3.1 External Outlook

Modest Global Growth Slowdown

Global growth is expected to remain supportive.

Following concerted interventions by the world's major central banks via liquidity injections and/or interest rate cuts, global financial markets have calmed down after the turbulence in August. Against this backdrop, the global economy is expected to expand at a more moderate pace in 2008. (Table 3.1)

In the US, problems in the subprime mortgage market appear to be fairly well contained so far, with limited spillovers on the rest of the economy. Nonetheless, the US is expected to experience sub-trend growth in the short term, as the ongoing correction in the housing market weighs on both consumer and business confidence. This is supported by the Conference Board's leading indicator, which points to a moderation in economic activity in the coming months. After an initial pullback, however, growth should pick up in the second half of 2008. As of October 2007, the full-year consensus growth forecast for 2008 stood at 2.4%.

In the Eurozone, exports are likely to ease on the back of the strong euro, which has appreciated by nearly 8% against the US$ since the beginning of this year. Nevertheless, the decline in the unemployment rate to a record low of 6.9% in August will provide an important pillar of support for private consumption spending.

In Japan, the latest Tankan survey indicates that both large and small businesses are slightly more cautious about the economic outlook. Nonetheless, corporate capital expenditure is still likely to drive the economy as firms continue to re-invest profits to sustain growth. Exports are also set to remain firm, particularly to emerging economies.

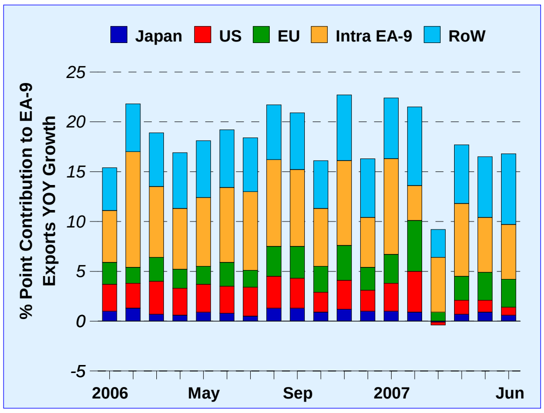
In non-Japan Asia, the outlook appears to be reasonably bright. Exports to the EU and Japan should hold up, supported by the expected modest recovery in the global IT market, even though US-bound exports may slow in the first half of the year. (Chart 3.1) In addition, fixed investments are likely to increase in some countries, particularly those targeted at relieving infrastructure bottlenecks, while robust labour market

Table 3.1
Forecasts of GDP Growth

	2007F	2008F
Total*	**4.8**	**4.6**
Industrial Countries*	2.4	2.2
US	2.0	2.4
Eurozone	2.6	2.0
Japan	2.0	1.9
NIE-3*	5.2	5.0
Hong Kong	5.8	5.2
Korea	4.8	5.1
Taiwan	4.6	4.6
ASEAN-4*	5.6	5.7
Indonesia	6.1	6.2
Malaysia	5.7	5.9
Thailand	4.3	4.8
Philippines	6.3	5.8
China	11.4	10.7
India	8.5	8.2

Source: Consensus Economics Inc., October 2007
* Weighted by shares in Singapore's non-oil domestic exports.

Chart 3.1
Asian Export Growth



Source: CEIC
Note: EA-9 refers to the East Asia-9 economies, namely China, Hong Kong, Indonesia, Korea, Malaysia, Singapore, Philippines, Taiwan and Thailand.

conditions will help to underpin private consumption. Improved fiscal positions will also give governments the scope to raise public spending, should the need arise.

Overall, developed countries and emerging Asian economies are forecast to expand by about 4.6% in 2008, slightly less than this year but still firmly above the average of 3.8% over the past decade.

Concerns remain over the impact of the US housing market correction.

A lingering concern is that the weak US housing market could precipitate a significant erosion of household wealth and trigger a sharp downturn in consumer spending. Lending conditions might also tighten further, as lenders reassess their credit risks amidst rising mortgage payment defaults, which would have further negative effects on other parts of the economy, including business spending.

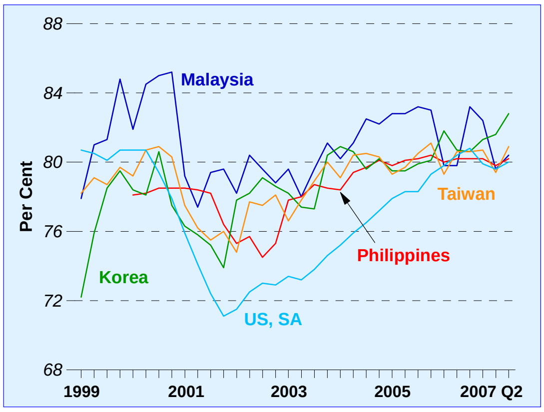
Being trade-dependent, Asia would not be insulated from a sharp downturn in the US economy. In addition, intra-Asian export growth would be adversely affected, as a significant proportion of regional trade is ultimately dependent on final demand in the developed countries. (See Special Feature B.) However, the likelihood of a severe US downturn is low at the moment.

Inflation should be contained, but there are upside risks.

With global growth moderating slightly next year, inflationary pressures are likely to be contained. Based on consensus estimates, CPI inflation is expected to moderate in the US, remain steady in the Eurozone and rise slightly in Japan in 2008. Within the East Asian region, inflation is projected to stay broadly unchanged from 2007.

Nonetheless, there are upside risks arising from tight capacity after five straight years of above-trend global growth. (Chart 3.2) As a result, disinflationary effects due to positive supply shocks in emerging economies are dissipating and being offset by cost pressures in the resource market. The inflation risk could come from a number of sources. First, wage pressures are building up in a number of countries, particularly in Asia. Second, global crude oil prices could surprise on the upside despite reaching new highs recently. Third, global food prices continue to face an upward

Chart 3.2
Capacity Utilisation Rates



Source: CEIC

bias, reflecting in part prices continue to face an upward bias, reflecting in part stronger demand for corn and soybeans from the biofuel industry. In some Asian economies, weather-related supply shortages have also contributed to higher food prices.

3.2 Domestic Outlook

Holding Firm for the Rest of 2007

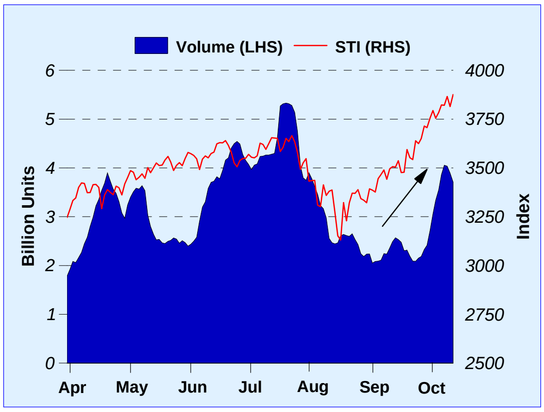
The domestic economy should expand at a moderate pace for the rest of the year.

The Singapore economy has performed better than expected thus far in 2007, with robust growth in most industries, notably the non-IT industries and asset market-related activities.

