0 billion (equivalent to seven months of imports).¹⁶

Table 1.6
Singapore's Official Foreign Reserves

End of Period	Reserves (\$ Million)	Months of Imports
2000 Q1	128,158.6	7.8
Q2	134,430.9	7.7
Q3	135,952.7	7.4
Q4	139,260.0	7.2
2001 Q1	140,326.7	7.1
Q2	135,999.9	7.0

¹⁶ There was a small amount of reserves accumulated through translation gains in Q2 2001.

2 Financial Market Developments

2.1 International Financial Markets

Concerns over a synchronised global economic slowdown and the absence of any signs of recovery in the technology, media and telecommunications (TMT) sector, despite easier monetary conditions, continued to weigh heavily on financial markets during Q3 2001.

Against a backdrop of weaker economic growth in the US, the 11 September attacks are likely to further dampen the already fragile US consumer confidence. These concerns led to a concerted monetary easing by the US Federal Reserve, the Bank of Japan (BOJ) and the European Central Bank (ECB) to cushion the impact from the fallout. (Table 2.1)

In the foreign exchange market, the US dollar weakened markedly against most major currencies, particularly against the Euro, reflecting concerns over the weaker than expected US economy even prior to the attacks. In comparison, deliberate and persistent BOJ intervention to support a weaker Yen limited the Yen's gains against the US dollar.

As might be expected, global equity markets weakened given the worsening economic conditions and ongoing warnings about declines in corporate profits. The terrorist attacks aggravated the slides caused by rising risk aversion and concerns over growth, though swift and aggressive US-led monetary easing managed to stabilise the markets.

Higher risk aversion and expectations of easier monetary and fiscal policies were also reflected in the US bond markets. Yield curves steepened, given the aggressive monetary easing, higher risk aversion, and proposed large fiscal expenditures.

Table 2.1
Key Financial Market Indicators

	Level as at 15 Jun 01	Level as at 3 Oct 01	Change
Interest Rates			
Federal Funds Target Rate	4.00%	2.50%	-150bps
BOJ Overnight Call Rate	0.01%	0.001%	-9bps
ECB Minimum Repo Bid Rate	4.50%	3.75%	-75bps
Foreign Exchange Rates			
USD/Yen	122.93	120.75	-2%
Euro/USD	0.8610	0.9145	+6%
Euro/Yen	105.80	110.22	+4%
Equity Indices			
NASDAQ	2028	1581	-22%
S&P 500	1214	1072	-12%
Dow	10624	9124	-14%
DAX	5915	4437	-25%
FTSE	5723	4882	-17%
Nikkei 225	12790	9924	-22%
10-year Government Bond Yields			
US	5.23	4.47	-76bps
Germany	5.01	4.66	-35bps
Japan	1.19	1.38	+19bps

INDUSTRIAL COUNTRIES

The US dollar weakened, reflecting deteriorating US economic fundamentals, especially in the aftermath of 11 September

After strengthening in Q2 2001, the US dollar depreciated by 6% against the Euro and 2% against the Yen through Q3 2001. (Chart 2.1) The main factor behind the weakness was the deteriorating US economy, though the decline was exacerbated by increased post-11 September global investor risk aversion. These factors suggest that capital inflows into the US will slow, if not reverse, renewing concerns over the financing of the large current account deficit. As a result, the US dollar failed to react positively to the Fed's aggressive interest rate cuts, a departure from recent episodes of Fed easing.

Meanwhile, the Euro strengthened by 4% against the Yen over the same period, due to Japan's ongoing economic problems. These were compounded by the BOJ's intervention in the currency market, which was aimed at curbing a weaker USD/JPY exchange rate.

Short-term interest rates for the G3 economies fell as central banks further eased monetary policy

Year to date, the Fed has reduced the Federal Funds target rate by 300bps to 2.5% in a bid to revive the rapidly deteriorating economy. Prior to the attacks, the market had expected the Fed to end its easing cycle with the Federal Funds rate at around 3% after the 25bps cut in August. However, the 11 September incidents sparked off renewed monetary easing, and the Fed had lowered rates by another 100bps by 3 October, while indicating a continued bias towards further monetary easing. (Table 2.2 and Chart 2.2)

Chart 2.1
Yen and Euro Against the US Dollar

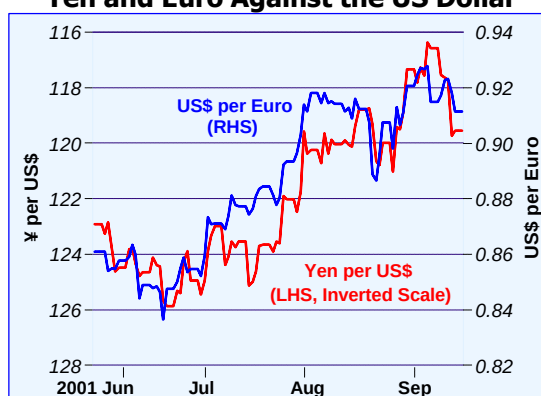
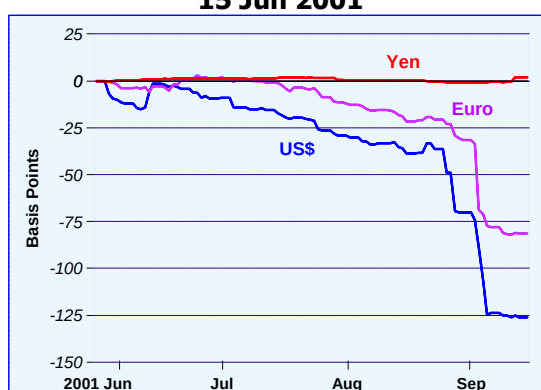


Table 2.2
Short-term Interest Rates for the G3 Economies (%)

End of Period	Federal Funds Target Rate	Japan Overnight Call Rate	ECB Reference Rate
2001 May	4.00	0.03	4.50
2001 Jun	3.75	0.06	4.50
2001 Jul	3.75	0.02	4.50
2001 Aug	3.50	0.01	4.50
2001 Sep	3.00	0.003	3.75
2001 Oct*	2.50	0.001	3.75

* as at 3 Oct 2001

Chart 2.2
Change in 3-month LIBOR Rates from 15 Jun 2001



In Japan, a much weaker economy, persistent deflation and mounting political pressure led the BOJ to intensify the quantitative easing measures that began in March. In August, the BOJ raised the target for the outstanding balance in current accounts held at the BOJ by Yen 1 trillion to approximately Yen 6 trillion, and this was followed by an increase to "more than Yen 6 trillion" in September. The BOJ also increased the volume of its monthly outright purchases of long-term government bonds from Yen 400 billion to Yen 600 billion.

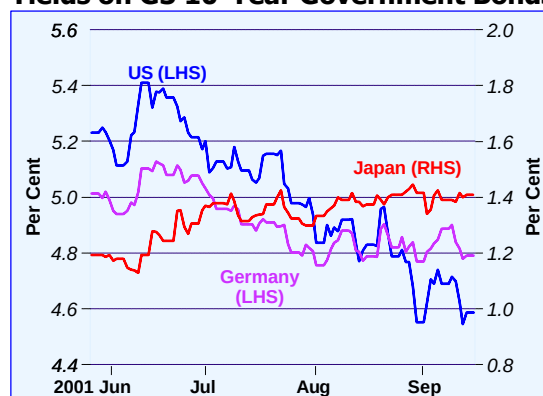
After the surprise cut in May, the ECB maintained its benchmark rate at 4.5% despite increasing signs of faltering economic growth and lower inflationary pressures in the Euro zone, particularly in Germany. The ECB lowered rates twice for a total of 75bps in September, and markets are expecting at least another quarter point rate reduction before the end of the year.

Yield curves generally steepened, reflecting expectations of lower interest rates, higher risk aversion, and concerns over large-scale fiscal spending

In contrast to Q2 2001, when yields increased on expectations of positive economic growth, 10-year US Treasury yields had fallen by 60bps to 4.63% by the end of September, amid continuing economic deterioration and stock market declines. The yield curve steepened considerably after 11 September because of investors' flight to short-term US Treasury debt, and inflation concerns stoked by large fiscal expenditure measures. Similarly, prospects for a more accommodative policy in the Euro zone and declining stock markets led to lower yields on 10-year German bunds.

While the yields for 10-year US and German government bonds have fallen, JGB yields have moved in the opposite direction. The potential repudiation of Koizumi's debt cap promise, coupled with the massive Japanese government debt and the possibility of a prolonged recession, drove down JGB bond prices. The rising possibility that the BOJ will act to kindle inflation in order to break the present deflationary cycle also hurt Japanese bonds. (Chart 2.3)

Chart 2.3
Yields on G3 10-Year Government Bonds



Equity markets in G3 countries fell to new lows over deteriorating corporate earnings and the uncertain economic outlook

Over the period of 15 Jun-3 Oct, G3 equity markets resumed their downward trend, ending the period between 14-25% lower. (Chart 2.4) Bleak economic news, earnings downgrades and rising unemployment have created the most persistent bear market in the US since the 1970s, even before the terrorist attacks. Japanese stocks, too, have been weighed down by the bleak domestic economic situation, aggressive selling of shares by Japanese banks, and the expected fallout to the economy from a US recession. Japanese banks are required to mark their assets to market at the end of September, and they sought to liquidate as much of their assets as possible before the true state of their capital situation became clear. Moreover, Japanese exports to the US are expected to decline further in the aftermath of the terrorist attacks.

Meanwhile, well before 11 September, the German benchmark DAX index had already breached the 5000 points level. The last time this occurred was in June 1999. Sinking business and consumer confidence have weakened domestic Euro zone demand, aggravating the fall in exports.

The 11 September attacks sparked off a wave of panic selling across major markets, with airline, insurance and financial stocks suffering the worst declines, but by 3 October, the panic appeared to have largely subsided. G3 equity markets have recovered from their lows following aggressive monetary and fiscal stimulus measures, which boosted expectations of a US economic recovery taking place by H2 2002.

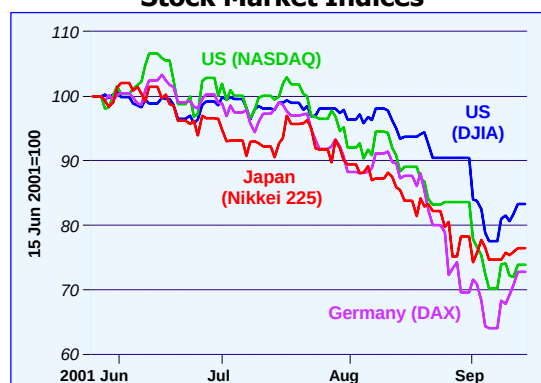
NORTH AND SOUTHEAST ASIA

Most Asian currencies appreciated against the US dollar, reflecting concerns over US economic woes

During the early part of the 15 Jun-3 Oct period, the Rupiah experienced a large appreciation following the advent of the new market-friendly Presidential Administration and the resumption of IMF lending. Meanwhile, the other floating Asian currencies were generally trending downward.

As the Yen appreciated against the US dollar starting in late July, the other Asian currencies followed the Yen up

Chart 2.4
Movements of Industrial Countries' Stock Market Indices



on optimism that a more expensive Yen would boost non-Japanese Asian exports. This upward trend was broken in late August and the regional currencies, except for the Thai Baht, started depreciating against the US dollar, as the economic slowdown deepened throughout the region. The Baht strengthened considerably in August after the Bank of Thailand (BOT) introduced new rules to curb offshore speculation. (Chart 2.5)

Due to increased investor risk aversion over emerging market assets, Asian currencies have not gained much from US dollar weakness in the aftermath of the 11 September attacks as further US economic deterioration is likely to affect Asian economies adversely.

Asian short-term interest rates generally declined in tandem with the Fed's easier monetary stance and the weaker economic outlook

The process of monetary easing in North Asia that began in January 2001 continued in the months that ensued, accelerating after the attacks on the US. The Hong Kong 3-month HIBOR fell 88bps in tandem with the Fed's aggressive policy. The Taiwanese central bank reduced its key rediscount rate by 25bps in August and a further 75 bps in September to 2.5%, to spur the rapidly deteriorating economy. Although the Bank of Korea has been somewhat constrained by inflationary pressures, it too has reduced its overnight call rate by 100bps to 4.0%.

In comparison, central banks in the ASEAN region have not been as aggressive in monetary easing. Persistent inflation and exchange rate pressures in Indonesia and the Philippines have compelled their respective central banks to maintain high interest rates, while the BOT maintained its key policy rate at 2.5% after the hike in June to stabilise the Baht. Bank Negara Malaysia, however, lowered its 3-month intervention rate to 5.0% in September for the first time in two years. (Charts 2.6 and 2.7)

Equities remain weighed down by the global economic slowdown, although there was a divergence in performance between North Asian and Southeast Asian equities

There was a divergence in the general direction taken by equities in North and Southeast Asian markets during Q3 2001. While North Asian equities have generally trended lower, ASEAN markets other than the Philippines held up relatively well prior to 12 September. These bourses

Chart 2.5
Selected Asian Currencies Against the US Dollar

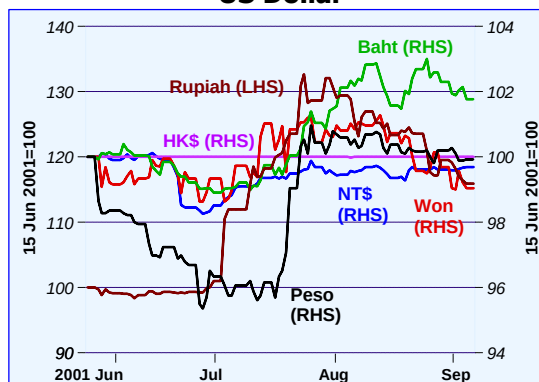


Chart 2.6
Change in Interbank Rates from 15 June 2001

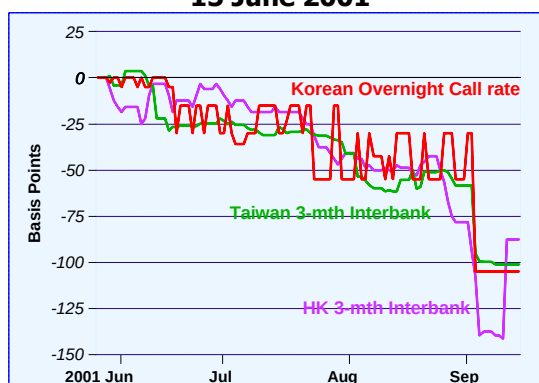
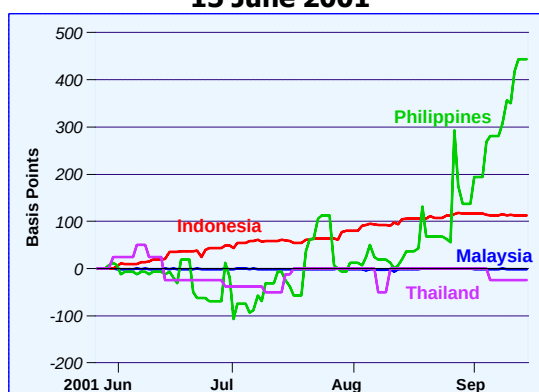


Chart 2.7
Change in Interbank Rates from 15 June 2001



were not spared from the global sell-off in mid-September, but Southeast Asian bourses failed to recover in tandem with G3 bourses due to political concerns and increased risk aversion toward emerging market assets.

North Asian equities, particularly the Taiwan Stock Exchange (TWSE) and Hang Seng Index (HSI), were weighed down by rising anxieties over global economic conditions and declining exports, especially in the TMT sector. The problems and uncertainties surrounding Hynix Semiconductor have further depressed Korea's KOSPI index since late August. (Chart 2.8)

In Southeast Asia, the Kuala Lumpur Composite Index (KLCI) was the major outperformer, driven mainly by improved investor confidence as the pace of corporate reform efforts accelerated. Before 12 September, the Stock Exchange of Thailand (SET) Index had been rising on expectations of the Thai parliament passing a law allowing a government asset management company to buy domestic banks' bad debt, while the Philippine Composite Index (PCI) was adversely affected by the slowing Philippine economy and indications of weakening domestic consumer demand. Meanwhile, the Jakarta Composite Index (JCI) had shed much of the gains generated in the euphoria accompanying the transition to the new administration in Jakarta by early September.

Nevertheless, the regional bourses suffered uniformly steep falls after 11 September, as the expected delay in the US' economic recovery worsened the region's economic outlook. Only the KLCI remains above its 15 June level. (Chart 2.9)

Chart 2.8
Movements of North Asian Stock Market Indices



Chart 2.9
Movements of Southeast Asian Stock Market Indices



2.2 Domestic Financial Markets

EXCHANGE RATES

The Singapore dollar strengthened against the US dollar but weakened against the Yen and the Euro

The Singapore dollar edged downwards against the G3 currencies in late June, as market sentiment shifted against the domestic currency in view of the sharp downturn in the economy. (Chart 2.10) Since then, the domestic currency has recovered against the US dollar, reflecting a fall in the US dollar against the Yen and Euro. The attacks on 11 September further dragged down the US dollar and as at end-September, USD/SGD stood at \$1.765, up 2% from end-March 2001. From the end of March to the end of September, the Singapore dollar ended weaker against the Yen and Euro, as both G3 currencies strengthened against the US dollar.

The Singapore dollar's performance against the regional currencies was mixed

The Singapore dollar's performance against the regional currencies was mixed. (Chart 2.11) The Singapore dollar was volatile against the Rupiah, fluctuating from a gain of as much as 12% in April to a loss of nearly 16% in August. The reversal was due to the improved political outlook in Indonesia, following the inauguration of Megawati's administration. The Singapore dollar's loss against the Rupiah, however, moderated, as the Rupiah came under pressure again in late August. In comparison, the Singapore dollar was more stable against the Baht and the Won throughout the period.

INTEREST RATES

Local interest rates edged downwards, reflecting further monetary easing by the Federal Reserve

Reflecting further monetary easing by the US Federal Reserve, the 3-month US\$ SIBOR continued to edge downwards during the period of June to August, down by about 52 bps from end May. This brought the total decline in the first eight month of the year to around 291 bps, slightly lower than the 300 bps reduction in the US Federal funds rate. The rate subsequently fell sharply in September, as the Federal Reserve and the ECB each cut

Chart 2.10
Singapore Dollar Against US Dollar, Euro and Yen

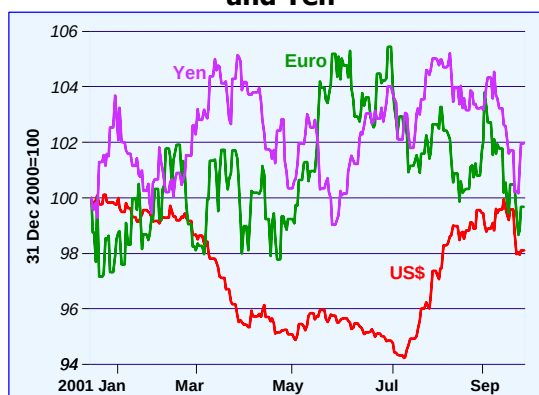


Chart 2.11
Singapore Dollar Against Won, Rupiah and Baht



their interest rates by 50 bps to boost liquidity in the financial system after the US terrorist attack. As at end-September, the US\$ SIBOR stood at 2.60%. (Chart 2.12)

The domestic 3-month interbank rate also ended lower, at 1.81% in September, compared with 2.25% at the end of May 2001. With the 3-month US\$ SIBOR falling by a larger margin during the period, the interest differential between these two rates narrowed substantially from 175 bps at end May 2001 to 78 bps, a level last seen only in September 1998. Amid the soft interbank interest rate environment, retail interest rates, including the prime lending rate and interest rates for short-term fixed deposits, have weakened most recently as well. (Table 2.3)

Chart 2.12
3-Month Interbank Rate and
3-Month SIBOR

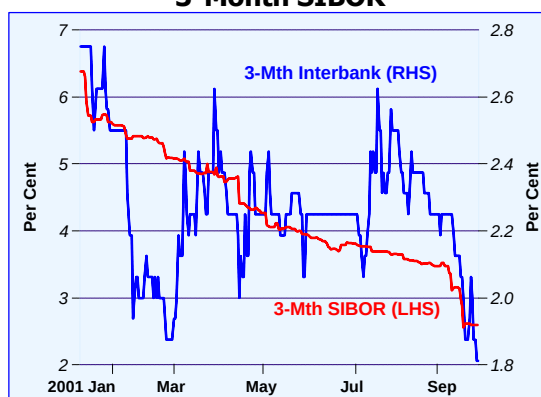


Table 2.3
Retail Interest Rates in Singapore (% per annum)

Month	Prime Lending Rate	Bank Fixed Deposits 3 Months	Bank Fixed Deposits 6 Months	Bank Fixed Deposits 12 Months
Aug 2001	5.80	1.70	2.04	2.35
Sept 2001	5.48	1.64	1.98	2.28

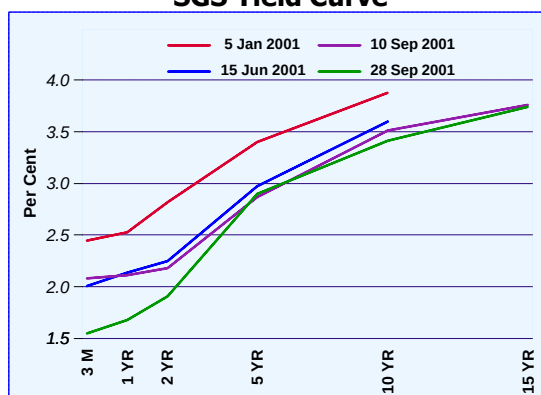
SGS BOND YIELDS

The SGS yield curve steepened, with the shorter end yield declining faster than the longer end yield

The Singapore Government Securities (SGS) yield curve benefited from the easing of global monetary policy amid a weaker global economy in H1 2001. (Chart 2.13) Domestically, the deteriorating outlook for the economy, coupled with low inflationary expectations, also exerted downward pressure on the yields. This translated to a mildly steeper yield curve as at June 2001, with the yield on the shorter end declining faster than the yield on the longer end. One possible explanation for the smaller decline at the longer end was the expectations of a turnaround in the economy and the unchanged outlook for the country's long-term growth potential.

Subsequently, the shorter end of the yield curve remained stable, in spite of two additional interest rate cuts of 25 bps by the Federal Reserve between 15 Jun-10 Sep 2001. With the downturn more prolonged than expected, participants seemed to have priced in the two interest rate cuts aimed at stimulating economic growth. At the longer end of the curve, yields slipped on the increased likelihood of a longer delay before economic recovery.

Chart 2.13
SGS Yield Curve



STOCK MARKET

Until 11 September, the volume and value of shares traded had fallen ...

Since mid-June, the local stock market has continued to be weighed down by weak local corporate earnings and the deteriorating outlook of the domestic economy. Externally, the unabated downswing of the global electronic cycle, coupled with the downturn in major industrial economies, also led investors to more risk aversion in taking positions, although there was a brief revival of interest in late June. Acquisition activities in the domestic banking sector, and further monetary easing by the Federal Reserve helped boost the volume of market turnover in June to rise significantly, by more than 40%. The surge in market activity, however, could not be sustained in the subsequent months, as the earlier mergers and acquisitions-linked trading subsided. With no clear signs of the bottoming out of the economic downturn, the number of shares traded tumbled sharply by 33% in Jul-Aug. (Chart 2.14)

The value of the transactions also plummeted by nearly 20% in Jun-Aug due to weaker prices and lower volumes. The Straits Times Index (STI), a broad price indicator for the equities listed on the Singapore Stock Exchange (SGX), was lacklustre, hovering around the range of 1558-1727 during the period from June to 11 September 2001. (Chart 2.15) While prices remained some 10%-19% below the level at end 2000, volatility appeared to have subsided, as manifested in falls in the 90-day rolling standard deviations. Stock prices could have already discounted the stream of negative economic data and news on poor corporate earnings. (Chart 2.16) In comparison, the high volatility during the period from April to mid-June pointed to a correction of prices, as investors priced in the risk of a more difficult recovery. The volatility of the electronics stock counters also moderated in tandem with the STI during the period from June to 11 September 2001. Compared with the STI, electronics stock prices were most volatile in Q2 2000 with the bursting of the Nasdaq's bubble.

Chart 2.14
Stock Market Average Daily Turnover

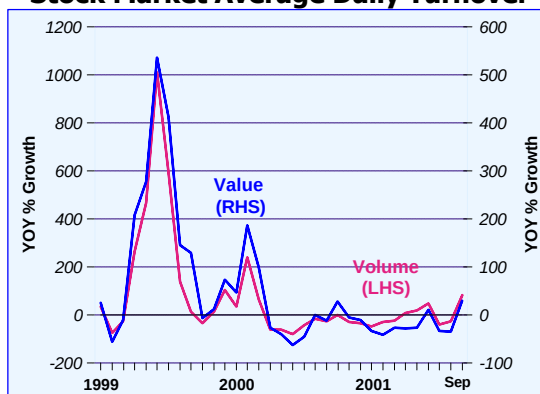
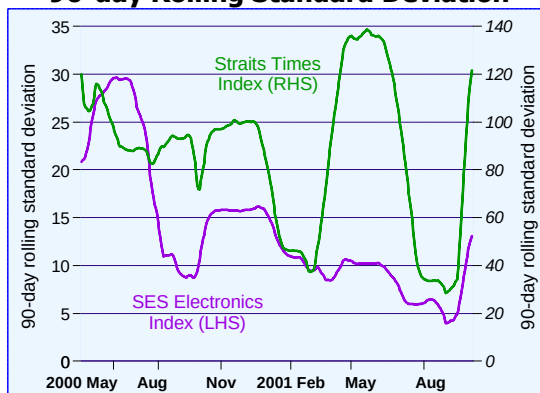


Chart 2.15
Straits Times Index (STI) and SES Electronics Index



Chart 2.16
STI and SES Electronics Index 90-day Rolling Standard Deviation



... but after 11 September, the STI plunged in tandem with worldwide stock markets

The subsequent terrorist attacks of 11 September, however, sent worldwide stock markets plunging with panic selling. The local stock market was not spared, with the STI diving sharply to a 30-month low in the aftermath of the attacks. The poor sentiments were exacerbated in an already vulnerable market, resulting in higher risk premiums for risky assets. As at end-September, the STI fell to 1320, 31% below the level at end 2000.

