



HONG KONG MONETARY AUTHORITY  
香港金融管理局

# HALF-YEARLY MONETARY AND FINANCIAL STABILITY REPORT

*December 2008*

*This Report reviews statistical information between end-May and end-November 2008.*

## Summary

*The external economic environment has deteriorated markedly since the last Report. Major advanced industrial economies are in, or on the brink of, recession. 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. Measures introduced by the Hong Kong Monetary Authority to ease tensions in the local interbank market have provided a measure of relief from the financial tensions, and the fiscal actions proposed by the Government are likely to give some support to the real economy. These actions, together with the strong initial position of local financial institutions, will help the economy weather the global financial crisis relatively well.*

Projections for economic growth have been revised downwards continually as the effects of the global financial crisis are being transmitted to the real economy. For example, the projections by the International Monetary Fund (IMF) for real GDP growth in the US in 2008 have been reduced to 1.4% in its November report from 1.6% in the October report. The corresponding projections for the euro area are 1.2% and 1.3% respectively. More revealing is the reduction in forecasts for 2009. The US economy is now expected to contract by 0.7% (against a positive growth rate of 0.1% projected in October) and the euro area is expected to contract by 0.5% (versus a positive 0.2% growth rate projected in October). Projections for the economy of Mainland China also point to a declining growth rate. The recently announced fiscal stimulus package will provide helpful support and may be sufficient to maintain real GDP growth in the 8-9% range for the current and coming year. The slowdown in Mainland exports will have a significant knock-on effect on regional economies. As discussed in Box 1, in spite of the increased exports to the Mainland, these economies remain predominantly dependent on imports from the US and other industrial countries. The reason is that their exports to the Mainland contain a large proportion of goods that are used as inputs in the production of China's exports to the US and Europe.

An economic downturn in Hong Kong's trading partners inevitably results in a downturn of the local economy. The effects of the sharp decline in the local stock market on household consumption and the impact of tightened credit on business investment will add to the downward pressure on aggregate demand. The November consensus forecast for real GDP growth in Hong Kong is 3.6% in 2008 and 1.4% in 2009. Most recently, however, a group of major private sector banks have revised their forecast for 2009 down to an average of -0.3%.

Together with the recent decline in food and energy prices, the downturn in economic activity will have a moderating influence on inflation. The latest market consensus forecast for 2008 is a year-on-year headline rate of 4.5%, implying a 5.8% rate if special measures are excluded. In view of the likely further softening of economic growth in 2009 and the rapidly declining rental rates for residential property, the headline inflation rate for 2009 is likely to decline further to the 2-4% range.

The financial problems that originated about a year and a half ago in a small segment of the US mortgage market have now transformed into a full-scale global financial crisis. Interbank markets are not functioning properly as shown by the significant spreads of term interbank rates over current and expected future overnight rates in major financial centres. In addition, the cost of insuring against the risk of default of financial institutions has soared, and banks' lending to the corporate and household sectors has been curtailed in many jurisdictions. Hong Kong has not been spared from the effects of the financial crisis. Chapter 3 in the Report documents the evolving tensions in the local interbank market and the offsetting measures taken by the Hong Kong Monetary Authority. These include a reduction in the discount rate, a widening of the types of assets accepted as collateral for such borrowing, and an extension of the term from overnight to three months. In order to buttress confidence in the banking system, the Government has also expanded deposit protection and provided conditional capital support for local financial institutions. These measures, as well as the accumulated credibility of the Linked Exchange Rate system, have ensured that no significant pressure has appeared in the foreign exchange market. While the strong-side convertibility undertaking has been hit a number of times, requiring purchases of US dollars by the HKMA, there have been no signs of speculative pressure on the Hong Kong dollar.

Chapter 3 also documents that despite the increase in interest rate risk and credit risk, and notwithstanding the decline in the profitability of local retail banks, the systemic risk of the banking sector in Hong Kong appears to be contained as capitalisation levels remain strong. The recent increase in interbank interest rates has heightened the basis risk for financial institutions that fund loans in this market. At the same time, the credit risk of loans to the corporate sector has increased in view of the deteriorating economic conditions. The credit risk associated with mortgage lending has also increased as real estate prices have started to decline. The interplay between tightened liquidity conditions in the interbank market and the increased default risk

of banks is studied in a newly-developed stress testing framework described in Box 6. This framework highlights the potentially destabilising dynamics linking the liquidity risk and credit risk of financial institutions, but concludes that the conditions in Hong Kong's banking system are such that the likelihood of a self-perpetuating deterioration in liquidity and credit risk is minimal.

The risks facing both the real and financial sectors of the economy are particularly pronounced at this time. The evolution of the external environment is, as usual, crucial for the prospects for Hong Kong. The nature, speed, and magnitude of policy measures taken by the authorities in the major economies are, therefore, of critical importance. At the 15 November meeting of the leaders of the G-20 economies, agreement was reached on the need for policy actions to stabilise the world's financial system, to support aggregate demand, and to maintain an open international trading system. How well these goals are attained will have a decisive bearing on Hong Kong's economy in the coming year.

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

## December 2008

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#### Glossary of terms

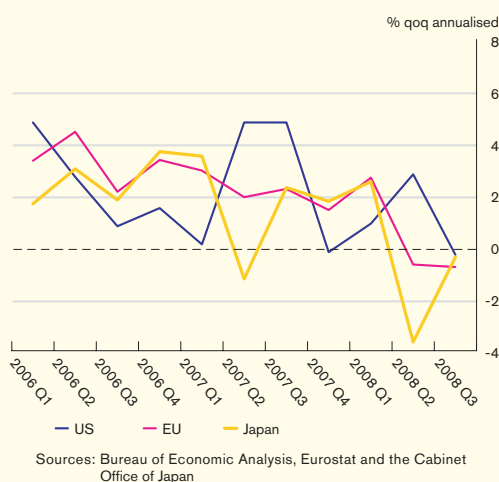
#### Abbreviations

# 1. Global and regional setting

## External environment

The global credit crisis intensified in mid-September marking a point where economic developments took a turn for the worse. Incoming data and recent developments continue to paint a picture of a global economy that is slipping into recession. Although the current financial crisis originated far from Asia, regional economies are still feeling the impact through a slowdown in economic growth and varying degrees of financial distress.

**Chart 1.1**  
US, euro area and Japan GDP



### 1.1 Real activities and trade

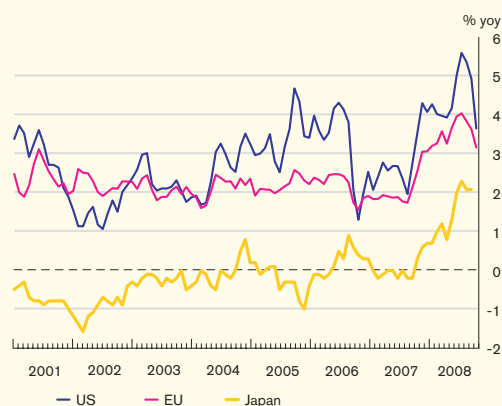
Over the past six months, the advanced economies of the US, the euro area and Japan slowed appreciably, with third-quarter GDP<sup>1</sup> contracting by 0.5% in the US, 0.8% in the euro area, and 0.4% in Japan (Chart 1.1). The euro area and Japan are now in a technical recession, likely to be joined by the US.

Economic conditions worsened in mid-September as the credit crisis intensified with almost unprecedented developments in financial markets taking a heavy toll on the real sector. The fresh round of deleveraging by financial institutions led to further tightening of credit conditions, while the dramatic developments in financial markets shook consumer and corporate confidence and damaged balance sheets.

Private consumption, in particular, was severely affected in the US and the euro area, while in Japan, export growth slowed to almost a standstill. Meanwhile, the housing market correction in the US continued in full force, and gathered momentum in several European economies. Reflecting the sharp economic slowdown, labour market conditions deteriorated rapidly in the US, although weaknesses were less marked, or may be yet to surface, in the euro area and in Japan.

<sup>1</sup> For the US, the euro area, the UK, Japan and non-Japan Asia (ex-Mainland China), all quarterly real GDP percentage changes are on a seasonally-adjusted annualised basis, unless otherwise stated.

**Chart 1.2**  
**US, euro area and Japan: headline inflation**



**Table 1.A**  
**Asia: Year-on-year real GDP growth rate**

(% qoq, annualised)	2007 Q2	2007 Q3	2007 Q4	2008 Q1	2008 Q2	2008 Q3
<b>NIE:</b>	<b>7.2</b>	<b>9.5</b>	<b>3.2</b>	<b>4.4</b>	<b>1.4</b>	<b>-1.5</b>
Korea	7.1	6.0	6.4	3.3	3.4	2.3
Singapore	13.4	5.1	-4.8	15.7	-5.3	-6.8
Taiwan <sup>1</sup>	6.0	16.3	-0.4	3.7	-0.6	-6.6
<b>ASEAN:</b>	<b>6.7</b>	<b>8.0</b>	<b>6.6</b>	<b>2.9</b>	<b>5.7</b>	<b>5.1</b>
Indonesia <sup>1</sup>	6.4	10.1	7.3	1.7	6.9	8.7
Malaysia <sup>1</sup>	7.0	9.9	7.5	5.4	3.9	2.2
Philippines	8.8	3.3	5.1	1.3	7.9	3.4
Thailand	5.3	7.3	6.3	4.8	3.1	2.3
<b>East Asia:</b>	<b>6.9</b>	<b>8.7</b>	<b>5.1</b>	<b>3.6</b>	<b>3.7</b>	<b>2.1</b>

Note: 1. Staff estimates.

Sources: CEIC and staff estimates.

With money markets seizing up, many advanced economies took unprecedented measures to boost liquidity and unlock the system, including the re-capitalisation of financial institutions and the guarantee of bank obligations and customer deposits. Monetary and fiscal policies were also loosened.<sup>2</sup>

Helped by sharply declining energy prices and increasing slack in the economy, inflationary pressures eased across many advanced economies in the past six months (Chart 1.2). However, concerns about risks of deflation surfaced.

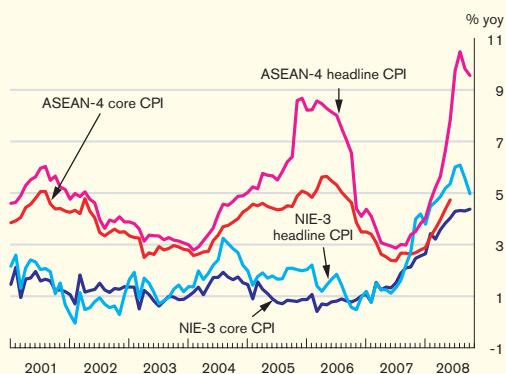
In the rest of East Asia, the impact of the US-originated financial market turmoil has begun to take a toll on real economic activity, which has stayed robust over the past few years. There now appears to be a synchronised slowdown in economic activity across the region. Real GDP for the region rose by only 2.1% in Q3, which was the slowest pace in recent years (Table 1.A). The slowdown reflected both contracting external demand and a sharp deterioration in consumer and investor expenditures domestically. In the NIEs, merchandise exports in Q3 registered their slowest growth since 2007, while in the ASEAN economies, exports recorded their first contraction since 2003.<sup>3</sup> Along with the sluggish performance of the external sector, industrial production in the NIEs also contracted, while in the ASEAN economies, production has continued its downward trend since Q2. In addition, many regional financial markets have suffered sharper losses than the major developed markets, putting pressure on consumer and business confidence.

Recent activity indicators in the region point to an economic slowdown in the coming months. And, it is now clear that Asia will not be entirely immune to the effects of the global downturn. This contrasts with predictions made by the so-called decoupling theory, according to which increasing intra-Asia trade in the past five to 10 years has made the local economies less

<sup>2</sup> The impact of the recent ambitious fiscal expansion plan in Mainland China is discussed in Section 1.5.

<sup>3</sup> The NIEs include Korea, Singapore and Taiwan, while the ASEAN economies include Indonesia, Malaysia, Philippines and Thailand.

**Chart 1.3**  
**East Asia: headline and core CPI inflation<sup>1</sup>**



Note: 1. Simple average.  
 Sources: CEIC and staff estimates.

