

## 3.1 External Outlook

### Subdued Growth Ahead

#### Weaker global growth in 2008 ...

The global economy is expected to slow in 2008, led by the US and other developed economies, amidst falling asset prices and tighter credit conditions. This will have a negative impact on Asia ex-Japan, although the region's more diversified export markets, robust corporate and household balance sheets, and limited exposure to US mortgage-backed securities should cushion the downside to growth. However, at this juncture, the global economic environment is highly uncertain and a more adverse outcome cannot be ruled out. Notably, there is the risk of negative feedback between the real and financial sectors in the US, where slower economic growth could lead to further falls in house prices and greater defaults on consumer and corporate loans. These in turn could cause banks to tighten credit standards and further depress economic activity. In the event that the US economy experiences a deeper and more protracted downturn, the contagion to the rest of the world, including Asia ex-Japan, will be more significant, and global growth will be much weaker than is currently envisaged.

#### ... led by downturn in the US and other developed economies.

Compared to the forecasts made in October 2007, the outlook for the global economy in 2008 has softened sharply, owing largely to lower growth projections for the major industrial economies. (Table 3.1) The growth revision broadly mirrors the movement in the OECD Composite Leading Indicators for developed economies, which have been declining since June 2006. (Chart 3.1)

The US economy is likely to experience another year of sub-trend growth in 2008. Economic activity is expected to be sluggish and may contract in H1 2008 as the fallout from the housing market correction spills over to the wider economy. The consequent increase in job losses, coupled with rising inflation, will erode real personal income, which will then weigh on household consumption.

**Table 3.1**  
Forecasts of GDP Growth

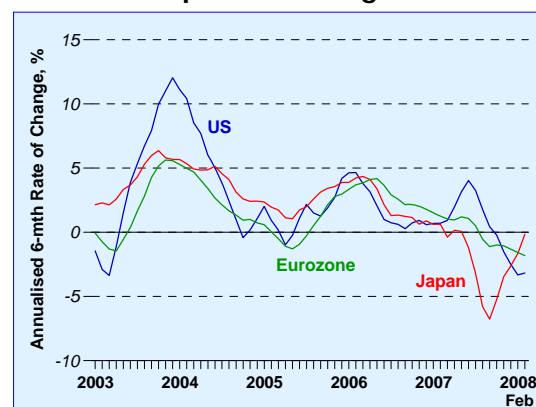
	Oct 07	Apr 08	
	2008F	2008F	2009F
<b>Total*</b>	<b>4.6</b>	<b>3.9</b>	<b>4.2</b>
Industrial Countries*	2.2	1.5	1.9
US	2.4	1.3	2.1
Eurozone	2.0 <sup>#</sup>	1.5	1.7
Japan	1.9	1.3	1.7
NIE-3*	5.0	4.5	4.8
Hong Kong	5.2	4.7	4.9
Korea	5.1	4.5	4.8
Taiwan	4.6	4.1	4.6
ASEAN-4*	5.7	5.5	5.6
Indonesia	6.2	5.9	5.9
Malaysia	5.9	5.5	5.6
Thailand	4.8	4.7	5.0
Philippines	5.8	5.3	5.4
China	10.7	9.9	9.3
India (FY)	8.2	7.7	8.2

Source: Consensus Economics Inc., October 2007 and April 2008

\* Weighted by shares in Singapore's non-oil domestic exports.

<sup>#</sup> Data for Eurozone covers 13 member countries.

**Chart 3.1**  
OECD Composite Leading Indicators



Source: Datastream

The economy is expected to improve somewhat in the second half of the year, when the government's US\$150 billion (around 1% of GDP) fiscal package for households and businesses takes effect. As at April 2008, the consensus forecast for US economic growth this year stood at 1.3%, a full percentage point below the forecast in October 2007.

In the Eurozone, GDP growth is also forecast to moderate in 2008. In particular, increased uncertainties owing to turbulence in the financial markets and tight credit conditions will continue to subdue domestic demand, while softer external demand and the strong euro will constrain export growth. The weaker growth outlook is also consistent with the continued fall in a number of forward-looking indicators in March, including the consumer confidence and Purchasing Managers' indices. (Chart 3.2)

Meanwhile, the near-term prospects for the Japanese economy have worsened. The Tankan Business Conditions Diffusion Index has declined steadily (Chart 3.3), while business confidence is at a three-year low. Corporate profits in Japan have also fallen, as producer costs rose sharply and export earnings were dampened by the strong yen. Private consumption is also likely to soften, as real income has declined steadily over the last six months.

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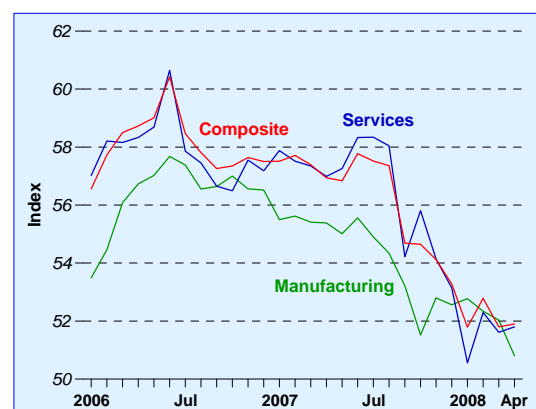
#### **A number of mitigating factors could help cushion the slowdown in Asia ex-Japan.**

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While growth in Asia ex-Japan will slow in tandem with the easing in the G3 economies, the slowdown will be mitigated by several factors.

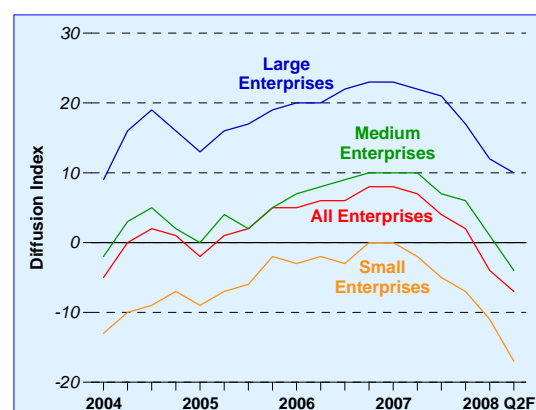
First, domestic demand in Asia is expected to remain relatively firm, as household and corporate balance sheets are generally healthy. (Tables 3.2 & 3.3) Moreover, primary producers in Southeast Asia will benefit from high commodity prices. The strong pipeline of FDI approvals in 2007 will also support business investment, and strong fiscal positions will allow some governments to pump-prime the economy, should it become necessary.

**Chart 3.2**  
**Eurozone PMI**



Source: Reuters

**Chart 3.3**  
**Japan Tankan Survey of Business Conditions**



Source: Bank of Japan

**Table 3.2**  
**Asian Household Indebtedness**  
(% of GDP)

	2003	2004	2005	2006	2007
Mortgage					
NEA	26.8	27.6	29.0	30.3	29.9
SEA	9.4	10.0	10.5	10.5	10.4
Non-mortgage					
NEA	14.5	15.2	16.1	15.7	15.9
SEA	12.0	12.4	13.0	12.4	12.1
Total					
NEA	41.3	42.8	45.1	46.0	45.8
SEA	21.5	22.4	23.5	22.8	22.5

Source: CEIC

Note for Table 3.2 and 3.4: NEA comprises Hong Kong, Korea and Taiwan; SEA comprises Indonesia, Malaysia, the Philippines and Thailand.

Figures are averages weighted by 2006 nominal GDP.

Due to rounding, figures may not sum to total.

Second, Asian banks have strengthened their balance sheets after the Asian crisis and have limited exposure to US mortgage-backed securities. (Table 3.4) They are thus better positioned to cope with external shocks, and credit tightening in the developed markets will be less likely to impinge upon real economic activity in the region.

Third, while exports to the US are likely to slow, this will be partly cushioned by shipments to the emerging economies in the Middle East, Eastern Europe and Latin America.

**Table 3.3**  
**Financial Ratios of Non-financial Corporations (Median)**  
(%)

	2003	2004	2005	2006	2007
Return-on-Assets					
NEA	4.7	5.2	4.8	5.0	6.6
SEA	4.8	5.3	5.0	5.3	5.7
Debt-to-Equity Ratio					
NEA	42.9	43.0	41.3	39.2	33.9
SEA	33.1	32.7	35.5	34.9	32.5

Source: Thomson Financial

Note: NEA comprises China, Hong Kong, Korea, and Taiwan; SEA comprises Indonesia, Malaysia, the Philippines and Thailand.

**Table 3.4**  
**Selected Ratios of Asian Banks**  
(%)

	2003	2004	2005	2006	2007*
Non-performing Loan Ratio					
NEA	N/A	2.0	1.4	1.2	1.0
SEA	10.8	9.0	7.6	6.2	4.9
Capital Adequacy Ratio					
NEA	12.2	12.7	12.7	12.6	12.1
SEA	16.2	16.4	16.3	16.7	15.8

Source: CEIC

Note: Figures are simple averages.

\* Latest available figures.

## The US-Asia “Weak Synchronicity” Hypothesis – Some Evidence from Recent Trade Data

### Can regional demand offset US weakness?

The US-Asia decoupling hypothesis has continued to be keenly debated, amidst the weakening of the US economy and the still-firm performance in much of Asia. An earlier study of this issue in the *Review*<sup>1</sup> concluded that Asian exports remained vulnerable to a downturn in the US – and more broadly to a downturn in the G3 economies – because final demand for goods manufactured in Asia ultimately originated from the developed countries. However, the study also pointed

<sup>1</sup> “Revisiting the US-Asia Decoupling Hypothesis” may be found in the October 2007 issue of the *Review*.

out that there could be some scope for substitution of demand in Asia in the short run if the US and Asia were experiencing only “weak synchronicity” in economic activity, rather than a decoupling. Thus, in the event of a relatively mild downturn in the US economy, other regions of the world could provide some short-term buffer to Asian growth.

To shed more light on the validity of the weak synchronicity factor in explaining growth in Asia, the rest of this section looks at the recent trade performance in the East Asian region.<sup>2</sup>

**Regional export performance appears resilient despite slowing US economic activity ...**

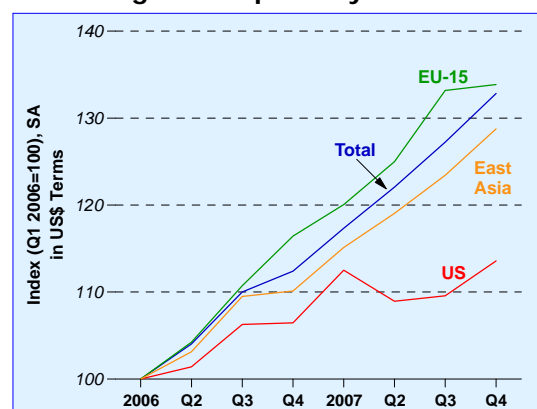
Recent regional export data indicate that growth momentum has held up, even though US economic activity weakened significantly in Q4 last year, due to higher intra-regional demand.

Indeed, while regional exports to the US have been lagging for several quarters, exports between countries in the East Asian region have continued to post robust growth. (Chart 3.4) Intra-regional exports contributed some 1.5% points to an average quarterly growth of around 4%, outstripping the 0.3% point contribution for exports to the US market. (Chart 3.5) This trend has held up in the first quarter of 2008, based on available data for China, Korea, Singapore and Taiwan.

**... supported by strong domestic demand, especially from China.**

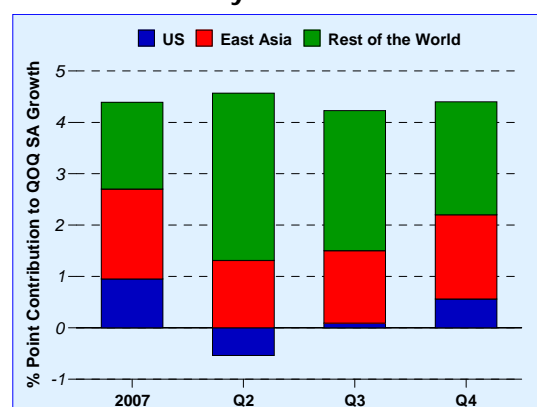
Strong export growth in East Asia has been supported by domestic demand, which has grown more rapidly in 2007 than on average between 2001 and 2006. (Chart 3.6) In particular, China’s domestic demand expanded by almost 12% last year, compared with the average growth of 10% over 2001-06. As shown in Chart 3.7, China is also the largest source of domestic demand in the region, accounting for 54% of East Asia’s domestic demand in 2007. This represents a significant jump from the 44% share in 2000.

**Chart 3.4  
Regional Exports by Market**



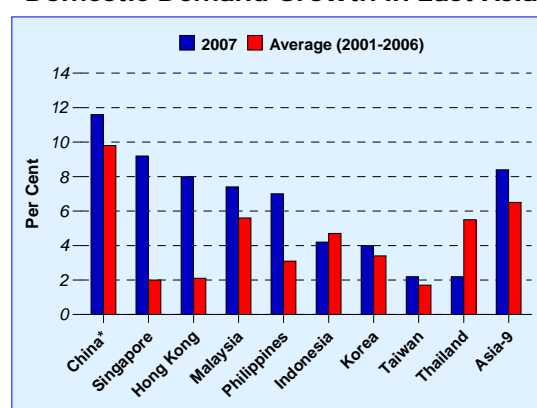
Source: CEIC

**Chart 3.5  
Contribution to Regional Export Growth by Market**



Source: CEIC

**Chart 3.6  
Domestic Demand Growth in East Asia**



Source: CEIC

\* EPD, MAS and United Nations estimates as no official series is available.

<sup>2</sup> East Asia refers to China, Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.

The rising importance of China is also borne out by data from the 2000 Asian Input-Output tables, which traces the region's production networks and the final destination of regional exports. Specifically, the size of final demand for the region's exports from the US and from China was compared. US final demand for regional exports was estimated to be close to 8.8 times that of China in 2000. Factoring in the rapid growth of China's domestic economy since then, EPD estimates that this ratio has fallen to around 5 times in 2007. This suggests that while the US market continues to be the region's main export destination, growing Chinese final demand has become increasingly able to buffer the region from a slowdown in the US economy, at least over the short term.

