

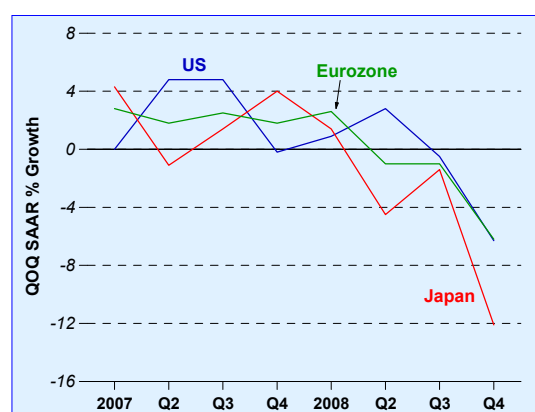
## 1.1 External Developments

### A Sharp Contraction in Global Economic Activity and Trade

The global economy presented sharply contrasting halves in 2008: while escalating commodity prices and strong inflationary pressures dominated the first half of the year, these quickly gave way to growth and employment concerns in H2 as economic and financial market conditions deteriorated rapidly. Exacerbated by the deepening global credit crunch in the aftermath of the collapse of Lehman Brothers, the contraction in the G3 economies deepened in Q4 2008 to levels unmatched in recent decades. (Chart 1.1) The correction in household balance sheets weighed heavily on consumer spending, particularly in the US, where private consumption comprises 70% of GDP. The downturn severely impacted corporate profits as sales plunged and inventories piled up. As a result, firms sharply reduced investment spending and employment.

While growth in most Asian economies held up relatively well throughout the first three quarters of 2008, the unprecedented deterioration in demand in the developed economies inevitably took its toll on Asian exports and economic growth in Q4 2008 and the early months of this year. Among the hardest hit were the export-dependent newly industrialised economies (NIEs), which saw GDP growth turning sharply negative in Q4 2008. (Table 1.1) Taiwan's GDP, for instance, contracted by a record 8.4% y-o-y in Q4 2008 as merchandise exports tumbled by 25% in the same quarter. For the larger economies such as China, India and Indonesia, growth was somewhat more resilient as buoyant domestic demand helped to cushion the drop in exports.

**Chart 1.1**  
**G3 GDP Growth**



Source: Datastream

**Table 1.1**  
**GDP Growth**

	2007	2008	y-o-y (%)	
			2008 Q3	2008 Q4
<b>Total*</b>	<b>5.1</b>	<b>2.8</b>	<b>2.8</b>	<b>-0.5</b>
Industrial Countries*	<u>2.5</u>	<u>0.7</u>	<u>0.6</u>	<u>-1.7</u>
US	2.0	1.1	0.7	-0.8
Eurozone	2.7	0.7	0.6	-1.4
Japan	2.4	-0.6	-0.2	-4.3
NIE-3*	<u>5.9</u>	<u>1.7</u>	<u>1.1</u>	<u>-4.6</u>
Hong Kong	6.4	2.5	1.7	-2.5
Korea	5.1	2.2	3.1	-3.4
Taiwan	5.7	0.1	-1.0	-8.4
ASEAN-4*	<u>6.1</u>	<u>4.7</u>	<u>5.1</u>	<u>1.2</u>
Indonesia	6.3	6.1	6.4	5.2
Malaysia	6.3	4.6	4.7	0.1
Thailand	4.9	2.6	3.9	-4.3
Philippines	7.2	4.6	5.0	4.5
China	13.0	9.0	9.0	6.8
India	9.2	7.4	7.6	5.3

Source: Datastream and CEIC

\* Weighted by each country's share of Singapore's non-oil domestic exports.

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### The weakness in US growth was broad-based ...

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The US recession deepened in Q4 2008, with the economy contracting by 6.3% q-o-q SAAR, the steepest decline since 1982. (Chart 1.2) Personal consumption expenditures contracted for a second consecutive quarter by 4.3%, as households cut back sharply on purchases of durable goods in response to falling net worth, tighter credit conditions and accelerating job losses. The deterioration in business sentiment drove firms to cut investment by 22%, surpassing that seen in the 2001 recession. As global conditions weakened, net exports also became a drag on the economy, shaving 0.15% point off GDP growth in Q4 2008, compared to an average positive contribution of 1.6% points in the preceding three quarters.

The cumulative job losses of 3.1 million in the US in 2008 have surpassed those of 1982. More recently, the fall in non-farm payrolls accelerated to an average of 690,000 per month in Q1 2009, up from 550,000 in Q4 2008 and 210,000 in Q3 2008. Correspondingly, the unemployment rate has risen from 6.2% in September 2008 to 8.5% in March this year.

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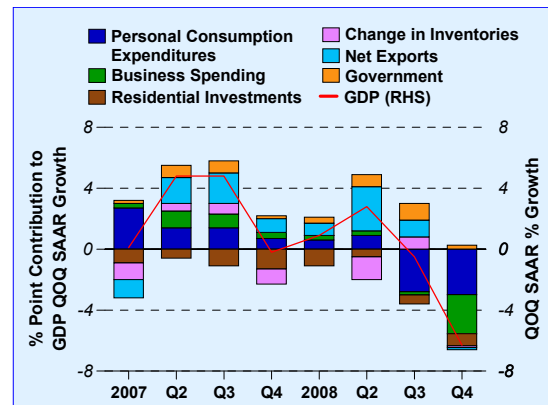
### ... and the downturn in the Eurozone and Japanese economies intensified in Q4 2008.

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The Eurozone economies contracted by 6.2% q-o-q SAAR in Q4, significantly more than the average decline of 1.0% in Q2-Q3 2008. The drop was led by exports, which fell by 24% sequentially on account of much weaker shipments from Germany, the Eurozone's largest economy and the world's biggest exporter. Domestic demand also softened as the Eurozone unemployment rate rose from 7.2% at the start of last year to 8.5% in February 2009.

Recording its third consecutive quarter of negative growth, the Japanese economy declined by a steep 12% q-o-q SAAR in Q4 2008. Exports fell by 45% as the global financial crisis and a strong yen dampened the demand for Japanese goods. The poor outlook for final demand and flagging corporate confidence drove non-residential private investments down by 20%. These weaknesses persisted into early 2009, with Japanese manufacturing production falling by 38% in February and merchandise exports contracting by 41% in Q1 on a y-o-y basis.

Chart 1.2  
Contribution to US GDP Growth



Source: US Bureau of Economic Analysis

### The slowdown in Asia ex-Japan was catalysed by a collapse in exports.

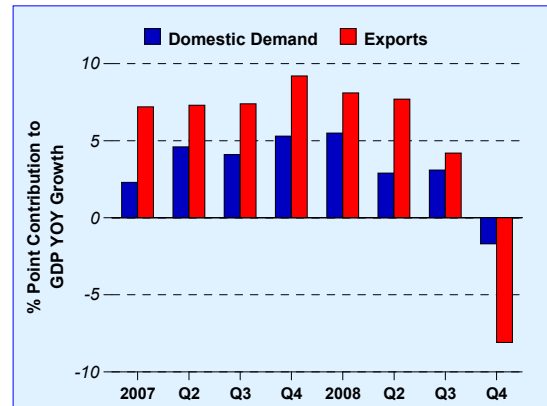
In Asia ex-Japan<sup>1</sup>, growth fell sharply in Q4 2008, led by a collapse in exports. (Chart 1.3) Within the region, growth has held up better in the larger, less trade-dependent and more agrarian economies. For example, China's GDP growth slowed to 6.8% y-o-y in Q4 2008, the slowest in seven years. However, the more export-dependent economies, such as the NIEs, Malaysia and Thailand, saw more pronounced declines, posting flat or negative growth as global demand for electronics and other goods tumbled.

For the region as a whole, exports have fallen faster and further than in previous downturns. (Chart 1.4) While declining G3 demand was the main drag to Asia's exports during the 2001 IT downturn, the fall in intra-Asian shipments accounted for a larger share of the decline in the region's exports in the present downturn. (Chart 1.5) In Q4 2008, intra-regional shipments shaved 5.2% points off from Asia ex-Japan's export growth compared to the -1.0% point contribution from the G3. Shipments to China accounted for over two-fifths of the decline in intra-regional exports.

Of the various product groups, machinery & transport equipment contributed the most to the region's export downturn in Q4 2008. (Chart 1.6) Within this category, a significant proportion consisted of electronics intermediate goods and communications equipment, suggesting an important role for regional cross-border production networks in the recent export decline. Box A examines this link in greater detail.

While growth in the resource-rich Southeast Asian economies held up well in the early part of 2008, the fall in global demand has since put downward pressure on the prices of commodity exports such as crude oil, palm oil and rice. The deterioration in the terms of trade of these economies reduced household and corporate incomes and thus expenditures over the second half of last year. In addition, funding stresses arising from the ongoing financial turmoil in the US and Europe led to sharp reductions in investment spending across most parts of Asia in the fourth quarter of last year. (Chart 1.7)

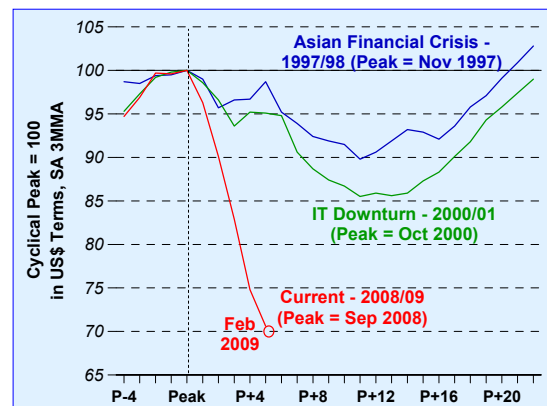
Chart 1.3  
Contribution to Asia ex-Japan GDP Growth



Source: CEIC

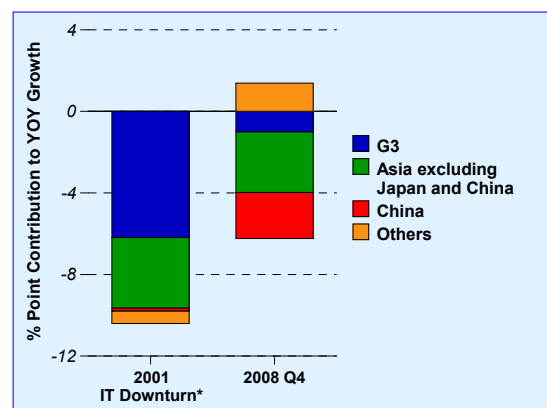
Note: This chart excludes China.