IPO launches scaled back substantially

Amid the poor market conditions, the number of IPO launches in the year-to-September period scaled back significantly to 30, compared with 71 launches in the same period a year earlier. Funds raised from these listings also fell to \$385 million, from nearly \$3 billion raised in the same period a year earlier.

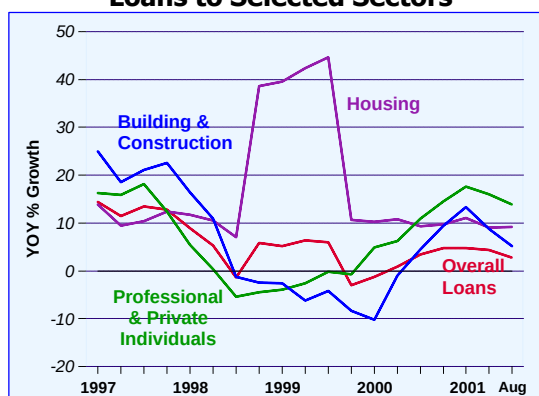
DOMESTIC CREDIT

Loan growth lagged the economic crisis, on moderations in the growth of lending to the major categories

Credit to non-bank customers began to show signs of moderation, in line with the sluggish economy, as growth decelerated to 2.7%¹⁷ in August, down from 4.4% in Q2 and 4.7% in Q1. (Chart 2.17) Being a lagging indicator of economic activity, loan growth would be expected to weaken further going forward. Already, the average monthly increase in Jan-Aug 2001 fell to \$170 million from \$571 million in the whole of 2000.

The slower loan growth was caused by moderations in the growth of lending to the major categories. Growth of credit to the professional and private category, the housing market and the building/construction and transport and communication sectors, which had underpinned the recovery in H2 2000, had tapered off in recent months. (Chart 2.18) Growth of housing loans had begun to slow down since the start of the year, partly due to the slump in private residential property

Chart 2.17
Loans to Selected Sectors



¹⁷ Overall loans data is adjusted for the DBS Finance's integration with DBS Bank by incorporating the full DBS Finance data a year ago.

transactions in H1 2001, the lowest half-yearly level seen since H1 1998. Credit extended to the commerce and manufacturing sector also remained in the doldrums, reflecting the respective worsening sectoral economic performances.

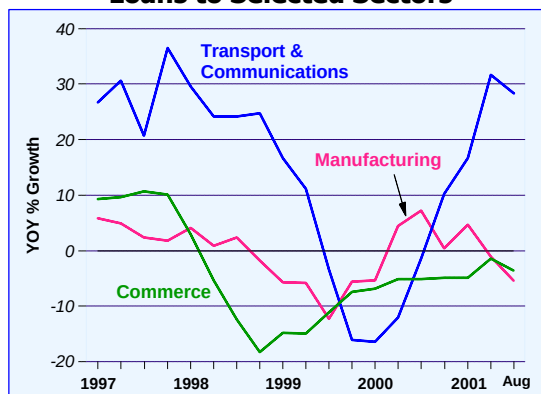
MONETARY AGGREGATES

Narrow money trended downwards, while broad money aggregates recorded relatively flat growth

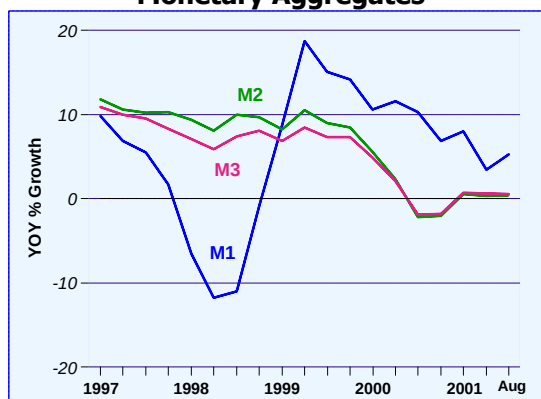
Growth of the narrow money supply, M1, which tracks economic activity, continued to trend downwards in the Jan-Aug period, although it picked up marginally in August. (Chart 2.19) In level terms, M1 also saw a fall-off in recent months, as the transactions motive for holding M1 could have declined on the back of slower economic expansion and negative market conditions. Apart from the cyclical factor, the greater popularity of credit card billings could have also reduced the need to hold money for purchases of goods and services. At the end of Q2 2001, consumers' rollover balances in credit card billings grew 21% to hit a high of \$1.83 billion, while the number of credit cards in circulation rose to nearly 2.6 million. The contraction in M1 resulting from these factors, coupled with a larger decline in the GDP on a quarter-on-quarter basis, dragged down the velocity of M1 sharply in H1 2001.

In comparison, the broader measures of money, M2 and M3, recorded relatively flat growth, after turning positive in Q1 2001. In level terms, both measures of money supply rose strongly in the first four months of 2001, underpinned by increases in both fixed and savings deposits. Against the lacklustre performance of the property and equity markets, as well as a bearish economic outlook, residents could have channeled funds to these deposits to seek safety and maintain liquidity. Returns for fixed deposits were, however, extremely low in the soft interest rate environment. This subsequently prompted a reversal of trend in fixed deposits from May 2001, as residents could have put their funds to more efficient use - by investing in non-deposit instruments, which include guaranteed/protected unit trusts and insurance policies.

**Chart 2.18
Loans to Selected Sectors**



**Chart 2.19
Monetary Aggregates**



3 Wage-Price Dynamics

Consumer prices in Singapore softened in Q2, although year-on-year CPI inflation remained unchanged at 1.7% compared with Q1. Inflation moderated to 1.0% in Jul-Aug. This brought average inflation for the first eight months of the year to 1.5%. The continued decline in prices of durable goods partially offset increases in the cost of services and non-durable goods. In terms of the underlying sources of inflationary pressures, both imported inflation and domestic wage costs remained subdued during the quarter. Inflationary pressures in both the industrial and regional economies remained well contained, while faltering demand and oversupply conditions contributed to weak commodity prices in world markets. In line with weaker labour demand conditions, wage growth moderated to around 6%.

3.1 External Inflation

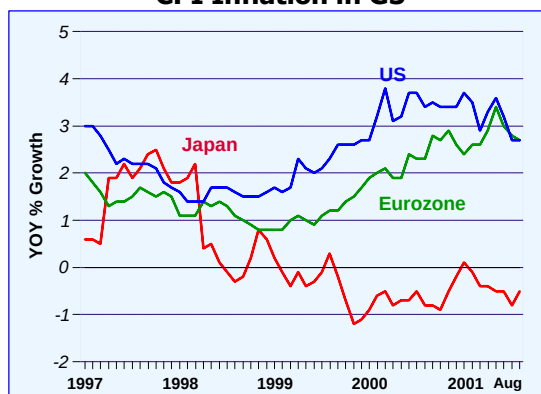
Inflation was benign in the developed economies

Price pressures in the US remained relatively subdued in the second quarter, aided by slowing growth, falling capacity utilisation, a strong US dollar and stable oil prices. Headline CPI inflation held steady at 3.4% in Q2 2001 while core inflation, which excludes volatile energy and food costs, remained moderate at less than 3%.

In the Euro zone, although headline CPI inflation remained persistently above the ECB's 2% target ceiling, some signs of lower inflationary pressures emerged. Headline CPI inflation fell to 2.7% in August from an average of 3.1% in Q2 2001 on account of slowing economic activities. Core inflation remained stagnant at around 2%.

Japan was still mired in a state of deflation. The pace of deflation accelerated in July, in part due to a revamp of the CPI basket to include items whose prices had fallen rapidly. Although weak demand played a part in the softening of prices, supply-side factors exacerbated the downtrend. Prices of food, clothing and household necessities fell as retailers looked increasingly to cheaper foreign suppliers.

Chart 3.1
CPI Inflation in G3



Inflationary pressures in East Asia have begun to subside

The average inflation rate in East Asia increased to 3.2% in Q2 2001 from 2.7% in Q1 2001. The rise was, in part, due to higher inflation in Indonesia as a result of the cut in fuel subsidies and the depreciating Rupiah. In more recent months, however, inflationary pressures moderated across most of the East Asian economies.

CPI inflation has started to subside in the Philippines, Thailand and Korea. Philippine's inflation rate slowed to 6.3% in August on falling food prices following a marked increase in agricultural production in Q2 2001. Thailand's inflation rate in August was half of the 2.8% recorded in May, an intra-year peak, due to a drop in non-food prices and cheaper imports. In Korea, the pass-through effects of higher utility charges as a result of higher oil prices have started to diminish.

Price pressures in Malaysia continued to be subdued on account of weak demand and excess capacities. CPI inflation in Taiwan was near to 0% as rising unemployment and a sluggish stock market helped to cap private consumption growth, which was the lowest amongst the East Asian economies in Q2 2001. Hong Kong continued to experience deflation, with the CPI falling 1.1% in August. However, deflationary pressures appear to have eased somewhat in recent months due to rising food prices.

World commodity prices declined further

World commodity prices continued to fall in Q2 and beyond, as the larger contraction in prices of oil more than offset the more moderate decline in prices of non-oil commodities. (Chart 3.4) OPEC oil prices, which stood at US\$25.60 per barrel in Q2, continued their trend decline to US\$24.10 per barrel in Jul-Aug, despite expectations of a further production cutback by OPEC in September, as prices were capped by high oil inventories and falling demand amid a global economic slowdown.

The decline in prices of non-oil commodities was, however milder. (Chart 3.5) In particular, falls in prices of most soft commodities, including rice and palm oil, have moderated from the large contractions in the previous quarters. Palm oil price inflation was less negative in line with market expectations of a growing shortage of other edible oils. Prices were further supported by lower yielding crops in Malaysia, as well as

Chart 3.2
CPI Inflation in ASEAN-4

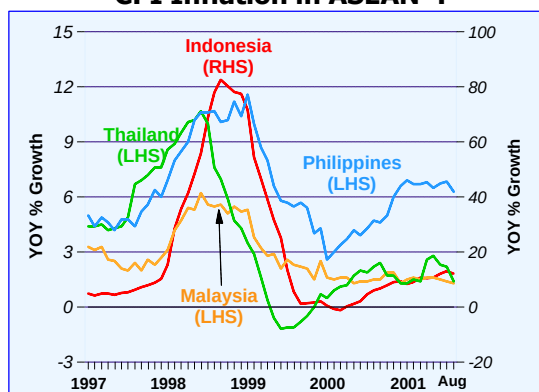


Chart 3.3
CPI Inflation in NIE-3 and China

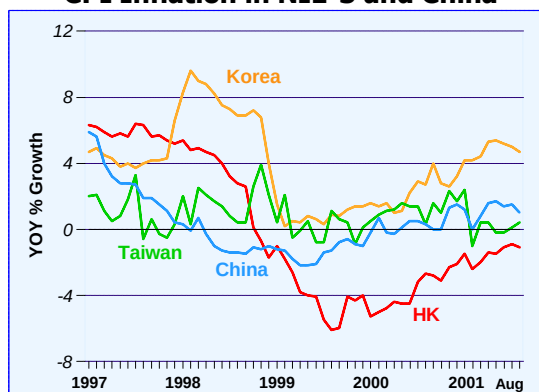
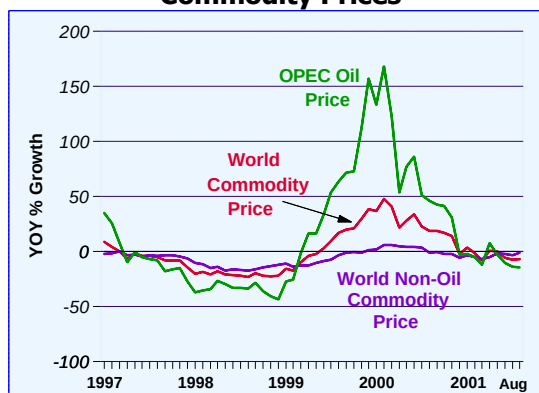


Chart 3.4
Commodity Prices



the success of the Malaysian government's replanting incentive scheme. Rising demand for Thai rice from Middle Eastern and African countries and various government intervention policies have helped to stabilise paddy prices. In comparison, world coffee prices remained depressed in Q2, due to a glut in world supply and low consumption. The oversupply conditions were exacerbated by the higher production by countries such as Vietnam, as well as the failure of export retention plans aimed at regulating the supply of coffee to world markets. Meanwhile, sugar prices rose more modestly in Q2, largely due to the increased sales by other exporting countries such as India. The subsequent collapse in prices in Jul-Aug reflected expectations of an impending rise in supply due to the bumper sugar harvest in Brazil.

3.2 Domestic Price Pressures

In line with the decline in economic activity, labour demand eased in Q2 2001, particularly in the manufacturing sector. Retrenchments have risen markedly while job vacancies have declined significantly. Although wage growth has also come off from its peak in Q4 2000, unit labour costs continued to increase largely due to the cyclical decline in productivity growth.

Employment growth has moderated sharply

Employment creation has weakened substantially, with net job gains of 3,300 in Q2. This compares with an increase of 23,200 in Q1, and quarterly gains averaging more than 27,100 in 2000. (Chart 3.6) The seasonally adjusted unemployment rate has also risen steadily over the past few quarters, from 2.4% in March to an estimated 3.8% in September.

Among the sectors, manufacturing employment was the worst affected

From a sectoral perspective, the slight increase in employment in Q2 was due entirely to job gains in the services sector. Employment in the services sector expanded by 12,300 in Q2, but this was partially offset by falls of 5,100 in the manufacturing sector and 4,000 in the construction sector.¹⁸ (Chart 3.6)

¹⁸ Note that there has been a re-classification of data in Q1: publishing activities have been re-classified as business services from manufacturing, previously.

Chart 3.5
Non-oil Commodity Prices

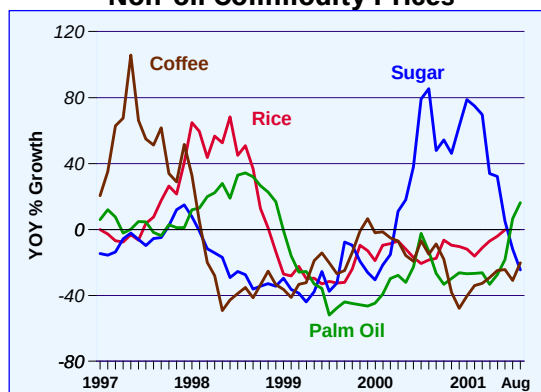


Chart 3.6
GDP Growth and Employment Changes

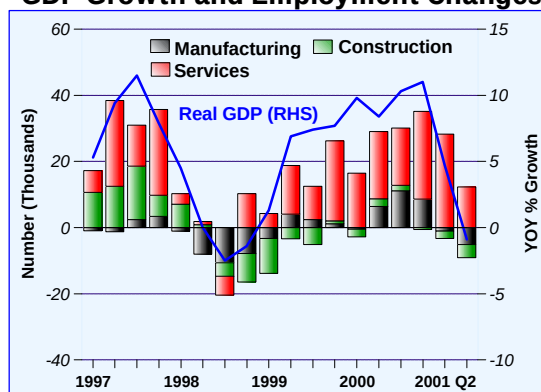
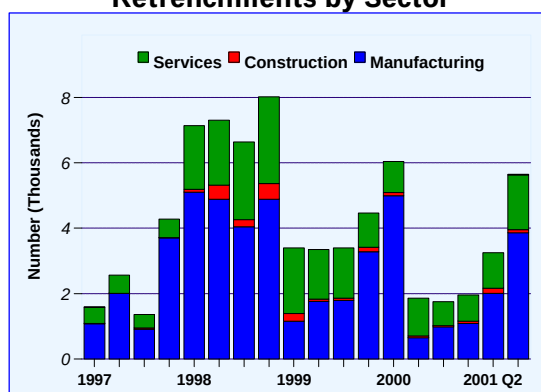


Chart 3.7
Retrenchments by Sector



The sharp rise in retrenchments from 3,200 workers in Q1 to 5,600 in Q2 was largely due to a spate of lay-offs in the manufacturing sector, particularly in the electronics industry. More than two-thirds of total retrenchments were in the manufacturing sector, with the electronics industry accounting for 40% of total retrenchments. Over the short space of three months between July and September, Singapore saw at least 1,300 manufacturing and IT-related jobs slashed by the industry's heavyweights such as Agilent Technologies and Hewlett-Packard. (Chart 3.7 and Table 3.1)

At the same time, the number of workers laid off temporarily or put on short work weeks shot up to an unprecedented level of 15,600, from 3,600 in the previous quarter. The bulk of these workers came from the manufacturing sector. (Chart 3.8) In addition, job vacancy and recruitment rates have both declined in most sectors in Q2, signalling further softening of the labour market. (Chart 3.9)

Chart 3.8
No. of Employees Temporarily Laid Off or Put on Short Work-Week

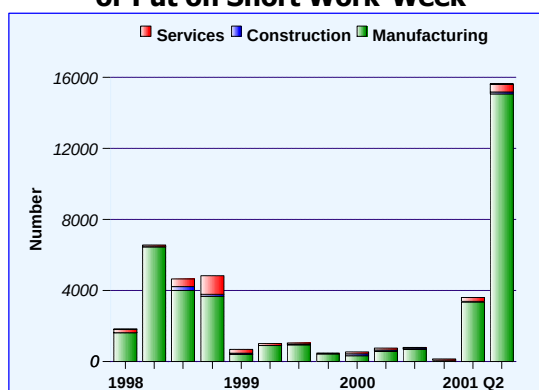


Chart 3.9
Recruitment Rate (SA) and Job Vacancy Rate (SA)



Table 3.1
Announced Job Cuts and Related News in the Domestic Electronics Industry (Jul-Sep 2001)

Date	Company	Number Affected
14 Jul 01	ST Assembly Test Services will shut down plants for one week to rein in operating costs.	--
26 Jul 01	Fastech Synergy Ltd to reduce its current workforce by 17%.	about 300
21 Aug 01	Hewlett-Packard will start to cut jobs in Singapore as part of a plan to lay off 6000 jobs globally.	700
30 Aug 01	Gateway Inc will close its Singapore office as part of its global revamp plans.	28
01 Sep 01	Agilent Technologies fires 300 of its 3,600 staff in Singapore.	300

Despite the slowdown in wage growth, unit labour costs rose sharply due to cyclical factors

In line with weaker labour demand, growth of nominal earnings (which excludes employers' CPF contributions) has come off its peak in Q4 2000, and moderated to around 6% in Q1 and Q2 2001.¹⁹ In particular, growth of nominal earnings in the manufacturing sector has trended downwards to just 4.1% in Q2, from a high of 8.5% in Q4 2000. Overall unit labour costs, however, rose strongly, by almost 13% in Q2, following 8.7% growth in Q1 and a 0.9% decline in 2000. This mainly reflected the sharp cyclical decline in productivity growth and the 4% point hike in the employers' CPF contribution rate in January 2001. (Chart 3.10)

3.3 CPI Inflation in Singapore

CPI inflation moderated further in Apr-Aug

Consumer prices in Singapore have moderated in recent months. While headline CPI inflation came in unchanged from Q1 at 1.7% in Q2, it trended downwards to 1.0% in Jul-Aug. This brought average inflation for the first eight months of the year to 1.5%. The momentum of price increases has also subsided, with the seasonally adjusted, annualised, 3-month moving span (3M-SAAR) turning negative in July and August, after recording 0% in Q2 and 1.4% in Q1. (Chart 3.11) Similarly, the MAS underlying inflation also moderated in Jul-Aug to 1.5%, after remaining fairly stable at 2.3% in Q2 and 2.2% in Q1. The MAS underlying inflation rate was higher than headline CPI, reflecting the exclusion of private road transport costs, which experienced a more severe negative inflation in recent months. Other measures of core inflation remained benign, ranging between 0.9-1.8% in Apr-Aug. (Chart 3.12)

Chart 3.10
Earnings, Productivity and Unit Labour Costs



Chart 3.11
Overall Consumer Prices

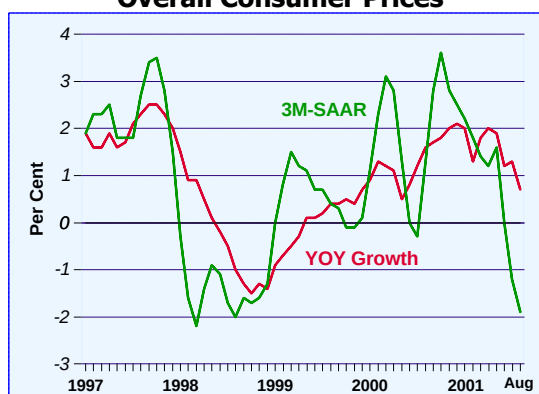
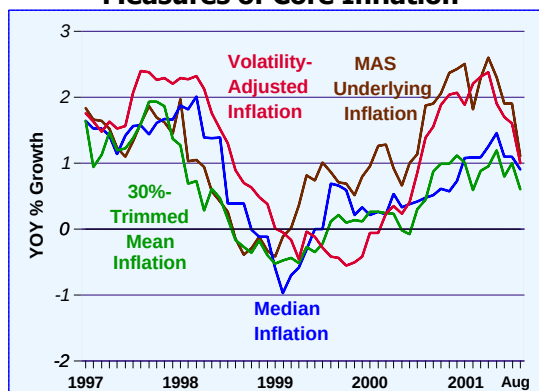


Chart 3.12
Measures of Core Inflation



¹⁹ Wages rose on a SAAR basis in Q2, largely due to higher wages in the community, social and personal services sector. This probably reflected the wage boost received by the uniformed services in June 2001, intended to improve their employment terms and hence retain their services.

Further price declines in retail and oil-related consumer items

With weaker consumer sentiments arising from the economic downturn, prices of various cyclical-sensitive retail items in the CPI basket have trended downwards. Indeed, inflation momentum of these retail items – which constitute about 36% of the CPI basket – collapsed, with the 3M-SAAR dropping to -2.7% in Q2 and subsequently to -2.8% in July and -3.9% in Aug, from 0% in Q1. (Chart 3.13) In particular, big-ticket items such as cars and household durables saw significant price declines in Apr-Aug 2001. (Chart 3.14) Contrary to our expectations, prices of some other mass-market retail items (including ready-made clothing, footwear and personal care) were somewhat sluggish in adjusting downwards. In part, the resilience in prices of these items reflected continued steady demand, although going forward, consumer spending is likely to weaken further. (Chart 3.15)

Inflation of non-cooked food, which has the largest weight in the retail CPI basket, remained negative in Apr-Aug, in tandem with the falling prices of imported food products. (Box item 3.1 discusses in greater detail the recent trends in import inflation and examines the underlying relationship between exchange rates and import prices, commonly referred to as the exchange rate pass-through relationship.) The decline has been supported by improved cost management by supermarkets, through direct purchase from non-traditional markets. Prices were further dampened by the downside in world prices of soft commodities as well as aggressive pricing at the retail end.