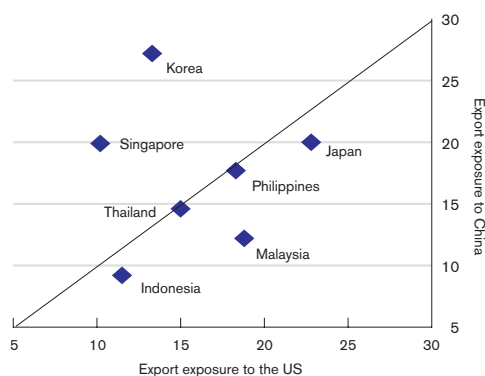
dependent on trade with the rest of the world. While the region's dependence on direct exports to the US seems to have declined in recent years, after controlling for indirect exports through Mainland China, the US continues to be important as a source of final demand for the region's export production. Box 1 of this Report provides a detailed analysis to highlight the quantitative importance of this factor.

With the deteriorating economic conditions, monetary policy in many East Asian economies has shifted from focusing on inflation to addressing risks to economic growth, especially as inflationary pressures have receded in tandem with declining commodity and food prices (Chart 1.3). Indeed, recent aggressive rate cuts by a number of regional central banks show that policymakers are increasingly prepared to front-load the rate cuts. In light of the tightened global credit market, authorities in the region have also introduced a wide range of measures mainly to ease the strain on liquidity and restore confidence in their financial markets.



## Box 1 Trade linkage between East Asian economies and major export markets through processing trade in China<sup>4</sup>

**Chart B1.1**  
Direct export exposures 2006



Source: Staff estimates.

The economic slowdown in major developed economies is set to affect the emerging markets in East Asia. Some believe that the rise of Mainland China as a major trading partner with East Asian economies will mitigate the decline in demand from the US, Japan, and Europe. For example, in 2000, the US was a more important export market for Korea than Mainland China. In that year, 22% of Korea's exports went to the US, while 17% went to China. Gravity seems to have shifted since then. In 2006, the Mainland accounted for 27% of Korean exports, while the US accounted for 13%. Similar dynamics also occurred in other emerging markets in East Asia. Chart B1.1 illustrates the relative importance of the Mainland and the US as export markets for a group of East Asian economies in 2006, using bilateral trade data as the basis. According to this Chart, Mainland China is more important than the US as an export market for Korea and Singapore. For Japan, Thailand, and the Philippines, the Mainland and the US have roughly equal importance.

But a large share of the exports from East Asian economies to the Mainland might actually be driven by demand from developed economies rather than from Mainland China. The vertical integration in the global supply chain has led to higher exports from East Asian economies to the Mainland and higher exports from the Mainland to OECD countries. There is consensus among researchers that some exports from East Asia to Mainland China are processed and re-exported to developed economies, but accurate estimates for such indirect export exposures are not available because of a lack of data on the Mainland's processing trade.

This study uses a unique firm level database to gauge quantitatively the bilateral trade linkage between East Asian emerging markets and their major trading partners through the processing trade channel on the Mainland.

<sup>4</sup> This Box is prepared on the basis of a forthcoming *HKMA Working Paper* which will provide more details on the methodology and findings.

The firm level database covers the imports and exports by every firm that engaged in international trade in Mainland China from 2003 to 2005. The advantage of using this data is that it allows us to calculate accurately how much of each East Asian economy's exports to the Mainland was processed and re-exported to Japan, the US, and other industrialised countries. It records the source of each import transaction and the export market of each export transaction for each firm. It also records whether the imported goods were used for processing trade, that is, if they were used as intermediate inputs for export purposes. Tax rebates were granted for such imported goods. The classification of processing versus normal trade makes it possible to control for the indirect export exposure between East Asian economies and their trading partners.

**Table B1.A**  
**Bilateral export exposure for selected economies in 2006**

Exporter	Export market	Direct export exposure	Indirect export exposure	Combined export exposure
Japan	US	22.8	1.9	24.7
Japan	Japan	0	1.1	1.1
Japan	Rest of OECD	18.0	1.6	19.6
Japan	China	20.0	-9.2	10.8
Japan	Rest of World	39.2	4.7	43.9
Indonesia	US	11.5	0.5	12.0
Indonesia	Japan	19.4	0.3	19.7
Indonesia	Rest of OECD	15.8	0.5	16.3
Indonesia	China	9.2	-2.8	6.4
Indonesia	Rest of World	44.0	1.6	45.6
Korea	US	13.3	2.8	16.1
Korea	Japan	8.1	1.5	9.6
Korea	Rest of OECD	16.1	2.2	18.3
Korea	China	27.2	-13.5	13.7
Korea	Rest of World	35.3	7.0	42.3
Malaysia	US	18.8	1.5	20.3
Malaysia	Japan	8.9	0.6	9.5
Malaysia	Rest of OECD	16.3	1.2	17.5
Malaysia	China	12.2	-6.2	6.0
Malaysia	Rest of World	43.8	2.9	46.7
Philippines	US	18.3	2.5	20.8
Philippines	Japan	16.5	1.0	17.5
Philippines	Rest of OECD	20.0	2.1	22.1
Philippines	China	17.7	-10.7	7.0
Philippines	Rest of World	27.6	5.0	32.6
Singapore	US	10.2	2.3	12.5
Singapore	Japan	5.5	1.0	6.5
Singapore	Rest of OECD	15.5	1.9	17.4
Singapore	China	19.9	-9.9	10.0
Singapore	Rest of World	49.0	4.6	53.6
Thailand	US	15.0	1.9	16.9
Thailand	Japan	12.6	0.8	13.4
Thailand	Rest of OECD	18.6	1.5	20.1
Thailand	China	14.6	-7.7	6.9
Thailand	Rest of World	39.2	3.5	42.7
Vietnam	US	21.2	0	21.2
Vietnam	Japan	12.3	0	12.3
Vietnam	Rest of OECD	30.6	0	30.6
Vietnam	China	7.1	0	7.1
Vietnam	Rest of World	28.8	0	28.8

Note: Staff estimates. The direct exposure is based on the share of economy A's exports to five export markets relative to its total exports, without taking into account its exports to Mainland China that were processed and re-exported to other economies. The indirect exposure is A's exports to the Mainland that were processed and re-exported to other export markets, as a share of A's total exports. The two measures combined provide an accurate estimate for bilateral export exposure.

Once the processing trade factor for the Mainland is controlled, the picture on the trade linkage between East Asian economies and their export markets changes significantly. Table B1.A shows the estimated trade linkage between eight East Asian economies and their major trading partners on a bilateral basis, with export exposure broken down to the direct channel through bilateral trade and the indirect channel through processing trade in Mainland China. The main findings are:

- **The size of the indirect export exposure is large for all the countries except for Indonesia and Vietnam.** The exports to the Mainland that were re-exported to other countries accounted for 9.2% of Japan's total exports. The same statistic is 13.5% for Korea, 10.7% for the Philippines, 9.9% for Singapore, 7.7% for Thailand, and 6.2% for Malaysia. For these six economies, roughly half their total exports to the Mainland were used as inputs for exports to other countries. Interestingly, Indonesia stands out as an outlier, as 9.2% of its exports went to China in 2006, but only 2.8% were used as inputs for processing trade on the Mainland. In the case of Vietnam, there were virtually no exports to Mainland China that were used as inputs for processing trade, so the indirect channel of export exposure is not relevant.<sup>5</sup>

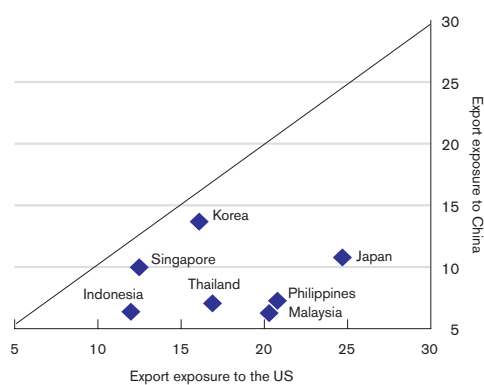
<sup>5</sup> The data are based on exports from Vietnam from 2003 to 2005. Anecdotal evidence indicates that exports from Vietnam in recent years might have a higher content for processing trade.

- **The role of demand from the developed economies is substantially under-estimated if the indirect trade channel is not fully accounted for.**

Comparing columns 3 and 5 in Table B1.A, the difference is striking. In the case of Korea, if only the direct export exposure is considered, Mainland China is twice as important as the US, as it accounts for 27.2% of the exports from Korea, while the US is only 13.3%. But after controlling for the indirect export exposure, the picture is reversed, with 16.1% of the Korean exports eventually ending up in the US, while 13.7% were consumed on the Mainland. Similar drastic comparisons also apply to the other economies.

- **The demand from Mainland China for East Asian economies is smaller than commonly perceived.** After controlling for the indirect export exposure, the Mainland accounts for only 6-7% of exports from Indonesia, Malaysia, the Philippines and Thailand. For Japan, Korea, and Singapore, the Mainland plays a relatively more important role, accounting for 10.8%, 13.7%, and 10% of their exports respectively. Nonetheless, the purchasing power of Chinese consumers is not large enough to match that of US consumers.

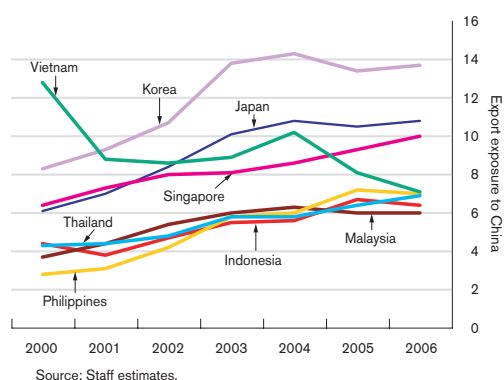
**Chart B1.2**  
**True export exposures 2006**  
**(including direct and indirect export exposures)**



Source: Staff estimates.

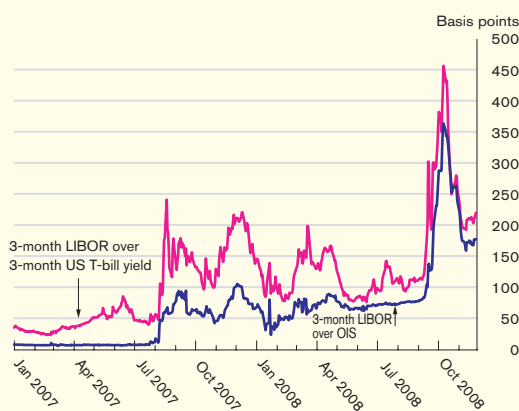
Chart B1.2 plots the export exposures for East Asian economies to Mainland China and the US, taking into account both the direct exports from these economies to the US and their exports to the Mainland that were re-exported to the US and the other markets. The difference between Chart B1.1 and Chart B1.2 is large. Chart B1.2 shows that for Korea and Singapore, the demand from the US is as important as the demand from the Mainland. For other East Asian economies, the US market is far more important.

**Chart B1.3**  
**Export exposure to Mainland China**  
**(including indirect exposure)**



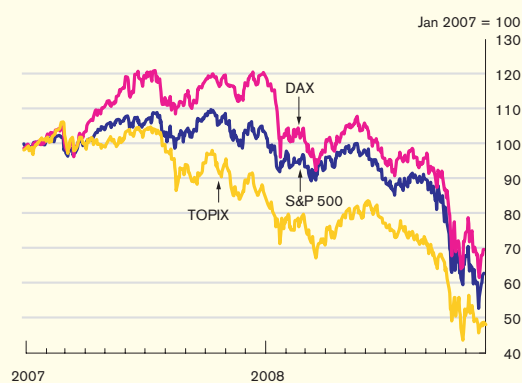
Has the demand from Mainland China become more important over the years? A close look at the trend of the export exposures of East Asian economies indicates that, once we control for the indirect export exposure through processing trade in Mainland China, the relative importance of the consumers in the developed economies and the Mainland has changed only moderately since 2000 (Chart B1.3). The change is higher for Korea (5.4%) and Japan (4.7%), and relatively low for Indonesia (2%), Malaysia (2.3%), and Thailand (2.6%). The supply side of the global economy changed drastically, but the demand side did not.

**Chart 1.4**  
3-month LIBOR over OIS and  
US Treasury yield



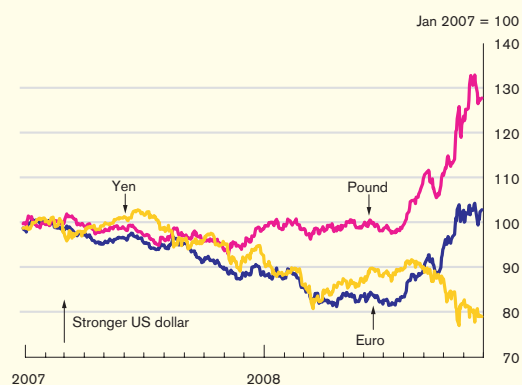
Source: Bloomberg.