Chart 1.4  
Asia ex-Japan Export Performance



Source: CEIC

Chart 1.5  
Asia ex-Japan Exports by Destination



Source: CEIC

\* 2001 IT downturn refers to Q2 to Q4 2001.

<sup>1</sup> Unless stated otherwise, Asia ex-Japan comprises China, Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand.

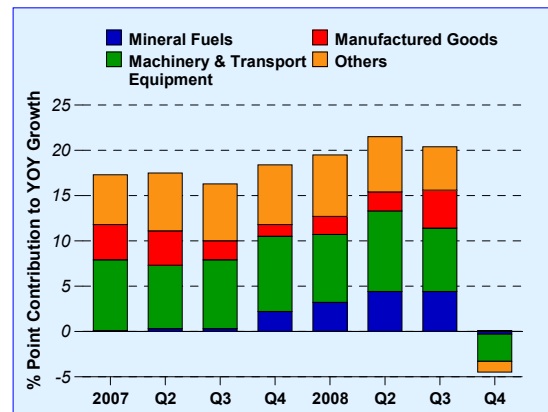
**Inflationary pressures have eased.**

Global inflation decelerated steeply in the second half of 2008, driven by softening demand initially, and lower food and energy prices more recently. (Chart 1.8)

Headline CPI inflation in the G3 economies peaked at 4.5% y-o-y in July 2008, before tumbling to 0.6% in February 2009. In March, inflation in the US eased to -0.4%, the lowest in 54 years, while in the Eurozone it fell to 0.6%, the lowest on record. Energy prices were the main source of disinflation in the G3, accounting for an average of 88% of the deceleration in y-o-y headline inflation from Q3 to Q4 2008.

In Asia ex-Japan, inflation also fell from a peak of 7.1% y-o-y in June 2008 to 0.9% in March 2009. Again, the main reason for the decline was lower energy prices – on average, lower fuel prices accounted for 68% of the decline in inflation between Q3 and Q4.<sup>2</sup> Slower food price increases contributed another 14% to the decline in CPI inflation over this period.

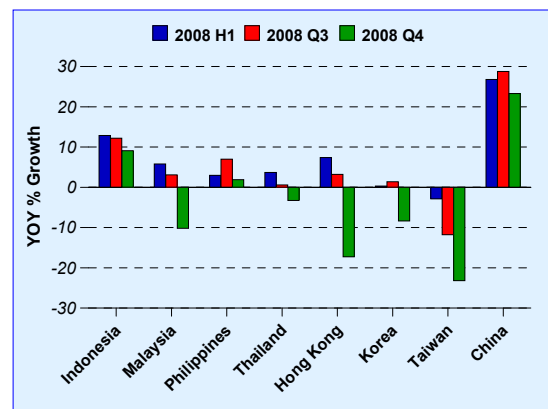
**Chart 1.6**  
**Asia ex-Japan Exports by Product Group**



Source: CEIC

Note: This chart excludes the Philippines.

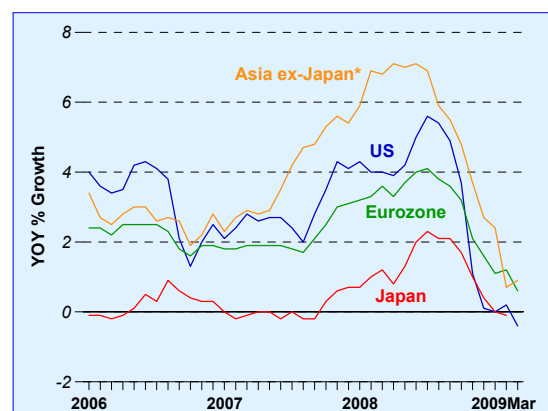
**Chart 1.7**  
**Investment Spending in Asia ex-Japan**



Source: CEIC

Note: Data for China is based on nominal fixed asset investment while real gross fixed capital formation is used for other countries' data.

**Chart 1.8**  
**CPI Inflation**



Source: CEIC

\* Weighted by 2007 nominal GDP.

<sup>2</sup> The exception was Indonesia, where fuel prices rose due to the effects of adverse exchange rate movements on the local price of petroleum-based products.

## 1.2 Domestic Economy

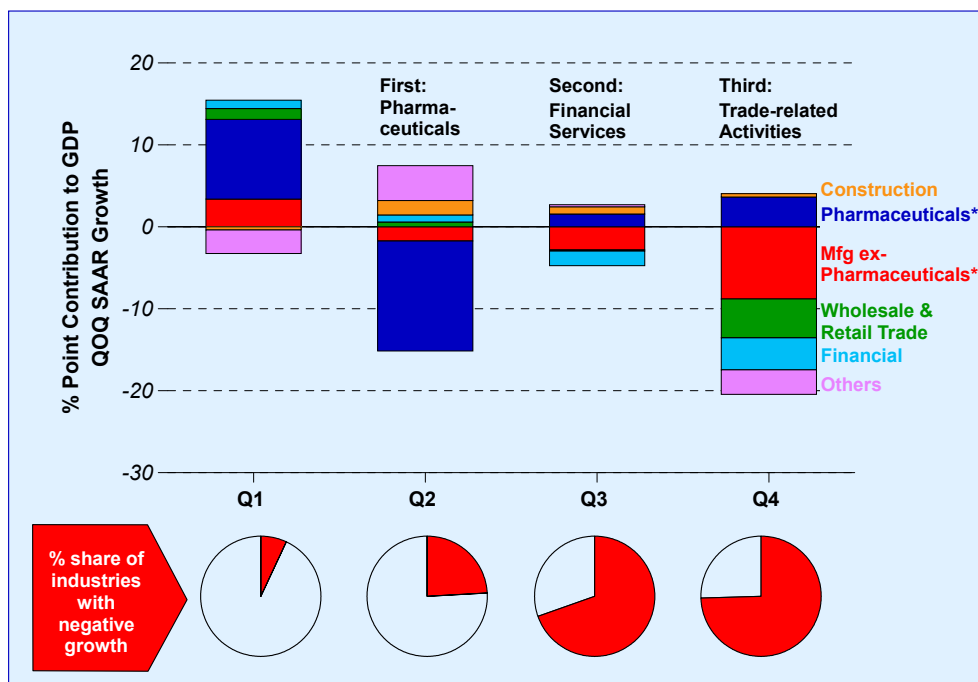
### Q4 2008: The Slippage Intensifies

#### The economy contracted further in Q4 ...

Alongside the deterioration in the external environment, the Singapore economy weakened markedly in the second half of last year, contracting by 2.1% y-o-y compared to the 4.6% growth in H1. Following the financial-led decline in Q3, the downturn in the domestic economy intensified in Q4 2008. On a sequential basis, the economy contracted by 16.4% q-o-q SAAR in Q4. In that quarter, the domestic economy was already some 6.8% below the peak of Q1 2008, surpassing the 1998 Asian Financial Crisis and 2001 IT downturn, when output fell by 4.5% and 6.4% from their respective peaks. A study of the severity of the present downturn compared with past recessions appears in Box B.

The scope of the downturn successively broadened after Q2 2008. (Chart 1.9) In Q2, those segments of the economy that registered negative growth comprised 24% of GDP, and principally reflected the plunge in pharmaceuticals output. Following the turmoil in global financial markets in Q3, the financial services sector was the next to move into negative territory, together with the trade-related sectors comprising manufacturing, wholesale & retail trade and transport & storage. By Q4 2008, three-quarters of the domestic economy had registered contractions.

Chart 1.9  
2008 Quarterly GDP Growth



**... led by the trade-related activities.**

The externally-oriented sectors, including manufacturing, wholesale & retail trade and transport & storage, saw the steepest contractions in Q4. Collectively, these sectors accounted for over 10% points of the sequential GDP decline in Q4 2008. (Chart 1.10)

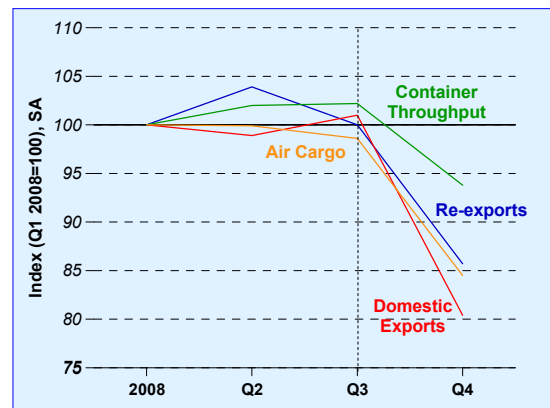
The slippage in manufacturing and wholesale trade activities reflected the fall-off in external demand and the subsequent disruption of cross-border production and related trade flows, particularly for electronics. The sheer speed of the collapse in IT end demand in Q4 took many companies by surprise, causing them to slash output and reduce inventories. Given the density of electronics supply chains in Asia, this had an adverse domino effect on the region’s cross-border production network flows in Q4.

