1.1 External Developments

Global Growth Strengthens on G3 Drivers

An upturn in G3 economies offset slower growth in most of Asia ex-Japan.

In a trend reversal from last year, the G3 economies gained momentum in H1 2013, while growth in most parts of Asia ex-Japan eased. On the whole, global growth remained relatively muted. (Table 1.1 and Chart 1.1) The improvement in the G3 economies was attributable to the resilient US consumer who shrugged aside fiscal headwinds, and an unexpected exit from recession in the Eurozone. Additionally, firm exports and robust consumption contributed to a ramp-up in Japan's output in H1 2013.

The cyclical upswing in the G3 economies owed partly to the unconventional monetary policies undertaken by central banks since the Global Financial Crisis (GFC). These policies helped to minimise tail risks and created a supportive environment for private sector deleveraging. For instance, US households have taken advantage of low interest rates and relatively steady income growth to reduce their debt burden. In the Eurozone, unconventional monetary policies lowered bond yields in the periphery and allowed fiscal austerity measures to be relaxed. More recently, aggressive monetary easing in Japan has raised expectations of a stronger growth trajectory for the economy.

In Asia ex-Japan, the demand rebalancing process seems to have lost momentum in some countries. A concerted campaign in China to cut back on extravagant official spending weighed on consumption, while the share of investment in GDP remained high. In contrast, persistent under-investment has constrained India's supply-side potential and contributed to a fall in growth to its lowest level in more than four years. In the ASEAN economies, though some progress has been made in raising investment-output ratios amid easier monetary conditions, there is still room for further capital deepening. Meanwhile, the NIEs recorded a significant boost to domestic demand, underpinned by stronger fiscal support.

Table 1.1
GDP Growth

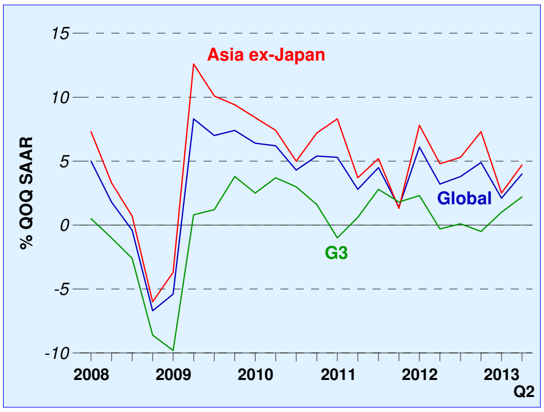
(%)

	2012		2013	
	Q3	Q4	Q1	Q2
	q-o-q SAAR			
Total*	**3.8**	**4.9**	**2.1**	**4.0**
G3*	**0.1**	**−0.5**	**1.0**	**2.2**
US	2.8	0.1	1.1	2.5
Eurozone	−0.5	−2.0	−0.9	1.1
Japan	−3.5	1.1	4.1	3.8
Asia ex-Japan*	**5.3**	**7.3**	**2.5**	**4.7**
Hong Kong	4.3	5.7	0.9	3.2
Korea	0.2	1.1	3.4	4.5
Malaysia	4.0	9.2	−1.4	5.5
Taiwan	3.0	7.1	−2.5	2.3
Thailand	7.9	11.4	−6.5	−1.4
Philippines	7.0	7.8	9.6	5.7
	y-o-y			
China	7.4	7.9	7.7	7.5
India	5.2	4.7	4.8	4.4
Indonesia	6.2	6.1	6.0	5.8

Source: CEIC and EPG, MAS estimates

* Weighted by shares in Singapore's NODX.

Chart 1.1
G3 and Asia ex-Japan GDP Growth



Source: CEIC and EPG, MAS estimates

Note: Series are weighted by shares in Singapore's NODX.

US private demand withstood fiscal retrenchment ...

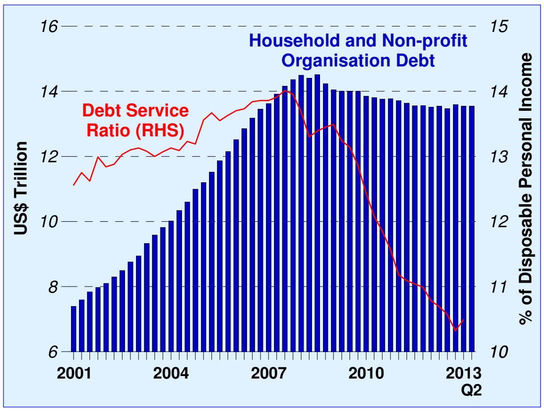
US economic growth increased to 2.5% q-o-q SAAR in Q2 2013 from 1.1% the quarter before, as private demand held firm in the face of tax hikes and the withdrawal of fiscal concessions since the beginning of the year. The expiry of unemployment benefits, as well as the budget sequester that began in March, saw government spending contracting at an average rate of 2.3% q-o-q SAAR in H1 2013. Nonetheless, as corporate profits strengthened further in Q2, gross investment increased by 9.2% q-o-q SAAR on the back of a rebound in spending on structures. Additionally, the housing recovery continued to support residential investment growth.

As US households restored their balance sheets to a healthier position by gradually paring down their debt levels, the debt service ratio declined to 10.5% in Q1 2013, from a peak of 14.0% during the GFC. (Chart 1.2) The fall occurred even though income growth remained sluggish, averaging around 1.5% q-o-q SAAR since the recession ended in mid-2009. Meanwhile, slightly slower growth in house prices and overall employment restrained consumption growth, which was more moderate at 1.8% q-o-q SAAR in Q2 2013, compared with 2.3% in Q1. Although the unemployment rate fell steadily, this was partially the result of a lower labour force participation rate (LFPR), as non-farm payrolls increased by a monthly average of just 182,000 in Q2 2013, compared with 207,000 in Q1. A large part of the decline in the LFPR could have been due to cyclical factors and it may rise as discouraged workers who still want a job return to the labour force. (Chart 1.3) However, if jobs growth were to slow, part of the decline in the LFPR may become structural in nature, with more workers remaining unemployed for longer periods and losing their skills.

... while the Eurozone emerged from recession in Q2 2013.

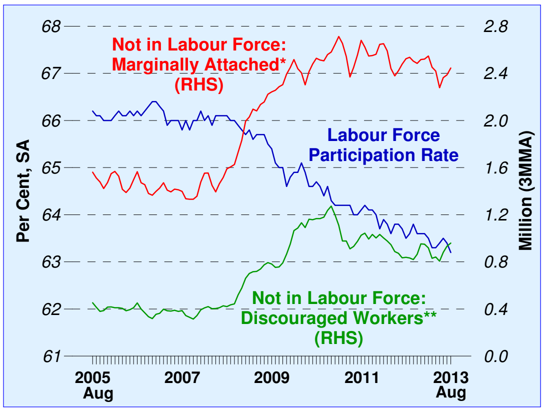
Following a recession that lasted six quarters, the longest since its inception, the Eurozone economy expanded by 1.1% q-o-q SAAR in Q2 2013. The exit from recession was underpinned by a recovery in both domestic and external demand. Private consumption expanded on account of an increase in sales of big-ticket items, such as passenger cars, suggesting pent-up demand for consumer durables. With improving business sentiment and higher capacity

Chart 1.2
US Household Liabilities and Debt Service Ratio



Source: The Federal Reserve Board

Chart 1.3
US Labour Market



Source: CEIC

* Refers to persons who want and are available for a job, have searched for work in the last twelve months, but not in the past four weeks.

** Refers to persons who did not actively look for work in the prior four weeks for reasons such as "no work available", "lacks schooling or training" etc.

utilisation levels, fixed investment also rose for the first time in more than two years in Q2 2013.

While an easing of fiscal austerity policies is likely to have contributed to the Eurozone's emergence from recession, it has also caused a delay in the correction of excessive public deficits, particularly in countries that received some form of official financial aid—Greece, Ireland, Spain, Portugal and Cyprus. As a result, the Eurozone's gross government debt-to-GDP ratio continued on its upward climb since 2008, reaching 93% in Q2 2013, or 3.5% points higher than the same period a year ago. (Chart 1.4) In the next few years, public sector deleveraging will have to proceed at a faster pace, in order for Eurozone member states to adhere to the more rigorous fiscal discipline standards under the reinforced Stability and Growth Pact.[1] This may pose renewed headwinds to growth.

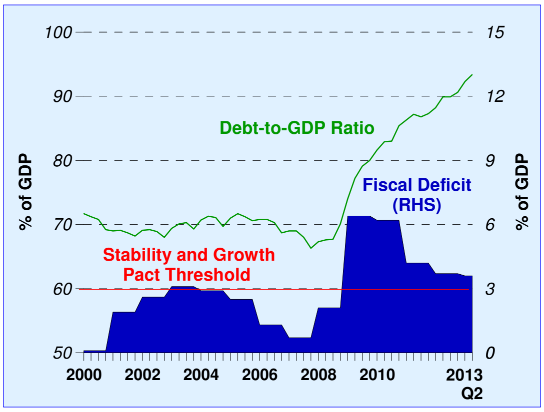
The Japanese economy surged on the back of fiscal stimuli and a weaker yen.

Japan's GDP growth stayed strong at 3.8% q-o-q SAAR in Q2 2013, only slightly slower than the 4.1% in the previous quarter. Since the Abe government came into office in late 2012, real GDP has seen a discernible uplift, in contrast to the tepid growth for more than a decade. (Chart 1.5) In spite of stagnant wages, private consumption rose by 3.0% q-o-q SAAR in Q2 2013 on the back of buoyant consumer confidence. Net trade contributed 0.7% point to GDP growth, as Japanese manufacturers benefited from stronger US demand for automobiles, which partly reflected the effects of a weaker yen. The increase in exports, in turn, led to a revival in private non-residential investment, which rose by 5.1% q-o-q SAAR in Q2—the first gain in six quarters. The disbursement of government expenditures approved in February as part of a fiscal stimulus package also sent public investment soaring by 12.7% q-o-q SAAR.

China's growth is still investment-led.

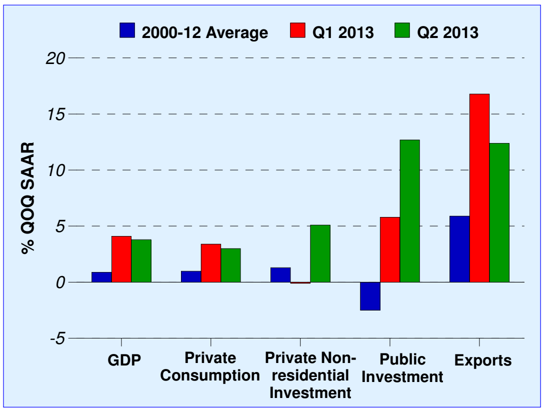
Buffeted by external headwinds and domestic reform imperatives, China's economic growth fell for two successive quarters, from 7.9% y-o-y in Q4 last year to 7.7% in Q1 2013 and 7.5% in Q2. The expansion in

Chart 1.4
Eurozone Gross Government Debt-to-GDP Ratio and Fiscal Deficit



Source: Eurostat and EPG, MAS estimates

Chart 1.5
Japan's GDP Growth by Expenditure



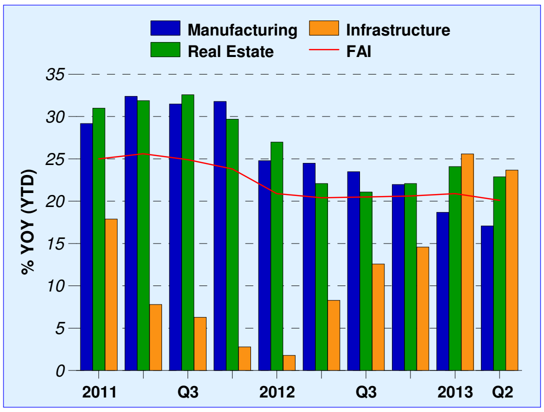
Source: CEIC and EPG, MAS estimates

[1] The Stability and Growth Pact is a framework for the coordination of national fiscal policies in the European Union. Under this pact, the headline fiscal deficit should not exceed 3%, while public debt levels must not exceed 60% of GDP (or should at least diminish sufficiently towards the 60% mark).

industrial production dropped to single-digits in the first half of 2013, dragged down by subdued export orders and an inventory overhang in the heavy industries. Retail sales growth of 13% y-o-y in Q2 was also below the average of 14% in 2012, due to the lingering effects of policies to rein in lavish official spending early this year.