Although the latest Q3 figures point to a moderation in growth momentum in the economy, financial markets have rebounded recently and underlying economic conditions have remained supportive amidst a generally favourable external environment. (See Chapter 1 for details.) GDP growth is on track to come in at the upper end of the 7-8% forecast range this year, up from the 4.5-6.5% forecast in April 2007.

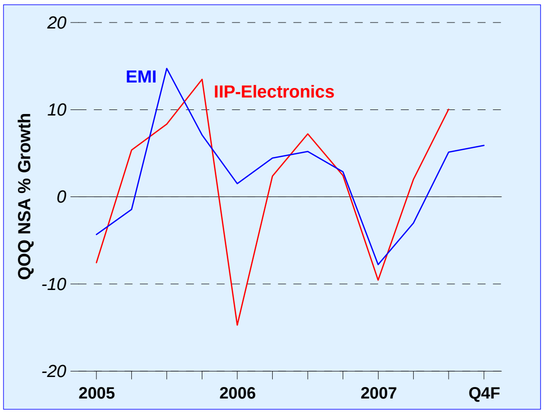
Barring a major fallout from the subprime mortgage crisis, domestic asset market-related activities should see some tentative improvement in Q4, especially in the financial services sector. Stock market volumes have recovered somewhat since mid-September, reflecting restored confidence in the global financial markets. In addition, there has been renewed interest in Asian equities and particularly in Chinese stocks, some of which are listed on the local bourse. Domestic equity prices also picked up sharply, in tandem with the turnaround in stock market volumes. Notably, the STI surged past the 3,800 mark in early October, exceeding the previous high of 3,665 in July, prior to the correction in August. (Chart 3.3)

Chart 3.3
Stock Market Turnover Volume and Straits Times Index (STI)



The IT-related cluster will see modest growth in the near term, in line with a recovery in the global IT industry. This is evident from EPD's Electronics Manufacturers' index (EMI), which provides a one-quarter ahead forecast for domestic electronics production. (Chart 3.4) The EMI is based on consensus revenue projections for key electronics MNCs based in Singapore. Representative companies within each electronics segment are selected and revenue forecasts for their global operations next quarter are compiled and weighted by the relevant segment's share in overall domestic electronics output. Chart 3.4 compares the EMI with the actual sequential growth of electronics industrial production. It shows that the EMI has been useful in tracking turning points in the industry, although it does not necessarily predict the magnitude of change. Our estimates, which exploit the information content of the EMI, suggest a modest single-digit growth in Q4 this year.

Chart 3.4
Electronics Manufacturers' Index



Source: Bloomberg, 26 Oct 2007; EPD, MAS estimates

Reversion to Potential Growth in 2008

GDP growth is expected to moderate to its potential rate next year ...

The outlook for next year is more uncertain, as it hinges on the severity of the weakness in the US housing sector. At this stage, the US economy is envisaged to slow significantly in the earlier part of next year, but begin recovering in the second half. Under this scenario, the rest of the world economy should continue to be fairly resilient and Singapore is expected to grow at its potential rate of 4-6%. This forecast has incorporated the possibility of further (temporary) bouts of volatility in the global financial markets as well as higher oil prices. More broadly, the slower rate of GDP growth in 2008 reflects in part the moderation in growth in the asset market-related sectors in Singapore, as investors turn more cautious.

... reflecting greater uncertainty on the external front.

Continued risk aversion among investors could also cap activity in the asset market-related clusters in the early part of 2008. Amidst uncertainty, financial markets, including those in Singapore, are likely to remain volatile and be particularly sensitive to information from incoming data. A recent study conducted by EPD, presented in Box B at the end of this chapter, suggests that domestic macroeconomic data releases do indeed impact the level and volatility of the S$/US$ exchange rate.

Although the domestic equity market has picked up since the sharp pullback in August, trading activity in 2008 is generally not expected to match the highs registered this year. While activity should improve in the domestic debt market, businesses might initially adopt a wait-and-see approach given lingering concerns over the credit market. Within the wealth advisory cluster, the prevailing uncertainties in global financial markets could also dampen demand for wealth management services into 2008. However, some fresh impetus could come from renewed interest in regional markets, which appear to have been able to distance themselves from the subprime mortgage crisis. Latest data suggests that a full recovery in equity fund flows to Asia has yet to materialise. (Chart 3.5) Going forward, investors could seek to strategically re-balance portfolios towards Asia, so as to mitigate potential downturns in the mature markets.

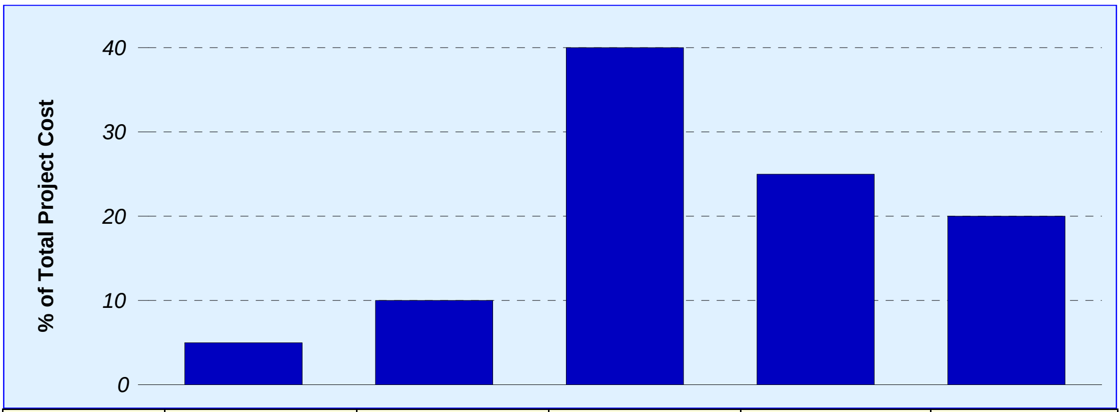
Chart 3.5
Net Equity Flows,
Selected Asian Markets

Source: Bloomberg, 23 Oct 2007
Note: Markets included are Indonesia, Korea, Taiwan, Thailand and the Philippines.

Merger and acquisition (M&A) activity has come back strongly after the dip in Q3, and this recovery is likely to continue into 2008. One positive factor has been the broadening of M&A deals, which were previously dominated by highly-leveraged private equity buyout firms in specific sectors across the region. A number of analysts have suggested that the decline in M&A deals associated with these firms – amidst tighter credit conditions following the subprime mortgage crisis – has provided more opportunities for M&A activities by regional businesses. In addition, there appears to be a growing number of mid-sized deals, which have been relatively more resilient in the face of economic downturns in the past.

Prospects for the property-related industries, especially construction, are decidedly more sanguine. Figure 3.1 provides a stylised mapping of the progress of mega non-residential projects over different stages of each project. It can be seen that most of the projects are moving into the third phase – building of the external structure – where the largest payment occurs. This should translate into higher value added growth in construction activity in the latter part of this year and into 2008.