In Singapore, the decline in the electronics sector contributed the most to the 21% q-o-q SAAR contraction in manufacturing output and the 46% fall in re-exports in Q4, a proxy for wholesale activities. (Charts 1.11 and 1.12) Indeed, the domestic manufacturing sector is firmly entrenched in regional IT production networks, specialising in the production of intermediate IT goods such as semiconductors. Output of intermediate IT goods has almost doubled since 2001, with most of it bound for regional destinations.

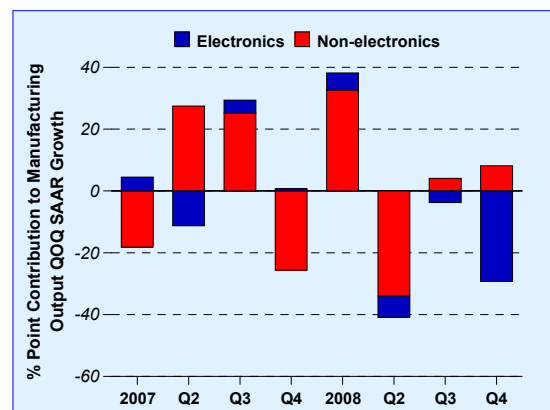
Singapore is also the regional hub for auxiliary trade-related services such as transportation, logistics and supply chain management activities. The unravelling of intermediate IT production across the region has thus put intense pressure on Singapore’s air transport sector, as the bulk of electronics products are air-flown. As a result, air cargo plunged by 46% in Q4 2008, following two quarters of single-digit declines.

The slump in the water transport segment was also pronounced in Q4, alongside the pullback in demand for final goods worldwide. Container throughput contracted by a sequential 29% in that quarter, as products transported via containers are largely final goods such as consumer durables and machinery & equipment.

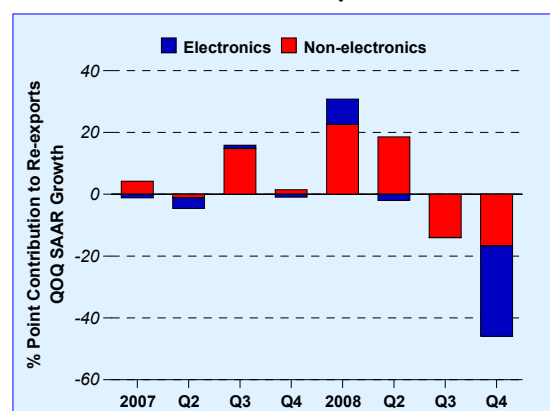
**Chart 1.10  
Trade-related Activities**



**Chart 1.11  
Contribution to Manufacturing Output Growth**



**Chart 1.12  
Contribution to Re-export Growth**



**The decline in domestic exports has been comparable with that of the region.**

Nonetheless, a comparison of peak-to-trough trade performances among the key Northeast Asian economies indicates that Singapore's domestic exports, while weak, have not been out of step with the other economies in the region. (Table 1.2) In fact, the speed and magnitude of decline has been fairly homogenous, suggestive of a correlated aggregate demand shock.

**Financial services suffered from a drop in business volumes and higher costs ...**

In Q4, the performance of financial services worsened, posting a 29% q-o-q SAAR contraction against a backdrop of heightened turmoil in global financial markets and a faltering world economy. (Chart 1.13) This was slightly more severe than the 22% sequential fall in Q1 1998 at the same stage of the downturn during the Asian Financial Crisis.

The domestic financial services sector was hit on two fronts. First, financial institutions suffered a significant drop in fees and commissions from the slump in the general level of activity across most asset clusters. For instance, forex turnover shrank by a hefty 25% q-o-q in Q4, following the double-digit growth recorded in the previous quarter, as the heightened volatility and lower visibility in the market convinced traders to stay on the sidelines. (Chart 1.14) Similarly, the wealth advisory segment was buffeted by waves of margin calls and client redemptions, alongside the global deleveraging process.

Within the financial intermediation cluster, the retraction came mainly from the ACU segment, which recorded a 6.7% contraction. This was driven primarily by a fall in non-bank lending to the Asian and European markets as business sentiment deteriorated. The offshore interbank market also recorded a moderate decline, against the backdrop of tighter global credit conditions. In comparison, the DBU segment posted a milder dip of 1.3%, with flat growth in the non-bank segment and a drop in interbank lending. Meanwhile, the insurance sector softened, as demand for investment-linked policies fell amidst the uncertain environment.

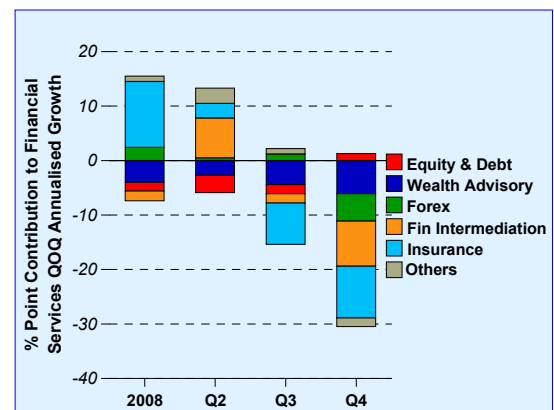
**Table 1.2**  
**Decline in Regional Exports from Peak to Trough**

	% change from peak (in US\$ terms)	% change from peak (in local currency terms)
China	-52.5	-52.5
Korea	-48.2	-41.9
Taiwan	-50.9	-47.6
Singapore (Domestic Exports)	-49.9	-44.1

Source: CEIC

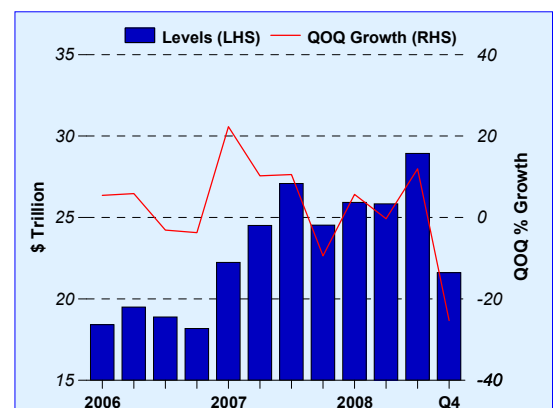
Note: Peak refers to Jul-Oct 2008; trough refers to Jan-Feb 2009.

**Chart 1.13**  
**Contribution to Financial Services GDP Growth**



Source: EPD, MAS estimates

**Chart 1.14**  
**Forex Turnover**



Second, the financial services sector was also hit by higher intermediation and transactional costs, as shown by the increase in the financial services deflator, which measures the implicit price of financial services. The deflator posted a 5% sequential spike in Q4, its largest quarterly jump in the last two years. This was driven in part by the higher premium charged for borrowing over the wholesale cost of funding amidst the generally riskier environment, as seen in the widening net interest margins of local banks. (Chart 1.15) Trading costs, which include brokerage and other transaction fees, have also risen significantly given the lower liquidity in financial markets and smaller deal sizes brokered. According to a study by the Investment Technology Group,<sup>3</sup> trading costs in Singapore temporarily spiked in Q4, in line with a similar surge experienced by other developed financial markets around the region, such as Hong Kong and Japan.

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**... while tourism-related services were buffeted by waning regional demand.**

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With Asian economies negatively impacted by falling export receipts, regional consumer demand was adversely affected, hurting Singapore's tourism-related services. Visitor arrivals fell by a further 0.5% q-o-q SAAR in Q4, following two quarters of double-digit declines. The contraction since Q2 2008 was largely a consequence of falling arrivals from key Asian markets such as Indonesia and China, which were the main supports to growth in 2007. As a result, the hotel occupancy rate fell to 78% in Q4 last year, from a high of 89% in Q1 2007.

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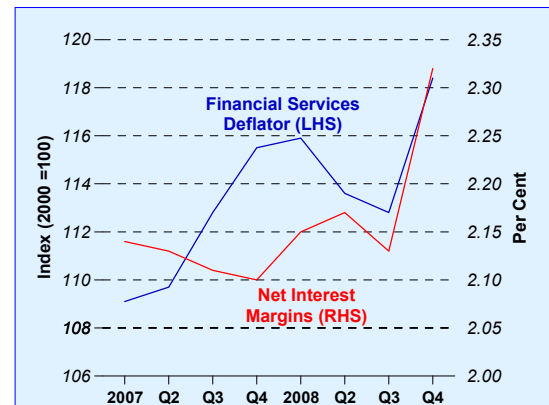
**Domestic-oriented services also saw contractions in Q4 ...**

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As more employers announced retrenchments, wage cuts and hiring freezes, the services industries that were largely driven by domestic demand also began to contract in Q4, after remaining resilient for much of the year. For instance, retail sales volumes (excluding motor vehicles) slumped by 14% q-o-q SAAR in Q4, reversing the 5% gain in the preceding quarter. Notably, retailers of "discretionary" consumer items reported considerably weaker sales. The information & communications and business services sectors also saw their first declines in Q4 2008, after remaining in positive territory for most of 2007 and 2008.

<sup>3</sup> "Trading's Time Warp", *Asian Investor*, March 2009, pp 26-28.