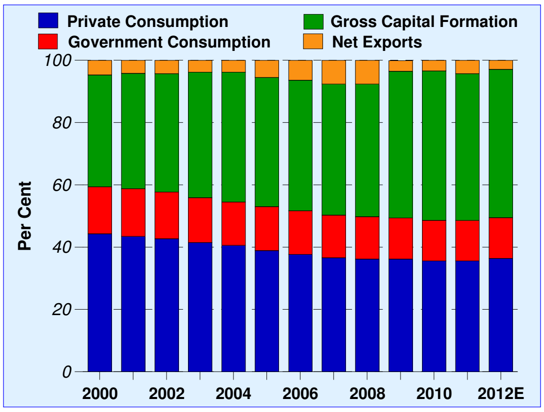
Thus far in 2013, investment continued to be the leading driver of China's economic growth, supported by real estate and infrastructure construction. (Chart 1.6) Gross capital formation contributed to more than half of GDP growth in H1 2013, while consumption played a diminished role compared with 2012. Indeed, the share of household consumption in GDP has stayed essentially unchanged since the financial crisis, hovering at around 36%. (Chart 1.7) In contrast, gross capital formation rose as a share of GDP from 43% in 2008 to 48% in 2012, reflecting the massive policy stimulus implemented in response to the global recession, which predominantly took the form of investment projects. Thus, internal rebalancing away from investment towards private consumption has yet to occur. Nevertheless, China's attempts to shift away from export-led growth have made some headway, with the share of net exports falling to 2.9% in 2012 from an average of 5.3% over 2000–08.

Chart 1.6
China's Fixed Asset Investment (FAI)



Source: CEIC and EPG, MAS estimates

Chart 1.7
China's Real GDP Decomposition

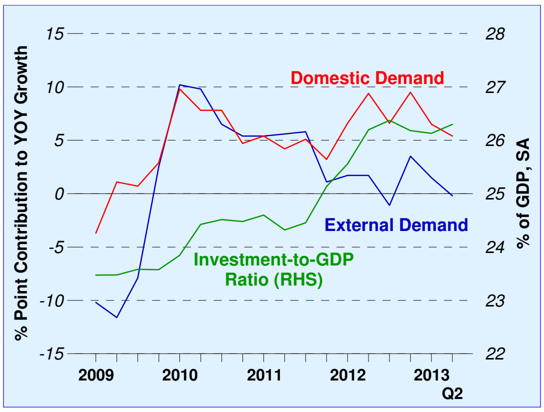


Source: United Nations and EPG, MAS estimates

There is scope for further rebalancing in the ASEAN-4 economies and India.

Strong economic growth in the ASEAN-4 economies has been maintained during the post-GFC period, as robust domestic demand more than offset the prolonged weakness in exports. (Chart 1.8) Fuelled by ample liquidity and an acceleration in infrastructure spending, fixed investment grew by a rapid 9.6% per annum over 2010–12, on average, lifting the region's aggregate investment-to-GDP ratio from 24% to 26%. Buoyant labour market conditions and government cash transfers supported private consumption, which grew at roughly the same pace as output, thus keeping the region's consumption ratio stable at 58%.

Chart 1.8
Contribution to ASEAN-4 GDP Growth and Investment-to-GDP Ratio



Source: CEIC and EPG, MAS estimates

However, GDP growth in the ASEAN-4 countries moderated in H1 2013 to 5.0% y-o-y from 5.9% on average in 2010–12, as domestic demand slowed. With subdued export growth of 1.0% y-o-y in H1 2013, the external positions deteriorated further. The region's overall current account balance recorded a deficit of 2.5% of GDP in Q2 2013, compared to a negligible surplus of 0.01% in 2012. Following market expectations of Fed tapering, several regional countries experienced capital outflows, which induced a tightening of financial conditions. Against this backdrop, investment growth in the region eased to 6.9% y-o-y in H1 2013, even though there is scope for the share of investment in GDP to rise further. Meanwhile, the high level of household debt in Thailand has restrained private consumption, offsetting the boost to the region's domestic demand from election-related government spending in Malaysia and the Philippines in Q2 2013.

In India, the inadequacy of basic infrastructure, together with a policy gridlock, has weighed on growth, which slowed to 4.4% y-o-y in Q2 2013. This was the weakest growth since Q1 2009 and reflected a broad-based deceleration across both the industrial and services sectors. In Q2, India's manufacturing sector contracted for the second time since the GFC, by 1.2% y-o-y. Fixed investment shrunk by the same amount, after expanding by 3.4% in Q1 2013.

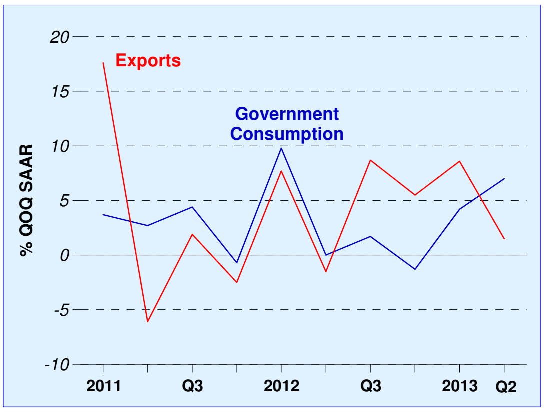
The NIEs were the bright spot in the region.

The NIE-3 posted a strong outturn in Q2, growing by 3.2% q-o-q SAAR on average, compared with a lacklustre 0.5% in the previous quarter. Expansionary fiscal policies provided a lift to domestic demand in Korea and Hong Kong, offsetting the effects of somewhat sluggish foreign demand. (Chart 1.9) Korea grew at its fastest pace in more than two years, driven by the frontloading of planned budget spending; in Hong Kong, investment was given a fillip by public infrastructure works. A pickup was also apparent in Taiwan, where the announcement of a government stimulus package in May boosted optimism and consumer spending.

Global inflation remained subdued in H1 due to contained food and energy prices.

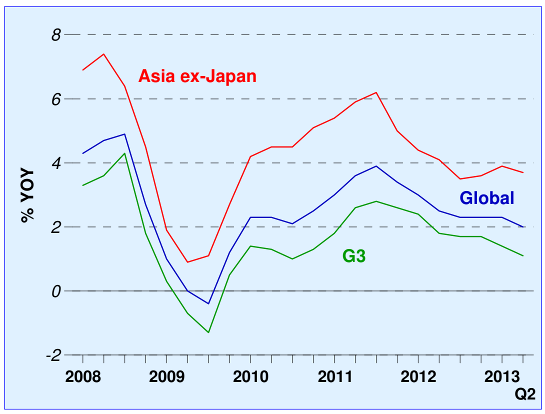
Global inflationary pressures continued to recede in H1 2013, with the weighted CPI inflation rate easing from 2.3% y-o-y in Q1 2013 to 2.0% in Q2. (Chart 1.10) In the G3 economies, consumer inflation averaged 1.1% y-o-y in Q2, compared with 1.4% in the previous quarter. Headline inflation in the US and Eurozone softened, reflecting reduced healthcare costs and lower energy prices respectively. In Japan, however, import price inflation picked up due to the weaker yen, resulting in a more moderate pace of CPI deflation.

Chart 1.9
NIE-3 Government Consumption and Export Growth



Source: CEIC and EPG, MAS estimates

Chart 1.10
G3 and Asia ex-Japan Headline CPI Inflation



Source: CEIC and EPG, MAS estimates

Note: Series are weighted by 2012 nominal GDP.

After rising earlier this year, headline inflation in Asia ex-Japan fell back to 3.7% y-o-y in Q2 2013, mainly on account of slower price increases in India. CPI inflation in India declined due to lower food price pressures and a slowdown in economic activity. China's headline inflation remained subdued at 2.4% y-o-y in Q2 amid stable commodity prices. In ASEAN, however, inflation was elevated at 4.1% y-o-y in Q1 and Q2 2013, as upward price pressures in Indonesia, due to food import restrictions and the fuel price hike in June, offset the disinflationary trend in the rest of the region.

1.2 Domestic Economy

A Volatile Growth Profile

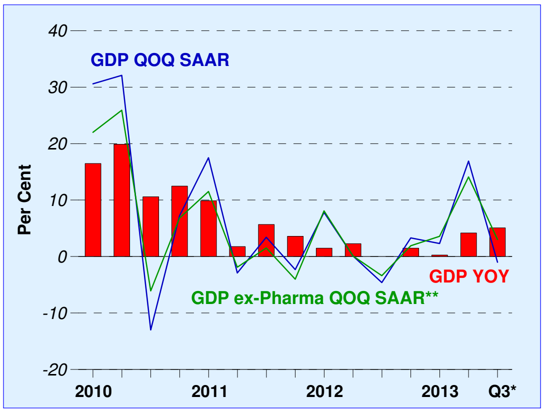
The Singapore economy continued to experience swings in growth momentum.

The volatility that characterised Singapore's economic growth over the past few years has continued into 2013. While Q2 saw GDP growth surging to 16.9% q-o-q SAAR, up from 2.3% in the preceding quarter, the momentum fell off steeply in Q3. (Chart 1.11)

The firmer pace of activity seen in the first half of the year faltered going into Q3 as fresh external headwinds cast a pall on the durability of the global recovery. In particular, subdued activity in emerging market economies, coupled with expectations of QE tapering, caused a broad-based pullback in the Singapore economy. The latest *Advance Estimates* indicate that the domestic economy recorded a mild contraction of 1.0% q-o-q SAAR in Q3 2013.

GDP growth is expected to stay on a modest expansion path for the remainder of 2013 and through next year. A more in-depth discussion on the outlook for the domestic economy is presented in Chapter 3.

Chart 1.11
Singapore's GDP Growth



* *Advance Estimates.*

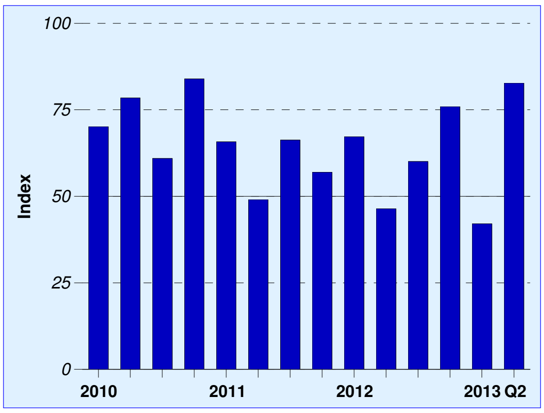
** EPG, MAS estimates.