**Chart 1.5**  
World equity indices



Source: Bloomberg.

**Chart 1.6**  
US dollar exchange rates



Source: Bloomberg.

## 1.2 Global financial conditions

The past six months have seen the global financial system come under severe strain, as the credit crisis deepened. In funding markets, the failure of Lehman Brothers in mid-September triggered widespread distress among financial institutions internationally. The global interbank funding network was seriously impaired as counterparty risk soared. The intensity of the stress can be seen in the sharp spike in the spread of the 3-month LIBOR over its corresponding overnight index swap (OIS) and US Treasury yield (Chart 1.4).<sup>6</sup> Monetary easing and liquidity injections by leading central banks met with limited success in forestalling the system-wide pressure. As financial institutions faced increasing liquidity difficulties, credit default swap (CDS) spreads rose sharply, highlighting mounting credit risk in the system. In capital markets, the entwinement of rising economic and financial risks caused a major flight to quality. Equities suffered large sell-offs in extremely volatile markets as investors sought safe haven assets (Chart 1.5). As a result, US Treasuries were well supported even though large new issues were expected. Amid the global risk reappraisal, the dollar rebounded strongly *vis-à-vis* all currencies except the yen, which surged on unwinding of carry trades (Chart 1.6).

As the crisis continued to unfold, its flow-on effects escalated on a global level. Emerging markets in Asia experienced a reversal of capital flows, registering even greater losses compared with developed markets. Since the collapse of Lehman Brothers in mid-September, equity prices have declined by 33.8% on the MSCI-Asia Index, while CDS spreads have risen by 173 basis points. The correlation for the equity markets, which fluctuated within a relatively narrow range before the outbreak of the crisis, has since risen significantly (Box 2). The correlation for the CDS markets showed a similar upward trend. As a result, the implied default probabilities of a number of financial institutions in the region increased to critical levels. In a bid to alleviate pressure on the financial system and restore stability, some economies in the region introduced support packages – including extended deposit protection and interbank transaction guarantees – and established swap lines with the US Fed. While fears appear to have subsided to some extent, financial markets remain volatile.

<sup>6</sup> Box 5 shows the liquidity and credit risk components of the 3-month US dollar LIBOR-OIS spreads.

## Box 2

### Measuring financial market interdependence and assessing possible contagion risk in the Asia-Pacific region

The risk of cross-border financial contagion has increased with intensified links in a world of high capital mobility, particularly when the region's economies are more interdependent. At times of financial crises, such contagion may have important consequences for financial stability. It is, therefore, essential to provide policymakers with appropriate measures to assess the co-movement of financial asset prices (or their returns). This will help define policy responses and contingency plans.

#### *Dynamic Conditional Correlation and Spillover Index*

The terms interdependence and contagion are often interchangeable. In a broad sense, they are sometimes referred to as the co-movement of asset return or cross-country transmission of shocks. In this Box, we distinguish between the two terms, and refer such broad definition of co-movement as asset return correlation or return volatility spillover. Two measures discussed here – the Dynamic Conditional Correlation (DCC) proposed by Engle (2002)<sup>7</sup>, and the Spillover Index (SI) proposed by Diebold and Yilmaz (2008) – are related to this type of financial asset price relationship.

The DCC model is commonly used to examine the time-varying correlation dynamics among asset returns.<sup>8</sup> Similar to other conventional correlation measures, a higher correlation between markets implies a higher

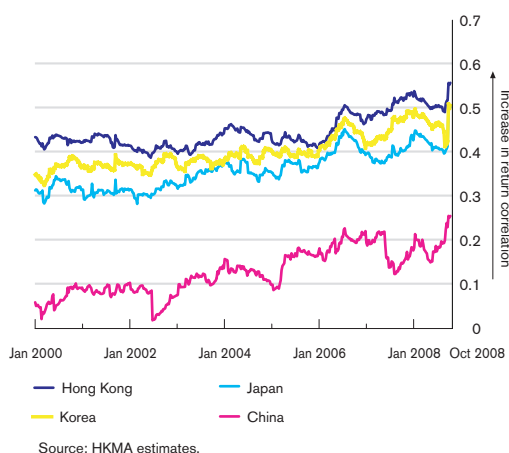
<sup>7</sup> For details on the DCC model, see Engle (2002), "Dynamic Conditional Correlation: A Simple Class of Multivariate Generalized Autoregressive Conditional Heteroskedasticity Models", *Journal of Business & Economic Statistics*, Vol. 20, pp. 339-350.

<sup>8</sup> Yu et al. (2007) employs DCC as an indicator to monitor the development, measure progress and assess the state of equity market integration in Asia. For details, see Yu, Fung and Tam (2007), "Assessing Financial Market Integration in Asia - Equity Markets", *HKMA Working Paper 04/2007*. IMF (2008) also uses DCC to examine the cross-country equity price correlations between emerging market economies and the US. See IMF (2008), "Spillovers to Emerging Equity Markets", *Global Financial Stability Report*, October, pp. 131-151.

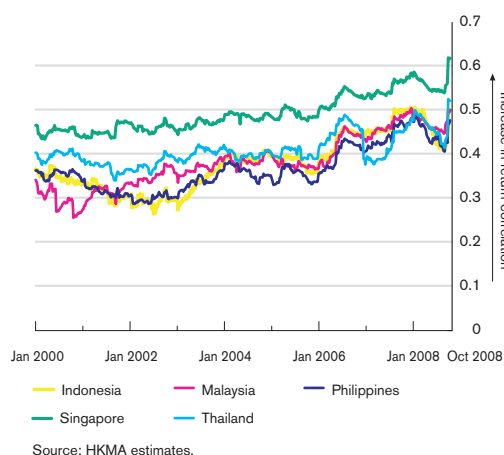
**Chart B2.1**  
Average correlation between Asia-Pacific economies and the US



**Chart B2.2a**  
Average correlation among equity markets (Northeast Asia)



**Chart B2.2b**  
Average correlation among equity markets (Southeast Asia)



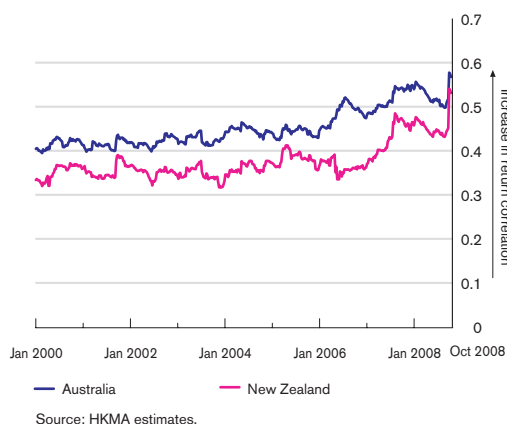
return co-movement in the markets. The SI focuses on variance decomposition under a simple vector autoregressive model of equity returns, in which the index can be interpreted as an aggregate of spillovers across markets.<sup>9</sup> A higher SI implies that a larger proportion of the volatility in any one market can be accounted for by shocks originating in other markets. A higher SI implies a larger volatility in one market will incur a larger fluctuation of return within the whole system.

Using these two measures, the equity market interdependences among the Asia-Pacific economies and the US are examined.<sup>10</sup> Chart B2.1 depicts the time-varying average return correlation between the equity markets in the Asia-Pacific economies and the US using the DCC method. The DCC between the equity return in the US and those in the Asia-Pacific economies increased from the second half of 2007 onwards. The figure surged dramatically in mid-September 2008 on the back of the bankruptcy filing of the US investment bank Lehman Brothers, and subsequently rose to almost 0.5 in mid-October with the sharp fall in global equity prices. Such changes are also found within the Asia-Pacific economies illustrated in Charts B2.2a to B2.2c.

<sup>9</sup> For details on the SI model, see Diebold and Yilmaz (2008), "Measuring Financial Asset Return and Volatility Spillovers, with Application to Global Equity Markets", *NBER Working Paper*, No. 13811.

<sup>10</sup> The benchmark equity market indices are expressed in terms of the US dollar. The conversion is done by dividing the local currency index level by the local currency per US dollar exchange rate.

**Chart B2.2c**  
Average correlation among equity markets (Pacific)



**Chart B2.3**  
Spillover Index of Asia-Pacific Economies and the US

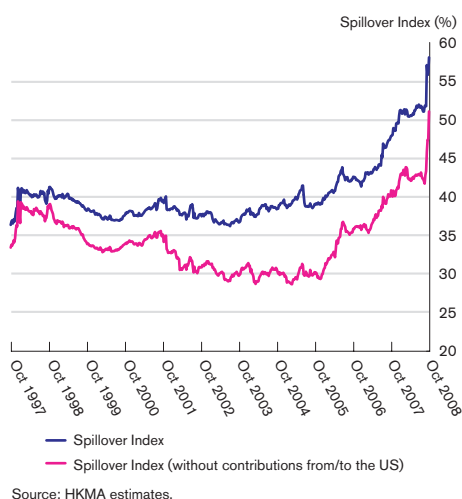


Chart B2.3 shows two series of the Spillover Index: one is the SI between equity markets in the Asia-Pacific economies and the US, and the second is the SI of just the Asia-Pacific economies.<sup>11</sup> The SI between Asia-Pacific economies and the US increased to above the 50% level in 2008 Q1, and jumped to 58% at the end of October. The SI, excluding the US, moved in a similar direction, but its increase since mid-September was even greater than that of the SI including the US. This large co-movement within the Asia-Pacific economies in part reflects the intensified linkages within the region, and these could be tightened significantly by a common external shock.<sup>12</sup>

### *Existence of contagion*

In a more restrictive sense, contagion is the transmission of shocks to other countries or the cross-country correlation, beyond any fundamental linkage among the countries and beyond common shocks. In an even more restrictive definition, which is commonly used in the literature of empirical analysis on financial markets, ‘contagion occurs when cross-country correlations increase during “crisis times” relative to correlations during “tranquil times”.’ This needs to control for general volatility rising during financial crises. The fundamental linkages are again not acknowledged, and only increases in correlation are recognised as contagion. It is this very restrictive definition that forms the basis of our test for the existence of financial contagion between the Asia-Pacific economies and the US.

<sup>11</sup> Both SI series are estimated based on a vector autoregressive system with all Asia-Pacific economies and the US. However, the calculation of the SI (excluding the US) dismissed the contributions of variance from and to the US. The system is estimated with a 200-week rolling sample.

<sup>12</sup> The increase in correlation may also be due to the increase in return volatility inherent from the external shock. Forbes and Rigobon (2002) showed that, under some mild assumptions between a pair of returns, their correlation coefficient is an increasing function of volatility. For details, see Forbes and Rigobon (2002), “No Contagion, Only Interdependence: Measuring Stock Market Co-movements”, *Journal of Finance*, Vol. LVII, No. 5.



**Table B2.A**  
**Contagion test between the US and**  
**Asia-Pacific economies**

	Correlation coefficients (US, individual economy)				Contagion?
	Stable period <sup>1</sup>	Turmoil period <sup>2</sup> (unadjusted)	Turmoil period <sup>2</sup> (adjusted)	Test stat. <sup>3</sup>	
China	-0.02	0.20	0.18	1.1	No
Japan	0.30	0.54	0.41	0.9	No
Hong Kong	0.45	0.38	0.35	-0.8	No
Korea	0.30	0.28	0.20	-0.7	No
Singapore	0.40	0.44	0.42	0.2	No
Indonesia	0.19	0.10	0.09	-0.7	No
Malaysia	0.19	0.32	0.30	0.8	No
Philippines	0.25	0.34	0.33	0.6	No
Thailand	0.28	0.40	0.30	0.1	No
Australia	0.49	0.64	0.52	0.3	No
New Zealand	0.34	0.61	0.50	1.4	No

Notes:

1. Stable period refers to January 1994 to August 2007
2. Turmoil period refers to September 2007 to October 2008
3. H<sub>0</sub>: Correlation coefficient in the turmoil period is not higher than that in the stable period.

Source: HKMA estimates.