**Chart 1.15**  
**Financial Services Deflator and**  
**Local Banks' Net Interest Margins**





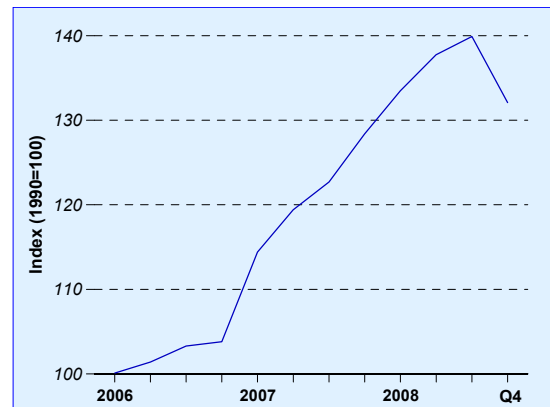
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**... although the construction sector  
remained a bright spot.**

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Construction was the only industry posting robust growth in Q4. Despite reports of resource bottlenecks in the latter part of 2008, the industry grew by 10.3% q-o-q SAAR in Q4, albeit less than in the previous two quarters. Certified payments continued to be fuelled by a steady stream of private residential and non-residential projects in the pipeline in Q4. For 2008 as a whole, construction grew by 20.3%. Alongside a decline in the global costs of building materials, such as steel, construction costs have started to ease. The tender price index, which has been rising for 13 straight quarters, saw a mild contraction of 5.6% in Q4 from the previous quarter. (Chart 1.16)

**Chart 1.16  
Construction Tender Price Index**



## Q1 2009: An Early Respite in the Downturn?

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**Excluding pharmaceuticals, the economic  
contraction seems to have eased slightly ...**

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According to the *Advance Estimates*, GDP declined by 19.7% q-o-q SAAR in Q1 2009, following the 16.4% contraction in the last quarter of 2008. Part of the decline can be attributed to the volatile pharmaceuticals segment, which fell by 17% in Q1 on a sequential basis. Excluding pharmaceuticals, the rate of contraction slowed.

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**... due to some improvements in the  
manufacturing and financial sector.**

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Figure 1.1 summarises the performance of key sectors over the previous two quarters, colour-coded according to the growth rates of each indicator. In general, declines in the trade-related activities have eased from double-digit contractions in Q4 to single-digit contractions in Q1 2009.

































In particular, the decline in the ex-pharmaceuticals manufacturing sector has abated, with the rate of contraction moderating to -9.5% q-o-q SAAR in Q1 2009, from -12% in the previous quarter. (Chart 1.17)

**Chart 1.17  
Index of Industrial Production  
excluding Pharmaceuticals**

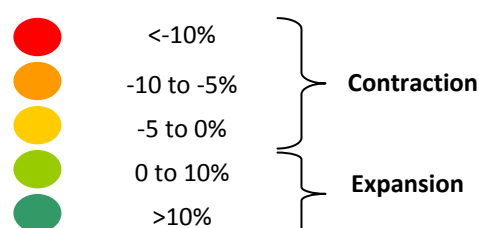


Source: EPD, MAS estimates

**Figure 1.1**  
**Key Economic Indicators**

		Q4 2008 (q-o-q SA)	Q1 2009 (q-o-q SA)
<b>Trade-related Indicators</b>			
Index of Industrial Production	—		
Pharmaceuticals	↓		
Ex-pharmaceuticals	↑		
Electronics	—		
NODX	↑		
NORX	—		
Air Cargo	↑		
Container Throughput	↓		
<b>Financial Indicators</b>			
Non-bank Loans (DBU)*	—		
Non-bank Loans (ACU)*	↑		
Stock Market Turnover	↓		
Forex Turnover*	↑		
<b>Others</b>			
Tourist Arrivals	↓		
Catering Trade*	↓		
Retail Sales ex-Motor Vehicles*	—		
Certified Payments*	—		

\* Average Jan-Feb 2009 m-o-m data was used for these indicators, as full Q1 2009 data was unavailable.



This was the result of a boost to production after pervasive inventory liquidations in Q4 2008, particularly in the chemicals and electronics clusters. The fall in chemicals output was more moderate in Q1, after a string of pre-emptive production shutdowns and tightened inventory controls in the petrochemicals and specialty chemicals segments the previous quarter. Similarly, the fall in electronics output, particularly in the consumer electronics and semiconductor segments, slowed in response to a restocking of inventories across the global IT supply chain.

Financial sector indicators have also fallen more slowly in Q1, given calmer conditions in global financial markets. Although overall lending has contracted further in line with the broader economic slowdown, the pace of decline in particular segments has eased. For example, ACU non-bank loans posted an average 1.8% decline in Jan-Feb 2009, compared with an 11% fall in the previous quarter, as lending to the European market improved. Further, some domestic loans, such as mortgages and non-bank financial institution loans, recorded positive growth.

Stock market turnover contracted in early 2009 but enjoyed a recovery in March, with volumes rebounding by 49%. (Chart 1.18) As of April 24, the benchmark STI has regained almost 30% from its year-to-date low of 1,457 on March 9, boosted by strong rallies in the US, Europe and the region. In fact, it has added 1.3% since the start of the year.

Some signs of recovery in the forex market have emerged. Turnover reversed a 25% drop in Q4 2008 to register an 11% rise in February 2009, supported in part by some renewed interest in carry trades. In addition, outflows in the fund management market have slowed. However, it is still too early to conclude that a sustained recovery is underway, and markets are expected to remain volatile over the next few months.

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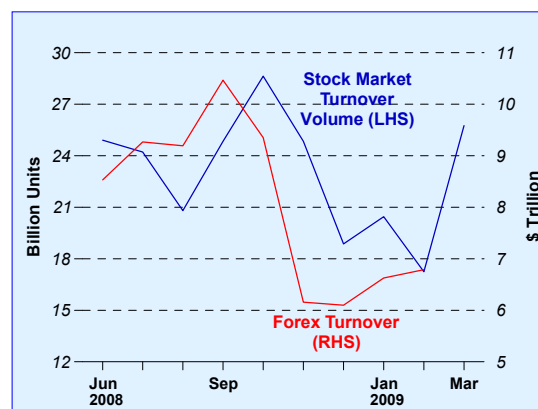
**Some pockets of the economy have continued to see steeper contractions in Q1 2009.**

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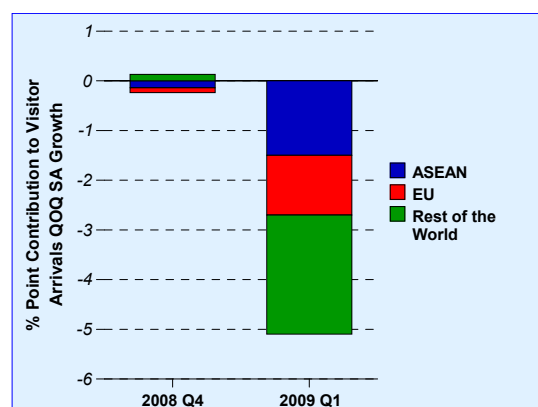
Nevertheless, some pockets of the services sector saw accelerating rates of contraction in early 2009. Visitor arrivals, which have been sliding since Q2 2008, slipped a further 5% q-o-q SA in Q1 this year. This followed a 0.1% sequential decline in Q4 2008. (Chart 1.19) In particular, visitor traffic from ASEAN and the EU fell more sharply in Q1 2009 compared to Q4 last year.

The restaurant industry fared worse in the first two months of this year as well, with catering sales volumes contracting by an average of 3.4% m-o-m SA, following the 1.6% q-o-q SA expansion in Q4 2008. All key segments showed further deterioration in early 2009. Most notably, the fast-food segment, which was the main support to catering trade in Q3 and Q4 last year, slipped into negative territory in early 2009. Restaurants and other eating places also reported lower volumes.

**Chart 1.18**  
**Stock Market and Forex Turnover**



**Chart 1.19**  
**Contribution to Visitor Arrivals Growth**



## 1.3 Macroeconomic Policy

**The macroeconomic policy stance has shifted in line with cyclical developments.**

Singapore's macroeconomic policy setting has shifted in response to changing economic conditions. This is shown in Chart 1.20, which plots the Domestic Liquidity Indicator (DLI)<sup>4</sup> and Fiscal Impulse (FI) measure<sup>5</sup> – proxies for the monetary and fiscal policy stance, respectively – against the economy's output gap. A positive output gap signals that economic output is above potential, with the risk of inflationary pressures as the economy is unable to meet demand. Conversely, when the output gap is negative, the economy is producing below full capacity, with downward pressure on costs and prices. In addition, changes in the output gap can be just as important as the size of the gap in determining inflationary pressures.<sup>6</sup>

In Chart 1.20, points above the horizontal axis indicate a positive output gap and an expansionary policy stance, and vice versa for the points below. Therefore, movements in the DLI and/or FI in an opposite direction to the output gap signal that macroeconomic policy is countercyclical, which has generally been the case for Singapore.

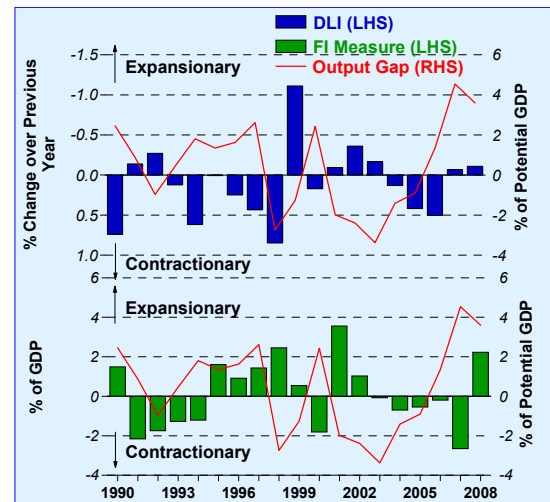
Nevertheless, it is important to note that the overall macroeconomic policy stance is underpinned by the medium-term objective of supporting non-inflationary growth and price stability.

### Monetary Policy

**Monetary policy responses have been graduated amidst heightened uncertainty.**

From a position of buoyant growth and muted inflationary pressures in early 2007, the global economy evolved rapidly into a state of faltering growth and surging commodity prices in mid-2008, followed by a sharp downturn at the end of last year.

