1.1 External Developments

The Global Rebound Slows

Global economic activity recovered further in the second quarter of 2010. However, with the exception of the Eurozone, the pace of growth has slowed. Overall, real GDP in Singapore’s major trading partners expanded by a weaker 5.0% q-o-q SAAR in Q2 2010 compared to 6.8% in Q1. This deceleration was especially pronounced in the US and Japan, but it was also evident in Asia, which had led the global rebound.1 Nevertheless, Asian growth continued to outstrip that of the G3. (Table 1.1) As a result, the region’s GDP was around 10% above its pre-crisis peak as at Q2 2010, while G3 output remained slightly below the levels reached prior to the crisis.

A confluence of three factors contributed to the moderation of global growth. First, the waning of fiscal stimulus measures in the US and Asia, as well as the need for budgetary tightening in the Eurozone, removed significant support for global aggregate demand. Second, the one-off boost from the inventory restocking cycle had faded as a result of the inevitable pullback from the expansion in production seen during the early stages of the recovery. Third, the sovereign debt crisis in the peripheral Eurozone economies had led to a tightening of credit channels and stoked fears of a renewed world recession. However, the risks on this front appear to have subsided somewhat, although credit spreads for some of the affected countries remain quite wide.

<table>
<thead>
<tr>
<th>2009</th>
<th>2010</th>
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<tr>
<td></td>
<td>H1</td>
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<tr>
<td>Total*</td>
<td>-0.7</td>
</tr>
<tr>
<td>G3*</td>
<td>-3.6</td>
</tr>
<tr>
<td>Asia*</td>
<td>1.7</td>
</tr>
<tr>
<td>US</td>
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</tr>
<tr>
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</tr>
<tr>
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<td>Hong Kong</td>
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<tr>
<td>Korea</td>
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</tr>
<tr>
<td>Taiwan</td>
<td>-1.9</td>
</tr>
<tr>
<td>Thailand</td>
<td>-2.2</td>
</tr>
<tr>
<td>Philippines</td>
<td>1.1</td>
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<thead>
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<th>2010</th>
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<tr>
<td></td>
<td>y-o-y</td>
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<tr>
<td>US</td>
<td>4.5</td>
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<tr>
<td>G3</td>
<td>1.7</td>
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<tr>
<td>HK</td>
<td>9.1</td>
</tr>
<tr>
<td>India</td>
<td>6.7</td>
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Source: CEIC, Datastream and EPG, MAS estimates
* Weighted by shares in Singapore’s NODX.

In the US, real GDP growth slowed to 1.7% q-o-q SAAR in Q2 this year, markedly lower than the 3.7% posted in Q1. (Chart 1.1) The main drag on growth was a large increase in imports and a consequent decline in net exports, which shaved 3.5% points off the headline GDP figure. (Chart 1.2) Private consumption

1 Asia comprises China, Hong Kong, India, Indonesia, Malaysia, the Philippines, South Korea, Taiwan and Thailand.
expanding modestly by 2.2% in Q2 on a q-o-q SAAR basis and households made progress in restoring their balance sheets, with the personal savings rate rising to 6.1%. (Chart 1.3) More encouragingly, private fixed investment increased by 19%, spurred by robust growth in corporate spending on equipment and software and a turnaround in residential investment.

However, the labour market remained weak, with the unemployment rate at 9.6% in September, significantly higher than the pre-crisis average of around 5%. Non-farm payrolls had slipped slightly in recent months largely due to a fall in government employment. While private sector employment trended higher by an average of 91,000 a month in Q3, overall job creation is generally regarded as below the level necessary to absorb new entrants into the workforce.

Following a solid expansion of 5.0% q-o-q SAAR in Q1, Japan’s GDP growth decelerated sharply to 1.5% in Q2. Personal consumption expenditure was flat as employment and income growth lagged the export-led recovery that began in mid-2009. In contrast, business fixed investment in Q2 rose by a robust 6.4% on a q-o-q SA basis, on the back of a pickup in corporate profits and a revival of business sentiment. Despite the strong yen, export growth in Q2 came in at 26% q-o-q SAAR, due to healthy demand from China and other Asian economies, especially for IT products and capital machinery.

... while the Eurozone accelerated, mostly due to the core economies.

The Eurozone economy grew by an impressive 3.9% on a q-o-q SAAR basis in Q2 2010, up from 1.4% in the previous quarter. This was principally attributed to strong manufacturing exports in the core countries, in particular, France and Germany, aided by the depreciation of the euro over the past few quarters.2

Domestic demand also held up well in Q2 despite the crisis in sovereign debt markets, with retail sales and spending on consumer durables remaining firm in August. Nevertheless, there was a marked divergence in the performance of the larger economies in the group, such as France and Germany, and the smaller,

2 The Euro NEER has depreciated by 11.4% since October 2009.
peripheral members, such as Greece and Spain. (Chart 1.4) In particular, the latter had not benefited from the surge in exports that lifted growth in the larger Eurozone economies.

**Growth in Asia ex-Japan has likely peaked.**

Asia ex-Japan is at a more advanced phase of recovery relative to the G3, having exited the recession earlier and having rebounded more rapidly. Growth appeared to have peaked in Q1, and has slowed to a more sustainable rate. (Chart 1.5) The prior pace of expansion was especially unsustainable in the trade-dependent economies, such as Korea and Taiwan, as much of the earlier boost came from inventory replenishment arising from robust IT demand. In comparison, growth has been more stable in the domestic-oriented economies of China, India and Indonesia, underpinned by continued strength in consumption and investment spending.