The upswing in Q2 was supported by a turnaround in the trade-related sectors …

The recovery of the domestic economy, which started in Q4 last year, gained further traction in Q2 2013. This was the first time in three years that GDP recorded three consecutive quarters of sequential growth. In addition, EPG's VA-weighted diffusion index indicated that the percentage of industries registering positive growth in Q2 was the highest since the start of 2011. (Chart 1.12) Indeed, the upward momentum broadened to the external-facing industries, from the domestic demand-reliant growth in earlier quarters.

The step-up in growth momentum in Q2 2013 was underpinned by a synchronised acceleration in trade-related activities, which comprise the

Chart 1.12
VA-Weighted Diffusion Index

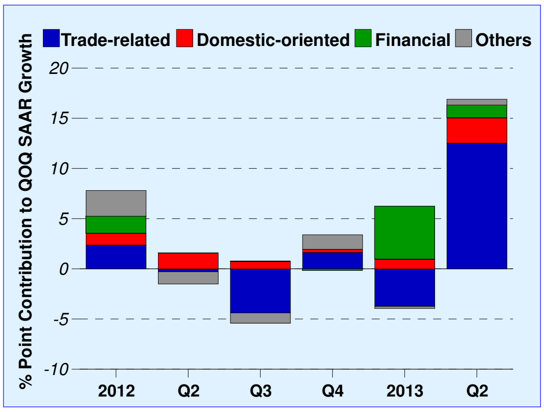


Source: EPG, MAS estimates

Note: The index is constructed by assigning a value of one to each of the 58 industries across the major sectors in the economy that registered positive q-o-q SAAR growth, and a value of zero otherwise.

manufacturing, wholesale trade and transport & storage sectors. (Chart 1.13) Notably, this cluster staged a robust rebound in Q2, growing by 27.4% q-o-q SAAR following a contraction of 7.4% in the preceding quarter. Within the manufacturing sector, output was strong across both the electronics and non-electronics segments. The electronics industry registered a second consecutive quarter of sequential growth in Q2, in tandem with the turnaround in the global IT cycle. DRAM prices worldwide have risen since the start of this year, which helped to lift semiconductor production. Meanwhile, the non-electronics industries strengthened in Q2 2013, mainly on account of a surge in biomedical and transport engineering output.

Chart 1.13
Contribution to GDP Growth

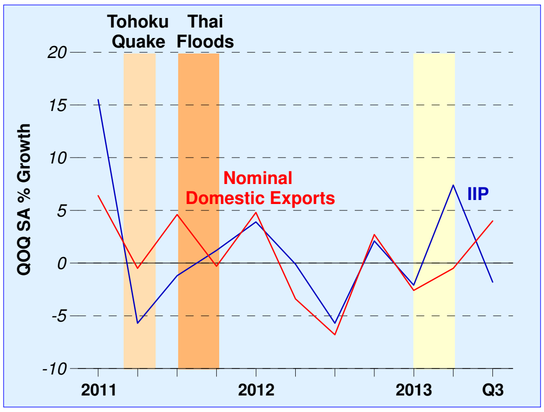


The stellar manufacturing outturn was accompanied by double-digit growth in trade-related services. In the wholesale trade sector, for instance, non-oil re-export volumes posted an expansion of 12.5% q-o-q SA in Q2, with strong gains in both the electronics and non-electronics segments. Concomitantly, the water transport industry was buoyed by a 10.7% q-o-q SA increase in sea cargo volumes handled, reversing the decline in the previous quarter.

… although growth in domestic exports was muted.

Despite the upswing in manufacturing activity, trade growth has remained subdued. Singapore's headline Index of Industrial Production and nominal domestic exports saw a widening gap in Q2. While production picked up, the latter remained in negative territory. (Chart 1.14) Although such divergences have occurred in the past, these were typically triggered by extreme external events—such as the Tohoku earthquake and the Thai floods—which caused sharp swings in inventories and misalignments between production and trade. This time round, however, the discrepancy has widened despite a comparatively benign external backdrop.

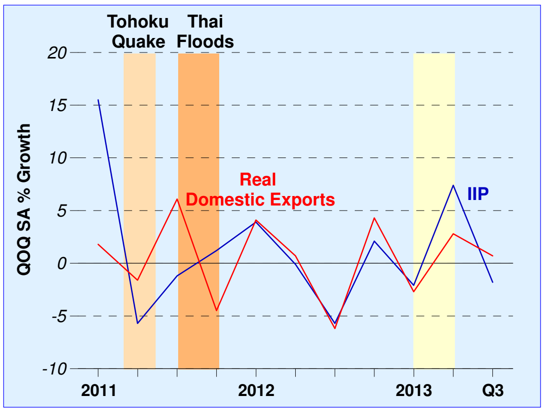
Chart 1.14
IIP and Nominal Domestic Exports



Two factors could have accounted for the divergence between the production and export series. First, a decomposition of Singapore's nominal domestic exports shows that there were some negative price effects exerting a drag on oil for example, amid softening demand from the emerging economies.

Indeed, abstracting from price effects, the gap between production and trade narrowed considerably. (Chart 1.15) Second, the remaining discrepancy between production and exports could be the result of swings in inventory holdings, especially in electronics, where growth in real domestic exports has significantly trailed movements in the Index of Industrial Production. A build-up of inventories was indicated by an increase in the electronics inventory PMI measure in Q2 this year. Given the uptick in the global IT industry, companies may have increased production in anticipation of stronger demand ahead. Subsequently in Q3 2013, there was an inventory drawdown and the divergence between IIP and real domestic exports—both at the aggregate level as well as in electronics—narrowed.

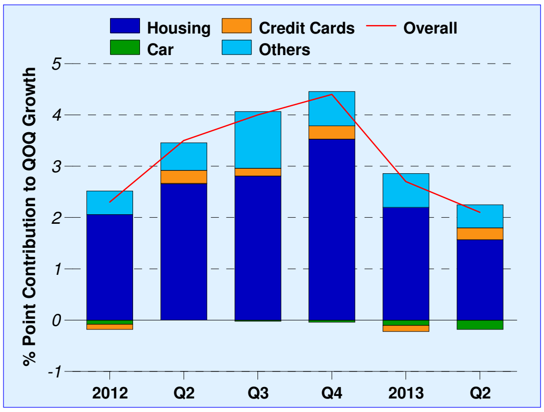
Chart 1.15
IIP and Real Domestic Exports



Growth in financial services moderated from the exceptional Q1 outturn.

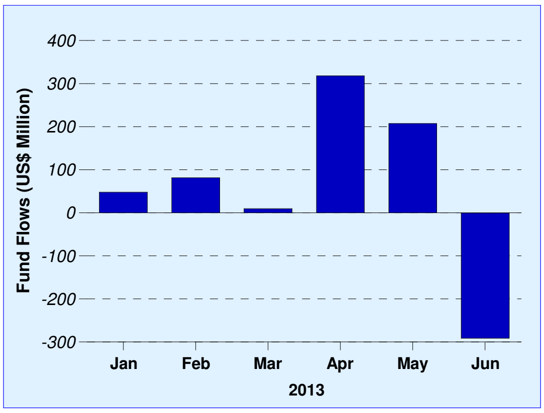
The financial services sector expanded by 9.2% q-o-q SAAR in Q2, on the heels of a stellar 51.2% outturn in the previous quarter. Growth in Q2 was largely supported by the insurance industry which saw strong gains in net earned premiums across most business segments. ACU activity likewise turned in a robust showing, in part due to offshore non-bank lending which was buoyed by firm credit demand from East Asia. On the domestic front, loans to both businesses and consumers continued to grow, albeit at a slower pace. In particular, credit extended to consumers rose by a tepid 2.1% q-o-q, the slowest since Q1 2009, as the property cooling measures and financing restrictions on motor vehicles took effect. (Chart 1.16)

Chart 1.16
Contribution to Domestic Consumer Loan Growth



The sentiment-sensitive cluster performed well in Q2 2013. After a lull at the end of 2012, IPO activity resumed through most of this year. In spite of the strong 114% q-o-q expansion in Q1 2013, IPO volumes grew by a further 7.3% q-o-q in Q2. Meanwhile, inflows to the domestic fund management industry surged in April and May, although there was some reversal in June on the back of concerns over a potential QE tapering. (Chart 1.17) The industry still saw inflows of US$234 million for the whole of Q2, more than 1.5 times that in the previous quarter.

Chart 1.17
Bond and Equity Funds Domiciled in Singapore



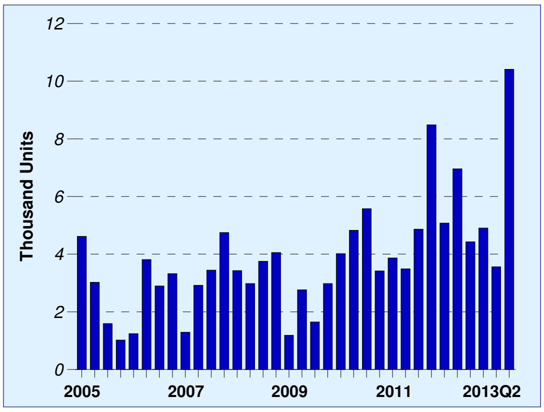
Source: EPFR Global

Meanwhile, the domestic-oriented industries continued to fare well.

Activities reliant on domestic demand stood firm as a whole, although there was some differentiation in performance across industries. For instance, the construction sector recorded a double-digit expansion of 20.9% q-o-q SAAR in Q2 2013, following an 8.5% gain in Q1. This was mainly on account of construction starts for a bumper crop of private residential units during the quarter. (Chart 1.18) In addition, output was boosted by the completion of several major projects, such as the Jem shopping mall and the commercial-industrial centre Oxley BizHub 2.

In contrast, the pace of expansion in the more cyclically-sensitive segments weakened slightly as consumers trimmed their discretionary expenditure. Domestic non-vehicle retail sales were sluggish as demand for big-ticket items such as household durables and furniture waned. Similarly, revenue in the food & beverage cluster was flat in Q2 following a 1.9% q-o-q SA gain in the quarter before, owing to lacklustre takings by food caterers and restaurateurs.

Chart 1.18
Number of Private Residential Units Commenced

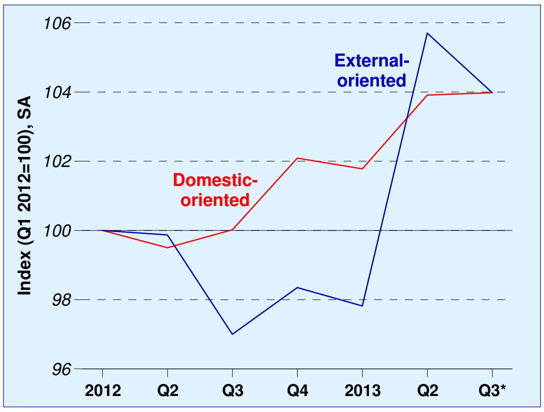


Overall activity slackened into Q3 2013.