### Northeast Asian economies feed China's increasing appetite for consumer electronics ...

The expansion in China's demand for regional exports benefited the Northeast Asian economies the most last year. China's imports from Taiwan and Korea continued to grow by double-digits in 2007, bolstered mainly by strong Chinese demand for electronics products. (Chart 3.8)

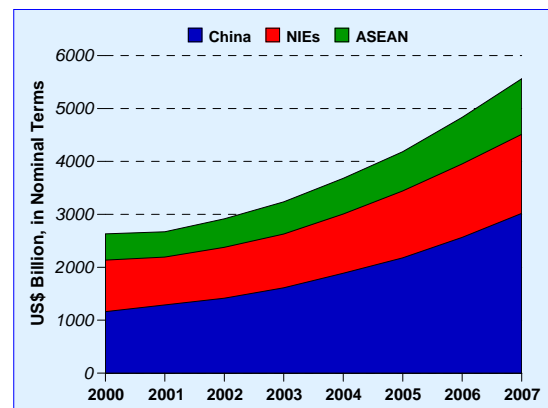
In particular, as market leaders among component makers and Original Design Manufacturers of key consumer electronics products, Taiwanese and Korean companies saw strong growth in the exports of handsets and flat-panel TVs to China last year. Indeed, consumer electronics contributed most to Korea's electronics exports to China in 2007. (Chart 3.9)

### ... while some ASEAN countries have also benefited from China's industrial expansion.

A number of resource-rich Asian economies have also been able to tap into China's demand for industrial inputs and commodities, which power its rapid industrial expansion. (Chart 3.10) For instance, China's imports of primary commodities from Malaysia surged by 71% last year, on account of higher imports of palm oil, while China's imports of capital equipment from Thailand saw a 41% expansion over the same period.

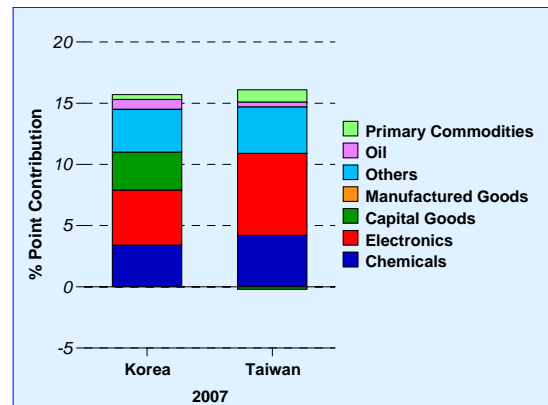
Going forward, notwithstanding some moderation in overall economic growth, domestic demand drivers in China should remain firm. In particular, favourable labour market conditions built up during recent strong

**Chart 3.7**  
Domestic Demand in East Asia



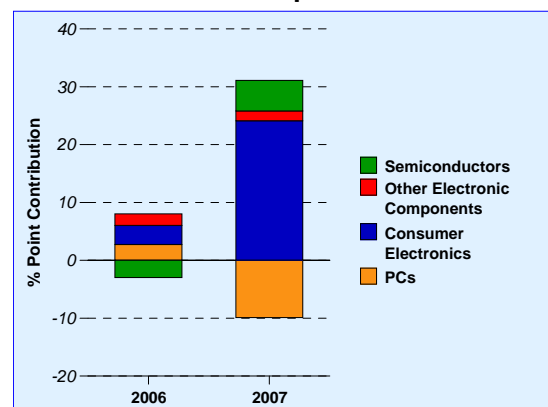
Source: CEIC

**Chart 3.8**  
China's Imports from Korea and Taiwan



Source: CEIC

**Chart 3.9**  
China's Contribution to Korea's Electronics Export Growth



Source: UN Comtrade

growth will help maintain momentum in household spending. Moreover, while business margins may narrow amidst rising costs, corporate profits in China are likely to remain relatively high, thus lending some support to investment.

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### Other emerging economies have grown rapidly as export markets for East Asia.

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Besides intra-regional demand, buoyant demand from emerging markets has also provided some support to East Asia's export growth, albeit from a much smaller base. Indeed, regional exports to the Gulf Cooperation Council (GCC),<sup>3</sup> such as electronics and machinery and equipment, have surged in recent years to meet the construction needs of the booming Gulf economies. (Chart 3.11)

However, the Middle East market still accounts for a very small fraction of East Asia's exports. Only 3.3% of the region's exports were destined for the Middle East in the first eleven months of last year. Nonetheless, the Middle East could become a more important market going forward.

Indeed, the rapid rise of oil prices in recent years has fuelled a flurry of infrastructure and real estate projects funded by Middle Eastern wealth, which should contribute to strong employment and income growth. The consequent expansion in development expenditure and household spending should then stimulate further demand for capital equipment and manufactured goods exports from the region.

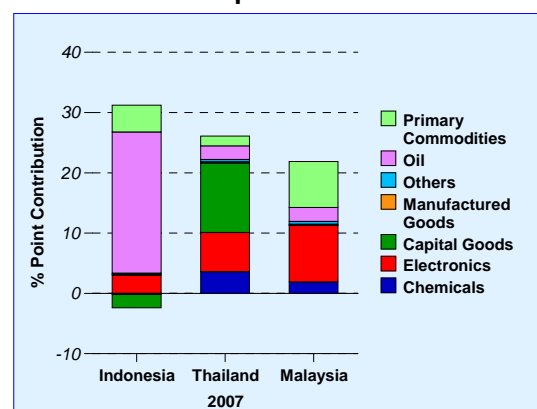
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### Some short-term substitution is evident in the trade patterns of regional exporters.

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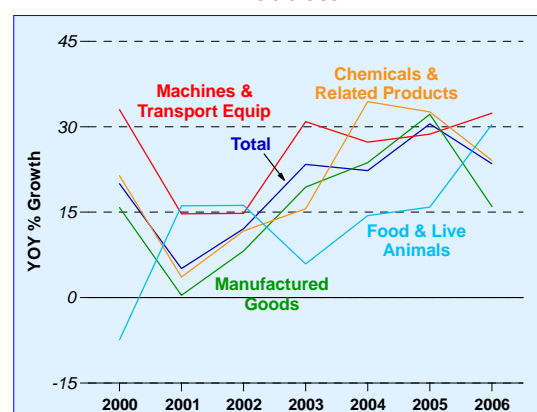
Thus, based on the latest trade data, there appears to be some short-term substitution taking place as regional countries seek out further opportunities in the growing China and Middle East markets to partially offset the drag in US import demand. If this continues, the hypothesis of weak synchronicity between the US and Asia could materialise, although it is necessary to continue monitoring export performance closely to see if these trends persist.

**Chart 3.10**  
China's Imports from ASEAN



Source: CEIC

**Chart 3.11**  
Regional Exports to the GCC by Products



Source: UN Comtrade

<sup>3</sup> GCC refers to Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates (UAE).

## 3.2 Global IT Outlook

### A Turn for the Worse

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**The outlook for the global IT sector has weakened.**

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During the last quarter of 2007, there were indications that the global IT market had turned the corner, with capacity cutbacks trimming the chip inventory overhang and global semiconductor capacity utilisation – a forerunner of global chip sales – showing signs of recovery.

While these supply-side adjustments have continued in recent months, prospects for the global IT industry have been somewhat dampened by weak demand conditions in the G3 markets. Against this backdrop, the anticipated rebound in the global IT industry may not materialise this year. Barring a severe downturn in the US economy, the industry is still expected to show small positive growth in 2008.

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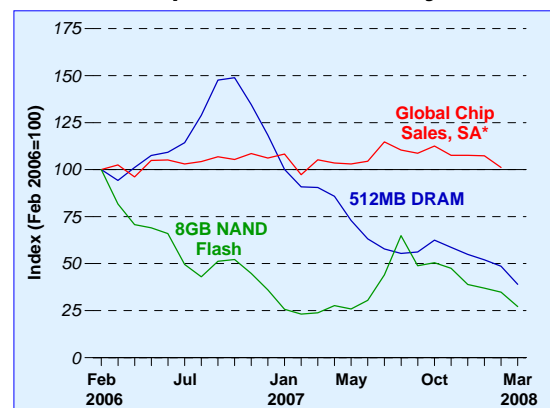
**Global IT supply and demand trends have diverged.**

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Compared to 2007, global industry dynamics are expected to be very different for 2008. Indeed, 2007 could be viewed as a “correction” year, when supply-side overcapacity led to plummeting average selling prices (ASPs) and an inventory build-up, despite end-demand generally holding up. In 2008, while the supply-side has started out much healthier, end-demand conditions, particularly in the US, are weak and uncertain. Compared to a supply-side imbalance, a demand-led slowdown – which in turn could throw supply trends out of kilter – would take a longer while to work through the global IT industry.

The memory segment – which accounts for about a fifth of overall chip revenues – remains the bête noire of the global IT industry, with plummeting memory ASPs driving down overall revenue growth. (Chart 3.12) In particular, stiff price declines in the NAND flash memory market have prompted leading market research firms Gartner and iSuppli to slash their 2008 growth forecasts for global chip sales to 3.4% and 4.0% respectively,

**Chart 3.12  
Global Chip Sales and Memory Prices**



\* EPD, MAS estimates

Source: Semiconductor Industry Association for global chip sales, Bloomberg for DRAM and NAND flash prices

down from 6.2% and 7.5% in December last year. Compounded by weak demand conditions, the memory sub-cycle is mired in a severe, supply-led downturn that is only expected to level off at the tail-end of the year.

**Tentative signs of a fall-off in US end-demand ...**

To a large extent, the IT outlook hinges on US end-demand. In this regard, some signs of consumer restraint have emerged, as macroeconomic concerns weigh on discretionary spending. US electronics retail sales, for example, began sliding in December last year, and fell a further 1.5% q-o-q SA in Q1 this year. (Chart 3.13)

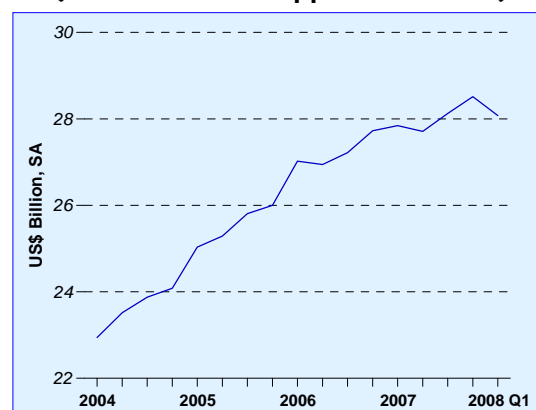
In particular, high-end consumer electronics goods are expected to bear the brunt of a soft US end market. To a certain extent, this is already being played out in the handset market, where anecdotal evidence from leading handset vendors point to slowing demand for mid- to high-end handsets across the US and Europe. Meanwhile, corporate demand, which accounted for some 40% of annual PC unit growth last year, has been hit by tighter IT spending budgets, amidst the credit crunch.

**... but emerging markets will provide some offset.**

A severe IT correction similar in magnitude to the 2001 tech downturn is, however, unlikely this time round. Crucially, emerging market demand may provide some offset to US end-demand weakness. In particular, the global handset market is expected to remain relatively resilient to a US recession as emerging markets provide the main support to growth in 2008, driven by increasing penetration as well as rising replacement demand. Indeed, the number of new handphone subscribers in China, which represents a fifth of worldwide handset demand, has continued to expand at double-digit rates. (Chart 3.14)

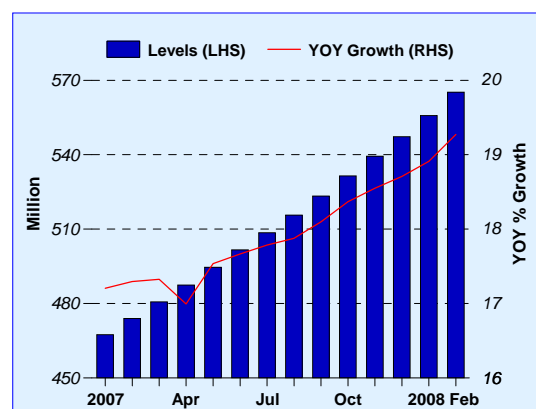
Emerging market PC demand is also expected to surpass that of developed markets. While global PC shipments have tracked US personal consumption expenditure (PCE) in computer and peripherals fairly closely over the years, a gap has emerged in recent quarters, as low-cost PC shipments to emerging markets have outpaced US end-demand for PCs. (Chart 3.15) The lower penetration rates in the emerging markets have provided opportunities for further growth in 2008. According to

**Chart 3.13  
US Retail Sales  
(Electronics and Appliance Stores)**



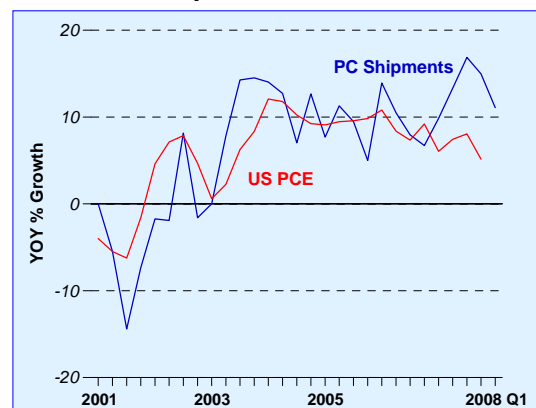
Source: CEIC

**Chart 3.14  
Handset Subscribers in China**



Source: CEIC

**Chart 3.15  
PC Shipments and US PCE**



Source: CEIC and Gartner

Gartner, the PC penetration rate in China, the second largest PC market behind the US, stands at 111 computers per 1,000 people, compared to the US penetration rate of 850 PCs per 1,000 people.

All in, emerging markets are expected to hold up growth in the key handset and PC end markets, which account for the bulk (60%) of overall semiconductor consumption. According to Gartner, the handset and PC markets are forecast to grow at a healthy clip of 10% and 11% respectively in 2008, albeit moderating from 16% and 13% growth in 2007 as end-demand from developed markets cools. While revenue growth may moderate as emerging market demand shifts the product mix towards the lower end, rising affluence in emerging markets, particularly in China and India, will over time drive replacement demand for higher-end handsets and PCs.