Having grown by nearly 10.3% y-o-y in Q2 2010, the Chinese economy advanced by 9.6% in Q3. Correspondingly, retail sales and fixed asset investment growth moderated from their earlier highs, although they remained firm in Q3. (Chart 1.6) Real estate investment, in particular, has stayed buoyant, notwithstanding the slew of government measures to rein in asset price inflation in the big cities. On the external front, export growth eased to 32% y-o-y in Q3 in tandem with the slowing global economy, after rising to above 40% in Q2.

Since the onset of the global financial crisis, the continued strength of Chinese domestic demand has been an important source of support for the regional economies. The role played by China in propping up intra-Asian trade and growth is analysed in a recent study by EPG and reported in Special Feature B. Specifically, the study quantifies the relative contributions of final demand in China and the G3 to the growth of EA-8\(^3\) exports of machinery parts and components in real terms. The results confirm that Chinese final demand, lifted by the government’s fiscal stimulus package, provided an important buffer for EA-8 intermediate exports amidst the sharp retrenchment in G3 demand at the depth of the financial crisis. (Chart 1.7) Correspondingly, the slower

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\(^3\) EA-8 refers to Hong Kong, Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand.
growth of final demand in China since Q3 2009 has resulted in some sequential moderation in EA-8 exports.

Regional differences were also seen in inflation trends.

Stronger economic growth in Asia has resulted in a higher rate of CPI inflation compared to the G3, with recent data showing increasingly divergent trends. (Chart 1.8) Overall, inflation in both regions has picked up on a y-o-y basis since late 2009, owing to low base effects as well as the ongoing recovery of the global economy.

In the G3, spare capacity and high unemployment have continued to restrain price and wage pressures, with headline CPI inflation at a relatively subdued 1.0% y-o-y in August 2010. Indeed, at these low levels, with core prices remaining largely unchanged over the past year or so, disinflation has emerged as a significant risk in the US. In its latest commentary, the Federal Reserve noted that underlying inflation was at a level somewhat below that judged to be consistent with its mandate to promote maximum employment and price stability over the longer run. In Japan, deflation risks have also come to the fore, prompting renewed monetary easing measures from the Bank of Japan. Fears of disinflation in the core Eurozone economies, however, have been assuaged by the recent uptick in economic activity.

In contrast, CPI inflation in Asia (ex-Japan and India)\(^4\) climbed steadily over the past year, from below zero in Q3 2009 to 3.3% in the first two months of Q3 2010. Production across the region has expanded at a rapid clip since mid-2009, and the consequent narrowing of output gaps has contributed to the rise in inflationary pressures. In addition, the pickup in energy prices towards the latter part of 2009, and in food prices recently, also has had a more pronounced impact on headline inflation in the Asian economies, given the larger weights of these commodities in their CPI baskets. Nevertheless, the appreciation in regional currencies over the past few quarters has helped to dampen imported inflation. (Chart 1.9)

\(^4\)India is excluded because it has experienced markedly different inflation trends from the rest of the region. Inflation in India reached a peak of 11.0% in April 2010 due to heightened food inflation and pressures from rising demand amidst the strong pickup in the economy. In August, it fell to 8.5% due to favourable base effects and improved weather conditions, which lowered food price inflation.
1.2 Domestic Economy

Resilience Beyond the Recovery

Amidst continued growth in the external economies, the Singapore economy strengthened further in the second quarter of this year. On a q-o-q SAAR basis, the economy expanded by 27.3% in Q2 2010, on the heels of an unprecedented increase of 45.9% in the previous quarter. This brought GDP levels for the first half of 2010 to about 18% higher than in the same period a year ago.

The strong sequential growth in Q2 was due largely to a surge of more than 300% in pharmaceuticals production, as manufacturers continued to increase output of high value-added active pharmaceutical ingredients. (Chart 1.10) The uplift was also extended to the rest of the economy, with the other trade-related, financial and tourism-related sectors recording fairly robust growth. Chart 1.11 shows that all the major sectors had surpassed their pre-crisis peaks by Q2 2010. Not only was the recovery synchronised across different sectors of the economy, it was also broad-based from the expenditure perspective. (See page 13 for more details.)

Singapore’s rebound was the strongest in the region.

The steep upward trajectory in economic activity in the recent rebound was fuelled mainly by the cyclical upturn in global demand. However, the boost from the resumption of global economic activity appeared to have been more pronounced in Singapore than in the rest of the region. By the end of Q2 2010, the Singapore economy had rebounded some 27% from its GDP trough in Q1 2009, the largest climb amongst the regional economies over the same period. Singapore also recorded the largest increase from its previous pre-crisis peak. (Chart 1.12)
Using a variant of shift-share analysis, EPG decomposed Singapore’s GDP rebound into three components: the external effect, the competitive effect and the industry-mix effect.5

The results suggest that the strong rebound was largely due to the “external” effect shown by the red segment in Chart 1.13. This captures the average rebound of 15% points enjoyed by all regional economies arising from the cyclical upturn in global trade and financial market activity. The blue portion of the bar captures the additional growth of about 12% points from Singapore’s “competitiveness”, reflecting the domestic industries’ ability to more strongly leverage on the turnaround in external demand conditions. Finally, the slightly negative green sliver of the bar represents the industry-mix effect, which points to Singapore’s marginally lower share of high-growth industries (in this case, manufacturing) in its economy compared to its competitors during this period.6

The stronger sectoral performance of the Singapore economy compared to the region in this current rebound is shown by the clustering of sectors in the upper triangle of Chart 1.14. Notably, the domestic manufacturing sector saw a 68% rebound over the period Q1 2009 to Q2 2010, almost twice the 35% average growth rate for the region as a whole. Further disaggregation shows that this was underpinned by both the electronics and pharmaceuticals segments.