Activity in the Singapore economy showed signs of slowing in Q3 2013, with a broad-based cyclical pullback following the strong Q2 performance, and alongside renewed uncertainties in the external environment. This was corroborated by EPG's Economic Activity Index, which pointed to muted outturns in Jul–Aug across both the external-oriented and domestic-oriented industries. (Chart 1.19)

The financial services sector, especially the sentiment-sensitive cluster, saw some retrenchment in activity amid renewed expectations of US QE tapering in September and fears of a Western military intervention in Syria. The forex market was subdued in Jul–Aug, with daily trading volumes declining by 5.8% m-o-m on average as investors retreated to the sidelines. In addition, the local bourse remained on a downward trajectory during this period. Although the Federal Reserve's decision in mid-September to delay the start of QE tapering provided some respite to financial markets, investor risk appetite remained muted.

Chart 1.19
EPG's Economic Activity Index



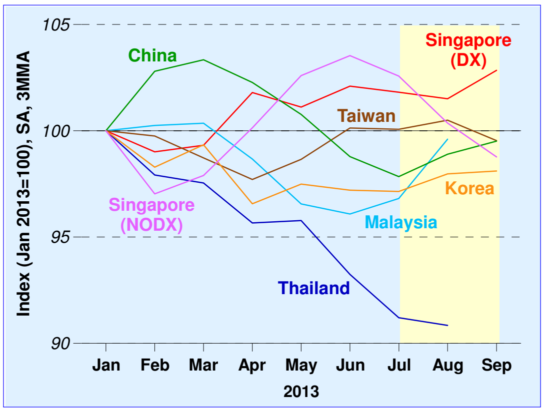
Source: EPG, MAS estimates

Note: The Economic Activity Index (EAI) is a composite index that traces the performance of the domestic economy. It aggregates a set of coincident and high-frequency indicators across the major sectors of the economy.

* Readings for Q3 2013 are based on an average of Jul–Aug data.

Trade activity was likewise sluggish going into Q3. Growth of real domestic exports slowed to 0.7% q-o-q SA in Q3, down from 2.8% in the previous quarter. The drag stemmed from the non-oil segment, particularly pharmaceuticals and electronics. The moderation in exports over Q3 was also evident in some Asian economies such as Taiwan and Thailand. (Chart 1.20) Concomitantly, Singapore's manufacturing output fell by 3.4% q-o-q SAAR in Q3, following a 33.5% surge in the preceding quarter, according to *Advance Estimates*. Growth momentum in the trade-related services sectors flagged as well.

Chart 1.20
Real Exports of Regional Economies



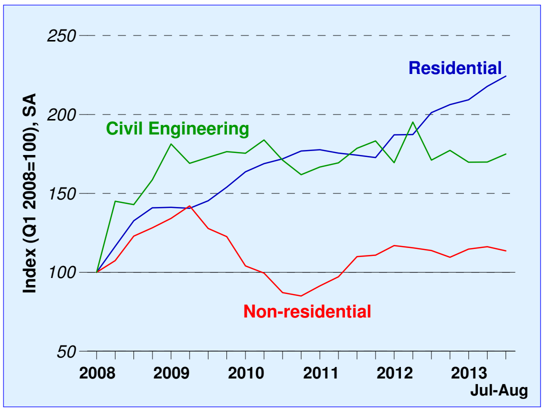
Source: CEIC and EPG, MAS estimates
Note: Series are denominated in local currency.

Turning to domestic-oriented activities, growth momentum also softened in Q3, with the consumer-facing clusters bearing the brunt of the slowdown. Domestic retail sales declined by 7.4% q-o-q SA in Jul–Aug, largely on account of a sharp fall in vehicle sales which was caused by policy-induced factors. Further, non-vehicle sales registered a mild retraction, particularly in discretionary items such as electronic gadgets and telecommunication devices, as consumer sentiment waned further amid concerns about Fed tapering and muted activity in some Asian economies. Food & beverage sales similarly languished over the same period.

In comparison, activities reliant on domestic corporate demand fared better. The information & communications sector saw further sequential expansions on the back of rising demand for IT-related services, while the professional business services sectors—particularly legal, business and management consultancy—remained on an upward trajectory.

Meanwhile, the construction industry posted a contraction of 8.8% q-o-q SAAR in Q3, following an expansion of 20.9% in the quarter before. Despite the sequential pullback, the level of underlying activity held firm. The latest readings of certified progress payments—a proxy for construction output—generally held up in Jul–Aug, especially in the residential segment. (Chart 1.21) Further, on-site building activities related to the Sports Hub, South Beach complexes and commercial malls proceeded apace.

Chart 1.21
Certified Progress Payments



Source: EPG, MAS estimates

The economy may be in a lower-growth and more volatile phase.

Given the ebb and flow of global headwinds over the last few years, a sustained and broad-based pickup in the domestic economy has so far proven elusive. Indeed, the Singapore economy has seen a step-down in growth since the onset of the GFC. (Chart 1.22) In addition, there have been persistent fluctuations in the quarter-to-quarter GDP profile over this period. To investigate this, we adopted the methodology of McConnell and Perez-Quiros (2000)[2] to identify the timing of structural breaks in the volatility of real GDP growth in Singapore over the period Q2 1985 – Q2 2013. More specifically, the first difference of deviations in the logarithm of real GDP from a HP-filtered trend was used to construct a mean-volatility equation.[3] Tables 1.2 and 1.3 present, respectively, the structural breakpoints and summary statistics for the episodes identified.

There are two main results. First, there has been a downshift in Singapore's trend GDP growth, as shown by the step-down in mean quarterly growth rates across each successive episode. (Table 1.3) It appears that the subdued growth of the current phase was mainly due to weakness in the external environment. Indeed, GDP growth in Singapore's key trading partners fell, from an average of 5.2% q-o-q SAAR pre-GFC to 3.5% in the latest period. (Chart 1.23)

Chart 1.22
Singapore's GDP Growth

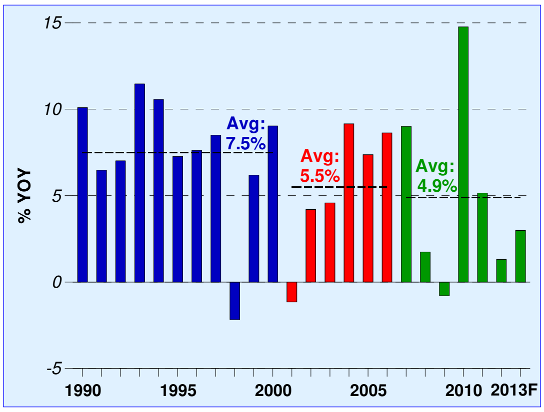
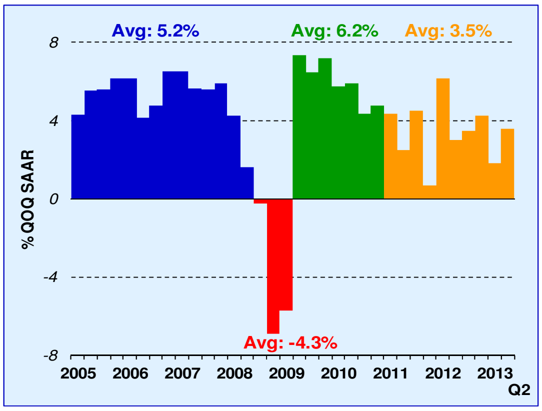


Chart 1.23
GDP Growth of Singapore's Major Trading Partners*



* Weighted by shares in Singapore's NODX.

2 McConnell, M M and Perez-Quiros, G (2000), "Output Fluctuations in the United States: What Has Changed since the Early 1980s?", *American Economic Review*, Vol. 90(5), pp. 1464–1476.

3 A multiple-breakpoint test, designed by Bai, J and Perron, P (2003), "Computation and Analysis of Multiple Structural Change Models", *Journal of Applied Econometrics*, Vol. 18(1), pp. 1–22 was applied to test for the presence of structural breaks on the transformed residuals extracted from the mean-volatility equation. The results were similar if unfiltered logarithms of real GDP were used instead.

Table 1.2
Structural Breakpoints in Singapore's GDP Growth*

Period	Structural Breakpoints Identified for:	
	Trend Growth	Trend Growth Volatility
Q2 1985 – Q2 2013	Q4 2010	Q2 2008, Q4 2010

* On a q-o-q SAAR basis.

Table 1.3
Summary Statistics for Singapore's Growth Episodes

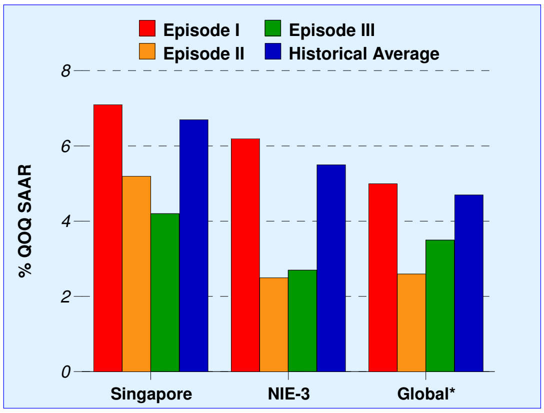
Episodes	% QOQ SAAR	
	Mean	Standard Deviation
I: Q2 1985 – Q1 2008	7.12	7.31
II: Q2 2008 – Q3 2010	5.15	18.11
III: Q4 2010 – Q2 2013	4.23	7.23
IV: Q2 1985 – Q2 2013 (Historical Average)	6.67	8.68

However, domestic developments would have also played a role in the transition of the Singapore economy to a lower-growth phase. Indeed, supply-side constraints in the domestic economy have come into sharper focus amid the ongoing restructuring drive. For instance, the progressive tightening of foreign worker policy—which was aimed at reducing the economy's reliance on low-skilled foreign labour—would have tempered growth somewhat over the near term. These measures should however facilitate the shift towards productivity-led growth over time.

Second, although the Singapore economy has moved to a lower medium-term growth path, there has not been a commensurate decline in the volatility of GDP growth. The standard deviation of quarterly GDP growth has remained close to its historical average in the most recent period. (Table 1.3) This contrasts with the experience of other countries, where both GDP growth and volatility were lower than their historical averages. (Charts 1.24 and 1.25)

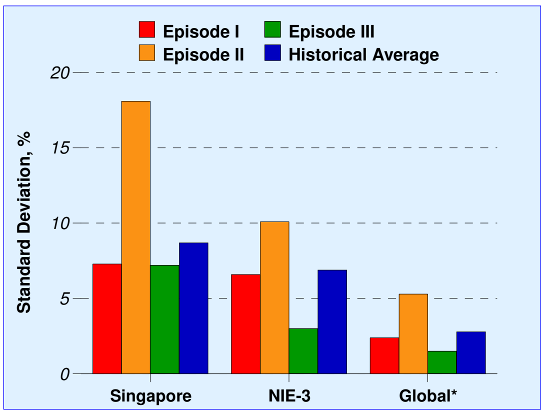
Moreover, a variance decomposition analysis shows that the volatility in the latest episode was mainly driven by fluctuations in net exports. (Chart 1.26) In fact, the external-induced volatility has not subsided significantly compared to Episode II which spanned the GFC. Further, the volatility in gross fixed capital formation (GFCF) and change in stocks was also sizeable in Episode III. The persistent uncertainty in the global economic environment, including financial markets, over the post-GFC period could have

Chart 1.24
GDP Growth of Selected Economies



* Weighted by shares in Singapore's NODX.