Chart 3.13
Prices of Retail Items

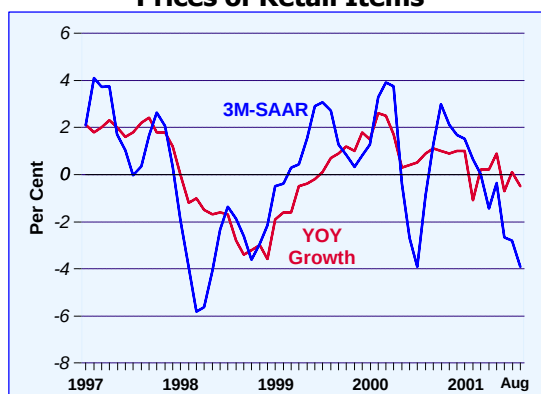


Chart 3.14
Durable Retail Items

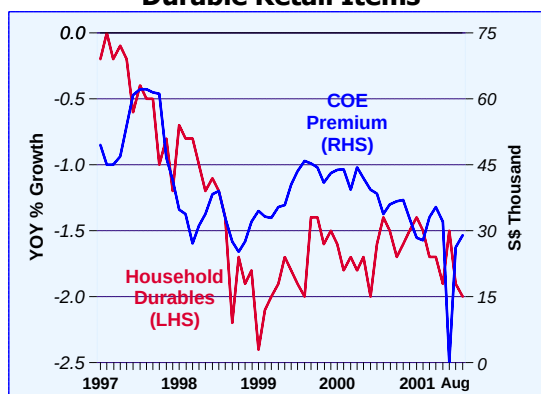
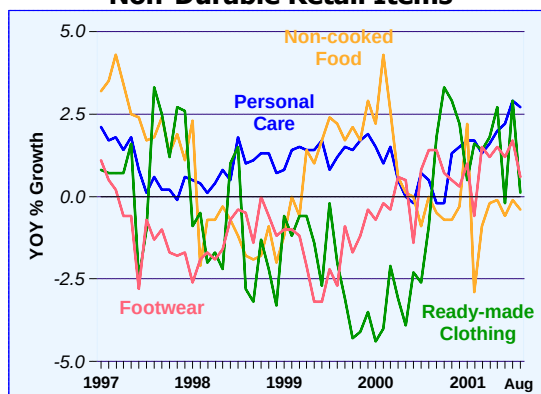


Chart 3.15
Non-Durable Retail Items



Oil-related consumer items have also softened. Singapore Power reduced electricity tariffs by 13.4% in May, while petrol companies cut petrol pump prices by 2.2% in July. (Chart 3.16)

Continuing price pressures in some consumer services items

Despite the apparent signs of weakening consumer prices, some pockets of price pressures remained. Stemming from several price hikes to cover escalating operating costs, services categories in the CPI such as "other miscellaneous" items (comprising largely of holiday tour packages), healthcare and education registered relatively high price increases. A hike in airfares had pushed inflation of "other miscellaneous" items to 7.6% in Apr-Aug, from 5.5% in Q1, while the revision in dental treatment charges and polyclinic fees boosted overall healthcare costs. In addition, the upward adjustment in private kindergarten fees had translated into higher education costs. Local and foreign²⁰ university fees were also revised upwards in July. Abstracting from the effects of these increases, our estimates show that overall CPI inflation would have been 1.1% in Apr-Aug, instead of the 1.4% actually recorded. (Chart 3.17)

Chart 3.16
Prices of Oil-Related Items

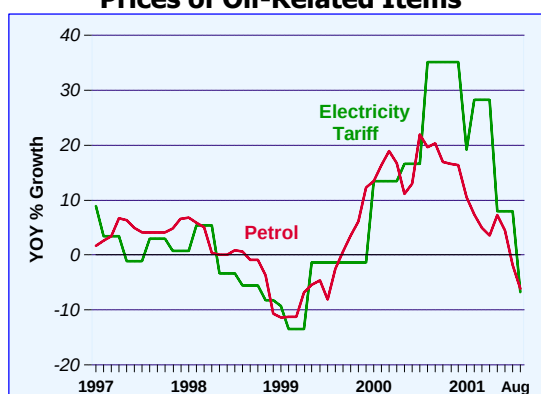
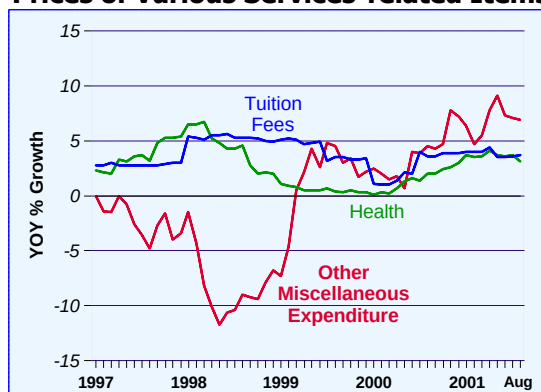


Chart 3.17
Prices of Various Services-related Items

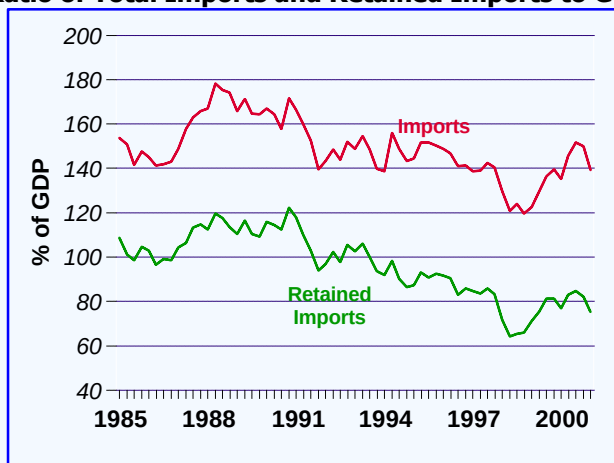


²⁰ Universities across the United States raised fees by as much as 15% to cover higher utility costs.

Box 3.1: Investigating the Exchange Rate Pass-Through Relationship in Singapore

The choice of exchange rate as an intermediate target of monetary policy to achieve price stability has been shaped by Singapore's high degree of openness to trade. For example, Singapore's imports were valued at \$232 billion in 2000, about 146% of its GDP. (Chart A) The high import content of domestic goods¹ implies that changes in the exchange rate and/or world prices can potentially have a powerful effect on domestic prices. In this box item, we first examine the most recent developments in imported inflation and its influences on domestic consumer prices. Next, we examine more closely the underlying relationship between exchange rates and prices of internationally traded goods, commonly referred to as the exchange rate pass-through relationship.

Chart A
Ratio of Total Imports and Retained Imports to GDP

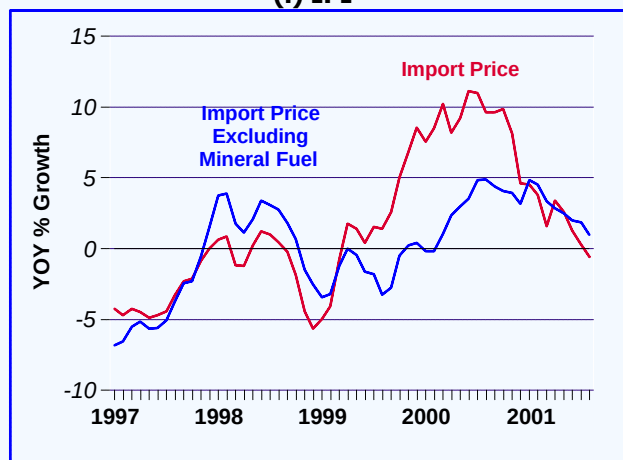


Recent Movements in Import Prices

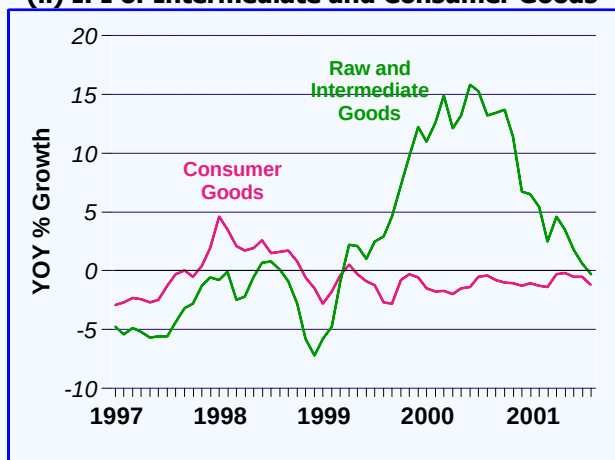
Import price inflation (IPI) in domestic currency terms trended upwards for the most part of last year, in line with the spike in world oil prices. From 1.6% in 1999, IPI rose to a peak of more than 10% in Q3 2000. It subsequently moderated to 7.5% in Q4 2000, mainly due to the retreat in oil prices following four OPEC output production increases between April and October 2000. Excluding the component of mineral fuel, IPI would have come in lower at about 3% for 2000, compared to the 9% actually recorded. (Chart B(i))

Chart B

(i) IPI



(ii) IPI of Intermediate and Consumer Goods

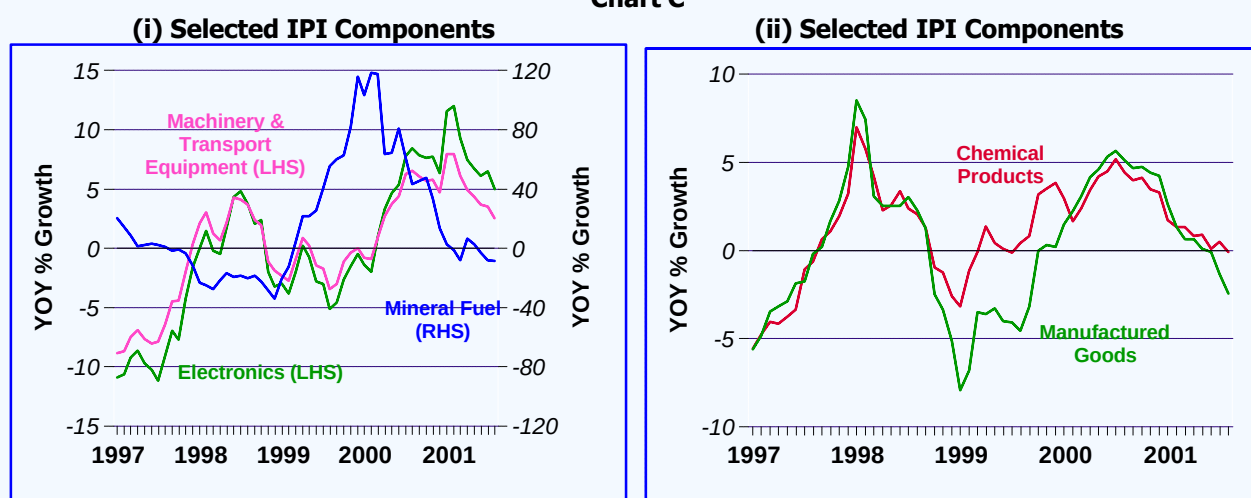


¹ Based on the 1990 input-output tables, it is estimated that the import leakage of every \$1 spent in Singapore is about 54 cents.

Inflation of imported goods moderated to 3.3% in Q1 2001, and further to 2.4% in Q2 before turning negative in Jul-Aug. This was partly due to the continued price declines in several imported consumer items,² as well as recent softening in the prices of various crude materials and intermediate goods,³ as global demand conditions deteriorated. (Chart B(ii))

Despite OPEC's attempts to restrain production in February and April, the turnaround in prices of mineral fuel seen in April has not been sustained in recent months. The subsequent contraction in prices of petroleum-related products in Jul-Aug largely reflected falling demand for oil amid the economic slowdown. In addition, price increases of machinery equipment (comprising largely information and communications technology-related products) also moderated, in tandem with faltering demand for electronics goods worldwide. (Chart C(i)) Underpinned by the prospect of a slowdown in world demand for manufactured or processed goods, import price inflation of manufactured goods (comprising largely base metals) and chemical products also softened further. (Chart C(ii))

Chart C

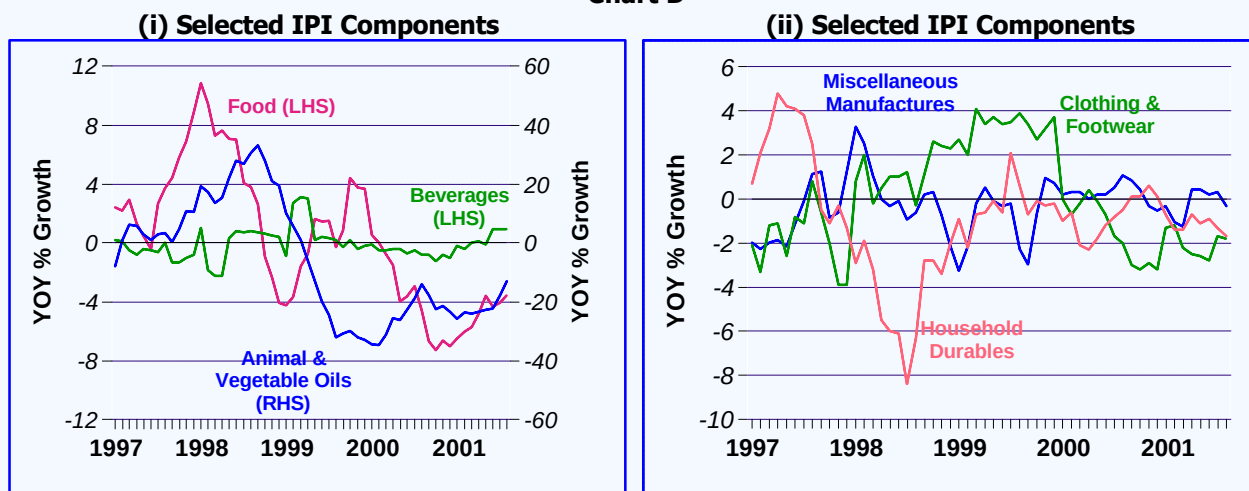


Meanwhile, inflation of various imported consumer products (including food, beverages, edible oils and miscellaneous manufactures) has either been falling or negligible in recent years. The price declines in food products partly reflected the slumps in world prices of soft commodities such as rice, coffee and palm oil, as well as the direct sourcing of cheaper supplies from non-traditional markets such as Latin America, South Asia and Africa. (Chart D(i)) Similarly, the inflation of miscellaneous manufactures (comprising largely clothing, footwear, and household durables) was also dampened by lower cost supplies from countries such as China and India. (Chart D(ii))

² The consumer products include food, beverages, clothing, footwear, household durables as well as motor vehicles.

³ The raw and intermediate goods comprise mineral fuel, crude materials, chemical products, manufactured goods, as well as machinery and transport equipment.

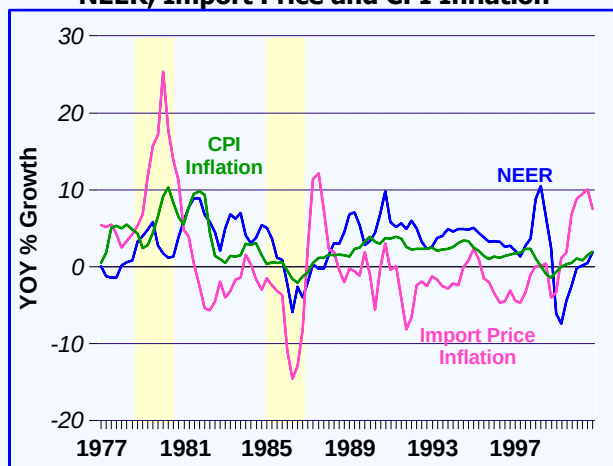
Chart D



Trends in Exchange Rates and Prices

Exchange rate fluctuations have an important influence on imported inflation, and thus on domestic inflation. As depicted in Chart E, it is observed that an appreciation (depreciation) in the trade-weighted Singapore dollar was generally accompanied by a decrease (increase) in imported inflation, although the magnitude was less than proportionate. This suggests that the local currency prices of foreign products do not respond fully to exchange rate changes in the short run.

Chart E
NEER, Import Price and CPI Inflation



In the 1980s, fluctuations in world commodity prices had a significant impact on Singapore's import prices, and thus on domestic consumer prices. For example, import price inflation more than tripled to 13% in 1979 before reaching a peak of about 25% in Q1 1980, largely on account of the second oil price shock and the rise in other world commodity prices. This had in turn pushed up overall consumer price inflation to 8.5% in 1980. The subsequent collapse of world oil prices in 1985-86 had caused import prices to fall sharply, and thus, overall consumer prices also saw a corresponding contraction in 1986. Specifically, inflation of the tradeable items⁴ in

⁴ Tradeable items include non-cooked food, cars, petrol, clothing, household durables/non-durables, fuel and utilities, alcoholic drinks, tobacco, and personal effects.

the CPI basket, which has shown a fairly strong co-movement with fluctuations in imported inflation,⁵ came in at -4.8% in 1986. In contrast, prices of non-tradeable items did not contract, but remained benign at 0.5% during the same period.⁶

Nonetheless, the relationship between imported and CPI inflation seemed to have weakened in the 1990s.⁷ While imported inflation fluctuated relatively widely in 1991-2000, recording a range of -3.9% to 9.0%, CPI inflation of tradeable goods remained fairly steady at around 1.6% during the same period. This suggests that the pass-through of import prices was not fully transmitted to domestic prices, and that there is some degree of incomplete exchange rate pass-through in Singapore. We next examine the nature of the pass-through relationship in Singapore in greater detail.

The Exchange Rate Pass-Through Relationship

Exchange rate pass-through refers to the degree to which exchange rate changes are reflected in the destination currency prices of traded goods (Menon, 1995). The standard literature on price adjustment in open economies has traditionally relied on the assumption of Purchasing Power Parity (PPP), better known as the "Law of One Price".⁸ The implication of PPP is that the relative international prices of all goods in a common currency are independent of the exchange rate, i.e. complete pass-through. However, the experience of many countries including Singapore is that measured import prices often diverge from PPP for sustained periods. This implies that changes in domestic prices are not proportional to changes in the exchange rate, i.e. incomplete pass-through.

There has been extensive literature on exchange rate pass-through, both on the aggregate and industry level, although much of the empirical work has focused on developed countries, particularly the US, Japan and Germany. (Table A) The empirical literature generally finds that the larger less open countries (e.g. Germany) experience much lower pass-through than the smaller more open economies (e.g. Australia). The estimation of pass-through effects is also very much dependent on the time horizon being assessed. For small open economies, the conventional assumption is that they are price takers. Hence, these countries face an exogenously determined export price in foreign currency, and that there is instantaneous and complete pass-through of both exchange rates and world market prices to their own currencies. While pass-through effects may be incomplete in the short run even for these countries, we generally expect domestic prices to fully reflect the changes in exchange rates eventually.

⁵ The correlation between imported and CPI tradeable inflation over the period 1984-1990 is relatively high (0.65). This compares to only 0.14 between imported and CPI non-tradeable inflation during the same period.

⁶ The lower but positive inflation of non-tradeable items in the CPI basket, which include cooked food, education, health, accommodation, public road transport, communication, recreation, personal care, household services and other miscellaneous services such as holiday tour packages, was largely due to the 1985-86 recession in Singapore.

⁷ The correlation between imported and CPI tradeable inflation weakens to 0.33 over the period 1991-2000. This compares to the negative correlation (-0.39) between imported and CPI non-tradeable inflation over the same period.

⁸ The "Law of One Price" states that the price of a traded good will be the same in both the domestic and foreign economies, when expressed in a common currency.

Table A
The Empirical Literature on Exchange Rate Pass-Through

Study	Findings	Assumptions
Helkie and Hooper (1988) US Imports & Exports	Pass-through on imports of 91% with lags extending up to 8 quarters. Pass-through on exports ranged between 80%-100%, with lags extending up to 4 quarters.	PPP model
Athukorala and Menon (1994) Japan Exports	Average pass-through of 44%, with significant differences in rates across industries.	Mark-up model
Dwyer, Kent and Pease (1993) Australia Imports & Exports	Pass-through to import prices of 93% in the long run. Pass-through to export prices of 109% in the long run.	PPP model
Menon (1993) Australia Imports	Pass-through of 80% in the long run, and 70% in the short run. Lags in short-run pass-through do not extend beyond one quarter.	Mark-up model
Kenny and McGettigan (1998) Ireland Imports	Pass-through of 93% in the long run.	Mark-up model
Toh and Ho (1998) Malaysia, Thailand, Singapore, Taiwan Exports	Pass-through to export prices of 63% for Malaysia, 99.7% for Thailand, 81% for Singapore and 13% for Taiwan.	Mark-up model
Kreinin (1977) Multi-country Imports	Pass-through is generally incomplete. The estimates for import price pass-through are 50% for US, 60% for Germany, 80% for Japan, 90% for Canada, 90% for Belgium and 100% for Italy.	PPP model
Spitaeller (1980) Multi-country Exports	Short-run pass-through is incomplete for France (83%), Germany (73%), Netherlands (66%), UK (93%) and US (71%). Long-run pass-through is complete for all countries except Germany.	PPP model
Khosla and Teranishi (1989) Multi-country Exports	Pass-through ranges from a high of 96% for Sweden to a low of zero for Norway. Japan and US recorded relatively high rates of pass-through, whereas the Philippines and Indonesia recorded relatively low rates.	Mark-up model

Estimation of Import Price Pass-through

We investigated the exchange rate pass-through relationship for the Singapore economy, using quarterly data from Q1 1976 to Q1 2001. We derived a specification for an import price equation, which allows for a generalized price mark-up setting behaviour under conditions of imperfect competition.⁹ This mark-up

⁹ This is a less restrictive framework compared to the PPP relationship that is also often used to extract pass-through coefficients.

framework allows for possible strategic interaction between domestic and foreign import-producing firms by limiting the impact of exchange rate changes on competitiveness through mark-up variations. The framework assumes that foreign firms set their export price in foreign currency (EXP^*) as a mark-up (m) on their production cost in foreign currency (CP):

$$EXP^* = mCP \quad (1)$$

Hence, the import price (IMP) in the Singapore dollar is given by:

$$IMP = EXP^* (NEER) = mCP (NEER) \quad (2)$$

Further, it is assumed that the profit mark-up depends on competitive pressures in the domestic market and the exchange rate. The difference between the price of import-competing goods and the exporter's production cost is the proxy for competitive pressures. The Singapore manufactured producer price index ($MPPI_{dom}$) is a proxy for the former, while the foreign unit labour cost index (ULC_{for}) is a proxy for the latter. The profit mark-up becomes:

$$m = \{MPPI_{dom} / [(ULC_{for})(NEER)]\}^h \quad (3)$$

Substituting equation (3) into (2), the specification expressed in a log linear form is given as:

$$IMP = hMPPI_{dom} + (1-h)ULC_{for} - (1-h)NEER \quad (4)$$

IMP	Singapore's import price index
$MPPI_{dom}$	Singapore's manufactured product price index
ULC_{for}	Foreign unit labour cost index, weighted by Singapore's major trading partners
NEER	Nominal effective exchange rate, weighted by Singapore's major trading partners

Note that ULC_{for} and NEER have the same coefficients. This symmetric coefficient restriction is imposed in the analysis. If h equals zero, the model indicates that the coefficient on ULC_{for} and NEER will be unity and that pass-through will be complete. This would also indicate that the foreign mark-up (m) is independent of domestic competing costs, the exchange rate or foreign cost considerations. On the other hand, if h is unity, this suggests zero pass-through.

Imposing the cross-coefficient restriction in equation (4), the results of the two cointegrating equations are presented as follows:

$$IMP = 4.765 + 0.671ULC_{for} - 0.671NEER \quad (5)$$

(0.005) (0.330) (0.330)

$$MPPI_{dom} = 4.925 + 1.439ULC_{for} - 1.439NEER \quad (6)$$

(0.013) (0.532) (0.532)

With a 1% depreciation in NEER, import prices are estimated to increase by 0.67% in the long run, under the conditions of imperfect competition. The coefficient is not significantly different from unity (i.e. h is not significantly different from zero), providing evidence of complete pass-through in the long run. It also indicates that the mark-up in pricing in domestic currency terms appears to be fairly independent of domestic and foreign cost considerations at least in the long-term.

Table B
Estimation and Test Results of the Univariate ECM

Variable	Coeff.	Std. Err.	t-stat.	p-value
error-correction term (IMP(-4))	-0.1592	0.0422	-3.7754	0.0003
d(MPPI _{dom})	0.4456	0.0544	8.1867	0.0000
d(IMP(-1))	0.2199	0.0674	3.2633	0.0016
d(NEER(-4))	-0.2463	0.0569	-4.3315	0.0000
seasonal dummies				
Specification/Fit of the Model				
R-squared		0.9142		
Adjusted R-squared		0.9077		
Std. Err.		0.0188		

The short-run dynamics are found using an error-correction model (ECM), which specifies the changes in IMP as a function of lagged residuals from the cointegrating regression, and changes in MPPI_{dom}, ULC_{for} and NEER. Table B shows the estimates of the short-run dynamics of the exchange rate pass-through. It is noted that production costs in foreign currency, as proxied by the foreign unit labour cost index, is insignificant in the short-run dynamics of exchange rate pass-through, possibly due to wage stickiness. The coefficient of the first differences of NEER provides an approximation of the estimated short-run impact response of import prices to a change in the exchange rate. This implies that, *ceteris paribus*, a 1% depreciation in NEER will increase import prices by about 0.25% in the fourth quarter after the initial change in exchange rate.¹⁰ This estimate, however, does not fully capture the interactions between the short run, long run and adjustment coefficients, which are inherent in the dynamic richness of the ECM model. Nonetheless, the evidence of some inertia in pass-through in the short run suggests that there could be pricing-to-market behaviour or other forms of price stickiness.

These results of stickiness in exchange rate pass-through are corroborated in ongoing econometric work using estimates from an SVAR model,¹¹ which characterises the monetary mechanism in Singapore. Taylor (2000) has advanced the view that a low inflation environment resulting from the monetary authorities' emphasis on controlling inflation has reduced the ability of firms to pass on changes in cost. In such an environment, companies, unless they are convinced that cost changes (including those arising from exchange rate movement) are permanent, would prefer to absorb cost pressure into their margins. In a low inflation environment, price and cost movements are less persistent and are therefore likely to be perceived to be transitory. In a low inflation economy like Singapore, the reduced pricing power coupled with adjustment costs of price changes could plausibly explain the observed small pass-through of exchange rate shock to domestic price level.¹²

¹⁰ Some articles interpret the coefficient of 0.22 as implying that pass-through is complete about six quarters after the depreciation occurs. However, as noted in the main text, this may not be an accurate representation of the dynamics as it does not take into account the interactions with the long-run multipliers, or of the error-correcting coefficient.

¹¹ We will be releasing information on this alternative methodology in the coming months.

¹² Gagnon and Ihrig (2001) evaluate the relationship between monetary policy stance, inflation performance, and the degree of exchange rate pass-through for eleven countries. They found that a decline in inflation variability is followed by a reduction in the exchange rate pass-through. Further, countries that have successfully adopted inflation targeting frameworks have experienced declines in the pass-through coefficient.

Concluding Remarks

In this study, we have determined the price mark-up model as a useful representation of the pricing behaviour among Singaporean importers as well as of the import price pass-through dynamics in the economy. Our econometric results confirm that the exchange rate pass-through in Singapore is complete in the long run, although there are some lags in the short run. While this study examines data at the aggregate level, we note that pass-through effects are most usefully examined at a disaggregate level since micro-pricing behaviour varies across markets and industries.