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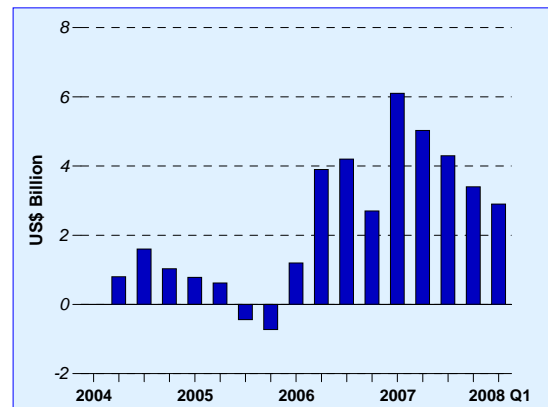
**Leaner inventories will alleviate  
end-demand weakness.**

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Healthier supply-side conditions, in the form of leaner semiconductor inventories and lower levels of capital expenditure, should also mitigate the impact of end-demand weakness from the US. Indeed, excess semiconductor inventories have levelled down to an estimated US\$2.9 billion in Q1 2008, from the peak of US\$6.1 billion in Q1 last year. (Chart 3.16)

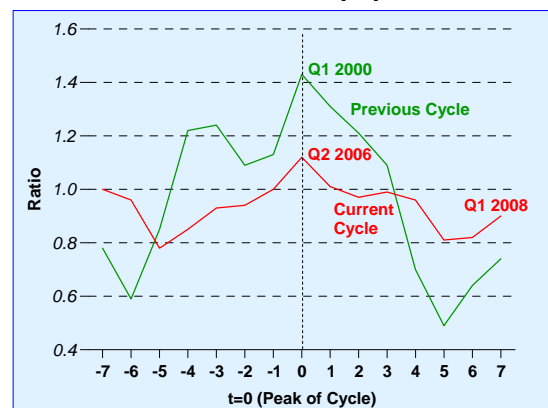
The trend towards supply rationalisation in the global IT industry will cap the downside risk from a fall-off in US end-demand. Specifically, while there was a massive build-up in capacity in 2000 – as proxied by the book-to-bill ratio for semiconductor equipment – prior to the bursting of the tech bubble in 2001, the pace of expansion has been more moderate this time round, signalling that a correction in the IT industry, if any, will be relatively milder. (Chart 3.17)

**Chart 3.16  
Excess Semiconductor Inventories**



Source: iSuppli Corp

**Chart 3.17  
Book-to-Bill Ratio for  
Semiconductor Equipment**



Source: SEMI

### 3.3 Outlook for the Singapore Economy

#### Navigating Through the Turbulence

Against the backdrop of a weaker external environment, Singapore's growth momentum is expected to ease from its double-digit sequential pace in Q1 to a slower rate for the rest of the year.

However, the extent of the slowdown is not likely to be severe. While industries which rely directly on G3 demand or are sentiment-driven will be more adversely affected by global headwinds, there are other sectors that will remain buoyant and supportive of GDP growth throughout 2008. In particular, domestic and regional sources of support should prevent the Singapore economy from sliding into a sharp downturn in 2008. On balance, full-year GDP growth of between 4-6% is still achievable, barring a sharp downturn in the US economy.

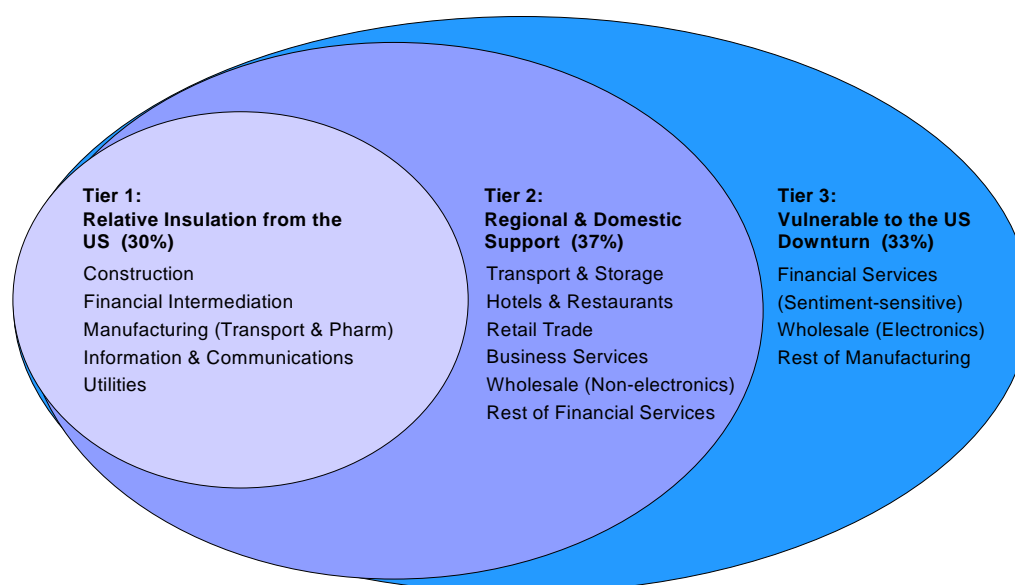
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**Sectoral performance will depend on exposure to the US market.**

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In contrast to last year's broad-based growth story, the outlook for the Singapore economy in 2008 will vary significantly from industry to industry, depending on their exposure to the US. (Figure 3.1)

**Figure 3.1  
Impact of a US Recession on the Domestic Economy\***



\* EPD, MAS estimates  
Note: Numbers in parentheses refer to % of real GDP

## First Tier: Relatively Insulated from the US

The first tier represents a core group of activities that is likely to be relatively insulated from a US downturn, as output is largely driven by industry-specific factors. One of the main pillars of this tier is the construction sector, which has a strong pipeline of projects, with completion dates that stretch to 2013. Indeed, the total value of construction contracts awarded hit \$24.5 billion last year, reflecting strong demand from both the residential and non-residential segments. (Chart 3.18) This suggests a possible surge in construction activity over the next two to three quarters, as work on projects progresses into the phase where the bulk of payment streams occurs. Future demand should also remain firm, with contracts for major projects such as the integrated resorts yet to be fully awarded.

These projects will have spillover effects on services such as bank intermediation. For instance, the ongoing construction of the integrated resorts and the Marina Bay Financial Centre will continue to provide impetus for building & construction loan activity. Meanwhile, consumer mortgage loans are expected to remain firm, supported by loans that will be extended when a number of private residential projects obtain their temporary occupation permits (TOP) this year, some of which have been taken out under the deferred payment scheme (DPS). As shown in Table 3.5, housing loans taken up under the DPS, rather than the usual standard payment scheme (SPS), should pick up towards the end of the project.

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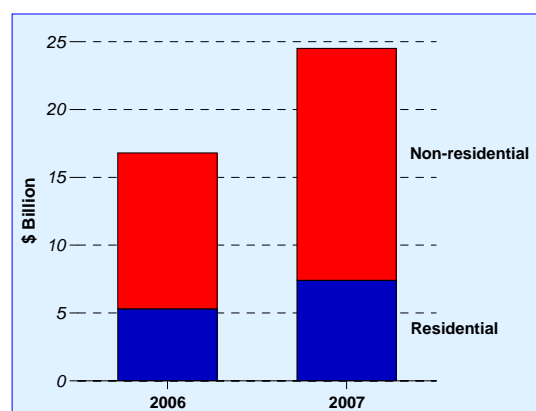
### Strong orders for ship and rig builders ...

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Activity in the marine and offshore engineering (M&OE) industry should remain brisk this year as high oil prices continue to drive oil exploration, spurring demand for oil rigs and rig-conversion projects. This is borne out by robust net order books of the two leading local shipyards, which should translate into firm output and exports over the next few years. (Chart 3.19)

The rig delivery schedule, as estimated by the shipyards at the time contracts are awarded, can provide a gauge of the impact of strong order books on export figures over the next few years, as oil rigs are recorded as exports only when the entire project is completed. (Chart 3.20) However, it is less straightforward to capture the impact on output as, unlike exports, the production of oil rigs is recorded in stages.

**Chart 3.18**  
Contracts Awarded Excluding Reclamation



**Table 3.5**  
Payment Under Different Schemes

Stage	Payment (% of purchase price)	
	Under SPS	Under DPS
Option to Purchase (OTP)	5-10% (booking fee)	5% (booking fee)
Sale & Purchase Agreement or within 8 weeks from OTP	20% less booking fee	10% less booking fee
Completion of foundation work	10%	-
Completion of superstructure	30%	-
Notice of Vacant Possession	25%	75%
Completion	15%	15%

Source: URA

Ideally, the amount of output at each stage should be estimated from the relationship between contracts awarded (order books data) and production. However, as high frequency data for order books is not available, the production profile was estimated from the lagged relationship between production and exports.<sup>4</sup>

Based on industry feedback, the entire process from the placement of orders to the completion of production (when the rig is exported) is estimated to average two years. In addition, there is typically an average eight-month lag between the contract being awarded and the start of production. EPD's calculations suggest that the impact on output would be most evident in the four months before export delivery, i.e. 12-16 months from the initial construction of oil rigs.<sup>5</sup>

As a record number of oil rigs are expected to be delivered this year, the impact on production numbers should fall in the current year. A stylised production timeline is presented in Figure 3.2.

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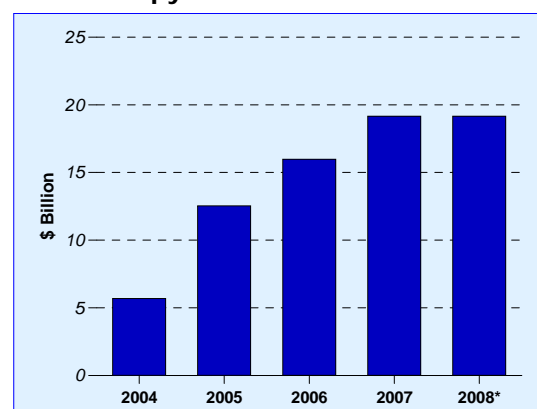
#### ... and some support from the domestic pharmaceutical industry in the short term.

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Another sector that is largely resilient to the vagaries of the business cycle is the domestic pharmaceutical industry, as output is primarily determined by supply-side factors such as the introduction of new products, patent protection and the availability of suitable manufacturing facilities. Nevertheless, elevated levels of production from the Q1 rebound this year are unlikely to be sustained and the outlook for 2008 as a whole remains fairly muted, as no significant new capacity is slated to come onstream this year. In addition, there could be some impact from the fall-off in US sales of cholesterol drugs *Vytorin* and *Zetia*, which are manufactured locally by Schering-Plough.<sup>6</sup>

Prospects for the medium term, however, are considerably brighter. In particular, the pharmaceutical industry has been gearing up for the next wave of expansion on the biotechnology front, with four biologics facilities by Genentech, GlaxoSmithKline, Lonza and

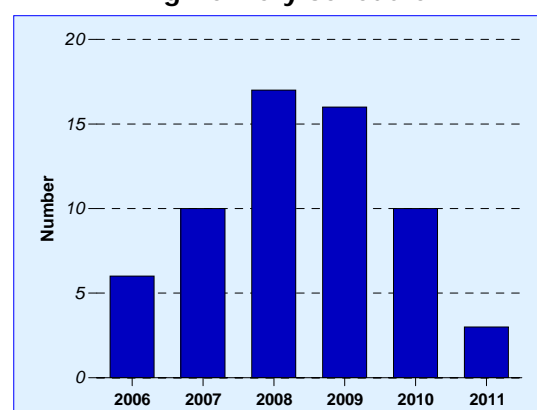
**Chart 3.19**  
**Shipyards Net Order Books**



\* as of end-March 2008

Source: Keppel Corp. and SembCorp Marine

**Chart 3.20**  
**Rig Delivery Schedule**



Source: Keppel Corp. and SembCorp Marine

<sup>4</sup> The estimation was done using a polynomial distributed lag model.

<sup>5</sup> Further empirical estimates of a cross correlogram function between exports and output suggest a similar lag between the series.

<sup>6</sup> *Vytorin* and *Zetia* are jointly marketed by Merck and Schering-Plough. US sales of the drugs began sliding after the release of the ENHANCE trial on 14 Jan 2008, which found that *Vytorin*, a combination of cholesterol reducers *Zetia* and *Zocor*, was no better than *Zocor* (generic *simvastatin*) in slowing artery clogging despite reducing bad cholesterol to a greater extent.

Novartis due to come onstream between 2009 and 2011. These biologics plants amount to a total investment of US\$940 million, and could create up to 850 highly skilled jobs when fully operational.

**Second Tier:  
Support from Regional Demand**

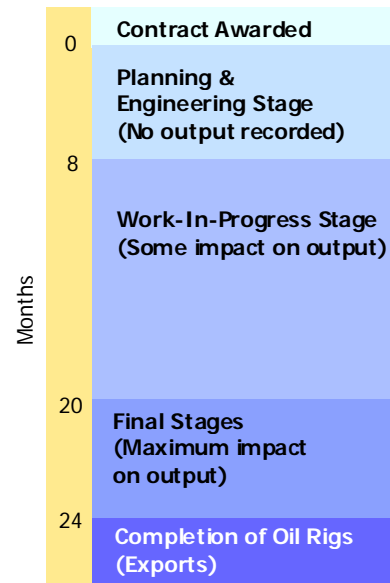
The second tier includes industries which will be supported by strong domestic and regional fundamentals, but are susceptible if the US downturn affects the region more significantly. In particular, Asia is an important end market for the services sector, accounting for slightly more than half of Singapore's services exports to the world, according to the latest survey data from DOS. (Chart 3.21)

A key area is transport-hub services. East Asia was the main pillar of growth for the entrepôt sector last year, offsetting declines in the G3 markets. (Chart 3.22) The strong growth of re-exports to East Asia was largely underpinned by firm domestic demand in these countries. Some 7% points of the 9% growth in re-exports to East Asia last year was contributed by goods meant for its domestic consumption and investment. Broadly, these included primary commodities, manufactured goods and consumer electronics and machinery. (Chart 3.23) Going forward, these product categories are expected to provide further support to the entrepôt sector, alongside healthy domestic demand in the region.