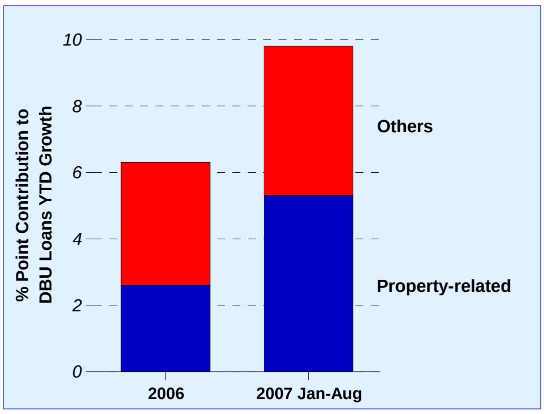
Figure 3.1
Stylised Payment Streams of Construction Projects



	Excavation	Foundation & Site Preparation	Building the External Structure	Interior Works	Finishing Works
Marina Bay Sands	Completed	In progress	End 2007	H2 2008	2009
Resorts World @ Sentosa	In progress	End 2007	Early 2008	End 2009	2010
Marina Bay Financial Centre	Completed	Completed	In progress	H2 2008	2009

Likewise for the residential segment, there will be a significant number of high-end and mid-tier projects that are due for completion by year 2010. These projects in the pipeline should be sufficient to support fairly robust growth for the construction sector next year, even if new launches are held back by the recent financial market turmoil. With this supportive backdrop, property-related loans, which have contributed about 50% to total domestic loan growth thus far this year (Chart 3.6), should continue to grow.

Chart 3.6
Contribution of Property-related Loans to Growth in DBU Loans

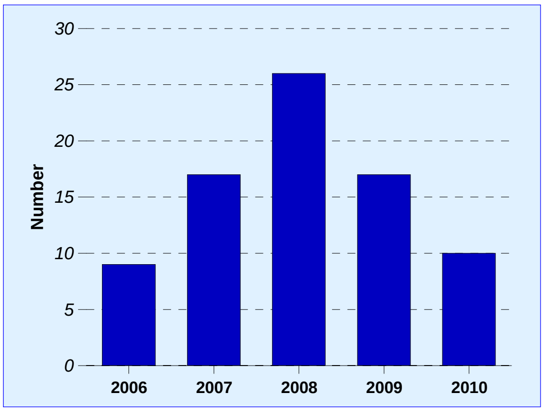


The rest of the economy should see healthy growth in 2008.

Apart from asset market-related activities, the rest of the economy is poised for healthy growth in 2008. Similar to 2007, the non-electronics manufacturing cluster should again emerge as one of the strong performers next year.

In the marine and offshore engineering industry, high oil prices will continue to drive oil exploration efforts, further spurring demand for oil rigs and rig-conversion projects. Net order books of the two major shipyards in Singapore point to robust growth in 2008, with a record number of oil rigs to be delivered next year. (Chart 3.7) The other mainstay of the non-electronics manufacturing segment is the biomedical industry. Despite its inherent volatility, the industry is expected to continue its strong growth in 2008, given the anticipated production pipeline.

Chart 3.7
Rigs Delivery Schedule



Source: Keppel Shipyard and SembCorp Marine company reports

Regional growth will support the services industry.

Singapore's tourism-related industries would benefit from continued strong inflows of tourists and big-scale events in 2008, including the Singapore Formula One (F1) Grand Prix in September. Hotels along the F1 course have announced that room rates will be raised by as much as three-fold for the five-day period between 24-28 September, boosting revenues in the hospitability and related businesses. Other STB initiatives include the strengthening of Singapore's position as a leading hub in Asia for Meeting, Incentive, Convention and Exhibition (MICE), as well as ongoing marketing activities in emerging markets such as China, India, the Middle East and Russia.

Air passenger volumes are also projected to rise in tandem with increased visitor inflows in the coming year, underpinned by the increasing affordability of air travel due to the proliferation of low cost carriers and the rising affluence of emerging economies. Meanwhile, recent initiatives by NOL, a leading shipping line in Singapore, to expand its fleet of container ships in the Asia-Europe and Transpacific routes, will raise sea cargo volumes.

The domestic-oriented sectors, such as retail sales, should also do relatively well, given the generally favourable outlook for the labour market. In particular, retail sales are set to rebound from the pullback in consumer spending following the GST hike in July, boosted by recent initiatives such as Saturday Late Night Shopping and ongoing efforts to revitalise the shopping belt along Orchard Road.

IT output should rebound modestly.

Barring a major slowdown in the US economy, the IT-related cluster, which has seen some nascent signs of recovery in H2 2007, is likely to pick up further in 2008, albeit at a moderate pace. This will be an important boost to the economy, given the relatively large share of the IT-related cluster and its extensive linkages with the rest of the economy.

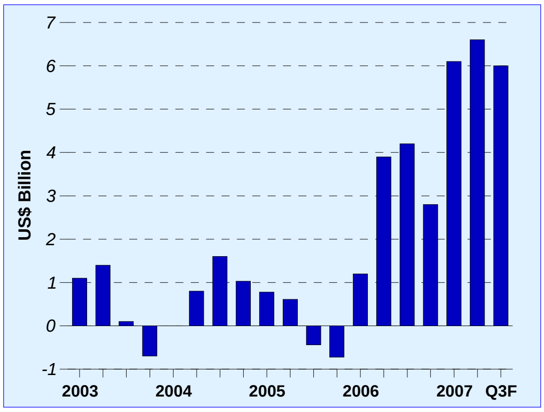
The current weakness in domestic IT-related activities can partly be attributed to the buildup in global inventories in the mid-stream semiconductor segment, which placed downward pressure on chip prices, thus muting gains in revenue growth. Indeed, excess semiconductor inventories doubled in the first quarter of 2007, before hitting a peak in Q2. (Chart 3.8) According to iSuppli, overcapacity was most pronounced in the memory segment, which saw production increase by 94% in the first half of the year, a quantum leap from the industry average annual growth of 55-60%.

The excess global supply and its subsequent impact on prices have affected Singapore-based electronics manufacturers as well. This is evident from the increased divergence between domestic electronics output (IIP) and nominal exports since the latter half of 2006, largely due to the erosion in export prices, which have fallen by 8.9% y-o-y since August this year. (Chart 3.9) In addition, inventory has built up over the same period, in line with the mounting chip overhang in global IT markets.