We compare the cross-market return correlation coefficients during the pre-defined “stable period” and the “turmoil period” to examine the existence of contagion between the Asia-Pacific economies and the US by using the method proposed by Forbes and Rigobon (2002).<sup>13</sup> Based on our narrow definition of financial contagion, two markets could have high interdependence, but not contagion. This could occur even if their correlation coefficient increases during the turmoil period, but not to the extent of being significantly higher than the stable period. In this test, the correlation between a pair of equity returns during the turmoil period is adjusted against the upward bias due to heteroskedasticity of return volatility.<sup>14</sup> The cross-market correlation coefficients for the test are estimated under a vector autoregressive framework, and the dates of stable and turmoil periods are determined by screening the conditional variance of return of the US.<sup>15</sup> Table B2.A shows the results.

The results indicate that, although the correlation coefficients rose during the current turmoil, the increments are not significant to prove the existence of contagion between the Asia-Pacific economies and the US. It should be noted that the results do not suggest that markets are not closely linked during the current crisis. Instead, the correlation coefficients indicate a high level of market co-movement between the Asia-Pacific economies and the US throughout the whole period under consideration, which implies high interdependence.

<sup>13</sup> The standard correlation t-test is used to compare the size of correlation coefficients in different states.

<sup>14</sup> Return volatility always increases during the crisis period, while under some mild assumptions, the correlation coefficient is an increasing function of it. A test comparing the size of correlation coefficients between stable and turmoil periods thus tends to result in evidence of spurious contagion. See Forbes and Rigobon (2002) for details.

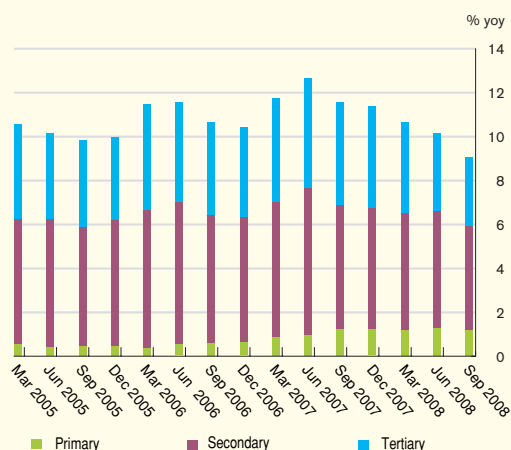
<sup>15</sup> The conditional variance of return is estimated by a simple univariate GARCH model. The variance is compared with its HP-filtered trend series. A period is identified as a beginning of market turmoil if the conditional variance is larger than the trend by more than 50% and the return is smaller than its long term average.

## Mainland China

Growth momentum continued to decelerate, although the source of the slowdown is somewhat unclear. Inflationary pressure receded due to falling food and commodity prices. The RMB/USD exchange rate stabilised after appreciating substantially earlier in the year. The market now expects the renminbi to depreciate moderately in 2009. In response to the weak economic outlook, the Mainland authorities announced a large fiscal stimulus package, and loosened monetary policy.

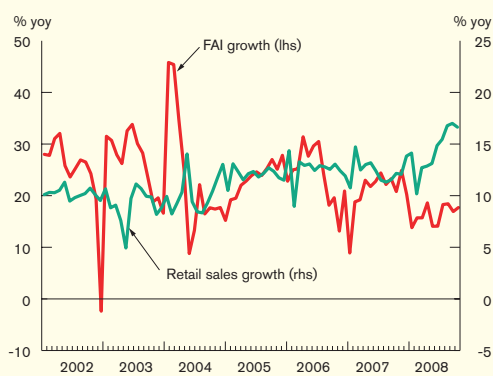
### 1.3 Output growth, external trade and inflation

**Chart 1.7**  
Mainland China: real GDP growth and the contribution by industries



Sources: CEIC and staff estimates.

**Chart 1.8**  
Mainland China: real growth in FAI and retail sales



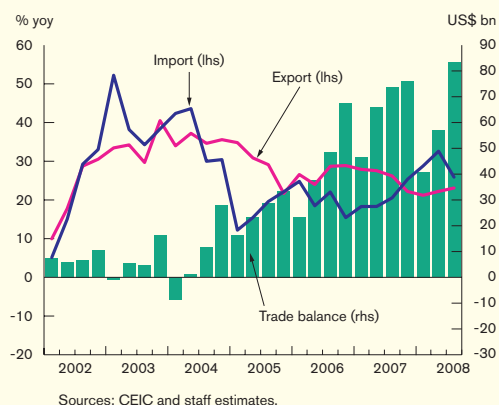
Sources: CEIC and staff estimates.

#### Output growth

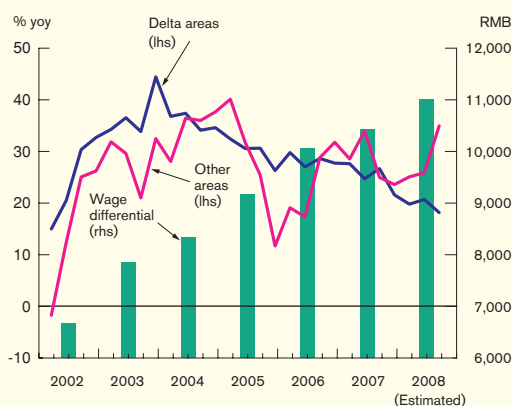
Real GDP growth declined further to an unexpected low of 9.0% year on year in Q3, more than one percentage point down from that of the second quarter (Chart 1.7). On the supply side, the slowdown is mainly due to the moderation in secondary and tertiary industries, as primary industry has maintained steady growth. On the demand side, the source of the slowdown is somewhat unclear, as the expenditure-based GDP data are not available on a quarterly basis, and observable indicators on domestic demand and net exports remained strong in Q3. Both fixed-asset investment (FAI) and retail sales (a proxy for private consumption) registered healthy growth in the third quarter (Chart 1.8), with the contribution to GDP growth by net exports also rising from that of Q2.<sup>16</sup> The apparent inconsistency between the production-based GDP figures and the monthly indicators on investment, sales, and trade is puzzling. One possible explanation is that FAI and retail sales are rather “noisy” and might not accurately reflect the current economic conditions. Indeed, indicators such as electricity usage and airline passengers have declined markedly in Q3, signalling weakening domestic demand.

<sup>16</sup> Our estimates show that the contribution by net exports to GDP growth in Q3 increased by more than one percentage point from that in Q2.

**Chart 1.9**  
Mainland China: external trade



**Chart 1.10**  
Mainland China: export growth across regions



**Table 1.B**  
Mainland China: export elasticity of major industries with respect to world GDP

Products	World GDP elasticity	T-stat.	% of total exports
Electrical machinery	4.41	4.70	10.5
Metallic mineral manufactures	4.01	4.78	3.8
Telecom and sound recording equipment	3.51	3.33	13.5
Garment and other fibre products	3.01	3.66	11.5
Textile industry	2.61	2.83	4.8
Furniture manufacturing	2.09	2.10	2.2
Office machinery and ADP	-0.48	-0.35	12.1
Ordinary trade	4.27	4.83	44.2
Processing trade	3.12	4.65	50.7

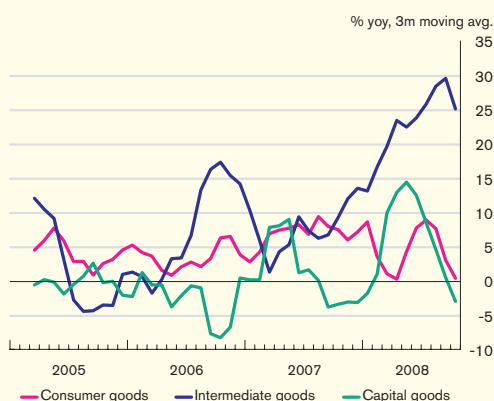
Note: The elasticity is estimated by regressing the yoy growth in exports on the yoy changes in the REER of the RMB and the one-period lag of the average of GDP growth of the Mainland's 10 largest export markets. Estimation is undertaken with quarterly data of 2001 Q1 - 2008 Q2. Shares of sectoral exports in total exports are 2007 data.

Sources: CEIC and staff estimates.

### External trade

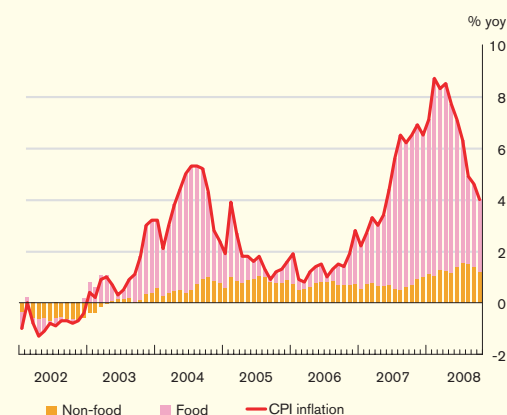
The year-on-year growth in exports stabilised in past quarters from the impressive rates in 2007 and posted 23.1% in Q3, marginally above that of the previous quarter (Chart 1.9). Deteriorating external conditions and the appreciation of the real effective exchange rate (REER) of the renminbi have been the main factors affecting exports of the Mainland. Moreover, production costs, such as land prices and wages, rose substantially in the two delta areas, which account for 70% of Mainland China's ordinary exports and 90% of processing exports. Some exporters moved their production bases from the deltas to inland provinces with lower labour costs, which led to a divergence of export growth from these two areas (Chart 1.10). Looking ahead, the Mainland's exports are likely to slow in the coming months as real economic activity in the major economies decelerates further. Our estimation suggests the impact of the global slowdown on Mainland exports is likely to be large for most products (Table 1.B). To lessen the impact of the shrinking external demand, the authorities have recently raised tax rebates for numerous labour-intensive and high-technology products. This could alleviate the rapid slowdown in exports for some products, but is unlikely to reverse the slowing trend in total exports.

**Chart 1.11**  
Mainland China: growth of imports



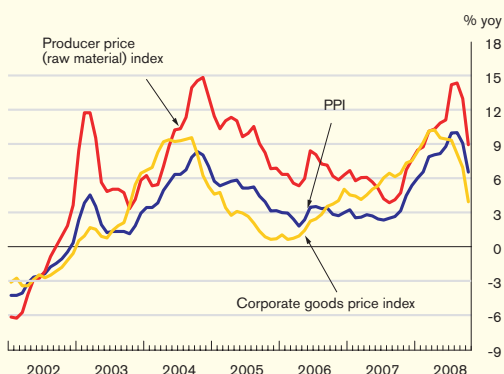
Sources: CEIC and staff estimates.

**Chart 1.12**  
Mainland China: contributions to CPI inflation



Sources: CEIC and staff estimates.

**Chart 1.13**  
Mainland China: other price indicators



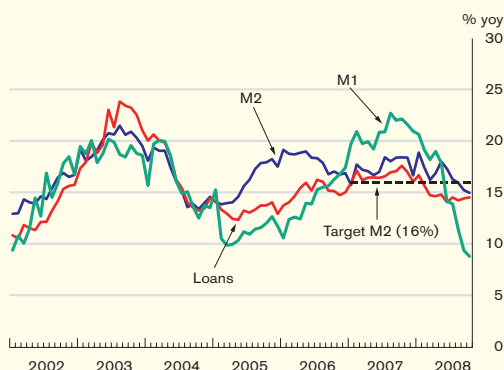
Source: CEIC.

The growth in imports fell by more than six percentage points from that of Q2 year on year, owing to weakening domestic demand as well as declining commodity prices. While the growth in imports of intermediate goods remained robust, that of consumer and capital goods saw a remarkable contraction (Chart 1.11). In particular, the year-on-year growth in imports of capital goods dropped from 14.4% in May to -3.0% in October. As a result, the quarterly trade balance recorded an historic high of US\$83.3 billion, US\$25 billion up from that of Q2. As the manufacturing sector persistently contributed to the trade surplus, crude materials and mineral fuels in the primary sector continued to be the main areas running deficits.