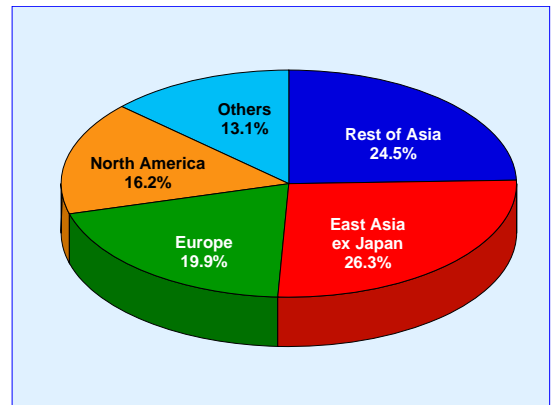
The tourism-related industry will also benefit from resilient regional demand. As shown in Chart 3.24, visitors from Asia contributed more than 60% to the increase in total visitor arrivals last year, and this should strengthen over the next few years. Visitor arrivals from the region will be boosted by intra-regional travel, driven by the expansion of road and air routes throughout Asia. A recent report by Cushman & Wakefield (C&W) projected the number of visitors to Singapore from the Chinese mainland to grow by 16% over the period 2007 to 2009.

In addition, tourism-related activities will be boosted by several mega events in the pipeline. The hotel sector, in particular, will benefit from Singapore's hosting of the inaugural Formula One Grand Prix race in September. For 2008, the STB is expecting overall visitor arrivals of 10.8 million and tourist receipts of \$15.5 billion, up from 10.3 million and \$13.8 billion respectively in 2007.

**Figure 3.2  
Stylised Production Timeline  
for Oil Rigs**

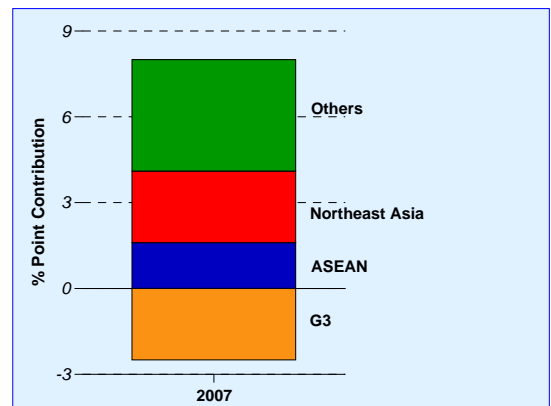


**Chart 3.21  
Singapore's Services Exports  
to the World**



Source: Singapore's International Trade in Services, 2006, DOS

**Chart 3.22  
Singapore's Re-exports by Markets**



Air passenger volumes are also projected to rise in tandem with higher visitor inflows, facilitated by greater accessibility to low-cost carriers as well as the rapid growth of aviation markets in the region, particularly in China. Nevertheless, growth could be dampened by some weakness in the US routes. Indeed, lower US load factors due to demand softness have surfaced recently, pulling SIA's average passenger load factors down to 79.4% in Q1 2008, from its peak of 82% in Q3 last year.

**Domestic-linked activities will also remain healthy.**

Meanwhile, retail sales and business services that are closely tied to domestic economic conditions are expected to record fairly respectable growth this year, amidst generally healthy conditions in the labour market.

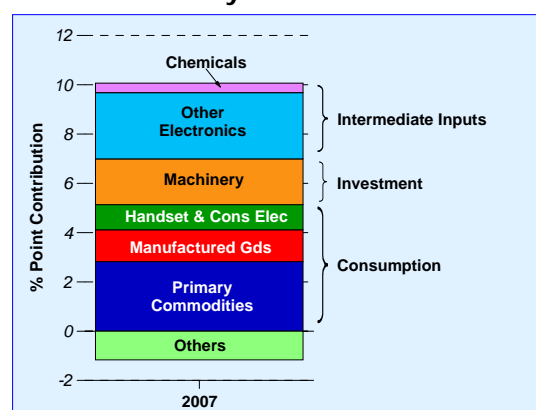
In particular, business services will see continued firm performance in 2008, although growth is unlikely to exceed that of last year, when the real estate and professional services segments benefited from the buoyant growth in asset market-related activities.

Apart from cyclical factors, growth in the business services sector has been underpinned by two emerging trends in the manufacturing sector: "servicisation" and outsourcing. These trends have also been observed in developed economies such as the UK. Indeed, the strong growth in UK's business services sector in the 1990s was very much the result of outsourcing and specialisation.

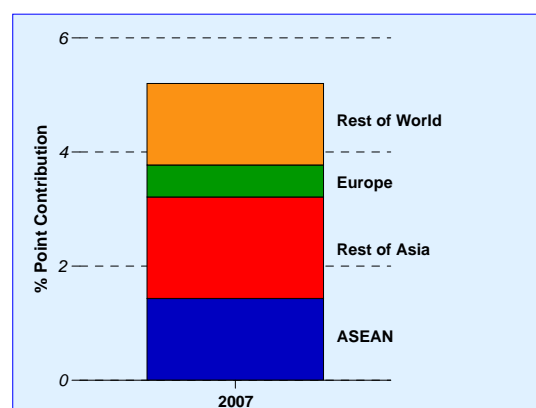
"Servicisation" refers to the broadening of manufacturing capabilities to encompass services-related activities ranging from R&D and marketing to logistics and regional operations. A good example is pharmaceutical manufacturer GlaxoSmithKline, whose first production facility in Singapore dates back to 1972, and which has since broadened its activities to include regional HQ operations in 1999 and R&D in 2004.

The increasing tendency of companies, particularly in the financial sector, to outsource their accounting, consulting and HR functions to specialised firms in the business services sector also drives growth in the latter sector. According to the MAS annual survey of financial institutions, the domestic banking sector spends close to \$1.5 billion per year on these activities.

**Chart 3.23**  
**Singapore's Re-exports to East Asia by Product**



**Chart 3.24**  
**Contribution to Visitor Arrivals**



### Third Tier: Most Vulnerable to a US Downturn

The industries which are most vulnerable to a US/G3 downturn comprise the sentiment-sensitive segments in financial services, and IT-related activities.

The sentiment-driven financial industries will remain volatile and sensitive to incoming economic data, particularly from the US, as they are closely tied to conditions in international financial markets. In particular, investors' risk aversion amidst ongoing concerns over the financial and economic health of the US is likely to cap growth in the wealth advisory and brokerage & treasury segments in the coming quarters.

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#### Equity markets are likely to bear the brunt of the slowdown ...

---

On the equities front, concerns over a US recession and fears of further mortgage-related write-downs by major financial institutions have caused investor confidence to falter, as reflected in significant falls in the STI and stockmarket turnover volumes. (Chart 3.25) This is in line with retreating regional bourses, as illustrated by the 18% tumble year-to-date in the MSCI Asia ex-Japan Index. Transaction volumes are thus likely to remain thin in the coming months.

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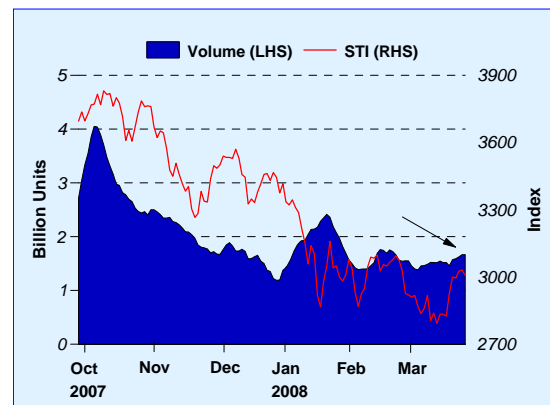
#### ... while wealth management expansion slows.

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Prevailing uncertainties in the global financial markets have also caused sentiment in the Asian hedge funds industry to sag, as reflected in the dip in the EurekaHedge Asian Hedge Fund Index in recent months. (Chart 3.26) This index is often used by industry observers as a proxy for investor sentiment.

Marked by high levels of caution and risk aversion, the wealth advisory industry is likely to see a pullback in growth in the near term. Even as Singapore continues to attract new industry players, such as Australia's Macquarie Group and RBS Coutts, the industry is likely to take a breather this year from the rapid pace of growth in the last six years. This pause, however, is expected to be mild relative to that in the equity markets, as private bankers have taken several measures to deal with the current global financial environment.

**Chart 3.25**  
Stock Market Turnover Volume and  
Straits Times Index (STI)



Source: SGX

**Chart 3.26**  
EurekaHedge Asian Hedge Fund Index



Source: Bloomberg

For example, private wealth managers have diversified investment portfolios to a greater extent, with a larger portion of funds going into fixed income instruments and cash holdings. In addition, they have started to move beyond the traditional focus of preserving family wealth into private investment banking – providing high net worth individuals with advice on integrating personal wealth with business ventures – in response to demand from the growing pool of family entrepreneurs in the region.

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**IT-related industries remain vulnerable to a global downturn.**

---

Given the muted outlook for the global electronics industry (see Section 3.2), the domestic IT-related cluster is expected to remain weak this year. In particular, projects in the pipeline could be affected by weak industry conditions. The pushing back of the proposed NAND flash fab by Intel-Micron from H2 2008 to 2009, due to severe pricing conditions in the NAND flash market, is a case in point.

Aside from the semiconductor industry, performance in other IT manufacturing industries will be a mixed bag this year. The year-end closure of Motorola's handset manufacturing plant in Singapore, for example, will entail a negative structural shift in the infocomms & consumer electronics segment. However, the data storage segment is set to receive a boost from production at Seagate's third hard disk media plant, which began production in Q1 this year.

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**Singapore's GDP growth should come in at around 4-6% in 2008.**

---

Since the last *Review*, the external environment, especially in the US, has deteriorated. Given the weakening external outlook, some moderate slowdown in growth momentum is likely to take place over the next two to three quarters. At this stage, Singapore's GDP growth should come in at around 4-6% this year.

This baseline forecast is predicated on a mild US downturn for 2008. However, if there is a more widespread decline in global and regional economic activity, Singapore's GDP growth will be more significantly affected, dragged down by the collapse in activity in the second and third tier industries.

### 3.4 Labour Market

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#### Labour demand is likely to moderate in 2008.

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In line with an easing in economic growth, manpower demand is projected to moderate in 2008, but should remain at a healthy level. According to a recent poll by Hudson, a large proportion (49%) of the 733 employers surveyed from various sectors planned to increase headcount in Q2 2008. Only 2% expected a decrease in employment, while 49% projected no change in headcount. Nonetheless, the net hiring expectation of 47% is a slight decline from the 50% reading in the previous quarter and 55% a year ago. (Chart 3.27) Given the generally healthy job market, the unemployment rate is expected to remain under 2% in 2008.

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#### Strong employment growth is expected in the transport engineering, construction and tourism-related industries.

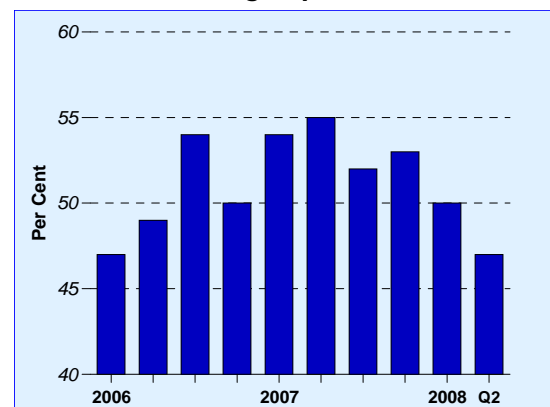
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Part of the optimism in the labour market stems from expected robust activity in some segments of the economy over the next few years. For example, major marine & offshore engineering industry players have announced strong net order books with completion and deliveries stretching to 2011. This should sustain job creation in the transport engineering industry.

The construction sector also has a packed pipeline of upcoming projects until 2013, including a number of mega commercial, residential, leisure and transport infrastructure projects. In addition, the impact of the building boom will spill over to other related industries, such as the real estate and architectural industries in the business services sector, leading to further job creation.

The tourism-related segment will also require more manpower to keep up with the expected growth in visitor arrivals, due to several major international events such as the Singapore Air Show and the upcoming Formula One Grand Prix race in September this year. Furthermore, three major international BTMICE industry players – Kellen Company, Leipziger Messe GmbH and Kenes International – will set up base here in 2008, boosting Singapore's position as a major venue for BTMICE events. In total, STB expects some 50,000 to 60,000 tourism jobs to be created by 2010.

**Chart 3.27**  
Net Hiring Expectations



Source: The Hudson Report

Note: The net hiring expectation is derived by subtracting the percentage of employers expecting to see a decrease in total employment in the next quarter, from the percentage anticipating an increase.

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**Foreigners will remain an important source of labour.**

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With the economy at full employment, there will be increasing reliance on foreigners to fill the manpower needs of the economy. In recognition of this, MOM has announced a comprehensive package of foreign workforce measures in November 2007.

Notably, the maximum foreign worker dependency ratio was raised for all sectors, with effect from 1 Jan 2008. (Table 3.6) To meet the demand for foreign semi-skilled workers, such as technicians, the S-Pass quota was raised from 15% to 25% of the total company workforce. MOM further revised the Man-Year Entitlement (MYE) waiver requirement for Non-Traditional Source (NTS) workers in the construction sector, which reportedly faces the tightest squeeze. This revision will simplify the work permit renewal procedures for NTS foreign workers to that comparable for Malaysian workers.

In addition, to strengthen global talent attraction and retention, MOM opened the application for the Personalised Employment Pass (PEP) to all foreigners whose last drawn monthly salary was at least \$7,000. Previously, only foreigners who had worked or were working in Singapore on employment passes were eligible. The PEP enables skilled foreign professionals to enter or remain in Singapore without being in employment for a period up to six months in order to evaluate job opportunities.

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**The economically inactive will be tapped to augment the indigenous labour supply.**

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Apart from supplementing the local workforce with foreign labour, MOM intends to tap the economically inactive population. After registering an increase of 7.8% in 2006 due to the buoyant job market, the resident labour force expanded by only 2.0% in 2007. Of the one million economically inactive residents, MOM has identified about 140,000 potential entrants – economically inactive people who indicated an intention to look for work within the next two years. Of these, around 60% were interested in full time work while 72% had prior work experience.

**Table 3.6  
Changes to Foreign Worker  
Dependency Ratios**

Sectors	Before 2008	From 1 Jan 2008
Construction and Process*	1 Local : 5 Foreigners	1 Local : 7 Foreigners
Marine	1 Local : 3 Foreigners	1 Local : 5 Foreigners
Manufacturing	60%	65%
Services	45%	50%

\* Petroleum, Petrochemicals, Speciality Chemicals and Pharmaceuticals.