More recently, the global IT market appears to have turned the corner, with capacity cutbacks trimming the chip inventory overhang and providing a boost to global chip sales. Global semiconductor capacity utilisation – a forerunner of chip sales – also picked up in Q2, suggesting possible upsides to semiconductor revenues over the next few quarters. (Chart 3.10)

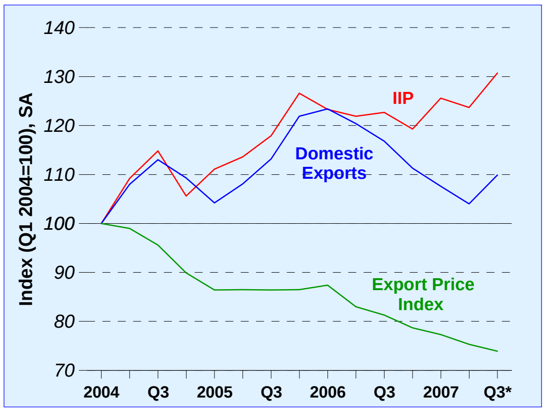
A firm recovery in global IT hinges on strong end demand. In particular, the year-end holiday season is pivotal for the electronics industry and typically accounts for a quarter of annual electronics stores sales in the US.[1] In view of the uncertainties arising from the subprime mortgage crisis, the US National Retail Federation has projected holiday sales to rise by 4% this year, the slowest in five years. Nevertheless, unfavourable credit and housing market conditions have yet to make a significant dent on purchases of consumer electronics items. Notably, the latest US September retail sales for consumer electronics has remained healthy, with high demand for iPods, handsets and laptops. (Chart 3.11)

Chart 3.8
Excess Semiconductor Inventories



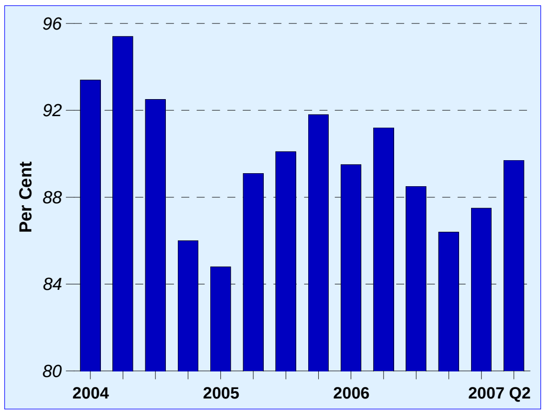
Source: iSuppli

Chart 3.9
Domestic Electronics Output and Exports



* Average Jul-Aug data for export price index.

Chart 3.10
Global IC Utilisation Rates



Source: Semiconductor International Capacity Statistics (SICAS)

1 Holidays which boost US retail sales in this period include Thanksgiving, Christmas and Hanukkah.

Key demand drivers are also poised to boost consumer spending during the US holiday season. Apple's recent offerings – which include an iPhone price cut and European launch, as well as the roll-out of a new generation of iPods and new Macintosh operating system – are expected to spur demand for consumer electronics, mopping up about a quarter of global NAND Flash supply in the second half of this year, according to InSpectrum. Strong shipment growth in the PC market, which is forecast by Gartner to grow by 12% in 2007 and 11% in 2008, compared to 9.5% in 2006, also bodes well for a sustained DRAM uptake alongside firm IT demand in emerging countries.

Chart 3.11
US Retail Sales
(Electronics and Appliance Stores)

Source: CEIC

On the supply side, capacity expenditure should decline in 2008, as reflected in the capex schedules of leading semiconductor manufacturers. This will further ease price pressures in the semiconductor market and lend some support to chip revenues. Ongoing industry consolidation – joint ventures this year include Intel-STMicroelectronics for NOR Flash in May and Sony-Qimonda for DRAMs in October – will also pave the way for more robust pricing in the memory market. Overall, global chip sales should witness slightly stronger growth in the 7-10% range next year, up from the 3-4% estimated for 2007.

New capacity should buttress domestic IT output in 2008.

Generally favourable global conditions should translate into increased activity in the domestic IT-related cluster next year. In terms of product profile, semiconductors are expected to remain the key pillar of growth, boosted by capacity expansion in the second half of 2008. These include the expansion of Chartered Semiconductor's 300-mm wafer fabrication facility, new production from Qimonda and Samsung-Siltronic wafer fabs, as well as the production of NAND Flash memory chips by Intel-Micron's new plant in Singapore. The latter, under the name of IM Flash Technologies, will fabricate NAND Flash RAM for Apple's new line-up of iPods, thus plugging Singapore firmly into the highly lucrative iPod supply chain. Singapore also stands to benefit from the testing of AMD's latest quad-core Opteron processors on its shores.

Aside from the semiconductor sector, new capacity from the hard disk drive industry will also provide support to the domestic IT industry. Production at Seagate's third hard disk media plant is expected to kick off in mid-2008, lending support to hard disk media manufacturing, which is a key higher value added component of hard disk drives. (Table 3.2)

Table 3.2
New IT Capacity in mid-2008

	Sector	Investments (US$ billion)
Intel-Micron	Semiconductor (NAND Flash)	Multi-billion
Qimonda	Semiconductor (DRAM)	2.7
Samsung-Siltronic	Semiconductor	1
Soitec	Semiconductor	0.45
Seagate	HDD (Disk Drive Media)	0.82

Source: Company reports

Slower GDP growth expected in 2008 as the economy returns to its potential growth rate.

The slowdown in growth in 2008 needs to be viewed in perspective, as the economy moderates back to its potential growth rate following four years of strong growth.

This easing largely reflects the anticipated short-term weakness in external demand in the first half of the year, arising from uncertainties associated with problems in the US housing sector. With the subprime mortgage problem assumed to be largely contained within the financial markets, other growth drivers in the economy will be largely intact and set for further expansion in 2008.

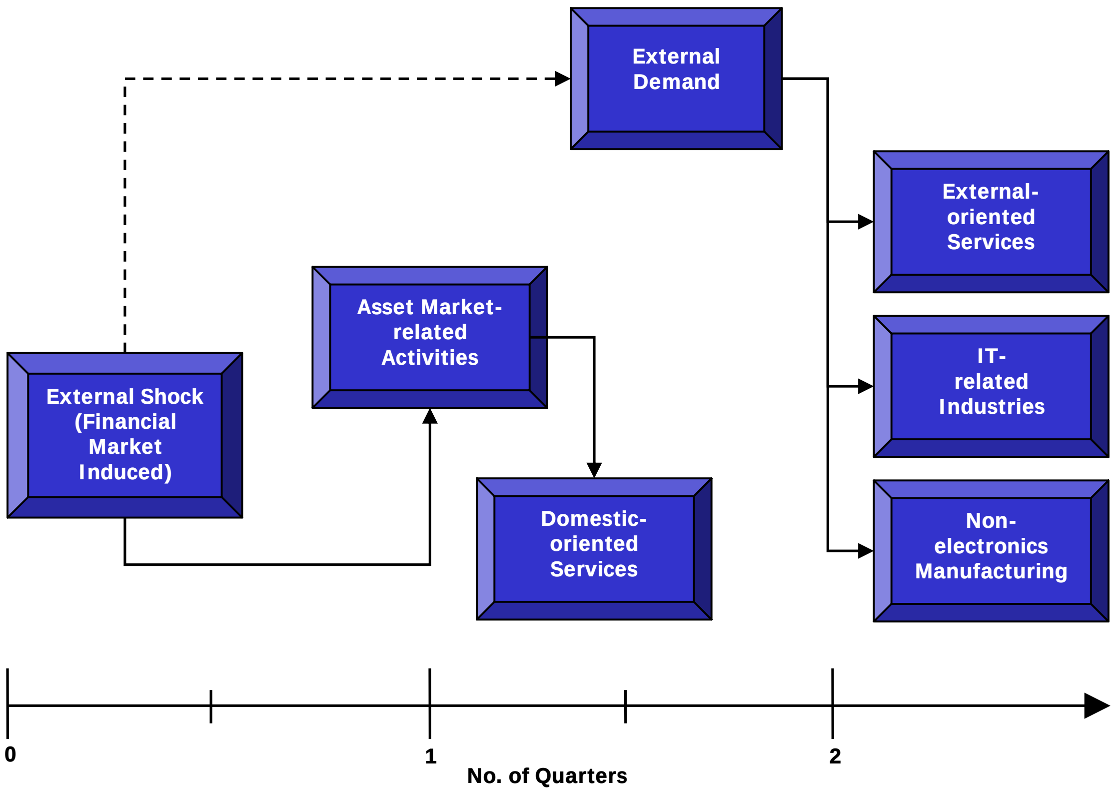
A temporary slowdown in the US, largely confined to the housing sector with moderate impact on the US consumer, should not derail the Singapore economy from this baseline growth scenario. Indeed, over the past decade, there have been times when the Singapore economy powered ahead although US GDP growth slowed significantly, suggesting weak synchronicity between US and Singapore business cycles over the near term. For example, when the US economy contracted by 0.2% in 1991, the Singapore economy grew by 6.6%, supported by strong growth in financial services and construction activities.