### Inflation

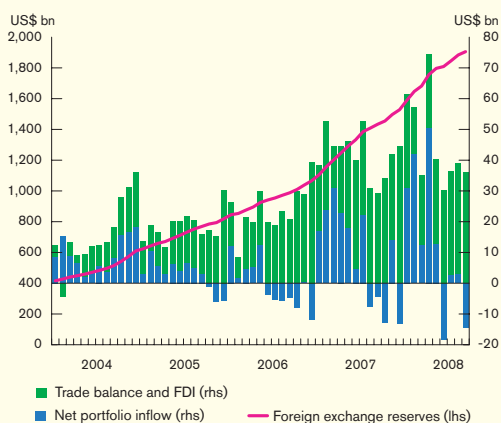
Headline CPI inflation slid further to 5.3% year on year in Q3, 2.6 percentage points below that of the previous quarter, and registered 4.0% in October (Chart 1.12). While the food component was the main factor dragging down aggregate inflation, non-food price inflation also showed signs of stabilising. PPI inflation eased to 9.1% year on year in September and declined further to 6.6% in October, after rising for 13 consecutive months and peaking at 10.1% in August (Chart 1.13). The recent moderation in PPI inflation is mainly due to falling commodity prices. Raw material PPI inflation, for instance, contracted from 14.4% year on year in August to 9.0% in October. Corporate goods-price inflation also kept falling for six consecutive months after touching a recent high of over 10% in April. Inflationary pressure is likely to continue to diminish in view of the lacklustre economic outlook and declining global commodity prices.

**Chart 1.14**  
Mainland China: growth in money and financial institution loans



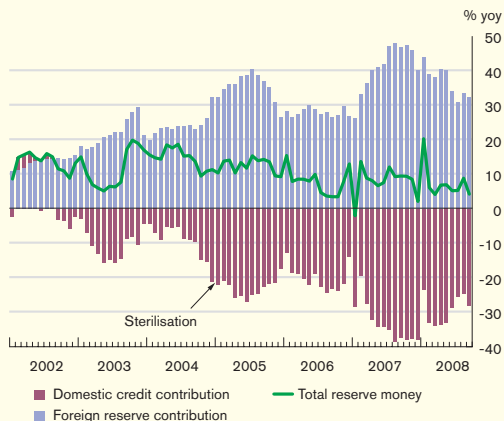
Sources: CEIC and staff estimates.

**Chart 1.15**  
Mainland China: external capital flows



Sources: CEIC and staff estimates.

**Chart 1.16**  
Mainland China: contribution to reserve money growth



Note: Total reserve money is adjusted for increases in reserve requirement ratio beyond 7.5%.

Sources: CEIC and staff estimates.

## 1.4 Monetary conditions, asset prices and the renminbi exchange rate

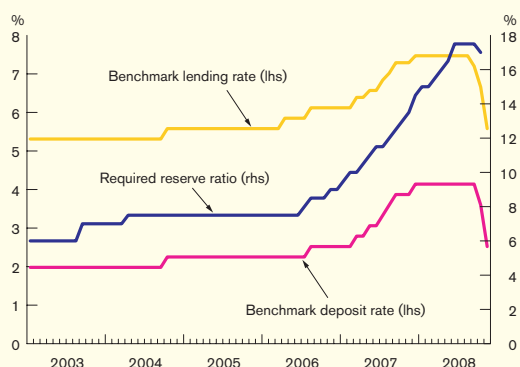
### Monetary conditions

The year-on-year growth in broad money (M2) dropped by over two percentage points from that of Q2 to a 13-quarter low in Q3, and posted 15.0% in October (Chart 1.14). In addition, it continued to outpace that of narrow money (M1), with a widening gap of six percentage points in Q3, partly reflecting back flows of capital from the stock markets to banks as a result of falling share prices. The growth in financial institution loans largely remained tame and inched up by 0.4 percentage points year on year compared with Q2, possibly reflecting the credit easing on small and medium-sized enterprises (SMEs) launched in late July. Despite the relaxed control on credit expansion, the softening trend of loans may not be reversed any time soon given banks' reluctance to lend because of the gloomy economic outlook.

Foreign exchange reserves rose at a slower pace, gaining US\$97 billion in the third quarter, compared with an average rise of US\$140 billion in the first two quarters (Chart 1.15). While the trade balance and foreign direct investment (FDI) remained the main contributors to foreign currency reserves, net portfolio flows turned negative in Q3. The recent reversal of net portfolio flows, led mainly by reduced initial public offering (IPO) proceeds of Mainland companies raised outside Mainland China, declining domestic asset prices and tight liquidity in global financial markets, has raised the concern of Mainland authorities over capital outflows.

The People's Bank of China (PBoC) successfully sterilised capital inflows in Q3, as evidenced by the mild growth in reserve money (Chart 1.16). However, triggered by the intensifying global financial crisis, receding inflationary pressure and weakening economic outlook, the PBoC has recently shifted its monetary policy stance to be more expansionary. It has joined the concerted efforts of major

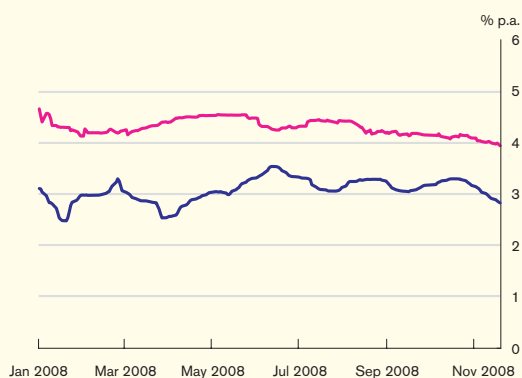
**Chart 1.17**  
Mainland China: RRR and benchmark interest rates



Note: It has been announced that the RRR would be reduced further by one to two percentage points effective from 5 December 2008.

Source: CEIC.

**Chart 1.18**  
Mainland China: market interest rates

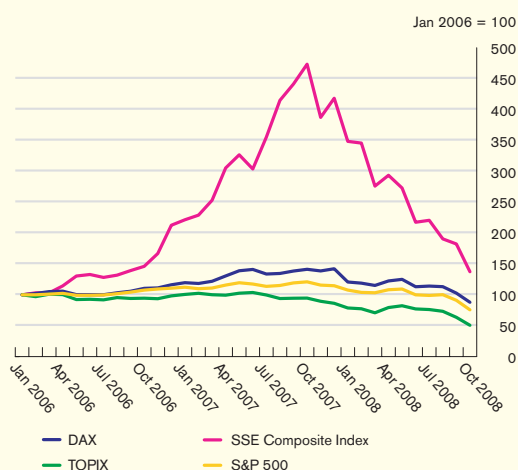


— 3-month repo (30-day moving average)

— 7-day repo (30-day moving average)

Source: CEIC.

**Chart 1.19**  
Mainland China: share price indices



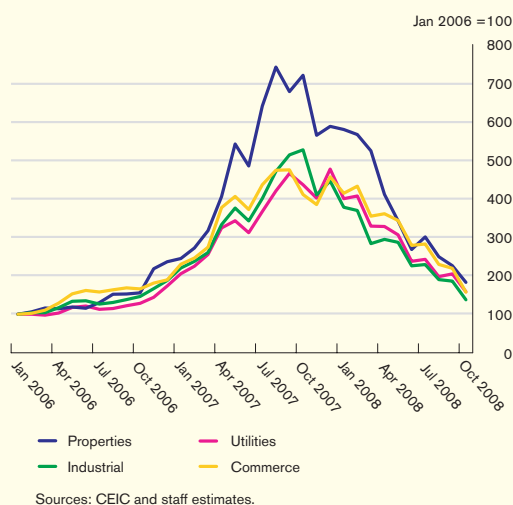
Sources: CEIC and staff estimates.

central banks to improve liquidity by cutting benchmark lending and deposit rates as well as the reserve requirement ratio (RRR) (Chart 1.17) and by slowing central bank bill issuance. The benchmark lending and deposit rates were cut by 108 basis points in November, which was more aggressive than the market expected. The move demonstrates that the Mainland authorities fully recognise the severity of the risks for the Mainland economy and are committed to taking necessary policy actions to offset such risks. This easing of monetary policy has led to lower interbank interest rates in recent months (Chart 1.18).

### Asset prices

Despite the government's initiatives to stabilise share prices, stock markets remained volatile amid the deepening global financial crisis. The Shanghai Stock Exchange (SSE) Composite Index touched a low of around 1,700 in early November, some 30% of its peak value recorded in the latter part of 2007. Compared with stock markets in major economies, China's share prices have been much more volatile (Chart 1.19), suggesting material effects of home-grown factors such as concerns about the supply overhang of previously locked-up

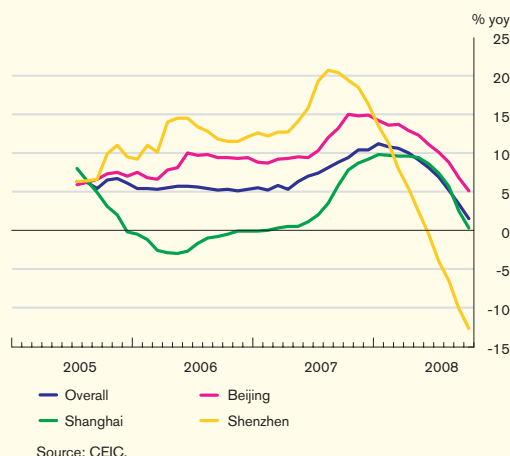
**Chart 1.20**  
Mainland China: share prices across sectors



shares. The volatility of share prices has varied noticeably across sectors, with property the most affected (Chart 1.20).

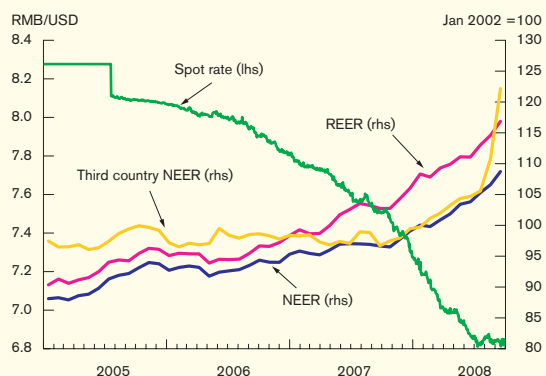
Based on historical evidence on the relationship between private consumption and stock returns, some observers of the Mainland's economy have pointed to the weak wealth effects of asset markets. However, our estimation with panel data at the provincial level of 2006 Q1- 2008 Q3, indicates a non-negligible impact of stock prices on household expenditure, as the market participation ratio for urban population rose dramatically from about 13% in early 2007 to about 23% in October 2008. To be precise, a 10% drop in stock prices is associated with a 0.5% decline in household expenditure.

**Chart 1.21**  
Mainland China: housing prices in major Mainland cities



The growth in property prices in major cities continued to trend downwards (Chart 1.21). The year-on-year growth in housing prices in Shenzhen turned negative in June and slid dramatically to -12.6% in October. The sub-prime mortgage crisis in the US has intensified worries about the possible adverse impact of a deteriorating property market on the Mainland through the negative wealth effect as well as the balance sheets of real estate developers and banks.

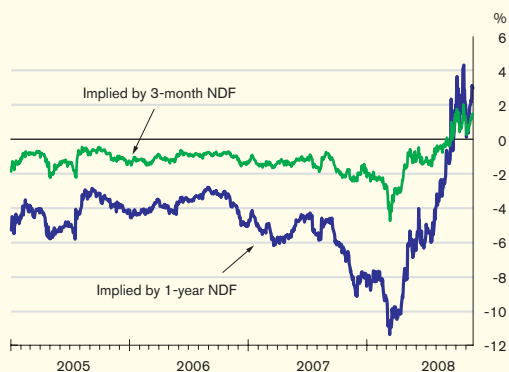
**Chart 1.22**  
Mainland China: REER, NEER and spot rate of RMB/USD



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 issue of this Report.

Sources: Bloomberg, CEIC and staff estimates.

**Chart 1.23**  
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 NDF rate. A negative number implies an appreciation of the renminbi against the US dollar.

Sources: Bloomberg and staff estimates.

### The renminbi exchange rate

The RMB/USD spot rate has stabilised in the past few months after appreciating persistently for about three years (Chart 1.22). This possibly reflected the Mainland government's intention to keep the exchange rate stable against the backdrop of a depressed global economic outlook. Nevertheless, the renminbi continued to appreciate in effective terms. While the REER appreciated 5.2% by October from June, the third-country nominal effective exchange rate (NEER) appreciated 17.0% during the same period, implying a softening in the competitiveness of Mainland China's exporters relative to their rivals in the major export markets.

The non-deliverable forward (NDF) rates in late November suggest that markets expect the renminbi to depreciate against the US dollar by about 1.5% in three months and 3% in 12 months (Chart 1.23). This may reflect investors' concern over the potential slowdown in the Mainland's exports due to recessions in developed economies and the fast depreciation of other emerging market currencies.