Chart 1.25
Standard Deviation of GDP Growth



Note: Growth is computed on a q-o-q SAAR basis.
* Weighted by shares in Singapore's NODX.

resulted in continued fluctuations in short-term, quarter-to-quarter investment and inventory decisions of locally-domiciled firms. Nonetheless, the worsening of the growth-volatility trade-off in the latest phase did not seem to have impinged on the long-term spending decisions of the domestic corporate sector. Business investment commitments have climbed steadily in the aftermath of the GFC, despite elevated uncertainties in the global economy. (Chart 1.27) Further, although the number of company cessations has risen during this period—likely the result of some attrition in lower value-added activities amid economic restructuring—it has been consistently outpaced by the number of new company formations. (Chart 1.28)

Looking ahead, a continuing recovery in the external environment should provide some upside to Singapore's GDP path. However, this does not rule out fluctuations around the mild upward trajectory, particularly in view of the still-uneven export demand conditions. As such, the modest-growth, heightened-volatility GDP profile can be expected to persist for Singapore in the coming quarters.

Chart 1.26
Output Volatility

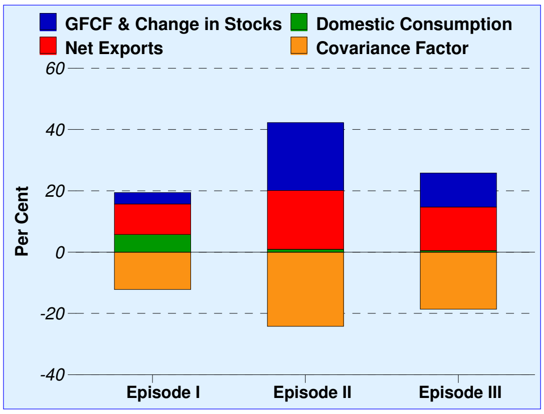


Chart 1.27
Business Investment Commitments

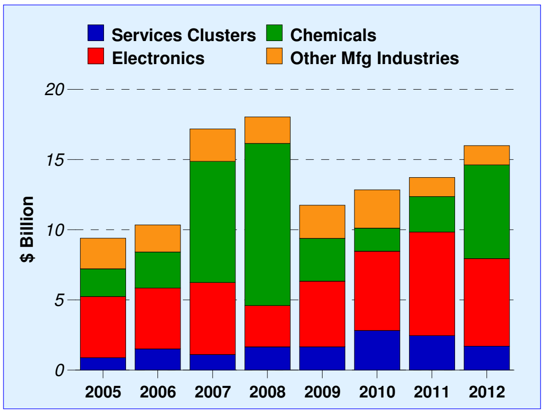
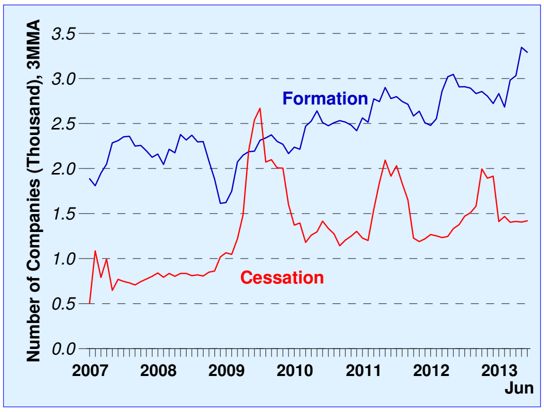


Chart 1.28
Company Formation and Cessation



1.3 Macroeconomic Policy

Monetary Policy

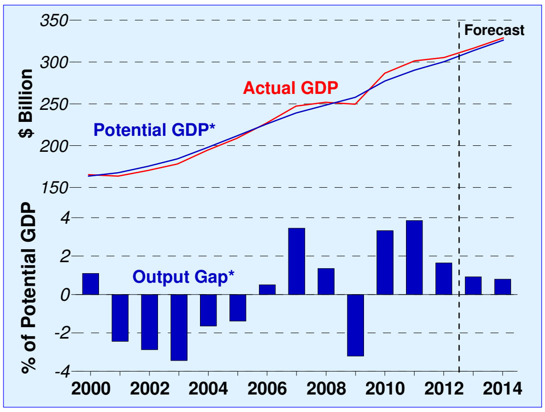
The monetary policy stance adopted since April 2012 was maintained in April and October 2013.

After hitting a soft patch in the middle of 2012, the Singapore economy embarked on a recovery trajectory with GDP growth turning positive in Q4, and expanding by a further 2.3% q-o-q SAAR in Q1 2013. Although trade-related activities retracted in Q1 due to an idiosyncratic decline in pharmaceuticals output, electronics production experienced a cyclical turnaround, underpinned by the pickup in the advanced economies. Financial services also surged as investor confidence improved following decisive actions by major central banks to keep global monetary conditions accommodative. At the same time, the domestic-oriented sectors were resilient. Given the broad-based recovery, demand for workers was robust even as foreign worker policies were being tightened. Notwithstanding the moderation in MAS Core Inflation from 2.5% in 2012 to 1.6% in Q1 2013, price pressures were anticipated to pick up in the latter part of the year, as the labour market continued to be at full employment.

In April 2013, MAS announced that it would keep the slope of the S$NEER policy band on a modest and gradual appreciation path, with no change to its width or the level at which it was centred. This policy stance has helped to alleviate inflationary pressures and anchor inflation expectations while facilitating the restructuring of the economy.

Since then, uncertainties about the near-term global economic outlook have re-emerged and resulted in sporadic bouts of financial market turbulence. While the economy took a step up in Q2 2013, its growth momentum subsequently faltered, with GDP contracting by 1.0% q-o-q SAAR in Q3. Rising risk aversion stemming from the prospective tapering of asset purchases by the Federal Reserve, and possible military intervention in Syria, weighed on financial markets. Concomitantly, a steep decline in the production of pharmaceuticals and PC peripherals dampened domestic manufacturing output. Beyond some short-term volatility, however, economic activity should continue to increase gradually, supported by the recovery in the G3 economies and stable growth in emerging Asia. All in, Singapore's GDP growth is expected to come in at 2.5–3.5% in 2013, and should not differ significantly in 2014. (Chart 1.29)

Chart 1.29
Real GDP and Output Gap



* EPG, MAS estimates.

The expansion of the Singapore economy will continue to chafe against constraints in key factor markets and the tight labour market will intensify wage pressures. In addition, rising COE premiums for commercial vehicles and elevated levels of business rentals could exacerbate business costs. As these accumulate, and as sentiment improves in tandem with the turnaround in activity, the pace at which firms pass on costs to consumer prices should intensify. Thus, MAS Core Inflation is projected to increase from 1.5–2% in 2013 to 2–3% in 2014.

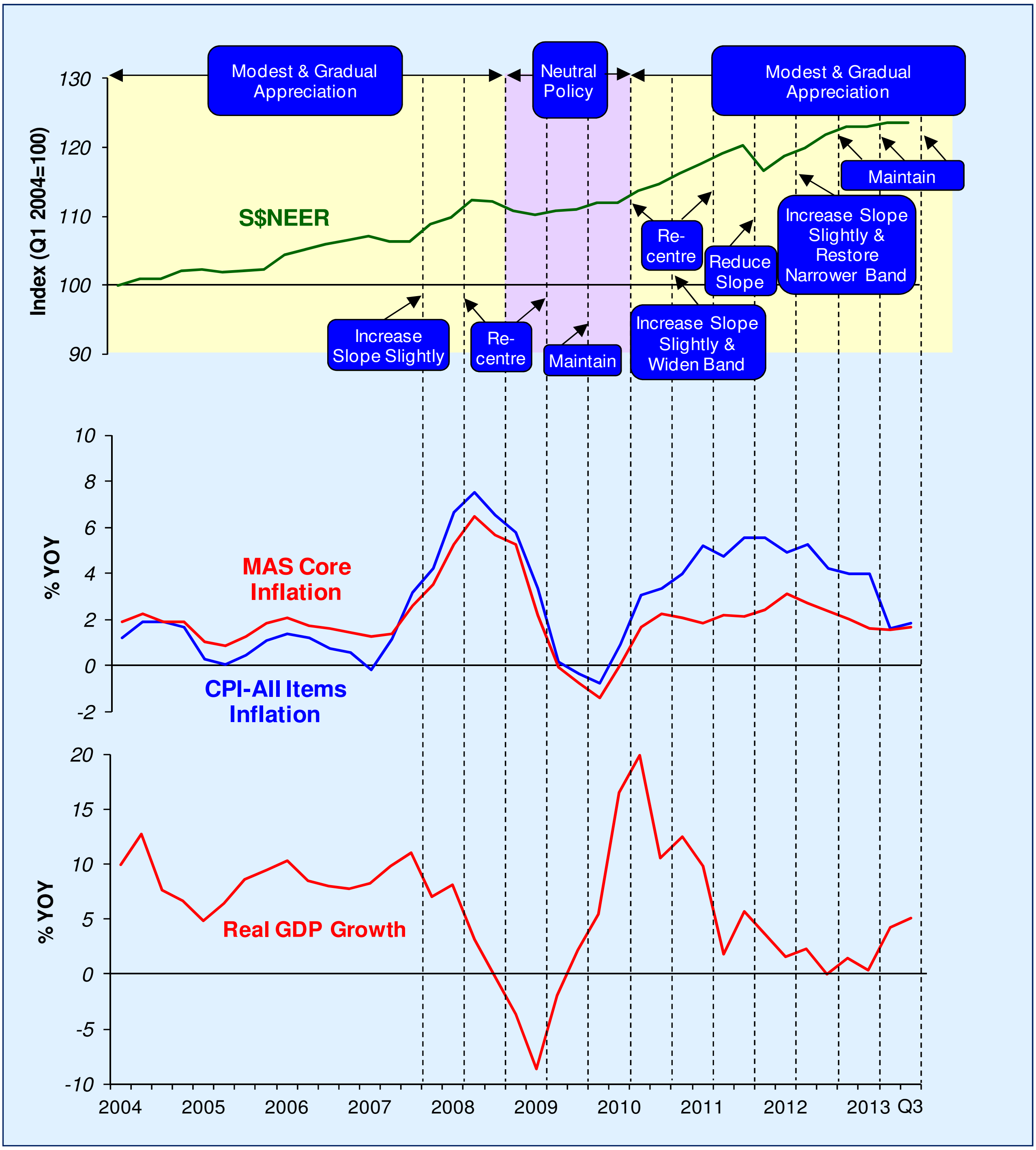
Imputed rentals on owner-occupied accommodation will grow at a slower pace in 2014, with a greater supply of housing coming on-stream. At the same time, car prices could continue to rise in the short term as the market adjusts to the pending re-categorisation of COEs, although the pace of increase is unlikely to be sustained. CPI-All Items inflation is, therefore, projected to be 2.5–3% in 2013 and 2–3% in 2014.

MAS' monetary policy formulation continues to take into account the medium-term impact of economic restructuring. As tighter foreign worker policies become more binding, the relative wages of skilled resident workers should rise. This, alongside other higher cost factors such as rentals, will result in a temporary pickup in the core inflation rate as businesses pass on costs during the transition period. Over the medium term, however, the restructuring initiatives are expected to reap productivity gains, which will then dampen labour cost increases and inflation.