The domestic electronics industry, which has shifted towards higher value-added semiconductor production in recent years, was well-positioned to benefit from the recent upswing in the global IT cycle. From a global perspective, the semiconductor industry outperformed IT end-products such as PCs and handsets in the recent recovery. (Chart 1.15) This could be due to the shortage of semiconductors arising from underproduction prior to the crisis in 2008-09. The shortage was exacerbated by more aggressive destocking, as well as the closure of several semiconductor plants during the crisis.

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5 The external effect identifies the portion of Singapore’s GDP growth arising from factors in the external environment that are common to all regional economies. This is calculated as the product of overall regional growth and Singapore’s GDP in Q1 2009 (i.e. the trough of the recession). The competitive effect captures the growth differential between each sector in Singapore and its regional equivalent, multiplied by Singapore’s GDP in Q1 2009. Finally, the industry mix component is estimated as the differential between the regional sector growth rate and the overall regional growth rate, multiplied by Singapore’s GDP in Q1 2009.

6 In general, Singapore has a higher-than-average share in sectors such as financial and business services, commerce, and transport, storage & communications (TSC). These sectors recorded moderate growth averaging 7-9% across the region in the post-crisis period. However, Singapore is slightly below the regional average in manufacturing share, a sector that saw strong regional growth of 35%.
As such, when the global economy emerged from the recession in Q2 last year, semiconductor sales saw a stronger rebound than end-product sales due to greater inventory restocking. Singapore, with a high share of semiconductor exports compared to the region, benefited significantly from this.

Meanwhile, several of Singapore’s services industries have been upgrading to cater to the growing middle to high income segments in the region. Financial services, for example, has seen a shift towards higher value-added activity in recent years, particularly in the front-office operations within the wealth advisory cluster, as financial institutions re-position themselves to capitalise on the region’s growing affluence. The Credit Suisse Global Wealth Report 2010 estimated Asia-Pacific wealth to have increased 85% over the last decade to US$62 trillion in 2010, outpacing global wealth growth of 72%. Some financial institutions have responded to the increased demand for fund management services by ramping up hiring to serve both the mass market wealth and the high net worth segments.

In addition, the first half of the year saw a series of capacity additions across the manufacturing and services sectors in Singapore. These provided a step-up in activity that coincided with the wider cyclical upturn. In the manufacturing sector, pharmaceuticals production was buoyed by the opening of Roche's US$500 million biologics plant late last year. Singapore’s competitive edge in the services sector was also sharpened with the opening of Resorts World Sentosa in January and Marina Bay Sands in April this year, which provided a boost to the tourism-related industries. Following the opening of the two Integrated Resorts (IRs), for instance, visitor arrivals increased to an average of about 2.8 million per quarter, up from 2.5 million previously. (Chart 1.16) Coupled with higher local spending, this in turn translated into strong growth in hotel and restaurant revenues, casino and theme park earnings, as well as taxes and levies. The retail trade and transport sectors benefited as well.

These developments bode well for the Singapore economy in the medium term and suggest that the domestic corporate sector has the ability to continuously re-position itself to capitalise on new growth trends. In Chapter 3, we consider further how these developments will support GDP growth next year.
Transiting to Sustainable Growth

A downshift in activity began in H2 2010.

Economic activity in Singapore slowed in the second half of 2010. According to the Advance Estimates, the Singapore economy contracted by 19.8% q-o-q SAAR in Q3, largely due to a fall in manufacturing value-added of 57.0%. (Chart 1.17) The construction sector also declined by 11.7%. Meanwhile, growth in the services sector slowed significantly to 1.6% q-o-q SAAR, after two quarters of double-digit sequential gains.

Most of the decline in the manufacturing sector stemmed from a sharp pullback in pharmaceuticals output, which was due to a switch in the product mix for the quarter, as well as some plant maintenance shutdowns. Excluding pharmaceuticals manufacturing, the economy was estimated to have contracted marginally, following the 12% growth in the preceding quarter.
**EPG’s new monthly activity index points to May 2010 as a turning point.**

The contraction in Q3 2010 was corroborated by EPG’s newly constructed Economic Activity Index (EAI), which showed economic activity peaking in May this year. (Chart 1.18) EAI is a monthly composite index which aggregates a set of coincident indicators across different sectors of the economy, weighted by their economic importance. Figure A presents the main indicators used to compile the EAI, colour-coded according to their monthly sequential growth rates. As these indicators are available at a higher frequency, EAI complements the quarterly advance GDP estimates from DOS and provides useful information on monthly movements within any given quarter.

After an uninterrupted run-up since November 2009, the index started to decline in June 2010, led chiefly by falling pharmaceutical production. Excluding pharmaceutical production, the index shows an almost continuous upward trend since February 2009, leveling off somewhat in April this year.

**Figure A**

<table>
<thead>
<tr>
<th>EPG’s Economic Activity Index – Selected Indicators</th>
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<tbody>
<tr>
<td>Mar</td>
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<tr>
<td>Overall Monthly GDP</td>
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<tr>
<td>Trade-related Indicators</td>
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<tr>
<td>Overall Trade-related</td>
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<tr>
<td>Index of Industrial Production</td>
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<td>Sea Cargo</td>
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<td>Air Cargo</td>
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<td>Financial Indicators</td>
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<td>DBU Loans</td>
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<td>ACU Loans</td>
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<tr>
<td>Stock Market Turnover</td>
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<td>Forex Turnover</td>
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<tr>
<td>Others*</td>
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<tr>
<td>Others</td>
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</tbody>
</table>

* EPG, MAS estimates.