**Chart 1.20**  
**DLI, FI and Output Gap**



Source: EPD, MAS estimates

<sup>4</sup> The DLI is a measure of overall monetary conditions, which reflects changes in the S\$NEER and domestic interbank rate.

<sup>5</sup> See the January 2002 issue of the *Review* for more details on the methodology used to calculate the FI measure.

<sup>6</sup> See Box D in the April 2006 issue of the *Review* for the relationship between the output gap and inflation.

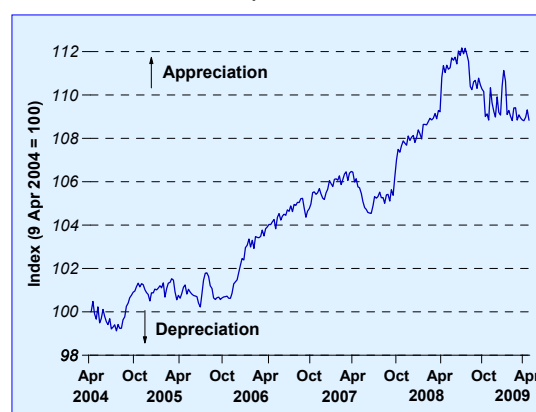
MAS' policy responses to these global developments have been deliberately graduated, underpinned by the importance of maintaining a medium-term orientation and ensuring the S\$ remains an anchor of stability, especially in times of heightened uncertainty.

In October 2007, MAS tightened the monetary policy stance by allowing a slightly steeper appreciation of the S\$ nominal effective exchange rate (S\$NEER) policy band. This was followed by an upward re-centering of the band to the prevailing level of the S\$NEER in April 2008. During this period, both external and domestic price pressures strengthened, as a result of rapid increases in global commodity prices and a build-up in domestic cost pressures.

Persistent headline price increases can drive inflationary expectations and trigger a wage-price spiral.<sup>7</sup> However, bearing in mind the one-off nature of some of the CPI increases, including the GST hike, the inherent lags in monetary policy transmission and the high degree of uncertainty arising from the US housing crisis, a further tightening of monetary policy would have made the economy more vulnerable in the event of an unanticipated and sharp fall in external demand. Moreover, counterfactual simulations using the MAS macroeconomic model suggested that had MAS steepened the slope of the policy band by a greater extent in October 2007, it would probably have injected further volatility into the economy and made the eventual contraction in output and fall in prices more severe when the global economy slowed in the second half of 2008.

With inflation moderating in the second half of 2008, and amidst the risk of further deterioration in the external economies following the blow-up in the global financial markets, MAS shifted to a zero per cent appreciation of the S\$NEER policy band in October 2008. While reaffirming the prevailing level of the policy band, the policy eliminated the appreciating path of the S\$NEER. This was a calibrated response to heightened uncertainty, allowing MAS to refine its policy in subsequent time periods as conditions changed. Section 3.6 elaborates on the monetary policy statement announced in April 2009.

**Chart 1.21**  
**S\$NEER**



<sup>7</sup> Proactive administrative and supply-side measures are important for stabilising near-term inflation expectations. During this period, a series of non-monetary measures and policies were introduced. On the supply side, the Agri-Food and Veterinary Authority (AVA) sought to diversify Singapore's imported food sources while the government also increased the supply of foreign labour and provided additional land space for commercial and industrial development.

**The S\$NEER fluctuated in the lower half of the policy band in the past six months.**

Between the October 2008 and April 2009 policy review period, the S\$NEER largely fluctuated in the lower half of the policy band. (Chart 1.21) This was the result of a number of factors, including the general strength of the US\$, continued risk aversion by global investors and weaker domestic economic conditions.

**The S\$REER has stabilised since the second half of 2008.**

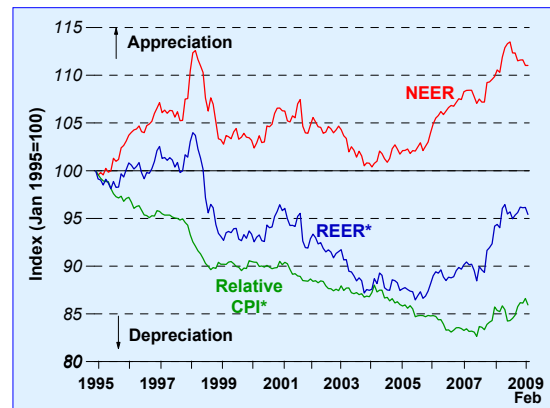
The S\$ real effective exchange rate (S\$REER), measured as the S\$NEER deflated by CPI, has levelled out since the second half of 2008 as domestic cost and price pressures eased. (Chart 1.22) This was a reversal of the increase in the S\$REER from mid-2007 to the peak in May last year, arising from the strong appreciation in the S\$NEER and domestic price increases which temporarily exceeded those of Singapore’s trading partners.

**Liquidity conditions have loosened since August last year.**

Overall liquidity conditions have loosened since August 2008, as shown by the negative DLI. (Chart 1.23) While this was largely driven by the weakening of the exchange rate, the contribution from the fall in interest rate had become more important at the end of last year and in early 2009.

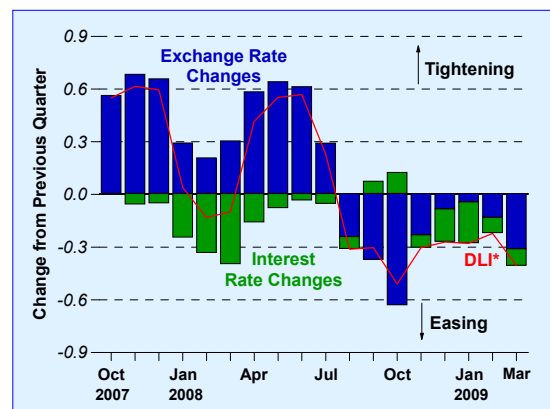
Indeed, domestic interest rates have declined since October 2008, following the spike in September when there was a dislocation in global money markets. The benchmark three-month domestic interbank rate fell by 119 bps from 1.88% at end-September 2008 to 0.69% at end-March 2009. (Chart 1.24) This was in line with the fall in global interest rates, which followed from concerted monetary easing efforts by major central banks. Particularly important was the commitment by the US Federal Reserve to maintain the Fed funds rate within a target range of 0-0.25% for an extended period. As the three-month US\$ SIBOR has fallen by a greater extent compared to the domestic interbank rate, the differential between the two has narrowed by about 150 bps over the past six months.

**Chart 1.22**  
**S\$REER deflated by the CPI**



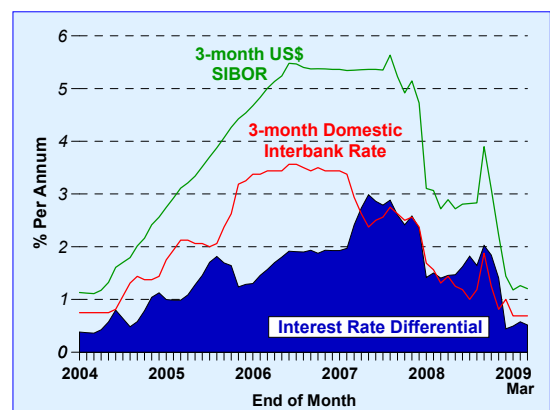
\* EPD, MAS estimates

**Chart 1.23**  
**Domestic Liquidity Indicator**



\* EPD, MAS estimates

**Chart 1.24**  
**3-month Domestic Interbank Rate and US\$ SIBOR**



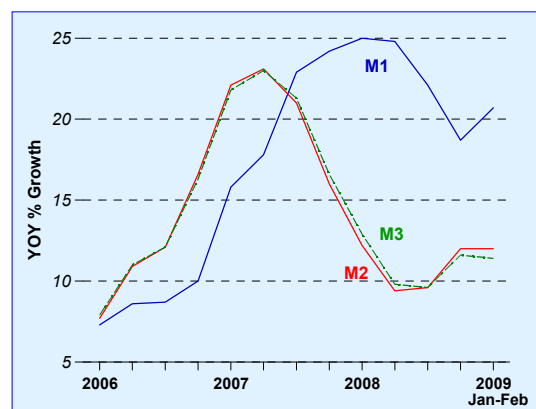
In tandem with the contraction in domestic economic activity, growth of the narrow monetary aggregate (M1) has moderated since H2 2008 to 21% on a y-o-y basis in Jan-Feb 2009, compared to 25% in H1 2008. (Chart 1.25) Growth in both the broader monetary aggregates, M2 and M3, also fell to 11% in 2008 from around 21% in the preceding year.

The slowdown in money demand was itself the result of a more subdued expansion of domestic credit to the private sector. From a high of 21% y-o-y in May 2008, loans growth to non-bank customers softened significantly to 11% in February 2009, in line with broad-based weaknesses in the domestic economy. (Chart 1.26)

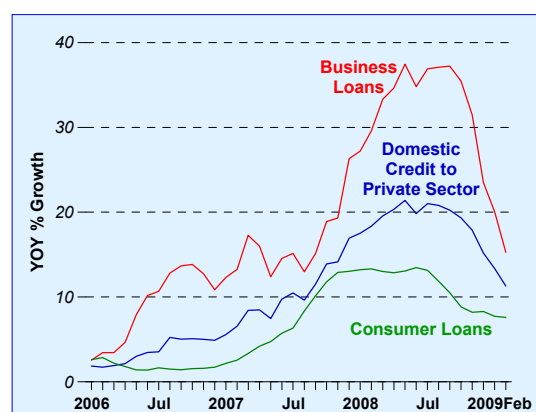
Within the monetary aggregates, growth of demand deposits slowed with the onset of the recession, reflecting a fall in the transactionary motive for holding money as overall expenditure contracted. (Chart 1.27) However, the precautionary motive for holding money balances increased amidst the economic uncertainty. This was evident from the increased allocation of monetary assets toward savings deposits, which grew by 22% y-o-y on average between Q3 2007 and Q3 2008. Growth has since accelerated to 26% in Jan-Feb 2009, as the global economic recession deepened.