### 1.5 Policy response

As the risks to economic growth heightened and inflationary pressure subsided, the Mainland authorities shifted their stance to a "pro-active" fiscal policy and appropriately easier monetary policy to help stimulate domestic demand. The State Council announced a fiscal stimulus package amounting to RMB4 trillion, of which RMB100 billion will be spent on public investment in Q4 2008, with the rest being spent in 2009 and 2010. The package covers a wide range of areas, including spending on public housing, rural and transport infrastructure, health and education, environmental development, post-earthquake reconstruction, and subsidies for farmers and low-income households. The package also calls for faster VAT reform and the facilitation of more bank loans for project financing.

The fiscal stimulus package has been generally welcomed by authorities in other economies and market analysts. The size of the package is equivalent to 14% of Mainland China's GDP in 2007. It is not clear what impact the package will have on the fiscal deficit, or what



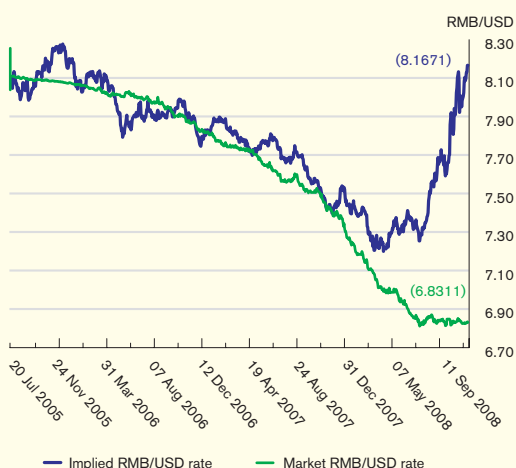
contribution it could make to GDP growth, but market consensus is that it will help the economy to achieve the government's growth target for 2009.

**Chart 1.24**  
Mainland China: growth of outstanding loans



Source: CEIC.

**Chart 1.25**  
Mainland China: market and implied exchange rates of the renminbi



Note: The currencies in the hypothetical basket are the US dollar, euro, Japanese yen, Korean won, Singapore dollar, Malaysian ringgit, Australian dollar, Russian ruble, British pound, Thai baht and Canadian dollar. The weights of these currencies are the shares of China's trade with plus FDI from these countries in China's total trade and FDI.

Sources: Bloomberg and staff estimates.

Monetary policy has also been loosened to promote growth. Interest rates and the RRR have been reduced. The challenge is to ensure the banking sector will provide financing for enterprises instead of tightening credit supply in response to the weak economic outlook. The growth of outstanding loans has also declined since early 2008, but has remained stable in recent months (Chart 1.24). The introduction of the fiscal package is likely to lead to higher bank loans to construction projects, although there could be a time lag between the announcement of the package (10 November) and the commencement of projects.

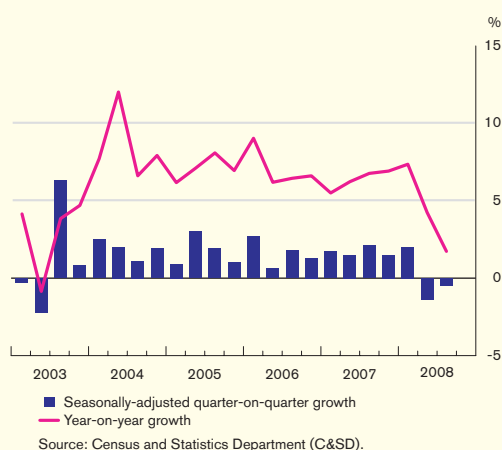
In recent months, the US dollar has appreciated strongly and currencies in other emerging markets have depreciated. If Mainland authorities had targeted a stable NEER, the renminbi would have depreciated strongly against the US dollar since August (Chart 1.25). However, they resisted the pressure and kept the RMB/USD exchange rate at a stable level. This was similar to the experience during the Asian financial crisis, as a stable renminbi exchange rate helps to avoid a vicious circle of competitive devaluations of emerging market currencies, and potential capital outflows from Mainland China.

## 2. Domestic economy

### Demand

The Hong Kong economy registered two consecutive quarters of negative sequential growth in Q2 and Q3. The contraction in economic activity was due mainly to sluggish private consumption, while merchandise exports were also lacklustre in the face of weakening demand from major overseas markets. As the global financial crisis intensified and the unemployment rate has started to rise, the contraction in demand will likely become more severe in the future.

**Chart 2.1**  
GDP at constant market prices



### 2.1 Aggregate demand

Real GDP grew by 1.7% year on year in Q3, after rising by 7.3% and 4.2% in Q1 and Q2 respectively (Chart 2.1). On a seasonally-adjusted quarter-on-quarter basis, real GDP contracted by 1.4% in Q2 and 0.5% in Q3.

The decline in year-on-year economic growth in Q3 was in part due to weak private consumption, in particular consumer spending on financial services amid the dismal performance of the local equity market, which resulted in decreases in market turnover and falls in service charges. Growth in investment slowed further in Q3, dragged down by cutbacks in spending on building and construction. The merchandise trade balance remained in deficit in Q3, due to lacklustre growth in merchandise exports. However, net exports of services held up relatively well on the back of offshore trading activities, which more than offset the negative contribution of merchandise trade deficits to the overall GDP figure.

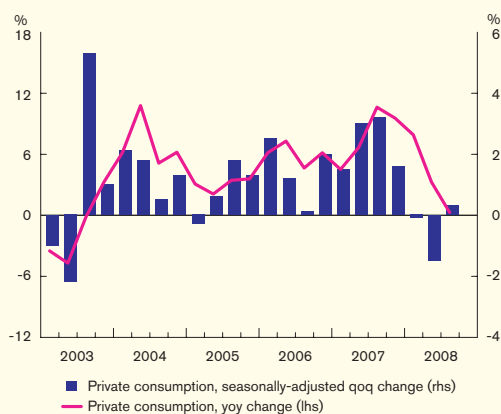
**Table 2.A**  
Real GDP growth by expenditure component

(% yoy)	2006	2007	2007		2008	
			Q4	Q1	Q2	Q3
<b>Gross Domestic Product</b>	<b>7.0</b>	<b>6.4</b>	<b>6.9</b>	<b>7.3</b>	<b>4.2</b>	<b>1.7</b>
Domestic demand	5.9	7.8	10.3	7.1	3.5	1.7
Consumption						
Private	6.0	7.8	9.5	7.9	3.2	0.2
Public	0.1	2.3	2.3	0.3	3.0	2.3
Gross domestic fixed capital formation	7.0	4.2	8.2	9.9	3.5	3.0
Private	10.8	5.8	10.4	9.5	3.7	2.7
Public	-16.2	-9.4	-9.6	13.0	1.1	5.7
Change in inventories <sup>1</sup>	0.2	1.2	1.6	-0.4	0.2	0.5
Net exports of goods <sup>1</sup>	-0.5	-3.6	-5.3	-1.1	-1.5	-1.6
Net exports of services <sup>1</sup>	2.2	3.1	3.3	2.1	2.5	1.9

Note: 1. Percentage point contribution to annual growth of GDP.

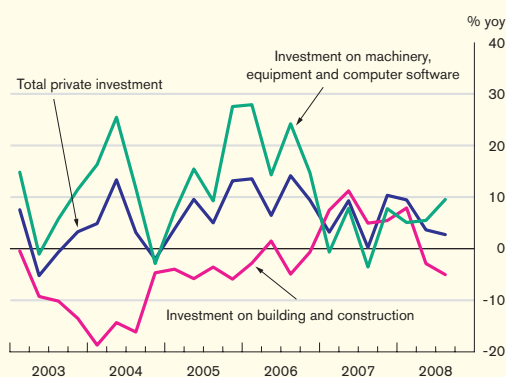
Source: C&SD.

**Chart 2.2**  
Private consumption



Source: C&SD.

**Chart 2.3**  
Private investment by component



Source: C&SD.

## 2.2 Domestic demand

Domestic demand was a significant drag on economic growth. On a year-on-year comparison, domestic demand grew by 1.7% in Q3 following a 3.5% expansion in Q2 (Table 2.A). While capital investment and government consumption still managed to maintain positive year-on-year growth, expansion in private consumption almost came to a standstill in Q3. Inventory change still made a positive contribution to GDP growth in Q3, but it was not clear whether the inventory accumulation was voluntary.

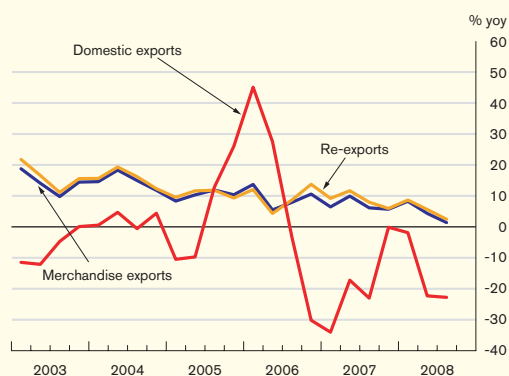
### Consumption

Private consumption expenditure rose moderately by 0.2% year on year in Q3, after growing by 3.2% in Q2. On a seasonally-adjusted quarter-on-quarter comparison, private spending increased by 0.3% in Q3 after contracting by 1.5% in Q2 (Chart 2.2). The lacklustre growth in private consumption was mainly due to a reduction in consumer spending on financial services amid the poor performance of the local equity market, which resulted in decreases in market turnover and falls in service charges. On the other hand, government consumption grew by 2.3% in Q3 from a year ago, following an increase of 3.0% in Q2 (Table 2.A). The year-on-year private consumption growth is expected to deteriorate further in Q4, as the high base effect associated with vibrant stock market activities in the preceding year will drag down markedly growth in consumption of financial services.

### Investment

Overall investment spending increased by 3.0% year on year in Q3, following a 3.5% growth in Q2. Analysed by components, private investment increased by 3.7% in Q2 and 2.7% in Q3. Within this total, private sector spending on machinery and equipment grew by 5.5% and 9.6% respectively in Q2 and Q3, while private investment in building and construction contracted by 2.9% in Q2 and 5.0% in Q3 (Chart 2.3). Despite the positive capital investment growth in Q2 and Q3, the Quarterly Business Tendency Survey showed that

**Chart 2.4**  
**Merchandise exports by components**  
**(in real terms)**



Source: C&SD.

**Table 2.B**  
**Total exports of goods by major market<sup>1</sup>**

(% yoy)	Share <sup>2</sup> %	2006		2007				2008		
		2006	2007	Q4	Q1	Q2	Q3	Q2	Q3	
China	49	14	13	11	11	8	4			
United States	14	3	-1	-3	-1	-1	1			
European Union	14	5	6	6	8	8	10			
ASEAN5 <sup>3</sup> + Korea	7	8	9	11	15	9	3			
Japan	4	1	-1	-1	-2	-1	3			
Taiwan	2	3	2	-2	3	7	5			
Others	10	11	18	20	30	24	17			
<b>Total</b>	<b>100</b>	<b>9</b>	<b>9</b>	<b>8</b>	<b>10</b>	<b>8</b>	<b>6</b>			

Notes:

1. Within the total, re-exports accounted for 96% in 2007.
2. Share in 2007.
3. ASEAN5 includes Indonesia, Malaysia, Philippines, Singapore and Thailand.

Sources: C&SD and CEIC.

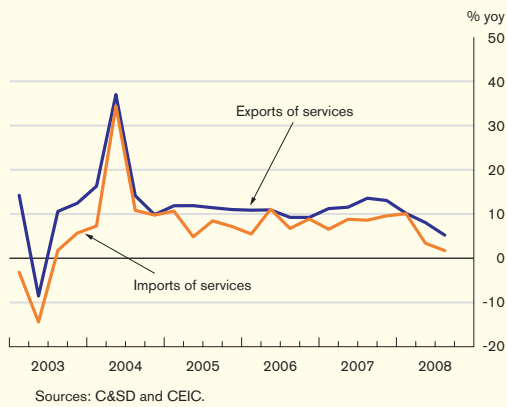
business owners in most sectors turned pessimistic about business prospects in Q4. The cautious business sentiment may translate into worse capital investment spending growth in the near term.

Public investment on building and construction rose by 2.0% year-on-year in Q3 following a 6.6% contraction in Q2. Public expenditure on machinery and equipment rose by 41.2% in Q2 and by 18.5% in Q3 year on year. In the face of the current economic downturn, the Government pledged to accelerate infrastructure projects to boost public investment expenditure.