Indeed, if the US economy performs better than expected – aided by expansionary monetary policy – the second half of 2008 could surprise on the upside. In this case, asset market-related activities could bounce back swiftly and strongly.

On the other hand, a scenario of a more protracted and severe slowdown in the US economy, with its attendant knock-on effects on the rest of the global economy, cannot be ruled out. Figure 3.2 traces through the transmission mechanism of such an external financial shock on the Singapore economy, based on similar episodes in the past. Asset market-related activities would be more severely hit and this would spread to other domestic-oriented industries, such as retail trade, through a weakening of consumer sentiment. A sharper slowdown in the US, and concomitantly the rest of the world, would also hit the domestic manufacturing and external-oriented services sector adversely. Previous episodes of external shocks have shown that this can take place within two quarters. Under this scenario, domestic economic growth will slow more sharply to below potential growth next year. Nevertheless, the probability of such a scenario remains low.

On balance, our forecast is for the Singapore economy to achieve its potential growth rate of 4-6% next year.

Figure 3.2
The Transmission of Financial Market Volatility to Real Economic Activities

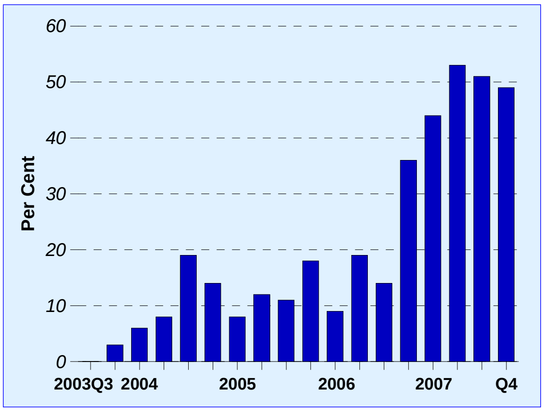


3.3 Labour Market

Employment outlook remains optimistic, especially in strong growth sectors.

A number of surveys suggest that the job market will remain tight in the near term, in line with generally firm business conditions. In the latest survey by Manpower Inc., for example, 51% of 759 companies from different sectors indicated that they would increase recruitment in Q4 this year, while 31% expected no change in staffing levels and only 2% planned to cut headcount. (Chart 3.12) This employment outlook is slightly less optimistic compared to the last two quarters, when a larger proportion of the survey participants reported positive hiring intentions – 55% in Q2 and 54% in Q3.

Chart 3.12
Net Employment Outlook



Source: Manpower Inc.
Note: The net employment outlook is derived by subtracting the percentage expecting to see a decrease in employment from the percentage of employers anticipating an increase in total employment in the next quarter.

The finance, insurance & real estate industry, one of the largest contributors to job gains this year, has the most favourable job prospects, as the growing role of Singapore as a financial hub continues to fuel demand for staff in the middle and back offices. In addition, strong construction activities and the boom in the property market will increase labour demand in the real estate industry.

As for the manufacturing sector, the employment outlook is generally optimistic in the non-electronics industries, according to the latest *Survey of Business Expectations of the Manufacturing Sector* by EDB. In particular, the marine & offshore engineering cluster is looking to increase hiring, driven by higher demand for ship repair works and oil rigs. In contrast, job prospects for the electronics cluster remain weak, in line with sluggish conditions in the global IT industry.

Shortage of skilled workers is an increasing challenge for employers.

With a tight labour market, employers have reported difficulties in the recruitment and retention of workers. In the latest Hudson report, a shortage of required skill sets was cited as the most significant recruitment problem by respondents from all sectors. The problem is especially severe in the manufacturing sector, particularly in the oil and gas industries where specific technical and engineering skills are highly sought after. At the same time, banks require workers for back office treasury and securities operations, credit risk, compliance and relationship management.

PMETs are more sought after.

With the strong demand for specialised skills, the resident unemployment rate of professionals declined further to a low of 2.3% in 2006 as compared to 4.1% in 2004. (Chart 3.13) In comparison, lower skilled workers faced higher unemployment rates. In particular, the resident unemployment rates of services & sales workers and cleaners & labourers were more than twice those of professionals and managers, at 6.4% and 6.0% respectively, although they were lower than the 7.8% and 8.6% in 2004.

Indeed, lower skilled workers remain vulnerable to job losses, as evident from the high proportion – some 60% of production & transport operators and cleaners & labourers – among those laid off in Q2 2007. (Chart 3.14) In addition, the number of retrenched workers from this group increased, whereas those from the higher skilled group fell.

Chart 3.13
Resident Unemployment Rate by Previous Occupation, June 2006

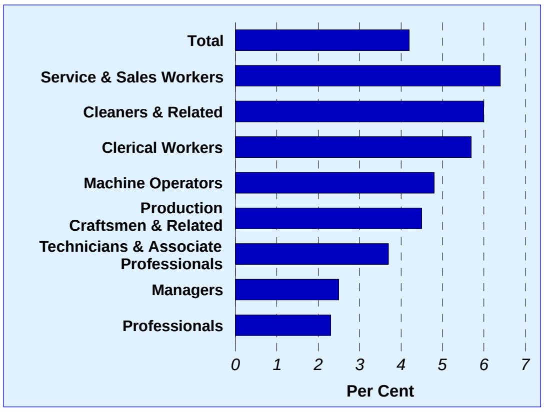
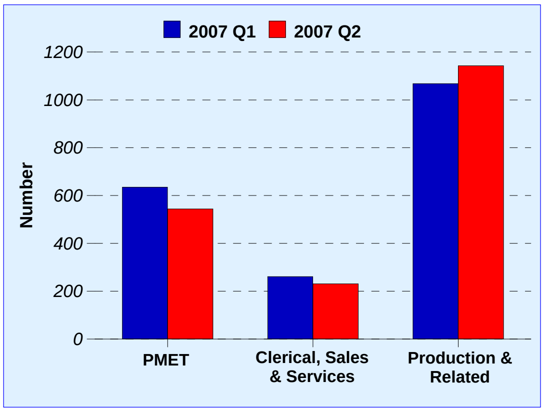


Chart 3.14
Retrenchments by Occupational Group



Note: Production and related workers refer to production & transport operators, cleaners & labourers.

