HONG KONG MONETARY AUTHORITY
香 港 金 融 管 理 局

HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

June 2009

This Report reviews statistical information between the end of November 2008 and the end of May 2009.

Summary

Battered by an international recession, output in Hong Kong declined rapidly in the first three months of 2009. Consumer-price inflation turned negative quarter on quarter, and the unemployment rate increased. Against this background it is reassuring to note that stability has been maintained in the banking system, despite a decline in profitability. While there have been strong fund inflows into the Hong Kong dollar, there are no signs of speculation against the Linked Exchange Rate system itself. However, the economic outlook for the rest of the year remains unusually uncertain.

The *December 2008 Report* began with the following sombre assessment: "*The external economic environment has deteriorated significantly since the last report. Major advanced industrial economies are in or at the brink of recession, and conditions in financial markets are precarious. Against this background a significant economic downturn is inevitable in Hong Kong, and financial conditions will become unusually challenging.*" The actual out-turn has, if anything, been even more gloomy. The world economy is experiencing the most severe recession since the Second World War, and a major breakdown of the financial systems in the United States (US) and Europe has been avoided only because of forceful intervention by monetary authorities. Therefore, it is not surprising that in the first quarter of this year, the Hong Kong economy posted its largest quarterly drop in GDP since the SARS outbreak in 2003. The 4.3% decline was broad-based even if its origin can be traced to the external sector. Declining export demand contributed to weak domestic investment, and deteriorating labour market conditions as well as declines in real estate and equity prices weighed heavily on household consumption.

The weak economy has affected the labour market with the unemployment rate climbing to 5.3% in April. The decline in employment has affected all sectors of the economy reflecting the broad-based nature of the recession. The slack in the labour market has resulted in nominal wages and earnings declining in absolute terms. This, together with declining import prices and a reduced rate of increase in rental rates, has led to a sharp reduction in the rate of consumer-price inflation. On a three-month-on-three-month comparison, the underlying CCPI inflation rate turned negative in February, and the rate of decline increased to -1.1% (annualised) in April.

The money and foreign exchange markets have weathered the financial crisis well. Although the strong-side Convertibility Undertaking (CU) was triggered numerous times in recent months, this was not related to speculation against the Linked Exchange Rate system (LERS). Instead, the pressure in the foreign exchange market can be traced to the repatriation of funds by Hong Kong residents, and to equity portfolio inflows. The absence of speculative pressures on the currency is a tribute to the credibility of the LERS in the market place.

Reflecting the economic downturn, domestic loans shrank by 2.5% year on year at the end of April. The relationship between economic activity and the growth of bank lending has the potential to create a feedback loop, which could magnify the downturn. A weak economy may increase the riskiness of potential borrowers, leading banks to tighten credit standards, which in turn reduces the supply of loans hence weakening the economy further. Such a mechanism is currently at work in the US and could become a problem in other jurisdictions.

The banking sector in Hong Kong has not been immune to the impact of the global financial crisis and the associated recession. While losses due to exposures to toxic assets have been modest compared with those posted in many financial institutions in the US and Europe, the slowdown in economic activity and decline in asset prices have cut into income from traditional lending and fees from trading and wealth management. Profits of retail banks have, therefore, declined. The asset quality of corporate loans and unsecured household loans has also deteriorated. That said, as a result of high levels of capitalisation; healthy leverage levels of local banks; prudent risk management; and ample liquidity in the financial system – due in part to various liquidity-assistance measures taken by the HKMA, the risk to the banking system as a whole is well contained. Results from stress tests, which assess the resiliency of local banks to severe macroeconomic shocks, show that even in improbable adverse scenarios, banks would continue to be profitable, albeit at low levels.

How the economy will progress for the rest of 2009 and beyond is subject to unusually large margins of error given the uncertainty surrounding the external environment. While there are signs that the rate of decline in the US and Europe is moderating, possibly giving way to positive growth by the end of the year, risks due to further financial headwinds and upward adjustment in household savings rates remain. The increase in economic activity in Mainland China arising from strong policy stimulus is helpful, but how large the spillover to neighbouring economies will be is uncertain given that the revival in growth is concentrated in sectors that may not bring about strong demand for imported goods and services.

The uncertain external environment clouds the picture for Hong Kong for the remainder of the year. While a slow recovery in the second half is possible, the output gap is likely to persist, putting downward pressure on wages and prices and upward pressure on unemployment. If growth in the rest of the world were to remain negative until some time in the first half of 2010, recovery in Hong Kong would also be delayed.

Strains on the banking system will persist in either scenario, but stress test findings suggest there is limited risk to systemic financial stability. Likewise, based on the experience so far, the LERS will continue to provide a stable foundation for the financial markets. But vigilance is required given the uncertain external environment.

The *Half-Yearly Report on Monetary and Financial Stability* is prepared by the staff of the Research Department of the Hong Kong Monetary Authority.

Half-Yearly Monetary and Financial Stability Report
June 2009

Table of Contents

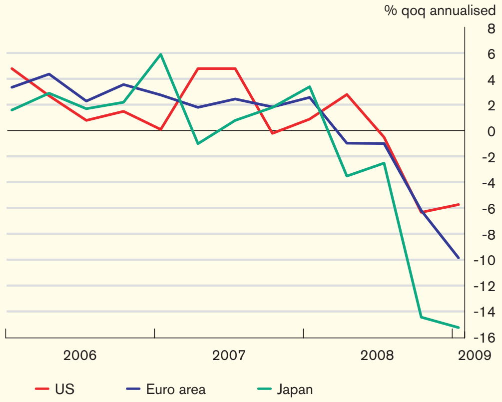
1. Global and regional setting	6
External environment	6
1.1 Real activities and trade	6
1.2 Global financial conditions	12
Mainland China	13
1.3 Output growth, external trade and inflation	13
1.4 Monetary conditions, asset prices and the renminbi exchange rate	16
2. Domestic economy	25
Demand	25
2.1 Aggregate demand	25
2.2 Domestic demand	26
2.3 External trade	27
Output and supply	29
2.4 Output	29
2.5 Labour and productivity	30
Prices and wages	32
2.6 Labour costs	32
2.7 Commodity and import prices	33
2.8 Consumer prices	33
Asset markets	35
2.9 Equity market	35
2.10 Property market	40
Public finances	43
2.11 Public finances	43
3. Monetary and financial sector	48
Exchange rate, interest rates and monetary developments	48
3.1 Exchange rate and interest rates	48
3.2 Monetary Base and the Backing Ratio	55
3.3 Money, credit and monetary conditions	55
3.4 Balance of Payments	61
Banking sector performance	62
3.5 Profitability and capitalisation	62
3.6 Liquidity and funding	64
3.7 Interest-rate risk	66
3.8 Credit risk	66
3.9 Systemic risk of the banking system	78
3.10 Foreign-currency position	79
4. Outlook, risks and uncertainties	81
4.1 Global outlook	81
4.2 Domestic outlook	85
4.3 Uncertainties and risks	87
Box 1. Financial deceleration: pro-cyclicality implications of the financial accelerator	9
Box 2. How large will be the effect of China's fiscal-stimulus package on output and employment?	21
Box 3. Hong Kong financial market interactions with the US and Mainland China in crisis and tranquil times	36
Box 4. Macroeconomic impact of the 2009/10 Government Budget and subsequent follow-on measures	46
Box 5. Financial spillover: transmission of counterparty risks from the money market to the foreign exchange market	52
Box 6. Has the lack of trade finance been a binding constraint on Hong Kong's foreign trade flows?	58
Box 7. A stress-testing framework for non-bank China exposure of banks in Hong Kong	73
Glossary of terms	
Abbreviations	

1. Global and regional setting

External environment

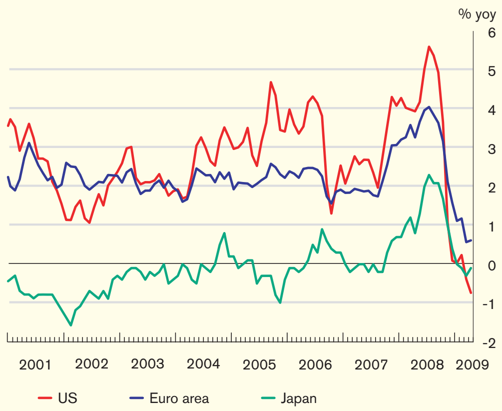
Financial markets have stabilised after concerted action by governments, including some extraordinary measures. There are also signs the economic downturn may be bottoming out. However, it is still not clear whether the world economy is on a firm path to recovery. Indeed, major economies could be entering a prolonged period of weakness, given the time it might take for households and financial sectors to repair their balance sheets.

Chart 1.1
US, euro area and Japan: GDP



Sources: Bureau of Economic Analysis, Eurostat and Cabinet Office of Japan.

Chart 1.2
US, euro area and Japan: headline inflation



Sources: US Department of Labour, Eurostat and Japan Ministry of Internal Affairs.

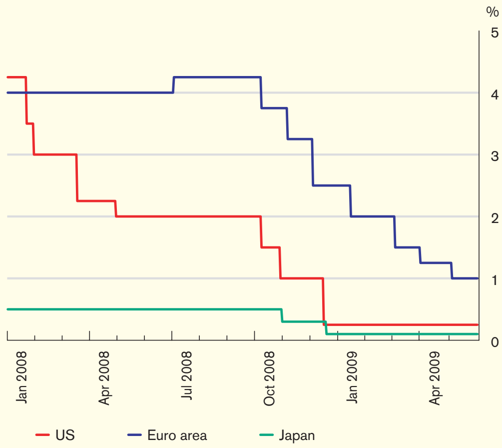
1.1 Real activities and trade

In the six-month review period, the global economy experienced a synchronous downturn led by the major economies. The US, the euro area, and Japan all entered a deep recession, with GDP in the first quarter of 2009 contracting by 5.7%, 9.8%, and 15.2% respectively (Chart 1.1).[1]

Private spending in the three economies slowed sharply in the review period, with retail sales and industrial production declining year on year, while inventory liquidation also undermined growth. Credit slowed markedly or contracted amid huge write-downs by financial institutions and as money markets dried up. Exports slowed as external demand weakened, although in the US this was more than offset by the decline in imports so that the trade deficit narrowed. Labour market conditions deteriorated with unemployment rates climbing to over 9% in the US and the euro area, and reaching 5% in Japan. The housing downturn continued, and in the US and some euro area economies, residential housing prices fell at double-digit year-on-year rates. Inflationary pressures eased notably along with the increase in excess capacity, with headline CPI inflation turning negative in the US and Japan, and increasing less than 1% year on year in the euro area in April (Chart 1.2).

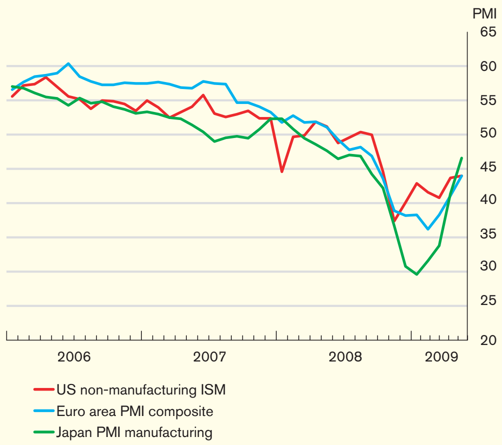
[1] For the US, euro area, Japan, and non-Japan Asia (excluding Mainland China), all quarterly real GDP percentage changes are on a seasonally adjusted annualised basis, unless otherwise stated.

Chart 1.3
US, euro area and Japan: policy rates



Sources: US Federal Reserve, ECB and Bank of Japan.

Chart 1.4
US, euro area and Japan: Purchasing Managers' Indices



Sources: Institute for Supply Management (ISM) and Markit Economics.

In the face of the acute economic downturn, the US, the euro area, and Japan all undertook extraordinary fiscal and monetary measures in an effort to support the economy. In terms of monetary policy, central banks lowered rates aggressively, with the US Fed Funds rate being lowered to a target range of 0 - 0.25%, the European Central Bank (ECB) refinancing rate to 1.0%, and in Japan the overnight call rate to 0.1% (Chart 1.3). As policy rates approached their lower bounds, unconventional monetary policies were adopted to further ease monetary conditions and alleviate stresses in particular credit markets. The US Federal Reserve and the Bank of Japan went as far as purchasing government bonds outright, while the ECB announced plans to buy covered bonds. The US and Japan introduced large fiscal-stimulus packages amounting to about 6% and 3% of their GDP respectively, while euro area economies also implemented fiscal packages of varying scales.

Signs the economic downturn was bottoming out began to surface towards the end of the first quarter of 2009. For example, the rate of contraction in US consumer spending eased, and there appeared to be some stabilisation in the demand for housing. At the same time, across the US, the euro area and Japan, forward-looking sentiment indicators, such as consumer confidence and Purchasing Managers' Indices (PMI), rebounded from their lows, offering some nascent signals that the worst of the contraction may be over (Chart 1.4). However, it is still possible the major economies will remain weak for an extended period. The deterioration in the private-sector balance sheet will generate an adverse effect on credit supply, leading to a second-round negative impact on the economy (Box 1 examines the effect of the financial accelerator by studying the dynamics among lending standards, credit supply and the balance sheet strength of the corporate sector in the US).

The developing economies of East Asia also experienced a difficult first quarter. The financial crisis originating in the advanced economies has had a broad-based impact on the region, triggering a synchronised slowdown in economic activity across all countries. Real GDP in the

Table 1.A
Asia: quarter-on-quarter real GDP growth rate

(% qoq annualised)	2007 Q4	2008 Q1	2008 Q2	2008 Q3	2008 Q4	2009 Q1
NIE-3: [1]	**4.2**	**4.8**	**0.3**	**-3.3**	**-20.0**	**-2.7**
Korea	5.2	4.4	1.7	1.0	-18.8	0.2
Singapore	-1.6	12.2	-7.7	-2.1	-16.9	-14.6
Taiwan [2]	4.3	3.2	0.2	-11.7	-23.2	-4.2
ASEAN-4: [1]	**6.8**	**5.4**	**4.9**	**3.5**	**-6.9**	**-4.7**
Indonesia [2]	5.1	6.8	7.4	6.1	0.6	3.7
Malaysia [2]	8.5	7.5	2.8	0.3	-9.2	-16.9
Philippines	6.7	0.4	7.1	3.0	1.1	-8.9
Thailand	8.3	4.6	1.3	1.9	-22.1	-7.3
East Asia: [1]	**5.4**	**5.1**	**2.5**	**-0.1**	**-13.8**	**-3.7**

Notes:
1. Weighted average (weighted by contribution to world GDP value at purchasing power parity).
2. Seasonal adjustment made by HKMA staff.

Sources: International Monetary Fund (IMF), CEIC and staff estimates.

Table 1.B
East Asia: policy interest rate

	Policy interest rate[1]		Cumulative rate reduction
	29 May 2009 %	12 Sep 2008 (before the bankruptcy of Lehman Brothers) %	Percentage points
Indonesia	7.25	9.25	2.00
Korea	2.00	5.25	3.25
Malaysia	2.00	3.50	1.50
Philippines	4.25	6.00	1.75
Taiwan	1.25	3.63	2.38
Thailand	1.25	3.75	2.50

Note: 1. Indonesia: BI rate; Korea: overnight call rate; Malaysia: overnight policy rate; the Philippines: overnight reverse repo rate; Taiwan: discount rate; and Thailand: one-day repo rate.

Sources: Bloomberg and staff estimates.

Table 1.C
East Asia: fiscal impulse

	Fiscal impulse [1 & 2]			
	1998	2008	2009	2010
(% of GDP)				
Indonesia	1.9	2.7	1.5	-1.5
Korea	0.4	2.4	3.1	0.4
Malaysia	2.2	3.2	0.1	0.1
Philippines	1.7	1.1	1.4	-0.4
Taiwan	0.7	1.9	11.2	0.0
Thailand	-2.6	0.4	3.2	0.0

Notes:
1. For Thailand, the fiscal year begins on 1 October and ends on 30 September. For example, 2008 refers to the fiscal year 2007/2008 from October 2007 to September 2008.
2. Fiscal impulse refers to the yearly change of the fiscal stance, where fiscal stance is the negative of the cyclically adjusted fiscal balance.

Source: Staff estimates.

NIE-3 and ASEAN-4 economies contracted by 2.7% and 4.7% quarter on quarter (seasonally adjusted annualised) respectively in Q1 (Table 1.A).[2] The considerable reduction in demand from the US and western Europe took a toll on production and merchandise trade. In the NIE-3 economies, merchandise exports in Q1 registered a double-digit contraction, the second straight quarter of decline since 2008 Q4, while in the ASEAN-4 economies, exports recorded their third consecutive quarter of contraction. Export-led industrial production slowed along with the weak external sector. Reflecting the sluggish performance of major economic activity, the labour market deteriorated across the region, with unemployment rates rising in almost all economies during Q1. Along with the significant slowing in economic activity and the weak recovery prospects, consumer-price inflation continued to recede across East Asia, with prices in Taiwan and Thailand recording negative growth in recent months.

In response, central banks across the region have been cutting policy rates. The pace and extent of monetary easing became more aggressive from late 2008 as growth started to contract substantially in most economies (Table 1.B). To cushion the impact of the downturn, governments generally announced large stimulus packages. Many East Asian economies entered the crisis with significant room for counter-cyclical fiscal support, which enabled the region as a whole to implement discretionary fiscal packages for 2009 that were slightly larger than those of the major advanced economies. Rough estimates show the fiscal impulse (the change in the fiscal stance or cyclically adjusted fiscal balance) in the East Asian economies ranges from 0.1% to 11% of GDP (Table 1.C).

2 The NIE-3 economies are Korea, Singapore and Taiwan, while the ASEAN-4 economies are Indonesia, Malaysia, the Philippines and Thailand.

Box 1
Financial deceleration: pro-cyclicality implications of the financial accelerator

In response to the rapid capital depletion in the current financial crisis, banks in the US have abruptly tightened their lending standards. This will curtail credit supply and hurt the economy. However, as the economy weakens, the balance sheet of the private sector deteriorates. This will generate the financial-accelerator effect, an adverse effect on credit supply that can lead to a second-round negative impact on the economy. This box aims to provide some insights into this effect through studying the dynamics among lending standards, credit supply and the balance sheet strength of the corporate sector in the US.

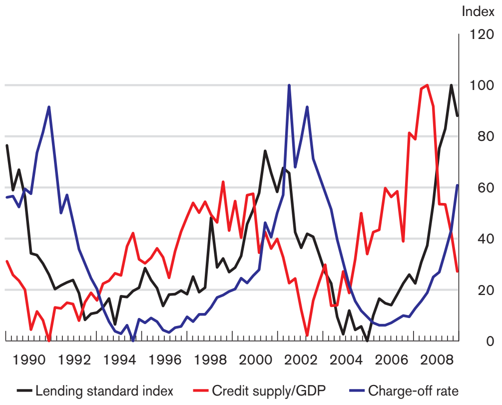
Financial accelerator

The theory of the financial accelerator predicts that the external finance premium of a firm – the cost of borrowing in excess of the opportunity cost of cash flow – is negatively correlated with the financial or balance sheet strength of the firm (as reflected in areas such as its net worth and liquidity).[3] The rationale underpinning this prediction is that a borrower with a stronger balance sheet has more incentives in maintaining his financial position and creditworthiness, thus reducing the need for evaluation and monitoring by the lender. Hence, a financially strong borrower tends to have a low external finance premium and is able to find credit more easily accessible. An important implication of this theory for the current economic situation in the US is that the negative shock generated by the current crisis will increase the external finance premium of the corporate sector by weakening its balance sheet, hence causing a recession deeper and longer than attributable to the impact of the shock itself.[4]

[3] See Bernanke, B.S. et al (1999) "The financial accelerator in a quantitative business cycle framework", *Handbook of Macroeconomics*, Volume 1C, *Handbooks in Economics*, Vol. 15, Amsterdam: Elsevier, pp. 1341-93.

[4] On the other hand, a positive shock such as an increase in productivity that improves the balance sheet of the private sector lowers its external finance premium, which may extend the expansion as firms are induced (by cheaper and easier credit access) to continue investing beyond the desirable benefit associated with the shock.

Chart B1.1
Indices of lending standards, credit flow, and charge-off rates



Note: The data are re-scaled to between 0 and 100 so they can all be displayed in the same graph.

Source: US Federal Reserve.

Table B1.A
Estimation results of the Vector Autoregressive model

Independent variable	Dependent variable[1]		
Autoregressive variables[2]	Lending standards	Credit supply/GDP	Charge-off rate
Lending standards	0	–	+
Credit supply/GDP	+	–	–
Charge-off rate	+	0	0
P-values[3] of residual test for			
-serial correlation	0.712	0.981	0.768
-heteroskedasticity	0.905	0.244	0.887

Notes:

1. "+" and "–" indicate the signs of significant coefficients at 10% level, while "0" indicates insignificance for all coefficients at 10% level.
2. Based on tests for significant cross-correlations among the three differenced variables, the order of autoregression is first chosen to be 12 quarters. After removing insignificant lags, the resulting order of autoregression is five quarters.
3. All p-values are higher than 0.05, suggesting that residual does not have serial correlation and does not have heteroskedasticity at 5% level of significance. In other words, the model is adequate.

Empirical evidence

To find evidence for how the financial accelerator may affect the current US economy, we study the short-term dynamics of lending standards, credit supply and balance sheet strength, focusing on the country's corporate sector, using a simple vector autoregressive model.[5] Lending standards are represented by the percentage of respondents reporting a tightening of standards minus that reporting an easing for commercial and industrial loans drawn from the Fed's Senior Loan Officer Opinion Survey on Bank Lending Practices. Credit supply is measured by the credit flow to the non-farm non-financial business sector (expressed as a percentage of GDP) from the flow of funds data. The balance-sheet strength of the corporate sector is proxied by the charge-off rate of commercial and industrial loans of all banks.[6] In the estimation, a real interest rate and the real GDP growth of the US are also included for controlling for the price (real interest rate) and income (real GDP growth) effects.[7] The data, covering the period from 1990 Q2 to 2009 Q1, are plotted in Chart B1.1, which shows that the three major variables all tend to move in tandem, although with some lags.

The results of our estimation are presented in Table B1.A. Diagnostic checks suggest that the model is adequately fitted. Our findings confirm that a higher charge-off rate in the current quarter prompted banks to raise their lending standards in the following quarter, which will in turn increase the charge-off and reduce credit supply in

[5] See Lown C. et al (2006) "The credit cycle and the business cycle: new findings using the loan officer opinion survey", *Journal of Money, Credit and Banking*, Vol. 38, No. 6, pp. 1575-97, which focuses more on the impact of lending standards on credit supply and economic growth. Our study also examines the feedback to lending standards resulting from an improvement or deterioration in the balance sheet of the affected sector caused by changes in lending standards.

[6] We take the simple average of the survey data reported for "large and medium" and "small" firms. The flow of funds data refer to the total credit of non-farm non-financial corporate business, and are taken from Table F.102 (line 40). According to the US Federal Reserve, charge-off rates are defined as net charge-offs (gross charge-offs minus recoveries) during a quarter divided by loans outstanding over that quarter.

[7] The real interest rate is the three-month LIBOR net of one-year ahead expected inflation (from the Philadelphia Fed's survey of Professional Forecasters). Corporate profits are corporate profits after tax (from the Bureau of Economic Analysis).

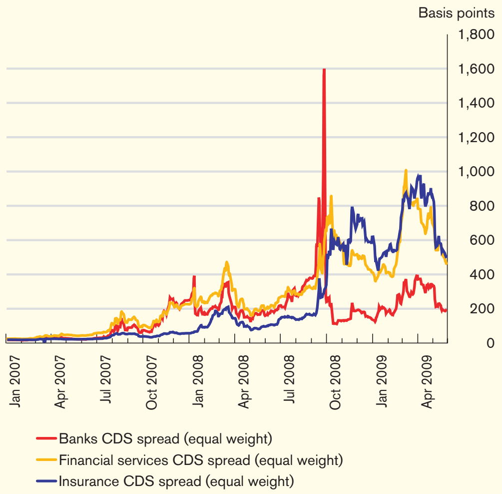
several quarters that follow. Parallel to this, a reduction in credit supply will increase the charge-off in the next five quarters (but will be followed by an easing of lending standards with a longer lag responding, perhaps, to a subsequent improvement in the charge-off rate).

Implications for the US economy

Consistent with the prediction of the theory of the financial accelerator, these findings suggest that the behaviour of banks in determining their lending standards and the financial position of the corporate sector can reinforce each other in bad times as well as in good times. Therefore, with lending standards elevated to a record high, there are risks that the current credit crunch and economic contraction may reinforce each other, delaying the much-awaited recovery.

In the first quarter of 2008, the HKMA began a quarterly survey of the expectations of the chief credit officers of authorized institutions about their credit underwriting standards over the next three to six months. In a few years' time, this progressive data will enable us to study the role of lending standards in macroeconomic cycles in Hong Kong.

Chart 1.5
US credit default swap sector indices

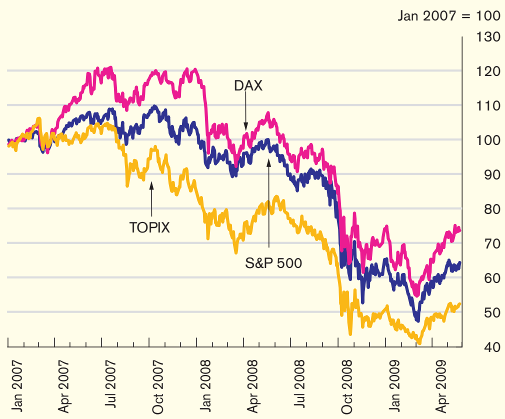


Source: JP Morgan.

Chart 1.6
Three-month LIBOR over OIS and US Treasury yield

Source: Bloomberg.

Chart 1.7
World equity indices



Source: Bloomberg.

1.2 Global financial conditions

Global financial markets remained under considerable stress in 2008 Q4 and 2009 Q1, although they showed signs of stabilising entering 2009 Q2. At the start of the review period, temporary difficulties in the passage of the rescue package by the US Congress, a lack of details on the financing plan, and uncertainties over the capital requirements of the troubled institutions cast a shadow over funding markets. As a result, credit default swap (CDS) spreads of US financial institutions continued to rise before peaking in March (Chart 1.5).

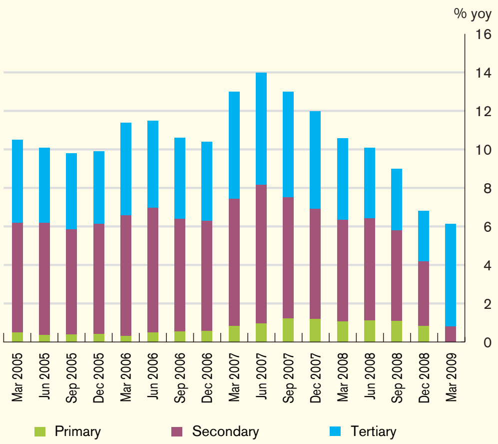
Against the backdrop of output contractions in major economies and continued strains in funding markets, major central banks eased monetary policy aggressively by cutting interest rates or injecting liquidity through multiple channels. As market confidence returned, financial distress and tension began to ease, with the spreads of three-month LIBOR against its corresponding overnight index swap (OIS) and the US Treasury yield narrowing noticeably (Chart 1.6). In the foreign exchange market, the US dollar was relatively strong against other major currencies during much of the review period due mainly to its safe-haven status, but softened more recently as risk appetite increased.

In capital markets, sentiment appeared to be dictated by global economic performance and policy responses. Increased pessimism, confirmed by weaker-than-expected figures, took a heavy toll on equities earlier in the year, with major world indices dropping to record lows (Chart 1.7). With central banks taking an unprecedentedly accommodative stance and economic indicators becoming more mixed than purely negative, the last two months of the review period saw investors regaining their risk appetite, leading to a sharp rebound in equity prices.

Mainland China

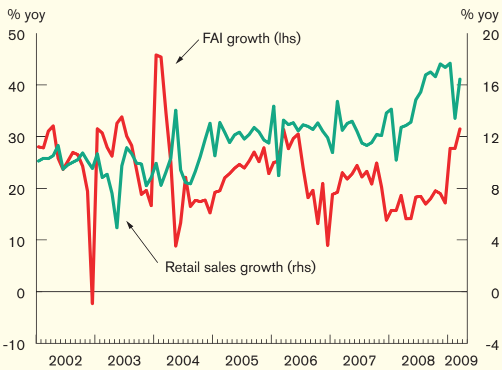
Economic growth on the Mainland stabilised in early 2009 as the fiscal-stimulus package worked its way to the real economy. Consumer and producer prices also appear to be stabilising amid a rebound in commodity prices in recent months. The RMB/USD exchange rate remained stable, but the renminbi appreciated in effective terms as other emerging-market currencies depreciated against the US dollar. The authorities maintained an expansionary policy to support domestic demand.

Chart 1.8
Mainland China: real GDP growth and contributions by industries



Sources: CEIC and staff estimates.

Chart 1.9
Mainland China: growth in fixed-asset investment and retail sales



Sources: CEIC and staff estimates.

1.3 Output growth, external trade and inflation

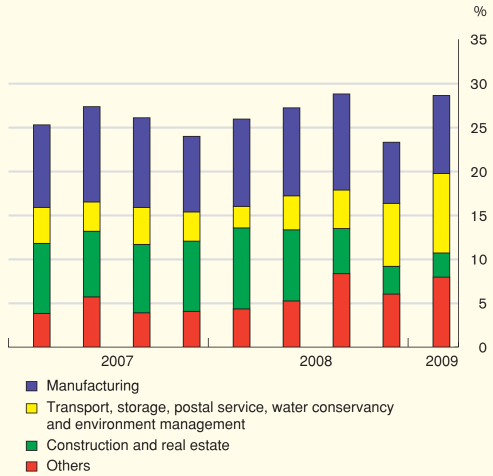
Output growth

Real GDP growth stabilised at 6.1% year on year in 2009 Q1, following a sizeable slowdown from 9% in 2008 Q3 to 6.8% in 2008 Q4. On the supply side, GDP growth was supported by tertiary industry, which contributed 5.3 percentage points in Q1 compared with 2.6 percentage points in 2008 Q4 (Chart 1.8). According to the People's Bank of China (PBoC), domestic demand contributed 6.3 percentage points to GDP growth in Q1, while the contribution from net exports was -0.2 percentage points.

Stabilising domestic demand was supported by both investment and consumption in Q1 (Chart 1.9). Fixed-asset investment (FAI) soared by 31.5% year on year in March, while its average growth in 2008 was below 20%. Growth in real retail sales rebounded from a dip in 2008 Q4 to reach 16.4% in March. Mainland authorities estimated that real household consumption increased by just under 9% in Q1 year on year, which was higher than the GDP growth.

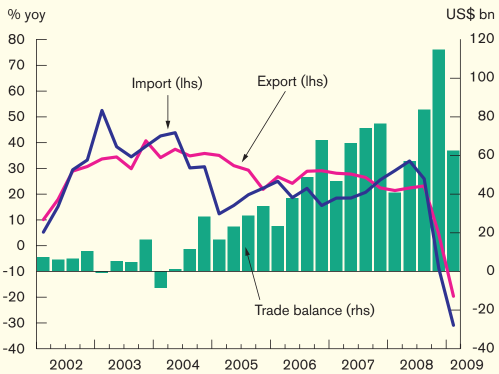
Strong growth in government-led investment in manufacturing and infrastructure outweighed weak

Chart 1.10
Mainland China: contributions to FAI growth by sectors



Sources: CEIC and staff estimates.

Chart 1.11
Mainland China: external trade



Sources: CEIC and staff estimates.

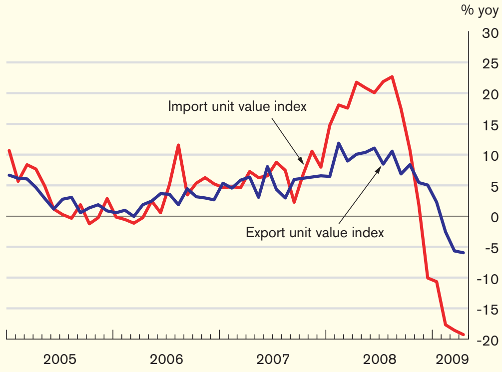
private investment in construction and real estate (Chart 1.10). While construction and real estate contributed 9.2 percentage points to the total FAI growth of 26% in 2008 Q1, their contribution in 2009 Q1 decreased to 2.8 percentage points out of 28.6% growth in total. In contrast, contributions from investment in infrastructure, such as transport and water conservancy, increased to nine percentage points in Q1 from 2.5 percentage points a year earlier. Despite the sharp decline in exports, contributions from the manufacturing sector to FAI increased by 1.9 percentage points from 2008 Q4 to 8.9 percentage points in 2009 Q1, mainly due to an increase in contributions from investment in equipment, machinery, chemicals, and non-metal mineral products. Investment by state-owned enterprises increased by 44% in Q1, while private firms and foreign investors increased investments by 28% and 0.4% respectively.

The authorities have actively implemented the fiscal-stimulus package launched last November. This programme seems to have helped support domestic demand as infrastructure-related investment has significantly outpaced other sectors. The government deficit will reach RMB950 billion in 2009, or close to 3% of GDP, compared with less than 0.4% of GDP in 2008. Compared with the fiscal measures introduced during the Asian financial crisis, the present plan appears to be more proactive and comprehensive. Our analysis shows that the multiplier of the fiscal impulse package is 0.80 - 0.84 in the short run and around 1.1 in the medium term (Box 2). In other words, if fiscal spending rises by RMB1,000, output will increase by RMB800 - 840 in the short term and by RMB1,100 in the medium term. We also find that the impulse package may generate 18 - 20 million new jobs in non-farming sectors.