Accordingly, MAS maintained the modest and gradual appreciation path of the S$NEER policy band in October 2013, with no change to the slope, width, or level at which it was centred.

Chart 1.30 traces the evolution of monetary policy in relation to growth and inflation developments in the Singapore economy. Despite the impact of bouts of turbulence in the global economic environment, the current monetary policy stance is assessed to be appropriate, taking into account the balance of risks between lingering growth uncertainties and rising inflationary pressures.

Chart 1.30
Key Macroeconomic Variables and Changes in the Monetary Policy Stance



The S$NEER has experienced some volatility in the six months since April 2013.

The S$NEER has remained within the upper half of the exchange rate policy band since the last policy review. However, it has been volatile as financial markets reacted to global economic and geopolitical developments. (Chart 1.31) Between May and August 2013, the S$NEER experienced several bouts of depreciation pressure, as emerging market and regional currencies weakened vis-à-vis the US$, in anticipation that the Federal Reserve would reduce the pace of its asset purchases as early as September. (Chart 1.32) However, the S$NEER returned to an appreciation trajectory in September and October, as the domestic currency strengthened against the US$ amid the Federal Reserve's surprise move to defer tapering and uncertainty arising from the US fiscal impasse.

The S$REER depreciated in Q2 as inflation in Singapore fell relative to that in its trading partners.

The S$ real effective exchange rate (S$REER) is a measure of the prices of goods and services in Singapore relative to its trading partners, based on a common weighted exchange rate index, the S$NEER. When deflated by the CPI, the S$REER peaked in Q1 2013 before depreciating by 1.2% q-o-q in Q2. (Chart 1.33) Relative price changes accounted for the bulk of S$REER developments in the first half of 2013, unlike in previous quarters when the exchange rate was the main driver. While foreign inflation rose slightly on a sequential basis in Q2, Singapore's CPI inflation declined, as COE premiums corrected sharply following the imposition of car financing measures earlier in the year. Notwithstanding its recent decline, the S$REER has in fact appreciated by 0.4% since Q4 2012. As of Q2 2013, it was some 16% above its level in Q1 2010, the quarter before MAS shifted from a neutral monetary policy stance to a modest and gradual appreciation path for the S$NEER policy band.

Chart 1.31
S$NEER

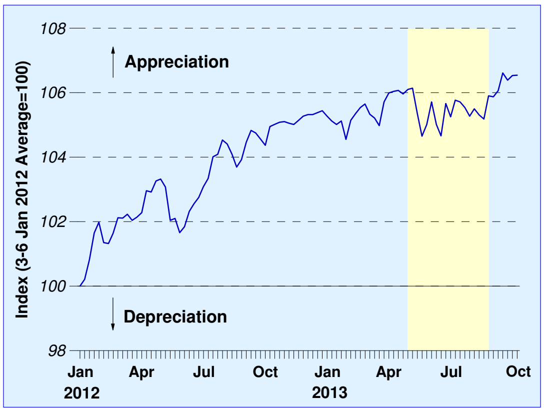


Chart 1.32
Movements of Regional Currencies against the US$

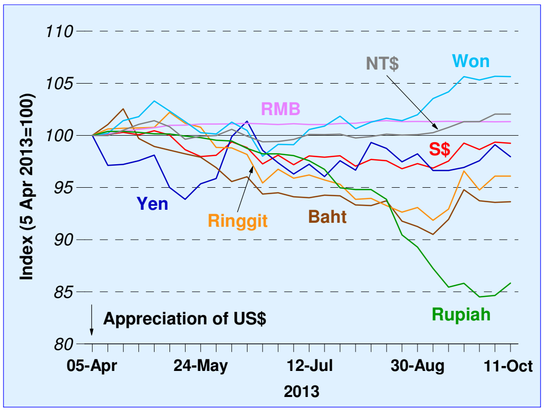
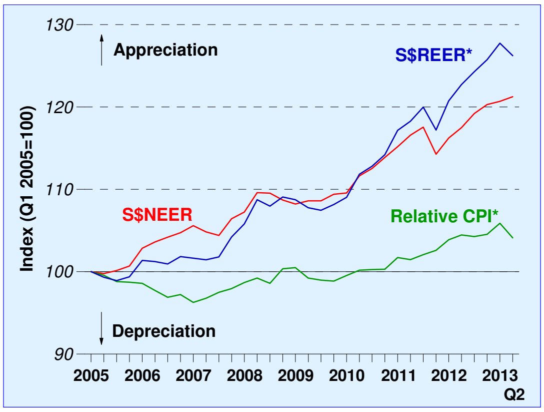


Chart 1.33
S$NEER, S$REER and Relative CPI



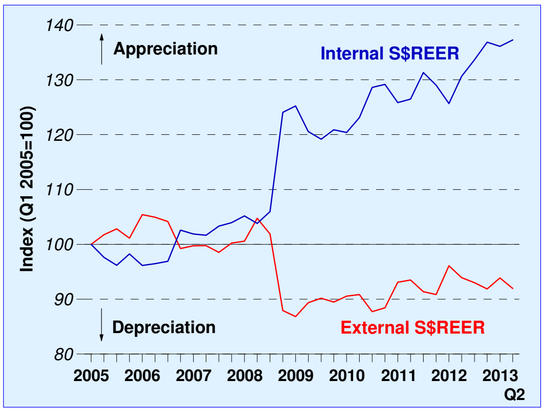
* EPG, MAS estimates.

The S$REER appreciated slightly in H1 2013, as the relative price of non-tradables to tradables rose at a faster pace in Singapore than abroad.

The S$REER can alternatively be decomposed into the 'external' S$REER and the 'internal' S$REER, where the former represents the price of tradable goods in the domestic economy relative to abroad, in terms of a common reference currency. The latter refers to the relative price of non-tradables to tradables in the domestic market compared to foreign markets.[4]

The external S$REER has been volatile in the first half of the year, rising by around 2% in Q1 but reversing its gains in Q2. (Chart 1.34) Overall, the external S$REER rose by a marginal 0.1% in H1 2013. While the price of tradable goods in the Singapore economy relative to abroad fell by 0.7% between Q4 2012 and Q2 2013, this was offset by the 0.8% appreciation of the S$NEER over the same period. At the same time, the internal S$REER also appreciated by 0.3%, as the relative price of non-tradables to tradables increased at a more rapid pace in Singapore than in its trading partners. Overall, for the first half of 2013, the 0.4% rise in Singapore's real effective exchange rate was mainly driven by the internal S$REER, as has generally been the case since 2007.

Chart 1.34
External and Internal S$REER

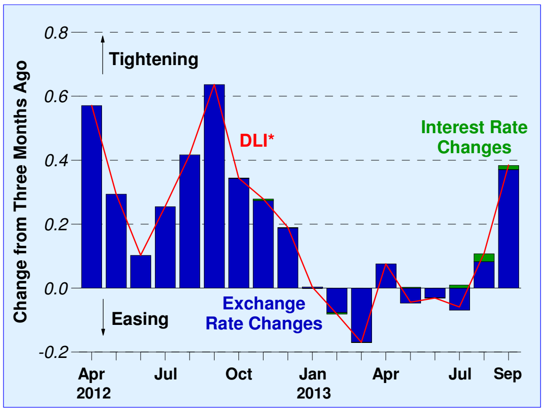


Source: EPG, MAS estimates

Liquidity conditions eased from May to July but tightened in recent months.

Overall liquidity conditions in the economy are captured by changes in the Domestic Liquidity Indicator (DLI), which reflects movements in the S$NEER and the domestic three-month interbank rate. Liquidity conditions eased from May to July, compared to three months ago, as the S$NEER faced several bouts of depreciation amid heightened risk aversion in global financial markets. (Chart 1.35) Since August however, liquidity conditions have tightened as the S$NEER appreciated against the US$ and regional currencies. The domestic three-month interbank rate, which has been stagnant since late 2011, rose slightly in recent months, and also contributed to tighter liquidity conditions.

Chart 1.35
Domestic Liquidity Indicator



* EPG, MAS estimates.

4 Please refer to the April 2013 issue of the *Review* for a more detailed analysis of the external and internal S$REER.

The domestic three-month interbank rate has been at a premium over three-month US$ LIBOR throughout 2013. (Chart 1.36) In the first half of the year, this differential solely reflected movements in the US$ LIBOR, which declined from 0.30% to 0.27% between January and June as global monetary conditions remained accommodative. At the same time, the domestic interbank rate stayed unchanged at 0.38%. Between July and September, however, the domestic interbank rate edged up to an average of 0.42%. Consequently, the interest rate differential widened to an average of 16 bps over this period from 9 bps in the first six months of the year.

The three-month S$ swap offered rate (SOR), which represents the cost of borrowing S$ through a FX swap, has broadly followed the trend in US$ LIBOR. While the SOR typically tracks the domestic interbank rate closely, it can respond more quickly to changes in global liquidity conditions, as swap markets are deeper than deposit markets. The SOR rose from 0.20% in March to 0.27% in May, before easing to 0.22% in September 2013.

Despite an uptick in the domestic interbank rate, deposit rates remained low. Banks' savings deposit rates eased by a marginal 1 bp in April 2013 and have stayed at 0.10% since. Meanwhile, banks' fixed deposit rates remained unchanged, including the 12-month fixed deposit rate which has been at 0.32% since August 2012, close to its historical low of 0.29%. (Chart 1.37)

Chart 1.36
Interest and Swap Rates

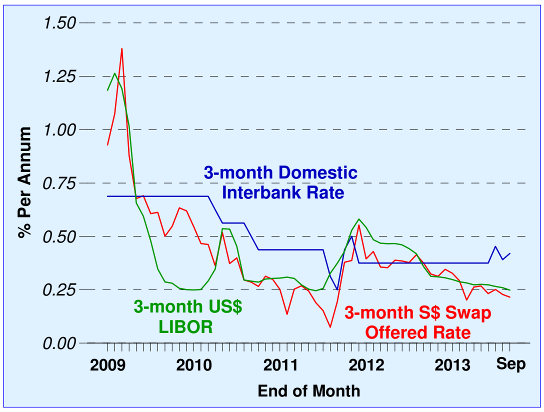
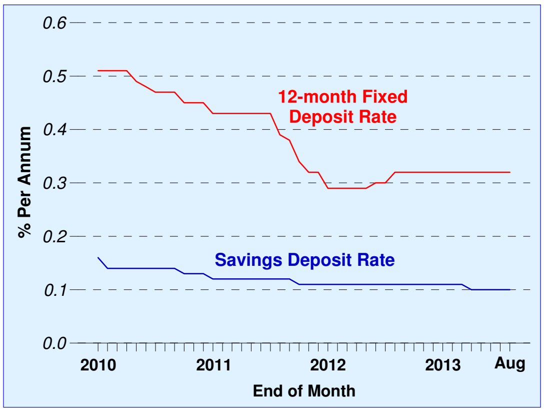


Chart 1.37
Deposit Rates

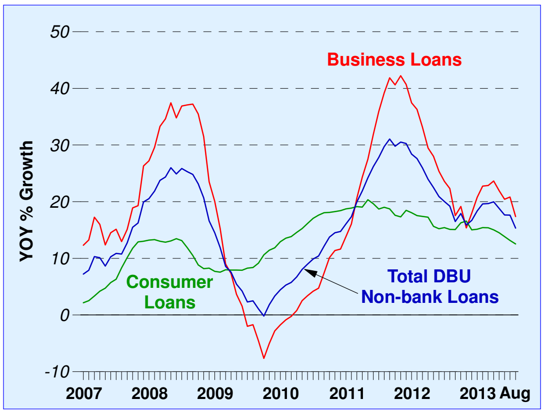


Note: This is the simple average of the top 10 banks' deposit rates.