Labour market conditions will remain strong in 2007 and 2008.

Given the buoyant economy and growing demand for manpower, employers have been paying more to attract or retain talent. Wage pressures will persist, particularly in fast-growing industries where there is strong demand for specialised skilled workers. In an annual survey by Michael Page International, a global recruitment firm, professionals in the finance sector – especially those in private banking and wealth management – could expect a pay rise of 15-30% in the next 12 months. Professionals in the booming property and construction sectors could also expect a salary increase of 15-20%.

3.4 Inflation

Domestic cost pressures are rising and risks from external price developments remain.

The Singapore economy has performed better than expected in 2007, with robust growth across a number of sectors. Going into 2008, the domestic economy is expected to continue to expand, albeit at a more moderate pace. As a result, domestic cost pressures are likely to remain firm, along with upside risks from external factors, such as oil and food prices.

Wage pressures will persist into 2008.

As noted above, recent survey results suggest that the job market will remain tight in the near term, although there could be some moderation in employment gains from the record high in H1 2007. With the tight labour market, wage growth is likely to remain firm as employers offer higher salaries to attract and retain workers. As such, overall nominal wage growth in 2007 and 2008 is projected to be higher than that in the last few years, coming in at 6-7% and 5-6% respectively.

Correspondingly, overall unit labour costs are projected to rise by 4.5-5.5% this year and 3.5-4.5% next year, following five years of decline.

Impact of rising property rentals on CPI will become more apparent.

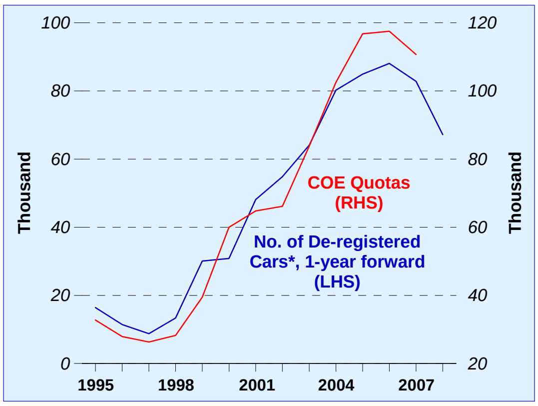
The upturn in the residential property market has yet to significantly impact accommodation costs in the CPI. The bulk of accommodation costs comprises those from owner-occupied housing costs, which are computed on the basis of imputed rents, i.e. the expected rental that a property would fetch if it was rented. Imputed rentals generally lag market prices since they are based on Annual Values assessed by IRAS for tax purposes, which are reviewed periodically. As the AVs are revised to take into account higher residential rentals, accommodation costs in the CPI basket would rise accordingly.

Meanwhile, office and retail rentals should remain elevated in 2008 given that a significant increase in the supply of office/retail space will only become available in 2009. As such, the pass-through from rising commercial rentals could strengthen going forward, as businesses raise prices to offset mounting costs.

Car prices are likely to contribute positively to inflation in 2008.

Car prices could be one of the key contributors to CPI inflation in 2008. According to the LTA, COE quotas for each quota year are based on a 3% car population growth rate, including provisions for projected car de-registrations. With falling de-registrations in 2006 and 2007, COE quotas are expected to drop in the next quota year (Apr 2008-Mar 2009), thus providing some support for car prices. (Chart 3.15) In addition, the LTA has indicated that the target car population growth rate of

Chart 3.15
Number of De-registered Cars and COE Quota



* EPD, MSD estimates for 2007. Estimates are obtained by annualising the realised de-registration in the first nine months of the year.

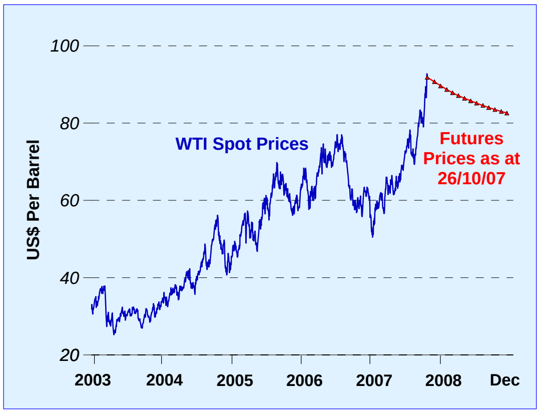
3% is unsustainable in the long run, and will review this policy in 2008.

Contribution of oil-related items will strengthen with higher oil prices.

On the external front, tight oil market conditions in recent months have driven global oil prices to new highs. On 26 Oct 2007, the price of WTI oil (front-month futures) surged to a new record of US$92.22 per barrel.

Looking ahead, the oil market will remain tight, with prices staying high. Both the International Energy Agency (IEA) and the US Energy Information Administration (EIA) are forecasting oil demand to increase at an even faster pace in 2008 relative to 2007. Moreover, there is limited spare capacity in OPEC and its planned increase in production quota of 0.5 million barrels per day in November is perceived to be inadequate to alleviate market tightness. Supply increases from non-OPEC producers are also expected to be modest in the coming year. Overall, WTI oil prices are projected to rise from an average of US$66 per barrel in 2006 to around US$70-75 per barrel in 2007. Currently, WTI oil futures are predicting prices to average US$86 in 2008. (Chart 3.16)

Chart 3.16
WTI Oil Futures Prices



Source: Bloomberg

With the recent jump in global oil prices, domestic energy-related items can be expected to witness price increases in H2 2007 and 2008. Indeed, after falling sequentially by 13% y-o-y in the first two quarters, electricity tariffs were raised by 11% in Q3 2007 and another 4.3% in Q4. Direct energy-related items will add to overall CPI inflation going forward, after acting as a drag in H1 2007. At the same time, indirect pass-through effects will likely persist, through increases in public road transport fares and cooked food prices.

Food prices will continue to rise, albeit more moderately.

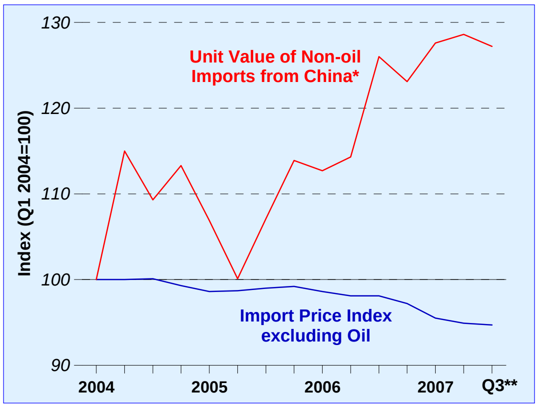
Global and domestic food prices are likely to trend up, given strong demand and tight supply due to cyclical and structural factors. (See Section 2.1.) For example, the dry weather in Australia will continue to constrain the output of livestock and crops. Strong income growth in emerging economies and government incentives for biofuel production globally will also increase demand for food items and continue to exert upward pressure on food prices.

However, overall imported inflation will remain muted.