- Month-on-month decline
- Increased at a slower pace
- Increased at a faster pace
Apart from pharmaceuticals, the slowdown was most evident in trade-related activities.

As seen in Figure A, the downshift in economic activity was most evident in the trade-related sectors, such as manufacturing and transport & storage (T&S), which saw activity moderating alongside the broader slowdown in the external environment. In particular, domestic electronics production softened in Q3, following the initial boost from inventory restocking and pent-up final demand after the downturn. (Chart 1.19)

Indeed, as the global IT industry entered a period of consolidation alongside the convergence of inventory and production levels with final demand, growth momentum cooled. The Federal Reserve Bank of San Francisco’s US Tech Pulse Index,\(^7\) which tracks the health of the US technology sector, also captures the moderation in economic activity in Q3 following the steep recovery in the first half of the year. (Chart 1.20)

Financial services growth also moderated.

Coincident with renewed risk aversion in global financial markets, Singapore’s financial services sector was weighed down by a pullback in the sentiment-driven segments in Q3. Although average stock market turnover volumes rose 11% q-o-q, this was largely due to a surge in the last two weeks of September arising from “window-dressing” activity. (Chart 1.21) Average daily trading volumes had otherwise trended down since peaking in Q2 2009, falling from 2.4 billion units to 1.7 billion units in Q3 2010. Transaction volumes in the foreign exchange (FX) markets were also capped by the ongoing uncertainty about the global economic recovery, recording an average 4.5% m-o-m decline in July and August.

\(^7\) The US Tech Pulse Index, compiled by the Federal Reserve Bank of San Francisco, is an index of coincident indicators of activity in the US IT sector. The indicators used are investment in IT goods, consumption of personal computers and software, employment in the IT sector as well as industrial production of, and shipments by, the technology sector. The index extracts the common trend that drives these series.
On the financial intermediation front, growth in domestic lending eased in Q3. (Chart 1.22) Overall loan volumes in August expanded by just 0.3% m-o-m, compared to 1.7% in July on the back of sluggish interbank lending and a milder expansion in the consumer credit segment. Consumer lending grew by 1.3% in August, down from 1.9% in July, on slower gains in housing & bridging loans and a sixth consecutive month of decline in car loans. Meanwhile, business lending rose in August, but lending to trade-related segments, such as manufacturing and commerce, weakened. In addition, narrowing interest margins have continued to weigh on intermediation activity.

Likewise, offshore lending (ACU) also registered a slower 1.5% m-o-m increase in August, following 1.7% and 3.4% expansions in July and June respectively. This was due to a moderation in ACU non-bank lending activity, reflecting the decline in demand for funding from the US and Europe following softer global business sentiment in Q3.

Retail sales volumes stabilised while visitor arrivals eased.

While growth in financial and trade-related services eased in Q3 2010, the retail trade sector saw retail sales volumes growing by an average of 2.6% m-o-m SA after sizeable declines in Q2. Vehicle sales picked up in July and August, following a drop of 78% q-o-q SAAR in the previous quarter on COE quota reductions. Excluding vehicles, retail sales volumes continued to edge up steadily, expanding by an average of 0.9% m-o-m SA in the earlier months of Q3, driven chiefly by better sales at department stores and mass-market retailers.

In Q3, there were emerging signs that this year’s resurgence in tourist flows, which had propelled the air transport and hospitality industries in H1, was cooling. In the first two months of Q3, visitor arrivals fell, led by fewer arrivals from ASEAN. (Chart 1.23) This was in contrast to the 27% q-o-q SAAR surge in the previous quarter. Correspondingly, in August, hotel occupancy slipped below 83% for the first time since Dec 2009.
The slowdown in the domestic economy in Q3 was expected.

Alongside the softening in the external environment and the dissipation of the inventory restocking effect, the slowdown in the domestic economy in Q3 this year was largely expected. These short-term adjustments are not indicative of an imminent relapse into broad-based weakness in the economy, and the level of economic activity is expected to remain high in the quarters ahead. This will be discussed in greater detail in Chapter 3.

An Expenditure Perspective

The recovery has been broad-based from the expenditure perspective.

While the preceding section features the Singapore economy from the industry perspective, the following section traces the recovery profile from the expenditure angle. Following the trough in Q1 2009, all major expenditure components, including private consumption, net exports and fixed investment, have turned around and played a part in fuelling the strong GDP expansion in the first half of 2010. (Chart 1.24)

Net exports featured most prominently, accounting for slightly more than half of H1 GDP growth. Over the same period, the inventory component contributed a sixth to GDP growth. Private consumption, which underwent a shallow and brief downturn, recovered in Q2 2009 along with the overall economy. It grew by 6.3% in H1 2010 on a y-o-y basis, accounting for less than one-sixth of overall GDP growth.

Exports and private investment saw a stronger rebound in this recovery.

A comparison of the recent upturn with that following the Asian Financial Crisis and the 2001 IT Downturn point to somewhat different recovery characteristics, as depicted in Chart 1.25.
While all three recoveries were facilitated by the rebound in exports of goods and services, the recovery from the trough was steepest in the current upturn. Nonetheless, this has to be seen in the context of the sharper fall-off in exports during the recent recession. As such, exports of goods and services were only 5.3% above their pre-crisis peak in Q2 2010, five quarters from the GDP trough compared to 7.2% at the same stage of the GDP cycle in 1999 in the aftermath of the Asian Financial Crisis.

Meanwhile, imports also made a relatively rapid comeback in the recent upturn, driven by stronger demand for IT components and capital equipment. The relatively stronger growth in imports during the last recession meant that net exports played a smaller role in the current recovery than in the past.