Credit growth moderated given uncertainties about the global economic outlook.

As uncertainty about global growth and the prospect of Fed tapering heightened in May, the growth of domestic credit to the private sector slowed from a cyclical peak of 20% y-o-y in April 2013 to 15% in August. (Chart 1.38) Business loan growth declined from 24% y-o-y to 17% over the same period, with credit to trade-related sectors, such as manufacturing and commerce, expanding more slowly. Consumer credit growth also moderated, as the stock of car loans continued to shrink under the motor vehicle financing restrictions, while housing and bridging loans growth eased.

Chart 1.38
DBU Loans to the Non-bank Private Sector



The growth in monetary aggregates fluctuated with GDP growth.

Growth in M1 peaked at 18% y-o-y in June 2013, the fastest since October 2011. (Chart 1.39) As GDP surged in Q2, the demand for money and money-equivalents for transaction purposes, namely demand deposits, also rose in tandem. (Chart 1.40) Subsequently, M1 grew at a slower pace as economic activity faltered in Q3, averaging 15% y-o-y in Jul–Aug.

The broader monetary aggregates, M2 and M3, also rose at a more moderate pace. Both M2 and M3 expanded by slightly over 7% in August, from around 10% y-o-y in May. The slowdown was broad-based across the different types of deposits. For example, fixed deposit growth decelerated to 1.3% y-o-y in Jul–Aug, its lowest since May 2011.

Chart 1.39
Monetary Aggregates

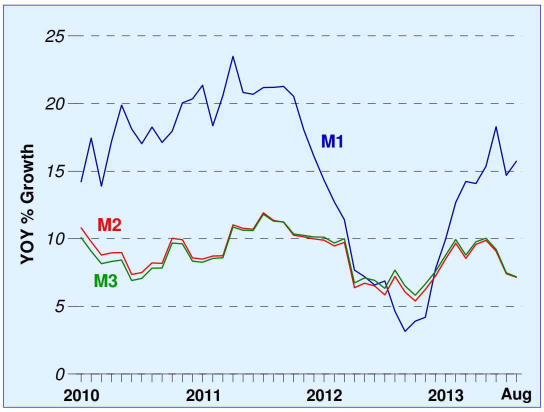
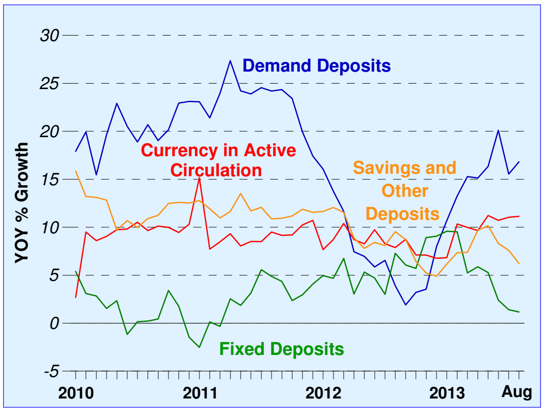


Chart 1.40
Components of Money Supply



Fiscal Policy

Government operating revenue increased in H1 2013, alongside the economic upturn.

In line with the Singapore economy's expansion, the government's operating revenue rose from \$26.7 billion (15.5% of GDP) in H1 2012 to \$29.1 billion (16.4% of GDP) in H1 2013. Income tax, GST and property-related taxes were the main contributors to this increase. (Chart 1.41)

In the first half of this year, the government collected \$11.3 billion in income taxes, the largest component of operating revenue, representing a \$0.7 billion increase from a year ago. Boosted by healthy corporate earnings and wages, personal and corporate income taxes rose by around \$0.4 billion each. GST, the second largest contributor to operating revenue, also increased by \$0.4 billion from a year ago to \$4.7 billion in H1 2013, as consumption growth held firm. (Chart 1.42)

Receipts from stamp duty and property taxes rose by \$0.5 billion and \$0.2 billion, respectively, supported by firm property prices and changes in the structure of the additional buyers' stamp duty (ABSD), even though transactions were on a generally declining trend. As part of the property cooling measures announced and implemented in January 2013, the ABSD was raised to up to 10% for Permanent Residents (PR) and Singaporeans, and 15% for foreign and corporate buyers. It was also extended to PRs purchasing their first property, and Singaporeans purchasing their second property.

In comparison, other fees & charges only increased by a marginal \$0.1 billion in H1 2013 on a year-ago basis. This was largely due to the sharp fall-off in COE premiums following the imposition of the motor vehicle financing measures in February. At its trough in April, COE premiums were 33% below their peak in January 2013. (Chart 1.43)

The increase in government expenditure was driven by operating expenses.

Total government spending rose by \$2.3 billion to \$27.1 billion (15.3% of GDP) in H1 2013, due to the rise in operating expenditure, which encompasses expenses on manpower, equipment and supplies, as well as operating grants to statutory boards and aided

Chart 1.41
Components of Operating Revenue

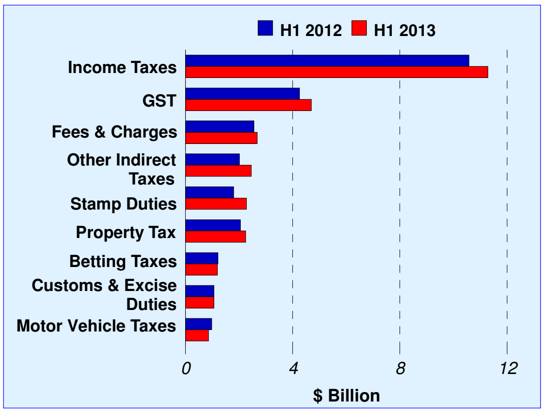


Chart 1.42
GDP, GST and Income Taxes

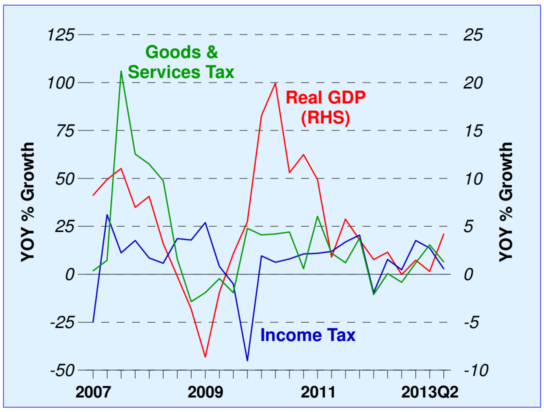
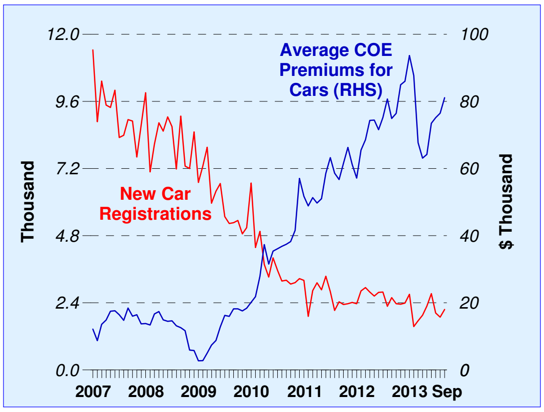


Chart 1.43
COE Premiums and New Car Registrations



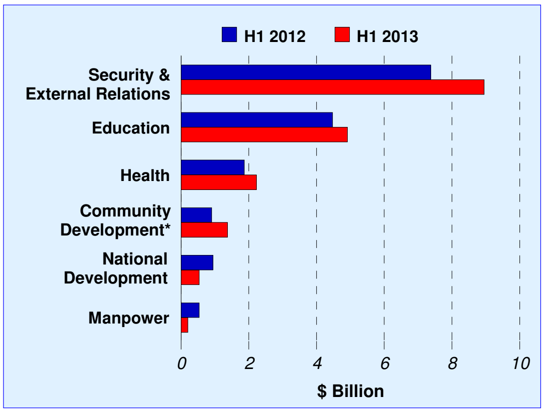
educational institutions. Operating expenses increased to $20.5 billion. A large part of this increase was for security and external relations purposes.

The next largest increase in operating expenditure was on community development. The Ministry of Social and Family Development (MSF)[5] disbursed funds as part of the Marriage & Parenthood Package 2013, for enhanced childcare and infant care subsidies, and for government-paid childcare and maternity leave. Education spending rose following the expansion in publicly-funded university places and salary adjustments for teachers, while the Ministry of Health (MOH) also incurred higher expenditure to provide more subventions to restructured hospitals, community hospitals, and Voluntary Welfare Organisations (VWOs) in the Intermediate and Long-Term Care (ILTC) sector. (Chart 1.44)

Meanwhile, development expenditure was unchanged from H1 2012, as increased spending by the Ministry of Transport (MOT) and Ministry of Trade & Industry (MTI) was offset by a decline in the national development and education ministries. The bulk of the increase in transport development expenditure was for ongoing works on rail projects, such as the Downtown Line and Tuas West Extension, while continued spending by MTI on research and development activities also contributed to the growth in overall government development expenditure. (Chart 1.45)

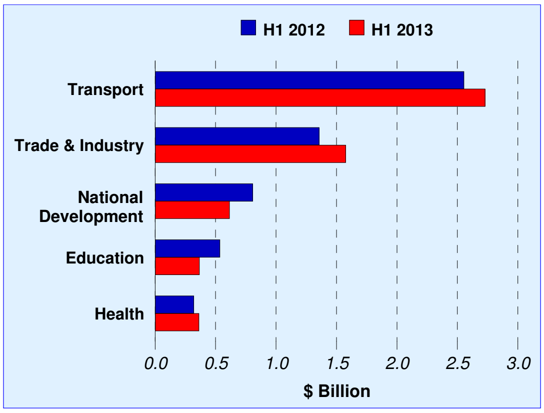
In comparison, the Ministry of National Development (MND) recorded a reduction in development expenditure due to lower spending on the Selective En Bloc Redevelopment Scheme (SERS) and several existing major upgrading programmes such as the Lift Upgrading Programme, which have also wound down. At the same time, the Ministry of Education (MOE) had lower funding requirements upon the completion of the Institute of Technical Education's (ITE) third regional campus in Ang Mo Kio.

Chart 1.44
Selected Components of Operating Expenditure



* Comprises the Ministry of Social and Family Development (MSF) and the Ministry of Culture, Community & Youth (MCCY).

Chart 1.45
Selected Components of Development Expenditure

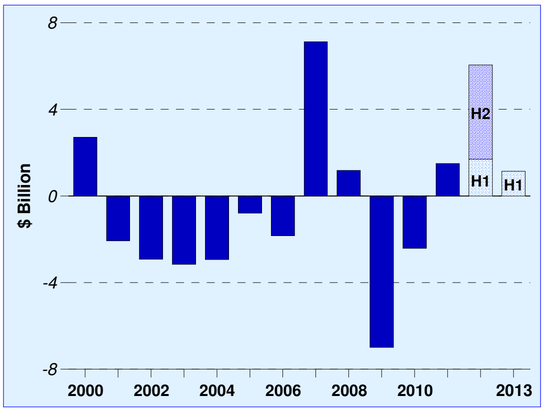


[5] The Ministry of Community Development, Youth and Sports (MCYS) and the Ministry of Information, Communications and the Arts (MICA) were restructured with effect from November 2012 to form the Ministry of Social and Family Development (MSF), the Ministry of Culture, Community and Youth (MCCY), and the Ministry of Communications and Information (MCI).