External trade

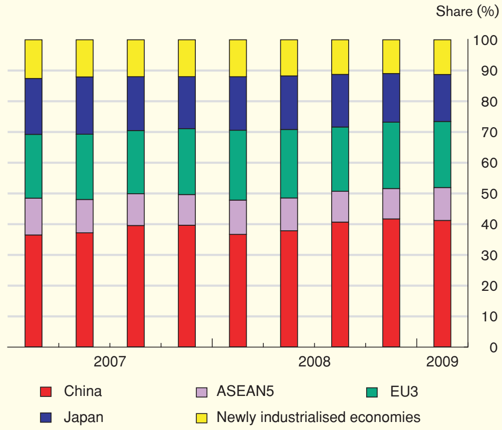
Both exports and imports dropped substantially in Q1. The pace of decline was faster in imports than in exports, and the trade surplus remained slightly above US$60 billion (Chart 1.11). Exports contracted by 19.7% year on year, with declines spreading across all main destinations as the financial crisis weakened global

Chart 1.12
Mainland China: unit value indices of imports and exports



Sources: CEIC and staff estimates.

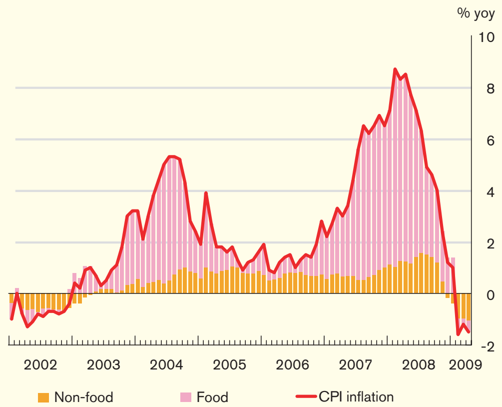
Chart 1.13
Mainland China: shares of US non-oil imports by source countries



Note: ASEAN5 refers to Indonesia, Malaysia, Thailand, the Philippines and Vietnam. EU3 refers to the United Kingdom, France and Germany. Newly industrialised economies include Korea, Singapore and Taiwan.

Sources: CEIC and staff estimates.

Chart 1.14
Mainland China: contributions to CPI inflation



Sources: CEIC and staff estimates.

demand. For several reasons, imports contracted by 31% in Q1. First, 31% of imports were used as intermediate inputs for export purposes on the Mainland.[8] As external demand weakened, the imported inputs for export purposes declined from US$83.8 billion in 2008 Q4 to US$56.9 billion in 2009 Q1. Secondly, import prices dropped much faster than export prices, as commodity prices crashed because of the global financial crisis (Chart 1.12). Thirdly, domestic demand is supported by fiscal spending on infrastructure that uses more domestic inputs and less imported materials than private spending.

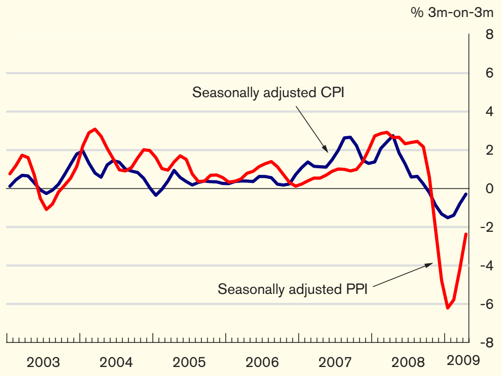
The decline in exports was caused by weak demand in developed economies. Nevertheless, the Mainland's market share in these economies remained stable. For instance, the share of imports by the US from the Mainland has remained broadly unchanged since 2008 Q3. In other words, the US slowdown did not divert trade from the Mainland to other economies, despite the large depreciation in other emerging market currencies against the RMB since the collapse of Lehman Brothers (Chart 1.13). Compared with other emerging markets, China's exports are more diversified in terms of destinations and products. The size of the decline in Mainland exports is, therefore, less than in some smaller emerging markets. However, the crisis has substantially affected Mainland exporters contributing to lower corporate profits in manufacturing industries, which declined by 21.7% year on year in 2009 Q1.

Inflation

Year-on-year headline CPI inflation turned negative in February and March for the first time since January 2003 (Chart 1.14). The CPI inflation in Q1 was -0.6% year on year compared with 5.3% in 2008 Q3 and 2.6% in 2008 Q4. The contraction in prices was broad-based as both food and non-food components of the CPI declined. The food component contributed -0.7 percentage points in February and -0.3 percentage points in March to the CPI inflation rate, while the non-food component contributed -0.9 percentage point in both months.

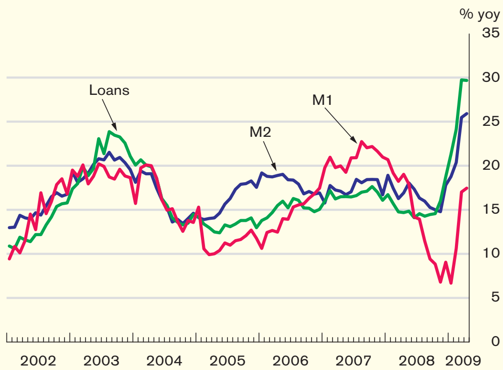
[8] 31% of imports were parts and components that were used directly for exports. There were imported goods that were used indirectly for export-related activities but were not counted in the 31%. Oil imports, for instance, are not included.

Chart 1.15
Mainland China: CPI and PPI inflation rates



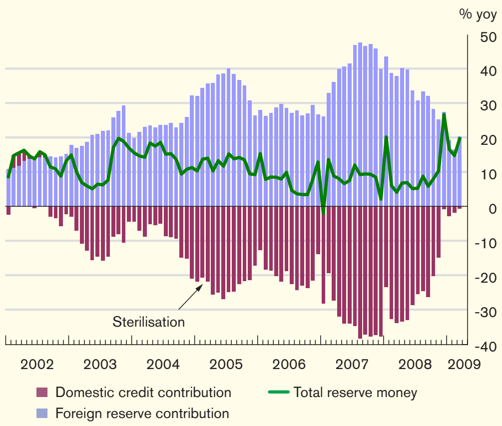
Source: CEIC.

Chart 1.16
Mainland China: growth in money and financial institution loans



Sources: CEIC and staff estimates.

Chart 1.17
Mainland China: contribution to reserve money growth



Note: Total reserve money is adjusted for changes in the reserve requirement ratio beyond 7.5%.
Sources: CEIC and staff estimates.

In recent months, both the CPI and the PPI reversed their downward trends (Chart 1.15). Commodity prices have risen as the global economy started to show signs of stabilising. Domestic economic activities also stabilised, prompting more optimistic market expectations. These effects have started to offset the downward pressure on prices.

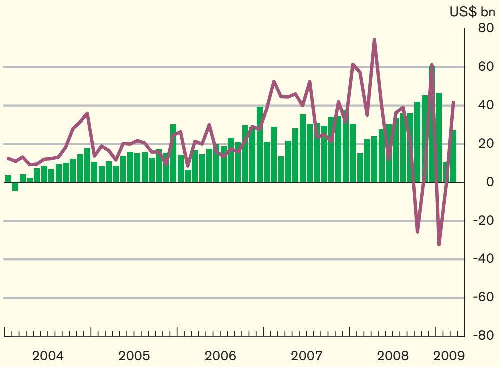
1.4 Monetary conditions, asset prices and the renminbi exchange rate

Monetary conditions

Monetary aggregates grew strongly in 2009 Q1 (Chart 1.16). The year-on-year growth in narrow money (M1) and broad money (M2) surged from 6.7% and 18.8% in January to 17% and 25.5% in March 2009. The growth in outstanding loans jumped to 29.8% by March from 16.0% last November, and new bank lending reached RMB4.6 trillion. The pattern in the expansion of credit is in line with the Government's recent fiscal-stimulus package, but market analysts have raised concerns over the sustainability of this credit expansion and the risk of higher non-performing loans in the future.

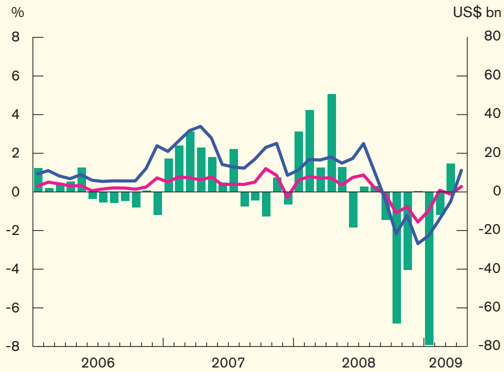
The reserve money growth rate in 2009 Q1 declined from a record-high in December 2008, but remained at an elevated level of 20% in March (Chart 1.17). Reserve money soared in 2008 Q4 with the changes coming mostly from an accumulation of foreign exchange rather than domestic credit expansion. Sterilisation remained subdued in 2009 Q1, but the growth of international reserves slowed markedly leading to slower growth in reserve money.

Chart 1.18
Mainland China: external capital flows



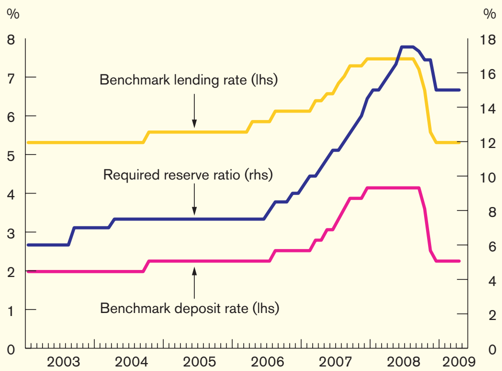
Sources: CEIC and staff estimates.

Chart 1.19
Mainland China: capital flows and onshore-offshore RMB forward spreads



Note: Net portfolio inflow is calculated as changes in international reserves minus trade balance and foreign direct investment.
Sources: CEIC and staff estimates.

Chart 1.20
Mainland China: Reserve requirement ratio and benchmark interest rates



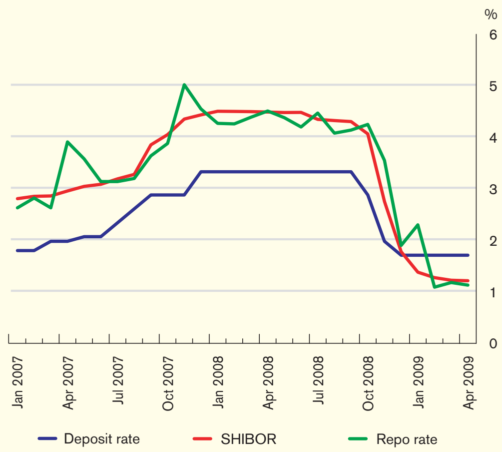
Source: CEIC.

The international reserves held by the Mainland rose by less than US$50 billion in the six-month review period after experiencing some unusual fluctuations (Chart 1.18). Despite positive growth in the net balance of trade and investments in every month, international reserves declined in October 2008 and in the first two months of 2009. This unusual decline cannot be fully explained by the valuation effect due to the appreciation of the US dollar against other major currencies, as there were similar increases in the value of the dollar in other months as well. Some market analysts argued that capital had flowed out of the Mainland because investors' expectations for the RMB/USD exchange rate had changed direction during this period.

The decline in reserves in some months does appear to be associated with changes in expectation for the renminbi exchange rate in both onshore and offshore markets (Chart 1.19). An increase in the onshore-offshore renminbi forward spread indicates foreign investors expect the renminbi to appreciate more against the US dollar. The spreads shifted from positive to negative in the second half of 2008 when signs of capital outflows from the Mainland emerged. The shift of spreads was partly due to a sharp appreciation of the US dollar. As international financial markets stabilised in March 2009, market expectation of a renminbi depreciation diminished and signs of capital outflows vanished.

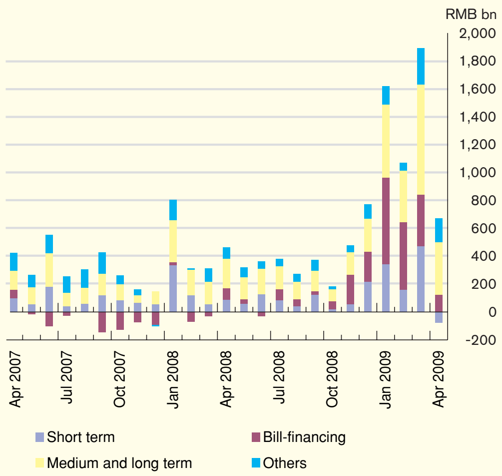
The PBoC left the benchmark interest rates unchanged in 2009 Q1 after cutting rates aggressively in 2008 Q4 (Chart 1.20). The reserve requirement ratio (RRR) remained at 15% after it was cut three times from 17.5% in the second half of 2008. By keeping interest rates at low levels and reducing central bank bill issuance, the

Chart 1.21
Mainland China: market interest rates



Note: Interest rates are for three-month maturity.
Source: CEIC.

Chart 1.22
Mainland China: credit expansion and contribution by loan type

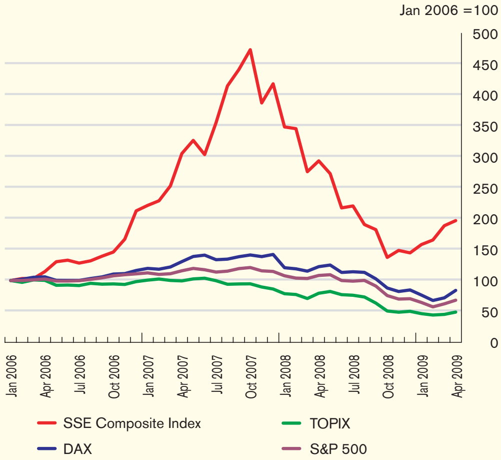


Source: CEIC.

PBoC successfully injected ample liquidity into the money market. Money market interest rates have dropped below time deposit rates for the same maturity in recent months (Chart 1.21). The unusual reversal between loan rates and time deposit rates reportedly triggered arbitrage activities through bill-financing. Firms can borrow money from banks using commercial paper as collateral, transfer the money into banks as term deposit, and make a profit without taking risks. Since the interest rates on the Mainland are not fully liberalised, money market interest rates and bank deposit rates are not always linked. The arbitrage opportunity is more likely to be exploited by large firms with ample cash and accounts receivable than small firms facing financing constraints.

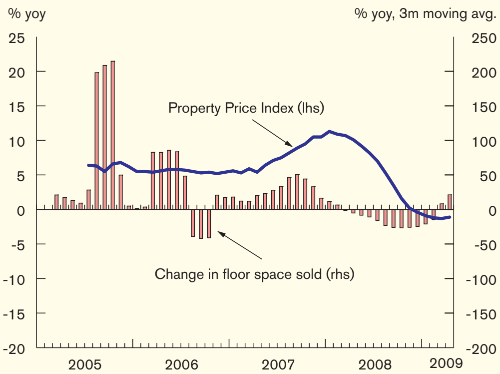
The large credit expansion in 2009 Q1 was caused by both sizeable growth in new loans and a surprisingly high level of bill-financing. Bill-financing accounted for 32% of total new loans in the first quarter compared with 13% of new loans in the whole year of 2008 (Chart 1.22). The amount of bill-financing reached RMB1.48 trillion in 2009 Q1, against RMB0.65 trillion for the whole year of 2008. It is difficult to quantify how much of the expansion in bill-financing was due to arbitrage activities rather than for real economic purposes. Latest data indicate the share of bill-financing in new credit has declined from its peak in Q1.

Chart 1.23
Mainland China: share price indices



Sources: CEIC and staff estimates.

Chart 1.24
Mainland China: housing prices and housing sales



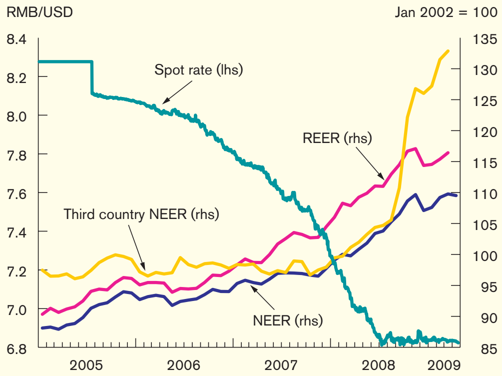
Source: CEIC.

Asset prices

After losing nearly 70% of market value in one year, the Shanghai Stock Exchange (SSE) Composite Index rallied on the Central Government's announcement of an RMB4 trillion stimulus package and a loosening in monetary policy (Chart 1.23). China's share prices outperformed the equity markets in developed economies in 2009 Q1 as signs of domestic economic recovery emerged. Nonetheless, corporate profits are still under strong pressure.

The housing market stabilised in Q1 (Chart 1.24) and the overall housing price was broadly unchanged after a moderate drop in the second half of 2008. Prices in Beijing, Shanghai and Shenzhen rose slightly in March. The change in the three-month average floor space sold in March increased by 8.2% year on year after declining throughout 2008. It is still too early to predict whether a turning point has been reached as rising sales have not increased prices, probably due to the existing large market inventory.

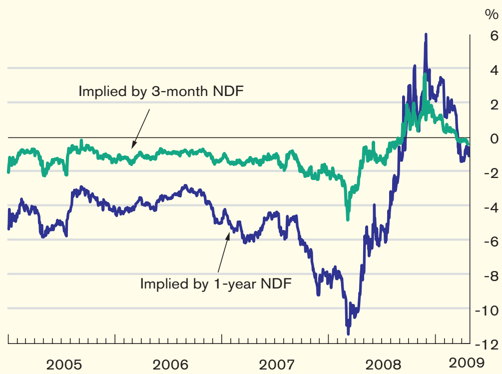
Chart 1.25
Mainland China: real effective exchange rate (REER), nominal effective exchange rate (NEER) and spot rate of RMB/USD



Note: The third-country NEER reflects China's external competitiveness in a third market. The third-country NEER takes into account the competition that China faces in foreign markets from other economies which export similar products. The methodology of constructing the third-country effective exchange rate is presented in Box 2 of the *December 2006 Report*.

Sources: Bloomberg, CEIC and staff estimates.

Chart 1.26
Mainland China: expected appreciation of the renminbi



Note: The expected rate of appreciation of the renminbi is calculated as the percentage difference between the spot rate and the non-deliverable forward rate. A negative number implies an appreciation of the renminbi against the US dollar.

Sources: Bloomberg and staff estimates.

The renminbi exchange rate

With the onset of the global financial crisis, the RMB/USD spot rate stabilised around 6.83 after appreciating substantially from 2006 to 2008 (Chart 1.25). On the other hand, the renminbi has risen solidly in effective terms since 2008. The third-country nominal effective exchange rate (NEER) appreciated more than 25% in a year because currencies in some economies depreciated substantially against the US dollar. For example, the Korean won and the Mexican peso depreciated 27% and 22% respectively against the US dollar in one year. The rise in the RMB against emerging market currencies has, so far, not resulted in a deterioration in the market share of Mainland exporters in developed economies. But its effect could become more noticeable in the longer term.

As markets have become more optimistic about China's economy in recent months and asset markets have rallied, the non-deliverable forward (NDF) rates shifted in early 2009 to imply renminbi appreciation (Chart 1.26). In mid-April the market expected the renminbi to appreciate against the US dollar by about 0.2% in three months and 1.2% in 12 months. This expectation, together with the large credit expansion, will help keep ample liquidity in Mainland markets.

Box 2
How large will be the effect of China's fiscal-stimulus package on output and employment?[9]

Table B2.A
Components of the fiscal-stimulus package

Item	Amount (RMB bn)	Share (%)
Transportation and power grids	1,800	45.0
Post-earthquake reconstruction	1,000	25.0
Rural infrastructure	370	9.3
Environment projects	350	8.8
Public housing	280	7.0
Research and development	160	4.0
Healthcare and Education	40	1.0
Total	**4,000**	**100**

Note: The distribution of the fiscal-stimulus package released in the report by the Ministry of Finance at the Eleventh National People's Congress differs somewhat from this table. Nevertheless, the main findings of the analysis will not be affected.

Source: Speech by the Head of National Development and Reform Commission at the press conference on 27 November 2008.

Since the latter part of 2008, the central government has introduced a series of measures to mitigate the adverse impact of the global slowdown in Mainland China. On the fiscal policy front, the central government announced an RMB4 trillion stimulus package for 2009-2010, with most of the funds targeted at infrastructure (Table B2.A). This box analyses the effects of the package on China's output and employment using the input-output (IO) table as well as the Global Integrated Monetary and Fiscal Model (GIMF).[10]

Input-output analysis

An increase in government spending on goods and services in a particular sector represents an increase in the final demand for such goods and services, which leads to both a direct and an indirect increase in the output and employment of the sector. We will first estimate the number of additional jobs and the amount of value-added induced by a rise of RMB10,000 in the final demand for each sector's output independently. While the *direct* employment coefficient presents only the number of jobs created in a sector, which sees an increase in the final demand for its output, the *total* employment coefficient also includes vacancies generated in other sectors by the increased final demand in this sector. Similarly, assuming an independent increase in the final demand for output of RMB10,000 in a sector leads to a rise of total value- added of RMB α, we define the value-added inducement coefficient of this sector as the ratio of $\alpha/10,000$. As statistics in the agriculture sector are less accurate than others, we will focus on the effects on non-farming sectors.

[9] More detailed analysis can be found in He, Zhang and Zhang (2009), "How large will be the effect of China's fiscal-stimulus package on output and employment?", *HKMA Working Paper* 05/2009.

[10] The GIMF is a multi-country dynamic stochastic general equilibrium model developed by the IMF. A brief sketch of the model and the calibration of the Asia-Pacific region are documented in N'Diave, Zhang and Zhang (2009), "Structural reforms, intra-regional trade, and medium-term growth prospects of East Asia and the Pacific – perspectives from a new multi-region model", *Journal of Asian Economics (in press)*.

Table B2.B
Employment and value-added inducement coefficients across sectors

Sector	Employment coefficient Direct	Employment coefficient Total	Value-added inducement coefficient
Agriculture	0.488	0.508	0.921
Mining and quarrying	0.035	0.077	0.862
Foodstuff	0.035	0.261	0.883
Textile, sewing, leather and furs products	0.074	0.191	0.771
Other manufacturing	0.038	0.115	0.765
Production and supply of electric power, heat power and water	0.022	0.071	0.855
Coking, gas and petroleum refining	0.011	0.053	0.638
Chemical industry	0.040	0.107	0.740
Building materials and non-metal mineral products	0.053	0.111	0.832
Metal products	0.038	0.087	0.774
Machinery and equipment	0.036	0.081	0.654
Construction	0.059	0.154	0.821
Transportation, postal and telecommunication services	0.037	0.079	0.840
Wholesale and retail trades, hotels and catering services	0.060	0.137	0.894
Real estate, leasing and business services	0.027	0.067	0.882
Banking and insurance	0.045	0.075	0.915
Other services	0.098	0.151	0.870
Average	**0.070**	**0.137**	**0.820**

Source: Staff estimates.

Using the 2005 IO table, we have estimated the employment coefficients and value-added inducement coefficients for the 17 sectors in the IO table (Table B2.B).[11] Employment and value-added inducement coefficients vary substantially across sectors. For example, the construction sector, which will receive a large proportion of the total stimulus funds, features a direct employment coefficient of 0.06 and a total employment coefficient of around 0.15. In contrast, the transportation sector, which will also see an impressive increase in the final demand for its output from the stimulus package, has a direct employment coefficient of only 0.04 and a total employment coefficient of 0.08. The average total employment coefficient for the 17 sectors is 0.14, suggesting that an increase in the final demand for output of RMB1 million, which is evenly distributed across the 17 sectors, would generate 14 new jobs. For the value-added inducement coefficient, the average for the 17 sectors is 0.82, while those for the construction and transportation sectors are 0.82 and 0.84, respectively. This suggests that an increase in the final demand for output of RMB10,000, which is evenly distributed across the 17 sectors, would generate RMB8,200 of value-added, while an independent increase in the final demand of RMB10,000 for output in the construction sector and transportation sector would generate RMB8,200 and RMB8,400 of value-added respectively. The main message from Table B2.B is that the allocation of the stimulus funds across different sectors plays an important role in determining the effectiveness of the stimulus package.

We will focus on the effects of the impulse package for 2009 under the assumption that half the fiscal stimulus, RMB2,000 billion, is spent in 2009. Assuming two-thirds of the transportation and power grids funds are allocated to the transportation sector and the remaining one third to power production, the funds for rural infrastructure are equally allocated to construction and transportation sectors, the funds for environment projects are equally

[11] The officially released IO tables of China did not distinguish domestic intermediate inputs from imported intermediate inputs. In order not to overestimate the effectiveness of the fiscal-stimulus package, we have followed recent literature of IO analysis separating these two types of intermediate inputs.

Table B2.C
Value-added and employment induced by the fiscal-stimulus package

Sector	Induced value-added (RMB bn)	Induced employment (10,000 persons)
Agriculture	68.1	461
Mining and quarrying	120.6	80
Foodstuff	10.0	10
Textile, sewing, leather and furs products	9.0	20
Other manufacturing	36.4	37
Production and supply of Electric power, heat power and water	163.9	88
Coking, gas and petroleum refining	38.5	20
Chemical industry	42.1	51
Building materials and non-metal mineral products	47.4	80
Metal products	64.0	75
Machinery and equipment	81.6	105
Construction	182.7	420
Transportation, postal and telecom services	439.3	308
Wholesale and retail trades, hotel and catering services	86.2	97
Real estate, leasing and business services	119.7	54
Banking and insurance	47.6	32
Other services	126.1	247
Total	**1,683.2**	**2,186.7**

Source: Staff estimates.

allocated to construction and services sectors, and all public housing funds are allocated to the real estate sector, we obtain the results shown in Table B2.C.[12]

Total value-added will increase by RMB1,683 billion, suggesting a multiplier of around 0.84, marginally higher than the average value shown in Table B2.B, which can be considered as the case for equal distribution of funds across sectors. The transportation sector, which receives the largest proportion of the package (RMB693 billion), will see a rise in the value-added of around RMB440 billion. In contrast, the construction sector, which receives the second largest proportion (RMB680 billion), will see a modest RMB183 billion increase in the value-added. Nevertheless, the total value-added induced by the construction sector will reach RMB560 billion due to its close linkages with other sectors. In addition, the construction sector will see 4.2 million new jobs, compared with 3.1 million in the transportation sector. Overall, non-farming employment could increase by 17.3 million.

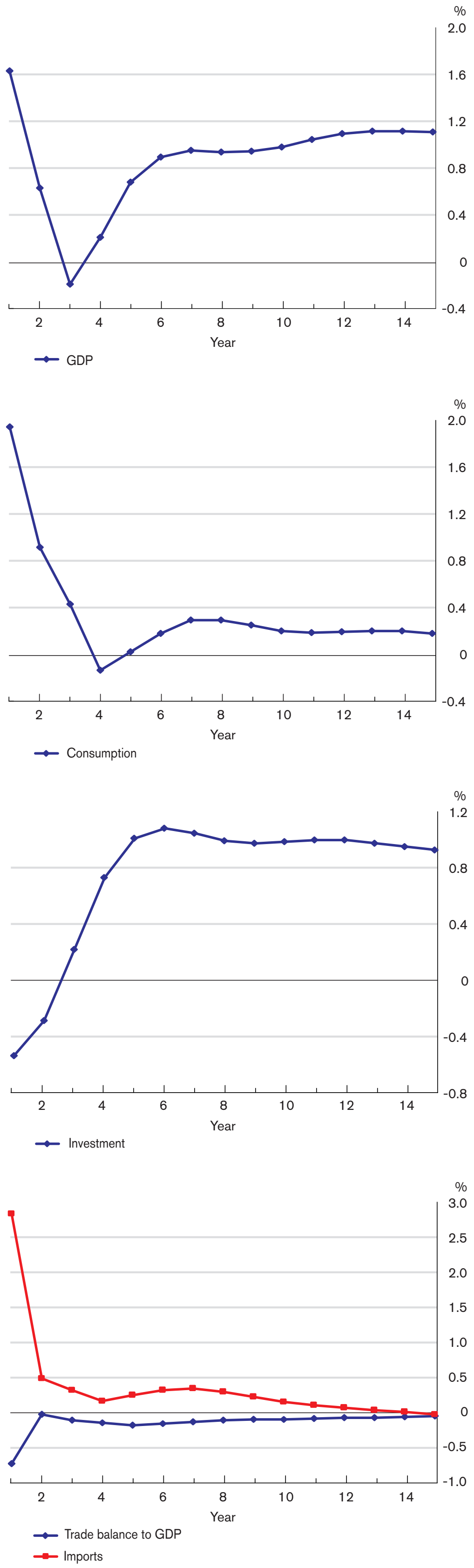
The fiscal-stimulus package not only creates domestic value-added, but also generates leakage effects as most sectors have to import intermediate inputs to meet the increased final demand. The larger the share of imported intermediate inputs in total inputs, the lower the contribution of the stimulus package to domestic value-added. Our estimates show that total intermediate imports may rise by RMB320 billion, 19% of the induced value-added. In particular, the machinery and equipment sector is expected to see the largest rise in intermediate imports of close to RMB100 billion as it uses a substantial amount of intermediate imports as inputs.

The fiscal multiplier in a dynamic structural model

While the IO analysis captures well the effects of the fiscal stimulus at sectoral levels, it does not consider the second-round effects of the impulse package. For example, the increased output and labour income induced by the government spending will lead to higher consumption. Similarly, possible adjustments in relative

[12] We have considered three scenarios for funds allocation, with the estimation results for the other two scenarios shown in Tables A2 - A3 in the Appendix of the *HKMA Working Paper 05/2009*.

Chart B2.1
Effects of the fiscal-stimulus package in a dynamic model (in per cent)



prices, which may have an impact on the effectiveness of the stimulus package, are also assumed away. To complement the above analysis, we use the GIMF, a dynamic stochastic general equilibrium model, to study the medium-term effects of the fiscal impulse. As the ratio of government deficit to GDP may rise by two percentage points in 2009, we simulate such a public spending shock during a global slowdown under the assumption that the exchange rate of the renminbi will become more flexible in two years as the global economy stages a gradual recovery. The main simulation results are shown in Chart B2.1.

Private consumption rises by close to 2% as demand for labour increases. In contrast, private investment shrinks by about 0.5% initially due to crowding-out effects. Imports surge by about 2.8%, reflecting a significant leakage induced by the government spending, as illustrated in the IO analysis. As a result, the ratio of the trade balance to GDP in real terms falls by over 0.7 percentage points in the first year. The overall effect on the economy is that GDP would rise by 1.6% in the first year and by 0.6% in the second year, suggesting a short-run multiplier of about 0.80 and a mid-term multiplier of around 1.1.

Concluding remarks

The main findings of this analysis are summarised as follows:

- The effects of government spending largely depend on the distribution of the spending across different sectors.

- The fiscal-stimulus package could generate 18-20 million new jobs in non-farming sectors. A caveat is that there may exist a mismatch of skill requirements between sectors which have suffered sizable job losses and those which will see increases in vacancies. This could potentially reduce the employment effect of the stimulus package.

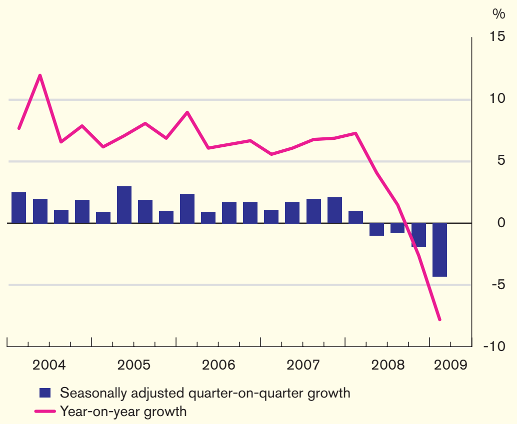
- The multiplier of the current fiscal-stimulus package on output ranges between 0.80 and 0.84 in the short run and is about 1.1 in the medium term.

2. Domestic economy

Demand

In the wake of the global financial crisis, the Hong Kong economy contracted each quarter from the second quarter of 2008 to the first quarter of 2009, ending a five-year run of positive growth. The downturn, highlighted by a severe decline in both merchandise and services exports, has affected private consumption and investment. Despite some tentative signs of relief in financial strains and improving consumer and business sentiment more recently, economic activity is expected to stay weak as external demand for Hong Kong's exports is likely to remain subdued.

Chart 2.1
GDP at constant market prices



Source: Census and Statistics Department (C&SD).

2.1 Aggregate demand

In Hong Kong, the recession deepened towards the end of 2008 and in 2009 Q1. Real GDP contracted sharply by 7.8% year on year in Q1, following a 2.6% contraction in 2008 Q4 and growth moderation in the preceding quarters. On a seasonally adjusted quarter-on-quarter basis, real GDP shrank for the fourth consecutive quarter in Q1, by 4.3%, following decreases of 1.9% in 2008 Q4, 0.8% in Q3 and 1.0% in Q2 (Chart 2.1).

The deep downturn in 2009 Q1 reflected not just the continued fall in private consumption, mainly as a result of weak durable goods purchases and reduced spending on financial services, but also the dramatic cutback in capital spending and construction activity. There was also massive inventory de-stocking in view of weaker demand prospects. Externally, merchandise exports fell sharply, mirroring the collapse in world trade. Services exports also decreased visibly amid falling offshore trading activity and sluggish external demand for financial and business services. Imports of goods and services likewise declined markedly.

2.2 Domestic demand

Domestic demand weakened further in Q1 causing a severe drag on GDP growth because of reduced private consumption, investment and inventory de-stocking. On a year-on-year comparison, domestic demand contracted by 7.5% in both 2008 Q4 and 2009 Q1 (Table 2.A). The fall in inventories, with a concurrent reduction in retained imports, was thought to be intentional in response to sluggish final demand.