In comparison, fixed deposits lost considerable appeal, given their relatively illiquid nature. Moreover, the interest rate differential between fixed deposits and savings deposits has also narrowed substantially in recent months, owing to the larger declines in the former. Faced with only a marginally higher rate of return for fixed deposits, households and firms opted to park their funds in more liquid savings deposits. This behaviour was also observed in previous recessions apart from the Asian Financial Crisis, when the growth of fixed deposits outpaced savings deposits because of significantly higher rates accruing to the former.

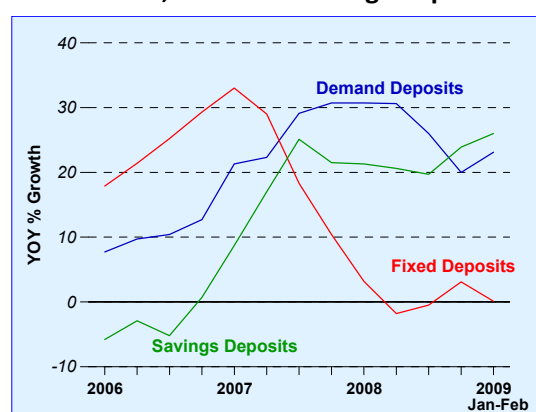
**Chart 1.25**  
**Domestic Monetary Aggregates**



**Chart 1.26**  
**Domestic Credit to Private Sector**



**Chart 1.27**  
**Demand, Fixed and Savings Deposits**



**Fiscal Policy**

**There was a significant reduction in the government’s primary surplus in 2008.**

The government recorded a primary surplus<sup>8</sup> of \$3.9 billion (1.5% of GDP) in CY2008. This was half that of CY2007, due to a marked increase in expenditure, which well exceeded the rise in revenue. (Chart 1.28)

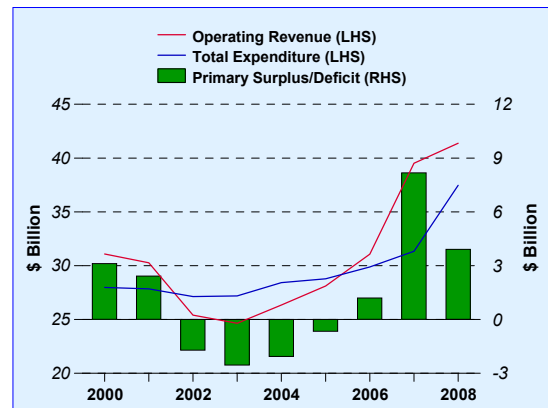
**Operating revenue from income taxes and GST was higher ...**

Operating revenue rose to \$41.4 billion (16.1% of GDP) in 2008 from \$39.5 billion in the previous year, largely due to gains in corporate and personal income taxes and GST, which more than offset the steep fall in stamp duty collection resulting from the softening in the property market. (Chart 1.29)

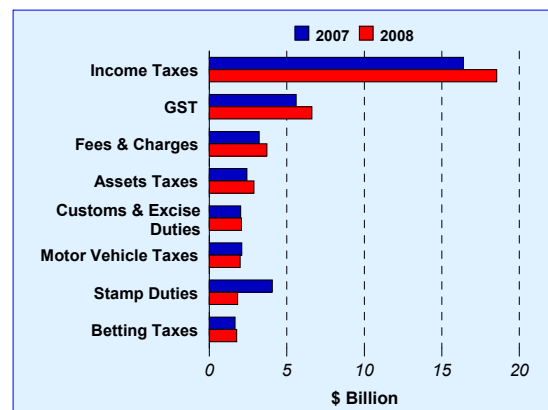
The government collected \$16.4 billion of income taxes from businesses and individuals in 2008, \$1.8 billion more than the preceding year. The slowdown in domestic economic activity last year had a delayed impact on income taxes collected by the government, as the year of assessment is based on the previous year’s earnings. Income tax collections would have been even higher last year if not for two key tax measures which came into effect: the permanent reduction in the corporate income tax rate from 20% to 18%, and the one-off personal income tax rebate of 20% for all residents, subject to a cap of \$2,000.

Another important source of revenue was GST receipts, which grew by \$1.0 billion to \$6.6 billion in 2008. This was largely due to the hike in the GST rate from 5% to 7%, which took effect from July 2007, raising GST collections by \$1.1 billion in H1 2008 compared to the year-ago period. (Chart 1.30) For Singaporeans in general, the tax was essentially neutral, as it was offset by direct transfers from the government such as GST credits, the Senior Citizens’ Bonus, Growth Dividends, and the Workfare Income Supplement.

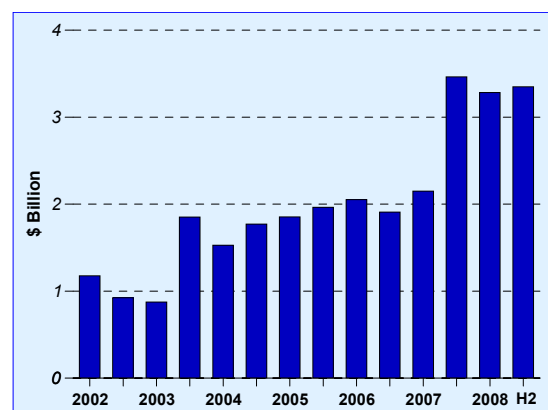
**Chart 1.28  
Primary Surplus/Deficit**



**Chart 1.29  
Components of Operating Revenue**



**Chart 1.30  
GST Collections**



<sup>8</sup> The primary surplus/deficit is defined as operating revenue (excluding net investment income/returns contribution) less operating and development expenditure.



As the effect of the increase in the GST rate dissipated in the second half of 2008, revenue from this source actually declined compared to the same period in the previous year, possibly as a result of deterioration in consumer sentiment and a cutback in expenditure, particularly towards the end of the year.

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**... and was offset by increases in both operating and development expenditure.**

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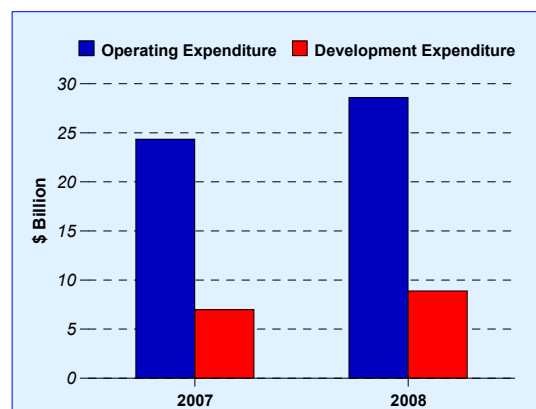
Total government expenditure rose by \$6.1 billion in 2008 to \$37.5 billion (14.6% of GDP) as a result of increases in both operating and development expenses. (Chart 1.31)

The government spent \$28.6 billion (11.1% of GDP) on operating items last year, \$4.2 billion higher than in 2007. The main increases in operating expenditure came from national security, education, healthcare subsidies, manpower recruitment and training, the Enhanced Marriage and Parenthood Package, and the Workfare Income Supplement scheme. (Chart 1.32)

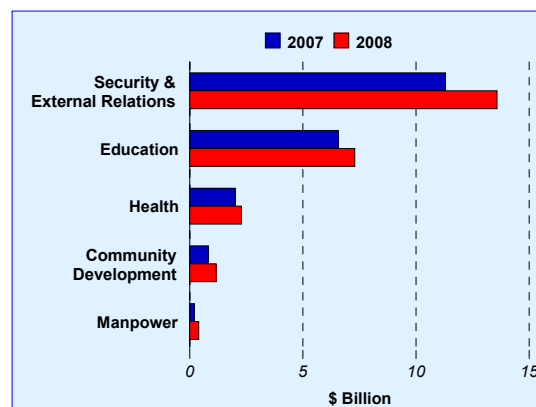
Education expenses rose following the implementation of the GROW 2.0 package<sup>9</sup> for education officers, a review of the salary scheme for mid-career education officers and higher operating grants for the Institutions of Higher Learning. There were smaller increases in expenditure on health and community development. The former was due to new clinical functions, additional mental health programmes and initiatives on training and career development, while the latter stemmed from higher provisions in transfers for programmes under the Enhanced Marriage and Parenthood Package announced in August 2008.

Meanwhile, development expenditure rose by \$1.9 billion to \$8.9 billion (3.4% of GDP) in 2008. This was mainly due to more investments in transport infrastructure, specifically, rail and road projects such as the Circle Line, Boon Lay Extension Line, and the first phase of the Downtown Line. (Chart 1.33) Development spending on trade and industry also increased on account of projects such as the Economic Development Assistance Scheme, the Science & Technology Plan 2010, Formula One and the International Cruise Terminal.