MOM believes that some of these people are voluntary drop-outs who will rejoin the labour force on flexible work arrangements. Hence, in conjunction with WDA, NTUC and SNEF, the ministry launched the Flexi-Works! programme in November 2007, a \$3 million funding scheme that offers grants of up to \$100,000 per company to defray part of the cost of implementing flexible work arrangements. The programme aims to bring at least 1,500 individuals aged 35 and above back into the workforce every year.

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**Training of adult workers is a government priority.**

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To ensure sustainable job creation and continuous income growth in the longer term, the local workforce has to be more productive and efficient. Under the Continuing Education and Training (CET) Masterplan, MOM envisions a radically different workforce in 2020, with nearly 60% of the employed residents having at least a diploma qualification, significantly higher than 36% in 2007.

The Employment and Employability Institute, which officially opened in January 2008, is a significant milestone in the CET Masterplan. It is a one-stop shop for skills upgrading, job placement and career consulting, and is much larger in scale than the existing 19 CET centres. In this year's Committee of Supply Speech, the Minister for Manpower announced a top-up of \$800 million in the Lifelong Learning Endowment Fund (LLEF), bringing it to \$3 billion. The fund will be used to increase the annual training capacity from 22,000 workers to 80,000 workers by adding ten more CET centres in certain high-growth sectors. Upcoming industry-specific training centres include a Singapore Academy of GxP Excellence (SAGE) that will facilitate the discovery of new technologies in the development and manufacture of pharmaceuticals, biologics and medical devices. In the financial services sector, five CET centres specialising in areas such as risk management, wealth management and insurance have also been established.

### 3.5 Inflation

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#### Continued pass-through of external and domestic cost pressures is expected in 2008.

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Domestic CPI inflation stepped up sharply in H2 2007 and Q1 2008, reflecting both external sources of price pressures as well as the build-up of domestic costs following several years of strong economic growth. On the external front, CPI inflation is projected to be higher in almost all regions of the world, including the US, Eurozone, Japan and Asia ex-Japan, due to increased demand for food, oil and other commodities. Based on the latest consensus estimates, global CPI inflation<sup>7</sup> will average 3.7% in 2008, compared to 3.1% in 2007.

Moreover, as input costs rise, the disinflationary effects of positive supply shocks in low-cost producers, such as China, have also dissipated. This will add to rising domestic business costs, with firms continuing to pass through these costs to retail prices. Nonetheless, for the rest of 2008, domestic prices are expected to rise at a more moderate pace.

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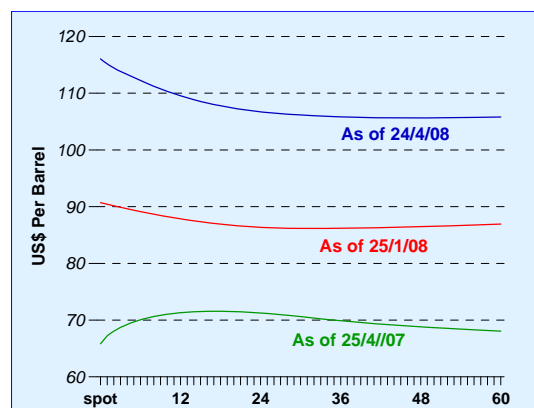
#### Tight market conditions will support global oil prices.

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The global oil market is expected to remain tight in the near term. The Energy Information Administration (EIA) anticipates global oil demand to rise by 1.2 million barrels per day in 2008, with non-OECD countries accounting for about 90% of the increase. At the same time, short-term supply remains constrained by OPEC production quotas, project delays in non-OPEC countries and limited spare production capacity due to insufficient investment in the past decade. Even in the medium term, supply rigidities are unlikely to abate as the costs of oil production and exploration escalate. As such, oil prices are likely to remain high even if global demand falls, due to a downturn in the US and other advanced economies. Meanwhile, strong investment interest in oil as a hedge against the declining US dollar will contribute to price volatility.

These short-term and structural factors drove up near-term and long-dated oil prices to record highs in March and April this year, causing an almost parallel upward shift in the entire WTI forward curve. (Chart 3.28) The

**Chart 3.28**  
**NYMEX WTI Crude Oil Forward Prices**



Source: Bloomberg

<sup>7</sup> Global CPI inflation are weighted averages calculated using 2006 GDP weights, converted at average 2006 exchange rates.

EIA projected that prices of WTI crude oil will average US\$101 per barrel in 2008, up from US\$72 per barrel in 2007. Both the futures prices and EIA's projections suggest that oil prices will only ease slightly in H2 2008.

With higher oil prices this year, prices of domestic energy-related items will increase. Electricity tariffs have been adjusted upwards by 5.7% for Q2 2008 and petrol pump prices were raised by 11 cents over March and April. At the same time, the indirect pass-through effects of higher oil prices are likely to persist via increases in public road transport fares and cooked food prices.

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**Structural rally in food commodity prices will continue amidst tight inventories.**

---

Meanwhile, global food prices will remain high over the medium term, owing to low inventory levels (Chart 3.29), rising disposable income and changing food consumption patterns in emerging markets, as well as high food production and transportation costs. (See Box B on "Global Food Price Inflation" at the end of the section.)

Nonetheless, the futures market suggests that while food prices are likely to remain high, the pace of increase should be more moderate. (Chart 3.30) However, this may only be seen in the latter part of the year when additional supplies from the autumn harvest become available. In the meantime, with operating costs rising, domestic hawkers and restaurants are likely to continue to pass on the high raw material costs to consumers.

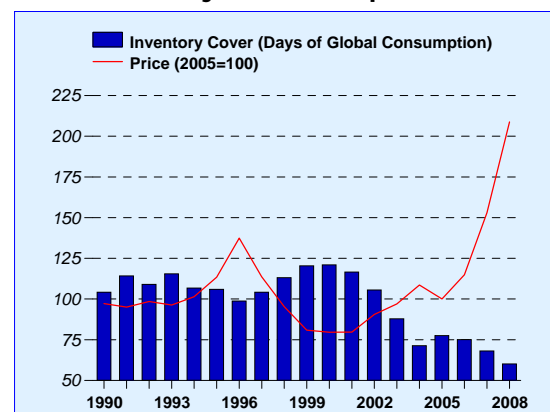
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**Excluding oil and food, overall import price inflation is expected to be benign.**

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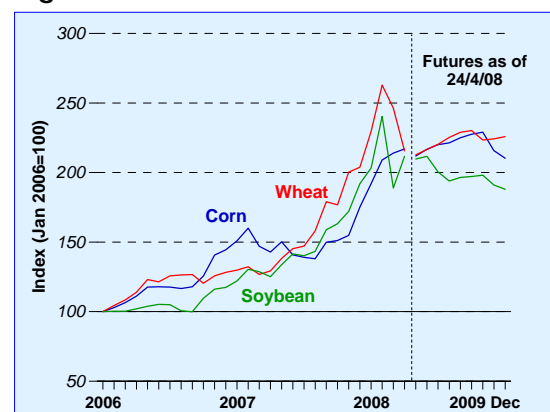
Apart from oil and food, imported prices of other primary commodities, such as metals, are also likely to remain firm due to strong industrial demand from developing countries. For instance, the rapid pace of infrastructure build-up in emerging economies is likely to underpin the price of copper, nickel and zinc. However, the higher imported prices of these non-oil and non-food commodities are expected to be offset by further declines in the prices of electronics and other technological products due to the slowdown in the global IT industry.

**Chart 3.29  
Price and Inventory Cover of  
Major Food Crops**



Source: IMF

**Chart 3.30  
Agricultural Commodities Future Prices**



Source: Bloomberg

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**Global travel boom and higher oil prices will continue to lead to costlier holiday travel.**

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The brisk economic growth worldwide in recent years, particularly in the Asia-Pacific region, has sparked a boom in business and leisure travel, driving up hotel room rates globally. As a result, holiday expenses have increased, contributing 0.4% point to CPI inflation in 2007 and Q1 2008. (Chart 3.31) Airfares in the CPI basket have also surged since 2007, in part due to airlines passing on higher fuel costs and hikes in airport charges. (Chart 3.32) For example, SIA raised its fuel surcharge by 40% in March this year.

Given that Asia's economic growth is expected to remain relatively healthy, barring a sharp downturn in the US economy, the boom in regional business and leisure travel is expected to continue. As the supply of hotel rooms will be constrained in the near term, hotel room rates are likely to continue to rise in 2008. Similarly, airfares are expected to increase further as airlines pass on rising fuel prices and operating costs.

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**Accommodation cost index will climb in 2008.**

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Turning to domestic factors, accommodation costs in the CPI are set to rise in 2008, largely due to the upward adjustment in the imputed rents of HDB flats following the AV revision by IRAS. The contribution of accommodation costs to CPI inflation could thus rise substantially to more than 1% point in 2008, from 0.2% point in 2007.

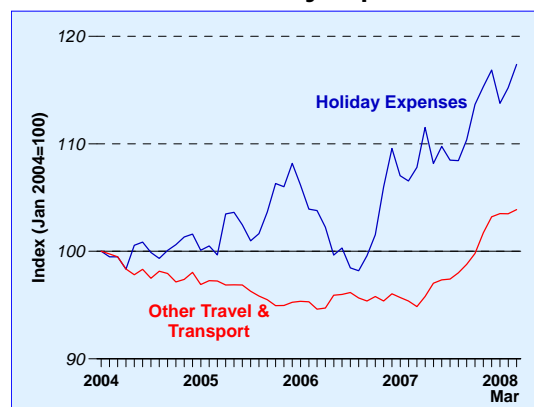
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**Private road transport costs is set to climb in 2008.**

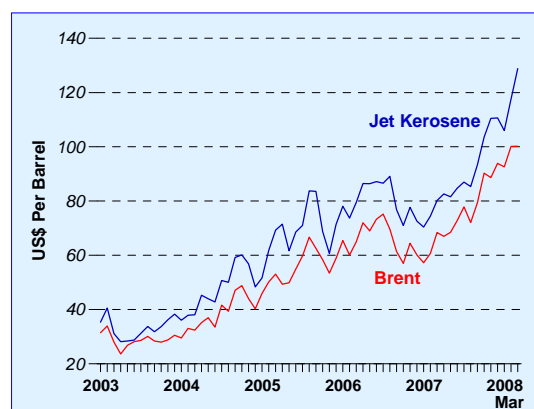
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After nearly four consecutive years of negative contribution, car prices added positively to CPI inflation in 2007, albeit by a mild 0.1% point. This could increase further in 2008. While the Additional Registration Fee (ARF) – the main car tax that constitutes around 30% of the selling price of a car without a COE – has been reduced by 10% points and road tax will be reduced by 15% points in July, COE premiums could rise due to the 7.5% decrease in COE quotas in the new quota year (Apr 2008-Mar 2009). The increase in COE premiums in recent bidding exercises suggests that there could be some frontloading of demand in expectation of even higher premiums in 2009, when there will be a further cut in the COE quota in tandem with the lower targeted

**Chart 3.31**  
**Airfares and Holiday Expenses CPI**



**Chart 3.32**  
**Jet Fuel and Oil Prices**



vehicle growth rate of 1.5%, compared to the current 3%. (Chart 3.33) However, growing economic uncertainty could dampen buying sentiments and limit the upside to COE premiums.

Apart from more expensive cars and petrol, private road transport costs will also be lifted by the increase in Electronic Road Pricing (ERP) charges as well as the implementation of 16 new ERP gantries, following the government's plan to shift the tax burden from car ownership to car usage.

---

**Business costs will remain elevated due to firm wages and commercial rentals.**

---

As mentioned above, labour demand is expected to remain relatively firm this year, albeit moderating from last year. Overall, the unemployment rate for the year should still come in under 2%. Given the tight labour market conditions, wage pressures are likely to persist, such that nominal wage growth could average around 5-6% in 2008, only slightly lower than the 6.2% last year.

Meanwhile, with demand for commercial space remaining firm and significant new supply not coming onstream until 2009-10, domestic office and retail rentals could stay elevated.

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**Inflation is expected to stay high in H1 2008 but should moderate in H2.**

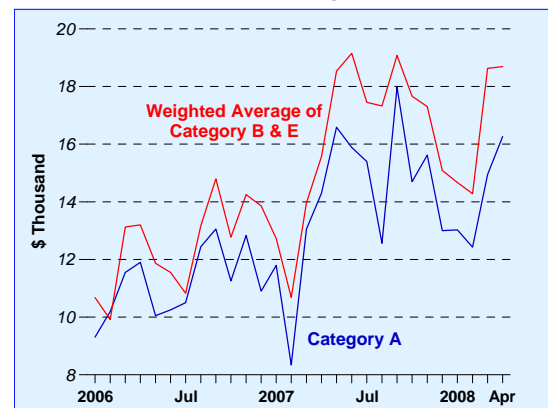
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In summary, inflation will stay high in 2008 due to a confluence of external and domestic factors, although it should moderate somewhat in the second half.

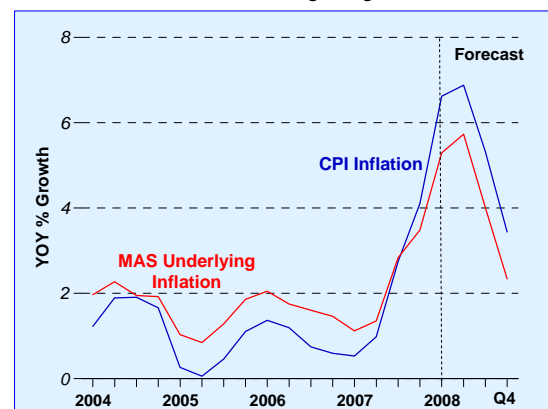
However, there are upside risks to global oil and food prices. Even if these prices were to level off, upward pressure on wages and rentals, reflecting domestic capacity constraints, are likely to remain.

Taking all these factors into consideration, together with the low base in H1 2007, CPI inflation could average above 6% in H1 2008. (Chart 3.34) In H2 2008, inflation is expected to taper off to an average of around 4%, partly due to the dissipation of the GST hike effect.