Table 2.A
Real GDP growth by expenditure component (year on year)

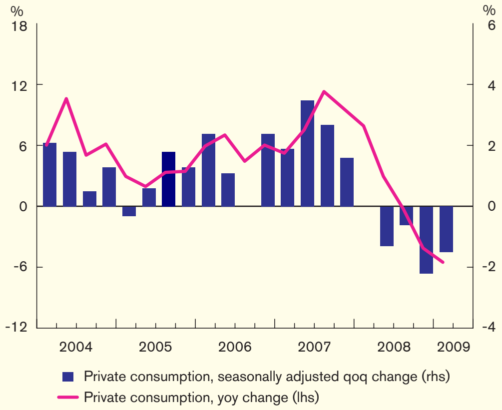
(% yoy)	2007	2008	2008 Q2	2008 Q3	2008 Q4	2009 Q1
Gross Domestic Product	**6.4**	**2.4**	**4.1**	**1.5**	**-2.6**	**-7.8**
Domestic demand	7.9	0.8	3.2	1.5	-7.5	-7.5
Consumption						
Private	8.5	1.5	3.0	-0.2	-4.1	-5.5
Public	3.0	1.7	3.1	1.6	1.8	1.5
Gross domestic fixed capital formation	3.4	-0.5	5.1	2.9	-17.8	-12.6
Private	5.0	-1.1	5.5	3.2	-20.3	-14.3
Public	-9.6	5.7	1.0	0.7	6.4	-1.0
Change in inventories[1]	0.9	-0.2	-0.2	0.6	-0.8	-0.9
Net exports of goods[1]	-3.6	0.0	-1.4	-1.3	3.2	0.0
Net exports of services[1]	3.0	1.6	2.5	1.6	0.8	-1.1

Note: 1. Percentage-point contribution to annual growth of GDP.
Source: C&SD.

Consumption

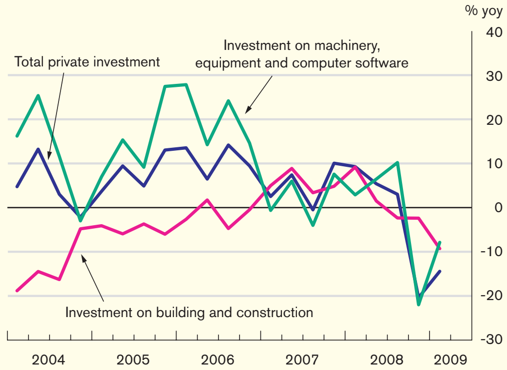
Following declines of 0.2% and 4.1% in the previous two quarters, private consumption expenditure decreased by 5.5% year on year in Q1, amid worsening job and income prospects as well as the negative wealth effect stemming from the correction in the local equity market. On a seasonally adjusted quarter-on-quarter comparison, private spending dropped for the fifth consecutive quarter by 1.5% in Q1 (Chart 2.2). Analysed by broad categories of consumer spending, expenditure on durable goods decreased by 5.8% in Q1 over a year earlier, due to sluggish demand for motor vehicles. Spending on non-durable goods also fell sharply by 5.7%, while spending on services and foodstuffs dipped by 3.9% and 3.7% respectively. By contrast, government consumption showed steady growth at 1.8% in 2008 Q4 and 1.5% in 2009 Q1. Faced with the deteriorating labour market and uncertainties surrounding the economic situation, consumers are likely to remain cautious and reduce spending to a certain extent, while the moderately expansionary fiscal stance will continue to bolster government spending.

Chart 2.2
Private consumption



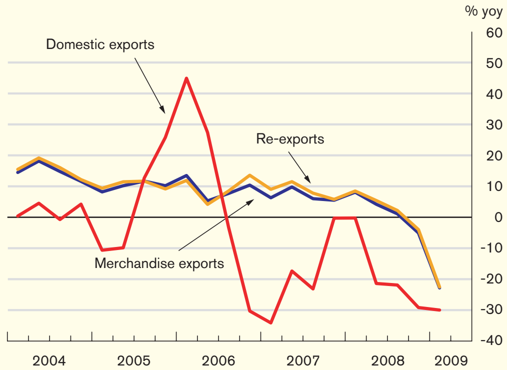
Source: C&SD.

Chart 2.3
Private investment by component



Source: C&SD.

Chart 2.4
Merchandise exports by components (in real terms)



Source: C&SD.

Table 2.B
Merchandise exports by major market[1]

(% yoy)	Share[2] %	2007	2008	2008 Q2	2008 Q3	2008 Q4	2009 Q1
Mainland China	48	13	5	8	4	-2	-24
United States	13	-1	-2	-1	1	-7	-21
European Union	14	6	6	8	10	-1	-18
ASEAN5[3] + Korea	7	9	9	9	3	11	-32
Japan	4	-1	1	-1	3	4	-13
Taiwan	2	2	4	7	5	0	-26
Others	12	18	14	24	17	-9	-17
Total	**100**	**9**	**5**	**8**	**6**	**-2**	**-22**

Notes:
1. Within the total, re-exports accounted for 97% in 2008.
2. Share in 2008.
3. ASEAN5 includes Indonesia, Malaysia, the Philippines, Singapore and Thailand.

Sources: C&SD and CEIC.

Investment

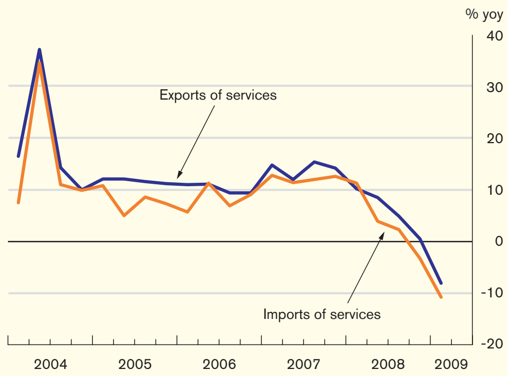
Overall investment spending declined conspicuously for two consecutive quarters, falling by 17.8% year on year in 2008 Q4 and 12.6% in Q1. Curbed by the gloomy business outlook and credit stringency, private-sector investment fell sharply by 20.3% and 14.3% in the respective quarters. Within this total, private building and construction activity contracted by 9.2% in Q1 following a 2.3% decrease in 2008 Q4, while private spending on machinery and equipment was held back by 7.8% in Q1 after plunging by 21.9% in the previous quarter (Chart 2.3). Ebbing business sentiment will continue to weigh on capital spending. According to the Quarterly Business Tendency Survey conducted between mid-March to mid-April, business owners remained pessimistic about the near-term outlook.

Public investment fell by 1.0% in Q1, after rising by 6.4% in 2008 Q4. There was solid growth in public spending on machinery and equipment, but public building and construction activity was subdued. In the fiscal year 2009/10, the Government proposes to spend as much as HK$39.3 billion on infrastructure projects, an increase of 60.1% over the previous year. However, the 10 major infrastructure projects announced are still in the early stages of planning and are not likely to move into the construction stage in the near future.

2.3 External trade

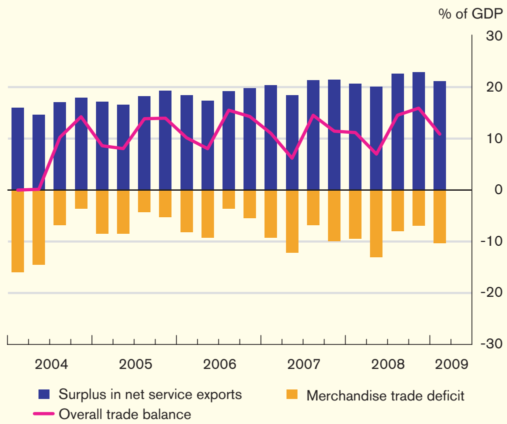
Merchandise exports have fallen considerably since November. Total exports of goods declined in real terms by 4.9% year on year in 2008 Q4, followed by a 22.7% decline in Q1 (Chart 2.4). The poor performance in Q1 comprised decreases of 29.9% in domestic exports and 22.4% in re-exports, with broad-based weaknesses across all major destinations including Mainland China, the US and other industrialised economies. Collapsing intra-regional trade flows in Asia depressed Hong Kong exports to South Korea, Singapore, Taiwan and emerging regional economies as a result of reduced demand for intermediate goods (Table 2.B). Imports of goods dropped by 21.4% in real terms in Q1 after falling by 6.4% in Q4. Retained imports declined by 18.2% in Q1 amid weak domestic demand.

Chart 2.5
Exports and imports of services



Sources: C&SD and CEIC.

Chart 2.6
Trade balance by components



Sources: C&SD and CEIC.

Exports of services decreased in real terms by 8.2% year on year in Q1, after rising by 0.4% in 2008 Q4. This was the first decline in more than five years as offshore trade faded with shrinking global trade flows and the external demand for financial and business services contracting in the wake of the financial crisis. Imports of services also dropped in real terms by 10.9% in Q1, compared with a 3.4% decrease in 2008 Q4 (Chart 2.5).

Taken together, there was a surplus of HK$38.2 billion in the nominal overall trade account in Q1, equivalent to 10.1% of GDP, against a surplus of HK$38.3 billion (9.3% of GDP) in the same quarter a year earlier (Chart 2.6). In real terms, net exports made a marginal, negative contribution to GDP growth in Q1.

Output and supply

Substantial weakness in the financing, insurance and business services sector was largely responsible for a year-on-year decline in the GDP at factor cost in the fourth quarter of 2008. Labour market conditions deteriorated as a result of the economic downturn, with the unemployment rate rising to a three-year high. Labour productivity dropped as output contracted at a faster pace than employment.

2.4 Output

GDP at factor cost shrank by 2.3% year on year in Q4 (Table 2.C), marking the end of 21 consecutive quarters of growth. The industrial sector has contracted since 2008 Q2, followed by the services sector, which shrank by 2.3% year on year in 2008 Q4. Analysis of the services sector shows that declines were across all sub-segments, with the transport and storage sector falling at the steepest rate of 5.4%. The financing, insurance and business services sector began contracting in 2008 Q3, after it was the first to be hit by the US sub-prime mortgage crisis. This sector alone accounted for about 48% of the decline in total output in 2008 Q4 (Table 2.D). As a result of the collapse in global demand, the import and export sector contracted by 1.9% year on year and made a negative contribution to the overall growth rate in 2008 Q4. The contraction is likely to have worsened in 2009 Q1, given that merchandise exports and imports declined markedly as trade flows shrank. Separately, reflecting weak consumption spending, the wholesale, retail, restaurant and hotel sector dropped by 2.5% year on year in 2008 Q4. The contraction may worsen in the coming months if the swine flu outbreak becomes widespread in Hong Kong, dragging down inbound tourism.

Table 2.C
Real GDP growth by major economic sector (year on year)

(% yoy)	2007	2008	2008			
			Q1	Q2	Q3	Q4
GDP at factor cost	**6.4**	**2.1**	**6.8**	**3.4**	**1.3**	**-2.3**
Industrial sector	-0.5	-1.2	3.3	-2.6	-3.1	-2.0
of which:						
Manufacturing	-1.5	-6.6	-4.4	-4.2	-6.7	-10.4
Construction	-1.1	2.7	9.2	-0.3	-1.5	2.8
Service sector	7.0	2.4	7.1	4.0	1.7	-2.3
of which:						
Wholesale, retail, restaurant and hotel	8.8	2.5	6.8	4.9	2.0	-2.5
Import and export	6.0	4.6	9.7	8.0	4.9	-1.9
Transport and storage	5.1	1.9	8.3	3.8	1.5	-5.4
Financing, insurance and business services	15.3	1.6	9.5	2.6	-0.1	-4.6

Source: C&SD.

Table 2.D
Contribution to real GDP growth by major economic sector (year on year)

(Percentage point)	2007	2008	2008			
			Q1	Q2	Q3	Q4
GDP at factor cost	**6.4**	**2.1**	**6.8**	**3.4**	**1.3**	**-2.3**
Industrial sector	0.0	-0.1	0.3	-0.2	-0.3	-0.1
of which:						
Manufacturing	0.0	-0.2	-0.1	-0.1	-0.2	-0.3
Construction	0.0	0.1	0.3	0.0	0.0	0.1
Service sector	6.4	2.2	6.5	3.6	1.5	-2.2
of which:						
Wholesale, retail, restaurant and hotel	0.6	0.2	0.4	0.3	0.1	-0.2
Import and export	1.2	0.9	1.8	1.5	1.1	-0.4
Transport and storage	0.4	0.1	0.6	0.3	0.1	-0.4
Financing, insurance and business services	3.5	0.4	2.3	0.7	0.0	-1.1

Source: C&SD.

2.5 Labour and productivity

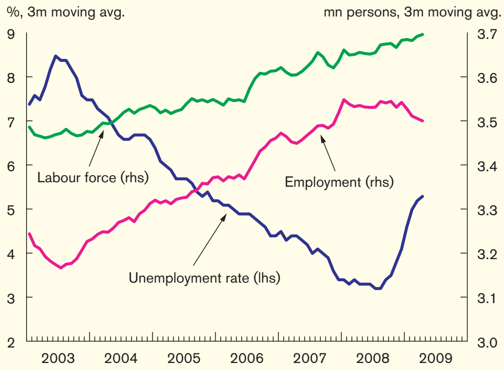
The global economic downturn weighed heavily on the domestic labour market, and the unemployment rate has picked up markedly since 2008 Q4. As output contracted at a faster pace than employment, labour productivity fell alongside the shrinking output.

Labour market conditions

Labour market conditions worsened sharply in the six months to 2009 Q1, with the number of people in employment declining since late 2008 (Chart 2.7). The seasonally-adjusted three-month moving average unemployment rate reached 5.2% in Q1, a 1.1 percentage-point increase over the previous quarter. A sectoral breakdown shows the unemployment rate picked up notably across all sectors. The construction sector was the hardest hit with an increase of 17,900 in the number of unemployed from October 2008 to March 2009, compared with the overall rise of 55,400 in the same period. As no sector is immune to the global crisis, the unemployment rates in both the higher-skilled and lower-skilled segments are trending upwards (Chart 2.8). Vacancy rates dropped across all sectors, with the financial services industry experiencing a particularly sharp fall (Chart 2.9) as the industry was badly hit by the sub-prime crisis.

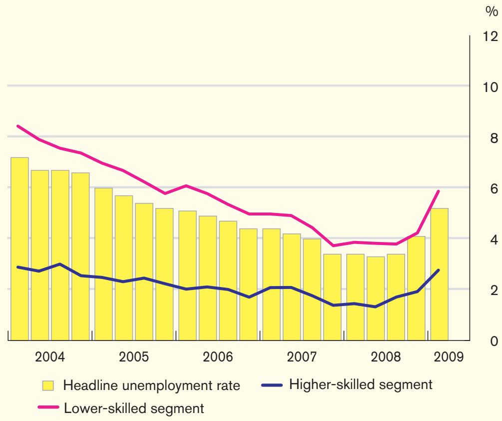
The underemployment rate rose slightly to 2.1% (three-month moving average) in March from 1.9% in December 2008, probably reflecting the scaling back in the construction sector, and the increasing prevalence of no-pay leave.

Chart 2.7
Labour market conditions



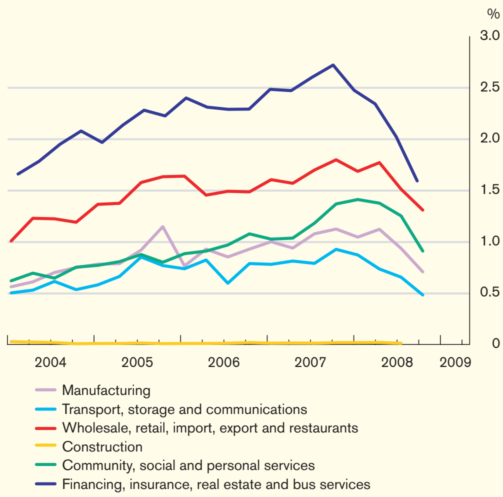
Source: C&SD

Chart 2.8
Unemployment rates in the higher and lower-skilled segments



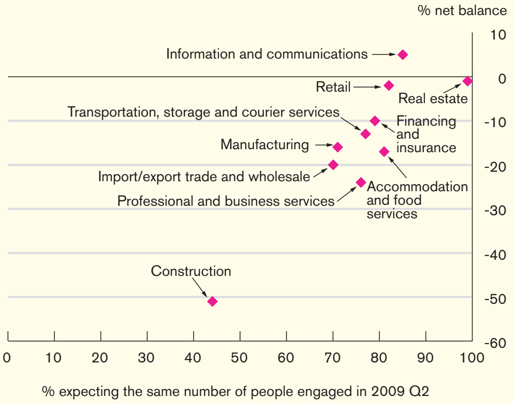
Sources: C&SD and staff estimates.

Chart 2.9
Vacancy rates by sector



Sources: C&SD and staff estimates.

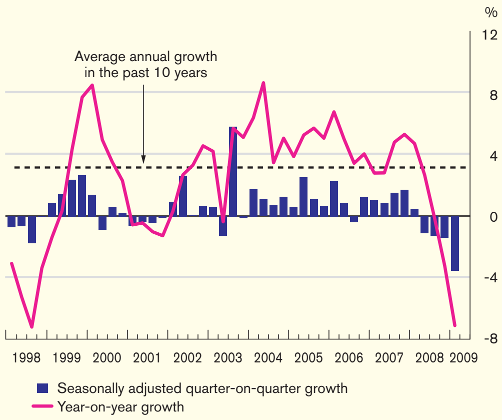
Chart 2.10
Quarterly Business Tendency Survey – employment



Notes:
1. Net balance refers to the difference between the percentage points of respondents expecting a rise over those expecting a decline.
2. Sectors are classified according to the new Hong Kong Standard Industrial Classification Version 2.0 (HSIC V2.0).

Source: C&SD

Chart 2.11
Output per worker



Sources: C&SD and staff estimates.

There has been some improvement in recruitment sentiment, as shown in the recent pick-up in the Career Times/CityU hiring index. The latest Quarterly Business Tendency Survey also indicates that, apart from the construction sector, the majority of respondents expect the number of people engaged in Q2 to remain broadly stable (Chart 2.10). Nevertheless, labour market conditions are likely to remain difficult given the continued negative output gap. The entry of the new batch of graduates and school leavers into the labour force will also put some pressure on the labour market.

Productivity

Output per worker – an indicator of labour productivity – declined by 3.5% quarter on quarter in Q1 (Chart 2.11), marking the fourth consecutive quarter of decline, as the contraction in output outpaced that of employment. On a year-on-year comparison, labour productivity decreased by 7.1% in Q1 after a fall of 3.2% in 2008 Q4 and 0.1% in 2008 Q3, representing the first consecutive quarters of decline since the bursting of the dotcom bubble in 2001. As labour productivity usually drops during a recession, further decreases in output per worker are expected in the coming quarters.

Prices and wages

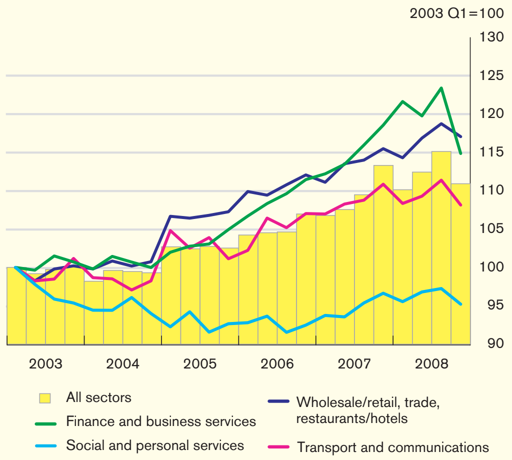
Inflationary pressure has subsided considerably from the recent peak in early 2008, as food prices and rental costs have moderated. The current economic downturn and worsening labour market have translated into easing cost pressures on the supply side, while import-price inflation has also abated. The underlying inflationary pressure is likely to remain subdued in the coming months due to the negative output gap and global disinflation.

2.6 Labour costs

The deterioration in labour market conditions has resulted in declines in labour earnings. The nominal payroll per person dropped by 3.6% quarter on quarter in 2008 Q4 after rising by 2.4% in Q3. The fall was larger than the 2.6% decrease in nominal wages recorded over the same period, highlighting the fact that cuts in discretionary bonuses and irregular earnings (for example, overtime payment) were common in different sectors of the economy. A sectoral breakdown indicates that, while all sectors posted declines in nominal payroll per person, the financing and business services sector registered a particularly sharp fall (Chart 2.12). On a year-on-year comparison, nominal payroll per person fell by 2.1% in 2008 Q4 after a strong increase of 5.2% in Q3, marking the first decline since 2004 Q4 (Chart 2.13). Payroll per person also decreased notably by 13.8% quarter on quarter annualised in 2008 Q4.

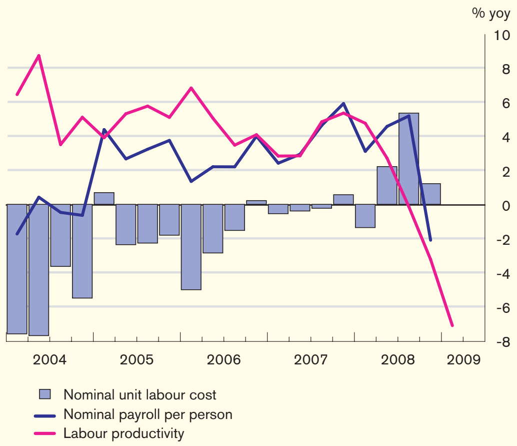
Despite the drop in nominal payroll per person in 2008 Q4, nominal unit labour costs still recorded modest growth in the same quarter by 1.2% year on year, as labour productivity experienced a bigger year-on-year fall than nominal payroll per person.

Chart 2.12
Nominal payroll per person by economic sector



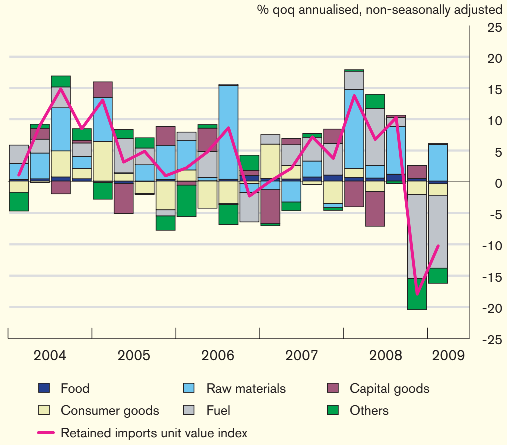
Source: C&SD.

Chart 2.13
Unit labour cost and labour productivity



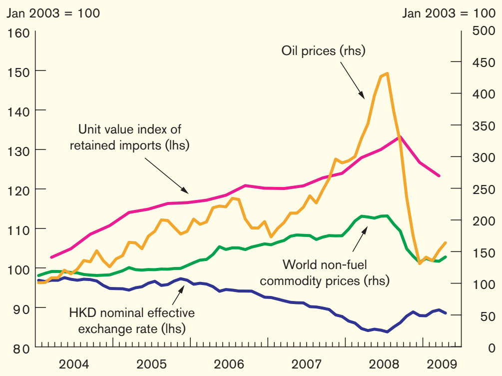
Sources: C&SD and staff estimates.

Chart 2.14
Contributions to import-price inflation



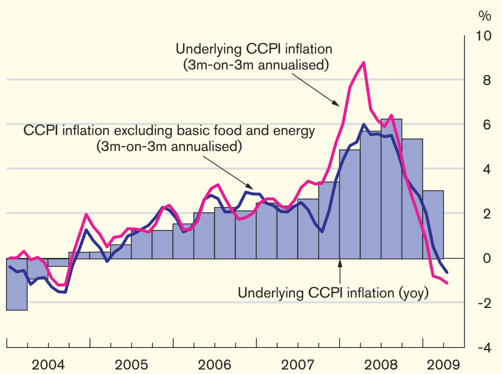
Sources: C&SD and staff estimates.

Chart 2.15
Commodity and import prices



Sources: C&SD and IMF.

Chart 2.16
Different measures of consumer-price inflation



Sources: C&SD and staff estimates.

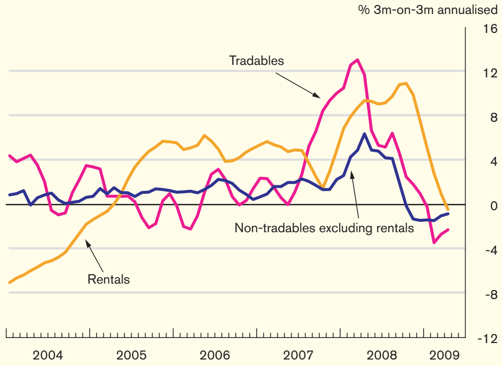
2.7 Commodity and import prices

Import prices have adjusted downwards since 2008 Q4. On a quarter-on-quarter annualised basis, import prices dropped by 18% in 2008 Q4 (Chart 2.14), mainly reflecting the sharp cut in fuel prices which contributed about 13.4 percentage points to the decline. Moving into Q1, the pace of decline in import prices moderated to a slower rate of 10.3%, as oil and other commodity prices stabilised and rebounded during the quarter (Chart 2.15). Given that market consensus generally expects a slow pace of global economic recovery, the world demand for consumer goods and commodities is not likely to pick up sharply for the rest of 2009. The demand for capital goods is also not likely to rise swiftly given excess capacity in the early stage of an economic recovery, keeping price pressures on capital goods in check. All these help contain import-price inflation in Hong Kong.

2.8 Consumer prices

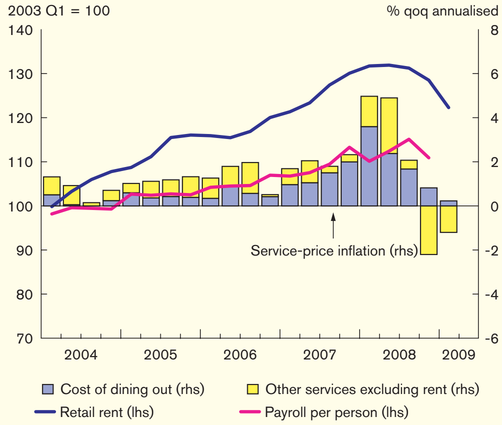
Inflationary pressure has subsided considerably since early 2008. Netting out the effects of government relief measures, the underlying inflation moderated to 3.1% year on year in Q1 from 5.4% in 2008 Q4 (Chart 2.16), as food prices and rental costs continued to stabilise. On a quarter-on-quarter comparison, the annualised rate of underlying inflation fell to -0.9% in Q1 following successive quarters of moderation, from a high of 8.3% in 2008 Q1. Core inflation, as measured by the underlying inflation excluding basic food and energy, registered a negative 0.2% rate quarter on quarter annualised in Q1 after a positive rate of 2.8% in 2008 Q4 and 4.7% in 2008 Q3, driven by the deceleration in rental costs and, to a lesser extent, lower durable goods prices and transport costs.

Chart 2.17 Consumer-price inflation by broad component



Sources: C&SD and staff estimates.

Chart 2.18 Service-price inflation excluding rent



Sources: C&SD and staff estimates.

As a result of the decrease in property prices in the second half of 2008, the pace of increase in rental costs slowed considerably to -0.4% three month on three month (annualised) in April 2009 after peaking at 11% in October 2008 (Chart 2.17). Residential property prices recorded a cumulative sequential drop of 18.3% during July - December 2008, as the deteriorating economic prospects weighed heavily on the property market. Following the moderation in rental costs, retail rents recorded a marked drop of 18.0% quarter on quarter annualised in Q1 following a fall of 8.1% in 2008 Q4. Price pressure in the tradable goods sector continued to recede in 2009 Q1 and 2008 Q4, because of the moderation in prices of basic food, durable goods and electricity and partially offset by a 50% increase in the tax on cigarettes in the government's budget. In the service sector, price inflation turned negative in 2008 Q4 (Chart 2.18), as cost pressures eased in the current economic downturn.

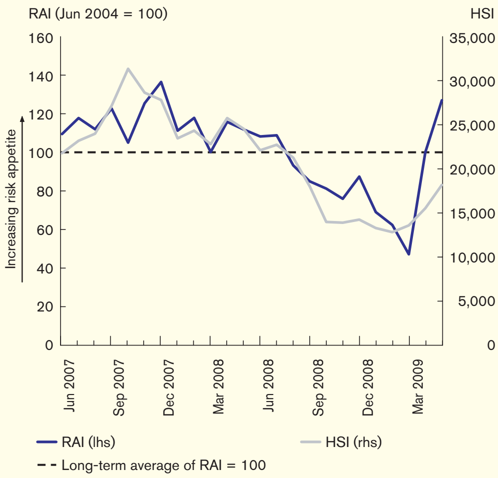
Asset markets

Local equity prices declined sharply early in the year on concerns over the earnings outlook of major local banks. However, prices subsequently rebounded in a liquidity-driven market amid hopes of a nascent recovery in the Mainland China economy. Following the notable decline in the second half of 2008, residential property prices showed some consolidation with the easing of mortgage credit conditions. On the other hand, the rental value of office space and retail premises declined further due to deteriorating business prospects.

Chart 2.19
Equity prices in Hong Kong

Source: Bloomberg.

Chart 2.20
Risk appetite index



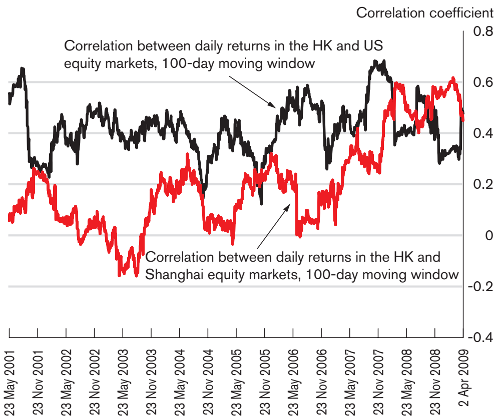
Sources: Bloomberg and HKMA staff estimates (*HKMA Working Paper 05/2007*).

2.9 Equity market

Equities in Hong Kong have rebounded strongly in a liquidity-driven market in recent months (Chart 2.19). At the beginning of 2009, the global economy deteriorated further and faster than expected, sparking concerns over the earnings outlook of major local banks in light of potentially higher provisions for bad debt and lower projected revenues from key overseas markets. Led by a sharp drop in banks' share prices, the Hang Seng Index (HSI) fell below 11,500 in March, the lowest level since October last year. However, recent economic data in China increased hopes of a nascent recovery in the Mainland economy in view of rapid growth in commercial banks' lending, expansion of the manufacturing sector and increases in property transactions. The improved economic picture across the border, coupled with the strong rally in the A-share market, boosted local market confidence and pulled investors off the sidelines, with the risk appetite index (RAI) for the HSI rebounding to above the long-term average (Chart 2.20). The resulting surge in capital inflow pushed local equities sharply higher, despite a further weakening in the domestic economy. The linkage between financial markets in Hong Kong and markets in the US in the current financial crisis shows some resemblance to the linkage during the crisis when the IT bubble burst in 2001 (Box 3). Over the review period, the HSI and the H-share Index have advanced by 30.8% and 44.7% respectively.

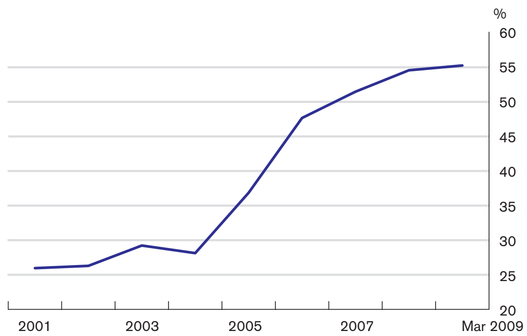
Box 3
Hong Kong financial market interactions with the US and Mainland China in crisis and tranquil times[13]

Chart B3.1
Correlations between daily returns in Hong Kong and the US equity markets, and between the Hong Kong and Shanghai equity markets



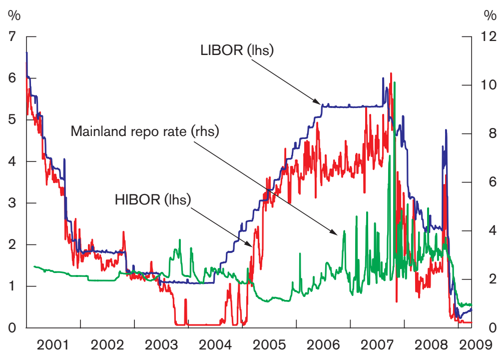
Sources: CEIC and staff estimates.

Chart B3.2
Weights of Mainland stocks on the Hong Kong Stock Exchange



Sources: CEIC and staff estimates.

Chart B3.3
Money market interest rates in the US, Mainland China, and Hong Kong



Source: CEIC

The financial crisis has highlighted the importance of the linkage between financial markets in Hong Kong and those in the US and the Mainland. This study compares the linkage in the current crisis with those during the bursting of the IT bubble in 2001 and the tranquil period in between, and utilises a multivariate model to quantify the linkages in these periods.

Equity market

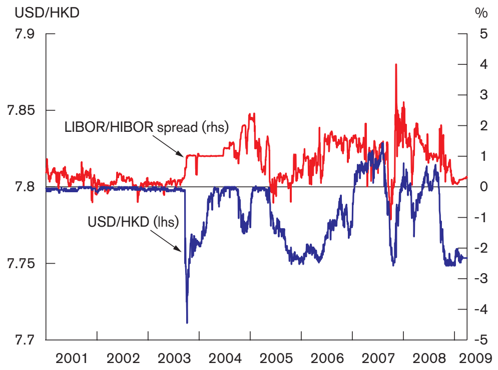
In equity markets, the influence of Mainland China on Hong Kong has increased substantially in the current financial crisis, but is still less important than the influence of the US. The correlation between daily returns of the US S&P index and the Hang Seng Index has been persistently high throughout the sample (Chart B3.1). The correlation between the daily returns of the Shanghai stock market index and the Hang Seng Index was small before 2005, but has become more prominent in recent years as Mainland stocks listed in Hong Kong gained more weight (Chart B3.2).