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4 Outlook

4.1 External Outlook

The outlook for the global economy has deteriorated significantly since Q2 2001. Several factors point to continued weakness in the domestic economy over the next few quarters. First, with the US economy already slowing down prior to 11 September, the effects of the terrorist attacks are likely to further dampen consumer confidence going forward and possibly tilt the economy into a recession. This will also hamper growth in the regional economies. Second, with weaker growth in the US, the rebound in the IT sector could be delayed further. For example, some analysts had previously hoped for a mild recovery in the industry by the end of this year, but this is now unlikely. Indeed, even before the attack on the US, several indicators had suggested that the recovery of the IT sector was proceeding slower than expected.

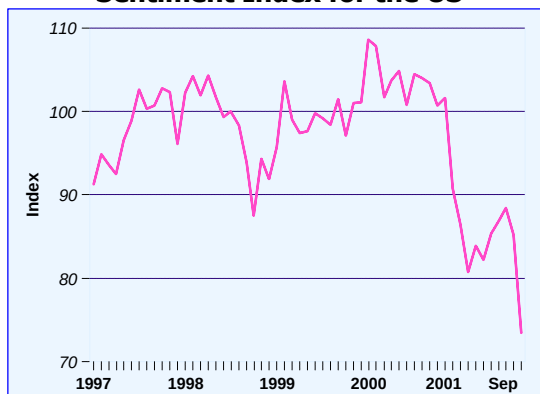
OUTLOOK FOR EXTERNAL ECONOMIES

The US economic recovery is likely to be delayed following the terrorist attacks

Following the terrorist attacks on 11 September, the US economy is expected to plunge into recession for the rest of the year. Consumer confidence, in particular, is likely to be seriously dented, thus removing a key support for the economy. This is already evidenced in the University of Michigan's consumer sentiment index, which fell to 73.5 in September, the lowest reading in eight years. (Chart 4.1) Another survey by the US Conference Board revealed a similar mood of pessimism amongst consumers. With unemployment also rising rapidly to 4.9% in September, household spending is expected to scale back sharply in the near term. This is likely to affect a broad range of industries, particularly tourism, retail and leisure.

Businesses, which are already facing excess capacities and inventories, are likely to make deeper cuts into capital spending as final demand weakens further and corporate profits worsen. This holds especially true for the technology sector, where excess capacities are most severe.

Chart 4.1
University of Michigan's Consumer
Sentiment Index for the US



Further slowdowns in Japan and the Euro zone are likely...

Given that the slowdown is faster than what was earlier anticipated, the Euro zone is likely to attain growth below the lower end of the 2.2-2.8% range projected by the ECB. Private consumption in the Euro zone could be expected to taper further, with deteriorating labour market conditions and falling consumer confidence. The decline in investment activity in the Euro zone also looks set to continue as business sentiments have worsened. For example, Germany's IFO business climate index and France's INSEE industry survey both revealed weaker confidence in the industrial sector moving forward. Policy response from the ECB also appeared slow. Rates were cut only 100bps so far this year, although inflationary pressures have already moderated. The scope for fiscal stimulus, on the other hand, is limited as the budget deficits of many Euro zone economies, particularly Germany, France and Italy, are already expected to run above targets this year due to the economic slump.

Similar to the US, Japan is headed for a recession in the second half of this year. Private consumption is likely to worsen in the face of rising unemployment and corporate bankruptcies, both of which are already at record highs. Various indicators, such as the Tankan business survey and the rising inventory-to-shipment ratio of the manufacturing sector, suggest that private corporations are unlikely to increase capital spending in the short term. On the public sector side, the government will incur a deficit budget in FY2001, although the impact of public spending is unlikely to be large enough to turn the economy around. The government is also increasingly mindful of its debt, which, at 130% of GDP, is the highest amongst the developed economies. With regards to monetary

policy, the BOJ is expected to come under increasing pressure to adopt further quantitative easing. Nonetheless, the real impact is unclear since repeated easing in the past has had little effect on the economy.

... as well as a sharper than expected slowdown for East Asia

Given that global economic conditions and world electronics demand are likely to remain weak, most of the East Asian economies are expected to experience lacklustre growth in 2001. Several may even plunge into recession. China will remain the only bright spot, with its strong domestic growth momentum continuing into the second half of 2001. The average real GDP growth rate for East Asia is projected to be around 2% this year.

Economic conditions in the first half of next year are also likely to be difficult. The recovery of the technology cycle has been pushed back repeatedly, with increasing numbers of analysts predicting a rebound only in H2 2002. As external demand remains poor, the outlook for domestic demand in East Asia also does not look bright. In the short term, private consumption will continue to be weighed down by uncertainty in the labour market, as well as by the negative wealth effects. Private investments will be constrained by excess capacities and falling corporate profits. The scope for monetary easing varies across countries. Some countries such as Malaysia and Thailand already have very low interest rates and have limited potential for significant rate cuts. On the fiscal side, Malaysia, Korea and Taiwan have all introduced stimulus packages to kick-start their economies, but many others, especially those in Southeast Asia, are already burdened by high public sector debts and can ill afford to increase spending sharply.

OUTLOOK FOR GLOBAL ELECTRONICS INDUSTRY

Electronics industry could deteriorate further before staging a recovery

Similarly, the outlook for the global electronics industry is bleak. While supply-side adjustments in the IT sector have been progressing, demand has remained weak.

On the supply-side, recent data indicates that inventories for the major electronics industries have started correcting (on a year-on-year basis) since July 2001, although the level of inventory (on a seasonally adjusted basis) has been declining since March. In particular, adjustments to inventories in the telecommunication and computer sectors took place much earlier and the rate of correction has continued at a healthy pace. (Chart 4.2)

However, global electronics demand has stayed depressed. As mentioned in Chapter One, global chip sales continued to contract sharply by 48% in August 2001, much worse than expected. After remaining flat in Apr-May and edging up in June, the value of global chip sales fell unexpectedly to US\$8.8 billion in July. It improved slightly to US\$9.4 billion in August. This compares unfavourably to average sales of around US\$17 billion in 2000.

In addition, US new orders for electronics has shown no clear signs of recovery, reflecting sharp declines in all major categories. Historically, US new orders have provided a relatively good proxy for Singapore's electronics exports. (Chart 4.3) Semiconductor prices also continued to plunge, with the US producer price index for DRAM plummeting by 84% in Q3 2001.

Chart 4.4 summarises the imbalances in the IT industry. While the inventory for electronics has been adjusting, the decline in demand has been even larger. As a result, the ratio of shipments to inventory has continued to fall, suggesting that a further cutback in output is likely in the months ahead.

The timing and strength of the recovery remains extremely uncertain amidst the imbalances in the global IT industry, which have now been exacerbated by the weaker outlook for the US. This was reflected in the significant revisions in industry analysts' forecasts since the beginning of the year, as well as more recently.

Chart 4.2
US Inventory for Electronics, Computers and Telecommunication

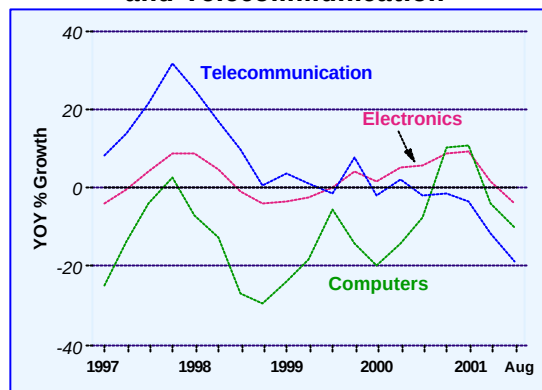


Chart 4.3
Indicators of the Semiconductor Segment

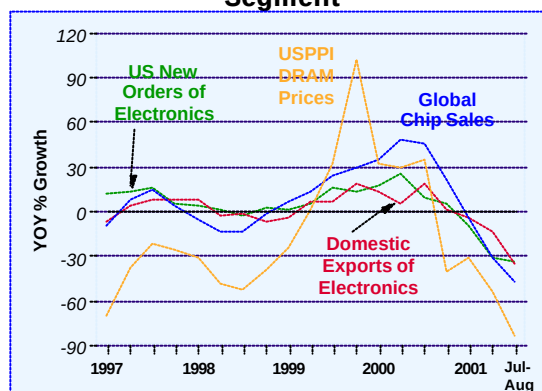
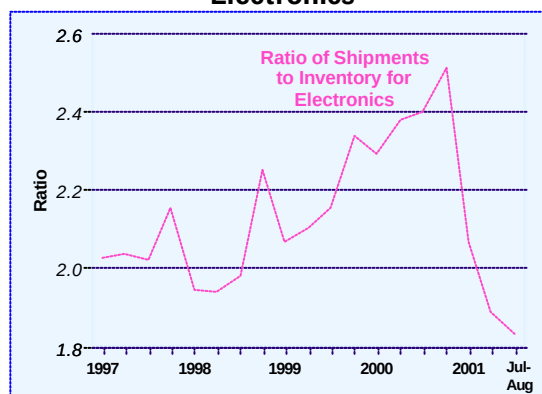


Chart 4.4
US Ratio of Shipments to Inventory for Electronics



Recent forecasts by IC Insights, Dataquest and the NUS economists in August projected a mild recovery in Q4 2001 compared to the recovery in Q3 forecast earlier, with a considerable amount of uncertainty going forward. (Table 4.1) Following the attacks in the US, industry analysts have pushed back the recovery further, with some forecasting a recovery only in the middle of next year.

However, a small group of analysts think that increased defence spending and replacement demand by financial firms affected by the terrorist attacks could create some end-user demand for hardware such as PCs and servers. Nevertheless, this impact is expected to be minimal.

Table 4.1
Forecast of Recovery in IT Markets by Industry Analysts

Analyst *	Timing of Recovery	Comments	2001f(%)	2002f(%)
iSuppli Corp (26 Sep 2001)	Mild q-o-q increase in Q4 2001, sustained increase after Q2 2002.	Pessimism was due to the recent terrorist attacks in the US, coupled with a slowdown in consumer spending.	-31	4
IC Insights (17 Sep 2001)	Marginal q-o-q increase in Q4 2001.	Downgrade was due to continued weakness in the semiconductor sector and terrorist attacks in the US.	-34	N.A.
iSuppli Corp (13 Aug 2001)	Q-o-q increase in Q4 2001.	\$8 billion in excess chip inventory clogging the industry.	-28	10
IC Insights (27 Aug 2001)	Mild q-o-q increase in Q4 2001.	Prices of chips still going down. Still too much oversupply in the market.	-27	14
Dataquest (10 Aug 2001)	Q-o-q growth in Q4 2001.	Minimal recovery expected in H2 2001. Industry likely to hit the trough in Q3. Chip companies may start to show growth in Q4 2001 if economy stabilises and demand improves.	-26	12
Morgan Stanley Dean Witter (9 Aug 2001)	Q-o-q growth in Q4 2001. Positive y-o-y growth in Q2 2001.	Near-term visibility extremely limited. Rate of recovery constrained by aggressive pricing environment. Significant downside risk to forecast for 2002.	-25	10-15
NUS ESU (7 Aug 2001)	Q-o-q increase in Q4 2001.	Sustained recovery in Q4 2001 uncertain.	-33	22 (V-shaped) 5.8 (U-shaped) -6.2 (L-shaped)
IC Insights (18 Jun 2001)	Mild q-o-q increase in Q3 2001.	Assumed that the US is not in an "outright" recession under the baseline scenario.	-21 (Baseline) -15 (Optimistic) -28 (Pessimistic)	16
Semiconductor Industry Association (6 Jun 2001)	Modest q-o-q increase in Q3 2001.	Optimism was underpinned by the faster reaction of the industry to changing market conditions.	-14	21

* Dates in parentheses refer to when the forecast was announced.

Underlying the uncertain prospects for the industry is the lack of a clear source of new demand or new application that could act as an impetus for a sustained recovery. In the previous downturn in 1998, it was the pre-Y2K boom that provided a boost to growth, as companies increased IT spending. In addition, continued strong US IT investments in previous downturns had provided a source of support for the recovery once the inventory overhang had cleared. US IT investments expanded at 20% per annum over the period of 1995-2000, but fell 5.3% in Q2 2001.

Current slump in electronics industry is worse than in previous downturns

The electronics downturn this time round does seem to be more protracted than previous down cycles, which typically lasted four quarters (that is, four quarters of year-on-year declines in output). It would thus appear that we are moving towards a "U-shaped" rather than a "V-shaped" profile. The PC sector is one area in which most analysts are looking towards to re-ignite spending for semiconductors and capital equipment in 2002. In comparison, the telecommunications segment, which was the engine that drove the semiconductor and capital equipment industries to a period of exceptionally high growth in 1999/2000, is expected to lag in recovery this time round.

4.2 Domestic Output

GDP growth forecast for 2001 has been revised downwards, with a cautious outlook for 2002

On the domestic front, the deterioration of the external environment, especially after 11 September 2001, would have an adverse impact on the domestic economy in the quarters ahead. The near-term prospects for the economy are uncertain, but it is obvious that the downturn will be more protracted and severe than earlier anticipated. Selected services sectors, such as air transport and tourism, would be directly hit from the fall-out of the 11 September events, while a recovery in the manufacturing sector could be delayed. The Singapore economy is expected to contract by about 3% this year. We expect the

economy to recover in the second half of 2002, predicated on a turnaround in external demand, especially in the global electronics industry. Given the uncertainties in the outlook, MTI forecast GDP growth for 2002 at between -2% and 2%, centered on zero growth.

The macro policy mix in the economy is generally supportive of growth. Monetary conditions have eased, with domestic interest rates falling with the decline in global interest rates. The trade-weighted nominal effective exchange rate (S\$NEER) has also gradually weakened. These easier monetary conditions are consistent with the downturn in the economy and the absence of inflationary pressures. (The MAS press statement on monetary policy of 10 Oct 2001 is reproduced in Box item 4.1.)

In addition, on 12 October 2001, the government unveiled its second package of off-budget measures this year to help the economy to tide over the downturn. The total size of the package amounted to \$11.3 billion (7% of GDP), and followed an earlier \$2.2 billion package announced in July 2001. The comprehensive package includes measures aimed at reducing costs, increasing infrastructure spending and providing income support to businesses and households, such as tax rebates and specific programmes to assist the unemployed and retrenched.

Box Item 4.1: MAS Press Statement on Monetary Policy issued on 10 October 2001

The GDP growth figures released by the Ministry of Trade and Industry this morning indicate that the Singapore economy has slowed down much faster than expected in recent months, and is now expected to contract by about 3% for the year as a whole. The near-term prospects for the economy are clouded and uncertain, but it is obvious that the downturn will be more protracted and severe than earlier anticipated. The outlook for the external economic environment has weakened significantly, especially after 11 September 2001.

2 The outlook for inflation in Singapore remains subdued, in line with the assessment in the MAS Monetary Policy Statement of 12 July 2001. Domestic inflationary pressures have subsided further with weaker economic activity and the softening labour market. CPI inflation has been trending down since May and is now forecast at below 0.5% in the fourth quarter of this year. For 2001 as a whole it is expected to come in at the lower end of our forecast range of 1.0 – 1.5%, and for 2002 it should remain low at 0.5 – 1.5%.

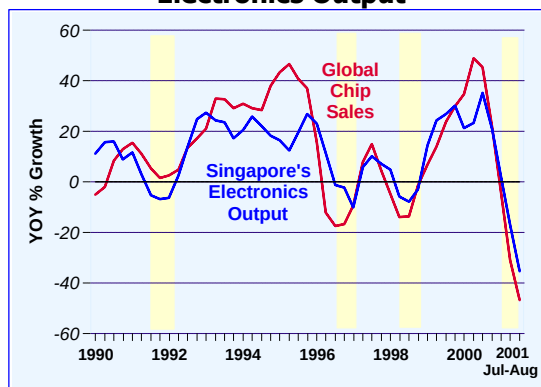
3 Monetary conditions in the economy have eased. Domestic interest rates have generally fallen with the decline in global interest rates. In recent weeks, as economic prospects have declined, the trade-weighted nominal effective exchange rate (S\$NEER) has gradually weakened, and is now in the lower half of the policy band. These easier monetary conditions are consistent with the downturn in the economy and the absence of inflationary pressures.

4 Greater uncertainty in the external environment, particularly in light of the recent anti-terrorism strikes, is likely to lead to more volatile market conditions. The MAS has therefore decided to widen the policy band to allow greater flexibility in managing the exchange rate. The widened policy band will continue to be centred on a zero percent appreciation of the S\$NEER.

Sluggish domestic manufacturing output for the rest of the year

From a sectoral perspective, a delayed recovery of the global electronics cycle implies sluggish manufacturing output for the rest of the year. The impact of the global electronics downturn on the domestic manufacturing industry appears to be greater compared to the previous downturns. For instance, in Q3 1996 (the first quarter of contraction in domestic electronics output), global chip sales fell by 17%, but our electronics output only declined by 1.1%. In Q2 1998, global chip sales went down by 14%, while our electronics output fell by 5.8%. However, the 31% drop in global chip sales in Q2 2001 has led to a contraction of 18% of electronics output in the same quarter. (Chart 4.5) This could be attributed to the increasing importance of semiconductors in our domestic manufacturing sector. Semiconductors account for 36% of our domestic exports of electronics in 2000, compared to 25% in 1998 and 23% in 1996.

Chart 4.5
Global Chip Sales and Singapore's Electronics Output



Furthermore, support from the chemical industry was not present this time round. Although there are some capacity expansions in the pharmaceutical sub-segment, contributions from these new plants are likely to be modest. This lack of support contrasts with the previous downturn in 1998, when production of chemicals surged by more than 20% despite a contraction in electronics output.

The relatively healthy growth in the transport equipment industry should provide some pockets of support to the manufacturing sector. The marine transport segment has seen increasing orders, to be fulfilled over the next one to two years. However, given the dominance of electronics in overall manufacturing output, the expected strength of transport equipment industry alone would not be enough to offset the sharp decline in electronics output.

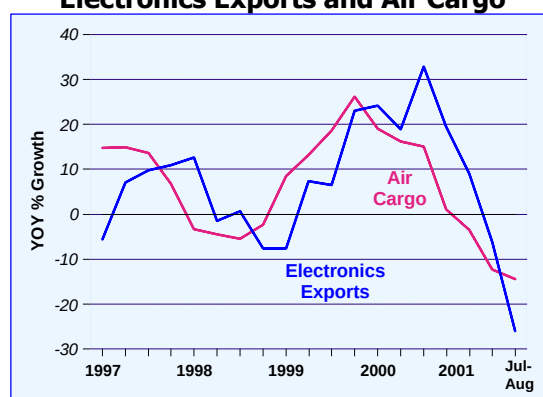
Weaker manufacturing sector to weigh down on the services sectors

Given the strong linkages between the manufacturing sector and the trade-related services such as entrepot and transport, a delayed recovery in the manufacturing sector would have negative spillover effects on the services sectors as well. (Chart 4.6)

In addition, the terrorist attacks in the US would also have immediate impact on the transport and tourism sectors. In September 2001, we are likely to see weaker export numbers as air transport of cargo to the US is delayed. The US is the single largest market, accounting for 32% of Singapore's electronics exports and more than one-fifth of Singapore's non-oil domestic exports.

We are also likely to see fewer visitor arrivals from the US during the month, although longer lasting effects on the travel industry could ensue if people in general become more cautious about travelling overseas. Singapore residents could also be discouraged from travelling overseas, especially to the US, and this could affect the business of domestic travel agencies. Hence, it is likely that fewer visitor arrivals and more cautious domestic spending (given the uncertain economic outlook) will continue to dampen retail sales and business in the hospitality industries. Already, visitor arrivals have fallen by 0.8% in Q2, and hotel occupancy rates have dropped below 80% this year, compared to 84% in 2000.

Chart 4.6
Electronics Exports and Air Cargo



Compared to other sectors, the communications sector is expected to turn in relatively healthy growth in 2001, although some slight moderation is expected in the quarters ahead. Broadband usage, which has been surging on the back of attractive pricing, may face a slower growth as corporates and home internet users cut back on their expenses. For instance, Spectrum Strategy recently cut its end-2002 forecast for the penetration rate for the home internet surfers' broadband access by 5 percentage points to 20%, from a current 13% penetration rate expected at end-October this year. Nevertheless, with broadband prices expected to fall further over the next two to three years, broadband usage and the broadband content aggregation are likely to pick up next year and lead to higher mobile phone usage as news, transaction capability and location-based services make mobile phones more attractive.²¹

The pace of expansion in the business services sector is expected to slow down further this year. Already, demand for IT services has weakened in Q2, and with the delayed recovery in the global IT industry, it is likely to come under further pressure. In line with slower economic activity, demand for other professional services such as legal and accounting would also slacken. The real estate services segment could also be adversely affected by the further softening in the property market.

The financial services sector will also be affected by the weak external environment

The outlook for the financial services sector would depend to some extent on the timing and strength of the recovery in the US economy and the region. The weak external environment will weigh down on activity in the ADM, affecting both fee-based and interest income. Growth of the insurance business is also expected to continue to moderate, as the one-time positive impact from the liberalisation of CPFIS tapers off. The slowdown in domestic economic activity in the next two quarters would dampen growth of commercial bank loans to non-bank customers.

Fee-based income could also see slower growth from the underwriting of bond issuance, as the market takes time to digest the recent large supply of bonds. Nevertheless, we could see some support from the bancassurance business, as banks compete aggressively with insurance companies to sell their banking/insurance products and services to consumers.²²

Given the increased uncertainty of the external environment, activity in the domestic stock market is expected to remain weak. While stock market turnover, in terms of volume of traded shares, surged significantly in September 2001 due to panic selling in response to the US terrorist attacks, it was not enough to offset the declines in the two preceding months. As a result, volume of traded shares fell by 11% in Q3 2001. Prices of shares were also dragged down by soft sentiments, with the STI at end of 5 October 2001 nearly 30% from the beginning of the year. In the investment advisory business, increased sovereign risk and the weak performance of global equities would continue to dampen fund management activities, although the dampening could be mitigated somewhat by a flight to safety of funds into guaranteed/protected unit trusts and bond-related investments.

The construction sector will remain weak this year although performing better than 2000

The construction sector is forecast to remain weak this year, although growth is expected to improve from the 4.6% decline recorded in 2000. In the first half of the year, the construction sector expanded by 0.9%, supported by public sector construction activity, particularly civil engineering works, which recorded a large increase in contracts awarded last year. Table 4.2 lists some major ongoing and scheduled public sector projects.

²¹ Some factors that could contribute towards attractive broadband prices include: (1) the partnership between service providers and content providers in aggregating their services; (2) the establishment of major cable submarine systems (eg. C2C); (3) the Third-Generation (3G) commercial rollouts around the second half of 2002; and (4) the eventual merging of StarHub and Singapore Cable Vision (SCV), which would allow StarHub to utilise SCV's existing cables.

²² The Life Insurance Association also stated in their Q3 press release that while bancassurance accounted for only 11% of total new business, it would be "a force to reckon with when it has overcome its slow start in tapping the CPF funds".

Table 4.2
Selected Public Sector Construction Projects

Project	Agency	Total Project Cost (\$ billion)
Deep Tunnel Sewage System	Ministry of Environment	7.00
Re-building and upgrading of Primary and Secondary Schools	Ministry of Education	4.46
Changi Business Park	Jurong Town Corporation	1.50
Woodlands Spectrum (Phase 2) and Jurong Pier Stack-up factories	Jurong Town Corporation	0.23
Changi Prison Complex Redevelopment	Ministry of Home Affairs	1.10
Marina MRT Line	Land Transport Authority	1.03
Kallang and Paya Lebar Expressways	Land Transport Authority	1.58

Note: On 12 October 2001, the Government announced that more than 100 infrastructure projects, worth \$3.5 billion would be implemented quickly over the next 18 months as part of the second off-Budget package.

The prospects for the construction sector have weakened in line with the uncertain economic outlook for the Singapore economy. Contracts awarded – a leading indicator of construction activity – fell by 59% in Q2, following a decline of 17% in Q1. (Chart 4.7) Reflecting the weak sentiments in the residential property market, demand for private housing remained sluggish, with the number of launched but unsold units in Q2 the highest since the peak in Q4 1998. (Chart 4.8) The total stock of unsold private units (with prerequisite launch approvals) fell only marginally to 18,064 in Q2 from 18,563 in Q1 – the highest since Q3 1998. These trends are likely to exert further downward pressure on property prices. Contracts awarded in the private residential property market fell by 9% in H1 2001, following strong growth of 46% in 2000.

Construction activity in the public residential segment is also expected to deteriorate further, in the wake of HDB's decision to slash the supply of new flats this year to fewer than 8,000, the lowest figure in seven years. This compares with the supply of 37,800 units at its peak during FY 1995/96 and about 21,000 units last year. However, the cut is not expected to have a significant impact on HDB resale prices as the move will only affect the number of flats tendered for construction, and not the actual number of units being completed this year. It will take some time before the cut in supply filters through the system.