### 2.3 External trade

Merchandise exports rose by 4.4% and 1.4% year on year in Q2 and Q3 respectively, compared with 8.3% in Q1 (Chart 2.4). On a seasonally-adjusted quarter-on-quarter basis, the volume of merchandise exports decreased by 2.3% in Q3, after rising by 1.8% in Q1 and 1% in Q2. The moderation in merchandise export growth was led by re-exports, whose growth rate slipped from 5.6% in Q2 to 2.5% in Q3. Domestic exports also recorded large year-on-year declines of 22.3% in Q2 and 22.8% in Q3. Analysed by destination, exports to the EU and Taiwan continued to register robust growth in Q2 and Q3, while exports to the Mainland, Korea and ASEAN slowed and exports to the US and Japan remained subdued (Table 2.B).

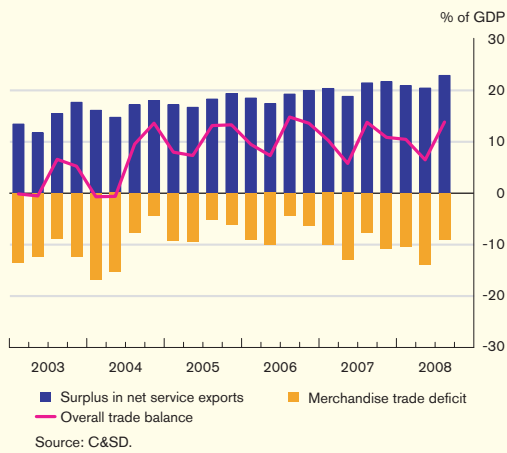
**Chart 2.5**  
Exports and imports of services



Exports of services continued to record solid growth. Service exports rose by 8.1% and 5.3% year-on-year respectively in Q2 and Q3, down from 10.2% in Q1. Imports of services grew by 3.5% in Q2 and 1.8% in Q3, compared with 10.1% in Q1 (Chart 2.5).

Although both exports of goods and services slowed, the overall trade surplus increased to 13.8% of GDP in Q3 from 6.4% of GDP in Q2, as the surplus in net service exports increased more than the merchandise trade deficit (Chart 2.6).

**Chart 2.6**  
Trade balance by components



## Output and supply

Output growth slowed sharply in Q2, with the manufacturing and construction sectors contracting and the service sector showing a broad-based slowdown. The economic downturn is exerting pressure on the labour market with a rise in the unemployment rate. The adverse effect of the global financial crisis on employment is expected to become more visible in the future, with the financial services and import/export sectors likely to be the hardest hit. Labour productivity has started to fall as a result of the cyclical contraction in output.

**Table 2.C**  
Real GDP growth by major economic sectors (year-on-year)

(% yoy)	2006	2007	2007		2008	
			Q3	Q4	Q1	Q2
<b>GDP at factor cost</b>	<b>6.2</b>	<b>6.7</b>	<b>6.5</b>	<b>7.1</b>	<b>6.5</b>	<b>3.5</b>
Industrial sector	-2.3	-0.8	-1.4	-0.9	2.7	-3.5
Of which:						
Manufacturing	2.2	-1.5	-2.1	-0.3	-4.4	-4.2
Construction	-9.8	-2.1	-2.8	-2.6	8.3	-2.7
Service sector	7.1	7.5	7.3	7.8	6.8	4.2
Of which:						
Wholesale, retail, restaurants and hotels	8.1	9.1	10.3	11.3	6.8	5.0
Import and export	9.0	6.7	6.8	6.3	9.5	7.7
Transport and storage	6.6	5.6	6.5	7.4	7.9	4.2
Financing, insurance and business services	15.6	16.3	17.5	17.5	9.5	4.6

Source: C&SD.

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

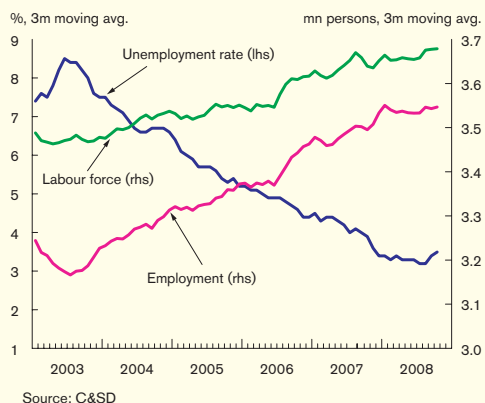
(Percentage point)	2006	2007	2007		2008	
			Q3	Q4	Q1	Q2
<b>GDP at factor cost</b>	<b>6.2</b>	<b>6.7</b>	<b>6.5</b>	<b>7.1</b>	<b>6.5</b>	<b>3.5</b>
Industrial sector	-0.2	-0.1	-0.1	-0.1	0.2	-0.3
Of which:						
Manufacturing	0.1	0	-0.1	0	-0.1	-0.1
Construction	-0.3	-0.1	-0.1	-0.1	0.2	-0.1
Service sector	6.4	6.8	6.6	7.2	6.3	3.8
Of which:						
Wholesale, retail, restaurants and hotels	0.5	0.6	0.6	0.7	0.5	0.3
Import and export	1.9	1.4	1.6	1.5	1.9	1.5
Transport and storage	0.5	0.4	0.5	0.6	0.6	0.3
Financing, insurance and business services	3.0	3.4	3.3	3.6	2.2	1.1

Source: C&SD.

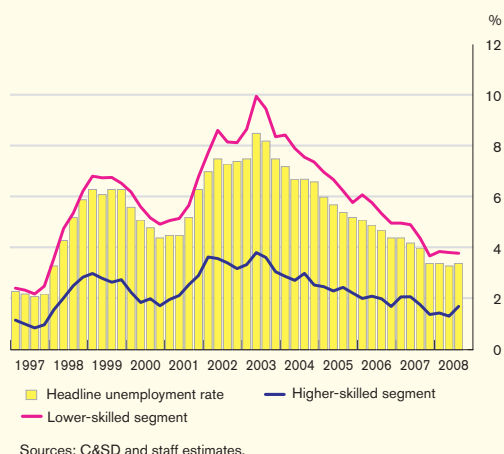
## 2.4 Output

GDP at factor cost grew by 3.5% year on year in Q2, a significant slowdown from the 6.5% growth registered in Q1 (Table 2.C). The manufacturing and construction sectors contracted year on year, while the service sector showed a broad-based slowdown across different sub-segments. Analysis of the contribution of different sectors suggests that the slowdown in GDP growth in Q2 was mainly driven by declining growth in the service sector (Table 2.D). While most service sub-segments continued to make positive contributions to year-on-year GDP growth in Q2, the dismal Q3 expenditure-based GDP growth figure indicated that certain service segments were likely to have been hit hard in Q3 and may witness year-on-year contraction in the second half of the year. In particular, the financing, insurance and business services segment is likely to have contracted sharply in the second half of 2008 amid the lingering global financial crisis, while the wholesale, retail, restaurant and hotel segment is also likely to be dragged down by the slump in private consumption. In addition, the slowdown in trade flows may affect the import/export and transportation/storage segments.

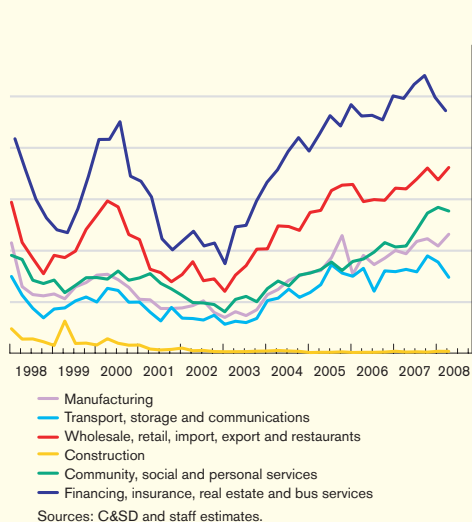
**Chart 2.7**  
**Labour market conditions**



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



**Chart 2.9**  
**Vacancy rate by sector**



## 2.5 Labour and productivity

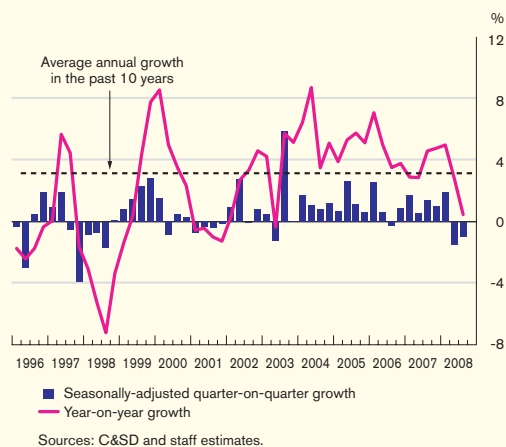
The labour market held up well in Q2, but the unemployment rate started to rise in Q3. As output slows or even contracts faster than employment, labour productivity may show a cyclical decline.

### Labour market conditions

The number of people in employment seems to have peaked in Q1, and declined moderately afterwards. The seasonally-adjusted three-month moving average unemployment rate rose from the recent low of 3.2% in August to 3.5% in October (Chart 2.7). The unemployment rate in the lower-skilled segment remained higher than that in the higher-skilled segment (Chart 2.8). Meanwhile, the job vacancy rates in the financial services sector, and the transport and communications sector have started to fall (Chart 2.9). The contraction in economic activity in Q3 is likely to lead to increased pressure on the labour market. Experience during the Severe Acute Respiratory Syndrome (SARS) period in 2003 shows that if the recession is short-lived, the rise in the unemployment rate is not expected to last long, as business owners will regard the downturn as temporary and are less likely to close or scale down their business by laying off employees. However, if the recession is long, the rise in the unemployment rate can be significant. Looking ahead, as the time taken to resolve the global credit market problems is expected to drag on, the unemployment rate is likely to rise noticeably in Q4 and next year.

The underemployment rate has remained low in recent months, at 1.8% (three-month moving average) in September and 1.7% in October, down from 1.9% in August. However, the underemployment rate is expected to rise alongside the deteriorating domestic economic conditions.

**Chart 2.10**  
**Output per worker**



*Productivity*

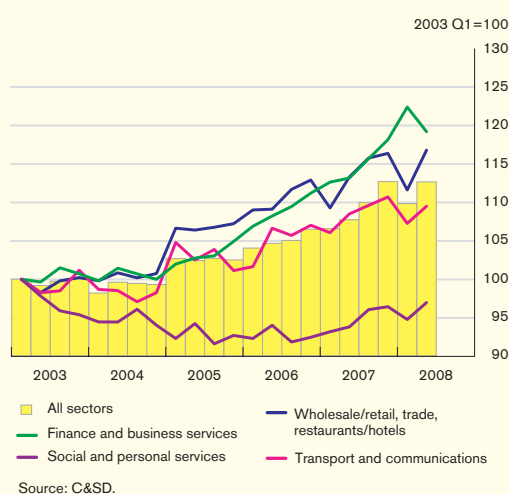
Output per worker – an indicator of labour productivity – grew at a slower pace of 0.5% year on year in Q3, down from 2.8% in Q2 and 5% in Q1 (Chart 2.10). Seasonally-adjusted quarter on quarter, labour productivity contracted by 1.5% in Q2 and 0.9% in Q3. The decline in labour productivity was due to a marked cyclical decline in output growth in Q2 and Q3, while employment only changed slightly. In the near future, as long as output contracts at a faster pace than employment, labour productivity growth will remain lacklustre.



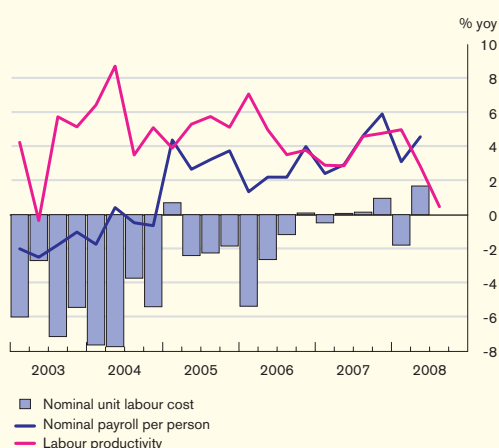
## Prices and wages

Consumer-price inflation remained elevated in the third quarter due to higher housing rents and food costs. However, the inflationary pressure stemming from these two sources is likely to recede, as market housing rents and global food prices declined notably in the second half of the year. Cost pressures from the supply side also started to ease, as the economic downturn and less favourable business environment restrained growth in wages and payrolls. Reflecting these developments, the underlying consumer-price inflation is expected to moderate towards the end of 2008.