Money market

The linkage between the money market in Hong Kong and those in the US and the Mainland has also changed over time. HIBOR and LIBOR at one-week maturity closely followed each other in 2001 and 2002 (Chart B3.3), and the gap between the two remained small for most of the time. However, the spread between the two widened in September 2003. The expectation of an appreciation of the renminbi and Hong Kong dollar and intensive IPO activities led to dynamics in HIBOR that were not related to LIBOR. The LIBOR-HIBOR relationship strengthened again recently after the start of the credit crisis as IPO activities on the Mainland and in Hong Kong waned, expectations for a renminbi appreciation vanished and as global factors became

13 More detailed information can be found in the forthcoming *HKMA Working Paper* "Hong Kong financial market interactions with the US and Mainland China since 2001" by Dong He, Zhiwei Zhang and Honglin Wang.

Chart B3.4
HKD exchange rate and LIBOR/HIBOR spread since 2001



Source: CEIC

dominant in shaping the dynamics in both money markets.

Foreign exchange market

The Hong Kong-dollar exchange rate has experienced several distinctive phases since 2001 (Chart B3.4). The HKD/USD exchange rate was stable and close to 7.8 until September 2003. The Hong Kong dollar appreciated when market speculation about a rise in the renminbi and the Hong Kong-dollar led to a widening of the LIBOR/HIBOR spread in October 2003. The introduction of the strong-side Convertibility Undertaking (CU) for the Hong Kong-dollar exchange rate by the Hong Kong Monetary Authority in May 2005 led to some stability in the HKD/USD exchange rate, but the spot rate stayed close to the strong side CU due to capital flows caused by intensive IPO activities in 2006 and 2007, and the ongoing credit crisis.

Econometric estimation: data and methodology

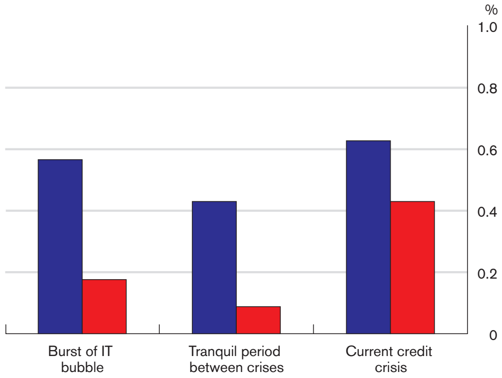
We adopt a Vector Autoregression (VAR) model as our tool of analysis. The data sample is divided into three periods: the bursting of the IT bubble (2 January 2001 to 31 December 2001), the tranquil period (2 January 2002 to 8 August 2007), and the financial crisis (9 August 2007 to 2 April 2009).

Daily observations on eight variables are considered in the model. They are: differences in one-week HIBOR, one-week LIBOR, one-week repo rate on the Mainland, and bond price in the US; percentage changes in the Hang Seng Index, Shanghai stock index, S&P 500 index and the HKD/USD exchange rate. A positive change in the exchange rate variable means a rise in the US dollar against the Hong Kong dollar. IPO activities and major news in Mainland China are controlled for in the model.

Equity market

Results from the VAR model indicate that the US shocks play a more important role than the Mainland shocks. In the financial crisis period, a 1% shock from the US equity market moves the Hang Seng Index by 0.63%, while a 1% shock from the Mainland moves the Hang

Chart B3.5
Effect of S&P 500 and the Shanghai equity market on the Hang Seng Index



Sources: CEIC and staff estimates

Seng Index by 0.43% (Chart B3.5). In the tranquil period, a 1% shock from the US and the Mainland moved the Hang Seng Index 0.43% and 0.09% respectively. When the IT bubble burst in 2001, the impact from the US and the Mainland were 0.57% and 0.18% respectively.

It is clear the effect of the Mainland equity market on the Hang Seng Index has become more important in recent years, but it is still of relatively less importance compared with the US market throughout the sample. More interestingly, the US market started to affect Hong Kong indirectly through its influence on the Shanghai market, as a 1% US shock moved the Mainland equity index by 0.23% on average in the current crisis. This impact on the Mainland market has been partly passed to the Hong Kong market.

Money market

During the bursting of the IT bubble, a 100 basis-point change in LIBOR would move HIBOR by 48 basis points. But the relationship became statistically insignificant during the tranquil period, partly because intense IPO activities in Hong Kong influenced HIBOR substantially during this period (Table B3.A). During the financial crisis, the correlation between HIBOR and LIBOR has again picked up, and a 100 basis-point change in LIBOR moves HIBOR by 44 basis points, which is similar to the impact observed in 2001.

Table B3.A
Money market linkages between Hong Kong, the US and Mainland China

	Dependent variable: HIBOR		
	Burst of IT bubble	Tranquil period	Current credit crisis
LIBOR	0.48	0	0.44
Mainland repo rate	0	0	0
Fund frozen for HK IPO	0	0.15	0

Sources: CEIC and staff estimates

Foreign exchange market

The Hong Kong-dollar exchange rate has been influenced mainly by interest rates both in the current crisis and during the bursting of the IT bubble, although the magnitude of this effect has been small (Table B3.B). In the current financial crisis, both HIBOR and LIBOR are significant. In 2001 HIBOR was significant but LIBOR was not, probably due to the high correlation between the two interest rates.

Table B3.B
Foreign exchange market linkages with equity markets and money markets

	Dependent variable: HKD/USD exchange rate		
	Burst of IT bubble	Tranquil period	Current credit crisis
S&P 500	0	0	0
LIBOR	0	0	0.037
US bond price	0	0	0
SSE Composite Index	0	0	0
Mainland repo rate	0	0	0
Hang Seng Index	0	-0.002	0
HIBOR	-0.012	-0.014	-0.035

Sources: CEIC and staff estimates

Equity prices in Hong Kong, the US, and the Mainland have not been significant in the Hong Kong-dollar exchange rate equation during the current crisis, or in 2001. This does not mean that equity-related flows are not important for the exchange rate. It indicates that equity flows are not the dominant force in capital flows, probably because there were inflows related to "flight to safety" after the credit crisis started. Such inflows might have worked against the equity-related capital outflows in the same period and neutralised the impact on the exchange rate.

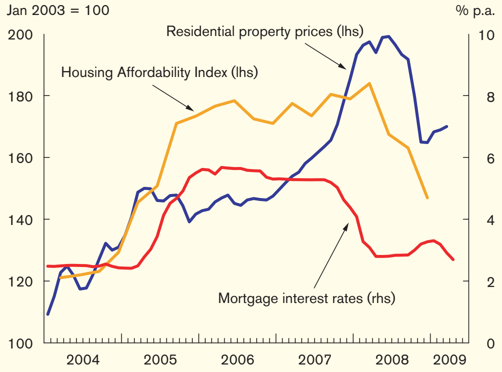
Summary

- The financial linkage between markets in Hong Kong and those in the US during the current financial crisis is similar to the linkage during the bursting of the IT bubble in 2001. In both crises, the Hang Seng Index was heavily influenced by the US equity market, HIBOR and LIBOR showed strong correlation, and the HKD/USD exchange rate was mainly influenced by interest rates.

- The Mainland equity market has gained more influence on the Hang Seng Index in recent years as more Mainland stocks have been listed in Hong Kong. Its effect on the Hong Kong market during the current financial crisis is still less than that from the US market. The Mainland money market remains segmented from the Hong Kong money market due to capital controls on the Mainland.

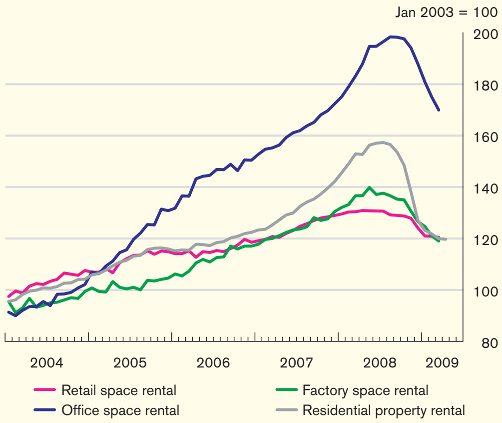
- A broad interpretation of these findings is that the Hong Kong financial markets appear to be more aligned with the US markets in turbulent times, but relatively more integrated with the Mainland China markets during tranquil periods.

Chart 2.21
Residential property price, interest rate and housing affordability



Sources: Rating and Valuation Department (R&VD) and C&SD.

Chart 2.22
Rental indices by property type



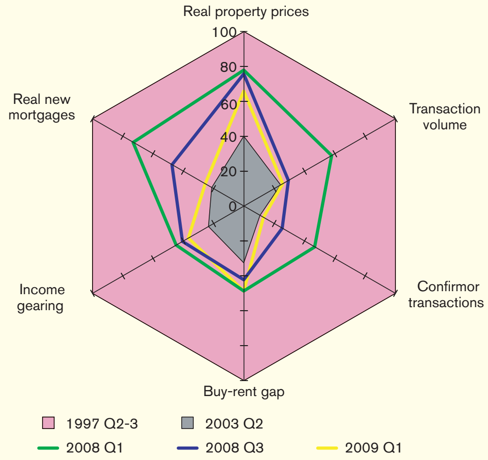
Sources: R&VD, C&SD and staff estimates.

2.10 Property market

After the notable decline in the second half of 2008, property prices in Hong Kong showed some consolidation in 2009 Q1 and the months following. While the gloomy economic outlook and worsening job prospects continued to weigh on real estate demand and market sentiment, mortgage credit conditions have become less of a constraint with the easing of lending standards and improved credit availability. Housing affordability also improved as the mortgage interest rate edged down, thereby providing partial support to the demand for small- and medium-sized residential units. After dropping to a 16-month low in December 2008, residential property prices rose for the fourth consecutive month in April, and there are indications that the upward trend continued in May. However, for Q1 as a whole, residential property prices fell quarter on quarter by 0.5%, moderating from the 12.3% downswing in 2008 Q4 (Chart 2.21). On a positive note, in part bolstered by the aggressive sales strategies of property developers, transaction volumes jumped by 29.8% quarter on quarter in Q1, after falling by 32.5% in 2008 Q4. In April, the transaction volume rose further by 38.8% from March to 9,856 units, reaching its highest level in 10 months.

Slightly lagging behind the sales market, the rental market for residential flats also weakened noticeably. Overall flat rentals dropped by 11.5% quarter on quarter in 2008 Q4 and declined further by 11.8% in 2009 Q1. Since the cumulative decrease was bigger than that in flat prices, the rental yield for residential units declined to 3.7% in March from 4.1% in December 2007 and December 2008. The rental market in the commercial segment also experienced a downturn, as corporate owners deferred expansion plans and streamlined operations. Office rents, having reached a peak in August 2008, declined by 2.3% quarter on quarter in 2008 Q4 and another 9.3% in 2009 Q1. In tandem with weaker retail business, rental costs of retail premises fell by 2.1% in 2008 Q4 and 4.8% in 2009 Q1 while the vacancy rate rose from 8.1% at the end of 2007 to 8.7% at the end of 2008 (Chart 2.22).

Chart 2.23
Graphical analysis of the housing market



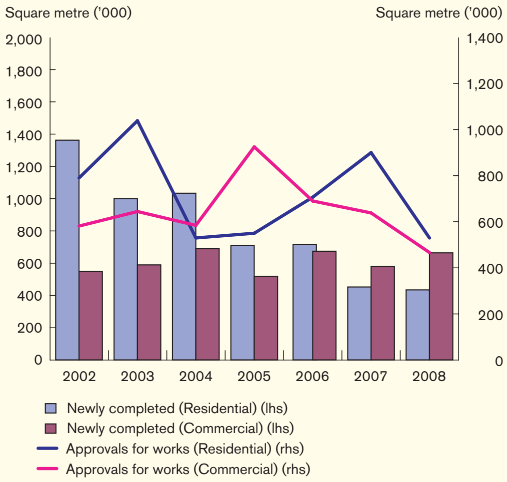
Sources: R&VD, Land Registry, C&SD, Centaline Property Agency Limited, and staff estimates.

The six property market indicators in the graphical framework portrayed a rather sluggish picture of the residential property market in 2009 Q1, with real new mortgages, transaction volumes and confirmor transactions all contracting, in some cases close to the levels during the trough in mid-2003. Both real house prices and the income-gearing ratio (a measure of housing affordability) dropped, while the buy-rent gap held up well (Chart 2.23).[14] This reflected a moderation in both user and investment demand for residential property amid the economic downturn. However, compared to previous boom-and-bust cycles, there were no major signs of vulnerabilities in the residential property market. Indeed, latest information points to some increases in transaction volumes, real mortgages and real house prices since 2009 Q1. In this context, the six indicators are likely to approach more comfortable levels in the months ahead, although the actual out-turn will hinge much on how the global financial crisis plays out. Essentially, Hong Kong's economic fundamentals and household balance-sheet positions have strengthened over the past decade, and there was no overheating pressure building up before the recent property market downturn. Statistical analysis of the six graphical framework indicators based on the clustering method also suggests no significant imbalances in the domestic property market and the recent fall in house prices largely reflected a deterioration in economic conditions.[15]

[14] For details of the graphical framework, see Chan, Peng and Fan (2005), "A graphical framework for monitoring the property market in Hong Kong", *HKMA Quarterly Bulletin*, March 2005.

[15] For details about a clustering analysis of property market conditions based on the six indicators in the graphical framework, see Leung, Chow and Han (2008), "Clustering analysis of property market indicators in Hong Kong", *HKMA Quarterly Bulletin*, December 2008.

Chart 2.24
Supply of residential and commercial properties



Sources: C&SD and Buildings Department.

In part reflecting the tight land supply in the past, completion of private residential flats fell for the sixth consecutive year to 8,776 units in 2008, down from 10,471 in 2007. The total new floor space of residential flats also dropped, albeit modestly, by 3.9% after a 36.9% decrease in 2007. In the approvals for commencement of building, the total usable floor space of residential units on building plans decreased by 41.1% to 530,100m² in 2008 after rising by 27.4% in 2007 (Chart 2.24). The supply in the primary market is expected to remain tight with the considerably lower completions over the past two years – a trend which is likely to continue in 2009 and 2010. In the commercial property segment, office completions rose by 6.6% to 341,000m², well above the annual average of the past 10 years and matched closely by the take-up rate. Despite a rise in the vacancy rate, the supply of new office space, particularly in the core districts, is expected to become tighter in 2009 and 2010, given a 26.9% decline in non-residential building approvals in 2008. The moderation in the supply of residential and commercial units in primary markets will help support house prices and commercial rents in the medium term.

Public finances

The fiscal out-turn for 2008/09 was a consolidated surplus of 0.1% of GDP, rather than a small deficit as projected by the Government, due mainly to higher-than-expected tax receipts. With the worsening global and local economic environment, the Government unveiled relief measures and job creation programmes in the 2009/10 budget to alleviate the burden on households and mitigate the effects of job losses. Follow-on measures were announced in late May, boosting the total stimulus package for the current fiscal year to HK$25.2 billion or 1.6% of GDP.

2.11 Public finances

The fiscal out-turn for the year ended March 2009 was a small surplus in the Consolidated Account of HK$1.4 billion (0.1% of GDP) after bond repayment, although the Government had budgeted a deficit of HK$7.5 billion (-0.5% of GDP) in February 2008 (Table 2.E). This was the sixth straight year in surplus following the solid out-turn in 2007/08 when a HK$123.7 billion surplus (7.5% of GDP) was recorded. The small surplus came despite an 11.7% decrease in revenue and a 34.2% rise in expenditure. Compared with the original projection, the final result was mainly due to higher-than-expected receipts from salaries tax and profits tax, which more than offset the shortfall in

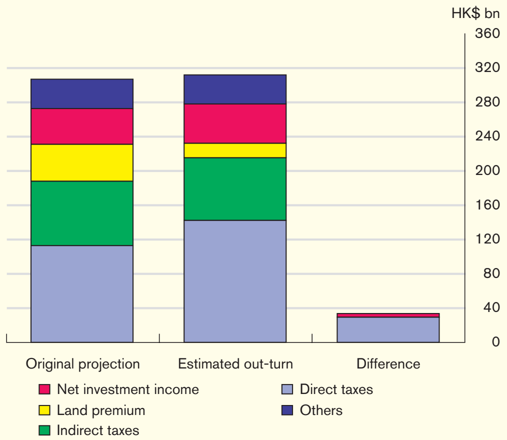
Table 2.E
Analytical presentation of fiscal account

Fiscal year[1]	2007/08	Budget 2008/09	Out-turn Estimate 2008/09	Projection 2009/10
	(% of fiscal-year based GDP)			
Revenues[2]	21.7	18.6	19.0	15.6
Tax	13.9	11.4	13.1	10.9
Non-tax	7.7	7.2	5.9	4.7
Land premium	3.8	2.6	1.0	1.0
Asset sales/privatisations	0.0	0.0	0.0	0.0
Investment income (net)[3]	1.6	2.5	2.8	1.9
Others	2.3	2.1	2.1	1.7
Expenditure	14.2	18.9	19.1	19.3
Recurrent	12.4	15.5	15.8	15.7
Capital[4]	1.8	3.4	3.3	3.6
Overall balance before net borrowing	7.5	-0.3	-0.1	-3.7
Overall balance after net borrowing[5]	7.5	-0.5	-0.3	-3.9
Fiscal reserves	29.8	29.0	29.6	27.9
Net fiscal reserves	28.5	27.8	28.4	26.9

Notes:
1. Figures are based on the 2009/10 Budget and the follow-on measures announced in May. They are expressed as a percentage of the fiscal-year based nominal GDP released in May 2009. The actual out-turn of the consolidated account in 2008/09, reported to be a HK$1.4 billion surplus (0.1% of GDP), is not presented in this table because other than the headline figures of total expenditure and revenue, detailed data were not available at the time of publication of this Report.
2. Excluding proceeds from the issuance of government bonds/notes.
3. Netting out interest expenses of government bonds/notes.
4. Excluding interest expenses and repayments of government bonds/notes.
5. The headline balance reported by the HKSAR Government.

Sources: The 2009/10 Budget, the 2009/10 Estimates, the follow-on measures announced in May, C&SD, Economic Analysis Division of the Financial Secretary's Office and staff estimates.

Chart 2.25
Projected and actual government revenue for 2008/09



Sources: Government Treasury and staff estimates.

land premium, additional capital works expenditure and unforeseen spending on relief measures (Chart 2.25).

Against the background of worsening global and local economic conditions, the government unveiled a range of measures to provide relief for households and to help create jobs in the 2009/10 Budget. In this first round of stimulus, relief measures worth HK$8.4 billion (0.5% of GDP) were introduced, covering tax rebates, rates concessions and rental reductions for government properties. Follow-on measures worth HK$16.8 billion (1.0% of GDP) were announced in late May, boosting the total stimulus package for the current fiscal year to HK$25.2 billion or 1.6% of GDP. These expansionary policy measures, compounded by an expected decrease in revenues, are estimated to result in a government deficit of roughly HK$$62.7 billion (3.9% of GDP) in 2009/10 after bond repayment.[16] Box 4 provides an assessment of their possible impact on Hong Kong's economic growth.

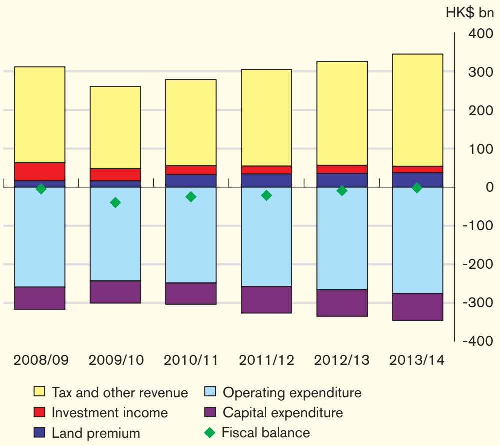
In part due to the two rounds of stimulus packages, it is estimated that overall government revenue will fall by around HK$66.1 billion or 20.9% in 2009/10. Apart from the rebates and concessions, tax receipts in 2009/10 will likely be affected by lacklustre household earnings and business profits. Revenues from land premium and stamp duties also will not pick up sharply as activities in asset markets are not expected to be vibrant amid sluggish economic conditions.

On the other hand, overall government expenditure is estimated to be more or less the same as in 2008/09 or decrease modestly. A few policy areas will continue to see spending increases from 2008/09, including infrastructure, health care and environment and food. Of important note is the surge in infrastructure expenditure to HK$39.3 billion (or 2.4% of GDP) – a level not seen for at least a decade, particularly engaging the "10 major infrastructure projects".[17] That said, with the exception of the Kai Tak Development Plan, many of

[16] Including additional funding of HK$3.5 billion for the MTRC's West Island Line due to rising costs and changes in detailed design, which will be subject to the approval of the Legislative Council.

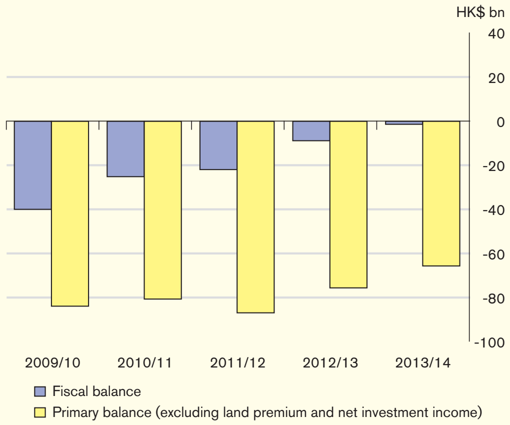
[17] The said amount had not taken into account the additional funding required for the MTRC's West Island Line.

Chart 2.26
Contributions to the projected fiscal surplus over the medium term



Sources: The 2009/10 Budget, the follow-on measures announced in May and staff estimates.

Chart 2.27
Projected overall fiscal balance and primary balance



Sources: The 2009/10 Budget, the follow-on measures announced in May and staff estimates.

these major projects are still under assessment and they are not likely to move into the construction stage in 2009/10. Another key policy area involves job creation, with HK$1.6 billion earmarked to create 62,000 jobs and internship opportunities in the next three years.

Over the medium term to 2013/14, the government projects the overall fiscal position will remain in deficit, but the size of the deficit will gradually decline to HK$1.3 billion (0.1% of GDP) in 2013/14 (Chart 2.26). Fiscal prudence is evident in that expenditure will rise modestly by an average 3.9% each year and its share as a percentage of GDP will fall. Still, capital spending will increase by an average 7.7% each year underpinned by infrastructure projects. Positive revenue growth is expected to resume from 2010/11 onwards alongside a gradual improvement in domestic economic conditions. The proceeds from land sales and investment income will remain under pressure. While internal revenue from direct and indirect tax remains the largest revenue source, asset income continues to play an important role in public finance. This can be seen from the persistent deficits in the primary balance (excluding land premium and net investment income) throughout the projection period (Chart 2.27). On the other hand, there are long-term fiscal challenges arising from an aging population and a relatively narrow tax base. The Government therefore intends to keep a prudent policy stance and maintain a sustainable fiscal position to meet development needs in the medium to longer term.

Box 4
Macroeconomic impact of the 2009/10 Government Budget and subsequent follow-on measures

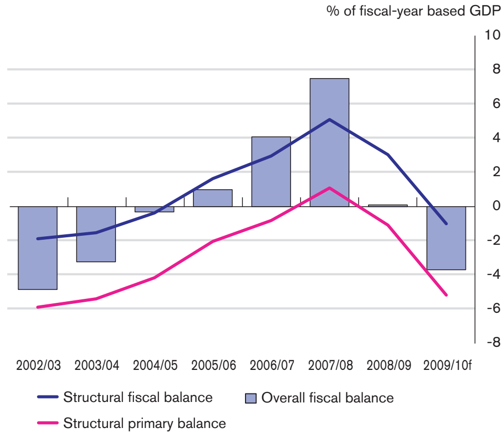
Table B4.A
Alternative indicators of fiscal account

Fiscal year[1]	2007/08	Budget 2008/09	Out-turn estimate 2008/09	Projection 2009/10
	(% of fiscal-year based GDP)			
Overall balance after net borrowing[2]	7.5	-0.5	-0.3	-3.9
Overall balance before net borrowing	7.5	-0.3	-0.1	-3.7
Operating balance[3]	4.3	-0.4	1.1	-1.8
Primary balance[4]	2.1	-5.4	-3.9	-6.6
Structural overall balance[5]	5.1	1.5	3.0	-1.0
Structural primary balance[6]	1.1	-2.6	-1.1	-5.2

Notes:
1. Figures are based on the 2009/10 Budget and the follow-on measures announced by the HKSAR Government in May 2009. They are expressed as a percentage of fiscal-year based nominal GDP released in May 2009. The actual out-turn of the consolidated account in 2008/09, a HK$1.4 billion surplus (0.1% of GDP), is not presented in this table because other than the headline figures of total expenditure and revenue, detailed data were not available at the time of publication of this Report.
2. The headline balance announced by the HKSAR Government.
3. Operating balance is defined as the difference between operating revenue and operating expenditure. Operating revenue comprises all receipts credited to the General Revenue Account (GRA) except those classified as capital revenue. Operating expenditure is all expenditure from GRA charged under "Recurrent Account" plus "Other Non-recurrent" expenditure.
4. Primary balance is defined as the overall balance excluding investment income and asset income such as land premium and privatisation proceeds.
5. Structural overall balance is the overall balance before net borrowing adjusted for the effects of cyclical conditions.
6. Structural primary balance is the primary balance adjusted for the effects of cyclical conditions.

Sources: The 2009/10 Budget, the 2009/10 Estimates, the follow-on measures announced in May, C&SD, Economic Analysis Division of the Financial Secretary's Office and staff estimates.

Chart B4.1
Structural fiscal balance and structural primary balance



Sources: The 2009/10 Budget, Government Treasury and staff estimates.

The Financial Secretary unveiled measures in the 2009/10 Budget, including tax rebates, rates concessions and job creation programmes, to provide relief for households and help mitigate the effects of job losses amid a deepening economic recession. Follow-on measures were announced in late May, boosting the total stimulus package for the current fiscal year to HK$25.2 billion or 1.6% of GDP. This box provides an assessment of their impact on Hong Kong's economic growth.

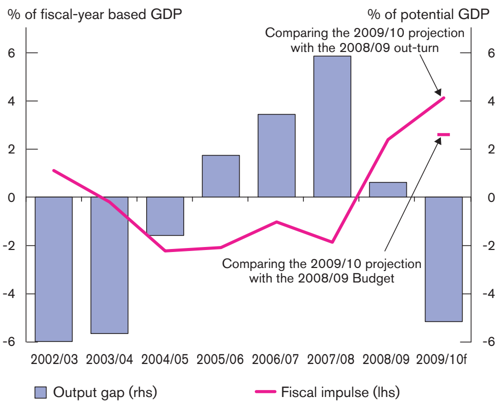
Structural fiscal balance and fiscal impulse

Given two rounds of stimulus packages, the overall government balance will turn to deficit in 2009/10, estimated at around -3.9% of GDP. However, this headline figure may not fully reflect the intensity of the fiscal policy stance since it is strongly affected by the cyclical conditions of the economy and some expenditure items have no immediate impact on the economy. This is particularly the case for infrastructural works that take years to implement. Therefore, we propose an alternative measure called structural fiscal balance that is purged of the effect of business-cycle fluctuations and is adjusted for fiscal operations having neutral economic impact.[18] The change in the structural primary balance, defined as fiscal impulse, then illustrates the policy stance of fiscal measures.

It is estimated that the structural fiscal balance so derived will be around -1.0% of GDP in 2009/10, reversing the structural surplus of 3.0% of GDP in 2008/09 (Table B4.A and Chart B4.1). After netting out land premium and net investment income, the projected structural primary balance will be a deficit equivalent to -5.2% of GDP in

[18] Fiscal operations with neutral economic impact in 2009/10 refer to the injection of HK$1.0 billion to the SME Export Marketing Fund, HK$1.2 billion to the Continuing Education Fund and HK$2.6 billion to the Special Loan Guarantee Scheme and the SME Loan Guarantee Scheme, as well as the amortisation of the upfront endowment of HK$12.7 billion for the MTRC's West Island Line project.

Chart B4.2
Fiscal impulse and output gap



Note: A positive fiscal impulse indicates an expansionary fiscal policy. The output gap estimates are on a calendar-year basis.

Sources: The 2009/10 Budget, Government Treasury and staff estimates.

2009/10, further widening from a deficit of -1.1% of GDP in 2008/09.[19] Accordingly, the fiscal impulse is estimated at +4.1% of GDP in 2009/10 when comparing the projected balance with the out-turn in 2008/09, suggesting an expansionary fiscal policy stance against the background of a negative output gap (Chart B4.2). The fiscal impulse can be decomposed into contributions from revenue and expenditure. In 2009/10, the part due to revenue loss will be +2.5% of GDP and that due to expenditure increase will be +1.6% of GDP. On a different comparison base, the fiscal impulse will be +2.6% of GDP in 2009/10 when comparing the projected balance with the original budget (instead of the out-turn) in 2008/09.

Impact on economic growth

The widening of the underlying fiscal deficit is expected to provide stimulus to the domestic economy through its multiplying effect on aggregate demand. Simulation results based on multiplier estimates and our small forecasting model suggest that the fiscal measures announced in the 2009/10 budget, together with the supplementary measures in May, will on average increase economic growth by around one percentage point in 2009.[20 & 21] Taking all the fiscal measures introduced in 2008/09 and 2009/10 together, it is estimated that the whole HK$876 billion package will boost real GDP growth by around two percentage points.

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19 The primary balance is derived by subtracting the land premium, net investment income and proceeds from asset sales from the overall fiscal balance.

20 Fiscal impulse and multiplier estimation are discussed in "Hong Kong: macroeconomic impact of recent fiscal measures", *HKMA Quarterly Bulletin*, February 2000.

21 For a detailed description of the specifications of the small forecasting model, see Ha, Leung and Shu (2002), "A small macroeconomic model of Hong Kong", *HKMA Research Memorandum*, June 2002, and Kong and Leung (2004), "Revised small forecasting model for Hong Kong", *HKMA Research Memorandum, 13/2004.*

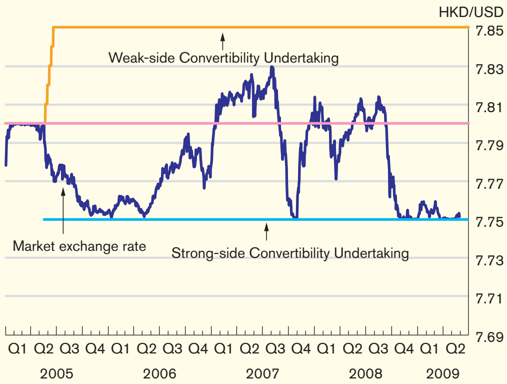
3. Monetary and financial sector

Exchange rate, interest rates and monetary developments

The Hong Kong-dollar spot exchange rate stayed close to 7.75 in the six-month review period and the strong-side Convertibility Undertaking was repeatedly triggered between late March and mid-May. The Aggregate Balance increased markedly as a result, and interbank interest rates declined to very low levels. Despite a broad-based contraction in loans due to subdued economic activity, Hong Kong-dollar deposits and money supply expanded on the back of strong inflows.

On 26 March 2009 the HKMA announced that it would incorporate foreign-exchange swap and term repurchase arrangements into its market operations to offer Hong Kong-dollar liquidity assistance to banks, if needed, on a case-by-case basis after the expiry of the five temporary liquidity-assistance measures on 31 March 2009.

Chart 3.1
Hong Kong-dollar exchange rate

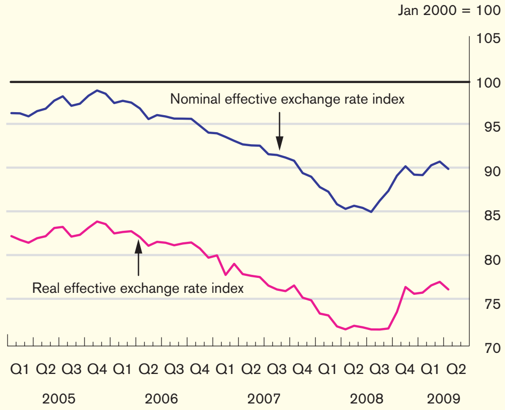


Source: HKMA.

3.1 Exchange rate and interest rates

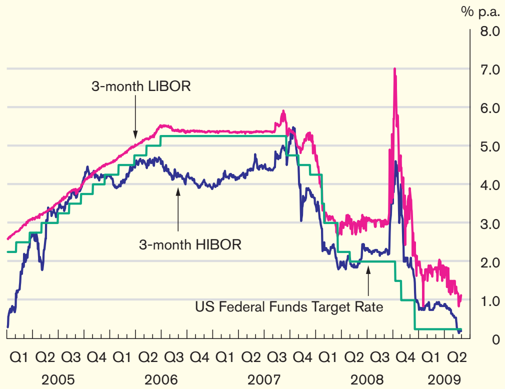
The Hong Kong-dollar spot exchange rate stayed close to the strong-side Convertibility Undertaking (CU) of 7.75 from mid-October 2008 to May 2009 (Chart 3.1). In the last two months of 2008 the strong-side CU was repeatedly triggered, reflecting an unwinding of carry trades and repatriation of funds by the non-bank private sector (Box 5 analyses the impact of recent money market turbulence on the foreign exchange market and discusses its implications for Hong Kong). After an 11-week hiatus, the strong-side CU was triggered again between 20 March and 14 May 2009, prompting the HKMA to passively inject liquidity into the banking system. The strong inflows into the Hong Kong dollar were due to the repatriation of funds by domestic corporations ahead of the end of the quarter, and increased equity-related demands associated with the HSBC rights issue, a large IPO and demands from institutional investors reportedly positioning for a rebound in the stock market. Narrowed interest-rate differentials between the Hong Kong dollar and the US dollar also reduced the appetite for carry trades, restraining the weak-side potential of the Hong Kong dollar.