Besides oil and food, prices of other primary commodities, such as metals and wood, could also stay high, with demand being supported by the rapid infrastructure buildup in developing countries. In comparison, inventory overhangs continue to depress the prices of electronics products, providing a cushion against rising commodity prices and helping to keep overall imported inflation subdued.

While the prices of China's exports have risen with the increase in wages and other production costs, the impact on Singapore's overall import prices is likely to be minimal given our diversified sources of imports. (Chart 3.17) Non-oil import prices are expected to continue falling this year and in 2008. Nonetheless, imported disinflationary forces are weakening in the context of continued robust global growth.

Chart 3.17
Unit Value of Singapore's Non-oil Imports from China and Singapore's Import Price Index (excluding Oil)



* EPD, MAS estimates,
** Average Jul-Aug data for import price index.

CPI inflation is expected to be around 1.5-2% in 2007 and 2-3% in 2008.

The GST hike will continue to have an impact on CPI inflation in H2 2007 and H1 2008. For the whole of 2007 and 2008, the impact will be about 0.5-0.7% point each year. In addition, barring a sharp slowdown in the global economy, domestic price pressures are likely to persist due to short-term supply constraints such as the shortage of commercial space and tight labour market conditions. Domestic cost factors are thus likely to play catch-up and contribute more to inflation, after staying muted in the last few years. Both global oil and food prices are also likely to trend up, reflecting a confluence of short-run supply factors and sustained strong demand in world markets.

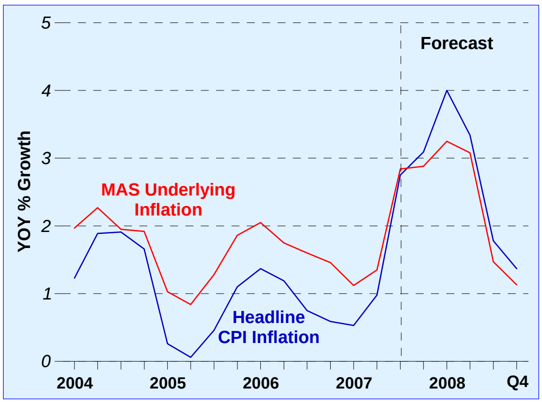
We expect CPI inflation to come in at 1.5-2% in 2007 and 2-3% in 2008. (Table 3.3) CPI inflation will continue to rise and possibly average around 3.5% y-o-y in H1 2008. (Chart 3.18) This results from the impact of the GST hike as well as base effects arising from the low prices of cars and energy-related items in H1 2007.[2] Nevertheless, on a sequential basis, CPI inflation should trend down after the GST-induced spike in July 2007, largely in line with the historical average. (Chart 3.19)

Table 3.3
Contribution to CPI Inflation Forecast (% point)

	2007F	2008F
Direct oil-related items	0	0.6
Cars	0.1	0.5
Other price pressures	1.4-1.9	0.9-1.9
CPI Inflation*	1.5-2	2-3

* Includes an estimated GST impact of 0.5-0.7% point each year.

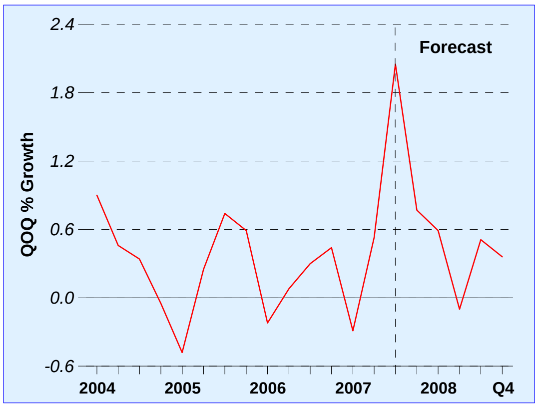
Chart 3.18
Headline and MAS Underlying Inflation Forecasts



[2] For a particular month or quarter, the maximum GST impact is estimated at 1.4% point for CPI inflation on a year-on-year basis. For example, in H1 2008, the GST effect is up to 1.4% point of the 3.5% y-o-y increase in the CPI.

Meanwhile, the MAS underlying inflation measure, which excludes accommodation and private road transport costs, is expected to be 1.5-2.5% in 2008.

Chart 3.19
Q-O-Q Forecasts for Headline CPI Inflation



Box B
Assessing the Effects of Macroeconomic News on the Singapore Dollar

Introduction

This box examines the extent to which intraday movements in the S$/US$ exchange rate are impacted by major macroeconomic data releases in Singapore, using techniques applied by Galati and Ho (2001) and Almeida *et al*. (1998). First, the direction and magnitude of exchange rate changes and exchange rate volatility are assessed following key data releases. We then examine if there are asymmetric and persistent effects on the S$/US$ following these announcements. Our results are generally similar to those found in studies for other countries, which show that scheduled announcements have statistically significant effects on the level and volatility of the exchange rate. Our analysis also shows that there is a tendency for a positive (above-expectations) data release to affect the S$/US$ in a more persistent manner compared to a negative (below-expectations) data announcement. However, negative news tend to have a stronger impact on the S$/US$.

Foreign Exchange Market Responses to Data Releases

General Market Reaction to Macroeconomic Data "Surprises"

We build our analysis upon a familiar empirical framework in the exchange rate literature, based on the idea that if markets are efficient, expectations about upcoming macroeconomic data announcements should have been priced into exchange rate movements. Consequently, only the unanticipated components of these announcements drive exchange rate movements. For the purpose of our analysis, this unanticipated portion is defined as "news" or "surprises", and is measured by the difference between the actual and expected y-o-y growth rates of the relevant macroeconomic variables. The median of survey data from Reuters and Dow Jones is used to measure market expectations.

A standard GARCH (1,1) specification is used to assess the response of both the level and volatility of hourly S$/US$ changes to "surprises" from key economic data releases closely watched by market participants, namely the Index of Industrial Production (IIP), Non-Oil Domestic Exports (NODX) and the Advanced GDP Estimates (GDPAE). The GARCH approach efficiently exploits the dynamic information in both the first and second moments of changes in the S$ exchange rate.[1/]

In particular, in the mean equation (1) of the GARCH model, we regress the hourly log difference in the S$/US$ Δs_t, on a constant α and a "surprise" variable, $X_{k,t}$ which measures the unexpected component of the k^{th} macroeconomic announcement for IIP, NODX and GDPAE. The "surprise" variable takes the value of zero if there are no announcements or if expectations are realised. Z_t is a vector of additional conditional variables including lags of the dependent variable. In the variance equation (2) which models the volatility of the S$/US$ exchange rate, the linear combination of one lag of the squared residuals (ε_t) from the mean equation and one lag of the variance (h_t^2) is supplemented with similar "surprise" variables and conditional variables included in the mean equation. All "surprise" variables enter the regressions contemporaneously to capture the immediate response of the exchange rate to the arrival of news. The model is estimated using Reuters hourly S$/US$ bid price data over the period 1 Mar 2007 (0:00 hrs) to 17 Aug 2007 (23:59 hrs).