Compared to the previous two recessions, private fixed investment was more resilient in this cycle. The Asian Financial Crisis coincided with a retraction in domestic construction activity; the period following the 2001 IT Downturn was also characterised by weak domestic demand and a severe decline in fixed investment.

In contrast, expenditure on construction & works was a pillar of strength throughout the recent recession, offsetting the initial slump in fixed investment of machinery & equipment, and continued to grow in H1 2010. Meanwhile, the pickup in the latter was steeper in this recovery and was associated with stronger imports of capital equipment. This suggests that businesses had pushed ahead with their expansion plans amidst a strong rebound in sentiment. Indeed, expectation surveys have indicated a steady improvement in the business outlook since late-2008. Nonetheless, the growth in overall fixed investment was weighed down by a slump in the transport equipment component, which was due to a pullback following a surge in these typically lumpy investments in 2007 and 2008.

Finally, private consumption expenditure (PCE) remained relatively stable throughout the recent recession and subsequent recovery, matching, in part, the resilience of the domestic labour market. In the Asian Financial Crisis, it fell further and was followed by a prolonged recovery from the trough. The steady PCE notwithstanding, retail sales slumped and have not recovered in any significant way.

In fact, private consumption had outperformed retail sales since the onset of the downturn and well into the recovery phase, suggesting some support for private consumption growth from demand for services.

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8 The manufacturing sector’s six-month outlook in EDB’s Survey of Business Expectations of the Manufacturing Sector improved from a net balance of -57% in Q4 2008 to a high of 29% in Q1 2010. Similarly, over the same period, the services sector’s six-month outlook in DOS’ Business Expectations Survey (Services Sector) turned more optimistic from a net balance of -53% to 36%.
Chart 1.25
Expenditure Components across Past Recessions

**Exports**

- **Asian Financial Crisis** (Peak=Q3 1997)
- **2001 IT Downturn** (Peak=Q4 2000)
- **Recent Recession** (Peak=Q1 2008)

**Imports**

- **2001 IT Downturn** (Peak=Q4 2000)
- **Recent Recession** (Peak=Q1 2008)
- **Asian Financial Crisis** (Peak=Q3 1997)

**Gross Fixed Capital Formation**

- **2001 IT Downturn** (Peak=Q4 2000)
- **Recent Recession** (Peak=Q1 2008)
- **Asian Financial Crisis** (Peak=Q3 1997)

**Expenditure on Construction & Works**

- **Recent Recession** (Peak=Q1 2008)
- **2001 IT Downturn** (Peak=Q4 2000)
- **Asian Financial Crisis** (Peak=Q3 1997)

**Expenditure on Machinery and Equipment**

- **Recent Recession** (Peak=Q1 2008)
- **Asian Financial Crisis** (Peak=Q3 1997)
- **2001 IT Downturn** (Peak=Q4 2000)

**Retail Sales Volumes and PCE**

- **Private Consumption Expenditure**
- **Retail Sales Volume**
1.3 Macroeconomic Policy

Singapore’s macroeconomic policies provided countercyclical support during the downturn.

When Singapore slid into recession in 2008, the macroeconomic policy stance was adjusted to provide support to the domestic economy in the face of the significant deterioration in external demand. In October 2008, MAS eased monetary policy by shifting to a zero percent appreciation of the Singapore dollar nominal effective exchange rate (S$NEER) policy band in response to the weak economic environment, continued stresses in the financial markets and easing inflationary pressures. This was followed by a downward re-centering of the policy band to the prevailing level of the S$NEER in April 2009. The responses of monetary policy were deliberately graduated and underpinned by the core objective of maintaining price stability in the medium term, with the exchange rate as an anchor of stability for a small and open economy. In comparison, fiscal policy – as contained in the Resilience Package in the FY2009 Budget – contributed more significantly to the required adjustments in the overall macroeconomic stance during the downturn.

The monetary and fiscal policy stance is proxied by the Domestic Liquidity Indicator (DLI) and Fiscal Impulse (FI) measure respectively. Chart 1.26 plots these measures against the output gap. A positive output gap signals that output is above potential, leading to inflationary pressures as the economy faces bottlenecks in meeting demand. Conversely, a negative output gap indicates that the economy is producing below capacity, resulting in the easing of cost and price pressures.

Points above the horizontal axis denote a positive output gap and an expansionary policy stance, and vice versa for points below the axis. Movements in DLI and/or FI in the opposite direction to the output gap indicate that macroeconomic policy is countercyclical. It is evident from the chart that macroeconomic policies in Singapore have been expansionary during periods of adverse economic conditions since 1990, including the recent recession.

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9  The DLI is a measure of overall monetary conditions, which reflects changes in the S$NEER and three-month domestic interbank rate.

10  See the January 2002 issue of the Review for more details on the methodology used to calculate the FI measure.
The macroeconomic policy stance was tightened in line with the strong economic recovery.

The Singapore economy recovered swiftly towards late 2009 and early 2010. By Q1 2010, it had recouped the GDP that was lost over the recent recession. Output had risen by 17% from the trough in Q1 2009, and was about 7% above the previous peak level. Given this, the Singapore authorities began to withdraw the monetary and fiscal stimulus that had been put in place during the crisis, returning policy settings to levels deemed conducive to sustainable growth and medium-term price stability.