Chart 3.2
Nominal and real effective exchange rates



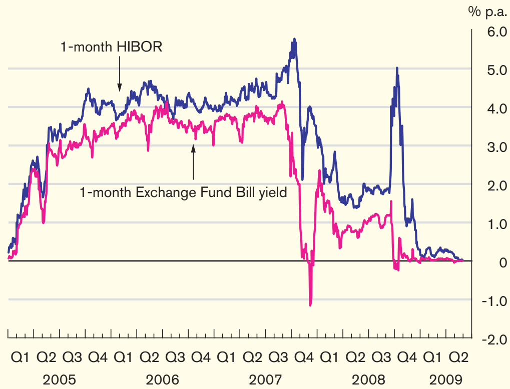
Note: Monthly average figures. Real Effective Exchange Rate Index is seasonally adjusted.
Sources: C&SD and staff estimates.

Chart 3.3
Interest rates of the Hong Kong dollar and US dollar



Source: HKMA.

Chart 3.4
Interest rates of the Hong Kong dollar



Source: HKMA.

Under the Linked Exchange Rate system, movements in the bilateral exchange rates of the Hong Kong dollar against other currencies closely follow those in the bilateral exchange rates of the US dollar. After a sharp strengthening in the second half of 2008, the US dollar appreciated in effective terms against other currencies in the first three months of 2009, but weakened somewhat afterwards. Reflecting the overall movements in the US dollar, the trade weighted nominal and real effective exchange rate indices of the Hong Kong dollar appreciated by around 0.7% and 0.6% respectively between January and April 2009 (Chart 3.2).

Local money market conditions continued to ease following the introduction of various measures in response to the global financial crisis. After generally declining in the last quarter of 2008, interbank interest rates for the Hong Kong dollar were generally stable at low levels in 2009 Q1 and decreased afterwards alongside their US dollar counterparts (Chart 3.3). The recent decreases in HIBORs also reflected an improvement in market sentiment, rising interbank liquidity and continuing global efforts to ease the stress in the interbank markets. The overnight and one-month HIBORs closed at near-zero levels on 29 May 2009, sharply lower than their respective intraday highs of 4% and 6% on 18 September 2008. The 12-month HIBOR also declined to around 1% towards the end of May 2009.

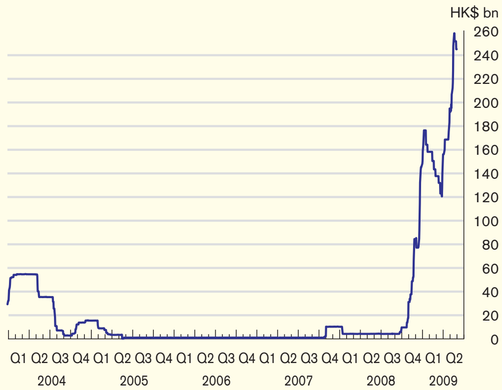
The very low yields of short-dated Exchange Fund paper persisted, with the implied yields of one-week and one-month Exchange Fund Bills declining to below zero in late April and early May 2009 (Chart 3.4). This partly reflected strong market demand for high-quality liquid assets. To meet the strong demand, the HKMA supplied additional Exchange Fund Bills to the market, bringing the ad hoc issues to a total of $112.3 billion by the end

Table 3.A
Issuance of additional Exchange Fund Bills since September 2008

Announcement date	Announced amount (HK$ bn)
20 October 2008	4
24 November 2008	8
6 January 2009	18
3 February 2009	20.4
3 March 2009	22.4
21 April 2009	15.4
12 May 2009	24.1

Source: HKMA.

Chart 3.5
Aggregate Balance (before Discount Window Activity)



Source: HKMA.

Table 3.B
Review of the five temporary liquidity measures

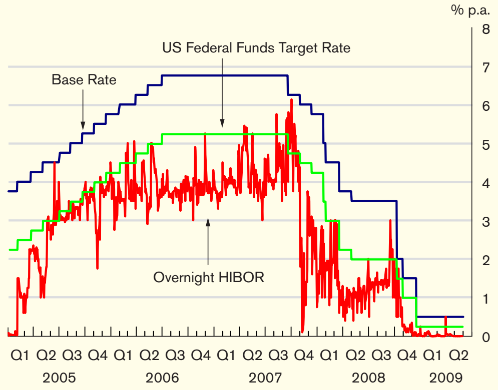
1. **Wider scope of collateral under the Discount Window**
   Expired on 31 March 2009.
2. **Term Discount Window borrowing**
   Expired on 31 March 2009.
3. **Waiving the penal interest rate at the Discount Window**
   Expired on 31 March 2009.
4. **Foreign exchange swaps**
   Retained.
5. **Term lending against collateral**
   Retained.

of May (Table 3.A). The additional bills mainly represented a transfer within the Monetary Base from the Aggregate Balance to Exchange Fund paper. The additional issues were well received by the market.

Despite the additional supply of Exchange Fund paper, the Aggregate Balance surged to record highs due to the triggering of the strong-side CU (Chart 3.5). The Aggregate Balance increased to a high of $175.4 billion in early January 2009, before declining to $120.0 billion on 25 March as the HKMA supplied additional Exchange Fund Bills to the market (Table 3.A). The Aggregate Balance started to rebound in late March and surpassed $200 billion on 7 May amid news of strong capital inflows and a rally in the stock market. It closed at $243.6 billion on 29 May, which was over four times the previous high of around $55 billion in early 2004. At that time, substantial speculative inflows into the Hong Kong dollar emerged to bet on an appreciation of the currency along with an anticipated introduction of renminbi exchange-rate flexibility. In contrast, the current inflows appeared to be largely driven by stock market activities and there were no signs of inflows relating to exchange-rate speculation.

After the introduction of the five temporary liquidity-assistance measures in late September 2008, the local interbank money market continued to stabilise and the use of the five measures was mainly limited to forex swaps and term repos (Table 3.B). Against this background, and taking into account market views, the HKMA announced on 26 March 2009 that it would incorporate the forex swap and term repo (against securities of acceptable quality to the HKMA) into its ongoing market operations to offer Hong Kong-dollar liquidity assistance to banks, if needed, on a case-by-case basis after the five temporary measures expired at the end of March 2009 (Table 3.B). The HKMA also decided to resume the previous arrangements for the Discount Window (that is, using only Exchange Fund paper for overnight repo) to safeguard exchange-rate stability under the Currency Board system. These policy actions were designed to assure banks of the availability of liquidity in case of need.

Chart 3.6
Overnight and policy interest rates



Source: HKMA.

Another arrangement for providing liquidity assistance to banks is the adjustment to the Base Rate formula introduced on 8 October 2008. Following a downward adjustment in the US Federal Funds Target Rate (FFTR) from 1% to 0-0.25% on 16 December 2008, the HKMA Base Rate was lowered from 1.5% to 0.5% (50 basis points above the lower boundary of the FFTR target range) according to the new formula (Chart 3.6). After a review of the appropriateness of the new Base Rate formula, the HKMA announced on 26 March 2009 that the narrower 50-basis point spread over the US FFTR would be retained in place of the previous spread of 150 basis points. The HIBOR leg will also be re-instated in the calculation of the Base Rate to allow the functioning of interest rate adjustment under the Currency Board system as necessary, and to encourage banks to prudently manage their day-to-day liquidity.

The HKMA also reviewed and strengthened the Lender of Last Resort framework for individual banks under liquidity stress by expanding the types of assets and facilities eligible for obtaining Hong Kong-dollar liquidity.

Box 5
Financial spillover: transmission of counterparty risks from the money market to the foreign exchange market

Unlike past financial crises, the current one is characterised by its enormous impact on the money market. When the crisis was at its peak in late October and early November last year, the abrupt increase in counterparty risks effectively paralysed the money market. The effects of the crisis on the foreign exchange (FX) market, however, are less noticeable. This box explains how the effects have spilled over to the FX market and discusses the implications for Hong Kong.

From parity to disparity

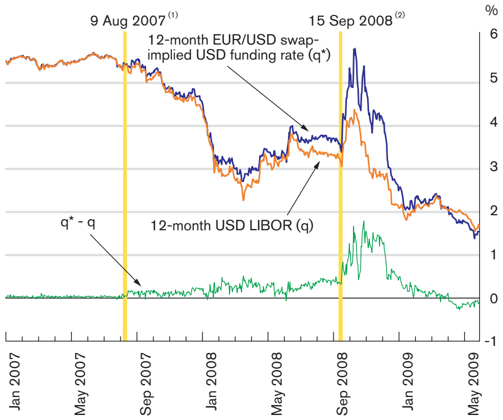
Under the interest parity theory, the equilibrium forward exchange rate is equal to the spot exchange rate multiplied by the interest differential between the two currencies concerned. In normal circumstances, a deviation of the forward exchange rate from the equilibrium rate would present opportunities for arbitrage, which would eventually bring the rate back to equilibrium. However, during this crisis, some market participants were denied access to funds in the money market as they were assessed by their peers as having a higher counterparty risk. This forced them to turn to the FX swap market for funding, hence bidding up the forward exchange rate to significantly above the level predicted by the theory.

European experience

Such spillover was evident in Europe. Baba and Packer (2009)[22] observed that as European banks tried to secure US-dollar funding to support their US conduits, US banks – also facing mounting financing difficulties and having to preserve funds on hand – became cautious in lending to their European counterparts. As a result, the latter had to resort to converting euros into dollars in the FX swap market. As soon as these European banks

[22] Baba and Packer (2009), "Interpreting derivations from covered interest parity during the financial market turmoil of 2007 - 08", *Journal of Banking and Finance*, forthcoming.

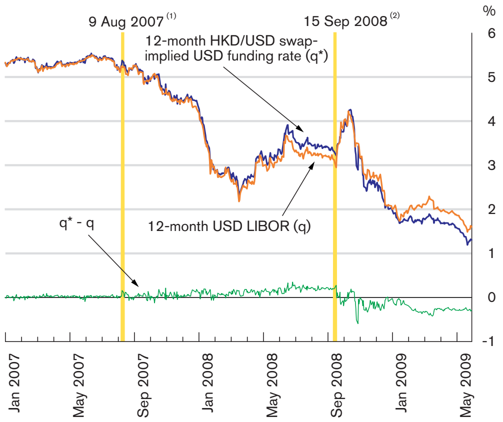
Chart B5.1
Implied US-dollar funding cost: Europe



Sources: Bloomberg and staff estimates.

Notes:
1. BNP Paribas froze redemptions for three investment funds.
2. Lehman Brothers filed for bankruptcy.

Chart B5.2
Implied US-dollar funding cost: Hong Kong



Sources: Bloomberg and staff estimates.

Notes:
1. BNP Paribas froze redemptions for three investment funds.
2. Lehman Brothers filed for bankruptcy.

(borrowers) – perhaps with the exception of the well-known members on the LIBOR panel – were perceived to be riskier by US banks (lenders), a risk premium quickly developed. This risk premium can be measured by how much LIBOR is exceeded by the implicit cost of US dollar funding implied by the forward exchange rate. Before the credit crisis erupted in August 2007, the US-dollar LIBOR and the EUR/USD-swap-implied US dollar funding rate stayed very close to each other (Chart B5.1).[23] Since then, a risk premium has emerged as the swap-implied funding rate moved above LIBOR. This premium rose sharply in mid-September 2008 and reached its peak towards the end of October before declining amid extraordinary government measures introduced to unfreeze the money market.[24]

Hong Kong experience

Interestingly, the euro experience to some extent mirrors what has happened to the Hong Kong dollar. In a more recent study, Genberg *et al.* (2009)[25] found that the HKD/USD-swap-implied US dollar funding rate has been trading below LIBOR amid the reappraisal of counterparty risks (Chart B5.2).[26] The study also noted that the spillover from the money to the FX market, as reflected by the deviation from covered interest parity, to some extent dictated exchange rate movements or capital flow directions during the current financial crisis. Under the floating exchange rate regime, the spillover will drive up (down) the currency of the economy in which banks are perceived to have lower (higher) counterparty risks. This can best be exemplified by the euro exchange rate which had, until recently, weakened sharply following the spike in the risk premium in

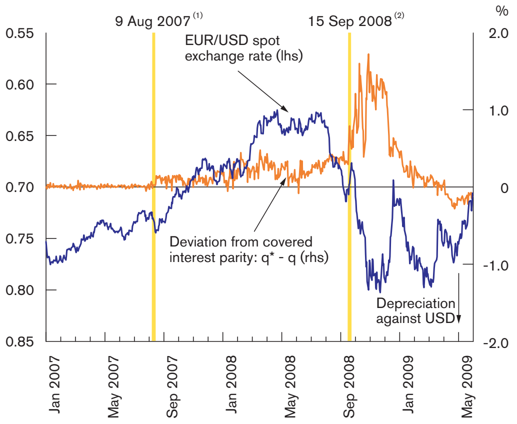
[23] Before 2007 (not shown in Chart B5.1), the same situation had prevailed throughout the history of the euro.

[24] The recent negative risk premium may reflect market concerns for US banks in the wake of the aggressive "quantitative easing" by the US Federal Reserve.

[25] Genberg et al. (2009), "The Link between FX swaps and currency strength during the credit crisis of 2007 - 2008", *HKMA Research Note 01/2009*.

[26] Before 2007 (not shown in Chart B5.2), persistent deviations from covered interest party had only occurred during the Asian financial crisis.

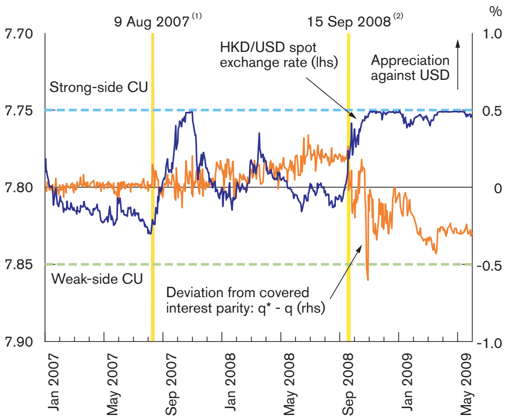
Chart B5.3
Implied US-dollar funding cost and exchange rate: Europe



Sources: Bloomberg and staff estimates.

Notes:
1. BNP Paribas froze redemptions for three investment funds.
2. Lehman Brothers filed for bankruptcy.

Chart B5.4
Implied US-dollar funding cost and exchange rate: Hong Kong



Sources: Bloomberg and staff estimates.

Notes:
1. BNP Paribas froze redemptions for three investment funds.
2. Lehman Brothers filed for bankruptcy.

mid-September last year (Chart B5.3). However, in Hong Kong, under the Linked Exchange Rate system, the resulting upward pressure on the local currency has translated into considerable capital inflow. The Hong Kong dollar has been trading close to the strong-side Convertibility Undertaking (CU) of 7.75 since mid-September last year (Chart B5.4). Under the CU arrangement, the HKMA is obliged to inject liquidity into the system to meet with any excess demand for the local currency at 7.75.

3.2 Monetary Base and the Backing Ratio

The Monetary Base expanded markedly due to the increase in the Aggregate Balance and the additional supply of Exchange Fund paper (Table 3.C). At the end of March 2009, the Aggregate Balance surged by around $150 billion compared with six months earlier, representing about 10% of the size of the Exchange Fund or 1.5% of the balance sheet of the banking system as a whole. Outstanding Exchange Fund paper also rose by 50% over the same period. Reflecting the effect of the increase in the Monetary Base, the Backing Ratio generally decreased after reaching a high of 111.88% on 21 September 2008. The Backing Ratio closed at 106.17% on 29 May 2009. Under the current monetary arrangements, if the Backing Ratio declines to 105% (the lower trigger level), assets will be transferred from the Investment Portfolio to the Backing Portfolio to restore the Ratio to 107.5%. While specific Exchange Fund assets have been designated for the Backing Portfolio, all Exchange Fund assets are available to support the Hong Kong-dollar exchange rate.

Table 3.C
Monetary Base

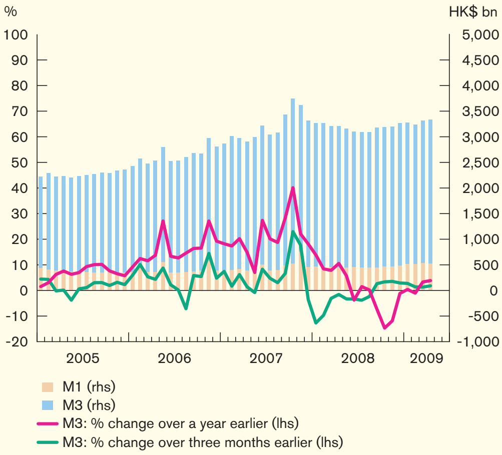
(HK$ bn) Month-end	2008 Sep	2008 Dec	2009 Mar
Monetary Base	347.7	507.5	570.7
Certificates of Indebtedness	180.7	177.2	183.0
Government-issued currency notes and coins	8.2	8.6	8.7
Aggregate Balance	10.1	158.0	155.3
Outstanding Exchange Fund Bills and Notes	148.7	163.6	223.7
Exchange Fund assets	1,426.3	1,560.3	1,603.9
Banking sector assets	10,601.6	10,754.1	10,452.9

Source: HKMA.

3.3 Money, credit and monetary conditions

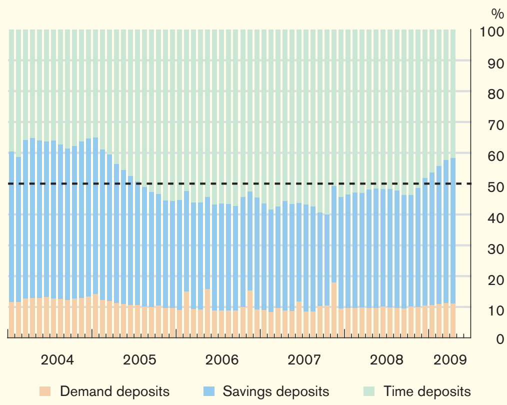
After bottoming out in August 2008, Hong Kong-dollar M3 broadly rebounded (Chart 3.7). The increase in broad money was due partly to an inflow of funds into Hong Kong dollars, which was in line with the strength of the currency. In addition, Hong Kong residents converted their domestic renminbi deposits back into Hong Kong dollars, resulting in a substantial decline in renminbi deposits in Hong Kong. Analysed by the asset-side counterparts of Hong Kong-dollar M3, the rebound was mainly due to a rise in net foreign currency assets, instead of an expansion in private-sector credit. Hong Kong-dollar M1 also broadly increased between October 2008 and April 2009, mainly driven by growth in demand deposits. In March and April 2009, transaction demand for money increased on the back of a rally in the stock market.

Chart 3.7
Hong Kong-dollar M3



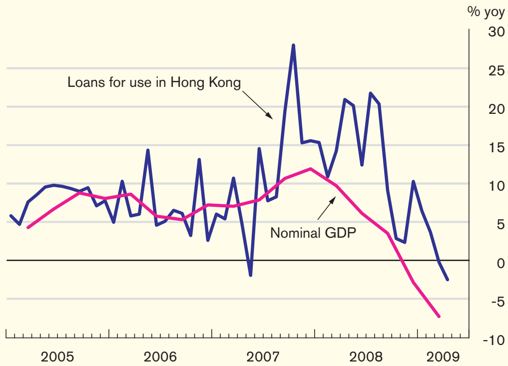
Note: Hong Kong-dollar M1 is not seasonally adjusted.
Source: HKMA.

Chart 3.8
Hong Kong-dollar deposits by type



Source: HKMA.

Chart 3.9
Loans for use in Hong Kong and nominal GDP



Sources: HKMA and C&SD.

Table 3.D
Loans for use in Hong Kong by sector

	2008 Q3	2008 Q4	2009 Q1
	Quarter-on-quarter percentage change		
Loans for use in Hong Kong	2.7	-3.5	-3.8
	Percentage-point contribution		
of which:			
Trade finance	-0.2	-1.3	-1.0
Property development and investment	1.1	0.5	-0.3
Residential mortgage loans	0.2	-0.3	-0.1
Manufacturing	0.2	-0.3	-0.1
Financial concerns	1.0	-0.6	-1.5
Stockbrokers	-0.1	0.0	0.0
Wholesale and retail trade	0.0	-0.2	-0.3
Other loans	0.6	-1.4	-0.5

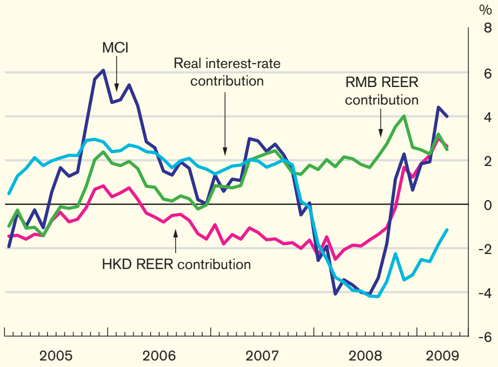
Source: HKMA.

Because the opportunity cost of holding liquid deposits declined further along with lower interbank interest rates, there was a continuing switch from time deposits to liquid deposits (Chart 3.8). Liquid deposits accounted for 58.3% of Hong Kong-dollar deposits at the end of April 2009, compared with a peak of 65.1% between September 2003 and July 2005 when term-deposit interest rates were extremely low amid ample liquidity in the banking sector.

In contrast with the rise in money supply and deposits, loans for use in Hong Kong contracted between October 2008 and April 2009, reflecting an economic downturn and a collapse in global trade. Broadly tracking the movements in nominal GDP, domestic loans shrank by 2.5% year on year at the end of April 2009, compared with a 10.3% expansion in 2008 (Chart 3.9).

Analysed by economic use, the quarter-on-quarter contraction in loans for use in Hong Kong was broad-based, mainly driven by trade-financing loans, lending to financial concerns and "other" loans (Table 3.D). In the wake of the deepening global financial crisis in September 2008, trade-financing loans fell at double-digit rates alongside plunging trade flows, contributing around 30% of the decline in domestic loans (Box 6 attempts to answer the question whether the lack of trade finance has been a binding constraint on trade flows). Lending to financial concerns also dropped in a difficult investment environment. Accounting for around a half of total domestic loans, property-related lending contracted at a slower rate. The first quarter of 2009 saw some tentative signs of a recovery in the residential property market. Survey data suggest that banks became more aggressive in the mortgage loan market. They lowered their effective mortgage interest rates for newly approved loans, with more customers choosing HIBOR-based products to take advantage of low interbank interest rates.

Chart 3.10
Monetary conditions index



Note: MCI is a weighted sum of the real interest rate and the four-quarter changes in the Hong Kong-dollar and renminbi real effective exchange rates.

Sources: HKMA and staff estimates.

In early 2009 both Hong Kong-dollar and foreign-currency loans continued to decline. As Hong Kong-dollar loans decreased while deposits rose, the Hong Kong-dollar loan-to-deposit ratio fell from a high of 83.8% at the end of August 2008 to 74.7% at the end of April 2009. Foreign-currency and total-currency loan-to-deposit ratios also showed similar patterns.

Owing to real-exchange-rate appreciation of the Hong Kong dollar, the monetary conditions index (MCI) generally rose in early 2009, suggesting tighter local monetary conditions (Chart 3.10). However, abundant interbank liquidity and low interbank interest rates should provide an accommodative monetary environment to support real economic activity.

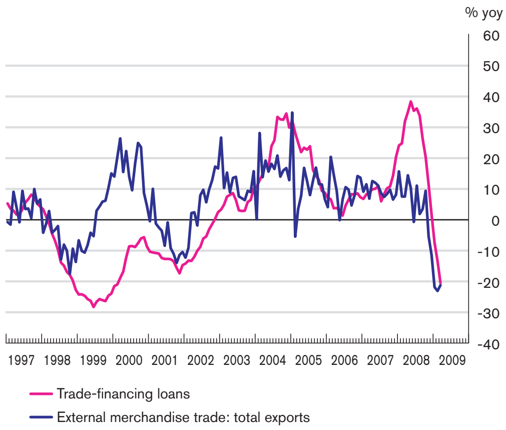
Box 6
Has the lack of trade finance been a binding constraint on Hong Kong's foreign trade flows?

World trading activities have fallen sharply in recent months alongside the worst global economic slump since the Second World War. Trade-financing loans have also shrunk and anecdotal evidence suggests that trade finance has been costlier and harder to get in the wake of tightened credit stances on the part of commercial banks after the collapse of Lehman Brothers in September 2008. This box discusses the relative importance of the decline in external demand and credit constraints in contributing to the sharp decline in exports and trade finance in Hong Kong.

Sharp decline in exports and trade finance

Hong Kong's total exports of goods have weakened notably since November 2008, as the synchronised global downturn took its toll on world trade. Total merchandise exports fell in value terms by 21.1% year on year in March 2009, much worse than the 11.4% decline in December 2008 (Chart B6.1). Analysed by market, export activities showed broad-based weakness across all major destinations.

Chart B6.1
Year-on-year changes in exports and trade finance



Sources: C&SD and HKMA.

Trade-related lending[27] has also plunged since September 2008 (Chart B6.1). After increasing by 1.7% in 2008, trade finance shrank by 20.4% year on year at the end of March 2009. Compared with another major downward cycle in 1998 and 1999, the pace of the decrease in trade-financing loans has been more rapid in the current episode. According to the Balance of Payments statistics, trade credit recorded a net inflow in the fourth quarter of 2008, reversing the net outflows in the previous seven quarters. The net inflow occurred because a decrease in trade-credit assets (Hong Kong residents lent less to non-residents) exceeded a decline in trade-credit liabilities (Hong Kong residents borrowed less from non-residents).

[27] Trade-financing loans cover finance of imports to Hong Kong, exports and re-exports from Hong Kong, and merchandising trade not touching Hong Kong.

Decline in exports and trade finance: demand-driven or due to credit constraint?

While the decrease in trade credit may reflect reduced trade flows caused by a sharp fall in global demand, a disruption to financial intermediation may also constrain global trade through a tightening of trade finance. It is, however, difficult to disentangle cause and effect, and the possibility of collapsing trade flows and shrinking trade credit reinforcing each other cannot be ruled out. However, preliminary evidence suggests that the contraction in foreign trade and trade finance in Hong Kong was more a result of the collapse in global demand than the rationing of trade credit by commercial banks.

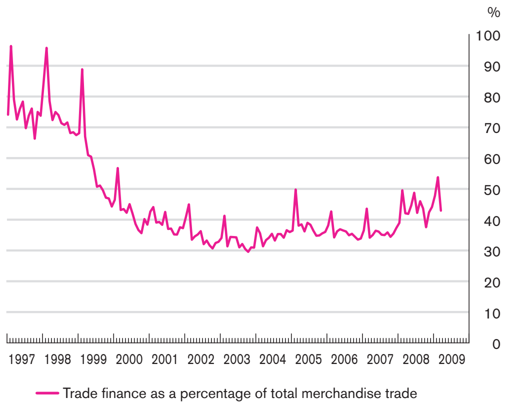
On the supply side, Hong Kong's banking system has remained sound amid the global financial crisis and there have been no visible signs of a credit crunch at the retail and corporate level despite shrinking loan assets on banks' balance sheets. According to the HKMA Survey on Credit Outlook in December 2008, 77% of the surveyed banks expected domestic loan demand to decline in the next three months and the contraction in demand was expected to be more pronounced in the manufacturing, import and export and property sectors (Table B6.A). This is in stark contrast to the result in June 2008 when 91% of banks expected demand to remain stable or increase. From the perspective of banks, shrinking loan demand appears to have weighed on their lending to external trade businesses. Indeed, the ratio of trade credit to total merchandise trade has generally risen in recent months, in contrast with a downward trend during 1998 and 1999 (Chart B6.2).

Table B6.A
Expectation of domestic loan demand in the next three months

	2008			
	Mar	Jun	Sep	Dec
	(% of total respondents)			
Increase considerably	0	0	5	0
Increase somewhat	57	43	5	10
Remain stable	38	48	19	14
Decrease somewhat	5	10	62	67
Decrease considerably	0	0	10	10

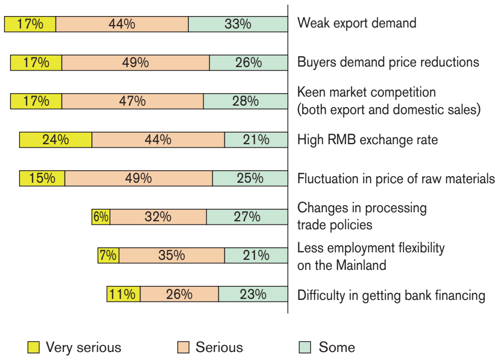
Note: Figures may not add up to total due to rounding.
Source: Credit Outlook Survey, HKMA.

Chart B6.2
Trade finance and trade flows



Sources: C&SD and HKMA.

Chart B6.3
The current operating difficulties facing Hong Kong companies on the Mainland



Source: Research Department, Hong Kong Trade Development Council.

A survey by the Trade Development Council shows that bank financing, though a "serious" problem, was ranked as the least important in terms of operating difficulties facing Hong Kong traders and manufacturers with activities on the Mainland during the first quarter of 2009 (Chart B6.3). Instead, most respondents reported that weak export demand and buyers' expectations of price cuts were the major operating difficulties. This suggests the contraction in visible trade and trade finance was more a result of the collapse in global trade demand rather than of credit rationing.

The HKMA small forecasting model is also used to indirectly investigate the role of trade finance in the trade performance of Hong Kong in the final quarter of 2008. If trade finance were indeed important and had caused a shaper-than-expected contraction in trade, we would expect our demand-based model to significantly over-predict actual trade activities in terms of either in-sample or out-of-sample forecasts. Estimation results reveal that over-prediction of trade activities is either absent or not particularly large in 2008 Q4 compared with prediction errors in the previous quarters. This suggests that crunch in trade credit may not be a major factor explaining the sluggish trade performance in Hong Kong.

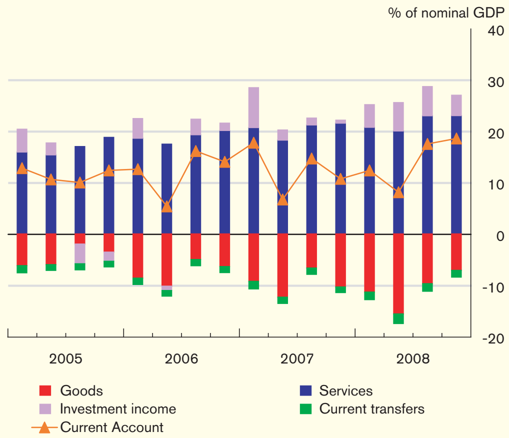
3.4 Balance of Payments

Latest Balance of Payments (BoP) statistics showed an expansion in reserve assets for the fourteenth consecutive quarter. Reflecting purchases of US dollars by the HKMA, reserve assets surged by $147.3 billion in the fourth quarter of 2008, representing the largest quarterly increase since 1999.

Despite a sharp deterioration in the global economy and trade performance, the current account remained in surplus in the second half of 2008 as the persistent surpluses in services trade exceeded the narrowing deficits in merchandise trade (Chart 3.11 and Table 3.E). The services-trade surpluses were mainly due to trade-related and transportation services, while the positive contribution of net exports of financial services shrank in the second half of 2008, due partly to a tumbling stock market.

Amid the global financial crisis, the non-reserve financial account recorded net inflows in the last quarter of 2008, reversing the net outflows in the previous two quarters (Table 3.E). The net financial-capital inflows occurred mainly because the net inflows from other investment exceeded the net outflows from portfolio investment. When the crisis intensified in September 2008, Hong Kong residents repatriated funds from overseas, leading to a large reduction in other investment assets in the form of currency and deposits. These other investment inflows were partially offset when domestic investors bought foreign debt securities and non-residents became net sellers of resident equities in the fourth quarter.

Chart 3.11
Contributions to current account surplus



Source: C&SD.

Table 3.E
Balance of Payments account by standard component

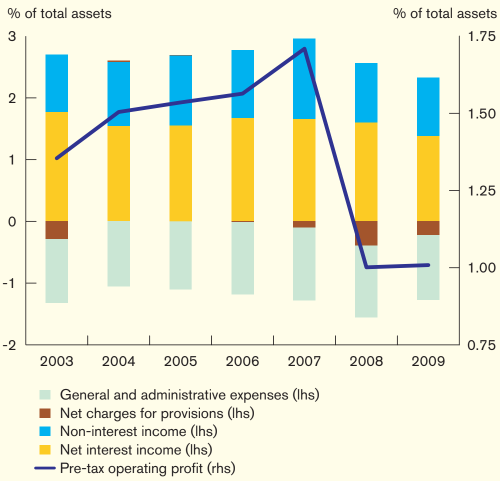
% of GDP	2007	2008	2008 Q1	2008 Q2	2008 Q3	2008 Q4
Current Account	**12.3**	**14.2**	**12.3**	**8.1**	**17.4**	**18.4**
Capital and Financial Account	**-16.0**	**-12.9**	**-8.2**	**-5.1**	**-21.5**	**-15.9**
Capital transfers	0.6	1.0	0.6	0.5	1.9	1.0
Financial non-reserve assets (net change)	**-9.6**	**1.9**	**4.5**	**-3.0**	**-11.4**	**17.0**
Direct investment	-3.3	1.4	13.7	-20.0	7.5	3.6
Portfolio investment	-1.3	-17.4	-45.6	5.9	18.8	-48.3
Financial derivatives	2.7	3.8	2.6	2.9	7.6	1.9
Other investment	-7.7	14.1	33.8	8.1	-45.4	59.7
Reserve assets (net change)	**7.1**	**15.7**	**13.4**	**2.6**	**11.9**	**33.8**
Net errors and omissions	**3.7**	**-1.3**	**-4.0**	**-2.9**	**4.1**	**-2.6**

Source: C&SD.