$$\Delta s_t = \alpha + Z_t + \sum_{k=1}^{3}\sum_{j=0}^{1}\beta_{k,t-j}X_{k,t-j} + \varepsilon_t \qquad (1)$$

$$h_t^2 = \beta + Z_t + \sum_{k=1}^{3}\sum_{j=0}^{1}\gamma_{k,t-j}X_{k,t-j} + \sum_{i=1}^{1}\phi_i\varepsilon_{t-i}^2 + \sum_{i=1}^{1}\sigma_i h_{t-i}^2 \qquad (2)$$

The results of the full-sample GARCH estimation of equations (1) and (2) are summarised in Table B1. We also report the contemporaneous coefficients of each "surprise" variable and their respective *p*-values.[2/]

Table B1
Estimates of the Effect of Announcements on the S$/US$ Exchange Rate

Dependent Variable	Coefficient	*p*-value
β coefficients from Conditional Mean Equation (1)		
NODX	-0.0074	0.00
IIP	-0.0032	0.00
GDPAE	-0.1420	0.00
γ coefficients from Conditional Variance Equation (2)		
NODX	0.0000	0.70
IIP	0.0003	0.00
GDPAE	0.0866	0.41
Adjusted R-squared	0.01	
Std. Error	0.05	
Durbin Watson	2.28	

The contemporaneous coefficients on the NODX, IIP and GDPAE "surprise" variables are significant at the 1% level. In general, over the sample period, the positive macroeconomic data announcements tend to lead to an appreciation in the S$/US$. For instance, a 1% "surprise" increase in GDPAE, NODX and IIP leads to a 14, 0.7 and 0.3 basis point appreciation in the S$ respectively within the hour of the data release. This is consistent with economic intuition and findings in the literature: positive "surprises" which indicate stronger-than-expected activity are found to be supportive of the exchange rate. The magnitude of the "surprise" variables is small, although comparable to those found in similar studies. For example, Galati and Ho (2001) found that European data releases tend to have an average impact of about 20 basis points in absolute terms on the US$/euro exchange rate.

The results from the conditional variance equation suggest that the volatility of the S$/US$ exchange rate is affected only by the IIP "surprise" variable in a statistically significant manner. However, it is possible that announcements may have a discernible impact on exchange rate volatility if tested using higher frequency data, i.e. minute-by-minute or tick-by-tick. Even at an hourly frequency it is possible that the effects on the exchange rate could have been "washed-out" as a result of exchange rate fluctuations within the hour.

[1/] Baillie and Bollerslev (1989) and Andersen and Bollerslev (1998) have shown that a simple GARCH (1,1) model provides a reasonable and consistent discrete time approximation to continuous time diffusion processes. We also tried an integrated GARCH model, typically used for high frequency financial data, but there was no substantial improvement in the fit.

Asymmetry and Persistence between Positive and Negative "Surprises"

Next, we extend the intraday analysis by assessing whether the S$ reacts asymmetrically to positive and negative news. We also test the persistence of the effect of "surprises" on the S$/US$ by examining the impact of the unanticipated information on exchange rate returns measured over various intervals post-announcement. Following Galati and Ho (2001) and Almeida *et al.* (1998), equation (1) is modified to take into account the possibility of asymmetry in "surprises" and the extent to which these "surprises" continue to have an effect on the S$/US$. We estimate the log differences in S$/US$ as a function of a constant and hourly lags of unsigned occurrence dummy variables $D^{Positive}$ and $D^{Negative}$. These dummies take the value of one if the "surprise" from IIP, NODX and GDPAE is positive or negative, and zero if there are no announcements. The model is estimated with Reuters hourly S$/US$ bid price data over the period 1 Mar 2007 (0:00 hrs) to 17 Aug 2007 (23:59 hrs).

$$\Delta s_t = \alpha + Z_t + \sum_{j=0}^{48} \beta_{t-j}^{Positive} D_{t-j}^{Positive} + \sum_{j=0}^{48} \beta_{t-j}^{Negative} D_{t-j}^{Negative} + \varepsilon_t \qquad (3)$$

The results are presented in Table B2. The magnitudes of $\beta_t^{Positive}$ and $\beta_t^{Negative}$ represent the effects of the positive and negative news respectively, while the hourly lagged coefficients of $\beta_t^{Positive}$ and $\beta_t^{Negative}$ show the extent to which "positive" and "negative" surprises affect the S$/US$. If the estimated lagged coefficient is significantly different from zero, it implies that the surprise has been fully factored in by that particular period and the possibility of a subsequent surprise is also priced in.

For example, if β_{t-1} is not statistically different from zero, it is an indication that the positive surprise has been fully passed through within one hour of the announcement. A positive and statistically significant β_{t-2} coefficient suggests that the market is already pricing in the possibility of a subsequent news release by the second hour.

Table B2
Estimation: Asymmetry and Persistence of Macroeconomic "Surprises"

Effects	Positive "Surprises"	Negative "Surprises"
β_t, Contemporaneous	-0.0037 (0.0126)	0.0064 (0.0363)
β_{t-1}, 1-hour pass-through	0.0021 (0.0129)	0.0343** (0.0168)
β_{t-2}, 2-hour pass-through	0.0487 (0.0386)	-0.0043 (0.0150)
β_{t-3}, 3-hour pass-through	-0.0239*** (0.0078)	0.0147 (0.0197)
β_{t-5}, 5-hour pass-through	-0.0305*** (0.0106)	-0.0330 (0.0243)
β_{t-10}, 10-hour pass-through	-0.0166 (0.0114)	0.0078 (0.0148)
β_{t-24}, 24-hour pass-through	0.0061 (0.0124)	-0.0278* (0.0138)
β_{t-48}, 48-hour pass-through	-0.0685 (0.0712)	-0.0052 (0.0183)
Adjusted R-Squared	0.02	
Std. Error	0.06	
Durbin-Watson	2.02	

Note: Numbers in parentheses are Newey-West heteroscedasticity and autocorrelation-consistent standard errors. ***, ** and * represent significance at the 1%, 5% and 10% levels, respectively.

[2/] In line with most other studies, the overall fit of exchange rate regressions using high frequency data is typically not high.

The results reported in Table B2 show that the one-hour pass-through coefficient for the negative surprise, $\beta_{t-1}^{Negative}$ is positive and significant at the 5% significance level, and imply that a negative "surprise" leads to a 3 basis points depreciation in the S$/US$. The results also show that the market prices in the possibility of a subsequent surprise after one hour. In comparison, positive news leads only to a 2 basis points appreciation of the S$/US$ on average and it takes 3 hours ($\beta_{t-3}^{Positive}$ is negative and significant at 1%) before the market prices in the possibility of a subsequent surprise.

This suggests that negative macroeconomic data surprises have a stronger effect on the S$/US$ than positive surprises, although the latter tend to be more persistent. However, these results could also be influenced by noise from concurrent releases of other economic data, comments by senior government officials and foreign exchange intervention activities before and after the data releases, which are not necessarily captured by the dummy and other control variables used in our analysis.

Sum Up

This study analyses the S$/US$ exchange rate responses to the release of the Advance GDP Estimate, IIP and NODX data. Our results suggest that these data releases do impact the level and volatility of the S$/US$ exchange rate. Negative "surprises" also have a stronger impact than positive surprises, although the effects of positive surprises are more persistent.

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