On fiscal policy, the government had announced late last year its plans for the gradual phasing out of two key components of the Resilience Package – the Jobs Credit Scheme and the Special Risk-Sharing Initiative (SRI). Relatedly, the focus of the FY2010 Budget shifted from recession relief to restructuring the economy through investments in skills, building capabilities and encouraging innovation. This followed from the recommendations of the Economic Strategies Committee (ESC), and was aimed primarily at shifting the economy towards productivity-driven growth. The Budget therefore contained measures to spur the upgrading of the workforce, such as the expansion of the Continuing Education and Training Scheme, additional transfers for low-wage workers to encourage them to stay on in the workforce, and new incentives for low-wage workers to undergo training. Various schemes to encourage companies to invest in productivity were also announced. These included the Productivity and Innovation Credit Scheme, the National Productivity Fund, tax incentives for qualifying mergers and acquisitions (M&As) and higher levies for unskilled foreign labour. (See the April 2010 issue of the Review for more details on the FY2010 Budget measures.)

In April 2010, MAS pre-emptively tightened monetary policy by re-centering the S$NEER policy band upwards and restoring its modest and gradual appreciation path. This policy shift marked the end of the accommodative monetary policy stance in place since October 2008 and was judged to be appropriate given the strong recovery path of the economy at that time.

In October 2010, MAS tightened further by shifting to a slightly steeper appreciation of the S$NEER policy band without altering the level at which the band was centred. At the same time, the policy band was widened slightly.

The policy decision was made on the assessment that the level of economic activity would remain high, as the domestic economy would continue to expand, albeit at a slower and more sustainable pace. At the same time, domestic cost pressures have been rising amidst high rates of resource utilisation in the economy. Strong income growth has also placed upward pressure on the prices of some domestic non-tradable consumption items.

Given these upside pressures to inflation, MAS deemed it appropriate to tighten monetary policy at this juncture to dampen external inflation – particularly from global food commodity prices – as well as to provide the necessary macroeconomic restraint on domestic economic activity, thereby ensuring that cost and price pressures do not become entrenched. The October policy decision also took into account the volatility of international financial markets given the lingering effects of the global financial crisis.

In sum, following the withdrawal of the accommodative monetary stance in April, MAS’ latest monetary policy decision continues to be guided by the medium-term orientation of price stability, and is calibrated to support the economy’s transition to a more mature phase of expansion. (Chart 1.27 traces the evolution of monetary policy, as indicated by movements in the S$NEER, against the backdrop of growth and inflation developments.)

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11 See Box C in the April 2008 issue of the Review for further discussion on the monetary policy transmission channels in Singapore.
Chart 1.27
Key Macroeconomic Variables and Changes in the Monetary Policy Stance

- CPI Inflation
- Output Gap
- Real GDP Growth
- S$NEER Index (Q1 2004=100)

Monetary Authority of Singapore
Economic Policy Group
The S$NEER fluctuated in the upper half of the policy band in the past six months.

Since the April 2010 policy review, the S$NEER has fluctuated in the upper half of the exchange rate policy band. (Chart 1.28) Regional currencies have rallied in recent months, following some softness in May due to heightened fears of a sovereign debt default in the peripheral Eurozone countries. This reflected broad-based US$ weakness and the inflow of global liquidity to the region, as investors sought higher yields amidst stronger growth prospects in Asia.

The S$REER appreciated but has remained below its pre-Asian Financial Crisis level.

The S$ real effective exchange rate (S$REER) is a measure of the S$NEER adjusted for price and cost differentials between Singapore and its trading partners. Using the CPI as the price deflator, the S$REER is estimated to have risen slightly by 0.9% in Q1 and 2.7% in Q2. (Chart 1.29) Nonetheless, it is still some 3% below its pre-Asian Financial Crisis level. In the prior decade, the appreciation in the S$REER was the result of a strengthening in the nominal exchange rate, while the domestic CPI grew more slowly than that of our trading partners. In comparison, the appreciation in the S$NEER since 2005 has been slower, although it has continued to account for the bulk of the trend increase in the S$REER. Meanwhile, domestic consumer prices have risen slightly faster than the foreign CPI, unlike in the pre-Asian Financial Crisis period. (See shaded portions in Chart 1.29.)

Liquidity conditions have tightened since May this year.

From April to September, the DLI was positive, suggesting a tightening in overall liquidity conditions alongside the return to a modest and gradual appreciation stance of the S$NEER. (Chart 1.30) Changes in the DLI were predominantly driven by the exchange rate component, while the three-month domestic interbank rate remained at low levels since the beginning of last year. Indeed, the benchmark interest rate stayed at 0.69% between January 2009 and April 2010, before edging down to a historical low of 0.56% since May this year and further southwards to 0.50% at end-September. (Chart 1.31)
In comparison, the three-month US$ SIBOR picked up from 0.25% at the end of January to 0.54% by the end of June, before falling back to 0.29% at end-September. As a result, the domestic interest rate, while continuing to trade at a premium to the US$, saw a narrowing of the differential to near zero in May and June. However, as market expectations shifted back to that of a prolonged low interest rate environment in the US, the differential widened back to 0.21% by the end of September.

Due to the record low domestic interbank rate, deposit rates have been depressed at low levels, and have been largely unchanged since the beginning of the year. (Chart 1.32) Mortgage rates pegged to the S$ SIBOR have fallen, although some banks had raised the spread over the base rate. Nonetheless, increasing competition in mortgage lending will continue to put pressure on consumer home loan rates.

Credit growth picked up in line with the economic expansion.

In line with the low interest rate environment and the expansion of the Singapore economy, domestic credit growth has become firmer in 2010. In particular, business loans began to expand y-o-y from April, with average growth rising to about 4% in the three months to August. Supported by a revival in housing loans, consumer loan growth also accelerated in the first eight months of the year. (Chart 1.33) Accordingly, the loan-to-deposit ratio edged up to 0.73 in August from 0.71 in Q1 2010, following a sharp decline from its peak of 0.80 in Q3 2008.