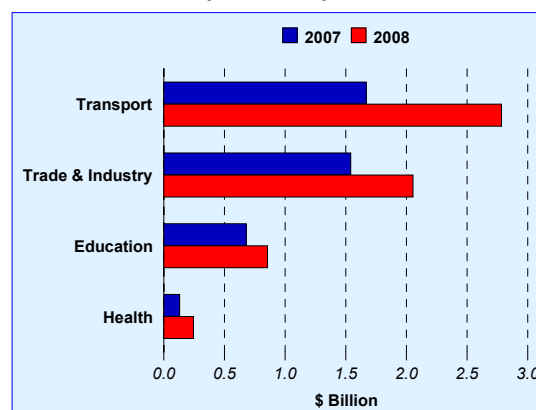
**Chart 1.31  
Government Expenditure**



**Chart 1.32  
Selected Components of  
Operating Expenditure**



**Chart 1.33  
Selected Components of  
Development Expenditure**

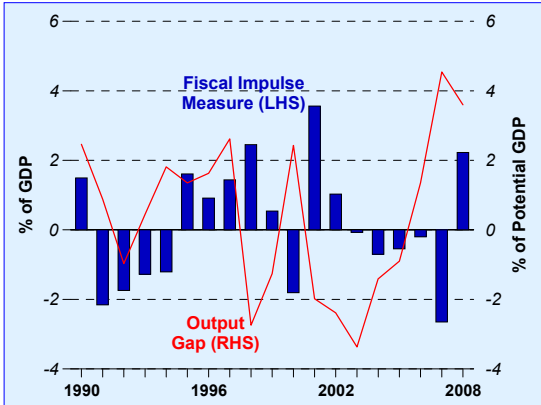


<sup>9</sup> The GROW 2.0 package aims to enhance the teaching profession by providing teachers with a more attractive remuneration package, as well as more career and development opportunities.

**The fiscal policy stance turned expansionary in 2008.**

The FI measure provides a useful summary of the overall fiscal stance, with a positive value indicating a more expansionary stance compared to the previous year, and vice versa. In 2008, the fiscal stance switched to an expansionary mode, with the FI measure at 2.2% of GDP, compared to -2.7% in 2007, partly due to measures to help households cope with the higher cost of living, such as the Growth Dividends and utility rebates. (Chart 1.34) This was an appropriate stance as the economy slowed sharply in the latter half of 2008.

**Chart 1.34  
Fiscal Impulse Measure**



Source: EPD, MAS estimates

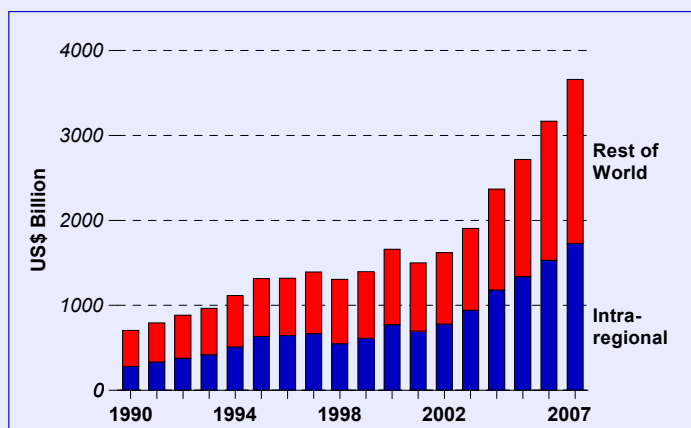
### Box A Trade and Regional Production Networks

East Asian<sup>1/</sup> exports have fallen sharply since July last year, alongside the deepening global downturn. This box attempts to link these recent developments to the region's cross-border production networks – a key structural feature of East Asian production and trade.

#### Background

Between 1990 and 2007, East Asian exports increased about fourfold, faster than the threefold increase in global exports over the same period. Growth in East Asian exports was especially rapid over the period 2000-07, averaging 13% p.a. compared to 8% in 1991-99. This was fuelled in part by the proliferation of intra-East Asian trade, which accounted for almost 50% of the region's total exports over the last decade. (Chart A1)

Chart A1  
East Asian Exports



However, since the latter half of 2008, international trade has tumbled sharply as the global economic downturn deepened. The near-term prospects for international trade are bleak – the World Trade Organisation has estimated that global merchandise trade will decline by 9% in volume terms in 2009.

Within the region, the collapse in trade flows has been especially stark. As discussed in Section 1.1, the decline in Asian exports since July last year has been more rapid than during the Asian Financial Crisis and the 2001 IT downturn. Intra-East Asian shipments, especially those to China, have been the main drag on the region's exports. This was a sharp contrast to the downturn in 2001, when the G3 markets accounted for a larger share of the decline.

A disaggregation of East Asia's exports by product groups reveals that machinery & transport equipment (M&T), particularly electronics, has contributed most to the overall decline. While the widespread slump in final demand and the global trade financing crunch have directly impinged upon East Asian trade flows, cross-border production networks (CPNs) also appear to have exacerbated the depth of the current decline.

<sup>1/</sup> In this box, East Asia comprises China, Hong Kong, Indonesia, Japan, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand.

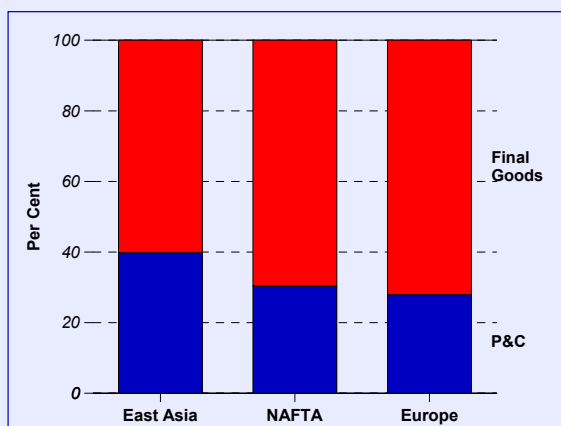
### **The Importance of Cross-Border Production Networks in East Asian Trade**

As discussed in the January 2003 issue of the *Review*, CPNs have become an important structural feature of East Asian manufacturing and trade. This is evident in the strong growth of intra-regional trade in parts and components (P&C) within M&T over the last two decades. As a result, P&C now make up 40% of intra-East Asian exports of M&T, significantly higher than the 30% share in NAFTA and Europe.<sup>2/</sup> (Chart A2)

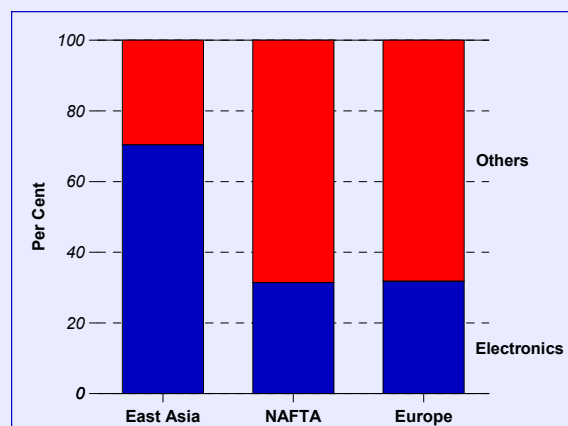
There are two notable features of intra-East Asian trade in P&C within the M&T category. First, such trade has been dominated by electronics, which has a 70% share compared to only slightly over 30% in NAFTA and Europe.<sup>3/</sup> (Chart A3) This underscores the high degree of specialisation and inter-dependence among producers in East Asia in the electronics sector.

Second, China has accounted for an increasing proportion of intra-East Asian P&C trade within M&T. By 2007, about one-fifth of all intra-East Asian P&C exports of M&T were destined for China, more than twice the share in 2000. Much of this China-bound trade was in electronics. Underlining the rapid expansion of China's role as an IT assembly hub, the share of electronics in China's total processing imports<sup>4/</sup> jumped from 19% to 54% between 1992 and 2006, while the share in processing exports nearly tripled from 22% to 63%. (Feenstra and Wei, 2009)

**Chart A2**  
Intra-regional Exports of M&T in 2007



**Chart A3**  
Intra-regional Exports of P&C in M&T in 2007



### **The Role of CPNs in Recent Trade Developments**

While data limitations render it difficult to directly verify the role of CPNs and P&C trade in the recent decline in East Asia's export performance,<sup>5/</sup> the structural trends described above provide some basis to make the link. In particular, the segments that accounted most for the recent fall in East Asia's trade, as noted in Section 1.1, coincided with segments that are closely linked to CPN, i.e. trade in electronics and intra-regional exports, especially to China.

With the presence of CPNs, the effect of a collapse in demand in the end-markets is transmitted across all countries involved in the different stages of the production process, leading to a synchronised collapse in trade.

<sup>2/</sup> This is according to EPD's classification and estimates.

<sup>3/</sup> Here, Europe refers to the 10 economies: the Czech Republic, France, Germany, Hungary, Italy, the Netherlands, Poland, Slovakia, Slovenia and the United Kingdom.

<sup>4/</sup> Processing trade refers to imports that enter the country duty-free and are incorporated into exported goods, as well as exports that rely on these processing imports.

<sup>5/</sup> Data disaggregated into final and intermediate products are not available on a monthly basis.

Moreover, as intermediate components cross multiple borders during the production process before they are embodied in the final product, gross trade flows are a multiple of value added. Thus, a given fall in demand in the end markets will manifest itself as an amplified decline in trade.

This could partly explain why intra-East Asian trade has fallen by more than the region's exports to the G3 economies in recent months. The collapse in G3 demand since the second half of last year has not only led to a decline in East Asia's direct exports to the developed economies, but has also indirectly impacted regional trade flows via the CPNs. It is noteworthy that the G3 economies remain an important source of demand for Asia's goods. In 2006, the G3 accounted for almost 60% of Asia ex-Japan's exports of final goods, compared to just 17% destined for the region. (Pula and Peltonen, 2009) For M&T products, the US and developed European economies<sup>6/</sup> accounted for a combined 35% of East Asia's final goods exports.

### ***Some Implications***

What do these observations imply for Asian trade? At least three inferences may be drawn.

First, the sharp decline in CPN-related trade implies that auxiliary services at each production node, such as logistics and transportation, will also be negatively impacted. A decline in final demand for Asia's manufactured goods thus has wider knock-on effects on related services sectors and also on the overall growth of the region.