Banking sector performance

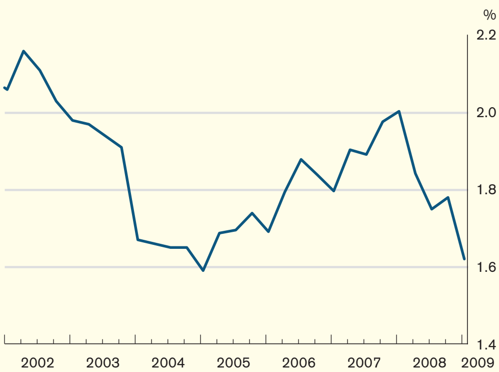
As the economy weakened, the profits of retail banks fell due to increased provisions and narrowed net interest margins, while the asset quality of corporate lending and unsecured household loans deteriorated. However, capitalisation and liquidity remained structurally robust, with the latter improving following various liquidity assistance measures by the HKMA. Although the impact of the global financial crisis appears to be subsiding, weakened economic fundamentals are likely to pose challenges to the domestic banking sector as the corporate and household sectors repair their balance sheets and credit demand growth continues to slow. Against this backdrop, banks' profitability, while remaining healthy at current levels, will be subjected to downward pressure in the period ahead.

Chart 3.12
Profitability of retail banks



Note: Figures for 2009 are annualised figures up to the first quarter.
Source: HKMA.

Chart 3.13
Net interest margin of retail banks



Note: Quarterly annualised figures.
Source: HKMA.

3.5 Profitability and capitalisation

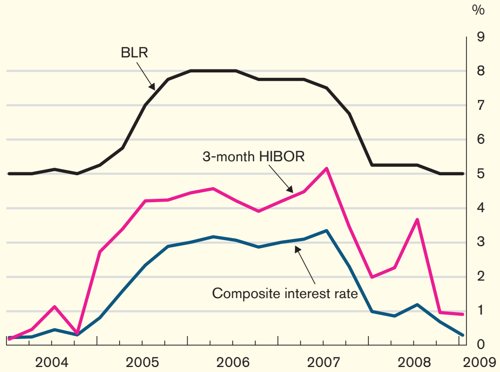
Profitability

The profitability of retail banks, measured by the aggregate pre-tax operating profit as a percentage of total assets, remained healthy despite declining in the six-month assessment period to March 2009[28] (Chart 3.12). However, there was a slight improvement in 2009 Q1 from the previous quarter due to lower net charges for provisions and higher non-interest income, which to some extent reflected higher fees and commissions.

Following a minor improvement in 2008 Q4, the net interest margin narrowed notably in 2009 Q1, exerting downward pressure on operating income (Chart 3.13). This was mainly attributable to significant reductions in the interest margin of HIBOR-based lending due to improved liquidity conditions in the interbank market, notwithstanding the fact that the widened net interest margin of best lending rate (BLR)-priced lending somewhat counterbalanced the negative impact. The three-month HIBOR decreased by 259 basis points from the end of October 2008 to the end of April 2009, but the composite interest rate, which reflects the average cost of

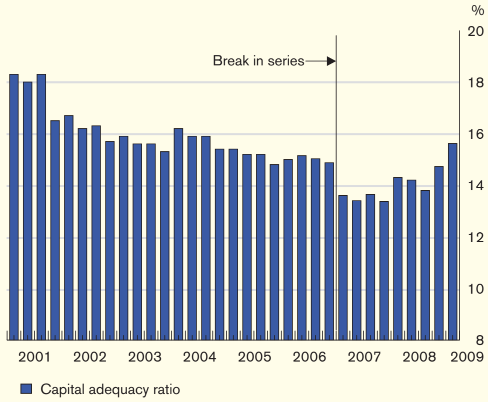
[28] Unless otherwise stated, the assessment period in this chapter refers to the six-month period from the end of September 2008 to the end of March 2009.

Chart 3.14
Composite interest rate



Note: End of period figures.
Source: HKMA.

Chart 3.15
Capitalisation of locally-incorporated AIs



Source: HKMA.

funds of retail banks, fell by only 101 basis points. At the same time, the BLR[29] was adjusted downward by 25 basis points (Chart 3.14).

The reduction in the net interest margin also reflected that banks increased their holdings of negotiable debt instruments issued by foreign governments, which in general offer relatively low yields amid aggressive monetary easing by central banks around the world. While such a development, by and large, reflected the adoption of a more conservative approach by banks in Hong Kong to utilising their surplus funds by holding higher-quality and more liquid securities, it also meant a thinner net interest margin for their portfolios. This may have implications for banks' profitability if the trend persists.

Capitalisation

While banks generally had to make significant provisions for their investment and loan portfolios in 2008 Q4 – which had a negative impact on their capitalisation – the banking sector remained well capitalised by Basel II standards. Reflecting partly the result of successful fundraising activities by some AIs to strengthen their capital base, the aggregate consolidated capital adequacy ratio of locally incorporated AIs increased to 15.6% at the end of March 2009 from 13.8% at the end of September 2008 (Chart 3.15).[30] This level remained well above the minimum international standard of 8%.

The excessive leveraging of financial institutions in the US and some European markets was a key element contributing to the sub-prime crisis. For banking stability, it is, therefore, important to monitor banks' leverage closely. A leverage ratio, defined as the ratio of tier-one capital to total adjusted assets[31], is an effective

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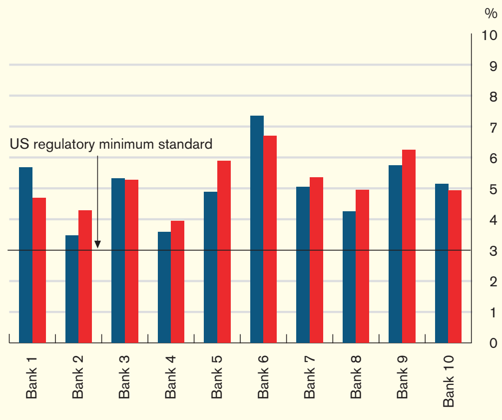
[29] BLR refers to the rate quoted by the Hongkong and Shanghai Banking Corporation Limited. Most retail banks adjusted their BLRs downward by 25 basis points on 10 November 2008.

[30] With effect from 1 January 2007, a revised capital adequacy framework ("Basel II") was introduced for locally incorporated AIs. The capital adequacy ratios from March 2007 onwards are therefore not directly comparable with those up until December 2006.

[31] Total assets minus goodwill, intangible assets and deferred tax assets. This definition is similar to that adopted by the Federal Deposit Insurance Corporation in the US in calculating the regulatory leverage ratio. For details, see Appendix D to Part 225 of the Bank Holding Company Act (http://www.fdic.gov/regulations/laws/rules/6000-2200.html).

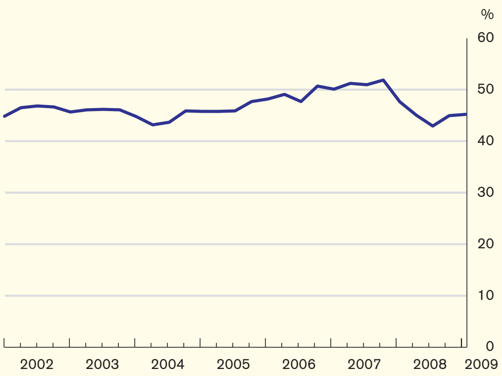
Chart 3.16
The leverage ratios of banks in Hong Kong



Note: Consolidated positions.

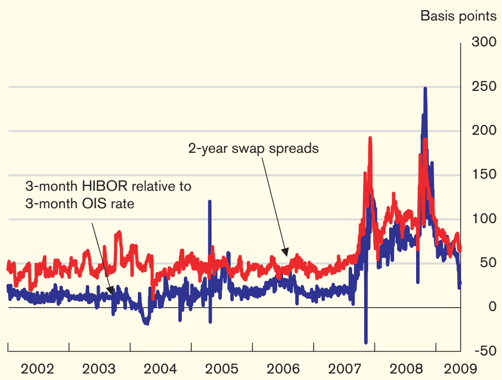
Sources: Banks' annual reports of 2007 and 2008, and HKMA staff calculations.

Chart 3.17
Liquidity ratio of retail banks



Source: HKMA.

Chart 3.18
Spreads of the three-month HIBOR relative to three-month overnight index swap rate and two-year Hong Kong-dollar swaps



Source: Bloomberg.

measure of their leverage. At the end of December 2008, the average leverage ratio of a group of major listed banks in Hong Kong was around 5% (Chart 3.16), compared with the US regulatory minimum standard of 3%, indicating that the leverage of the local banking system remained healthy.

3.6 Liquidity and funding

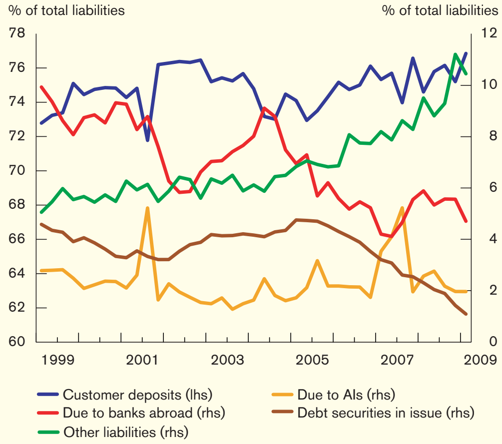
In 2009 Q1, the average liquidity ratio of retail banks edged up to 45.2%, after rising to 45.0% in 2008 Q4 from 42.9% in 2008 Q3 (Chart 3.17). The ratio was substantially higher than the regulatory minimum of 25%, indicating that banks' liquidity and funding conditions remained robust.

With the introduction of the five temporary measures for providing liquidity assistance to licensed banks in September 2008[32], and additional issuance of Exchange Fund Bills to meet increased demand by banks for liquidity management, the liquidity conditions of the banking system improved generally in the assessment period. As a result, the spread between the three-month HIBOR and its corresponding overnight index swap (OIS) rate[33] – an indirect measure of the availability of funds in the interbank market – fell to about 29 basis points at the end of May 2009 from around 90 basis points at the end of November 2008 (Chart 3.18). However, the spread was still higher than in the pre-crisis period, indicating that concerns about liquidity and counterparty risks in wholesale funding markets remained high. Such concerns were also evident in longer-term funding. The

[32] While the first three measures expired at the end of March 2009, the fourth and fifth measures (i.e. forex swap and term repo with the HKMA) have been incorporated into the HKMA's ongoing market operations to offer Hong Kong-dollar liquidity assistance to banks, if needed, on a case-by-case basis. For details, see the press release "HKMA to continue the provision of liquidity assistance to banks" issued on 26 March 2009.

[33] An OIS is an interest-rate swap in which the floating leg is linked to an index of daily overnight rates. The two parties agree to exchange at maturity, on an agreed notional amount, the difference between interest accrued at the agreed fixed rate and interest accrued at the floating index rate over the life of the swap. The fixed rate is a proxy for expected future overnight interest rates. As overnight lending generally bears lower credit and liquidity risks, the credit risk and liquidity risk premiums contained in the overnight index swap rates should be small. Therefore, the spread of the three-month HIBOR relative to three-month overnight index swap rate generally reflects the credit and liquidity risks of the interbank market.

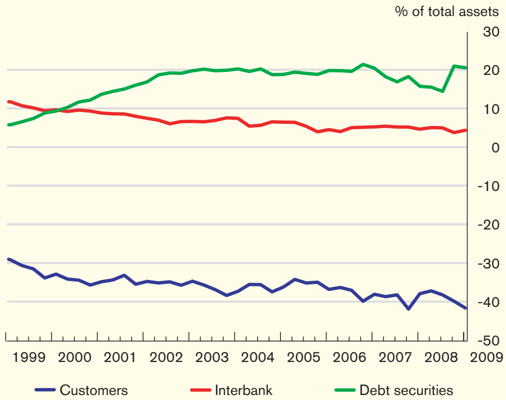
Chart 3.19
Liabilities structure of retail banks



Note: Debt securities comprise negotiable certificates of deposits and all other negotiable debt instruments.

Source: HKMA.

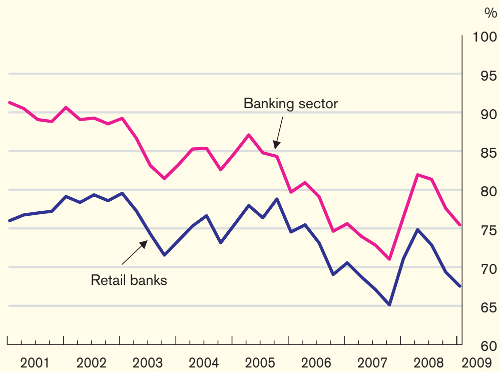
Chart 3.20
Retail banks' funding gaps, by type of funding



Notes:
1. Measured as assets less liabilities in the balance sheet categories shown, as a percentage of total assets.
2. "Customers" comprises all non-AI borrowers and depositors.
3. Debt securities comprise negotiable certificates of deposits and all other negotiable debt instruments.

Source: HKMA.

Chart 3.21
Hong Kong-dollar loan-to-deposit ratios



Source: HKMA.

two-year Hong Kong-dollar swap spread[34], which is a proxy for banking liquidity over the medium term[35], stood at around 68 basis points at the end of May 2009, which was also higher than before the crisis (Chart 3.18). In view of this, banks, particularly those reliant on wholesale funds, should be cautious about their liquidity conditions.

The contagion risk arising from interbank exposures in the domestic market appeared well contained. For retail banks as a whole, the amount due to other AIs in Hong Kong decreased slightly to 2.0% of total liabilities at the end of March 2009, while the amount due from other AIs in Hong Kong contributed 6.5% of their total assets.

Other structural factors influencing the liquidity conditions of the banking system were stable. Customer deposits, which are more stable than other funding sources, were still the principal source of retail banks' funding and accounted for 77% of total liabilities in March 2009 (Chart 3.19). The ample funding from retail deposits also contributed to a negative "customer funding gap" of retail banks, with the amount of customer loans being smaller than the amount of customer deposits. The gap widened further to -41.4% in March 2009 from -38.1% in September 2008 (Chart 3.20) due to loan contractions and steady deposit growth in the assessment period.

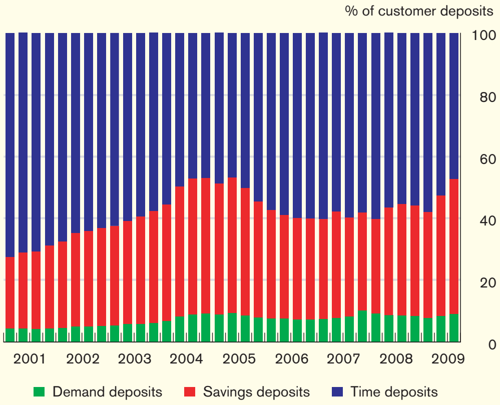
As a result, the all-currency loan-to-deposit ratio for the banking sector decreased to 52.6% in March 2009 from 58.6% in September 2008 and that for retail banks to 46.1% from 50.1%. The Hong Kong-dollar loan-to-deposit ratio also decreased to 75.5% from 81.4% for the banking sector, and to 67.6% from 72.9% for retail banks (Chart 3.21).

As interbank market liquidity improved, pressure was reduced for banks to obtain funds at the retail level. Against this backdrop, deposit rates of different

[34] Swap spreads are differences between "fixed-for-floating" interest-rate swap rates and corresponding Exchange Fund paper yields of the same maturity.

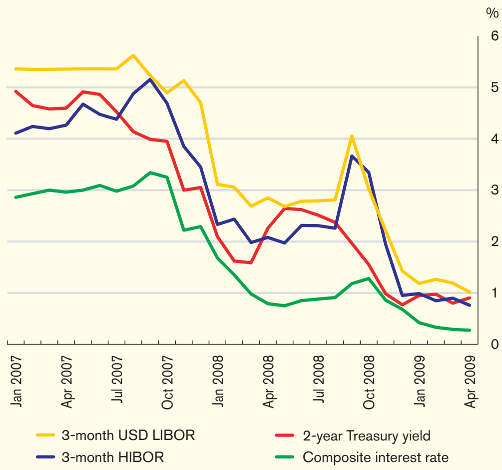
[35] The determinants of variations in the Hong Kong dollar swap spreads are investigated in Hui and Lam (2008), "What drives Hong Kong dollar swap spreads: credit or liquidity?", *HKMA Working Paper 10/2008*.

Chart 3.22
Structure of customer deposits of retail banks



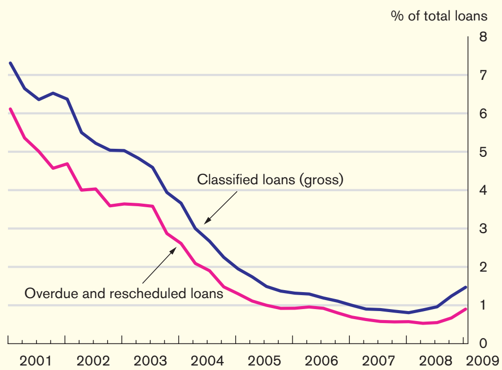
Source: HKMA.

Chart 3.23
Interest margin of US Treasury securities



Sources: Bloomberg and HKMA.

Chart 3.24
Asset quality of retail banks



Note: Classified loans are those loans graded as "substandard", "doubtful" or "loss".

Source: HKMA.

maturities levelled off across the board. As depositors adjusted their portfolios in response to a fall in the opportunity cost of holding non-interest-bearing assets, time deposits fell by 6.6% in 2008 Q4 and a further 9.9% in 2009 Q1. As a result, the share of time deposits in total deposits dropped from 57.8% in September 2008 to 47.2% in March 2009 and, in parallel, the share of savings rose from 34.3% to 43.8% and demand deposits from 7.9% to 9.0% (Chart 3.22). This development will need to be monitored closely, given that the resulting reduction in the average maturity of deposits could potentially increase the maturity mismatch between banks' assets and liabilities.

3.7 Interest-rate risk

There was an increase in the investment of surplus funds in the banking sector in negotiable debt instruments, including a significant portion issued by foreign governments (see Section 3.5). As a result, the banking sector's holding of foreign currency negotiable debt instruments issued by governments increased by more than 200% to HK$189 billion from September 2008 to March 2009. In view of the small net interest margin on holding these securities (about 63 basis points at the end of April 2009) – as proxied by the differential between the two-year US Treasury yield and the composite interest rate – the buffer for interest rate risk bears watching closely (Chart 3.23). In particular, the current positive interest margin, to a certain extent, is a result of the cost of funds being driven down by the low HIBORs sustained by large capital inflows in recent months. Therefore, this margin could be easily erased in the event of either a tightening in liquidity due to a reversal of capital flows or a narrowing of the spreads between the HIBORs and US-dollar LIBORs.

3.8 Credit risk

The asset quality of retail banks deteriorated slightly in the six months to March 2009. The classified loan ratio increased to 1.47% in March 2009 from 0.96% in September 2008, while the ratio of overdue and rescheduled loans increased to 0.90% from 0.55% (Chart 3.24).

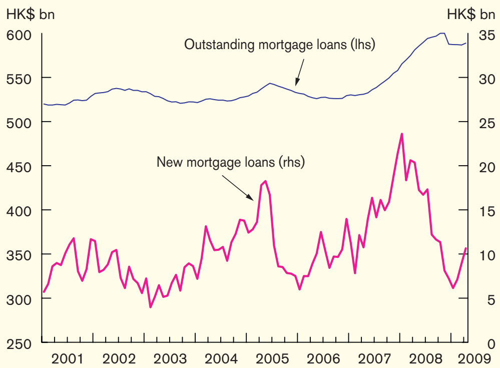
Table 3.F
Loans for use in Hong Kong by AIs

	Quarter-on-quarter % changes				Share of total (%)
	Jun 08	Sep 08	Dec 08	Mar 09	Mar 09
Loans for use in Hong Kong[1]	**4.7**	**2.7**	**-3.5**	**-3.8**	
of which:					
Trade financing	15.2	-2.9	-16.1	-15.2	6.1
Mortgages[2]	2.7	0.7	-1.4	-0.3	24.9
Manufacturing	4.9	4.5	-5.3	-1.5	5.5
Transport and transport equipment	-0.1	6.3	-4.1	-0.8	5.9
Electricity and gas	14.1	-5.4	1.0	-9.8	1.1
Information technology	8.1	25.6	-14.4	26.9	1.6
Building, construction, property development and investment	4.6	4.4	1.9	-1.0	26.1
Wholesale and retail trade	15.5	0.0	-3.2	-5.5	5.5
Financial concerns[3]	1.4	8.1	-5.4	-14.5	9.3
Stockbrokers	-19.0	-20.6	-10.4	-10.3	0.4
Credit card advances	1.6	0.4	3.9	-8.7	2.5

Notes:
1. Including trade-financing loans.
2. Mortgage loans include loans for the Home Ownership Scheme, the Private Sector Participation Scheme and the Tenants Purchase Scheme.
3. Loans for financial concerns include loans to investment and insurance companies, futures brokers and finance companies.

Source: HKMA.

Chart 3.25
Outstanding and new mortgage loans of surveyed AIs



Source: Residential Mortgage Survey, HKMA.

Table 3.G
Expectation of domestic loan demand in the next six months

	Mar 08	Jun 08	Sep 08	Dec 08	Mar 09
		(% of total respondents)			
Increased considerably	0	0	5	0	0
Increased somewhat	48	33	5	10	14
Remain stable	43	62	29	24	43
Decreased somewhat	10	5	57	62	43
Decreased considerably	0	0	5	5	0

Source: Credit Outlook Survey, HKMA.

The *December 2008 Report* questioned the sustainability of the strong loan growth of the banking sector in view of the financial turmoil. Since the last *Report*, the effects of the financial crisis have fed through rapidly, with domestic lending by AIs contracting by 3.5% in 2008 Q4 and 3.8% in 2009 Q1 (Table 3.F).

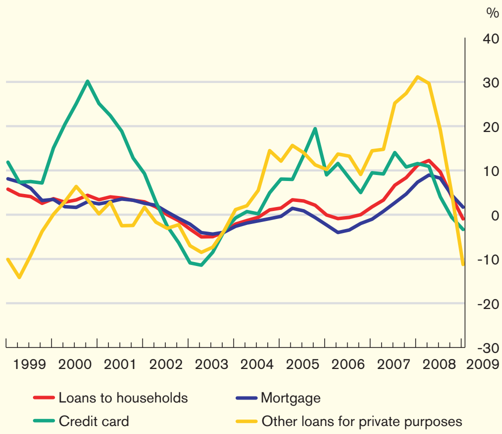
Property-related loans decreased slightly. Credit for building, construction, property development and investment declined by 1.0% in 2009 Q1, after increasing by 1.9% in the previous quarter. Residential mortgage lending edged down further by 0.3% in 2009 Q1, after decreasing by 1.4% in the previous quarter (Chart 3.25). As a result of the relatively smaller effects of the financial crisis on property-related loans, their share in total domestic lending increased to 51.0% in March 2009 from 47.7% in September 2008.

Lending to stockbrokers shrank by 10.4% in 2008 Q4 and 10.3% in 2009 Q1, while lending to financial concerns, mainly investment companies, dropped by 14.5% in 2009 Q1, after decreasing by 5.4% in 2008 Q4.

Among other sectors, trade financing, the wholesale and retail trades, manufacturing, and transport and transport equipment all registered declines in two consecutive quarters. Credit-card lending and loans to the electricity and gas sector fell in 2009 Q1 after recording growth in 2008 Q4. By contrast, loans for information technology sector increased sharply in 2009 Q1 following a decline in 2008 Q4.

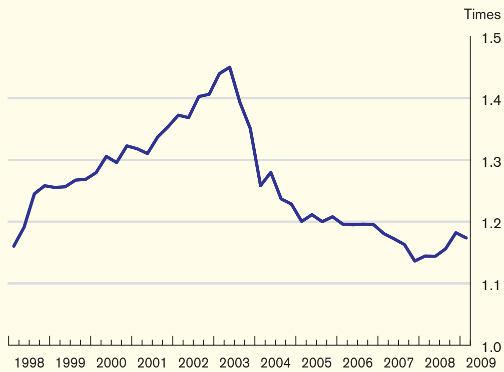
The results of the HKMA Credit Outlook Survey in March 2009 suggest that credit growth is likely to remain lacklustre in the near term. AIs generally expect weaker demand for domestic loans in the next six months (Table 3.G). In fact, reductions in loans for households and corporations already occurred in the six months to March 2009 (see the following sub-sections).

Chart 3.26
Annual growth of lending to households by AIs



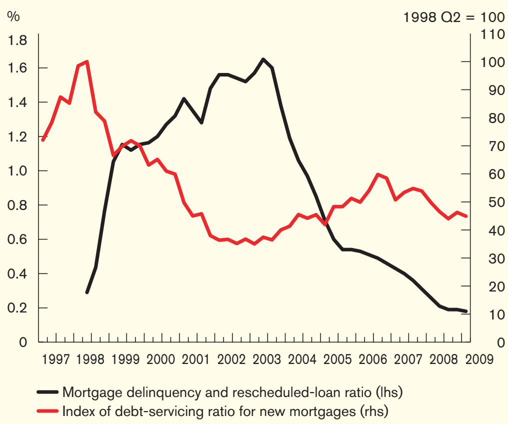
Source: HKMA.

Chart 3.27
Effective housing-capital gearing ratio



Source: Staff estimates.

Chart 3.28
Household debt-servicing burden of new mortgages



Source: Staff estimates.

Household exposures

Loans to households[36] accounted for 32.4% of total loans for use in Hong Kong[37] in March 2009. In 2009 Q1 they declined slightly by 1% year on year, registering the first decrease since December 2006. The decline was mainly due to a significant fall in unsecured household loans, with credit-card lending and other loans for private purposes dropping by 3.3% and 11.2% year on year respectively (Chart 3.26). By contrast, mortgage loans grew moderately by 1.7%.

The movements in various indicators of the vulnerability of the household sector suggest that the balance sheet of households stayed healthy as their financial leverage and debt-servicing capacity remained robust. However, signs of deterioration in unsecured lending bear watching.

The effective housing-capital gearing, defined as the ratio of the market value of total housing stocks to their net asset value[38], edged up to 1.18 in December 2008 from 1.16 in September, before decreasing to 1.17 in March 2009 (Chart 3.27).

The index of debt-servicing ratio for new mortgage loans[39], which serves as an indicator of the debt burden of mortgagors, decreased to 44.9 in 2009 Q1, after increasing to 46.3 in 2008 Q4 from 44.0 in 2008 Q3 (Chart 3.28). The improvement in 2009 Q1 was due to a reduction in the size of the average mortgage loan and lower average effective mortgage rates.

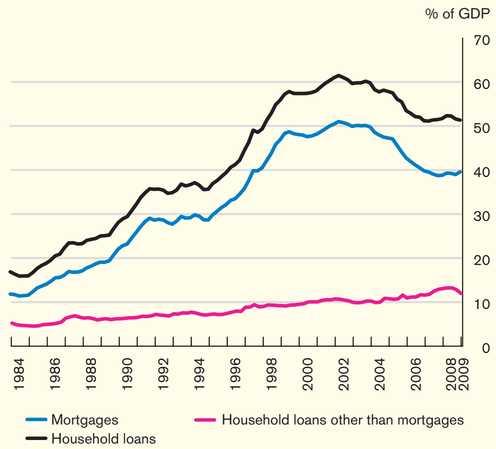
36 Loans to households constitute lending to professional and private individuals, excluding those for business purposes. Mortgage lending accounts for a major proportion of loans to households, while the remainder comprises mainly unsecured lending through credit cards and other personal loans for private purposes.

37 Loans for use in Hong Kong include trade-financing loans.

38 Defined as the market value subtracted by the outstanding mortgage lending from banks.

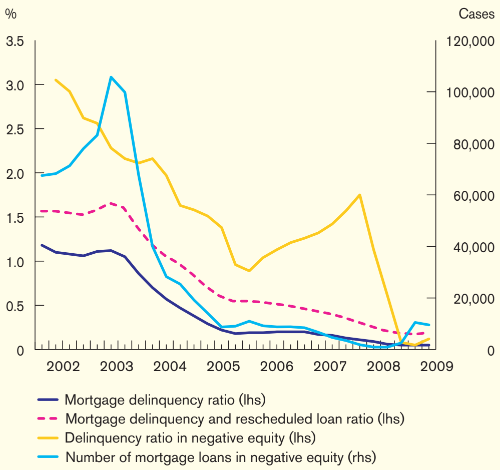
39 A higher value of the index of debt-servicing ratio indicates that there is either a drop in household incomes, or an increase in interest rates, or an increase in the average mortgage loan amount drawn by households. Historical movements in the index suggest that a sharp rise in the index may lead to deterioration in the asset

Chart 3.29
Household debt leverage



Source: Staff estimates.

Chart 3.30
Negative-equity and mortgage-delinquency ratios of surveyed AIs



Notes:

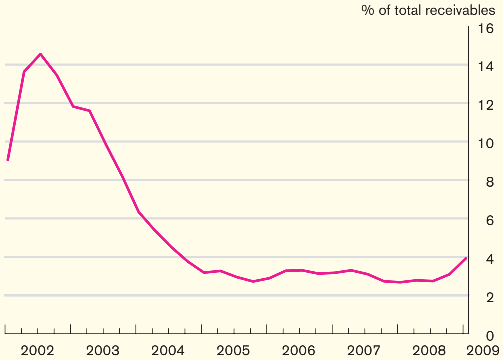
1. The earliest available date for the delinquency ratio of mortgage loans in negative equity is 2002 Q2.
2. The mortgage-delinquency ratio refers to the ratio of total amount of loans overdue for more than three months to total outstanding loans.
3. The number of mortgage loans in negative equity was at its peak of about 106,000 cases at the end of June 2003.

Source: HKMA.

In addition, the ratio of household debt to GDP edged down slightly to 51.3% at the end of March 2009, which is significantly lower than its peak of 61% in the second quarter of 2002 (Chart 3.29).

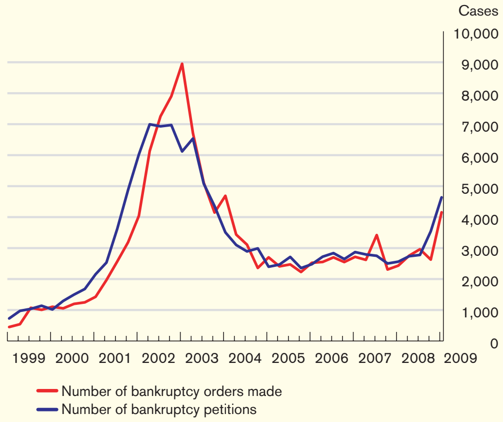
The asset quality of banks' overall mortgage portfolios remained healthy, despite a rather steep rise in negative equity cases. As property prices declined, the number of negative equity cases increased more than threefold from 2,568 at the end of September 2008 to around 9,600 at the end of March 2009. However, it was only one-tenth of the peak of about 106,000 cases at the end of June 2003 (Chart 3.30). At the same time, the delinquency ratio of negative-equity mortgage loans rose to 0.12% in March 2009 from 0.08% in September 2008. Nevertheless, the delinquency and rescheduled-loan ratios of banks' overall mortgage portfolios continued to stay at low levels of 0.05% and 0.13% respectively at the end of March 2009.

Chart 3.31
Charge-off ratio for credit-card receivables of surveyed AIs



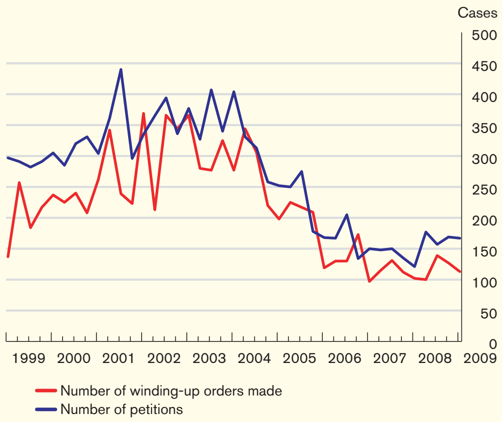
Note: Quarterly annualised figures.
Source: HKMA.

Chart 3.32
Number of bankruptcies



Source: Official Receiver's Office.

Chart 3.33
Winding-up orders and petitions



Source: Official Receiver's Office.

While the annualised credit card charge-off ratio remained low by historical standards, signs of deterioration appeared. The ratio increased further to 3.92% in 2009 Q1, after rising to 3.09% in 2008 Q4 from 2.74% in 2008 Q3 (Chart 3.31). This was in line with the deteriorating bankruptcy statistics. The number of bankruptcy orders made and petitions presented rose substantially to 5,915 and 6,128 respectively in the first four months of 2009, representing increases of 70.8% and 74.1% year on year respectively (Chart 3.32).

Corporate exposures[40]

Loans to corporations, which accounted for 67.1% of loans for use in Hong Kong[41] in March 2009, fell by 4.1% in 2008 Q4 and another 4.6% in 2009 Q1. At the same time, the credit risk of corporate loans also deteriorated on three counts, although only moderately.

First, the number of compulsory winding-up orders of companies has increased. In the first four months of 2009, the number of petitions rose by 46.2% from the same period last year to 250 cases, while the number of orders made increased by 5.3% to 158 cases (Chart 3.33).