M1 growth remained firm while M2 and M3 growth eased in the low interest rate environment.

Through the process of bank intermediation, the money supply adjusts to facilitate transactions in the economy. A higher level of economic activity requires a corresponding increase in money supply, either through an increase in the monetary base, or through the money multiplier.
In Singapore, nominal GDP and the monetary base have tracked each other fairly closely except during the recent recession, when an increase in banks’ demand for reserve balances resulted in a surge in the monetary base. (Chart 1.34) Growth in the monetary base subsequently slowed as risk aversion eased, before picking up once more as the economy moved into the expansion phase. The latest data for July and August show the growth in the monetary base surging again as the level of economic activity remained high in Q3.

Recent movements in money aggregates have been consistent with the pattern of recovery in economic activity and the fluctuations in the money multiplier. Short-run fluctuations in the M2 multiplier have tended to track cyclical changes in nominal GDP quite closely, with the multiplier falling as the economy goes into recession, and rising during the ensuing recovery. (Chart 1.35) As of August 2010, the multiplier has risen more slowly as compared to the first half of the year, mirroring the downshift in economic activity in Q3. Growth in the broader monetary aggregates, M2 and M3, has thus eased below rates last seen during the trough in Q2 2008. (Chart 1.36)

In comparison, the M1 multiplier continued to increase in Q3 and growth in narrow money only moderated slightly in July and August. Both components of M1, namely demand deposits and currency in active circulation, have increased over the first eight months of the year. (Chart 1.37) In the initial phase of the crisis, demand deposits might have been held to preserve liquidity. However, they have since continued to rise, given the strong economic recovery. Currency in active circulation has also increased in tandem. This suggests that the growth in firm and household incomes has translated into strong demand for M1 for transactional purposes.
MAS’ sterilisation has effectively absorbed the liquidity impact of its intervention operations.

Singapore has seen strong capital inflows since H2 2009, amidst broad-based weakness of the US$ and the relatively positive outlook for the Singapore economy. In such instances, MAS may intervene in the foreign exchange markets to dampen upward pressures on the S$. Such intervention operations lead to an increase in foreign assets on MAS’ balance sheet (via the purchase of US$ from banks) (Chart 1.38) and a corresponding rise in banks’ current accounts with MAS on the liability side (through the credit of S$ to banks). These larger current account balances, in turn, expand the monetary base. To offset the liquidity impact of its intervention operations, MAS engages in sterilisation via SGS reverse repos, FX reverse swaps, and direct borrowing. Box A provides a review of MAS’ Money Market Operations (MMOs) in FY2009/10. As a result of these measures, banks’ current accounts with the MAS are relatively unaffected by MAS’ intervention operations. Sterilisation operations thus help to smooth out large fluctuations in the growth of the monetary base and in broad money creation. (Chart 1.39)
Fiscal Policy

Government operating revenue increased with the upturn in economic activity.

Government operating revenue increased from $18.8 billion in H1 2009 to $22.3 billion in the first half of this year. As a proportion of GDP, it rose from 15.0% to 15.3%. Stamp duty, income tax, GST, as well as fees & charges each contributed about 20% to the increase in the government’s coffers. (Chart 1.40)

The government received $9.4 billion from income tax in H1 2010, $0.7 billion more than in the same period last year. A larger amount of revenue was collected from corporate income tax and statutory boards, notwithstanding the reduction in the corporate income tax rate from 18% to 17% with effect from Year of Assessment 2010. GST, which is the second largest component of operating revenue after income tax, also increased by $0.6 billion on a year-ago basis to $3.7 billion in H1 2010.

Of all the revenue components, the strongest surge was recorded for stamp duty, which more than doubled to $1.4 billion in the first half of 2010 compared to that in the preceding year. This mirrored the swift and strong recovery of the residential property market from its trough in Q2 last year. (Chart 1.41) Nevertheless, revenue raised from stamp duty was still below its $2.1 billion peak in H1 2007.12

In terms of non-tax revenue, i.e. fees & charges, the bulk of the increase was due to receipts from Certificates of Entitlement (COEs). As a result of the reduction in quotas this year, COE premiums for cars surged about fourfold in H1 on a y-o-y basis. (Chart 1.42) Even though new car registrations tumbled by about 38% over the same period, the higher premiums led to a greater amount of COE collections.

12 Stamp duty collections in H1 2007 were also boosted by the withdrawal of the stamp duty deferment concession with effect from December 2006.
Government spending rose by $1.5 billion to $22.4 billion (15.4% of GDP) in H1 2010, largely driven by the increase in operating expenditure, including that on manpower, equipment and supplies.

Operating expenses were $1.1 billion higher at $16.8 billion (11.5% of GDP), with increases recorded across all Ministries. In particular, the Ministry of National Development recorded the largest expansion in operating expenditure mainly due to the Public Housing Development Programme. (Chart 1.43) The Ministry of Community Development, Youth and Sports also saw a considerable rise in operating spending, part of which could be attributed to the hosting of the Youth Olympic Games.

Meanwhile, the government spent $5.6 billion (3.9% of GDP) on development items in H1 2010, $0.3 billion more than in the first half of last year. The bulk of the increase was incurred by the Ministry of Trade and Industry, mainly to support ESC-related projects such as R&D and industry development activities. (Chart 1.44) This was partially offset by the decline in expenses on transport infrastructure over the same period.

The basic balance remained in deficit this year, with the overall fiscal stance close to neutral.