**Chart 3.33**  
**COE Premiums for Categories A, B and E**



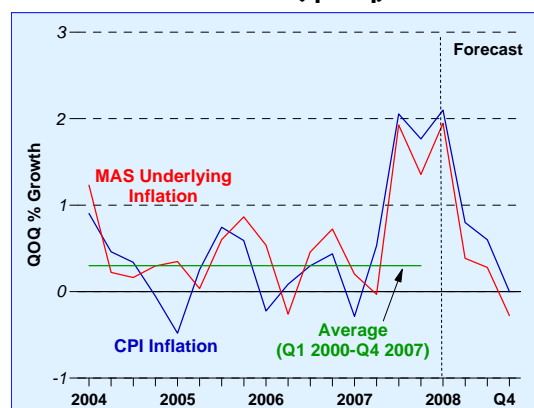
**Chart 3.34**  
**Headline and MAS Underlying Inflation Forecast (y-o-y)**



On a sequential basis, inflation should moderate over the rest of the year and come closer to its historical average rate of increase of 0.3%. (Chart 3.35)

For the whole of 2008, CPI inflation is likely to come in at the upper half of the 4.5-5.5% forecast range, with the MAS underlying inflation, which excludes private road accommodation and private road transport, coming in at 3.5-4.5%.

**Chart 3.35**  
**Headline and MAS Underlying Inflation Forecast (q-o-q)**



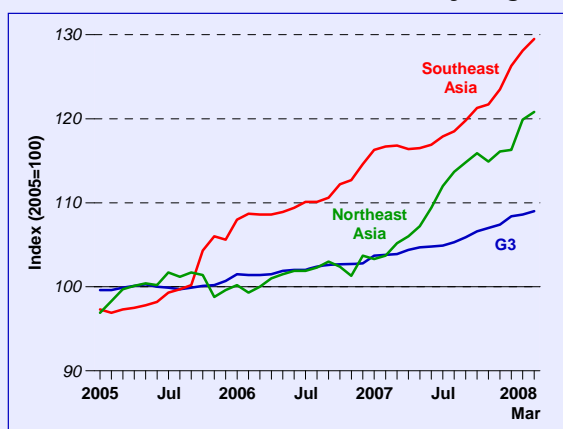
**Box B**  
**Global Food Price Inflation**

Food prices have risen sharply in the last two years, raising concerns about heightened inflationary pressures, rising poverty levels, worsening income distribution and social unrest. Indeed, World Bank President Robert Zoellick recently commented that higher food prices could mean “seven lost years” in the fight against global poverty. In this box, we consider recent developments in food and other primary commodity prices and assess them in the context of their longer-term historical trends.

**(1) Recent Developments in Global Food Price Inflation**

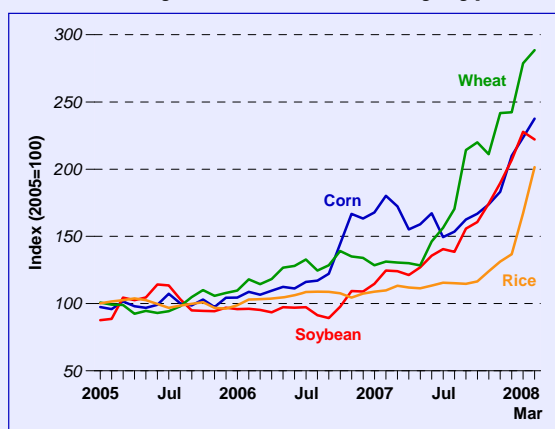
Data compiled by the IMF indicate that commodity food prices have risen by approximately 60% over the past two years, with the bulk of the increases taking place since mid-2007. This has filtered down – to a varying extent – to prices at the retail level. By region, the rise in consumer food price inflation has been significantly higher in developing economies, such as Northeast and Southeast Asia, than in the developed countries (G3). (Chart B1) This is largely due to the higher share of non-farm value added embodied in the final price of agricultural commodities in the developed economies, where non-farm costs, such as transport, marketing and rentals, typically account for over 90% of the retail price of many agricultural products.

**Chart B1**  
**Consumer Food Price Index by Region**



Source: CEIC and Datastream

**Chart B2**  
**Commodity Food Price Index by Type**



Source: IMF and Rice Exporters Association, Thailand

Chart B2 shows that the recent increase in food prices began in early 2006, when wheat prices escalated sharply due to drought in several wheat exporting countries, such as Australia, US and Ukraine, which reduced production. This was followed by increases in the prices of corn, soybean and, more recently, rice.

### ***Factors that have Contributed to Recent Food Price Inflation***

Among the factors that have contributed to the sharp rise in global food prices are:

#### ***(i) Rising global incomes***

The world economy has expanded at a rapid pace over the past five years, leading to significant increases in real household incomes. The average global GDP growth of 4.8% per annum between 2003 and 2007 is the highest on record since the 1980s. Furthermore, over the past 1-2 decades, robust growth in several large developing economies, such as China and India, has led to significant increases in household incomes and greatly increased the number of households in the middle-class segment, given their large populations. As incomes rise from a very low level, food (and especially meat) consumption increases significantly. Per capita consumption of meat in China, for instance, has more than doubled from 20kg in 1980 to 50kg last year. IMF estimates suggest that China has become a very important source of global food demand growth, accounting for approximately 35-40% of the increase in global consumption of soybeans and meat, for example.

#### ***(ii) Supply disruptions***

On the supply side, adverse shocks have contributed to the food price inflation. Given the overall low price elasticity of demand for food in both developed and developing countries, market clearing prices tend to increase sharply even in the face of a modest reduction in supply. For example, disease outbreaks and bad weather in Australia (which led to a 50% reduction in harvests of its three major crops) and China (where freezing conditions killed some 16 million livestock) have contributed to the steep hikes in a variety of food prices, such as flour, milk and pork. More recently, drought and other weather-related influences have impacted rice output as well. The amount of land available for planting paddy has been reduced by factors such as urbanisation and industrialisation, as well as a diversion of land to the planting of cash crops. As a result, the price of Thai B-grade white rice, a global benchmark, rose to an all-time high of over US\$1,000 per metric tonne in April 2008, three times the average price of US\$330 last year.

#### ***(iii) Diversion of land to the production of biofuels***

Another major global development which has had the unintended effect of pushing up food prices is the increased use of biofuels<sup>1/</sup> as a substitute for fossil fuels. Ethanol is currently the major type of biofuel used globally, and a number of governments have been actively promoting its production. The US, for instance, has a long history of providing subsidies<sup>2/</sup> for the production of ethanol. While the initial objective was to support corn prices and thereby farm income, its focus has changed. With the passage of the Clean Air Act of 1990, for example, ethanol became an important means to add oxygen to gasoline, contributing to cleaner combustion. More recently, two other objectives have come to the fore: energy security and global warming. In fact, the programme was so successful that, since 2005, the US has overtaken Brazil as the world's largest producer of ethanol. This diversion of arable land to the production of biofuel has meant a concomitant reduction in the amount of land devoted to food production. According to the Food and Agriculture Organisation, 41% of the additional 32 million tons of major crops demanded last year was for the production

<sup>1/</sup> Biofuel is a type of fuel consisting of, or derived from, biomass. Biomass is made from living organisms, including plants, animals and their by-products. It is a renewable energy source, unlike other natural resources such as petroleum and coal. Some agricultural products are specifically grown for biofuel production, such as corn, soybeans, rapeseed, wheat, sugar beet, sugar cane and palm oil.

<sup>2/</sup> The federal subsidy ranges from US\$0.40 to US\$0.60 per gallon of ethanol, and is currently US\$0.51 per gallon or about US\$1.30 per bushel of corn. One bushel of corn is estimated to yield 2.5 gallons of ethanol.

of biofuel. Such policies – while helping to conserve scarce fossil fuels – have clearly aggravated the supply shortages and increased pressure on a variety of food and animal feed prices.

Research into the impact of increased biofuel production remains at an early stage and there are still considerable knowledge gaps and divergences in views among policymakers on some of the key issues, including the practicality of supplementing fossil fuels with biofuels. This is due to the difficulty of measuring the payoffs with respect to investments in biofuel production. Gardner (2007), for example, found that such subsidies were unlikely to generate net social gains for the US economy. Using a fully-specified model of demand and supply relationships in the relevant markets, the study showed that the producer surplus of ethanol manufacturers would increase with the introduction of ethanol subsidies. On the demand side, while consumers of ethanol and its by-products benefit from cheaper ethanol prices, buyers of corn for animal feed or for export would lose out. Summing up all the gains and losses and weighing these against the cost to the government of US\$2.6 billion, the estimates showed that over a one-year short-run scenario, the net welfare loss would come to approximately US\$91 million annually. Such estimates, of course, are by no means conclusive, but are indicative of findings in a number of other studies that suggest little positive gains overall from the biofuel initiative.

(iv) Increase in the prices of inputs and ancillary services

The surge in the price of oil has not only led to higher energy and transport costs but has also raised the cost of producing intermediate inputs, such as fertilizers, all of which add to the cost of farming. As mentioned previously, cost increases in intermediate processes like packaging, advertising, transportation and refrigeration also contribute significantly to the final prices of consumer food items.

(v) Investment interest in commodity products

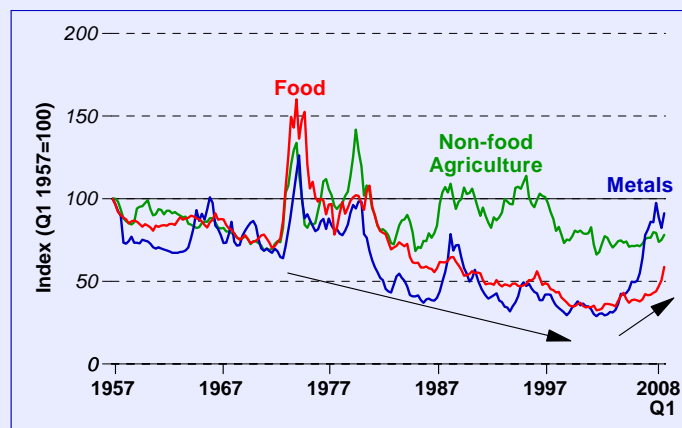
The emergence of competing demands for primary commodities and the concomitant disruption in output have attracted investors' interest in commodities as an asset class. Moreover, the continued turbulence in global equity and property markets has increased risk aversion in traditional investment assets and may have raised interest in alternative instruments with exposure to the commodities market, such as Exchange Traded Funds and derivatives contracts. Low global interest rates also reduce the carry cost of these alternative investment assets. Thus, primary commodity prices have generally continued to rise despite the recent slowdown in the global economy.

**(2) Longer-term Trends**

To assess the significance of recent commodity price increases, it is useful to take a step back and consider them in the context of longer-term movements in commodity prices and, in particular, real commodity prices. Chart B3 shows real commodity prices deflated by the US GDP deflator<sup>3/</sup> for metals, food, and non-food agricultural products over the past 50 years. Two observations can be made: (i) real commodity prices have exhibited a general trend decline, and (ii) prices can be very volatile in the short term along that declining trend.

<sup>3/</sup> Real commodity prices can also be defined as a relative price between commodities and manufactured goods.

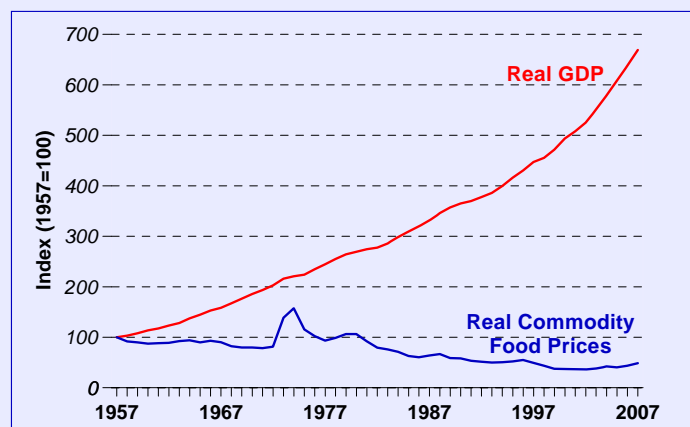
**Chart B3**  
**Real Commodity Prices**



Source: IMF, IFS

Indeed, real food prices over the longer term appear rather benign: even after the recent steep run-up, real food prices today remain lower than they were for much of the past 50 years. Moreover, real commodity food prices have trended down even as real global GDP has increased over time. (Chart B4)

**Chart B4**  
**Global Real GDP and Real Food Prices**

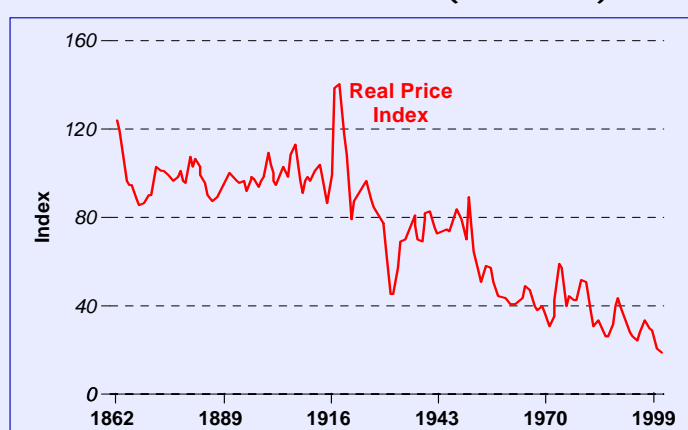


Source: Angus Maddison and IMF

In well-known studies, Prebisch (1950) and Singer (1950) found that the relative price of commodities in terms of manufactures exhibited a downward trend. More recently, in a comprehensive study covering 24 internationally traded non-fuel commodities between 1900 and 1986, Grilli and Yang (1988) observed a similar decline in the prices of non-fuel primary commodities relative to those of manufactures.<sup>4/</sup> Likewise, using the longest dataset publicly available, Cashin and McDermott (2002) found that there has been a downward trend in real commodity prices of about 1% per year on average over the past 140 years (up to 1999). (Chart B5) Commodity prices were also found to have become more volatile after the 1970s.

<sup>4/</sup> The non-fuel group includes eleven food commodities: bananas, beef, cocoa, coffee, lamb, maize, palm oil, rice, sugar, tea, and wheat; seven non-food agricultural commodities: cotton, hides, jute, rubber, timber, tobacco and wool; and six metals: aluminium, copper, lead, silver, tin and zinc.