Private non-residential construction is also expected to be weak, with contracts awarded falling by 43% in H1 2001. Weakness in the global electronics industry will drag down demand for industrial space, while office space demand will be constrained by the poor economic

Chart 4.7
Contracts Awarded

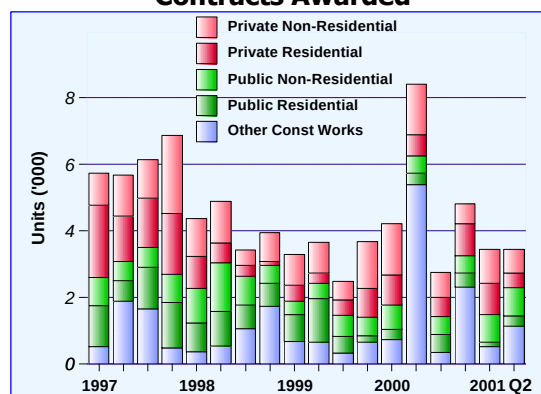
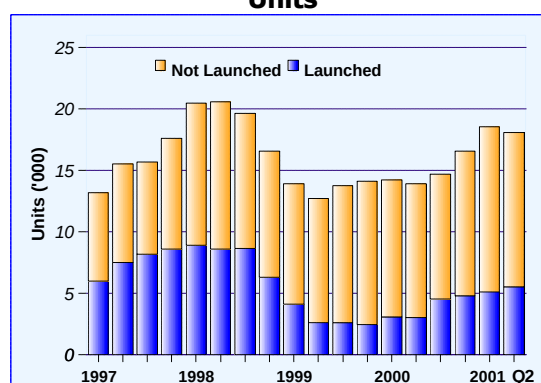


Chart 4.8
Stock of Unsold Private Residential Units



outlook, as firms postpone expansion plans or cut back on office space. Demand for factory space fell to its lowest level since the negative take-up registered in Q3 1998.²³

4.3 Aggregate Demand

From an expenditure perspective, external demand will weaken further...

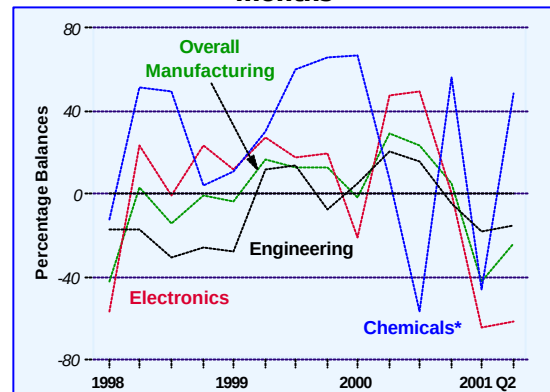
From an expenditure perspective, external demand will contract further in the near-term, depressed by continued weakness in the global electronics market as well as its indirect impact on the regional economies. Indeed, EDB's Survey of Business Expectations of the Manufacturing Sector showed that export orders for the next three months (ie. Jul-Sep 2001) continued to languish, especially in the electronics and engineering industries. (Chart 4.9) Furthermore, the downside risk has increased significantly in the aftermath of the US terrorist attacks.

...with negative repercussions on private investment and consumption

The deterioration in the external environment would also have an adverse impact on private investment and consumption. Business fixed investment started to decline in Q2, and is expected to register a slight contraction for the year as a whole. EDB's latest Survey of Business Expectations of the Manufacturing Sector showed that business sentiment has grown increasingly pessimistic in all sectors of the economy, and that firms have cut back investment plans for the next twelve months. At the same time, growth of net investment commitments, though remaining fairly strong at 17% in Q2, has fallen off sharply from its peak of more than 60% in Q1. (Chart 4.10)

We expect private consumption growth to moderate further in the quarters ahead, dampened by poor consumer sentiments. The Straits Times Consumer Confidence Index plunged to 86 in September, an all-time low since it was constructed in December 1998. The survey was conducted on 26 September, and would

Chart 4.9
Export Orders over the next three months



* Comprises petrochemicals, pharmaceuticals and industrial/specialty chemicals

Chart 4.10
Leading Indicators of Private Investment

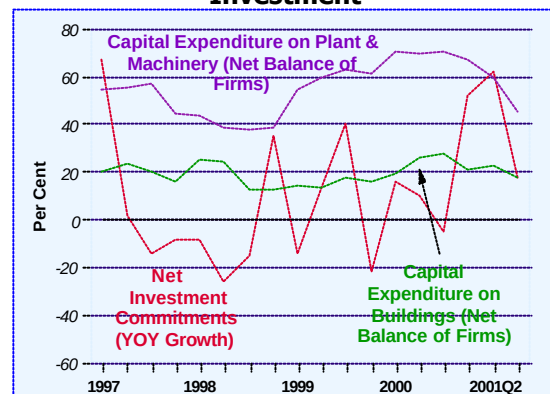
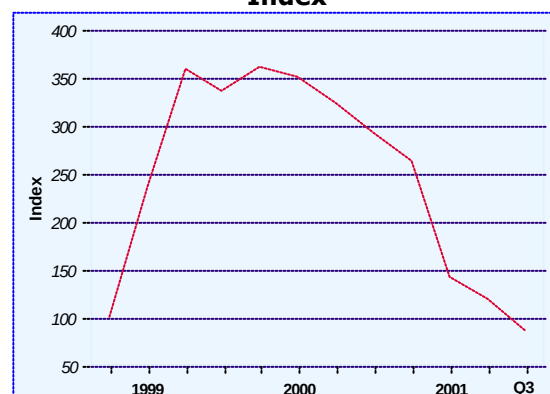


Chart 4.11
Straits Times Consumer Confidence Index



²³ According to JTC, net allocation of flatbed factories suffered a 95% fall in Q2 quarter-on-quarter, mainly due to the decline in gross space allocation for electronics and engineering firms.

also reflect the effects of the US terrorist attacks. (Chart 4.11) For 2001 as a whole, we expect private consumption growth to come in at 3-4%, less than half the growth registered last year.

4.4 Labour Market

Labour market conditions expected to deteriorate further

Labour market conditions are projected to deteriorate further, with the expected weakening of the domestic economy in the coming quarters. A leading indicator for labour demand, the volume of recruitment advertisements published by Singapore Press Holdings, Singapore's main newspaper publisher, has been falling sharply on a year-on-year basis since March this year. The volume of recruitment advertisements plunged 58% in August, following a 61% contraction in July. From a sectoral perspective, further declines are expected across all major sectors of the economy, with the volume of job advertisements falling by 70% in the manufacturing sector and 54% in the services sector. (Chart 4.12)

Chart 4.12
Volume of Job Advertisements

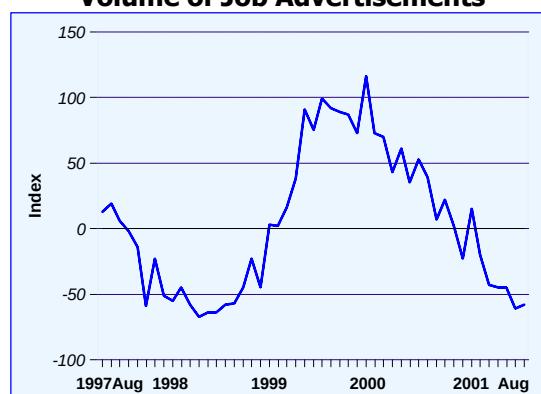


Table 4.3: Global Retrenchment News in the IT Industry

Date	Companies	Jobs Cut	Scale of Cuts*
18 Jun 01	Solectron	11,500	14%
21 Jun 01	Maxtor	1,500	15%
04 Jul 01	Siemens	1,600	5% (of business service unit)
10 Jul 01	Compaq	8,500	13%
17 Jul 01	Philips	3,000 – 4,000	2%
24 Jul 01	Lucent Technologies	15,000 – 20,000	17-23%
25 Jul 01	Infineon	5,000	15%
26 Jul 01	JDS Uniphase	7,000	24%
26 Jul 01	Hewlett-Packard	6,000	7%
26 Jul 01	Alcatel	11,000	10%
07 Aug 01	Flextronics	1,500	2%
08 Aug 01	Lucent Technologies	410	30% (of French staff)
08 Aug 01	Gateway	1,000	4%
15 Aug 01	Motorola	1,200	3%
20 Aug 01	Fujitsu	16,400	10%
22 Aug 01	Agilent Technologies	4,000	9%
27 Aug 01	Toshiba	18,800	10%
31 Aug 01	Hitachi	14,700	4.5%
31 Aug 01	Kyocera	10,000	20%
10 Sep 01	Gateway	4,600	25%
21 Sep 01	EMC	2,400	10%
21 Sep 01	Applied Materials	2,000	10%
25 Sep 01	Advanced Micro Devices	2,300	16%
01 Oct 01	Philips	570	50% (of Assembléon unit)
05 Oct 01	Sun Microsystems	4000	9%

* Percent of global workforce unless indicated otherwise.

Clouds of gloom continue to hang over the technology industry, and many MNCs have responded by announcing plans to trim their labour force worldwide. Table 4.3 lists some of the retrenchments announced by MNCs worldwide in Q3 2001. Furthermore, following the merger announcement by Compaq and Hewlett-Packard which employs around 7,500 workers here, we may see more consolidation within the languishing IT industry which may add to an increase in structural unemployment, on top of the layoffs attributed to the cyclical nature of the current downturn.

In addition, services employment is expected to soften considerably in the quarters ahead, although it continued to grow in the first half of 2001. In particular, the financial services sector, which has enjoyed net job creation of about 3,200 in H1 2001, would be adversely affected by the global economic slowdown, which has negatively affected capital market and customer trading activities. Consequently, banking and broking firms in key financial markets have sought to cut employment and trim pay packages to reduce costs. In addition to these cyclical effects, new job creation in the sector will also be dampened by structural factors, including the mergers taking place in the local banking industry. Moreover, the 11 September terrorist attacks have directly hurt selected industries such as the airline industry and the tourism industry. In order to cut costs, United Airlines has retrenched all of their 300 Singaporean flight attendants, while senior staff at SIA are taking pay cuts of 7-15%.

The government has also announced various wage reduction measures in the second off-Budget package. The measures include a cut in the civil service bonus payments from 2.75 months last year to 1.75 months in 2001, of which 0.75 month was already paid out in July.

Reflecting these factors, total retrenchments are expected to rise sharply in the quarters ahead, and exceed 20,000 for the year as a whole. The seasonally adjusted unemployment rate is projected to rise to around 4.5% at end-2001, and may increase further in the first half of 2002.

Cyclical factors will contribute to higher unit labour costs

In line with the current economic downturn, nominal earnings, which exclude employers' CPF contributions, are projected to grow by a slower 2-3% in 2001, compared to the 8.9% increase last year. Nevertheless, unit labour costs are projected to surge by around 11%, mainly due to the cyclical decline in productivity. Another factor contributing to the hike in unit labour costs is the 4 percentage point restoration to the employers' CPF contribution rate in January 2001.

4.5 Inflation

Inflationary pressures are expected to remain benign...

External inflationary pressures are expected to remain subdued for the rest of the year. The onset of the global economic slowdown is likely to help keep oil prices on an even keel, although there is uncertainty about the fallout from the terrorist attacks in the US, particularly if it sparks conflict in the Middle East. Inflation of non-oil commodities would also remain benign.

Sluggish growth, weak capacity utilisation, rising unemployment and lower energy prices would put downward pressure on inflation in the US for the rest of the year. Similarly, price pressures in the Euro zone are expected to ease, as the effects of higher food and energy prices earlier this year subside. CPI inflation in both these regions is likely to be closer to 2% by the end of the year, from about 3.2% and 2.8% year-on-year for the US and the Euro zone respectively, for the first eight months of this year. Consumer prices in Japan would continue to be weighed down by supply side factors, such as the streamlining of distribution channels, switches to cheaper foreign goods and greater competition resulting from government deregulation. (Chart 4.13)

Due to overcapacity, falling demand and weak commodity prices, inflationary pressures are likely to remain relatively benign in most of the East Asian economies. The exception is Indonesia, where the recent removal of fuel subsidies and the weak Rupiah should keep inflation in double-digit territory in the near term. Meanwhile, Hong Kong is expected to experience deflation for the rest of the year. Weak rentals, which account for 30% of the CPI, and cheaper imports, particularly goods from China, would weigh on the overall price level. (Chart 4.14)

...with CPI inflation in Singapore expected to come in at below 0.5% for the rest of the year

In Singapore, headline CPI inflation has been trending down since May, and is forecast to come in at below 0.5% in Q4, in line with more bearish consumer sentiments and subdued foreign prices. For 2001 as a whole, it is expected to be at the lower end of our forecast range of 1-1.5%. Competition among retailers coupled with the further weakness expected in consumer spending would exert greater downward pressure on prices of cyclical-sensitive consumer items, particularly that of clothing and various non-durable personal and household goods, which thus far have not fallen as significantly as prices of big-ticket items. In the context of the continuing adjustment in prices of key consumer items, the price cuts by NTUC²⁴ would also cap food and health-care inflation.

Despite OPEC's effort to restrain production thrice so far this year, oil prices are not expected to revert to the highs reached in 2000, as weak global economic activity would cut back demand for oil. Prices of consumer items with significant oil content are expected to remain soft, on the back of an impending cut in electricity tariffs in November. The reduction of the petrol excise duty, which was part of the October 2001 off-Budget measures would help keep petrol pump prices low.

Chart 4.13
CPI Inflation Forecast for the G3 Economies in 2001 and 2002

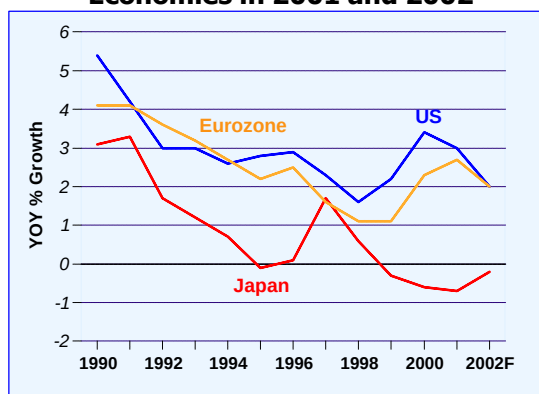
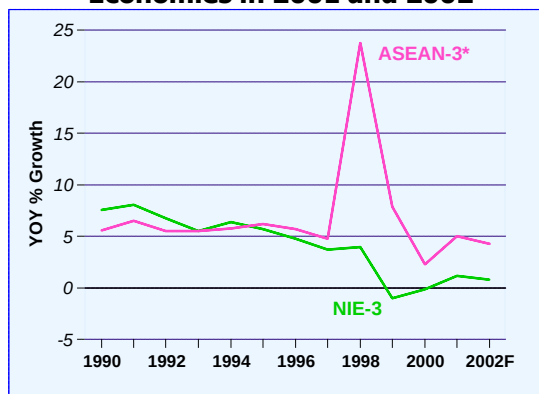


Chart 4.14
CPI Inflation Forecast for the East Asian Economies in 2001 and 2002



* ASEAN-3 refers to Malaysia, Indonesia and Thailand.

²⁴

In August, NTUC FairPrice cut the prices of 200 essential items by up to 20%, while NTUC Healthcare reduced the prices of its 200 top-selling products by 5%. These price cuts have been extended until June 2002.

Nonetheless, overall CPI inflation for the year as a whole is unlikely to fall as much as in the previous economic downturns in the mid-1980s and 1998.²⁵ (Please refer to Chapter Five for a comparison of CPI inflation trends during the economic recessions.) Some of the impact from earlier supply-side induced cost increases continues to be seen in prices of various consumer services. Inflation of these services categories, however, moderated somewhat in August, and is expected to soften further going forward.

Chart 4.15 shows our quarterly forecast range for the rest of 2001 and 2002. The upper and lower bounds are predicated on a variety of factors including the direction of oil prices and uncertainty surrounding the economic outlook. Chart 4.16 exhibits the corresponding main components of the CPI basket and shows the percentage point contribution of each item to the overall CPI inflation. If the contributions were equal in magnitude across the main items in the CPI basket, then the upper (red) and lower (green) boundaries would form perfect circles, and would perfectly coincide with the concentric (blue) radar circles. The unevenness of the boundaries marking the forecast reflects the different contributions of the various items to overall inflationary pressures.

From Chart 4.16, the key uncertainties in the forecast for 2002 rest with the transport and communication, housing and miscellaneous categories. Overall CPI inflation would be pushed to the upper bound of the forecast range if there were to be renewed pressures on oil prices. Tight supply conditions imposed by OPEC, coupled with heightened tensions in the Middle East following the terrorist attacks in the US may cause spikes in crude oil prices, leading to the pass-through of these higher costs to oil-related consumer items (such as petrol and electricity) in the domestic CPI basket. However, effects of the possible one-off oil price shock could be partially offset by the introduction of more competition into the petrol retail business.²⁶

Chart 4.15
CPI Inflation Forecasts for 2001 and 2002

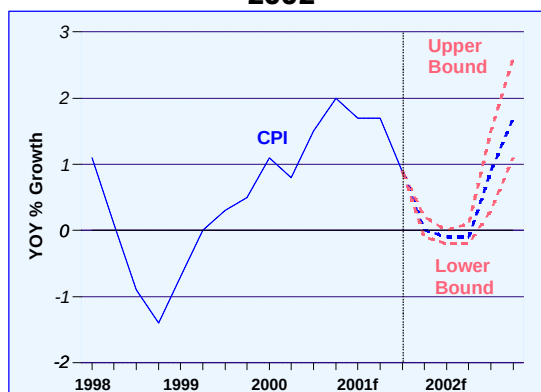
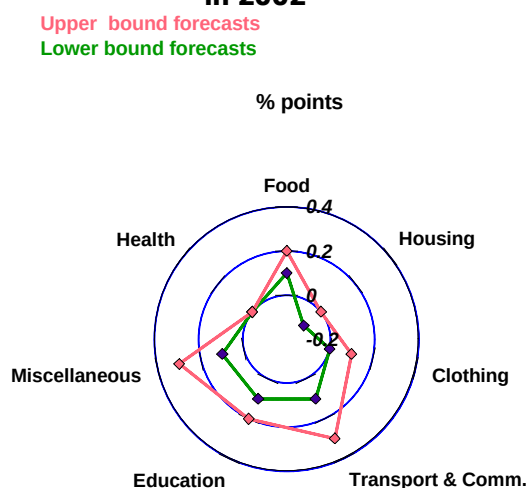


Chart 4.16
Contributions to CPI Inflation Forecasts in 2002



²⁵ CPI inflation fell by 1.4% in 1986 and by 0.3% in 1998.

²⁶ "White pumpers", as they are called in the UK, may be introduced in Singapore. These are petrol-pumping facilities annexed to supermarkets and commercial buildings. They have spurred competition by opening the market to new players, who often charge less than regular petrol stations.

There could be some upside risks to the prices of soft commodities (including rice and palm oil), on the back of renewed demand and significant progress of the various price support programs. A further rise in overall food inflation could come from an increase in patronage at cooked food outlets, if there were to be a strong recovery in the economy in H1 2002.

Similarly, prices of various cyclical-sensitive consumer items (including both big-ticket as well as mass-market retail items) could see further upside, if the pace of the recovery turns out to be fairly strong. This could also boost public road transport and household services.

On the flip side, a prolonged slowdown could negatively affect prices in some of the above categories. On the downside to housing and transport and communication prices, a further reduction in the electricity tariffs is likely in early 2002, which would bring down the cost of utilities.²⁷ Moreover, utility costs could be further dampened by the lower cost of water treatment.²⁸ There would also be more scope for decline in prices of big-ticket items if consumer spending tightens. In addition, there will be downward pressure on prices due to the impact of the second off-Budget package. Services inflation could be more muted, dampened by lower wage costs as salaries are cut in the coming months.

Despite the announced freeze in local tertiary tuition fees for the 2002 academic year, the cost of tuition in overseas institutions could continue to increase. There is also a possibility that healthcare costs will be capped by the Singapore Medical Association.

Incorporating our best assessment of the implications of these uncertainties, we expect overall CPI inflation remain low, within 0.5-1.5% in 2002.

²⁷ The Energy Market Authority will reduce the price cap for large generation companies from 1 January 2002.

²⁸ A new method using ultrasound waves to process seawater could slash the cost of producing drinking water by about 90%. Feasibility tests are being carried out, lasting till the end of 2001.

5 Special Feature on Comparing Present and Past Recessions

5.1 Introduction

In this chapter, we compare the current downturn with the previous recessions in 1985 and 1998. The comparison is presented from a number of different perspectives, including the differences in external environment surrounding the three downturns, the impact of the recession on different sectors, and policy responses in each of the downturns. The discussion is necessarily preliminary since events are continuing to unfold rapidly under the current uncertain conditions, and the narrative focuses on comparing events as they have occurred to date.

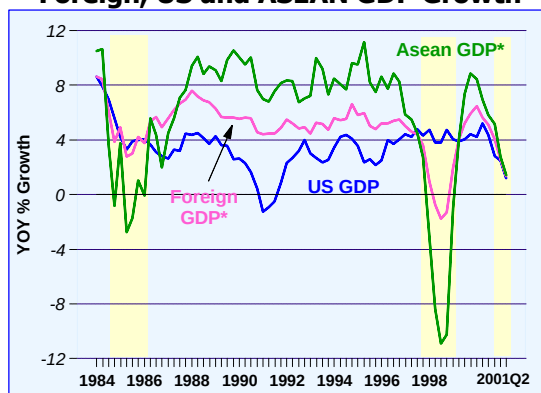
5.2 External Backdrop

Industry-specific demand shock triggered the current downturn...

The current economic slowdown takes place against an industry-specific shock, sparked by the collapse of US IT demand, which has in turn precipitated a global electronics slump. While slumps in the technology sector also feature in the earlier recessions, the decline was especially severe this time round. In addition, US IT investment has also turned negative in Q2, unlike in the 1996 and 1998 electronics downturns, when it continued to grow strongly and helped facilitate the subsequent recoveries in 1997 and 1999. The resulting slump in domestic electronics exports and production has thus been the main channel through which the domestic economy has been affected so far.

The industry-specific nature of the shock this time round has meant that the moderation in the trade-weighted foreign GDP series has so far not been as severe as in the downturn of 1998. (Chart 5.1) For example, foreign GDP growth, which has eased from 5.3% in 2000, to 1.3% in the second quarter of 2001, though fairly pronounced was not as severe as in 1998, when foreign GDP actually shrank by 0.7% following an expansion of 4.4% the previous year.

Chart 5.1
Foreign, US and ASEAN GDP Growth



* Export-competitiveness weighted

In addition, there are differences in the sources of the decline in foreign GDP growth. In 1998, the overall foreign GDP was dragged down by the sharp contraction in the regional economies and NIEs, as a result of the Asian financial crisis. Nevertheless, the crisis was largely contained within Asia, as the growth engines in US and EU continued to power on in 1998. In 2001, the US economy has slowed down more sharply than expected, following its prolonged expansionary phase. This is somewhat similar to the recession in 1985, when slower growth in the US and Europe also resulted in foreign GDP growth moderating to 3.7% in 1985 from 6.7% the year before.

However, this time round, there are greater uncertainties in the outlook for the external environment. The events of 11 September have cast a pall on the economic prospects of the industrialised economies, and the initial slump in the IT industry is likely to result in more generalised weakness in consumer and investor spending. For example, the IMF, in its latest World Economic Outlook, projected global growth of 2.6% in 2001, a decline of over 2 percentage points from 2000.

... while the weakness in 1998 was caused by a slump in regional economies and disruption to financial markets

The 1998 Asian financial crisis was triggered by the large withdrawal of capital from the regional economies, which necessitated a sharp reversal in their current account position. This had its attendant contractionary effects on domestic spending and GDP growth in the affected countries. The impact on Singapore was through the financial market linkages initially, which caused the domestic financial sector to bear the brunt of the regional downturn. The services sectors that were more exposed to the neighbouring economies were then subsequently hit, while construction emerged relatively unscathed. Manufacturing growth also slowed, although it did not contract as severely as it did in 2001.

The current downturn resembles the 1985 recession when the manufacturing sector experienced a cyclical shock, aggravated by domestic factors

Indeed, the current slowdown bears more similarities to the 1985 recession, in that the

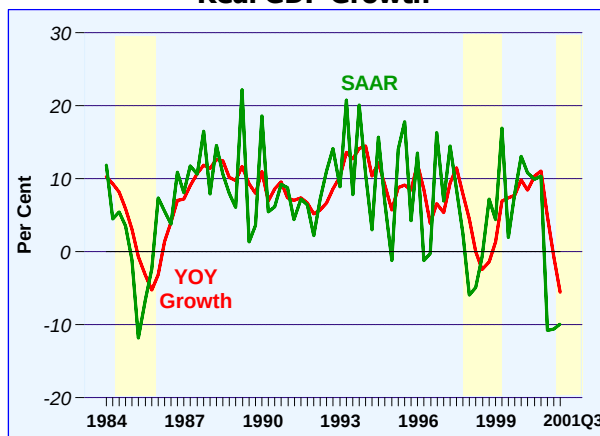
impetus was a negative demand shock to the manufacturing sector. The slower growth in both the US and Europe dampened the demand for goods produced by export-oriented economies like Singapore, and resulted in a slowdown in international trade. However, the downturn in the mid-1980s was aggravated by domestic factors, including some erosion in Singapore's external competitiveness caused by rising labour costs, and exacerbated by a relatively strong Singapore dollar. The construction sector was also undergoing a consolidation phase after a period of very rapid growth during the early 1980s.

5.3 Adjustment in the Domestic Economy

The magnitude of the current fall-off was more severe than in 1998...

The current downturn is both quicker and deeper than in 1998. The momentum of growth slowed sharply in the first two quarters of 2001, as real GDP contracted by 11% in both Q1 and Q2 on a seasonally adjusted quarter-on-quarter annualised (SAAR) basis, almost twice the rate during the 1998 crisis. (Chart 5.2) Indeed, this is closer to the rate of contraction observed in 1985, when the growth momentum saw a similar contraction of around 12% in Q2 1985. Moreover, based on present indications, including the "flash" estimates for real GDP in Q3 2001, it is likely that the extent of contraction might exceed that of the mid-1980s.

**Chart 5.2
Real GDP Growth**



(i) Sectoral Perspective

Manufacturing sector bearing the brunt of the current downturn...