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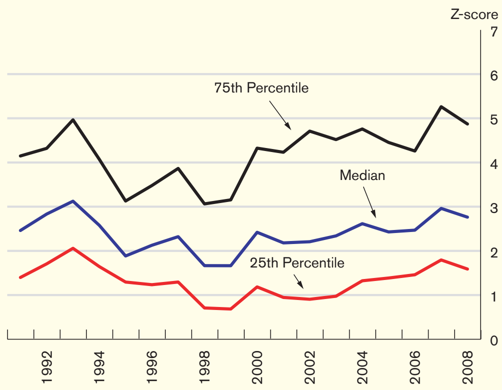
40 Excluding interbank exposures.

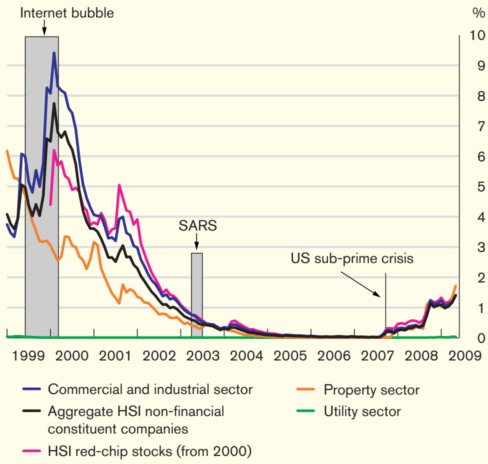
41 Loans to corporations comprise loans for use in Hong Kong (including trade-financing loans) except lending to professional and private individuals.

Chart 3.34
Bankruptcy risk indicators of listed non-financial companies: Altman's Z-score



Note: A lower Z-score indicates a higher likelihood of default.
Source: Staff estimates based on data from Thomson Financial.

Chart 3.35
Aggregate default probabilities of HSI non-financial constituent companies



Source: Staff estimates.

Secondly, the financial health of the non-financial corporate sector[42] in Hong Kong, as indicated by Altman's Z-score[43], worsened in 2008 (Chart 3.34). However, for all three tiers of companies, including the financially weaker ones as represented by the 25th percentile curve, the Z-score remained well above the historical average and, indeed, much higher than in the 1998 and 2003 recessions.

Finally, market-based default risk indicators of the Hong Kong corporate sector also deteriorated slightly. The aggregate default probability estimates for the non-financial constituent companies in the Hang Seng Index (HSI) edged up to 1.4% at the end of May 2009 from 1.0% in the *December 2008 Report* (Chart 3.35). The estimates for HSI constituent sectors (except for the utility sector) and red-chip constituent stocks showed a similar pattern.

Overall, while these indicators suggest the local corporate sector may have emerged from the global crisis relatively unscathed, its knock-on effects are yet to completely filter through, and the scenario could change considerably within a short period. Hence, continued vigilance is required in monitoring future developments.

China exposures

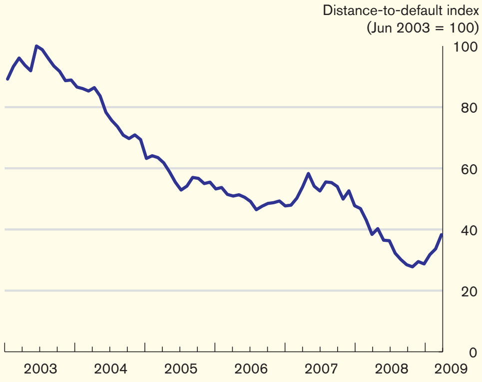
Retail banks' aggregate exposures to non-bank Chinese entities[44] fell to HK$615 billion (8.2% of total assets) at the end of March 2009 from HK$696 billion (9.3% of total assets) at the end of September 2008. For the banking sector as a whole, the total amount of non-bank China exposures also decreased to HK$825 billion (7.0%

[42] Non-financial corporations refer to companies listed in the Hong Kong Main Board and the Growth Enterprise Market, excluding H-share companies, investment companies, and those engaged in banking, insurance and finance. The 2008 figures are preliminary and cover only a limited number of companies that have announced their 2008 results at the time of writing. They are subject to revision and should be used with caution.

[43] See Altman (2000), "Predicting Financial Distress of Companies: Revisiting the Z-scores and ZETA models", *Working Paper, New York University*. The Z-score is a typical credit risk measure to assess the health of the corporate sector based on an array of financial ratios reported in companies' financial statements. The accounting ratios used to derive the Z-score are working capital/total assets, retained earnings/total assets, earnings before interest and taxes/total assets, market value of equity/book value of total liabilities, and sales/total assets.

[44] Including exposures booked in the retail banks' banking subsidiaries in Mainland China.

Chart 3.36
Distance-to-default index of non-financial constituent companies of the SSE 180 A-share Index



Note: A higher value of the index indicates a lower likelihood of default.
Source: Staff estimates based on data from Bloomberg.

of total assets) from HK$949 billion (7.9% of total assets). However, the banking sector's aggregate exposures to companies and individuals for purchasing properties in Mainland China increased to HK$14 billion at the end of March 2009 from HK$12 billion in the *December 2008 Report*.

Given the significant non-bank China exposure, the asset quality of banks in Hong Kong is critically dependant on the macroeconomic performance of Mainland China. Box 7 examines how deterioration in the Mainland's macroeconomic conditions could affect the asset quality of banks in Hong Kong via its impact on the default risk of non-financial Chinese companies. The empirical results suggest that even if the economic growth in Mainland China continues to slow in 2009, the expected impact on credit losses of the Hong Kong banking sector would be moderate.

Based on the methodology discussed in Box 7, we assess the default risk of the Chinese corporate sector by estimating an aggregate distance-to-default[45] index for the non-financial constituent companies of the Shanghai Stock Exchange (SSE) 180 A-share Index[46] using their equity prices and financial data (Chart 3.36). The index fell as the economy began to slow at the beginning of 2008. It levelled off towards the end of 2008 before climbing slightly at the beginning of 2009. This shows that the default risk of the corporate sector has moderated recently, which may be partly due to an improved economic environment and partly to less stringent lending conditions imposed by banks.

[45] The distance-to-default is a market-based default risk indicator based on the framework by Merton (1974), "On the pricing of corporate debt: the risk structure of interest rates", *Journal of Finance*, Vol. 29, pp. 449-470, in which equity prices, equity volatility, and companies' financial liabilities are the determinants of default risk. In essence, it measures the difference between the asset value of a firm and a default threshold in terms of the firm's asset volatility. For reference, see Bharath and Shumway (2008), "Forecasting Default with the Merton Distance to Default Model", *Review of Financial Studies*, Vol. 21, No. 3, pp. 1339-1369.

[46] Non-financial corporations refer to all non-financial constituent companies (i.e. excluding investment companies and those engaged in banking, insurance and finance) of the SSE 180 A-share Index.

Box 7
A stress-testing framework for non-bank China exposure of banks in Hong Kong

The asset quality of banks in Hong Kong is critically dependent on the macroeconomic performance of Mainland China because of the significant exposure of the banking sector to non-bank Chinese Companies.[47] This warrants particular attention as the current economic slowdown in Mainland China could weaken the performance of non-financial Chinese companies (NFCCs), and thus increase their default risk. Against this background, this box examines the potential impacts of different macroeconomic scenarios in Mainland China on the default risk of NFCCs and thus the asset quality of the Hong Kong banking sector through stress testing.

Default risk of NFCCs and its determinants

In this study, default risk of NFCCs is measured by the distance-to-default (DTD), a common market-based indicator of default risk. DTD for firm i at time t is defined as

$$DTD_{i,t} = \frac{\log(V_{i,t} / F_{i,t}) + (\mu_i - \sigma_i^2 / 2)T}{\sigma_i \sqrt{T}}$$

where $V_{i,t}$ is the firm's asset value and $F_{i,t}$ is the face value of debt.[48] μ_i and σ_i are the estimated annualised average asset returns and volatility respectively. T is the time horizon under assessment, which is assumed to be one year. In essence, $DTD_{i,t}$ measures the difference between a firm's asset value and a default threshold $F_{i,t}$ in terms of the firm's asset volatility in a given time horizon. The higher the $DTD_{i,t}$, the lower the default risk.

To identify the determinants of $DTD_{i,t}$, we first construct a yearly panel dataset of NFCCs, which contains all past and current non-financial constituents of the A-share 180 index in the Shanghai Stock Exchange for the period 1998 to 2008 (hereafter referred to as the NFCC portfolio).[49] For each firm-year observation, we estimate

[47] At the end of March 2009, the banking sector exposure to non-bank Chinese entities shared around 7% of total assets.

[48] Defined as the sum of current liability plus one-half of long-term debt.

[49] At the end of 2008, the sample shared around 83% of total market capitalisation of non-financial companies in the Shanghai Stock Exchange.

a daily time series of $DTD_{i,t}$ using the firm's daily equity price data in that year and applying the maximum likelihood estimation proposed by Duan (1994).[50] The daily average of $DTD_{i,t}$ in that year is used to proxy for the firm's default risk in that year.

Using the panel dataset, we examine how macroeconomic conditions in Mainland China would affect the default risk of NFCCs by estimating the following dynamic panel data regression model:

$$DTD_{i,t} = \alpha + \delta DTD_{i,t-1} + \beta_y y_t + \beta_m m_t + \beta_e e_t + \beta_d d_t + v_{i,t} \quad \text{Equation (1)}$$

where y_t, m_t and e_t are the year-on-year percentage change of Mainland China's yearly GDP, money supply (i.e. M2) and effective exchange rate index respectively. All variables are expressed in real terms. d_t, which serves as an indicator of the demand for Mainland China's exports, is defined as the average of real yearly GDP growth rate of the four major export markets of Mainland China, namely the US, Europe, Japan and Hong Kong. $v_{i,t}$ is the disturbance term with an error component $v_{i,t} = \eta_i + \varepsilon_{i,t}$. The response of $DTD_{i,t}$ to y_t and m_t are measured by β_y and β_m respectively. They are both expected to be positive, as stronger economic growth and more relaxed monetary conditions should reduce the default risk of NFCCs. Since appreciation of the renminbi (i.e. higher e_t) and lower economic growth of Mainland China's trading partners (i.e. lower d_t) reduce the demand for Chinese products, β_e and β_d are expected to be negative and positive respectively. The estimated coefficients using the generalised method of moments (GMM) are presented in Table B7.A. All explanatory variables are statistically significant with expected signs.

Table B7.A
Estimation result of the determinants of the DTD of NFCCs.

Variables	Estimated coefficients
First lag of distance-to-default ($DTD_{i,t-1}$)	0.4795***
	(0.045)
Mainland China's real GDP (y_t)	13.30**
	(5.40)
Mainland China's real money supply (m_t)	34.45***
	(3.15)
Mainland China's real effective exchange rate index (e_t)	-9.869***
	(1.06)
Indicator of demand for Mainland China's exports (d_t)	49.83***
	(4.84)
Test for first-order autocorrelation (p-value)	0.000
Test for second-order autocorrelation (p-value)	0.923
No. of company-year observations	2,144
No. of companies	293

Notes:
1. The regression is estimated using the GMM difference estimator for panel data with lagged dependent variables proposed by Arellano and Bond (1991), "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations", *Review of Economic Studies*, Vol. 58, No. 2, pp. 277 - 297.
2. Numbers in parentheses are robust standard errors.
3. *, ** and *** denote significance at the 10%, 5% and 1% levels respectively.

An empirical model of the asset quality of banks in Hong Kong

To examine how deterioration in the default risk of NFCCs would affect the asset quality of the Hong Kong banking sector, another yearly panel dataset is

[50] The two parameters (μ_i, σ_i) and daily time series of $V_{i,t}$ are estimated to calculate the daily time series of $DTD_{i,t}$ based on the methodology proposed by Duan (1994) "Maximum likelihood estimation using price data of the derivative contract", *Mathematical Finance*, Vol. 4, No. 2, pp. 155-167.

Table B7.B
Estimation result of the determinants of the net charge-off ratio of banks in Hong Kong

Variables	Estimated coefficients
First lag of the net charge-off ratio ($CR_{j,t-1}$)	0.3393***
	(0.097)
Hong Kong's real GDP growth (y_t^{hk})	-0.0263**
	(0.012)
Hong Kong's real property price index (pp_t^{hk})	-0.0057*
	(0.0031)
Hong Kong's real interest rate (r^{hk})	0.082***
	(0.021)
5 percentile of DTDs in the NCFF portfolio (DTD^{CN})	-0.00076***
	(0.00023)
Test for first-order autocorrelation (p-value)	0.025
Test for second-order autocorrelation (p-value)	0.738
No. of bank-year observations	107
No. of banks	12

Notes:
1. The regression is estimated using the GMM difference estimator for panel data with lagged dependent variables proposed by Arellano and Bond (1991).
2. Numbers in parentheses are robust standard errors.
3. *,** and *** indicate significance at the 10%, 5% and 1% levels respectively.

constructed for a group of listed banks in Hong Kong for the period 1998 to 2008 and the following dynamic panel data regression model is estimated:

$$CR_{j,t} = \theta + \phi CR_{j,t-1} + \beta_y^{hk} y_t^{hk} + \beta_{pp}^{hk} pp_t^{hk} + \beta_r^{hk} r_t^{hk} + \beta_{DTD}^{CN} DTD_t^{CN} + \omega_{j,t} \qquad \text{Equation (2)}$$

where $CR_{j,t}$ is the net charge-off ratio[51] for bank j in year t. y_t^{hk} and pp_t^{hk} [52] are the year-on-year percentage change of real yearly GDP in Hong Kong and that of Hong Kong's real property price index respectively. r_t^{hk} is the real interest rate in Hong Kong. We include these three variables to represent the Hong Kong macroeconomic conditions, as our previous empirical findings suggested that they are the key determinants of the asset quality of banks in Hong Kong.[53] As stronger economic growth (i.e. higher y_t^{hk}), higher collateral value of mortgage loans (i.e. higher pp_t^{hk}) and lower debt-servicing burden (i.e. lower r_t^{hk}) should improve the asset quality of banks in Hong Kong, β_y^{hk} and β_{pp}^{hk} are expected to be negative and β_r^{hk} is expected to be positive. We include DTD_t^{CN}, which is defined as the 5 percentile value of $DTD_{i,t}$ in the NFCC portfolio in year t, as a proxy for the default risk of lower quality NFCCs.[54] The response of the asset quality of banks in Hong Kong to deterioration in default risk of NFCCs (i.e. lower DTD_t^{CN}) is measured by β_{DTD}^{CN}, which is expected to be negative. Finally, $\omega_{j,t}$ is the error term with an error component $\omega_{j,t} = \varsigma_j + \pi_{j,t}$. The estimation result, which is consistent with economic intuition, is presented in Table B7.B.

Stress testing the asset quality of the banking sector

Equations (1) and (2) form a system that could facilitate the assessment of how deterioration in the Mainland's macroeconomic conditions (e.g. y_t, m_t and e_t) would

51 The net charge-off ratio in year t is defined as the ratio of the actual loan loss in t to the average total loans in t.

52 pp_t^{hk} is defined as the residuals obtained by regressing the year-on-year percentage of the property price index by that of Hong Kong's real yearly GDP. By construction, pp_t^{hk} is independent of the variable of Hong Kong's real GDP. This can avoid the problem of multicollinearity in the estimation.

53 See Wong et al., (2008) "A framework for stress-testing banks' credit risk", *The Journal of Risk Model Validation*, Vol. 2, No. 1, pp. 1-21.

54 This empirical specification can be justified by that for any given adverse economic shock, the direct impact on more vulnerable companies should be more severe and obvious than that of high quality companies. Because of this, the default risk of low quality NFCCs is chosen to serve as an explanatory variable in Equation (2).

affect the asset quality of banks in Hong Kong (i.e. $CR_{j,t}$) via the impacts on default risk of NFCCs (i.e. DTD_t^{CN}).

Two hypothetical scenarios, which separately assume Mainland China's GDP as the shock origin, are considered in this exercise. Scenario A assumes that Mainland China's GDP growth rate in 2009 achieves the Mainland Government's target of 8%, while scenario B assumes that the growth rate falls to 6.5%, which is equivalent to the latest forecast by the IMF[55]. In each scenario, in addition to the assumed shock, we simulate possible movements of other exogenous variables[56] based on their historical relationships, as a shock on Mainland China's GDP would likely induce changes for other exogenous variables.[57] With the simulated value of all exogenous variables, we can estimate $CR_{j,t}$ using Equations (1) and (2). An aggregate net charge-off ratio ACR_t, which is defined as the weighted average of the simulated $CR_{j,t}$[58] is then calculated. Repeating the simulation 10,000 times, we can therefore obtain a simulated distribution of ACR_t to assess the vulnerability of the banking sector to the shock.

Empirical results suggest that if Mainland China's real GDP growth rate in 2009 falls to 6.5% (i.e. Scenario B), the expected increases in credit losses of the banks, as compared with those in Scenario A, would be marginal (Table B7.C)[59]. Even taking account of uncertainty, the maximum credit losses at the 95% confidence level in Scenario B would still be significantly lower than the average net charge-off ratio of around 1.5% stemming from the Asian financial crisis. The result suggests that the probability of the occurrence of substantial losses due to economic slowdown in Mainland China will be very small.

Table B7.C
Simulated aggregate net charge-off ratio under hypothetical scenarios

	Scenario A: Mainland China's GDP growth rate = 8%	Scenario B: Mainland China's GDP growth rate = 6.5%
Mean	0.39%	0.48%
95%[1]	0.74%	0.82%
99%[1]	0.89%	0.97%
99.9%[1]	1.03%	1.11%

Note:
1. Value-at-risk statistics at the 95%, 99% and 99.9% of the confidence levels of the simulated distribution.

55 See International Monetary Fund (2009), "World Economic and Financial Surveys: Regional Economic Outlook, Asia and Pacific" (http://www.imf.org/external/pubs/ft/reo/2009/apd/eng/areo0509.html).

56 The exogenous variables in the system include y_t, m_t, e_t, d_t, y_t^{hk}, pp_t^{hk} and r_t^{hk}.

57 For example, lower GDP growth in Mainland China is likely to be associated with lower GDP growth in Hong Kong. In our analysis, we simulate the possible movements of other exogenous variables by using a similar method adopted by Wong et al. (2008).

58 Weighted by individual banks' loan value at the end of 2008.

59 It should be noted that the estimated credit-loss rates derived from the Mainland China GDP stocks in this table and those reported under the scenario of "Mainland China GDP shock" in Table 3.H are not directly comparable. The former focuses on the default risk of non-financial Chinese companies while the latter refers to the impact of a Mainland GDP shock on total loans in general.

Macro stress testing of credit risk[60]

The ability of the Hong Kong banking sector to withstand a variety of macroeconomic shocks is assessed using the macro stress testing framework[61]. These shocks include reductions in Hong Kong's real GDP, falls in the Mainland's real GDP, rises in real interest rates, and reductions in real property prices. The assessment takes the economic conditions in 2009 Q1 as the current environment, and examines the effect of the shocks on the credit losses of the banking sector individually for a two-year period (up to the end of 2011 Q1). The Monte Carlo simulation method is adopted to generate the credit loss distribution for selected scenarios.

Benchmarked to the government's projection for real GDP to contract by 5.5-6.5% in 2009, the baseline scenario assumes that real GDP will decline by 0.6% in each of the next four quarters.[62] Under the stressed scenarios, it is further assumed that the domestic economy is now in the middle of a downturn as severe as the Asian financial crisis in terms of its impact on key macroeconomic variables. In keeping with this assumption, the shocks are calibrated to mirror those occurring during the period from 1998 Q2 to 1999 Q1.

Salient results are presented in Table 3.H. In the baseline scenario, the expected credit-loss rate in 2011 Q1 is 0.66% of the total loan portfolios. Introducing the hypothetical shocks substantially increases the expected credit-loss rate, which ranges from 1.03% (Mainland China GDP shock) to 1.46% (Hong Kong property-price shock).

Focusing on the tails of the credit loss distributions, Table 3.H shows that even for the VaR at the confidence level of 90%, banks would continue to make profits in some scenarios.[63] Under the extreme case for the VaR at the confidence level of 99.9%, banks' maximum credit

Table 3.H
The mean and VaR statistics of simulated credit loss distributions

		Stressed scenarios				
Credit loss (%)[1]	Baseline scenarios[2]	GDP shock[3]	GDP shock plus impact of swine flu[4]	Property-price shock[5]	Interest-rate shock[6]	Mainland China GDP shock[7]
Mean	0.66	1.12	1.31	1.46	1.05	1.03
VaR at 90% CL[8]	1.22	2.04	2.37	2.52	2.06	2.03
VaR at 95% CL	1.50	2.50	2.89	3.05	2.64	2.58
VaR at 99% CL	2.21	3.63	4.18	4.35	4.11	4.05
VaR at 99.9% CL	3.36	5.45	6.23	6.46	6.81	6.36
VaR at 99.99% CL	4.78	7.61	8.67	9.42	10.08	9.52

Notes:
1. Measured as a percentage of the loan portfolios.
2. Reductions in real GDP by 0.6% in each quarter from 2009 Q2 to 2010 Q1. The 4.3% fall in 2009 Q1, together with the assumption of a 0.6% contraction in the remaining three quarters of 2009, accumulates a total fall of 5.9% in 2009, which falls within the government's projection. To be on the conservative side, real GDP growth is also assumed to fall by 0.6% in the fourth quarter, compared to a rebound of 1.1% after the Asian financial crisis.
3. Reductions in real GDP by 1.6%, 1.5%, 0.9%, and 0.0% in the four quarters starting from 2009 Q2.
4. Reductions in real GDP by 3.8%, 1.5%, 0.9%, and 0.0% in the four quarters starting from 2009 Q2. The shock takes into account the negative impact of an outbreak of swine flu in 2009 Q2.
5. Reductions in real property prices by 10.8%, 16.9%, 2.4% in each of the three quarters starting from 2009 Q2 before rebounding by 2.4% in the fourth quarter.
6. A rise in real interest rates (HIBORs) by 100 basis points in 2009 Q2.
7. Rises in Mainland China's real GDP by 2.2% in each quarter from 2009 Q2 to 2010 Q1. The 1.8% rise in 2009 Q1, together with the assumption of further increase in the remaining three quarters of 2009, accumulates a total rise of 6.5% in 2009, which is consistent with the IMF's projection in the World Economic Outlook.
8. CL denotes the confidence level.

Source: Staff estimates.

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[60] Macro stress testing refers to a range of techniques used to assess the vulnerability of a financial system to "exceptional but plausible" macroeconomic shocks.

[61] Details of the model specification can be found in Wong et al. (2006), "A framework for stress testing banks' credit risk", *HKMA Research Memorandum 15/2006*. An updated framework is used for the current estimations.

[62] See notes in Table 3.H for details of the shocks.

[63] For retail banks' pre-tax operating profit as a percentage of total assets, see Chart 3.12.

loss with shocks from different origins would fall in the range between 5.45% and 6.81% of the portfolios, similar to those experienced just after the Asian financial crisis.[64] But the probability of this happening is very small.

Incorporating a potential swine flu outbreak in Hong Kong into the stress test, real GDP is assumed to contract further by 2.2% in 2009 Q2, the same degree of impact on the economy as experienced during the SARS period in 2003 Q2. Under this scenario, the stressed credit losses would range from the mean of 1.31% to 6.23% at the confidence level of 99.9%. This implies that, through its impact on GDP growth, a swine flu outbreak in Hong Kong would not significantly increase banks' credit losses.

3.9 Systemic risk of the banking system

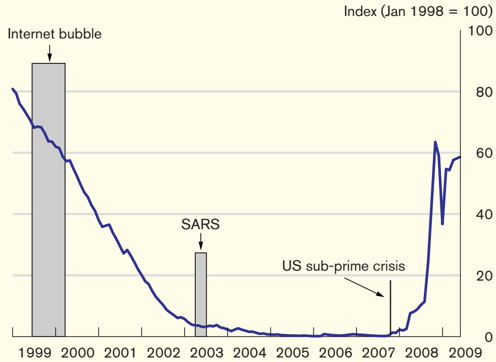
The composite early warning system of banking distress[65] indicates that the banking sector remained resilient in 2009 Q1, with the estimated probability of banking distress falling within the range of a low fragility category.[66] While the estimated banking distress probability increased due to weakened macroeconomic fundamentals, some individual leading indicators in the system, such as the market-based default-risk indicator of banks, improved slightly, partly offsetting the negative impact.

[64] The credit loss of banks is estimated to have risen from 1.4% before the Asian financial crisis to 6.0% after the shock. These rough estimates are based on an assumed loss-given-default (LGD) of 70%, and the actual default rates of overall loans at 2.01% in 1997 Q3 and 8.58% in 1999 Q3.

[65] The composite early warning system is capable of estimating banking distress probability based on 10 leading indicators. These include macroeconomic fundamentals, currency crisis vulnerability, default risk of banks and non-financial companies, asset price misalignments, credit growth, and the occurrence of banking distress in other Asia-Pacific economics. For details, see Wong et al. (2007), "A leading indicator model of banking distress – developing an early warning system for Hong Kong and other EMEAP economies", *HKMA Working Paper 22/2007*.

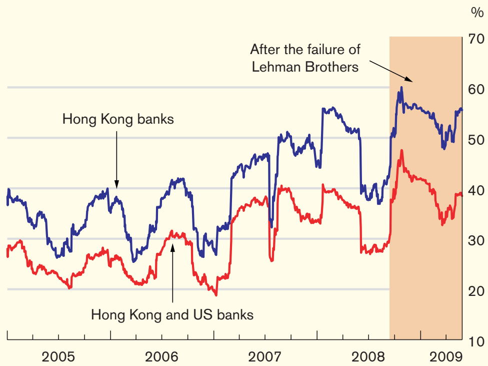
[66] The composite early warning system is a four-level risk rating system. We follow Demirgüc-Kunt and Detragiache (2000), "Monitoring Banking Sector Fragility: A Multivariate Logit Approach", *World Bank Economic Review*, Vol. 14, No. 2, pp. 287 - 307, to choose the upper bounds of each of the four fragility classes so that type I error associated with the bounds are 10%, 30%, 50% and 100% respectively.

Chart 3.37
The banking distress index



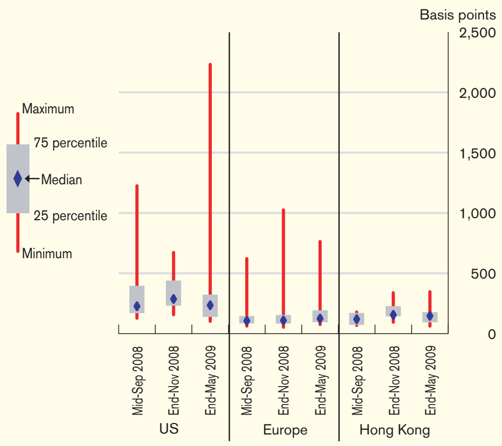
Source: Staff estimates.

Chart 3.38
Co-movement of banks' equity returns



Notes:
1. Proportion of variation in changes in daily equity returns explained by the first principal component using a 90-day rolling window.
2. Data to close of business on 28 May 2009.
Source: Staff estimates.

Chart 3.39
Credit default swap spreads of banks in the US, Europe and Hong Kong



Notes:
1. Calculated from actively traded CDS spreads of banks.
2. Data to close of business on 28 May 2009.
Source: Bloomberg.

The banking distress index[67] (January 1998 =100) of banks in Hong Kong, which is a market-based systemic risk indicator, became much more volatile in the six-month assessment period than in the past, reflecting large swings in financial market sentiment because of a high degree of difficulty in assessing the effects of the global financial crisis on the domestic banking sector. Nevertheless, the index improved marginally to 59 at the end of May 2009 from around 60 at the end of November 2008 (Chart 3.37). It should be noted that the rebound in the index in the first two months of 2009 was due mainly to an increased degree of co-movement of banks' equity prices in Hong Kong and the US (Chart 3.38), where the market was concerned about the results of stress tests on the US banks.

To the extent that an across-the-board increase in credit default swap (CDS) spreads of banks can be taken as an increase in systemic distress, the domestic banking sector remained well within the comfort zone at the end of May 2009 (Chart 3.39). No doubt the CDS spreads of banks in Hong Kong remained higher than before the crisis, essentially reflecting that Hong Kong, being an international financial centre, is not immune to the global crisis. However, relatively speaking, they were more stable and, more importantly, showed no sign of further deterioration in the assessment period. Hence, overall, the assessment inferred from the CDS market is that banks in Hong Kong have fared relatively well compared with their US and European counterparts.

3.10 Foreign-currency position

The overall foreign-currency position, including both spot and forward, for all AIs increased to HK$118 billion at the end of March 2009 from HK$55 billion at the end of August 2008. The increase mainly reflected larger open positions in respect of the US dollar.

Key performance indicators of the banking sector are provided in Table 3.I.

[67] The banking distress index was stated as the multiple default risk index of the banking system in Hong Kong in the previous Reports. For details of the methodology, see Yu et al. (2006), "Assessing the risk of multiple defaults in the banking system", *HKMA Research Memorandum 06/2006*.

Table 3.I
Key performance indicators of the banking sector[1] (%)

	Mar 2008	Dec 2008	Mar 2009
Interest rate			
1-month HIBOR[2] (quarterly average)	2.33	1.89	0.25
3-month HIBOR (quarterly average)	2.45	2.50	0.87
BLR[3] and 1-month HIBOR spread (quarterly average)	3.63	3.22	4.75
BLR and 3-month HIBOR spread (quarterly average)	3.51	2.61	4.13
Composite interest rate[4]	0.98	0.68	0.29
		Retail banks	
Balance sheet developments[5]			
Total deposits	-2.1	2.7	0.3
Hong Kong dollar	-3.9	2.8	1.7
Foreign currency	0.6	2.6	-1.6
Total loans	6.2	-3.0[r]	-2.2
Domestic lending[6]	6.0	-3.3	-2.2
Loans for use outside Hong Kong[7]	8.7	0.2[r]	-2.7
Negotiable instruments			
Negotiable certificates of deposit (NCD) issued	-19.1	-17.9	-22.5
Negotiable debt instruments held (excluding NCD)	-13.0	43.3[r]	-5.0
Asset quality[8]			
As percentage of total loans			
Pass loans	97.72	96.56[r]	96.09
Special mention loans	1.47	2.20[r]	2.44
Classified loans[9] (gross)	0.81	1.24	1.47
Classified loans (net)[10]	0.62	0.84	1.00
Overdue > 3 months and rescheduled loans	0.57	0.67[r]	0.90
Profitability[11]			
Bad debt charge as percentage of average total assets	0.05	0.18	0.18
Net interest margin	2.00	1.84	1.62
Cost-to-income ratio	39.6	45.3[r]	45.3
Liquidity ratio (quarterly average)	47.7	45.0	45.2
		Surveyed institutions	
Asset quality			
Delinquency ratio of residential mortgage loans	0.09	0.05	0.05
Credit card receivables			
Delinquency ratio	0.32	0.34	0.49
Charge-off ratio — quarterly annualised	2.68	3.09	3.92
— year-to-date annualised	2.68	2.72	3.92
		All locally incorporated AIs	
Capital adequacy ratio (consolidated)	14.3	14.7[r]	15.6

Notes:

1. Figures related to Hong Kong office(s) only except where otherwise stated.
2. With reference to the Hong Kong-dollar Interest Settlement Rates released by the Hong Kong Association of Banks.
3. With reference to the rate quoted by The Hongkong and Shanghai Banking Corporation Limited.
4. The composite interest rate is a weighted average interest rate of all Hong Kong-dollar interest-bearing liabilities, which include deposits from customers, amounts due to banks, negotiable certificates of deposit and other debt instruments, and Hong Kong-dollar non-interest-bearing demand deposits on the books of banks. Further details can be found in the HKMA website.
5. Quarterly change.
6. Loans for use in Hong Kong plus trade finance.
7. Includes "others" (i.e. unallocated).
8. Figures related to retail banks' Hong Kong office(s) and overseas branches.
9. Classified loans are those loans graded as "substandard", "doubtful" or "loss".
10. Net of specific provisions/individual impairment allowances.
11. Year-to-date annualised.

r Revised figure.

4. Outlook, risks and uncertainties

Despite recent gains in financial markets, the world economy is not yet on a firm path to recovery. This is a balance-sheet driven recession and balance-sheet adjustments are far from over. The present danger is that bank restructuring in the major economies is incomplete and banks remain under-capitalised, causing inadequate credit flows to the rest of the economy. Hong Kong has experienced large asset-price volatilities and a steep contraction in economic activities since late 2008, but its financial system has survived the crisis largely intact. However, significant risks to monetary and financial stability are likely to persist in the period ahead, and there is no room for complacency.

4.1 Global outlook

The global economy is in its deepest post-war recession. While there are some tentative signs the pace of contraction is beginning to moderate, the damaging feedback loop between the financial markets and the real economy is expected to continue to weigh on consumer and business demand. Against this backdrop, the IMF further revised downwards its global outlook. In its April projections, the IMF projected world output to decline by 1.3% in 2009, down sharply from growth of 2.2% in its November 2008 report (Table 4.A). Notwithstanding extraordinary policy efforts by governments around the world, global economic activity is not expected to bottom out until the end of 2009. Global growth is then projected to gradually recover to 1.9% during 2010, but remains below potential, implying widening output gaps and increasing disinflationary pressures. The *Consensus Forecasts* also project real GDP in 2010 to pick up slightly from the 2009 levels.