**Chart B5**  
**Real Price of Commodities (1862-1999)**



Source: Cashin and McDermott (2002)

What then accounts for the observed long-term trend decline in real commodity prices? Both Prebisch and Singer attributed it to the low income elasticity of demand for commodities, implying that secular income growth tends to reduce the relative demand for, and hence the relative price of, primary commodities. In the US, for example, real income has increased to such an extent that the share of food in the typical household's expenditure basket has fallen to a mere 13.8%. This compares with some 40% or more for developing countries. Moreover, on the supply side, productivity gains in agriculture tend to be higher than for manufactures. In a World Bank study by Martin and Mitra (1999) covering a large sample of countries at different stages of development from 1967 to 1992, the average total factor productivity (TFP) growth rate for agriculture was found to be some 62% higher than that of manufactures. (Table B1) This suggests that there has indeed been significant improvement in agricultural productivity owing, in part, to improved irrigation and economies of scale from large-scale farming, as well as the development of higher yielding crop varieties.

**Table B1**  
**Total Factor Productivity Growth (% per annum)**

Countries	Translog <sup>1</sup>		Cobb-Douglas <sup>2</sup>		Shares <sup>3</sup>		Average	
	Mfg	Agri	Mfg	Agri	Mfg	Agri	Mfg	Agri
<b>Developing Country Average</b>	0.92	1.79	0.62	1.76	0.90	2.62	0.81	2.06
<b>Developed Country Average</b>	3.29	3.38	1.91	3.35	2.80	3.46	2.67	3.40
<b>Overall Average</b>	1.86	2.34	1.13	2.31	1.65	2.91	1.55	2.52

Source: Martin and Mitra (1999)

1/ TL-CRS: Estimates using Translog production function with constant returns to scale imposed.

2/ CD-CRS: Estimates using Cobb-Douglas production function with constant returns to scale imposed.

3/ Shares: Estimates using actual factor shares.

At this juncture, a key question is whether the current increase in commodity food prices is a short-term spike that will soon unwind, as the long-term trend suggests, or whether it is different this time in view of significant structural changes in the world economy, such as the dramatic rise of China, India and other emerging market economies. The apparent inverse relationship between commodity prices (most of which are denominated in US dollars) and the fall in the dollar is another factor that could potentially introduce greater volatility into commodity prices. Nonetheless, the well-documented high volatility of real commodity prices around a declining trend suggests that it would not be correct to base expectations of future commodity prices on a simple extrapolation of current price trends. Although prices may increase for a little while longer, the rate at which they are rising should slow as producers and consumers adjust to the higher prices.

**Sum Up**

Food prices have risen sharply in the last two years, driven by a confluence of both demand and supply factors. The impact of higher commodity food prices on CPI inflation is stronger for developing economies than for developed countries, given the higher proportion of household expenditure on food in the former. As such, a moderation in global growth should, in the periods ahead, provide some relief to the upward momentum in commodity food price inflation as longer-term trends suggest that the current spike in global food prices is unsustainable. Empirical studies have suggested that real commodity prices exhibit a downward trend although short-term fluctuations can be significant and can persist for a number of years.

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## 3.6 Assessing the Macroeconomic Policy Mix

### Monetary Policy

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**The latest monetary policy decision will alleviate inflation pressures, as the economy slows to its sustainable output path.**

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MAS announced on 10 Apr 2008 that it would re-centre the exchange rate policy band at the prevailing level of the S\$NEER, with no change in its slope or width. Since the last policy review in October 2007, the S\$NEER has been fluctuating in the upper half of the policy band, partly reflecting the accelerated broad-based decline in the US\$ due to the fallout from the subprime crisis. The strength of the S\$NEER was further supported by growth in domestic economic activity.

The April monetary policy decision provides affirmation that the exchange rate path is consistent with the prevailing macroeconomic conditions in the economy. Amidst sustained above-trend growth, the Singapore economy has also been experiencing supply-side constraints. Strong cost pressures have come to the fore, as evident in the sharp increases in wages and the rents for commercial space. External price pressures have also surprised on the upside, in line with a sharp escalation in a broad range of food and oil-related commodity prices. These factors, coupled with the 2% point GST hike in July 2007 and an adjustment in imputed rents for residential properties, caused CPI inflation to spike upwards to 3.4% in H2 2007 from 0.8% in H1 2007. So far in 2008, domestic prices have strengthened further, with CPI inflation rising steeply to 6.6% in Jan-Feb 2008.

In the quarters ahead, Singapore's GDP growth is likely to ease on account of a mark-down in growth prospects for the developed economies, especially the US. Global IT demand is anticipated to remain sluggish in line with softening global economic conditions, with knock-on effects on the domestic electronics sector. Economic activity in Asia will slow somewhat, but the pace of growth should remain fairly firm in the near term, given strong domestic demand and regional trade flows.

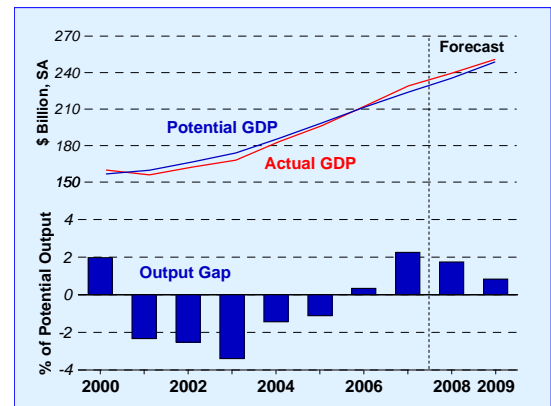
Singapore's GDP growth is projected to moderate to a more sustainable pace of around 4-6% in 2008, after four years of robust growth above 7% over the period 2004 to 2007. The economy will be supported by a

number of industries including marine engineering, construction, tourism, and certain segments of the services sector such as bank intermediation. The slower rate of expansion will bring the economy closer to its potential output path, with the output gap narrowing markedly by 2009. (Chart 3.36)

Meanwhile, global oil and food prices are projected to remain elevated, following supply shortages amidst continued firm demand. Indeed, while the downside risks to the global outlook have risen, external price pressures are likely to remain strong. On the home front, owing to short-term capacity constraints, cost pressures will persist, notwithstanding the moderation in GDP growth. In sequential terms, however, cost increases are expected to slow over the course of 2008. Overall CPI inflation is forecast to come in at the upper half of the 4.5-5.5% range under the current monetary policy stance. Labour market conditions will remain tight, with the unemployment rate estimated to stay below 2%.

The re-centring of the policy band, with its slope and width unchanged, will help to alleviate inflation pressures and provide support to the economy as it eases to a more sustainable growth rate. It is recognised that downside risks to external demand have increased as a result of continuing uncertainty in the US economy and international financial markets. MAS' monetary policy remains focused on ensuring medium-term price stability in the economy as the basis for sustainable economic growth. (See Box C for more details on the price transmission mechanism in the Singapore economy.)

**Chart 3.36**  
**Real GDP and Output Gap**



**Box C****A Stylised Representation of the Price Transmission Mechanism in Singapore*****Introduction***

Given Singapore's small and open economy, a large part of domestically consumed products is produced abroad, and the bulk of its final demand is driven by overseas markets. These characteristics have important implications for domestic price determination and inflation. In this box, we offer a stylised description of the price transmission mechanism in Singapore.

***Underlying Sources of Inflation***

Consumer price inflation in Singapore can be attributed to two underlying sources: (i) the prices of imported consumer goods, which follows from the fact that Singapore is highly dependent on imports for its consumption needs; and (ii) cost pressures arising from external demand – which accounts for 75% of total demand in the economy – resulting in attendant income spillover effects on the non-tradable sectors.

***Using the Exchange Rate to Maintain Price Stability in Singapore***

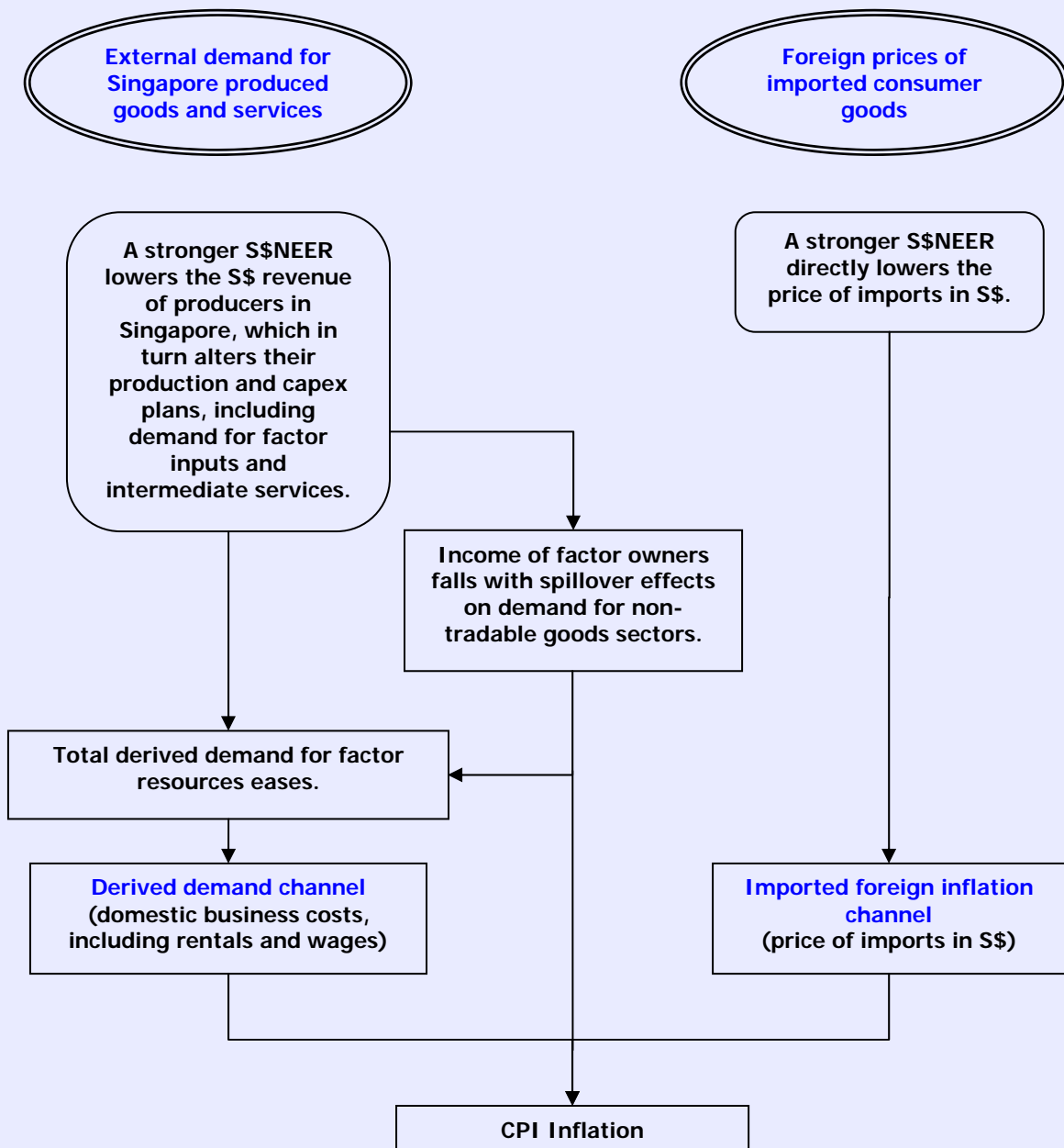
In the context of the small and open nature of the Singapore economy, the exchange rate, rather than interest rates, is used to influence price conditions. To this end, the S\$NEER serves as an intermediate target to achieve medium-term price stability in Singapore. The policy requires the setting of operating targets for the S\$NEER, expressed in the form of the level, slope and width of the policy band.

The impact of exchange rate policy is propagated through changes in the prices of imports and exports in domestic currency terms. A stronger exchange rate, for example, will act directly to filter the higher cost of imported consumer goods, thus lowering CPI inflation.

In comparison, the second channel affects inflation indirectly through cost pressures arising from external demand. Given that Singapore is a price taker in world markets, our export prices in terms of foreign currency are determined by global demand and supply. Therefore, an appreciation in the S\$ exchange rate will necessarily reduce the revenues of Singapore-based exporters in domestic currency terms, although the effect on profit margins will be mitigated somewhat by the lower cost of imported intermediate inputs. Exporters will naturally re-optimize their production plans and capital expenditure budgets, and reduce their utilisation of factor resources and intermediate services, such as industrial space and labour. This lowers the demand and income of owners of factors of production, such as wages and rentals, which in turn reduces the domestic demand for non-tradable goods and services. Total derived demand for factor resources in the economy thus eases, thereby moderating inflationary pressures in the economy.

Figure C1 provides a broad schematic framework of the price transmission mechanism. Extensive empirical work by EPD has validated the significant leverage effects of the S\$NEER on these two channels of influence and impact points in the economy.

**Figure C1**  
**Schematic Representation of the Price Transmission Channels**



**Sum Up**

This box highlights the importance of both the import price channel and derived demand channel as underlying sources of CPI inflation in Singapore. Given the trade-dependent nature of the economy, these sources are necessarily underpinned by external macroeconomic conditions, even as some of the price pressures will emanate from domestic supply-side constraints. Monetary policy formulation at the MAS takes into account these various channels in determining the impact of the S\$NEER on the overall inflationary pressures in the economy.

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## Fiscal Policy

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### **The FY2008 Budget continues to focus on the medium- to longer-term challenges ...**

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The FY2008 Budget, which was announced on 15 Feb 2008, focused on facilitating ongoing structural changes to meet the medium- to longer-term challenges facing the Singapore economy.

The key thrusts of this year's Budget were on enhancing education and training opportunities, fostering innovation, and maintaining competitiveness by supporting the growth of small- and medium-sized enterprises and strengthening our role as a financial and business hub. To deal with the demographic challenges of falling fertility rates and rising life expectancy, there were also measures to cope with the demands of a rapidly ageing population, including encouraging and helping Singaporeans to prepare financially for retirement and healthcare needs.