There were significant variations in the impact of the slowdown on the different sectors of the Singapore economy. (Chart 5.3) In the current downturn, the domestic manufacturing sector is so far taking the brunt of the current slowdown, with attendant spillovers to the trade-related sectors.

Reflecting the spillover effects from this slowdown in exports, growth of the commerce sector has also turned negative, to record a contraction of 1.0% in Q2. For the first half of 2001, the other sectors were still turning in positive, albeit moderated growth, though going forward, their performances are likely to weaken further due to heightened uncertainty in the external environment. The financial sector is expected to record flat growth, as the boost from the liberalisation of CPFIS tapers off. Concomitantly, the US terrorist attacks are likely to have repercussions on stock market activity and the transport industry. Similarly, the construction sector is unlikely to turn around in the near term, as it is weighed down by weakness in the residential property market, though support is expected from public infrastructure projects.

... compared with the financial services sector in 1998...

In comparison, the financial services sector suffered the largest contraction, of 8.6%, during the 1998 recession, dragged down by weakness in the ADM and foreign exchange trading. (Chart 5.4) This reflected the nature of the crisis then, which stemmed from the disruption to financial markets in the region.

The commerce sector also shrank by 4.7% in 1998, given its high exposure to the region. Entrepot trade contracted in tandem with the collapse of domestic demand in the region, while the decline in tourist arrivals contributed largely to the poorer businesses in hotels and restaurants. The manufacturing sector, on the other hand, recorded only a relatively small decline of 0.6% in 1998. Although electronics output fell quite sharply in line with the global electronics slump, this was offset by growth in non-electronics production, especially from the chemical and transport equipment industries.

Chart 5.3
Real GDP Growth by Sector

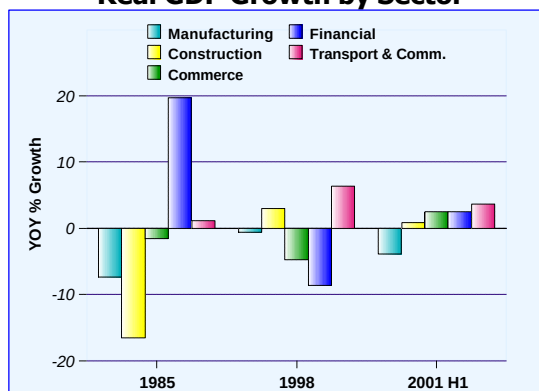
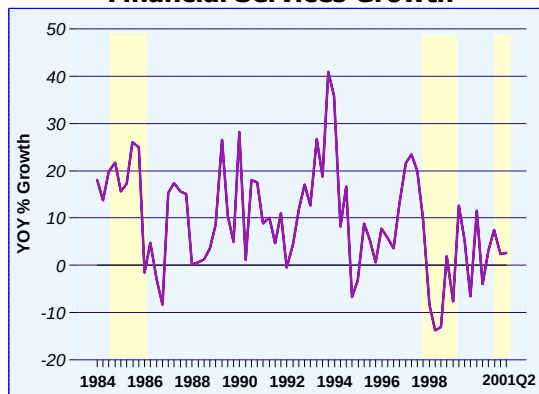


Chart 5.4
Financial Services Growth

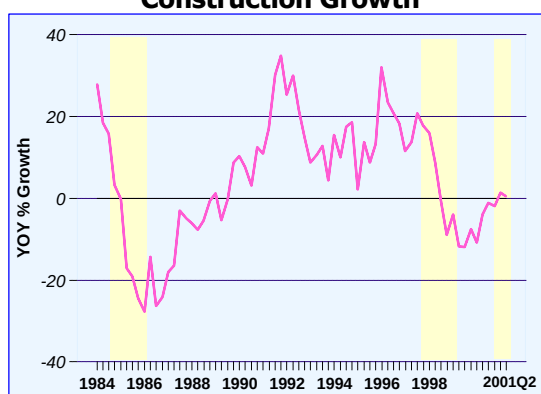


... and the construction sector in the mid-1980s

During the 1985 recession, the construction sector was the worst hit, followed by manufacturing. (Chart 5.5) The slump in construction activity followed the completion of major private sector projects and the scale down of the public housing programme. As a result, the sector contracted by 16% in 1985 and 23% in 1986 and continued to post negative growth over the next two years.

The weakness in the manufacturing sector mainly reflected the poor performance of the non-electronics industries (especially petroleum refining and marine transport equipment), rather than the electronics sector.²⁹ The services sectors, on the other hand, held up relatively well during the 1985 recession. In particular, the financial services sector saw double-digit growth, and only weakened in 1986, following the Pan-Electric crisis at end-1985.

Chart 5.5
Construction Growth

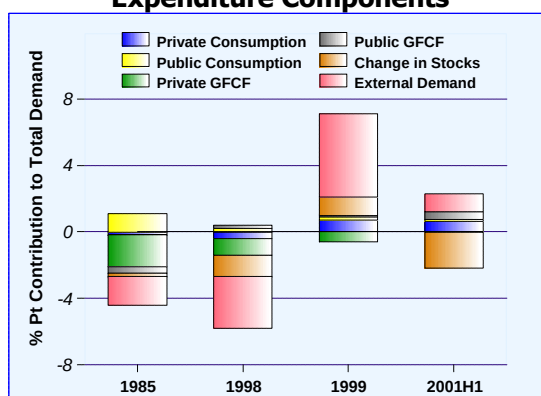


(ii) Expenditure Perspective

A sharp drop in inventories and private investment spending was observed across all downturns

The decline in economic activity so far in 2001 largely reflected the sharp correction in inventory levels, which was also observed in 1998. (Chart 5.6) Private sector investment also began to contract, recording a 5.3% fall in Q2 2001 amidst the worsening business environment. This mainly reflected declines in both investment in machinery and equipment, as well as non-residential buildings. This is similar to 1985 and 1998, when private investment was a major contributor to the fall in GDP growth during those downturns.

Chart 5.6
Contribution to Total Demand by Expenditure Components



Import compression was also evident

In the previous recessions, the trade balance was counter-cyclical, making a positive contribution to GDP growth. This reflected the steeper contractions in imports even as the slump in external demand led to

²⁹ This reflected the fact that the non-electronics sector still dominated manufacturing value-added in the mid-1980s. For example, electronics output only accounted for 27% of manufacturing value-added in 1985 compared with 48% in 2000.

declines in both manufacturing and services exports. Likewise, although export growth entered negative territory in Q2 2001, this was more than offset by the fall in imports, reflecting weakness in imports of intermediate and capital goods.

Private consumption has held up well relative to 1998, although it is likely to deteriorate further going forward

Growth in private consumption expenditure remained positive in Q2, although it has more than halved to 3.0%, from the quarter before. (Chart 5.7) We expect it to weaken further, given that consumer confidence in Singapore in June 2001 has plunged to its lowest level since December 1998, according to the MasterCard International's MasterIndex regional survey. The survey showed that consumer confidence had tumbled to a reading of 42.9 in June this year from a high of 84.2 in December 2000. However, this was still higher than the readings in 1998, which ranged between 26 and 35. The "visibility" and pervasiveness of the asset price correction in the financial, equity and property market in 1998 took a heavy toll on consumer sentiment and subsequently, private consumption expenditure. A similar further deterioration in confidence can be expected this time round, given the general pessimism associated with recent events in the international economic and political arena.

Public spending generally continues to provide support to GDP

As with the earlier recessions, government spending has helped to cushion the current downturn in economic activity. In both 1998 and H1 2001, the strength in public consumption and investment contributed positively to GDP growth and helped to offset some of the weaknesses in other areas of the economy. (Chart 5.8) Similarly, during the 1985 recession, public consumption recorded double-digit growth, although investment spending by the government fell in line with the construction slump, as the public housing programme was scaled back.

Chart 5.7
Private Sector: Consumption and Investment

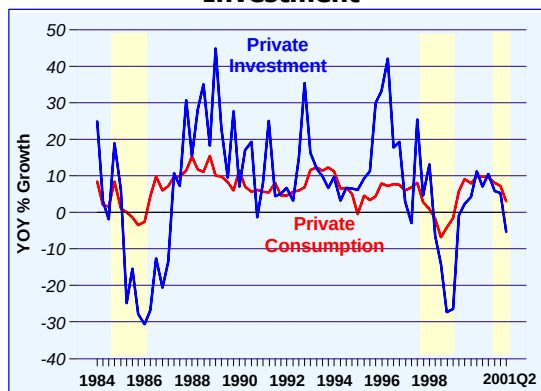
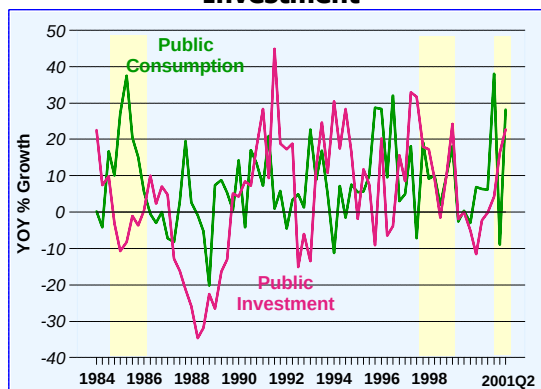


Chart 5.8
Public Sector: Consumption and Investment



(iii) Factor Markets

In the labour market, employment has adjusted less sharply than in 1998

Although the current contraction in output to date is worse than that in 1995 and 1998, employment has adjusted less sharply at a similar stage in the economic adjustment as compared to 1998, and with a longer lag than in 1985. Nominal earnings, however, have responded fairly quickly to the current slowdown, declining sharply in the first quarter of output contraction. In comparison, there was a lag of around two quarters in 1998 and 1985.

However, unit labour costs surged in Q2 2001, as the effects of the cyclical decline in productivity and the partial restoration in employer's CPF contribution rate in January more than offset the impact of slower wage growth.

The trend in employment partly reflects the IT-specific nature of the current downturn...

During the current recession, employment continued to expand, albeit only slightly in Q2 2001, when GDP had already contracted (on a quarter-on-quarter basis) for two consecutive quarters. In contrast, employment fell by 5,900 at a similar stage during the 1998 downturn. The smaller magnitude of adjustment this time round, compared to the 1998 downturn, reflects the IT-specific nature of the current slowdown. While the decline in regional demand in 1998 hit employment across all sectors, the burden of the current shock has fallen firstly on the manufacturing sector, and then subsequently, with lagged spillover effects, onto the other sectors.

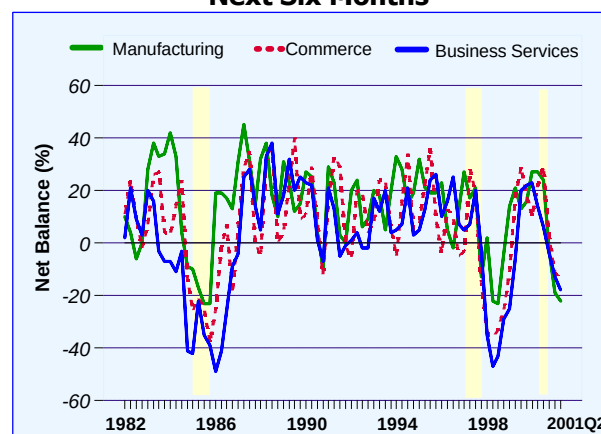
...and the greater severity of the downturn

The slower response of employment in the current downturn compared to the 1985 recession could reflect the fact that the current downturn has turned out to be more severe and prolonged than earlier expected. For instance, private sector economists surveyed in March this year were still forecasting 5.0% GDP growth for 2001. The

projection was downgraded over the subsequent months, to a forecast of a 0.6% contraction,³⁰ as at September.

From a sectoral perspective, the performance of the manufacturing sector in the current downturn has turned out to be significantly worse than expected compared to 1985. EDB's Survey of Business Expectations of the Manufacturing Sector showed that firms turned pessimistic only at end-2000, just before the first quarter-on-quarter contraction in manufacturing output in Q1 2001. In comparison, manufacturers already expected worsening business conditions when they were surveyed two quarters prior to the first recorded quarter-on-quarter contraction in 1985. Likewise, a survey by DOS also found that while most firms in major services sectors, such as the commerce and business services sectors, anticipated a downturn two or more quarters prior to the 1985 recession, signs of the 2001 slowdown were not obvious to them until Q4 2000.³¹ (Chart 5.9) This could reflect the prevalence in adoption of just-in-time manufacturing practices in recent years, which may have shortened manufacturers' forecast horizon. Significant declines in demand are now more difficult to anticipate in advance as compared with the past, when manufacturers relied on apparent signs, such as the extent of inventory build-up, to predict a downturn.

**Chart 5.9
Business Expectations over the
Next Six Months**



³⁰ Forecasts from the MAS Survey of Professional Forecasters.

³¹ In the surveys by EDB and DOS, firms were asked to give their assessment of business conditions over the next six months.

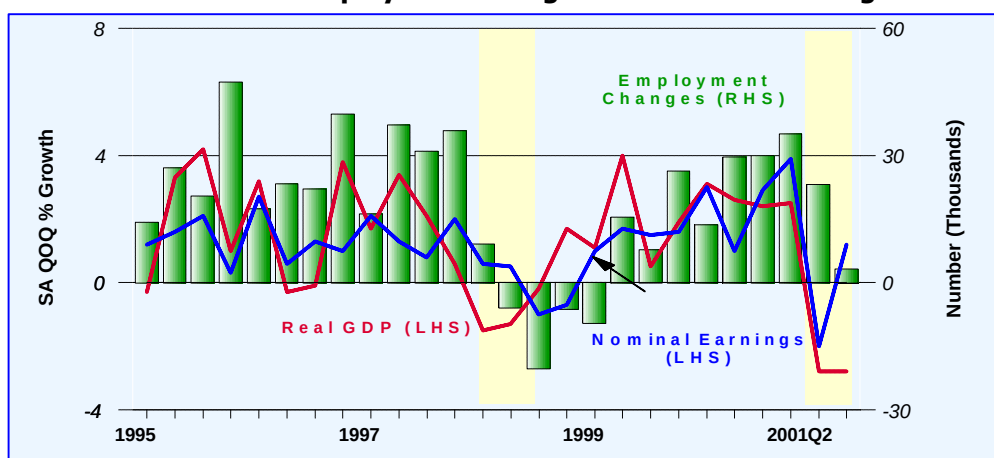
Consequently, when output first started declining in early 2001, firms particularly manufacturing companies, may have hoarded workers in anticipation of a fairly quick turnaround. The incentive to hoard workers stems from the high costs of retrenching workers and subsequently re-hiring them when economic conditions turn around. This is particularly true in Singapore, where the labour market is perennially tight. While total retrenchments came in lower at around 8,900 in H1 2001, compared with 14,400 in H1 1998, the number of workers temporarily laid off or put on short work-week was significantly higher in 2001. A total of 3,600 workers were temporarily laid off or put on short work-week in Q1 2001, with the numbers swelling to 15,600 in Q2 2001. This number greatly exceeds the average of around 4,200 workers per quarter put on short work-week in H1 1998.

large cyclical decline in productivity due to labour hoarding by manufacturers. The decline in productivity more than outweighed the impact of the faster adjustment in wage growth. (Chart 5.10)

Wage growth, however, has responded fairly quickly

Wage growth, however, has responded relatively quickly to the current slowdown. This contrasts with the 1998 downturn, when wages adjusted with a lag of two to three quarters. Downward flexibility of wages has increased since the 1998 downturn, reflecting ongoing efforts by the National Wages Council to encourage employers to increase the monthly variable component of wages. Nevertheless, unit labour costs rose sharply, to a 19-year high of 13% in Q2 2001. This reflects a

Chart 5.10
Real GDP Growth vs Employment Changes and Nominal Earnings Growth



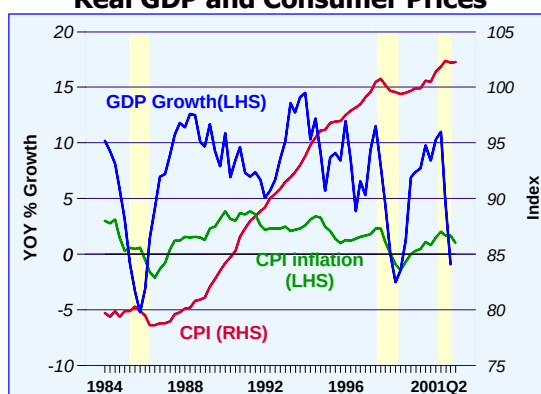
CPI inflation has held up despite the current slowdown in economic activity...

Despite the sharp fall-off in economic activity in 2001, consumer prices remained relatively buoyant, partly reflecting some lingering price pressures in consumer non-durables and services. (Chart 5.11) CPI inflation came in at an average of 1.7% year-on-year in Q1 and Q2 2001. More recently, however, prices of various consumer items have begun to adjust downwards, and inflation dipped to 1% in Jul-Aug.

...similar to the 1985 recession, but prices fell faster during the 1998 crisis

The sustained inflation that was seen in the first half of 2001, even as GDP contracted, was similar to that seen in the mid-1980s, when prices continued to increase following the first year-on-year contraction in GDP in Q2 1985. CPI only recorded a contraction three quarters later in Q1 1986. In comparison, CPI fell in tandem with GDP in the 1998 downturn. In all three recessions, inflation momentum³² began to wind down with the slowdown in economic activity, eventually turning negative, although in 1985, it took slightly longer for the pace to decelerate. Price increases in 1985 were supported by higher imputed rentals as the impact from the property price bubble from the year before filtered through. There were also a range of transport-related cost increases, such as dearer petrol prices and higher taxi fares. The MAS underlying inflation, which excludes accommodation and private road transport prices, was negative in 1985. However, in 1998 and in the first two quarters of 2001, the impact of falling private road transport costs caused headline inflation to fall faster than the underlying rates.

**Chart 5.11
Real GDP and Consumer Prices**



³² The momentum is measured by the seasonally adjusted, annualised, 3-month moving span (3M-SAAR) rate.

Prices of cyclical-sensitive non-durables have been somewhat resilient in the current recession

In the latest recession in 2001, prices of cyclical-sensitive retail items appear to be particularly resilient, continuing to register positive albeit moderate rates of inflation. In contrast, price declines were recorded throughout 1985 and 1998. Prices of consumer durable such as cars and big-ticket household items have fallen in 2001, a trend that was also evident during the last two recessions. (Chart 5.12)

However, prices of cyclical-sensitive non-durable products, including clothing and other household goods, registered moderate increases in 2001, compared to the declines in both 1998 and 1985. (Chart 5.13) Given that employment has not been hit as significantly thus far in the current economic downturn, demand for non-durables, which tends to involve smaller expenditure, has stayed firm. Purchases of items that tend to incur more substantial outlays, such as cars, have been more adversely affected, as the economy and employment prospects are widely expected to weaken further. Wealth effects arising from the more severe plunge in property prices in 1985 and 1998 would have also contributed to the subdued spending in those years.

Mild inflationary pressures stemmed from consumer-related services, which was not evident during the previous recessions

The cost of miscellaneous items, which has risen strongly in 2001, further contributed to the relatively higher inflation. (Chart 5.14) This partly reflected the continued demand for holiday tour packages despite a hike in the prices.³³ In comparison, there were no such inflationary pressures in the earlier recessions. Pointing towards continuously rising costs, consumer-related services such as education and health recorded inflation in every downturn. However, in 1985 and 1998, when the severity of the economic slowdown became evident, healthcare charges levelled off in the subsequent quarters and even dipped slightly. Local university fees also froze, although foreign university fees boosted overall education inflation.

Chart 5.12
Inflation of Durable Items

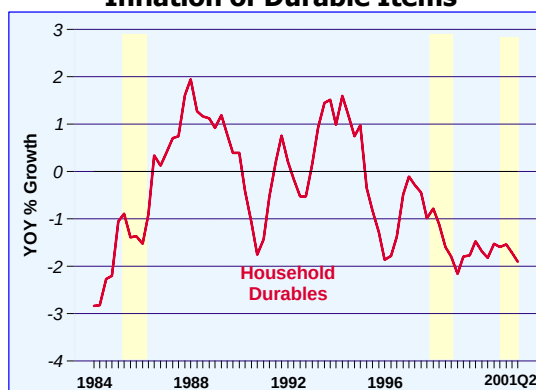


Chart 5.13
Inflation of Non-Durable Retail Items

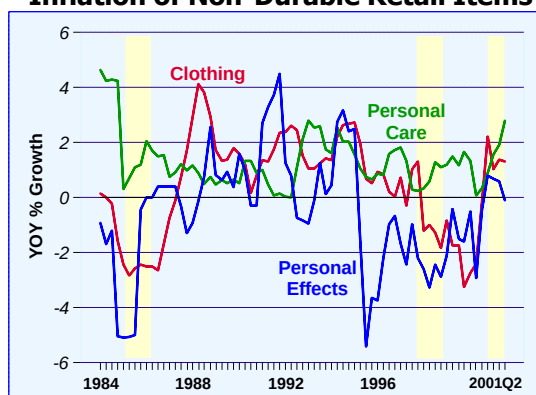
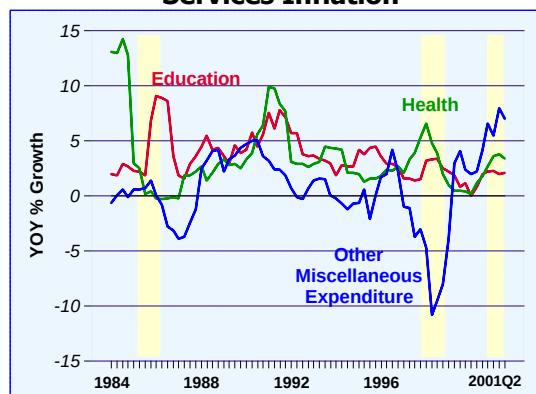


Chart 5.14
Services Inflation



³³ There was a hike in airfares in April 2001, which led to more costly tour packages.

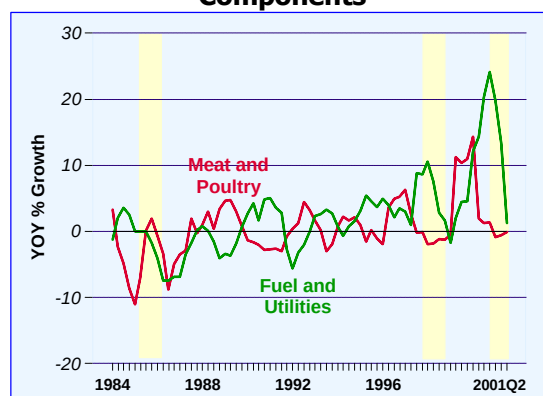
Inflation is expected to moderate, albeit less sharply than in previous downturns

Going forward, we expect CPI inflation to dip below 1% in H2 2001, bringing the full year rate to between 1-1.5%. The downward adjustment in prices is less steep compared to the previous two recessions, when inflation moderated to 0.5% in 1985 and contracted by 0.3% in 1998.

The difference partly reflects the higher inflation rate already recorded in H1 2001, and the relatively milder decline for the rest of the year, compared with the second halves of 1985 and 1998. Indeed, CPI inflation continued to trend down, and turned negative in 1986 when GDP growth had turned around strongly. The glut in world commodity markets at the time, especially in crude oil, had suppressed prices.

Also, consumer prices in the current period have been driven by a series of hikes in administrative charges, such as water tariffs and the imposition of mandatory measures on meat processing, causing successive boosts to price levels beginning in 1999. (Chart 5.15) There were fewer such influences in the previous periods, and price hikes were more transitory in nature in the mid-1980s and mid-1990s. However, foreign inflation is generally lower now, and does not significantly contribute to consumer price pressures. In addition, the cost of consumer non-durables is likely to fall towards the end of 2001 and into early 2002, as the full impact of the economic downturn hits the labour market.

Chart 5.15
Effects of Administrative Charges on CPI Components



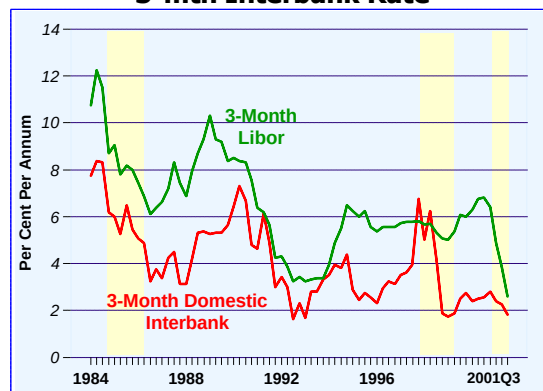
5.4 Policy Responses

MONETARY CONDITIONS

While there were differences in money market conditions...

Domestic liquidity conditions remained easy in the first half of 2001, reflecting a downtrend in the S\$NEER and lower interest rates, in line with the cuts in US interest rates by the Fed. The domestic 3-month interbank rate has eased from 2.81% in December 2000 to 1.81% in September 2001. (Chart 5.16) This is similar to the situation in 1985, when liquidity conditions in the domestic money market and the downtrend in external interest rates resulted in a decline in interest rates. In comparison, the shock to the financial sector during the 1998 crisis resulted in domestic interest rates spiking up sharply in early 1998. For instance, the 3-month

Chart 5.16
3-mth Interbank Rate



interbank rate surged to hit 7.75% at end-January 1998, reflecting the spread of the regional currency crisis to Northeast Asia. The 3-month domestic interbank rates remained relatively tight at over 5%, in the Nov 1997-Aug 1998 period, before easing as some stability returned to the regional financial markets.