Second, extensive trade in P&C implies that the region is particularly vulnerable to a rise in protectionism. Over the last few decades, vertical specialisation and trade in P&C have benefited from tariff reductions. As intermediate parts cross national borders multiple times in the production process, a given reduction in tariff rates leads to a magnified cost reduction, stimulating further production fragmentation and trade. (Yi, 2003) Conversely, a hike in tariffs will lead to a proportionally larger increase in trading costs, and is especially detrimental to countries dependent on CPN-related trade and production. However, this also implies that countries heavily involved in CPNs have less incentive to raise trade barriers.

Third, this downturn marks the first severe test of East Asia's production and trade model – one of deepening regional integration in production and trade, but nonetheless ultimately dependent on demand in the developed markets for its continued viability. A prolonged slump in the developed markets may well encourage a change in the way East Asian CPNs are organised, as producers in the region consider re-orientating their operations to meet rising Asian demand over the longer term.

### ***Sum-up***

The recent decline in East Asian trade has been sharper than in previous downturns and more synchronised across the region, with exports of M&T – particularly electronics – accounting for a large share of the collapse. Moreover, intra-regional shipments, especially those to China, made up a more substantial share of the decline than the G3.

The severe and synchronised nature of the recent downturn in East Asian exports could have been partly exacerbated by the way CPNs transmit a given demand shock across its members and magnify changes in gross trade flows relative to changes in end demand. As a result, regional CPNs could have been important in transmitting the downturn in G3 end demand to East Asian exports in the short term.

<sup>6/</sup> These refer to France, Germany, Italy, the Netherlands and the United Kingdom.

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**Box B****Characterising the Present Downturn: Its Depth, Duration, Speed and Breadth*****Introduction***

The severe financial crisis that swept over much of the world has had a deep impact on the Singapore economy. Even as events continue to unfold, some key characteristics of the present downturn can be identified and compared against past crises.

***Nature of the Crisis***

The current contraction in Singapore was caused by a US-centred financial crisis and the worldwide economic downturn that followed. These external circumstances set it apart, somewhat, from the backdrop that prevailed during the previous three occasions when the Singapore economy experienced full-year GDP contractions. In both 1985 and 1998, Singapore's GDP fell by 1.4%, while in 2001, it shrank by 2.4%.

Although the 1985 recession was also triggered by an external demand shock when the US and European economies slowed, the impact was aggravated by domestic factors, including some erosion in Singapore's external competitiveness caused by rising labour costs. It was also accompanied by a contraction in the local construction industry following a continuous run-up that lasted over four years. More than a decade later, a sudden outflow of capital from the region marked the start of the Asian Financial Crisis of 1997-98. Although financial activity across Asia was disrupted and regional trade retracted severely, the recession was largely confined to the emerging markets. With G3 demand intact, a recovery was quick to materialise. More recently, the bursting of the global IT bubble in 2001 hit Singapore's electronics industry hard, depressing the overall economy. However, despite its global spread, the disruption was largely industry-specific.

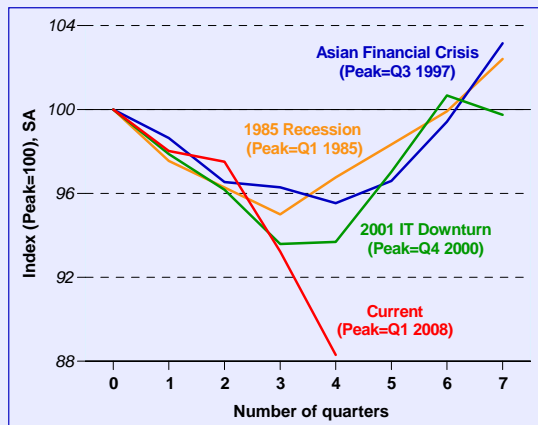
Historically, economic contractions that are accompanied by financial crises and are synchronised across regions worldwide have been rare. In the few instances that they have occurred, the damage has been proportionately more severe. (See Section 3.1)

***Dimensions of the Downturn******Depth and Duration***

As of Q1 2009, the present contraction of the Singapore economy has become its deepest to date. It has also been one of the longest, matching the Asian Financial Crisis in duration. (Chart B1) In four quarters, Singapore's GDP has fallen 11.7% from its Q1 2008 peak, with the majority of sectors registering declines by early 2009.

The Asian Financial Crisis was a relatively shallow downturn. Over the course of four quarters, the output loss from its Q3 1997 peak to Q3 1998 trough was 4.5%. In contrast, the 1985 and 2001 recessions were shorter but sharper than the Asian Financial Crisis, lasting three quarters and posting peak-to-trough GDP declines of 5.0% and 6.4% respectively.

**Chart B1**  
Real GDP, A Comparison



**Table B1**  
Rate of Output Decline

Downturn	Average quarterly output loss (%)
1985 Recession	1.7
Asian Financial Crisis	1.1
2001 IT Downturn	2.2
Current	3.1

**Speed of Adjustment**

The average rate of decline in each quarter during the current downturn has been faster than in previous recessions. (Table B1) Another distinct feature of this downturn is that the contraction has picked up speed as the recession advances. This was unlike previous downturns where the output falls were more intense earlier on. Typically, by the fourth quarter from the peak, the decline in output had slowed down or the economy was already on the path to recovery.

In all three previous downturns, the Singapore economy rebounded from the trough and returned to its previous peak within three quarters. In this downturn however, it will probably take longer to return to its previous peak.

**Breadth**

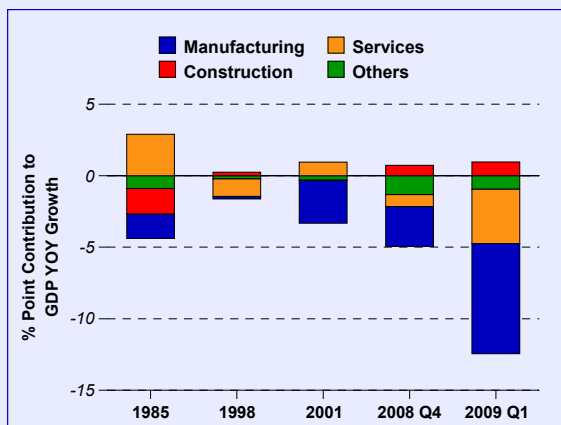
The current downturn is also exceptional in the range of industries that have been hard-hit. In previous recessions, particular sectors bore the brunt of the adverse shock while others were pillars of support. (Chart B2) For instance, in the 2001 IT downturn, although electronics manufacturing contracted by more than one-third from peak to trough, the services sector continued to expand at a modest rate.

Conversely, during the Asian Financial Crisis, financial services and commerce were severely affected, but manufacturing activity remained firm. Similarly, in the 1985 recession, the construction industry shrank drastically, while manufacturing saw a modest decline. Crucially, the services sector, especially financial services, remained a key support.

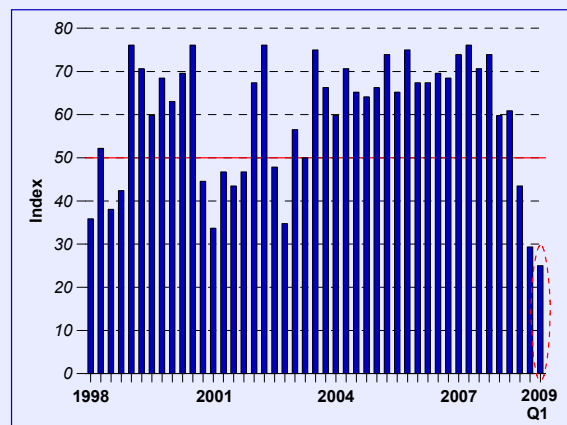
In the present downswing, most industries within the manufacturing and services sectors have contracted. An exception is the construction industry, which has been fuelled by a strong pipeline of projects and pent-up demand by HDB upgraders. One way of capturing the breadth of the recession is through the sectoral diffusion index constructed by EPD, which measures the degree to which growth/contraction is dispersed across 46 industries. (Chart B3) A value of 100 indicates that all the industries are expanding, while a value of 50 indicates an equal number of expanding and contracting industries. As of Q1 2009, the proportion of industries contracting had exceeded those of the past three recessions.



**Chart B2**  
Contribution to GDP Growth



**Chart B3**  
Sectoral Diffusion Index



Source: EPD, MAS estimates

The extent of output decline in individual sectors has been severe. For instance, as at Q1 2009, the output drops in financial services and wholesale & retail trade have matched those of the Asian Financial Crisis. At the same time, the output loss from the manufacturing sector was greater than during the 2001 IT downturn. (Table B2)

**Table B2**  
Output Loss from Peak to Trough\* (%)

	Asian Financial Crisis	2001 IT Downturn	Current (Up to Q1 2009)**
GDP	4.5	6.4	11.7
Manufacturing	5.7	21.0	29.1
Services	4.7	1.8	7.6
Construction	7.2	25.4	nil

\* The time periods from peak to trough for individual sectors during the respective downturns do not necessarily coincide with those of overall GDP.

\*\* EPD, MAS estimates

### Sum-up

The present recession has become Singapore's deepest, with a peak-to-trough output loss that is almost double that of the 6.4% recorded in the 2001 downturn. It has also been one of the longest, matching the Asian Financial Crisis in duration.

Furthermore, the current downturn has been more broad-based than previous contractions, in terms of the range of industries that are sharply contracting. To date, the cumulative slippage in manufacturing, trade-related services and financial services output has surpassed previous downturns. The severity of the downturn is explained by the depth and breadth of the collapse in demand in Singapore's export markets, as well as the greater degree of outward orientation of the manufacturing and services industries over time.