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### **... and to foster a competitive tax environment for businesses and individuals.**

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The government re-affirmed its commitment to foster a conducive and competitive tax environment for businesses to grow. In this Budget, various corporate tax incentives were introduced to encourage new start-ups and innovation in companies, and to help SMEs upgrade their premises. These targeted tax incentives were in addition to the broader measures announced in last year's Budget, namely, the reduction in the headline corporate income tax rate to 18% with effect from YA2008, and enhancements made to the partial tax exemption scheme which would effectively lower the tax rate to less than 10% for the majority of taxable companies in Singapore. Tax incentives were also augmented to promote financial activities such as Islamic finance, insurance and wealth management, as well as to develop our maritime hub.

There were two key announcements in this Budget on individual taxes. First, there was the immediate removal of estate duty for deaths occurring on or after 15 Feb 2008. Property tax will now be the only form of asset tax going forward. The takings from estate duty had averaged around \$75 million per year, accounting for only 4% of asset taxes and less than 0.5% of total operating revenue. The second measure pertained to personal income tax. While the prevailing tax rate of

20% was maintained, the government will now provide a one-off income tax rebate of 20% for all resident taxpayers for YA2008 subject to a cap of \$2,000, in view of the strong fiscal surplus recorded in the previous year. This will mean a \$380 million loss in revenue.

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**The government's operating revenue has experienced a structural decline over the years.**

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Over the years, the government has made a deliberate attempt to cut taxes, fees and charges, with a view to enhancing the economy's competitiveness. (Table 3.7) These largely consist of reductions in both corporate and personal income tax rates. (Chart 3.37) As a result, there has been a structural decline in operating revenue since FY2002. Over the last six years from FY2002-07, operating revenue averaged 15% of GDP, compared to around 20% from FY1995 to FY2001. (Chart 3.38) This was despite the gradual hike in the GST rate over this period from 3% to 4% in 2003, then to 5% in the subsequent year, and further to 7% in 2007. In order to boost its revenue sources to meet increased expenditure needs in the longer term, the government is in the process of reviewing the framework for drawing investment income from reserves to fund its current expenditure.<sup>8</sup>

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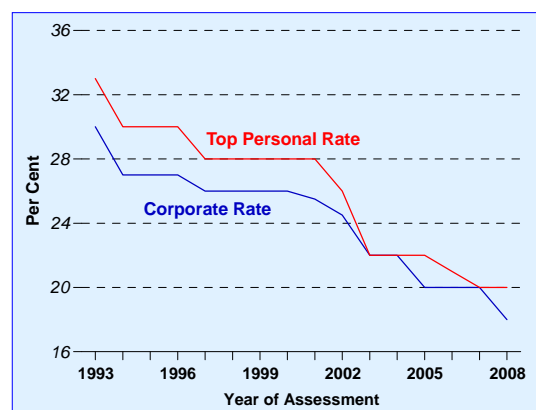
**Government expenditure has also fallen in recent years ...**

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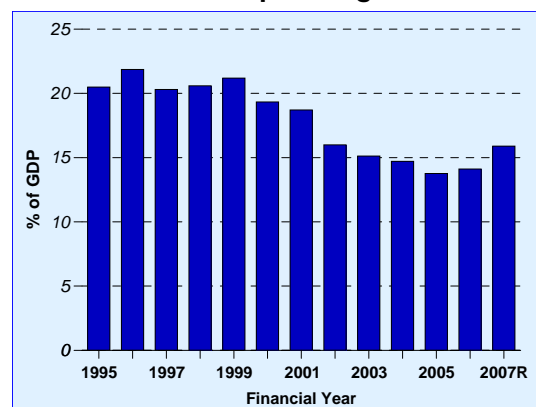
On the expenditure side, there has also been a discernible fall in total government spending – including special transfers – since FY2002. (Chart 3.39) Government expenditure as a proportion of GDP trended downwards from 23% in FY2001 to 15% in FY2007, and has remained amongst the lowest in the world. This is a manifestation of the longstanding fiscal prudence and discipline of the government, guided by the philosophy of living within its means and allocating resources efficiently and effectively while improving the country's standard of living and achieving fiscal stability.

For example, under the Block Budget Framework, ministries' budgets are capped at a fixed percentage of a seven-year smoothed nominal GDP, thus ensuring that government spending is tied to its expected revenue receipts on a sustained basis. To maintain the discipline for ministries to economise and raise productivity, the government also permanently reduced

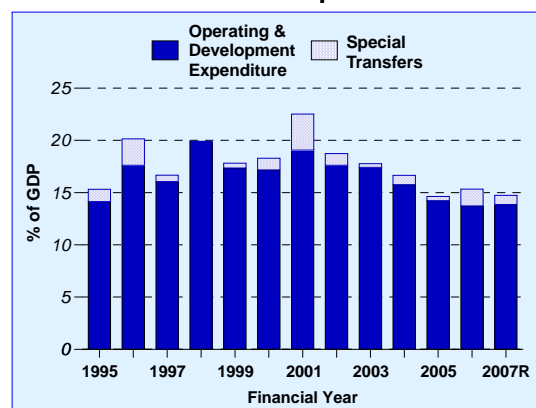
**Chart 3.37**  
Corporate and Personal Income Tax Rates



**Chart 3.38**  
Government Operating Revenue



**Chart 3.39**  
Government Expenditure



Note: For comparability across periods, land-related expenditure – which has been charged to past reserves since FY2001 – are added back to government expenditure for FY2001 to FY2007.

<sup>8</sup> The current constitution allows up to 50% of net investment income to be included in the budget each year for the current spending needs of the government, with the rest being locked up as reserves.

**Table 3.7**  
**Major Structural Tax Changes**

<b>Corporate Income Tax</b>	
YA2002-YA2008	- Reduction in corporate tax rate from 25.5% to 18%
YA2002	- Partial tax exemption for corporations
YA2008	- Increase in partial tax exemption threshold from \$100,000 to \$300,000
YA2003	- Introduction of group relief allowing companies to transfer losses, unutilised capital allowances and donation expenditure to other group companies
16 Feb 2008	- Tax incentive for fixtures/fittings
YA2008	- Income tax deduction for borrowing costs
YA2009	- R&D tax incentives
<b>Personal Income Tax</b>	
YA2003-YA2007	- Reduction in personal income tax rate from 26% to 20%
YA2005	- Exemption of all foreign-sourced income derived by individuals remitted to Singapore and all Singapore-sourced investment income derived directly by individuals from qualifying financial instruments.
<b>Asset Taxes</b>	
Jul 2001	- Reduction in property tax rate from 12% to 10%
15 Feb 2008	- Removal of estate duty
<b>Other Major Tax Changes</b>	
1 Jan 2005	- Reduction in withholding tax rate on royalties from 15% to 10%
FY2005	- Reduction in foreign domestic worker levy (FDWL) by \$50
FY2007	- Reduction in foreign domestic worker levy (FDWL) and extension of concessionary FDWL to families with disabled members
1 Sep 2007	- Reduction in road tax by 8% for passenger cars and motorcycles
1 Jul 2008	- Reduction in road tax by 15%
Mar 2008	- Reduction in Additional Registration Fees (ARF) from 110% to 100% of Open Market Value (OMV)

Source: Various issues of MOF's *Budget Highlights*

their allocated budgets (with the exception of the Ministry of Defence) by 2% of GDP in FY2004 and a further 3% in FY2005. In addition, a civil service-wide Economy Drive was launched to encourage efficiency gains, minimise waste, find more cost-effective ways to deliver services, and benchmark against the best private sector practices. Each year, MOF also extracts a portion of each ministry's budget and pools these funds into the central Reinvestment Fund (RF) for reallocation of resources into areas of strategic priority for the future.

In the longer term, government expenditure is expected to increase. An aging population, rising healthcare costs, and the uncertain security environment will continue to demand higher public and social spending.

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**... although it is projected to rise in FY2008, as last year's budget surplus is shared with Singaporeans.**

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In the FY2008 Budget, government expenditure including special transfers is projected to rise to

\$43 billion, up from the estimated \$36 billion in FY2007. This arose from increases across the board, from social development to security & external relations and economic development. At the same time, special transfers also went up by \$3.2 billion, of which \$1.4 billion was part of the surplus sharing package arising from the better-than-expected budget surplus in FY2007. The bulk of the surplus sharing package comprised direct cash handouts in the form of Growth Dividends (\$0.9 billion), with the rest largely ear-marked for top-ups in education and healthcare. Most of these measures were aimed at easing the burden of lower- and middle-income households in the current climate of rising prices.

In addition, the government continued to inject money (\$2.2 billion) into various endowment funds to ensure a continuous stream of income to finance specific programmes that cater to the current and future needs of Singaporeans. The rest of the special transfers in FY2008 consisted of a top-up to the National Research Fund (\$0.8 billion) and the portion of the GST Offset Package announced last year, which would be disbursed in FY2008.

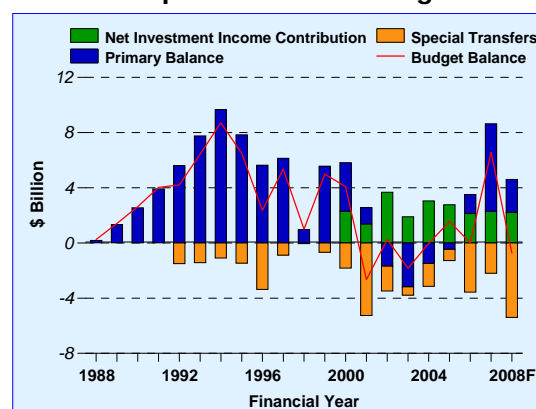
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**The government expects to run a small budget deficit in this fiscal year.**

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Taking into account all the budgetary measures, the government expects to run a small deficit of \$0.8 billion (0.3% of GDP) in FY2008, compared to the \$6.4 billion (2.6% of GDP) surplus in FY2007. (Chart 3.40 & Table 3.8)

**Chart 3.40**  
Components of the Budget



**Table 3.8**  
Summary of the Budget

	FY2007 Revised		FY2008 Budgeted	
	\$ billion	% of GDP	\$ billion	% of GDP
Operating Revenue	39.6	15.9	39.8	14.6
Total Expenditure	33.3	13.3	37.5	13.7
Operating Expenditure	26.2	10.5	29.0	10.6
Development Expenditure	7.1	2.8	8.5	3.1
Primary Surplus/Deficit (-)	<b>6.3</b>	<b>2.5</b>	<b>2.4</b>	<b>0.9</b>
Add: Net Investment Income Contribution	2.3	0.9	2.2	0.8
Less: Special Transfers	2.2	0.9	5.4	2.0
Budget Surplus/Deficit (-)	<b>6.4</b>	<b>2.6</b>	<b>-0.8</b>	<b>-0.3</b>

Note: Figures may not tally due to rounding.

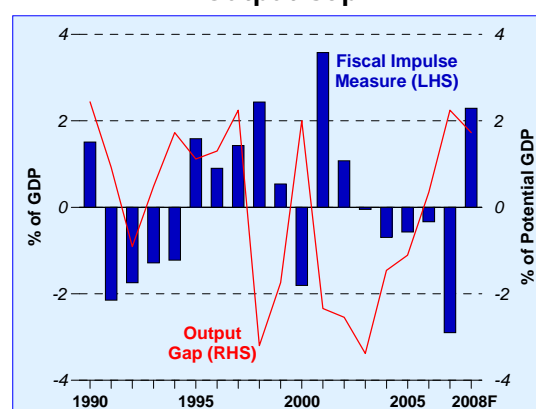
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**The fiscal policy stance will be largely neutral in 2008.**

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To determine the magnitude of the initial stimulus to aggregate demand arising from the net effects of fiscal policy, the fiscal impulse (FI) measure is used. The FI measure indicates the direction of the change in budgetary stance – whether it has stayed neutral, or become more expansionary or contractionary compared to the previous year. In CY2008, it is estimated to switch to a positive value of around 2.3% of GDP, indicating a more expansionary stance compared to CY2007.<sup>9</sup> (Chart 3.41) However, this could be somewhat exaggerated, as the budget surplus was larger than expected last year, boosted by property-related taxes and the hike in the GST rate.<sup>10</sup>

**Chart 3.41**  
Fiscal Impulse Measure and the Output Gap



<sup>9</sup> Note that this is on a CY basis, while the FI measure in MOF's *Budget Highlights* is on a FY basis.

<sup>10</sup> Indeed, if we were to use a fixed base year rather than a rolling base year to compute the FI measure, the result would have been different for CY2008. Using 2006 as the base year when actual output was very close to its potential, the estimated FI measure would be negative in CY2008, suggesting a contractionary fiscal policy stance. Please refer to the January 2002 issue of the Review on the methodology for calculating the FI measure.

It is important to note that the FI measure is designed to determine the direction of the change in budgetary stance, rather than to assess its effect on the economy. The latter would require simulations to capture the multiplier effects of detailed expenditure and revenue items using a macroeconomic model.

Based on simulations using the MAS Monetary Model of Singapore (MMS), it is estimated that the impact of the FY2008 Budget on overall GDP will be fairly small in 2008 and 2009, confirming its broad neutrality as far as the macro economy is concerned. (Table 3.9) Nonetheless, there are some effects on particular expenditure categories.

Private consumption will be lifted by 0.2% point in 2008 and 0.1% point in 2009 by the Growth Dividends and personal income tax rebates. This does not include the impact of the measures announced in the FY2007 Budget, which have already contributed 0.2% point to private consumption growth in the baseline. At the same time, government consumption will also be boosted by higher expenditure on social and healthcare services. While overall investment in the longer term will be boosted by measures to incentivise innovation and enterprise, it will be dampened by the short-term deferment of government projects worth nearly \$3 billion to ease the pressure on construction costs. This is anticipated to shave 0.7% point off from investment growth in 2008.

On the inflation front, the FY2008 Budget will also have a rather muted impact. First, this Budget is not an expansionary one by design in terms of its injections into the economy. Second, any potential upside to inflation from the boost to consumption is expected to be partially offset by the cut in government investment which will help to dampen business costs.

**Table 3.9**  
**Impact of FY2008 Budget on Key**  
**Macroeconomic Variables**

(% Point Deviation from Baseline)

	2008	2009
GDP Growth	0.1	0.0
Private Consumption Growth	0.2	0.1
Investment Growth	-0.7	0.4
CPI Inflation	0.0	0.1