... exchange rate policy was generally supportive of growth during the downturns

The S\$NEER has eased since the beginning of 2001, as the weakening of the Singapore dollar against the US dollar helped to offset its strength against the Yen and Euro. (Chart 5.17) Against the backdrop of a weaker external environment and a more protracted global electronics downturn, MAS shifted from a gradual, modest appreciation of the Singapore dollar, to a neutral exchange rate policy stance in July 2001. (Chart 5.18) Also, further restorations to the employer's CPF contribution rate have been deferred in view of the slowing economy.

Further on 10 October, MAS announced that it would widen the policy band to allow greater flexibility in managing the exchange rate. The widened policy band would continue to be centred on a zero percent appreciation of the S\$NEER.

The recent development in the exchange rate differs from the 1998 crisis, when the NEER initially strengthened. Although the Singapore dollar depreciated against the US dollar, it appreciated sharply against the regional currencies. Nonetheless, MAS had also widened its exchange rate policy band to allow more flexibility in managing the exchange rate in the more volatile foreign exchange market. Given the absence of inflationary pressures, MAS eased exchange rate policy to cushion the economy from the adverse effects of the crisis and facilitate its recovery.

We can also compare this to the situation in the early 1980s, when the booming economy led to escalating wage costs. The NEER was allowed to appreciate over this period so as to contain inflationary pressures. This resulted in a loss of competitiveness that adversely impacted trade, and led in part to the subsequent downturn in 1985. While the NEER was later allowed to depreciate modestly, the main channel of adjustment to regain competitiveness was through reducing business and wage costs, particularly through a cut in employers' CPF contribution rates.

Chart 5.17
S\$ Movement Against Major Currencies

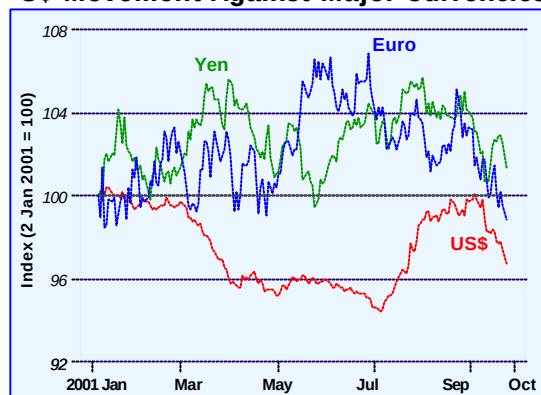
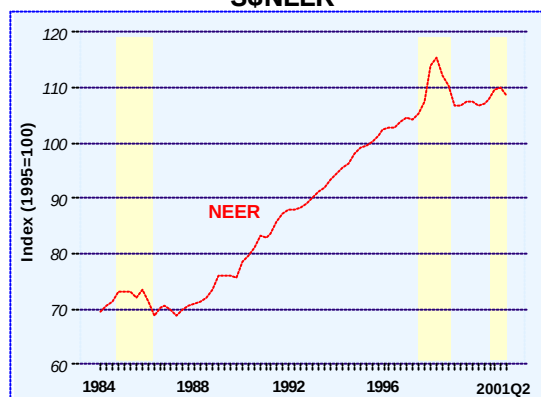


Chart 5.18
S\$NEER



FISCAL POLICY MEASURES

Off-Budget fiscal measures were introduced in all three recessions...

Indeed, such cost-cutting packages have been key to the government's efforts in enabling the Singapore economy to weather the downturns and regain competitiveness. (Chart 5.19) For example, during the mid-1980s recession, fiscal measures amounting to \$1 billion or 2.6% of GDP were introduced in various stages in 1985 to stimulate the economy. Additional measures were subsequently announced in February 1986, including a two-year wage freeze proposal, a 15 percentage point reduction in the employers' CPF contribution rate, corporate and income tax cuts, and income tax rebates.

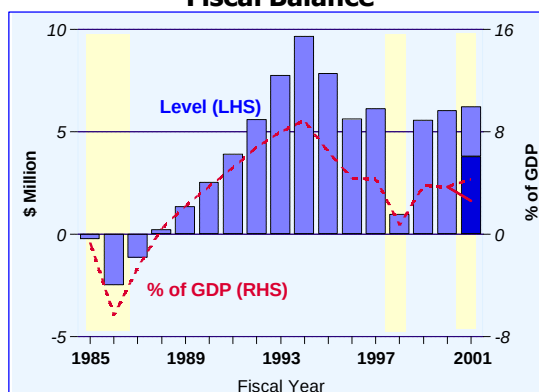
Like the current downturn, cost-cutting measures implemented in 1998 also had a stimulative impact on the economy in the following two years. In June and November 1998, the government implemented two packages amounting to \$2 billion and \$10.5 billion respectively (or around 9% of GDP together) to help cut business costs. Among the November 1998 measures was a 10 percentage point cut in employer's contribution to CPF, which was a significant part of the overall aim to reduce total wage costs by 15%. The package also included reductions in rentals on industrial and commercial land, reduction in foreign worker levy and other government charges, and rebates in property, income and corporate tax.

... which provided some mild stimulus to GDP

The discretionary fiscal measures introduced in the mid-1980s were estimated to have boosted real GDP levels by 2.3% in 1985-1986, while the \$12.5 billion package of off-Budget measures in 1998 helped raise real GDP levels by 1.0% in 1999 and 3.0% in 2000. (These estimates also include the effect of the 10 percentage point cut in employers' CPF contribution rate in January 1999.)

As for the current slowdown, the government has so far announced a \$2.2 billion package of off-Budget measures in July, amounting to 1.4% of GDP. (These include deferring the restoration of the remaining CPF cut of 4 percentage points, extending for another year the current reductions in foreign worker levy rates, the 25% property tax rebate for commercial and industrial properties, etc.) According to our model estimates, these measures should help to boost the level of real GDP by an average of 0.3% in 2001-2002. (Table 5.1)

Chart 5.19
Fiscal Balance



* The FY2001 figure refers to the budgeted numbers announced in Feb 2001, which are reported in the new Budget format. To better compare the fiscal position of FY2001 with previous years, we removed Net Investment Income from operating revenue and added land-related expenditure to development expenditure. The solid portion shows the budgeted fiscal surplus recalculated under the old format.

Table 5.1
Fiscal Policy Across the Downturns

	Cost Cutting Package		Fiscal Budget Outcome (Deficit denoted by -)		Effect of fiscal package (% increase in GDP level)
	Amount	% of GDP	Amount ^{3/}	% of GDP	
1985	\$1 billion ^{1/}	2.6%	FY1985: -\$0.2 billion FY1986: -\$2.5 billion	-0.6% -6.3%	1985-1986: 2.3%
1998	\$12.5 billion ^{2/} (of which \$3.9 billion is attributed to the reduction in the employer's CPF rate)	9.1%	FY1998: \$1.0 billion	0.7%	1999: 1.0% 2000: 3.0%
2001	13.5 billion ^{4/}	8.4%	FY2001f: -\$4.0 billion FY2002f: -\$1.0 billion	-2.6% -0.6%	2001: 0.2% ^{5/} 2002: 0.4%

1/ This excludes the 15 percentage point cut in employers' CPF contribution rate, which is estimated to total \$1.5 billion (3.9% of GDP) over a 12-month period. (The Singapore Economy: New Directions, February 1986)

2/ A \$2 billion package was announced in June 1998, followed by a \$10.5 billion package in November 1998.

3/ Please note that these numbers are not directly comparable, as the definition of the budget balance has changed over the years.

4/ A \$2.2 billion package was announced in July 2001, followed by a \$11.3 billion package in October 2001.

5/ These estimates only relate to the July package. We are still working on assessing the impact of the October package, as further details of the various measures become available.

With the increasing risk of a prolonged downturn, the government introduced a more substantial off-Budget package of \$11.3 billion (7% of GDP) on 12 October, to help businesses and workers tide over the downturn. This comprehensive package covers eight categories: Tax and fee rebates and reductions for businesses and individuals; Assistance to local enterprises; Property market-related measures; Acceleration of infrastructure projects; Employment assistance for workers and executives; Help for the lower income and unemployed; New Singapore shares; and Measures related to wage costs. Together with the July off-Budget measures, the size of discretionary measures for the current downturn amounts to \$13.5 billion (8.4% of GDP), comparable to that in 1998. As a whole, these measures will result in an estimated budget deficit of \$4.0 billion and \$1.0 billion in FY2001 and FY2002 respectively.

... to complement the automatic stabiliser effect of fiscal policies...

In addition to these discretionary measures implemented during times of crisis, fiscal policy has also had an automatic stabiliser effect on the economy. Government receipts vary to some extent with the business cycle, growing during booms and shrinking during recessions. For Singapore, taxes, particularly income taxes, act as automatic stabilisers and help moderate the fall in income when private economic activity declines. This was observed in the past two economic downturns, when operating revenue declined and picked up subsequently as the economy recovered.

Over the years, however, the effect of taxes as automatic stabilisers appears to have waned. For instance, the contraction in operating revenue collection was quicker and extended over a longer period of time in the mid-1980s compared with 1998. The lower effectiveness of the automatic stabiliser reflects the increased reliance on indirect taxes, which has led to lower tax elasticities, as well as a gradual reduction in the effective tax rate over the years.

5.5 Recovery

Forecast horizon more uncertain this time round

In the past downturns, the cost-cutting measures implemented by the government have proved instrumental in enabling the economy to respond quickly to the pick-up in external demand. Indeed, the Singapore economy rebounded fairly quickly in both the 1985 and 1998 downturns, with GDP growth soaring to 7.4% in Q1 1986 and 7.2% in Q4 1998, following three consecutive quarters of decline on a quarter-on-quarter, SAAR basis.

In 2001, we have already experienced three quarters of sharp quarter-on-quarter decline. Business expectations for the manufacturing sector have remained negative and the current forecast is for the domestic economy to remain weak till at least the second half of next year. This time round,

however, the forecast horizon looks somewhat more uncertain than in late 1985 or mid-1998. In the 1998 downturn, the pre-Y2K boom had boosted the electronics industry, leading to a recovery of the economy then. In comparison, there is still no clear indication of new demand that can support a recovery for the current downturn. In addition, we have yet to see a strong rebound in US IT investment, which was a source of support for the recovery in 1998. Uncertainty is compounded in the wake of the terrorist attacks, which could further weaken the already vulnerable US economy. Taking these factors into account, we would probably see a more prolonged recession compared to the previous two episodes in 1985 and 1998.

Statistical Appendices

Table 1: Real GDP Growth by Sector

Table 2: Real GDP Growth by Expenditure

Table 3: Consumer Price Index

Table 4: External Trade

Table 5: Non-Oil Domestic Exports by Selected Countries

Table 6: Labour Market

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Table 8: Fiscal

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Table 10: Balance of Payments – Capital & Financial Accounts

Table 11: Exchange Rates

TABLE 1: REAL GDP GROWTH by sector

Period	Total	Manu- facturing	Financial & Business Services			Con- struction	Commerce			Transport & Comm.	Total	Manu- facturing	Financial & Business Services			Con- struction	Commerce			Transport & Comm.
			Total	Financial Services	Business Services		Total	Wholesale & Retail	Hotels & Rest.				Total	Financial Services	Business Services		Total	Wholesale & Retail	Hotels & Rest.	
	Year-on-Year % Change										Seasonally-adjusted Quarter-on-Quarter % Change									
1992	6.5	2.3	8.5	8.2	8.8	22.3	3.8	2.4	9.5	5.8	6.5	2.3	8.5	8.2	8.8	22.3	3.8	2.4	9.5	5.8
1993	12.7	9.6	15.2	25.0	6.6	9.0	19.7	23.2	6.0	10.7	12.7	9.6	15.2	25.0	6.6	9.0	19.7	23.2	6.0	10.7
1994	11.4	12.8	11.6	11.7	11.5	15.5	12.1	13.7	5.0	10.2	11.4	12.8	11.6	11.7	11.5	15.5	12.1	13.7	5.0	10.2
1995	8.0	10.0	5.3	2.8	7.9	9.6	8.8	9.6	4.9	10.6	8.0	10.0	5.3	2.8	7.9	9.6	8.8	9.6	4.9	10.6
1996	7.6	2.9	8.4	7.3	9.4	23.1	6.1	6.1	6.0	8.2	7.6	2.9	8.4	7.3	9.4	23.1	6.1	6.1	6.0	8.2
1997	8.5	4.5	13.4	18.6	8.3	16.1	6.4	6.4	6.5	8.8	8.5	4.5	13.4	18.6	8.3	16.1	6.4	6.4	6.5	8.8
1998	0.1	-0.6	-3.9	-8.6	1.1	3.0	-4.7	-4.1	-7.5	6.4	0.1	-0.6	-3.9	-8.6	1.1	3.0	-4.7	-4.1	-7.5	6.4
1999	5.9	13.6	1.2	0.8	1.5	-8.8	6.6	7.1	4.0	7.1	5.9	13.6	1.2	0.8	1.5	-8.8	6.6	7.1	4.0	7.1
2000	9.9	15.2	5.4	4.1	6.6	-4.6	14.1	15.2	8.2	9.0	9.9	15.2	5.4	4.1	6.6	-4.6	14.1	15.2	8.2	9.0
1998 Q1	4.5	6.4	-2.0	-8.4	4.9	16.0	0.8	1.9	-4.6	7.6	-6.0	-9.4	-17.6	-26.1	-8.3	0.1	-9.9	-8.6	-16.5	7.8
Q2	0.0	-0.3	-5.9	-13.8	2.7	8.7	-5.2	-4.9	-6.9	6.9	-5.0	-10.0	-6.0	-11.8	-0.3	-1.2	-12.2	-13.3	-6.3	6.7
Q3	-2.5	-4.3	-7.2	-13.1	-0.8	-0.7	-6.9	-6.1	-11.0	5.2	-0.7	-0.4	-0.2	1.7	-1.9	-10.0	-2.7	-1.0	-11.5	1.1
Q4	-1.4	-2.9	-0.2	1.9	-2.2	-9.0	-7.1	-7.1	-7.4	6.1	7.2	10.4	28.2	61.1	2.4	-21.9	-2.5	-4.1	6.3	9.6
1999 Q1	1.3	6.5	-3.6	-7.6	0.3	-4.0	-2.3	-2.3	-2.2	5.8	4.4	29.6	-27.9	-49.5	1.1	21.9	9.7	10.8	4.0	5.8
Q2	6.9	14.6	6.6	12.7	0.9	-11.8	6.3	6.6	4.7	6.3	16.9	20.0	39.8	94.7	2.1	-29.4	22.0	22.1	21.9	8.2
Q3	7.4	16.7	3.6	5.2	2.2	-11.9	8.8	9.4	5.5	7.8	1.9	7.9	-10.3	-22.0	3.1	-11.1	7.2	10.1	-7.4	8.2
Q4	7.7	16.2	-2.0	-6.5	2.5	-7.6	13.6	14.7	8.0	8.2	8.0	9.6	0.9	-2.0	3.9	-4.0	16.7	16.8	15.8	11.0
2000 Q1	9.8	13.2	8.2	11.6	5.2	-10.9	16.3	17.3	10.7	9.9	13.0	15.4	8.5	5.0	11.9	4.4	20.1	20.9	15.2	12.2
Q2	8.4	13.2	1.1	-4.0	6.5	-3.9	14.0	15.3	6.8	9.7	10.8	19.8	6.6	5.9	7.3	-4.4	11.8	13.1	4.9	7.4
Q3	10.3	15.2	5.3	3.1	7.4	-1.1	14.6	15.4	9.9	9.5	9.8	16.0	5.2	3.7	6.7	-0.7	10.1	11.1	4.5	7.8
Q4	11.0	18.8	7.3	7.5	7.1	-1.9	12.0	13.1	5.6	6.8	10.3	24.9	8.6	15.0	3.0	-5.9	6.8	8.2	-1.6	0.0
2001 Q1	4.7	2.7	4.0	2.4	5.5	1.3	6.1	7.1	0.8	4.7	-10.8	-36.2	-3.9	-12.7	5.0	17.7	-3.3	-3.2	-4.1	3.6
Q2	-0.9	-9.6	3.0	2.6	3.4	0.4	-1.0	-1.0	-0.9	2.7	-10.7	-28.0	2.6	6.6	-0.9	-7.5	-15.7	-17.8	-2.5	-0.3

Source: Singapore Department of Statistics

TABLE 2: REAL GDP GROWTH by expenditure

Year-on-Year % Change									
Period	Total Demand	Domestic Demand							External Demand
		Total	Consumption			Gross Fixed Capital Formation			
			Total	Private	Public	Total	Private	Public	
1992	7.0	6.8	4.8	5.8	0.4	11.8	14.5	1.9	7.1
1993	16.3	14.4	12.4	11.9	14.7	10.3	10.9	7.6	17.2
1994	15.3	4.0	5.8	7.5	-1.7	9.6	6.5	22.8	20.5
1995	12.5	8.6	4.4	3.0	11.7	11.8	14.6	1.7	14.0
1996	9.1	12.8	9.7	7.6	19.3	23.1	27.3	5.7	7.7
1997	7.9	9.5	6.2	6.0	7.1	9.6	7.0	22.3	7.3
1998	-5.4	-7.8	-0.8	-2.9	8.0	-6.4	-9.9	8.4	-4.4
1999	6.5	5.3	5.2	5.3	5.0	-3.9	-6.1	4.1	6.9
2000	14.0	10.7	10.3	9.4	13.7	5.9	8.6	-2.9	15.2
1998 Q1	3.9	5.5	3.0	1.0	9.2	13.9	13.2	17.2	3.2
Q2	-5.8	-5.4	0.2	-1.7	10.1	-3.5	-6.4	9.1	-6.0
Q3	-8.4	-13.9	-5.2	-6.7	1.9	-11.7	-14.2	-1.5	-6.2
Q4	-10.2	-16.6	-1.4	-4.1	10.4	-20.5	-27.3	10.5	-7.6
1999 Q1	-4.8	-7.7	3.6	-1.6	18.2	-16.5	-26.4	24.3	-3.5
Q2	6.8	6.8	4.4	5.9	-2.7	-1.0	-0.8	-1.9	6.8
Q3	8.7	12.6	7.4	9.1	0.4	1.8	2.3	0.0	7.3
Q4	15.5	11.5	5.6	7.9	-2.9	1.9	4.3	-5.1	16.9
2000 Q1	15.5	12.4	9.0	9.9	6.8	4.6	11.2	-11.6	16.9
Q2	12.4	11.9	9.3	9.8	6.4	5.0	7.0	-2.3	12.6
Q3	15.8	5.9	9.0	9.6	6.2	8.3	10.5	-0.1	19.5
Q4	12.3	12.7	13.9	8.2	38.0	5.5	5.9	4.2	12.2
2001 Q1	5.6	1.0	2.4	7.2	-9.0	7.9	5.3	16.3	7.5
Q2	-5.2	-7.8	7.0	3.0	28.1	0.3	-5.3	22.8	-4.2

Source: Singapore Department of Statistics

TABLE 3: CONSUMER PRICE INDEX

Period	All Items	Food	Housing	Clothing	Transport & Comms.	Education & Stationery	Health	Misc- ellaneous	All Items	Food	Housing	Clothing	Transport & Comms.	Education & Stationery	Health	Misc- ellaneous
	Nov 1997- Oct 1998 = 100								Year-on-Year % Change							
1992	90.1	89.6	90.5	95.2	90.8	84.1	83.4	90.8	2.3	1.3	2.0	2.2	2.9	4.7	2.9	3.2
1993	92.2	90.4	93.5	96.3	93.2	86.9	86.5	94.6	2.3	0.8	3.2	1.2	2.6	3.3	3.7	4.1
1994	95.1	93.6	94.7	98.5	99.5	89.1	89.2	96.2	3.1	3.6	1.3	2.2	6.7	2.5	3.1	1.7
1995	96.7	95.7	95.4	99.9	100.1	92.8	90.7	98.6	1.7	2.3	0.7	1.5	0.6	4.2	1.6	2.5
1996	98.0	97.7	95.9	100.4	100.4	95.6	92.7	100.4	1.4	2.1	0.5	0.5	0.4	3.0	2.3	1.8
1997	100.0	99.7	98.1	101.1	104.3	97.1	96.1	100.6	2.0	2.0	2.3	0.7	3.9	1.5	3.7	0.2
1998	99.7	99.9	99.9	99.8	99.2	100.1	100.2	99.5	-0.3	0.2	1.9	-1.3	-4.9	3.1	4.3	-1.1
1999	99.8	100.8	98.6	97.9	98.7	101.6	100.8	100.3	0.0	0.9	-1.4	-1.9	-0.6	1.5	0.6	0.8
2000	101.1	101.4	100.6	97.1	100.7	102.9	102.3	101.9	1.3	0.6	2.0	-0.8	2.1	1.3	1.5	1.5
1998 Q1	100.2	100.3	100.4	100.3	100.1	99.5	100.0	100.5	1.1	0.8	3.9	-1.2	-1.5	3.2	6.6	-0.2
Q2	99.7	100.0	99.7	99.9	99.8	99.7	100.1	99.2	0.1	0.6	2.6	-1.0	-3.9	3.3	4.8	-1.6
Q3	99.6	99.8	100.0	99.4	99.2	100.9	100.4	98.6	-0.9	-0.2	1.3	-1.3	-6.8	3.4	3.9	-1.4
Q4	99.4	99.7	99.7	99.5	97.9	100.2	100.6	99.6	-1.4	-0.3	-0.1	-1.8	-7.2	2.5	2.0	-1.1
1999 Q1	99.5	100.3	99.1	99.4	97.2	101.7	100.9	100.1	-0.7	0.0	-1.3	-0.8	-2.9	2.2	1.0	-0.4
Q2	99.7	101.0	98.4	98.2	98.2	101.6	100.6	100.6	0.0	1.0	-1.3	-1.7	-1.6	1.9	0.5	1.4
Q3	99.9	101.1	98.5	97.6	99.3	101.7	100.8	100.2	0.3	1.3	-1.4	-1.7	0.1	0.8	0.5	1.6
Q4	99.9	101.0	98.2	96.3	100.0	101.4	101.0	100.5	0.5	1.3	-1.4	-3.3	2.2	1.2	0.4	0.8
2000 Q1	100.6	102.1	99.2	96.7	100.4	101.7	101.1	101.0	1.1	1.8	0.1	-2.7	3.4	0.0	0.2	0.9
Q2	100.5	101.3	99.5	95.8	100.1	102.4	101.7	101.4	0.8	0.3	1.1	-2.4	1.9	0.8	1.2	0.9
Q3	101.4	101.1	101.4	97.5	101.3	103.8	102.6	101.7	1.5	0.0	2.9	-0.2	2.0	2.0	1.8	1.5
Q4	101.9	101.1	102.2	98.4	101.2	103.6	103.7	103.3	2.0	0.1	4.0	2.2	1.2	2.2	2.7	2.8
2001 Q1	102.4	102.5	103.0	97.7	100.1	104.0	104.8	103.9	1.7	0.4	3.8	1.0	-0.3	2.3	3.6	2.8
Q2	102.2	101.9	102.1	97.1	99.7	104.5	105.6	105.5	1.7	0.6	2.7	1.4	-0.4	2.0	3.8	4.0

Source: Singapore Department of Statistics

TABLE 4: EXTERNAL TRADE

Year-on-Year % Change															
Period	Total Trade	Exports	Domestic Exports					Re-exports	Imports	Exports	Domestic Exports			Re-exports	Imports
			Total	Oil	Non-oil						Total	Oil	Non-oil		
					Total	Electronics	Non-electronics								
	At Current Prices									At 1995 Prices					
1992	2.2	1.4	0.5	-22.1	8.4	11.9	3.3	3.3	2.9	7.6	8.9	-11.0	14.6	5.5	6.5
1993	16.4	15.6	13.7	8.6	14.9	21.4	4.9	19.1	17.1	17.2	16.1	15.6	16.3	18.9	18.9
1994	18.1	23.3	17.4	-3.9	22.5	30.3	8.4	33.4	13.7	27.6	24.0	11.0	26.8	33.5	14.7
1995	13.2	13.7	11.2	-1.9	13.7	16.3	8.1	17.4	12.7	16.5	14.9	-0.1	17.7	18.8	14.0
1996	5.1	5.2	5.2	20.6	2.7	4.3	-1.0	5.3	5.0	10.1	9.3	3.6	10.3	11.1	9.5
1997	5.7	5.3	3.8	-3.9	5.3	3.4	9.8	7.4	6.2	11.6	11.2	0.1	12.9	12.2	10.2
1998	-7.5	-1.0	-1.5	-15.3	0.9	-0.5	4.2	-0.3	-13.6	-0.3	0.7	8.5	-0.4	-1.6	-12.9
1999	8.1	5.7	9.8	12.4	9.5	6.1	16.8	0.2	10.8	5.4	8.1	-9.3	10.6	1.6	9.5
2000	22.9	22.4	16.9	51.0	11.8	10.1	15.0	30.7	23.4	16.8	10.2	-6.0	12.2	26.7	14.8
1998 Q1	4.1	9.7	6.7	-14.1	10.7	8.5	15.9	14.0	-1.1	9.3	7.7	11.5	7.2	11.4	-0.7
Q2	-7.7	-1.3	-3.3	-19.5	-0.2	-2.1	4.3	1.4	-13.8	-0.9	-1.2	-2.2	-1.0	-0.5	-13.8
Q3	-9.3	-1.1	-0.9	-15.4	1.4	-0.6	6.0	-1.3	-16.9	-2.3	-1.4	4.2	-2.1	-3.5	-17.4
Q4	-15.5	-9.7	-7.4	-11.8	-6.7	-6.6	-7.0	-12.8	-21.0	-5.8	-1.5	22.9	-4.3	-11.8	-18.0
1999 Q1	-9.4	-9.0	-3.8	-7.9	-3.2	-4.8	0.2	-15.7	-9.9	-5.5	0.6	3.5	0.2	-13.7	-7.2
Q2	8.0	5.2	9.8	6.9	10.3	5.4	21.1	-1.0	11.1	4.6	8.2	-2.0	9.7	-0.4	9.8
Q3	10.3	5.2	9.6	13.7	9.0	5.1	17.3	-0.6	16.0	5.1	7.4	-20.0	11.2	1.9	15.0
Q4	24.6	21.9	23.6	37.8	21.5	18.4	28.5	19.6	27.4	17.2	15.6	-18.5	20.7	19.8	21.2
2000 Q1	23.7	22.8	19.4	53.5	14.5	13.4	16.8	27.9	24.6	17.4	10.7	-21.0	15.6	27.9	16.8
Q2	20.7	18.7	13.4	42.6	9.1	6.5	14.1	26.5	22.9	13.1	6.9	-14.8	9.7	22.7	13.2
Q3	26.8	28.4	22.9	59.6	17.8	19.9	13.9	36.6	25.1	22.3	16.8	4.9	18.0	30.3	15.9
Q4	20.6	19.9	12.4	49.3	6.3	2.0	15.6	31.1	21.4	14.5	6.8	12.1	6.3	26.0	13.5
2001 Q1	9.9	10.6	6.4	20.8	3.6	-3.8	18.4	16.5	9.1	8.0	5.9	19.1	4.5	11.0	4.0
Q2	-5.1	-2.5	-7.6	1.7	-9.4	-13.7	-1.7	4.3	-7.8	-4.4	-8.3	-4.1	-8.7	0.8	-10.3