Overall, the government recorded a slight primary deficit of $55 million in H1 2010, compared to $2.2 billion recorded in the same period a year ago. Including special transfers but excluding top-ups to endowment and trust funds, the basic deficit amounted to $2.4 billion, down from $4.6 billion in H1 2009. (Chart 1.45) These special transfers largely comprise payouts under the Jobs Credit Scheme.

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13 The primary surplus/deficit is defined as operating revenue (excluding net investment income/returns contribution) less the sum of operating and development expenditure.
The Fiscal Impulse (FI) measure provides a useful indication of the initial stimulus to aggregate demand arising from fiscal policy, and takes into account not just the primary balance but also targeted special transfers that impact the cash flow of households and businesses. The FI is estimated to be -0.6% of GDP for CY2010 implying a close to neutral fiscal policy stance. (Chart 1.46) This is consistent with the fact that many of the fiscal measures included in Budget FY2010 are essentially supply-side in nature and have longer-term objectives in positioning Singapore for productivity-driven growth over the medium term.
This box reviews the conduct of MAS’ Money Market Operations (MMOs) in FY2009/10. As explained in the monograph on “Monetary Policy Operations in Singapore” published in April 2007, MAS’ MMOs are undertaken to manage liquidity within the banking system and are distinct from the implementation of exchange rate policy.

A brief description of how MMOs are conducted is first provided, followed by a review of the banks’ demand for cash balances with MAS, and the behaviour of autonomous money market factors in FY2009/10. An examination of the MMOs conducted during this period completes this box.

**MMOs in Singapore**

As a result of Singapore’s open capital account and its exchange rate-centred monetary policy, domestic interest rates and the money supply are endogenous. Accordingly, MAS’ MMOs are not targeted at any level of interest rate or money supply. Instead, they are aimed at ensuring that there is sufficient liquidity in the banking system to meet banks’ demand for reserve and settlement balances.

MMOs are conducted daily by the Monetary Management Division in MAS. The amount of liquidity in the banking system is estimated by taking into consideration the banking sector’s demand for funds and the net liquidity impact of autonomous money market factors. Money market transactions are then carried out, after which market and liquidity conditions are monitored throughout the day.

**Banks’ Demand for Cash Balances**

Banks hold cash balances with MAS to meet reserve requirements and for settlement purposes. In particular, banks in Singapore are required to maintain a Minimum Cash Balance (MCB) equivalent to 3% of their liabilities base with MAS on a two-week average basis. Banks may also use their cash balances to fulfil other regulatory (e.g. liquid asset) requirements, hence banks’ demand for cash balances may also vary between periods.

In FY2009/10, banks’ demand for balances to meet reserve requirements expanded due to the resumption of growth in banks’ liabilities base. (Chart A1) The increase in the banks’ liabilities base reflected the recovery of bank intermediation activity as a result of strong economic growth in the post-crisis period.

**Chart A1**

*Average Reserve Requirements over a Two-week Maintenance Period*

1/ This box is contributed by the Monetary & Domestic Markets Management Department at MAS.
Demand for Settlement Balances

MAS also takes into account banks’ demand for settlement balances when planning its MMOs, apart from meeting banks’ demand for reserve balances. Based on historical experience, an average liquidity buffer of about 0.1% to 0.3% in excess of reserve requirements over the two-week maintenance period has generally been adequate for meeting banks’ demand for business-as-usual settlement balances.

Patterns in Banks’ Daily Demand for Cash Balances with MAS

Although banks are required to keep an average MCB ratio of 3% over the two-week maintenance period, their daily effective MCB ratios can fluctuate between 2% and 4% of their liability base, giving them more flexibility in their liquidity management. Hence, there may be day-to-day variations in banks’ demand for cash balances with MAS within each maintenance period.

Chart A2 illustrates the daily fluctuations in cash balances within an average maintenance period in FY2009/10. As observed since our last review in 2009, higher cash balances are usually kept during the start of the maintenance period as banks want to avoid being caught short of cash towards the end of the period. As a result, the daily cash balances required by the banking system during the last few days of a typical maintenance period are generally lower.

Money Market Factors

Liquidity Impact of Autonomous Money Market Factors

Chart A3 shows the liquidity impact of each of the autonomous money market factors, which include (i) public sector operations, (ii) currency in circulation, and (iii) Singapore Government Securities (SGS) issuance, redemption and coupon payments, over FY2009/10. Public sector operations include the Government’s and CPF Board’s net transfers of funds between their accounts with MAS and their deposits with commercial banks.

In FY2009/10, the liquidity impact of the autonomous money market factors had been net contractionary, largely due to public sector operations and SGS issuance. Public sector operations had consistently been contractionary throughout the year. The impact of SGS issuance was most significant in Q2 and Q3 of 2009, while the impact of currency in circulation was negligible.
Over FY2009/10, MAS’ MMOs took into consideration the impact of autonomous money market factors and MAS’ foreign exchange (FX) intervention operations on liquidity. During FY2009/10, banks have generally taken a more conservative stance, holding an effective average minimum cash balance of about 3.2% of liability base during the two-week maintenance period. (Chart A4)

**Instruments for MMOs**

For its MMOs, MAS uses three key instruments to inject and withdraw liquidity into the banking system, namely, (i) FX swaps or reverse swaps; (ii) SGS repos or reverse repos; and (iii) clean lending or borrowing. Chart A5 illustrates the distribution of MMOs amongst the instruments as at the end of FY2009/10.
Chart A5
Distribution of MMOs by Instrument

FY 2008/09
- Borrowing: 41%
- FX Reverse Swap: 38%
- SGS Reverse Repo: 2%

FY 2009/10
- Borrowing: 59%
- FX Reverse Swap: 60%
- SGS Reverse Repo: 2%