The government continued to record surpluses in its primary and basic balances.

As the increase in revenue was almost matched by the rise in expenditure, the government's primary surplus remained largely unchanged, at around $2.0 billion in H1 2013 compared to the same period last year. However, the basic balance showed a smaller surplus of $1.2 billion, compared to $1.7 billion a year ago, reflecting the special transfer of one-off CPF Medisave account top-ups for elderly Singaporeans. Overall, the amount of special transfers disbursed has doubled to $6.9 billion in H1 2013, although this mainly comprised contributions to the GST Voucher Fund, which had no impact on the basic balance.[6] (Chart 1.46)

Chart 1.46
Government's Basic Balance

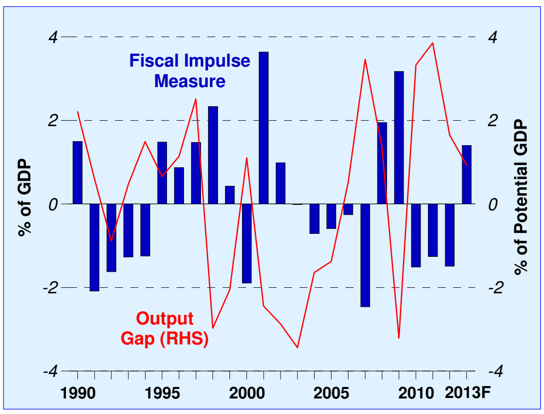


The fiscal policy stance is estimated to be mildly expansionary in 2013.

The FY2013 Budget had two main thrusts—encouraging businesses to continue with their restructuring efforts for sustained and quality growth in the future, and building a more inclusive society. In line with the former, the government introduced a three-year Transition Support Package to help businesses as they restructure. In particular, the Wage Credit Scheme[7] (WCS) was designed to help defray part of the rising costs facing businesses during this period of restructuring, and incentivise firms to share productivity gains with workers. The existing Productivity Innovation Credit (PIC) scheme was also enhanced to include a matching cash bonus for businesses and more liberal conditions for equipment that qualified for PIC benefits. At the same time, the Budget introduced more measures to promote social mobility and make the fiscal system more progressive, such as raising the quality of the pre-school sector and enhancing the Workfare Income Supplement (WIS) Scheme payouts and coverage. Further, the Budget included one-off special payments to help households cope with the cost of living.

Taking into account these measures targeted at helping firms and households, the fiscal policy stance is slightly expansionary in 2013 compared to the previous year. This is shown by the fiscal impulse measure, which is estimated to be positive at 1.4% of GDP in CY2013. (Chart 1.47)

Chart 1.47
Fiscal Impulse Measure



Source: EPG, MAS estimates

[6] The basic balance is the primary balance less special transfers (excluding top-ups to endowment and trust funds).

[7] Under the WCS, the government will co-fund 40% of wage increases for Singaporean employees earning a gross monthly wage of up to $4000. The WCS covers wage increases given over the next three years.

Box A
Review of MAS Money Market Operations in FY2012/13[1/]

This box reviews MAS' money market operations in FY2012/13. Money market operations are undertaken to manage liquidity within the banking system, and are distinct from the implementation of exchange rate policy. More information may be found in the monograph on "Monetary Policy Operations in Singapore", March 2013.

This box first describes how money market operations are conducted. This is followed by a review of banks' demand for cash balances with MAS and the behaviour of autonomous money market factors in FY2012/13. Finally, the box examines the composition of money market operations carried out during this period.

Money Market Operations in Singapore

The open-economy trilemma posits that a country that maintains an open capital account cannot simultaneously manage its exchange rate and domestic interest rates. Thus, Singapore's open capital account and exchange rate-centred monetary policy imply that its domestic interest rates and money supply are necessarily endogenous. MAS' money market operations are therefore 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.

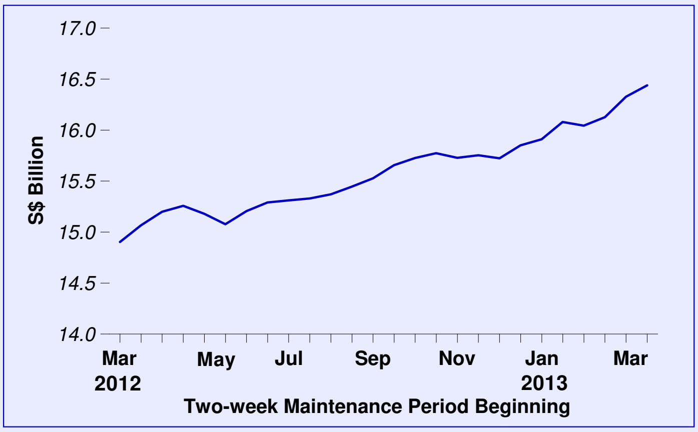
Money market operations are conducted daily by the Monetary & Domestic Markets Management Department at MAS. The amount of liquidity in the banking system is estimated by taking into consideration the banking sector's demand for funds and the net liquidity impact of autonomous money market factors. After carrying out money market transactions, MAS monitors market and liquidity conditions throughout the day.

Banks' Demand for Cash Balances

Banks hold cash balances with MAS to meet reserve requirements and for settlement purposes. Banks in Singapore are required to maintain with MAS a Minimum Cash Balance (MCB) equivalent to 3% of their liabilities base on a two-week average basis. This forms a base demand for cash balances. Banks also hold cash balances for settlement and regulatory purposes. Hence, the total demand for reserve balances could vary across periods as banks hold excess cash balances to make large payments (settlement purposes), or to use as high quality liquid assets (regulatory purposes). Since the financial crisis, there has been a tendency for banks to hold slightly more liquidity in the form of central bank reserves.

In FY2012/13, banks' demand for balances to meet reserve requirements grew, reflecting a growing liabilities base and rising bank intermediation activity. (Chart A1)

Chart A1
Average Reserve Requirements over Two-week Maintenance Periods

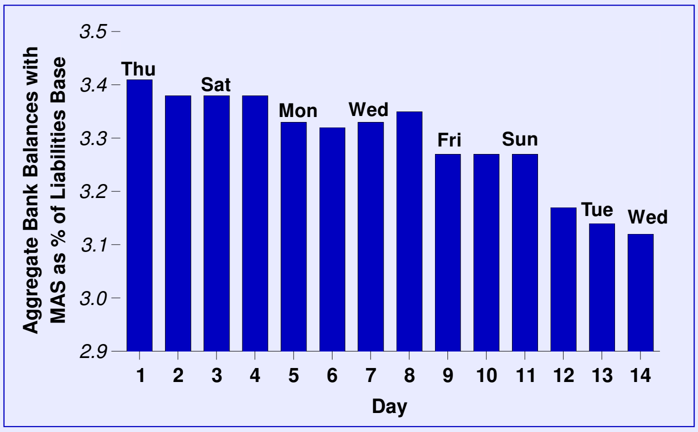


1/ This box is contributed by the Monetary & Domestic Markets Management Department of MAS.

Although banks are required to keep an average MCB ratio of 3% over the two-week maintenance period, their daily effective MCB ratios may fluctuate between 2% and 4% of their liabilities base, allowing 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 FY2012/13. Banks tend to maintain higher cash balances during the start of a maintenance period so as to avoid being caught short of cash towards the end of the period. Hence, the daily cash balances required by the banking system during the last few days of a maintenance period are usually lower.

Chart A2
Daily Effective Cash Balances as % of Liabilities Base over a Typical Two-week Maintenance Period in FY2012/13

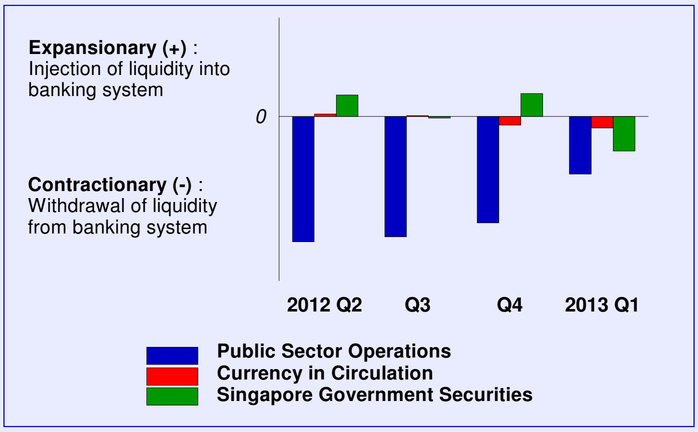


Money Market Factors

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) and Treasury Bills (T-bills) issuance, redemption and coupon payments, over FY2012/13. Public sector operations include Government and CPF Board net transfers of funds between their accounts with MAS and their deposits with commercial banks.

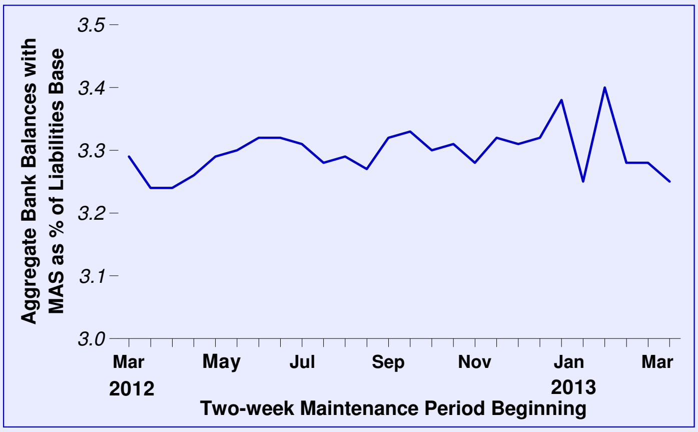
In FY2012/13, the liquidity impact of the autonomous money market factors was net contractionary, largely due to public sector operations. In contrast, the liquidity impact arising from the issuance and redemption of SGS and T-bills was mildly expansionary, while the impact of currency in circulation was negligible.

Chart A3
Liquidity Impact of Autonomous Money Market Factors



During FY2012/13, banks were generally conservative in their liquidity management, with an average two-week effective cash balance of 3.2–3.4% of their qualifying liabilities throughout the period. (Chart A4)

Chart A4
Average Two-week Effective Cash Balances as % of Liabilities Base



Composition of Money Market Operations

MAS relied on four instruments to inject liquidity into, and withdraw liquidity from, the banking system in FY2012/13, namely, (i) FX swaps; (ii) SGS repos; (iii) clean lending or borrowing; and (iv) MAS Bills. Since MAS Bills were introduced in 2011, they have grown in importance as an instrument used in money market operations, with total outstanding issuance growing to S$37.2 billion in FY2012/13, up from S$18.0 billion in FY2011/12. Chart A5 compares the composition of instruments between FY2011/12 and FY2012/13.

Chart A5
Distribution of Money Market Operations by Instrument