Source: Singapore Trade Development Board

TABLE 5: NON-OIL DOMESTIC EXPORTS by selected countries

Period	All Countries	ASEAN				NIEs				USA	Japan	EU 15	Others	
		Total	of which:			Total	Hong Kong	S. Korea	Taiwan					
			Malaysia	Thailand	Philippines									
	Year-on-Year % Change													
	1996	2.7	-0.2	-3.4	-0.4	21.0	-1.2	-4.8	16.6	-5.8	5.8	5.2	2.3	3.1
	1997	5.3	7.1	4.9	1.3	40.3	9.2	9.7	-1.7	16.6	4.6	-15.4	12.0	6.1
	1998	0.9	-9.6	-9.7	-9.1	-10.2	-10.4	-9.3	-22.2	-4.6	3.1	-8.7	11.1	16.3
	1999	9.5	11.7	12.4	18.5	11.4	20.2	2.2	50.3	32.3	2.2	27.7	7.0	7.6
	2000	11.8	17.1	19.6	13.3	13.7	35.4	17.0	44.2	52.1	1.7	26.8	-5.3	21.0
	1999 Q1	-3.2	-8.6	-7.1	-5.7	-14.3	-7.6	-21.3	43.3	-10.0	-6.8	-0.9	6.4	0.1
	Q2	10.3	9.9	12.5	11.4	15.3	12.2	-14.8	50.2	44.6	2.3	38.9	10.2	13.0
	Q3	9.0	10.4	6.0	31.0	14.8	25.7	12.0	44.8	37.5	3.2	27.3	6.3	1.9
	Q4	21.5	35.8	38.3	43.0	32.1	52.8	41.7	60.3	62.7	9.9	48.4	5.6	15.4
	2000 Q1	14.5	26.6	29.0	17.0	41.5	54.6	44.7	60.5	62.8	4.5	33.6	-9.3	14.7
	Q2	9.1	17.5	15.6	21.5	20.5	46.4	27.7	53.2	64.3	-4.7	14.2	-11.6	21.3
	Q3	17.8	25.6	34.4	12.1	6.7	44.6	16.1	53.1	76.6	6.9	40.1	-3.4	25.9
	Q4	6.3	2.8	4.0	4.2	-4.4	6.3	-9.3	19.3	16.3	0.1	22.5	2.2	20.9
	2001 Q1	3.6	8.9	-1.4	-1.3	85.9	-8.1	-8.2	-3.8	-11.0	-5.1	17.9	1.8	20.0
	Q2	-9.4	-9.9	-10.0	-14.3	-3.0	-17.9	-5.4	-19.8	-28.3	-16.9	9.8	-3.1	-5.1
	% Share of All Countries													
	1996	100.0	19.8	12.9	4.0	1.6	12.5	6.2	2.7	3.6	29.2	9.5	18.2	10.9
	1997	100.0	20.1	12.8	3.9	2.1	13.0	6.5	2.5	4.0	29.0	7.6	19.3	10.9
	1998	100.0	18.0	11.5	3.5	1.9	11.5	5.8	2.0	3.7	29.7	6.9	21.3	12.6
	1999	100.0	18.4	11.8	3.8	1.9	12.7	5.4	2.7	4.5	27.7	8.0	20.8	12.4
	2000	100.0	19.3	12.6	3.8	1.9	15.3	5.7	3.5	6.2	25.2	9.1	17.6	13.4

Source: Singapore Trade Development Board

TABLE 6: LABOUR MARKET

Period	Average Monthly Earnings	Labour Productivity								Unit Labour Cost		Changes in Employment									
		All Sectors	Manu- facturing	Con- struction	Wholesale & Retail Trade	Hotels & Rest- aurants	Transport & Comms.	Financial Services	Business Services	Overall Economy	Manu- facturing	All Sectors	Manu- facturing	Con- struction	Wholesale & Retail Trade	Hotels & Rest- aurants	Transport & Comms.	Financial Services	Business Services		
		Year-on-Year % Change										Thousand									
1992	7.5	3.2	2.8	14.5	-0.8	6.0	1.7	4.8	3.2	3.5	6.5	40.3	-7.9	11.3	8.1	1.0	6.2	1.8	6.5		
1993	6.3	9.2	11.6	-4.9	18.6	6.4	6.1	18.7	1.6	-0.9	-2.5	70.8	-3.1	26.4	12.3	2.6	4.8	4.8	7.3		
1994	8.8	6.6	11.3	4.0	10.0	0.8	8.1	3.2	4.3	2.3	-3.1	72.1	11.6	13.1	8.6	4.8	2.6	5.1	10.9		
1995	6.4	2.9	6.5	-2.9	6.2	3.5	6.1	-4.0	-0.9	2.5	-1.4	109.0	12.5	40.6	11.4	2.7	9.3	4.8	13.2		
1996	5.8	1.3	2.9	-2.0	3.2	2.9	3.4	1.2	0.2	2.6	2.3	102.6	-7.7	52.8	5.7	3.2	6.2	5.4	13.0		
1997	5.7	2.3	5.5	-3.3	3.9	1.9	4.6	9.3	-0.4	0.7	0.7	120.3	3.7	45.8	7.5	5.2	6.2	8.1	18.0		
1998	2.8	-2.7	1.4	-4.2	-3.3	-9.0	4.7	-10.9	-6.4	3.9	-1.1	-23.4	-27.6	-4.7	-11.9	-1.6	-0.5	-2.0	8.5		
1999	2.7	6.3	17.6	-2.3	8.8	3.9	6.2	-0.3	-4.5	-9.1	-17.3	39.9	4.4	-18.0	3.4	1.4	4.5	4.7	17.4		
2000	8.9	5.6	11.6	-3.3	10.9	5.8	4.0	-3.9	-3.3	-0.9	-7.1	108.5	25.8	1.1	15.2	3.5	10.4	8.1	23.0		
1998 Q1	4.8	-1.3	5.4	1.6	0.0	-8.2	3.9	-15.2	-5.9	4.9	-3.5	9.1	-1.0	7.1	-1.7	-3.7	-0.6	-1.0	3.3		
Q2	4.3	-4.0	0.0	-2.3	-4.7	-8.3	4.5	-17.8	-5.0	7.1	1.7	-5.9	-8.0	0.9	-5.0	-0.4	0.3	0.4	0.7		
Q3	2.9	-4.2	-1.5	-6.0	-4.6	-12.5	4.1	-12.9	-7.5	5.4	1.1	-20.3	-10.6	-4.1	-3.8	-0.5	-0.4	-3.8	5.3		
Q4	-0.3	-0.9	2.9	-9.0	-3.9	-7.1	6.3	4.1	-7.4	-0.9	-3.2	-6.3	-7.9	-8.6	-1.3	3.0	0.2	2.3	-0.8		
1999 Q1	-0.3	3.2	14.1	0.3	1.4	-0.7	6.3	-5.2	-3.4	-7.6	-14.4	-9.6	-3.3	-10.5	-0.2	-2.9	-0.2	-0.6	2.7		
Q2	1.0	8.3	20.5	-4.6	8.9	4.5	6.0	14.3	-5.5	-13.5	-22.6	15.5	4.1	-3.3	0.0	0.7	1.0	1.1	7.0		
Q3	3.5	7.5	19.1	-3.9	11.0	5.1	6.5	1.8	-4.0	-11.3	-19.8	7.7	2.4	-5.1	-0.8	-0.1	1.8	2.0	2.8		
Q4	5.9	6.2	15.7	-1.0	13.9	6.7	5.9	-11.0	-5.2	-4.6	-13.0	26.3	1.2	0.9	4.4	3.8	2.0	2.1	4.9		
2000 Q1	8.1	6.7	11.4	-7.2	15.0	8.3	6.2	4.0	-4.6	-1.7	-6.4	13.7	-0.5	-2.2	3.9	-1.8	2.0	1.7	5.9		
Q2	7.2	4.6	11.0	-2.1	11.4	4.4	4.9	-11.6	-2.9	-0.5	-6.5	29.7	6.5	2.3	4.5	0.4	2.7	2.0	6.8		
Q3	8.7	5.5	11.1	-1.3	9.9	8.0	4.3	-5.1	-2.7	-0.4	-5.8	30.0	11.1	1.7	2.5	-0.2	2.6	1.9	4.4		
Q4	11.1	5.5	12.5	-2.4	7.8	2.9	0.7	-1.3	-3.2	-1.1	-9.5	35.1	8.7	-0.6	4.3	5.1	3.1	2.6	6.0		
2001 Q1	5.7	-0.9	-3.2	0.8	1.9	-1.8	-1.1	-5.7	-6.4	8.7	10.0	23.2	-1.1	-2.2	4.5	-2.0	1.5	1.7	11.0		
Q2	6.0	-5.5	-13.4	1.2	-5.5	-3.6	-2.2	-5.7	-7.6	12.5	19.4	3.3	-5.1	-4.0	2.2	0.6	1.3	1.6	4.1		

Source: Singapore Department of Statistics /
Ministry of Manpower

TABLE 7: MONETARY

End of Period	Money Supply								Interest Rates				
	Narrow Money M1	Broad Money M2	Broad Money M3	Reserve Money	Narrow Money M1	Broad Money M2	Broad Money M3	Reserve Money	Prime Lending Rate	3-month Interbank Rate	3-month SIBOR (US\$)	Banks	
												Savings Rate	12-month Fixed Deposit Rate
	S\$ Billion				Year-on-Year % Change				Rate % Per Annum				
1992	18.5	75.7	101.5	13.5	12.7	8.9	9.5	10.6	5.55	2.31	3.50	1.79	2.97
1993	22.9	82.1	111.4	14.7	23.6	8.5	9.7	8.4	5.34	3.31	3.38	1.59	2.79
1994	23.4	94.0	125.8	15.6	2.3	14.4	13.0	6.2	6.49	4.38	6.50	2.93	4.23
1995	25.3	102.0	136.7	17.0	8.3	8.5	8.7	9.4	6.26	2.56	5.56	2.72	4.01
1996	27.0	112.0	148.5	18.2	6.7	9.8	8.6	6.7	6.26	3.13	5.56	2.72	3.99
1997	27.5	123.4	160.8	19.2	1.7	10.3	8.3	5.6	6.96	6.75	5.81	3.08	4.41
1998	27.2	160.8	173.6	16.6	-1.0	30.2	8.0	-13.3	5.90	1.88	5.13	1.43	2.51
1999	31.1	174.5	186.2	21.4	14.2	8.5	7.3	28.6	5.80	2.75	6.06	1.36	2.46
2000	33.3	170.9	182.9	18.5	6.9	-2.0	-1.8	-13.7	5.80	2.81	6.39	1.30	2.42
1998 Q1	26.6	128.0	164.8	19.1	-6.5	9.4	7.1	-1.3	7.74	5.00	5.69	3.46	5.32
Q2	24.9	128.7	165.5	18.8	-11.8	8.1	5.9	2.5	7.79	6.25	5.69	3.49	5.38
Q3	24.9	132.6	169.5	15.2	-11.0	10.0	7.4	-18.3	7.54	4.13	5.31	3.24	4.94
Q4	27.2	160.8	173.6	16.6	-1.0	30.2	8.0	-13.3	5.90	1.88	5.13	1.43	2.51
1999 Q1	29.0	163.6	176.0	17.3	8.9	27.8	6.8	-9.5	5.80	1.75	5.00	1.36	2.46
Q2	29.6	167.9	179.6	16.7	18.9	30.4	8.5	-10.9	5.80	1.88	5.34	1.36	2.46
Q3	28.8	170.3	181.8	17.0	15.4	28.4	7.3	11.5	5.80	2.50	6.06	1.36	2.46
Q4	31.1	174.5	186.2	21.4	14.2	8.5	7.3	28.6	5.80	2.75	6.06	1.36	2.46
2000 Q1	32.1	172.7	184.5	17.7	10.6	5.6	4.9	2.2	5.85	2.38	6.28	1.33	2.46
Q2	33.1	171.7	183.3	17.7	11.6	2.3	2.1	5.8	5.85	2.50	6.78	1.33	2.46
Q3	31.7	166.6	178.4	17.4	10.3	-2.2	-1.9	2.5	5.85	2.56	6.81	1.33	2.46
Q4	33.3	170.9	182.9	18.5	6.9	-2.0	-1.8	-13.7	5.80	2.81	6.39	1.30	2.42
2001 Q1	34.7	176.4	186.1	19.0	8.0	2.2	0.8	7.3	5.80	2.38	4.88	1.30	2.38
Q2	34.2	175.1	184.7	18.4	3.4	1.9	0.8	4.3	5.80	2.25	3.83	1.30	2.38

Source: Monetary Authority of Singapore

TABLE 8: FISCAL

Period	Operating Revenue							Expenditure			Surplus (+)/ Deficit (-)	
	Total	Tax Revenue					Non-tax Revenue	Total	Operating	Development		
		Total	Income Tax	Asset Tax	Stamp Duty	GST						
	S\$ Million											% of GDP
FY1992	17772	14237	7147	1498	673	0	3535	12161	8512	3649	5611	6.8
FY1993	20656	16224	7735	1645	1107	0	4432	12896	9001	3895	7759	8.0
FY1994	23713	19000	8296	1844	1394	1523	4714	14043	10072	3971	9670	8.9
FY1995	25255	19896	8773	1757	1271	1626	5359	17410	11449	5962	7844	6.5
FY1996	28930	23205	10951	1823	1878	1746	5724	23286	14159	9128	5643	4.3
FY1997	29181	23011	10195	2335	1688	1927	6170	23043	14080	8963	6139	4.3
FY1998	27911	21551	11331	1529	953	1657	6360	26934	14652	12282	977	0.7
FY1999	30645	22624	11748	1314	1413	1995	8022	25079	14868	10212	5566	3.8
FY 2000	33940	25628	13539	1606	1256	2121	8313	27909	18415	9494	6031	3.7
FY 2001 (Estimated)	34271	28332	14764	2120	1700	2400	5939	28055	18656	9399	6217	4.3
1998 Q1	6305	5025	1616	659	380	287	1280	7376	4547	2829	-1071	-3.1
Q2	7141	5363	2861	389	255	523	1778	4841	2834	2007	2300	6.7
Q3	7140	5957	3200	488	224	527	1183	5268	2893	2375	1872	5.4
Q4	7626	5809	3289	313	222	352	1817	7308	3962	3346	318	0.9
1999 Q1	6004	4422	1981	339	252	256	1582	9516	4962	4554	-3512	-10.7
Q2	6522	4909	2537	241	262	622	1613	4390	2454	1936	2132	6.0
Q3	9072	7182	4377	389	387	539	1890	4942	2874	2068	4130	11.3
Q4	7021	5065	2729	212	379	360	1956	6098	3617	2481	923	2.5
2000 Q1	8030	5468	2105	472	384	474	2562	9649	5922	3727	-1619	-4.4
Q2	7492	5952	3298	285	352	724	1540	3928	2646	1282	3564	9.2
Q3	10005	7937	4956	462	354	470	2068	4692	3245	1447	5313	13.0
Q4	8000	5922	3064	266	289	576	2079	9706	7084	2622	-1706	-4.0
2001 Q1	8443	5817	2221	593	261	351	2626	9583	5440	4143	-1140	-2.9
Q2	7602	6699	3824	590	175	624	903	5551	3582	1969	2051	5.3

Source: Ministry of Finance

TABLE 9: BALANCE OF PAYMENTS – Current Account

Period	Current Account Balance		Goods Account			Services Account						Income Balance	Current Transfers
			Exports	Imports	Balance	Total	Transportation	Travel	Insurance	Govt. Servs	Other		
	S\$ Million	% of GNP	S\$ Million										
1992	9635	11.7	108432	111400	-2967	10854	-1330	5239	-596	-14	7556	2522	-774
1993	6804	7.3	125802	130204	-4401	11757	-1359	5253	-599	-8	8469	315	-866
1994	17413	16.0	149566	147497	2069	13970	-1153	4450	-674	10	11337	2384	-1010
1995	21119	17.4	167897	166512	1384	17407	-1376	4413	-878	-36	15284	3583	-1255
1996	18080	13.9	177680	174543	3136	14417	-1538	2436	-855	1	14374	2031	-1505
1997	26618	17.8	186708	185048	1660	17093	-1721	1709	-823	-28	17957	9600	-1736
1998	34031	23.3	185035	160301	24735	2555	-2273	414	-328	-27	4767	8579	-1837
1999	36866	24.0	195798	176888	18911	8569	-2903	1015	-490	-50	10997	11358	-1972
2000	37576	22.2	239512	219859	19653	9710	-4602	1352	-321	-47	13329	10555	-2342
1998 Q1	6208	n.a.	46651	42109	4542	-215	-528	230	-166	-12	260	2330	-449
Q2	8487	n.a.	45590	39118	6473	101	-554	-47	-50	-5	757	2368	-454
Q3	9740	n.a.	47546	40374	7172	991	-744	303	-81	-8	1523	2048	-470
Q4	9596	n.a.	45248	38700	6548	1678	-447	-71	-30	-2	2228	1834	-464
1999 Q1	8013	n.a.	42320	37766	4554	1110	-547	460	-68	-18	1283	2839	-490
Q2	9468	n.a.	48087	43255	4831	2339	-1020	173	-150	-6	3342	2777	-480
Q3	8897	n.a.	50265	46683	3582	2987	-657	433	-113	-12	3337	2821	-494
Q4	10488	n.a.	55127	49183	5943	2133	-679	-51	-159	-13	3035	2921	-509
2000 Q1	8975	n.a.	52092	47309	4784	2040	-1025	546	8	-22	2533	2664	-512
Q2	8771	n.a.	57195	53465	3730	2693	-1063	196	-105	-9	3673	2886	-537
Q3	10421	n.a.	64211	58851	5360	3092	-1173	492	-95	-9	3875	2542	-572
Q4	9408	n.a.	66014	60234	5779	1886	-1341	118	-130	-9	3248	2464	-721
2001 Q1	9918	n.a.	57599	51834	5765	2310	-1234	296	119	-21	3150	2424	-581
Q2	10096	n.a.	55668	49259	6409	2057	-1391	13	76	-6	3365	2206	-576

Source: Singapore Department of Statistics

TABLE 10: BALANCE OF PAYMENTS – Capital & Financial Accounts

S\$ Million											
Period	Capital & Financial Account Balance	Capital Account	Financial Account						Errors & Omissions	Overall Balance	Official Foreign Reserves (End-of-Period)
			Total	Direct Investment	Portfolio Investment	Other Investment					
						Total	Banks	Others			
1992	2859	-62	2921	1446	4056	-2580	-1173	-1408	-2535	9959	65788
1993	-2074	-115	-1958	4095	-8024	1971	4391	-2421	7423	12154	77867
1994	-13633	-129	-13504	6069	-11801	-7772	1707	-9479	3522	7302	85166
1995	-1345	-101	-1244	7577	-10430	1609	7904	-6295	-7600	12174	97337
1996	-6999	-196	-6803	4998	-16480	4678	6344	-1665	-674	10407	107751
1997	-16555	-257	-16298	5356	-19310	-2344	9362	-11705	1793	11856	119617
1998	-36884	-378	-36507	9642	-11728	-34420	-17689	-16731	7834	4981	124584
1999	-31308	-324	-30984	5400	-12009	-24375	-12636	-11739	1764	7321	128457
2000	-19932	-281	-19651	3645	-23889	593	15083	-14490	-5809	11835	139260
1998 Q1	-11434	-84	-11351	2317	-1642	-12025	-7877	-4149	5567	340	119956
Q2	-15603	-108	-15496	2001	-3171	-14326	-979	-13347	8326	1210	121196
Q3	-5767	-101	-5666	2205	-3568	-4303	-7985	3682	-3108	866	122062
Q4	-4080	-86	-3994	3119	-3348	-3766	-849	-2917	-2951	2566	124584
1999 Q1	-19983	-83	-19900	4194	-2224	-21871	-5965	-15906	11556	-415	124327
Q2	-8665	-93	-8572	73	-4093	-4553	-358	-4196	3997	4799	125856
Q3	-406	-82	-324	171	-2294	1799	-9026	10825	-8496	-6	129593
Q4	-2253	-66	-2187	962	-3398	250	2713	-2463	-5293	2943	128457
2000 Q1	-9140	-71	-9069	1569	-6796	-3842	-1645	-2196	-2006	-2171	128159
Q2	279	-79	358	575	-6196	5979	6245	-265	-3191	5860	134431
Q3	49	-71	120	583	-5262	4799	7489	-2691	-6076	4394	135953
Q4	-11120	-59	-11061	918	-5635	-6344	2995	-9338	5465	3753	139260
2001 Q1	-10080	-65	-10016	303	-3774	-6545	-1185	-5360	1217	1054	140327
Q2	-14818	-79	-14739	554	-2481	-12812	-5848	-6964	351	-4372	136000

Source: Singapore Department of Statistics /
Monetary Authority of Singapore



TABLE 11: EXCHANGE RATES

End of Period	Singapore Dollar Per									
	US Dollar	Pound Sterling	EURO	100 Swiss Franc	100 Japanese Yen	Malaysian Ringgit	Hong Kong Dollar	100 New Taiwan Dollar	100 Korean Won	Australian Dollar
1992	1.6449	2.4867		112.39	1.3198	0.6306	0.2125	6.4758	0.2086	1.1312
1993	1.6080	2.3802		108.61	1.4364	0.5953	0.2082	6.0338	0.1989	1.0885
1994	1.4607	2.2782		111.18	1.4628	0.5707	0.1888	5.5370	0.1850	1.1341
1995	1.4143	2.1884		122.61	1.3744	0.5567	0.1829	5.1821	0.1827	1.0540
1996	1.3998	2.3670		103.80	1.2046	0.5538	0.1809	5.0919	0.1657	1.1150
1997	1.6755	2.7771		115.23	1.2893	0.4313	0.2162	5.1433	0.0993	1.0935
1998	1.6605	2.7666		120.15	1.4484	0.4370	0.2143	5.1552	0.1394	1.0190
1999	1.6660	2.6914	1.6810	104.50	1.6272	0.4384	0.2143	5.3142	0.1471	1.0896
2000	1.7315	2.5818	1.6095	105.86	1.5091	0.4557	0.2220	5.2224	0.1377	0.9605
1998 Q1	1.6060	2.6926		105.54	1.2200	0.4412	0.2073	4.8951	0.1155	1.0673
Q2	1.7068	2.8461		112.16	1.2141	0.4098	0.2203	4.9509	0.1237	1.0462
Q3	1.6850	2.8783		121.59	1.2456	0.4434	0.2175	4.8954	0.1216	1.0070
Q4	1.6605	2.7666		120.15	1.4484	0.4370	0.2143	5.1552	0.1394	1.0190
1999 Q1	1.7322	2.7914	1.8548	116.21	1.4385	0.4558	0.2235	5.2253	0.1413	1.0886
Q2	1.7013	2.6787	1.7562	109.76	1.4105	0.4477	0.2193	5.2736	0.1468	1.1255
Q3	1.7026	2.8002	1.8129	113.28	1.5941	0.4480	0.2192	5.3556	0.1399	1.1124
Q4	1.6660	2.6914	1.6810	104.50	1.6272	0.4384	0.2143	5.3142	0.1471	1.0896
2000 Q1	1.7189	2.7406	1.6488	103.48	1.6279	0.4523	0.2208	5.6394	0.1554	1.0431
Q2	1.7294	2.6252	1.6468	105.76	1.6393	0.4551	0.2218	5.6139	0.1551	1.0348
Q3	1.7410	2.5479	1.5336	100.62	1.6122	0.4582	0.2233	5.5587	0.1561	0.9472
Q4	1.7315	2.5818	1.6095	105.86	1.5091	0.4557	0.2220	5.2224	0.1377	0.9605
2001 Q1	1.8005	2.5714	1.5825	103.85	1.4471	0.4738	0.2309	5.4860	0.1353	0.8822
Q2	1.8207	2.5663	1.5407	101.23	1.4670	0.4791	0.2334	5.2866	0.1400	0.9228

Source: Monetary Authority of Singapore