Table 4.A
Global growth and inflation 2008-2010

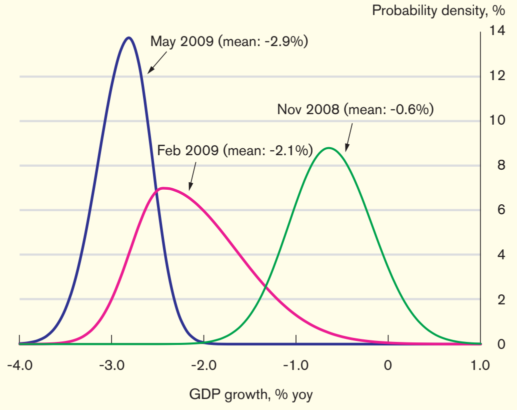
(% yoy)	2008	2009 Forecast	2010 Forecast
IMF			
Global growth[1]	**3.2**	**-1.3**	**1.9**
	(3.7)	**(2.2)**	**(n.a)**
US	1.1	-2.8	0.0
Euro area	0.9	-4.2	-0.4
Japan	-0.6	-6.2	0.5
Emerging Asia	6.8	3.3	5.3
Inflation			
Advanced economies	3.4	-0.2	0.3
Emerging and developing economies	6.1	1.6	4.0
Consensus Forecasts[2]			
Global growth[3]	**2.0**	**-2.3**	**1.9**
US	1.1	-2.9	1.8
Euro zone	0.7	-3.7	0.3
Japan	-0.7	-6.1	1.3
North East Asia	6.6	3.9	6.6
South East Asia	4.4	-0.6	3.7
Global inflation[3]	**4.7**	**1.2**	**2.2**
US	3.8	-0.8	1.6
Euro zone	3.3	0.4	1.2
Japan	1.4	-1.2	-0.6
North East Asia	5.4	0.4	1.7
South East Asia	8.5	2.8	4.0

Notes:

1. Global growth is weighted by GDP at PPP exchange rates. For other aggregates and countries, the IMF weighted by GDP at PPP exchange rates, while the World Bank uses market exchange rates. Figures in brackets are previous forecasts.
2. Euro zone covers the same countries as euro area. North East Asia covers Mainland China, Hong Kong, South Korea and Taiwan, while South East Asia includes the ASEAN economies.
3. Global growth and inflation are weighted by 2007 GDP at average 2007 exchange rates.

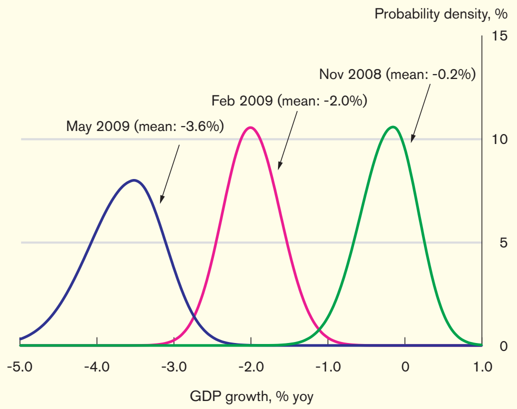
Sources: *IMF World Economic Outlook*, April 2009 and *Consensus Forecasts*, May 2009.

Chart 4.1
US: probability distribution of growth forecasts for 2009



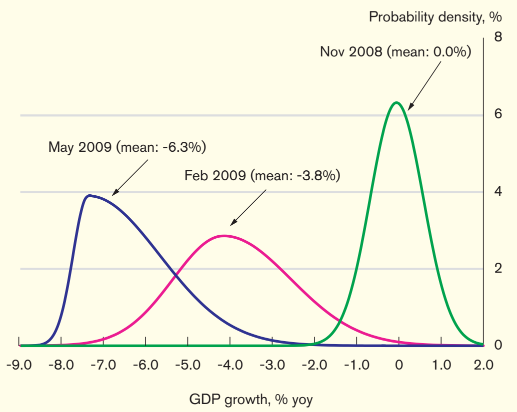
Source: Staff calculations based on *Consensus Forecasts*.

Chart 4.2
Euro area: probability distribution of growth forecasts for 2009



Source: Staff calculations based on *Consensus Forecasts*.

Chart 4.3
Japan: probability distribution of growth forecasts for 2009



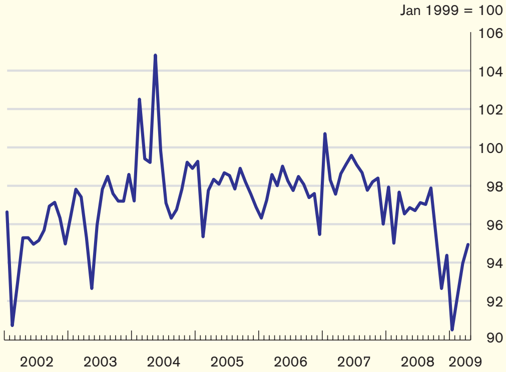
Source: Staff calculations based on *Consensus Forecasts*.

The US is in the midst of a severe recession and the IMF forecasts the economy to contract by 2.8% in 2009, and to stay flat in 2010. The mean of *Consensus Forecasts* for US growth in 2009 has continued to decline since November 2008 from a contraction of 0.6% to 2.9% (Chart 4.1). Tight credit conditions, reflecting severe strains on financial institutions, will continue to drag on personal consumption and business investment. Large wealth losses, much lower earnings prospects, and elevated uncertainty about job security imply a prolonged period of sub-normal levels of growth. The IMF projects economic recovery in the US will only start in the middle of 2010, but this will be contingent upon impetus from the fiscal stimulus, continued relaxed monetary policy, measures to stabilise house prices and stem the tide of foreclosures and also policy measures to heal the financial sector.

The mean of *Consensus Forecasts* for the euro area growth in 2009 suggests a contraction of 3.6%, a further decline from the 0.2% contraction in November 2008 (Chart 4.2). The financial crisis is taking a heavy toll on European economies due to the global nature of the shocks that have hit both the financial sector and the real economy, and also because of Europe's strong regional and global trade and financial links. In spite of the extraordinary measures taken so far by various governments, the financial sector has yet to return to normal. The stress in the money market has eased, but the extension of credit is slowing down or falling, and corporate bond spreads remain elevated. Deteriorating economic fundamentals have resulted in rising non-performing loans and tighter lending standards. All this uncertainty means the road to recovery may be long.

In Japan, the mean of *Consensus Forecasts* for growth in 2009 has also been declining since November to a sharp contraction of 6.3% (Chart 4.3). Japan is expected to suffer a severe recession throughout 2009, experiencing its worst annual performance on record. The yen's strength and tighter credit conditions more generally have added to the problems of the export sector. While the strong fiscal response to the crisis will provide support to economic activity, growth will remain weak as the export collapse spills over to private domestic demand.

Chart 4.4
Mainland China: Real Activity Index



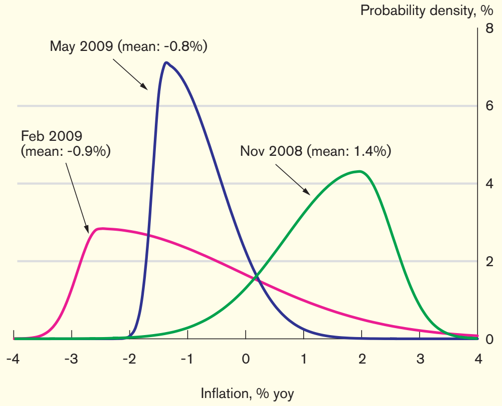
Source: Staff estimates.

For Mainland China, major economic indicators including industrial production and the Purchasing Managers' Index point to a turnaround in economic activities in 2009. Our Real Activity Index, a precursor of near-term growth, has also reversed its downward trend recently (Chart 4.4).[68] The mean of *Consensus Forecasts* in May indicates GDP growth may trend up in the remaining quarters of the year and reach 7.5% for 2009 as a whole. Domestic demand is expected to strengthen in the coming months on the back of accommodative monetary conditions and sizable fiscal spending. The recovery in the real estate market on the Mainland might be slow, and investment by private and foreign investors in manufacturing sectors might not rebound strongly in the near term as a result of the sharp decline in corporate profits, but infrastructure-related investment will likely continue to rise at a firm pace because of the fiscal-stimulus programme. Given the lingering uncertainty regarding the global economic environment and the overall strength of domestic demand, the Mainland authorities are likely to maintain accommodative monetary and fiscal policies, and keep the renminbi exchange rates broadly stable in the near term.

Taking China and other emerging Asian economies as a group, the IMF substantially revised downwards its projections for 2009 to 3.3%, from 6.8% in 2008. Growth in China is projected to moderate to 6.5% in 2009 from the high level of 9% in 2008. The newly industrialised economies are expected to experience a long and severe recession, owing to their high exposure to the global advanced-manufacturing cycle and their extensive global financial links. The ASEAN economies are also forecast to see a substantial deceleration in growth from 2008 and output gaps over the next two years.

[68] The index is constructed using seven monthly indicators that include growth in industrial production, electricity generation, exports, real retail sales, real fixed-asset investment, passenger volume, and volume of freight transport. Details of the methodology can be found in Liu, Zhang and Shek, (2007), "A Real Activity Index for Mainland China", *HKMA Working Paper 07/2007*.

Chart 4.5
US: probability distribution of inflation forecasts for 2009



Source: Staff calculations based on *Consensus Forecasts*.

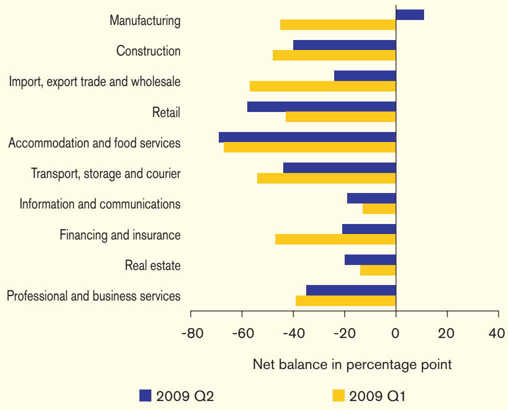
Consumer prices in the advanced economies are projected by the IMF to decline by 0.2% in 2009 from growth of 3.4% in 2008, while developing economies are projected to see inflation slowing sharply to 1.6% from 6.1% last year. In parallel with the rapid cooling of global activity, inflation pressures have subsided quickly, with commodity prices falling sharply from their peaks. At the same time, rising economic slack will contain wage increases and erode profit margins. For the US, the mean of *Consensus Forecasts* for CPI inflation in 2009 has been revised downwards considerably to -0.8% from 1.4% in November (Chart 4.5).

The outlook for global financial markets is much less pessimistic than six months ago. While macroeconomic adjustment is far from over, financial market participants are keen to try to stay ahead of the game, looking for signs of a nascent recovery, especially since the US economy is already 18 months into the recession.[69] Indeed, latest economic data in the major economies have turned increasingly mixed, rather than purely negative, sparking speculation that there may be pockets in the economy where business conditions are beginning to improve. Mainland China has also surprised many with better-than-expected economic performance in the first four months of 2009, prompting financial market participants to reassess growth and earnings outlook more favourably. Against this backdrop, investors are coming off the sidelines, with risk appetite increasing noticeably around the world.

There is no question that a global recovery will occur sooner or later; the unknowns are its timing and its shape. For advanced economies, repairing the balance sheets of the household, corporate and financial sectors will take time, despite the extraordinary macroeconomic policies. Emerging markets will also need time to promote sustainable growth in domestic demand in order to offset the absence of external demand for their outputs. Given such an uncertain recovery path for the real economy, a question mark arises over the sustainability of financial market optimism in recent months.

[69] Except for the current recession, no other recession has exceeded 16 months since the Great Depression in 1929-1933.

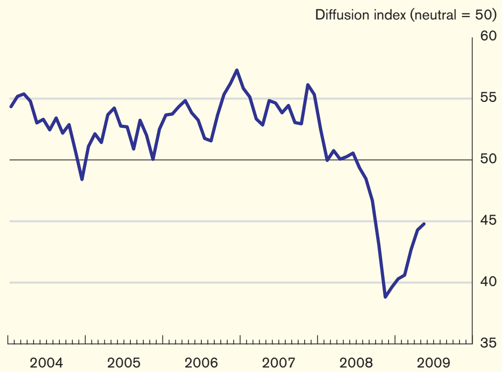
Chart 4.6
Results of Business Tendency Survey: views on expected changes in volume of output in 2009 Q1 and Q2



Note: Net balance refers to the difference between the percentage of respondents expecting a rise over those expecting a decline.

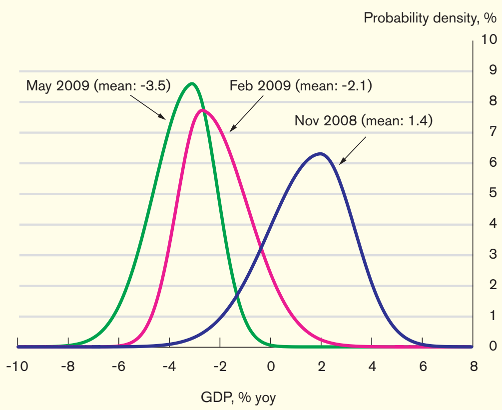
Source: C&SD.

Chart 4.7
Purchasing Managers' Index



Source: Bloomberg.

Chart 4.8
Hong Kong: probability distribution of growth forecasts for 2009



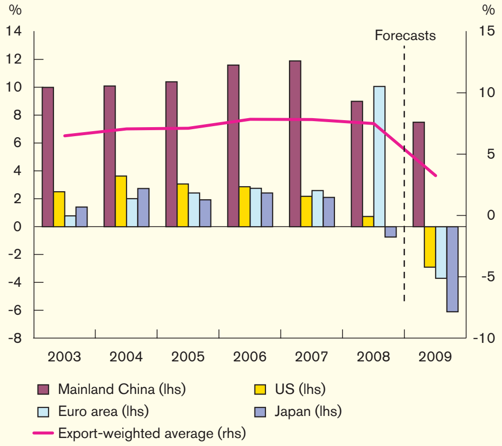
Source: Staff estimates based on market consensus.

4.2 Domestic outlook

Although the outlook for the Hong Kong economy remains challenging given the difficult external environment, there have been tentative signs of stabilisation in real economic activities and asset prices in recent months. The Quarterly Business Tendency Survey indicated that the majority of the surveyed sectors still expect the volume of business and output to drop further in 2009 Q2, but the rate of decline has narrowed compared with the survey result in Q1 (Chart 4.6). For all the sectors taken together, the difference between the proportion of respondents expecting business conditions to improve and those expecting them to worsen rose from -53 percentage points in Q1 to -36 percentage points in Q2. The Purchasing Managers' Index also rose to 44.8 in May from an average of 41.2 in Q1, suggesting a decelerating rate of contraction in business activities (Chart 4.7).

The pace of economic contraction since 2008 Q2 has been persistently worse than market expectations. As a result, market analysts have repeatedly revised their growth forecasts downwards, as indicated by the shift in the probability distribution of market forecasts over time in Chart 4.8. The latest market consensus projects an average real GDP growth of -3.5% in 2009. The worst of the recession is expected to have occurred in 2009 Q1, and the pace of contraction is expected to slow down or reverse to a moderate recovery for the remainder of the year. Overall, economic activities are expected to remain subdued throughout 2009.

Chart 4.9
Growth in Hong Kong's main trading partners

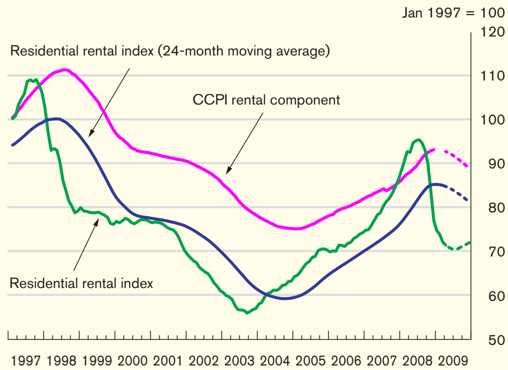


Sources: *Consensus Forecasts* and staff estimates.

The prospects for an economic rebound in Hong Kong depend importantly on the pace of recovery of external demand, particularly from the G3 economies and Mainland China. Based on market consensus, the trade-weighted average output growth of Hong Kong's key trading partners is projected to be 3.3 percentage points in 2009, a marked deceleration from the 7.5 percentage points growth recorded in 2008, and below the trend-growth recorded since the early 2000s. In particular, growth rates in major export markets are expected to be negative in 2009, except for Mainland China (Chart 4.9). In such an environment, global trade flows are unlikely to revive sharply.

Domestic demand is expected to stage a somewhat modest recovery in the second half of 2009. Property and equity prices have rebounded from their troughs recently, which, if sustained, will improve business and consumer sentiment. However, rising unemployment and corporate bankruptcy will continue to restrain domestic spending. In view of the market consensus of a continuing rise in the unemployment rate throughout 2009, a more visible recovery in private consumption is not expected to take place until late 2009 and early 2010. Recovery in private investments is also likely to be delayed, given the presence of excess capacity in the early stage of an economic recovery. However, government expenditure and public investment are expected to increase if the fiscal measures announced by the Government are fully implemented.

Chart 4.10
CCPI rental component and market rents

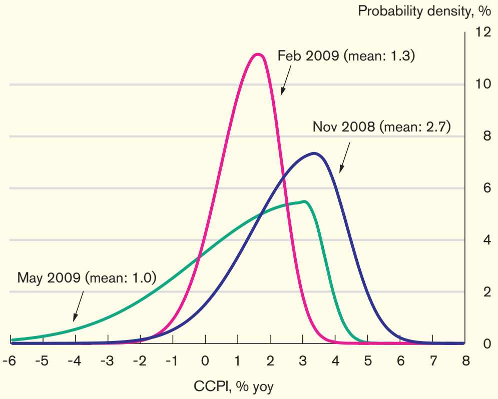


Note: CCPI rental component is excluding the effects of one-off special relief measures.

Sources: R&VD, C&SD and staff estimates.

The underlying inflationary pressure is expected to ease in 2009 because of the persistent negative output gap and global disinflation. Property prices and private housing rental dropped sharply in late 2008 and early in 2009 before the recent stabilisation, which will gradually filter through to the rental component of the CCPI. Given the high correlation between the 24-month moving average of the private residential rental index and the CCPI rental component, the year-on-year CCPI rental inflation should gradually decline from 8.8% at the end of 2008 to about -5% at the end of 2009 (Chart 4.10).

Chart 4.11
Hong Kong: probability distribution of headline inflation forecasts for 2009



Source: Staff estimates based on market consensus.

Meanwhile, the non-rental component of the CCPI inflation is expected to remain subdued with the moderation in economic activities. The latest market consensus predicts headline CCPI to rise by 1.0% (in a range of -1.4% to 1.6%) on average in 2009 (Chart 4.11). Against the background of a subdued pace of economic recovery, it is possible the headline CCPI inflation rate may drop to close to zero or even turn negative in the second half of 2009.

4.3 Uncertainties and risks

While future major shocks are still possible, the probability of another major jolt to global markets of the same magnitude as the collapse of Lehman Brothers has declined. Much attention has recently been given to a number of risks still facing the world economy, including swine flu, the financial troubles of the US car makers, the capital adequacy of major banks and problems in Eastern Europe. However, learning from the experience of allowing Lehman Brothers to fail, governments and central banks in the major economies have demonstrated their willingness to prevent the failure of major financial institutions. The tripling of the IMF's lending capacity agreed at the G-20 Summit in early April also essentially lowered the probability of a severe balance-of-payments crisis in emerging market economies.

However, the true picture of the capital adequacy of major financial institutions remains uncertain, and governments face huge challenges in further recapitalising banks. Given these difficulties, there is a significant risk that the major financial institutions will stay under-capitalised for a prolonged period, they will refrain from taking new credit risks, and credit flows to the rest of the economy will remain weak. On the demand side, households in the US and other advanced economies have started a process of reducing their debt and rebuilding their savings. Coupled with reduced incomes, this suggests that households will be cutting discretionary spending to repair their balance sheets. These features imply sub-normal levels of consumer spending and overall lending for a few years to come, making recovery in major advanced economies slow and painful.

With continued negative output gaps, which are likely to last a considerable time, unemployment in the major economies will keep rising and will probably reach double-digit levels. This will likely lead to a political environment that leans towards protectionism. Any protectionist action will exacerbate the downturn. In particular, financial protectionism could lead to a sharp reversal of capital flows, with destabilising consequences for monetary and financial stability, especially in the developing world. Although global leaders at the G20 Summit in April pledged they would not introduce any restrictive trade practices through 2010 or pursue financial policies which would hurt other nations, in practice it will take political courage to resist protectionist policies.

The contraction in economic activity and the weak recovery prospects imply that deflation, not inflation, remains the main risk on the price front. There have been concerns for future inflation following the Fed's announcement in March that it would purchase longer-term Treasuries. While these policies could lay the groundwork for a run-up in future inflation, such an outcome is avoidable. The Fed has the necessary tools to execute an exit and drain liquidity from the market at a pace that is consistent with its inflation target; thus the main challenge facing the Fed is not how but when to exit. While selling the government securities holdings too early may kill the incipient recovery, selling them too late may lead to increasing inflationary pressures. In general, the major central banks are likely to face a daunting challenge in selecting the right policy stance, because equilibrium real interest rates will have increased, reflecting much higher levels of public debt as a result of fiscal-stimulus packages and the injection of public funds to recapitalise the financial sector. Given the time lag with which monetary policy operates, it may be necessary to raise policy interest rates at a time when unemployment is still high, in order to prevent a build-up of inflation. From a political-economic standpoint, this may be extremely difficult.

The East Asia region has not seen the financial sector dislocations experienced in other regions and this has preserved the ability of financial institutions to lend. While financial market volatility will continue to weigh on the valuation of securities assets on the books of banks, and non-performing loans will rise, they are not expected to be destabilising as the overall banking systems stay robust with sound capital and liquidity positions. With the effects of government stimulus packages, lower interest rates, and easing inflation beginning to take hold, domestic demand should gradually recover. The region should, therefore, be able to pull out of recession faster than the rest of the world. However, as the major advanced economies may linger at the bottom for a protracted period, a full-scale recovery of regional economies is unlikely in the near term, and closing the negative output gaps may take some time.

In Hong Kong, the baseline outlook is for the pace of contraction to slow from 2009 Q2 and for a moderate recovery to take hold in the remainder of the year. There are risks to this baseline outlook. Unexpected shocks may yet again hit the still weak global economy, for example, if swine flu becomes more widespread and causes a much higher death toll, and the global recession becomes deeper and more protracted than current market expectations indicate. On the upside, global trade and asset prices in Hong Kong may stabilise and stage a sustained recovery more quickly than currently envisaged. These risks appear to be broadly balanced at present.

The analysis in this *Report* shows that banking stability in Hong Kong is not likely to be compromised even if downside risks to economic growth materialise. However, given that the speed and strength of the global recovery is highly uncertain as banks and households in the major advanced economies begin the difficult task of restructuring their balance sheets, asset prices in Hong Kong may continue to show large volatilities, and can overshoot in either direction.

There are also risks associated with the process of normalising liquidity conditions in Hong Kong's banking system. Strong fund flows into the Hong Kong dollar have driven the interbank interest rates to zero and the aggregate balance to historical highs. The resulting accommodative monetary conditions have been appropriate to the prevailing macroeconomic conditions in Hong Kong. However, when the US economy recovers, its monetary conditions will gradually tighten, and market participants will have more incentive to take arbitrage trades, which should allow Hong Kong's monetary conditions to gradually tighten along with the US. While the process could become disorderly, leading to abrupt movements in the Hong Kong-dollar interest rates and the exchange rate, the risk is small given the inherent strength of the banking system and the credibility of the Linked Exchange Rate system. Technically, the large aggregate balance provides a good buffer for an orderly outflow to take place, and the HKMA has the necessary power and instruments to deal with potentially destabilising market movements, either on the strong side or the weak side of the Convertibility Zone.

A failure of the normalisation process to take place could also pose a potential risk. This could occur if the US economy stays weak and its monetary conditions remain at current accommodative levels for a prolonged period, while the Mainland economy recovers at a faster rate, resulting in speculative inflows betting the Hong Kong dollar will need to appreciate. Again, it is useful to keep this potential risk in perspective. Hong Kong's cyclical conditions are very much tied to fluctuations in the volume of flows of goods, services and capital between Mainland China and its major trading partners. If the US economy remains weak for a sustained period, it is not likely that the volume of such flows will pick up strongly, exerting strong inflationary pressures on the Hong Kong economy. It is also worthy of note that although the HKMA does not have discretionary interest-rate policies, there are other instruments available to deal with goods- and services-price inflation and asset-price inflation in Hong Kong, including stricter regulatory and prudential measures and fiscal policy measures.

The global financial crisis is not over yet and economic recovery is highly uncertain. In this environment, significant risks to monetary and financial stability in Hong Kong are likely to persist in the period ahead. Although Hong Kong has coped relatively well with the crisis, continued vigilance on the part of both market participants and the authorities is necessary.

Glossary of terms

Aggregate Balance
The sum of balances in the clearing accounts and reserve accounts maintained by commercial banks with the central bank. In Hong Kong, this refers to the sum of the balances in the clearing accounts maintained by the banks with the HKMA for settling interbank payments and payments between banks and the HKMA. The Aggregate Balance represents the level of interbank liquidity, and is a part of the Monetary Base.

Authorized Institution (AI)
An institution authorized under the Banking Ordinance to carry on the business of taking deposits. Hong Kong maintains a Three-tier Banking System, which comprises licensed banks, restricted licence banks and deposit-taking companies.

Backing Assets/Backing Portfolio
Specific US dollar assets of the Exchange Fund that have been designated to provide backing to the Monetary Base.

Backing Ratio
The ratio between the Backing Assets and the Monetary Base. When the Currency Board Account was first set up, sufficient US dollar assets were transferred to the Currency Board Account to provide a 105% backing of the Monetary Base (the Backing Portfolio). Under a new arrangement approved by the Financial Secretary in January 2000, when the Backing Ratio reaches 112.5% (the upper trigger point), assets will be transferred out of the Backing Portfolio to the Investment Portfolio of the Exchange Fund assets to reduce the ratio to 110%. Conversely, should the ratio drop to 105% (the lower trigger point), assets will be injected from the Investment Portfolio to restore it to 107.5%. This arrangement enables a higher investment return on excess assets while ensuring sufficient liquid assets in the Backing Portfolio.

Best Lending Rate
A benchmark interest rate that banks use to price loans. In Hong Kong, the Best Lending Rate is often used as a base for quoting interest rates on mortgage loans.

Certificates of Indebtedness (CIs)
Certificates issued by the Financial Secretary under the Exchange Fund Ordinance, to be held by note-issuing banks as cover for the banknotes they issue.

Composite Consumer Price Index
The headline consumer price index (CPI) for Hong Kong. The Census and Statistics Department compiles three separate CPI series relating to households in different expenditure ranges. The CPI(A) relates to about 50% of households in the relatively low expenditure range; the CPI(B) relates to the next 30% of households in the medium expenditure range; and the CPI(C) relates to the next 10% of households in the relatively high expenditure range. The Composite CPI is compiled based on the aggregate expenditure pattern of all of the above households taken together.

Composite Interest Rate

The composite interest rate is a weighted average interest rate of all Hong Kong dollar interest bearing liabilities, which include deposits from customers, amounts due to banks, negotiable certificates of deposit and other debt instruments, and Hong Kong dollar non-interest bearing demand deposits on the books of banks. Data from retail banks, which account for about 90% of the total customers' deposits in the banking sector, are used in the calculation. It should be noted that the composite interest rate represents only average interest expenses. There are various other costs involved in the making of a loan, such as operating costs (e.g. staff and rental expenses), credit cost and hedging cost, which are not covered by the composite interest rate.

Convertibility Undertaking

An undertaking by a central bank or currency board to convert domestic currency into foreign currency and vice versa at a fixed exchange rate. In Hong Kong, the HKMA operates Convertibility Undertakings on both the strong side and the weak side. Under the strong-side Convertibility Undertaking, the HKMA undertakes to buy US dollars from licensed banks at 7.75. Under the weak-side Convertibility Undertaking, the HKMA undertakes to sell US dollars at 7.85. Within the Convertibility Zone between 7.75 and 7.85, the HKMA may choose to conduct market operations consistent with Currency Board principles with the aim of promoting the smooth functioning of the money and foreign exchange markets.

Convertibility Zone

The Hong-Kong-dollar-US-dollar exchange rate band, defined by the levels of the strong- and weak-side Convertibility Undertakings, within which the HKMA may choose to conduct market operations consistent with Currency Board principles.

Delinquency Ratio in Negative Equity

Negative equity residential mortgage loans (RMLs) delinquent for more than three months as a percentage of total negative equity RMLs.

Discount Window

In Hong Kong, the facility through which banks can borrow Hong Kong dollar funds overnight from the HKMA through repurchase agreements using eligible securities as collateral.

Exchange Fund Bills and Notes

Debt instruments issued by the HKMA for the account of the Exchange Fund. Introduced in March 1990, the Exchange Fund Bills and Notes programme has expanded over the years, with a maturity profile ranging from three months to 15 years. These instruments are fully backed by the foreign reserves. The HKMA has undertaken that new Exchange Fund paper will only be issued when there is an inflow of funds, thus enabling the additional paper to be fully backed by the foreign reserves. Since 1 April 1999, interest payments on Exchange Fund paper have been allowed to expand the Monetary Base. Additional Exchange Fund paper is issued to absorb such interest payments. This is consistent with the Currency Board discipline since interest payments on Exchange Fund paper are backed by interest income on the US dollar assets backing the Monetary Base.

Liquidity Ratio

All authorized institutions in Hong Kong are required to meet a minimum monthly average liquidity ratio of 25%. This is calculated as the ratio of liquefiable assets (e.g. marketable debt securities and loans repayable within one month subject to their respective liquidity conversion factors) to qualifying liabilities (basically all liabilities due within one month). The method of calculation and its components are specified in the Fourth Schedule to the Banking Ordinance.

Monetary Base

A part of the monetary liabilities of a central bank. The monetary base is defined, at the minimum, as the sum of the currency in circulation (banknotes and coins) and the balance of the banking system held with the central bank (the reserve balance or the clearing balance). In Hong Kong, the Monetary Base comprises Certificates of Indebtedness (for backing the banknotes issued by the note-issuing banks), government-issued currency in circulation, the balance of the clearing accounts of banks kept with the HKMA, and Exchange Fund Bills and Notes.

Monetary Conditions Index (MCI)

An index that shows the overall monetary conditions of an economy. It is defined as a weighted sum of some measures of real interest rate and real effective exchange rates, with the weights reflecting their relative effects on aggregate demand or inflation.

Mortgage Delinquency Ratio

The ratio of total amount of loans overdue for more than three months to total outstanding loans. It is obtained from the Residential Mortgage Survey, which is a monthly survey covering 23 authorized institutions.

Mortgage Loans in Negative Equity

A mortgage loan with the outstanding loan amount exceeding the current market value of the mortgaged property.

Nominal and Real Effective Exchange Rate (NEER and REER)

An indicator of the overall exchange rate value of the Hong Kong dollar against a basket of currencies of Hong Kong's principal trading partners. The nominal effective exchange rate (NEER) is a weighted average of the exchange rates between Hong Kong and its principal trading partners. The real effective exchange rate (REER) is obtained by adjusting the NEER for relative movements in the seasonally adjusted consumer price indices of those selected trading partners.

Rescheduled-Loan Ratio

The ratio of total rescheduled loans to total outstanding loans.

Underemployment Rate

The number of underemployed persons, who are involuntarily working for less than 35 hours a week, as a proportion of the labour force.

Abbreviations

3m moving avg.	Three-month moving average
3m-on-3m	Three-month-on-three-month
ASEAN	Association of Southeast Asian Nations
AIs	Authorized Institutions
bn	Billion
BLR	Best lending rate
BoP	Balance of Payments
CCPI	Composite Consumer Price Index
CDS	Credit default swap
C&SD	Census and Statistics Department
CPI	Consumer Price Index
CU	Convertibility Undertaking
DAX	Deutscher Aktien Index
DTD	Distance-to-default
ECB	European Central Bank
EU	European Union
EUR	Euro
FAI	Fixed-asset investment
Fed	Federal Reserve
FFTR	Federal Funds Target Rate
FX	Foreign exchange
G20	Group of Twenty
GDP	Gross Domestic Product
GIMF	Global Integrated Monetary and Fiscal Model
GMM	Generalised method of moments
HIBOR	Hong Kong Interbank Offered Rate
HKD	Hong Kong dollar
HKMA	Hong Kong Monetary Authority
HKSAR	Hong Kong Special Administrative Region
HSI	Hang Seng Index
IMF	International Monetary Fund
IO	Input-output
IPO	Initial public offering
ISM	Institute for Supply Management
IT	Information technology

LERS	Linked Exchange Rate system
LGD	Loan-given-default
LIBOR	London Interbank Offered Rate
lhs	Left-hand scale
MCI	Monetary conditions index
mn	Million
MTRC	Mass Transit Railway Corporation
NCD	Negotiable Certificates of Deposit
NDF	Non-deliverable forward
NEER	Nominal effective exchange rate
NFCCs	Non-financial Chinese companies
NIEs	Newly industrialised economies
OIS	Overnight index swap
p.a.	Per annum
PBoC	People's Bank of China
PMI	Purchasing Managers' Indices
PPP	Purchasing Power Parity
PPI	Producer Price Index
qoq	Quarter-on-quarter
R&VD	Rating and Valuation Department
RAI	Risk Appetite Index
REER	Real effective exchange rate
repo	Repurchase agreement
rhs	Right-hand scale
RMB	Renminbi
RMLs	Residential Mortgage Loans
RRR	Reserve requirement ratio
SARS	Severe Acute Respiratory Syndrome
S&P 500	Standard and Poor's 500 Index
SI	Spillover Index
SSE	Shanghai Stock Exchange
TOPIX	Tokyo Stock Price Index
US	United States
USD	US dollar
VaR	Value-at-risk
VAR model	Vector Autoregression model
yoy	Year-on-year

This Report is extracted from the
HKMA Quarterly Bulletin
June 2009 issue.

Full text of this Report is available on the
HKMA website at **www.hkma.gov.hk.**

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Printed in Hong Kong
HK$60