**Chart 2.11**  
Nominal payroll per person by economic sector



**Chart 2.12**  
Unit labour cost and labour productivity



## 2.6 Labour costs

The rise in labour earnings appears to have levelled off, as corporate owners become more conservative in wage setting amid the worsening business environment and slowdown in revenue growth. On a quarter-on-quarter basis, growth in nominal wages moderated to 1.1% in Q2 from 1.4% in Q1. While nominal payroll per person increased by 2.6% in Q2 following a decline of 2.5% in Q1, it was virtually flat in the first half of 2008 compared with the second half of 2007, as the payroll rise in Q2 was offset by the decline in Q1 (Chart 2.11). After discounting the effect of inflation, payroll per person in real terms moderated in nearly all sectors except for financial and business services. Labour earnings may ease further in the second half of 2008 given the gloomy economic outlook and less favourable labour market conditions.

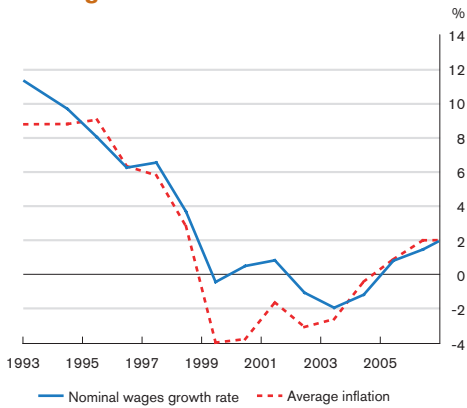
Reflecting the cyclical slowdown in output growth, labour productivity growth decelerated to 0.8% year on year in Q3 from 2.8% in Q2 and 5.0% in Q1. Growth in unit labour costs turned positive to 1.7% in Q2, as the rise in nominal payroll per person outweighed the gain in labour productivity (Chart 2.12). Given the tepid productivity growth, unit labour costs may rise further in Q3. However, as wages and employment may adjust downwards, growth in unit labour costs is expected to moderate following the declining growth in labour productivity. The Purchasing Managers' Index (PMI)

shows that the staff cost component declined to the dividing line of 50 in November from 54.1 in Q3.

A slower growth in labour costs helps contain domestic cost pressures to maintain the competitiveness of the services sector in the face of the global economic downturn. An HKMA study shows little sign of downward wage rigidity in Hong Kong, suggesting that the domestic labour market is flexible in adjusting to changes in the external environment. The key findings of the study are summarised in Box 3.

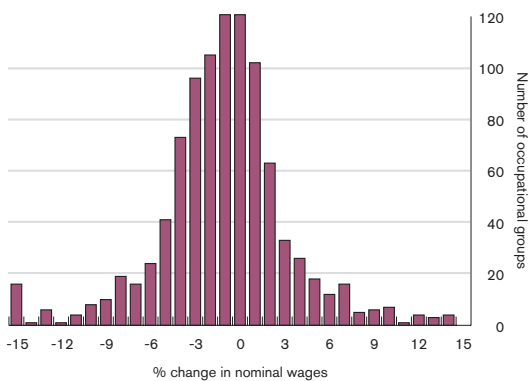
## Box 3 Labour market flexibility in Hong Kong

**Chart B3.1**  
Hong Kong: inflation and growth in wages



Source: CEIC.

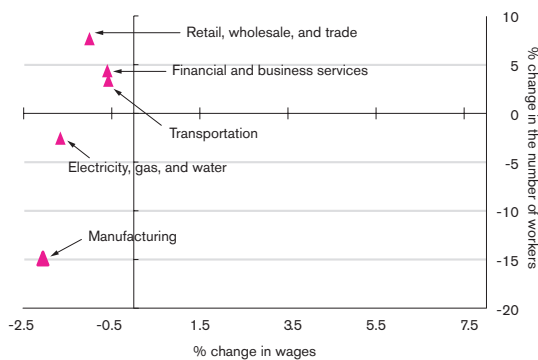
**Chart B3.2**  
Hong Kong: distribution of changes in wages, 2002-04



Note: Based on the average wages for 46 Hong Kong Standard Industrial Classification (HSIC) 4-digit industries with 4-6 occupational groups per industry.

Source: C&SD.

**Chart B3.3**  
Hong Kong: changes in wages and employment in five industries, 2003-04



Source: C&SD.

The currency board system in Hong Kong requires a flexible labour market so the economy can adjust efficiently to external shocks. Indeed, the labour market is generally perceived as flexible with limited government intervention, while collective bargaining does not play a large role in negotiating terms of employment. This Box provides some empirical evidence on how wages and employment have behaved during periods of economic downturn.

Statistical evidence suggests wages in Hong Kong are flexible. The average nominal wage declined during the Asian financial crisis, the bursting of the tech bubble, and the SARS outbreak (Chart B3.1). While nominal wage cuts are rare in countries with labour market rigidities, wages in Hong Kong showed strong downward flexibility during the SARS outbreak (Chart B3.2) as well as in other periods.

In response to large negative economic shocks, a flexible labour market should exhibit changes in both wages and employment. Indeed, this is what happened in Hong Kong. The SARS outbreak led to a reshuffling across industries, with labour moving away from manufacturing, which is less competitive, to more productive sectors (financial services, trade, and retail business). At the same time, wages were reduced across industries to regain competitiveness (Chart B3.3).

**Table B3.A**  
**Distribution of changes in wages, Hong Kong and the US**

Hong Kong						
Summary stat. on changes in wages						
Sample	No. of obs.	Median	Std. dev.	% of obs.		Inflation
				<0	=0	
1996-2006	3,476	1.12	5.81	42.41	15.82	0.24
1996	316	6.56	4.58	6.96	1.90	6.33
2006	316	1.40	3.84	27.22	17.41	2.02

US						
Summary stat. on changes in wages						
Sample	No. of obs.	Median	Std. dev.	% of obs.		Inflation
				<0	=0	
1981-1998	92,862	3.4	10.8	14.4	17.6	3.5
High inflation	17,247	6.9	9.7	8.7	10.6	7.34
Low inflation	15,917	2.1	10.2	17.6	22.2	3.15

## Notes:

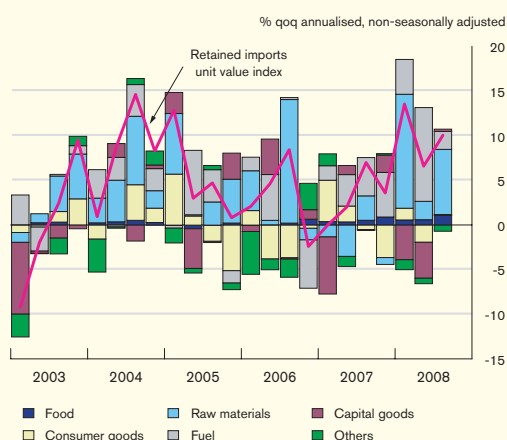
1. High inflation years: 1981, 1982 and 1990.
2. Low inflation years: 1987, 1993 and 1995.

Sources: C&SD, and Lebow, Saks and Wilson (2003), "Downward Nominal Wage Rigidity: Evidence from the Employment Cost Index", *Advances in Macroeconomics*, Vol. 3(1), Article 2.

One way to test the flexibility of Hong Kong's labour market is to compare it with the labour market in the US, which is also generally regarded as flexible (Table B3.A). This test shows that Hong Kong has had a substantial amount of wage cuts (42.41% to 14.4% for the US), when we compare the available data from two prolonged periods of the two economies. However, the contrast might be due to different shocks the two economies experienced during their respective samples. This can be illustrated by the difference in the average inflation rates (0.24 for Hong Kong and 3.5 for the US). A more informative comparison requires matching two similar periods.

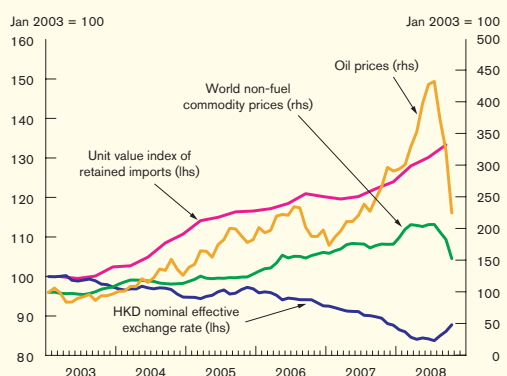
The labour markets in Hong Kong and the US behaved in a remarkably similar way once we compare the two economies for periods with similar inflation rates. First, we look at the period when both economies experienced inflation of around 6-7%. Both encountered a median wage growth rate of around 7%, which closely followed the inflation rate. And, the shares of observations below zero were low for both economies (7% for Hong Kong and 8.7% for the US). Next, we turn to comparing "low inflation years", when the inflation rate was 2-3% for both economies. The median wage growth for Hong Kong and the US was close (1.4% and 2.1% respectively). Hong Kong shows wage cuts of 27.2%, compared with 22.2% in the US. Therefore, this exercise shows that the Hong Kong labour market has at least comparable flexibility with the US market.

**Chart 2.13**  
Contributions to import-price inflation



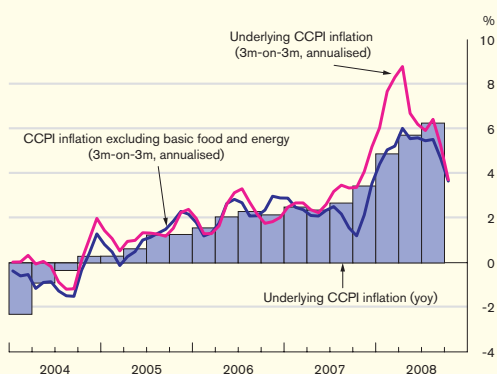
Sources: C&SD and staff estimates.

**Chart 2.14**  
Commodity and import prices



Sources: C&SD and IMF.

**Chart 2.15**  
Different measures of consumer-price inflation



Sources: C&SD and staff estimates.

## 2.7 Commodity and import prices

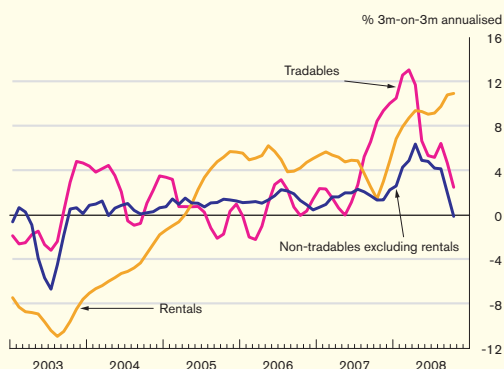
Import-price inflation moderated somewhat as global commodity prices slipped from their peak in mid-2008. On a quarter-on-quarter basis, import-price inflation picked up to 10.1% (annualised) in Q3 from 6.6% in Q2; both were lower than the reading of 13.6% in Q1. The rise in prices of retained imports was driven by higher costs of raw materials, food and capital goods (Chart 2.13). With global food and crude oil prices falling since the middle of the year, import-price inflation is expected to ease further in Q4. The stabilisation of food prices in Mainland China will also alleviate the price pressures on fresh food in the domestic market.

With weakening global demand, commodity prices declined across the board in the second half of the year. The average crude oil price dropped by almost two-thirds from the peak of US\$132 a barrel in July to below US\$50 in November. Non-fuel commodity prices fell by more than a quarter (Chart 2.14). Reflecting a stronger US dollar, the Hong Kong dollar nominal effective exchange rate strengthened by 2.2% in Q3. Lower commodity prices, together with a stronger US dollar, are likely to contain import-price inflation in Hong Kong.

## 2.8 Consumer prices

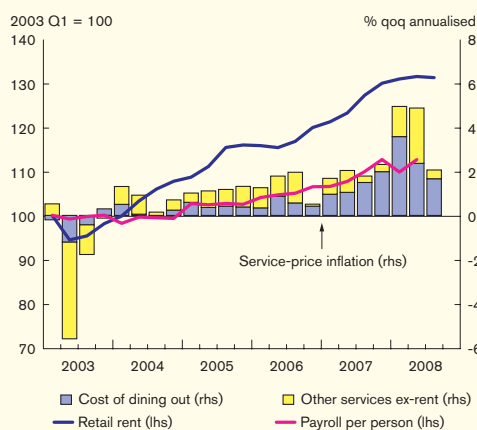
Consumer-price inflation continued to rise in Q3, but is likely to peak soon. After netting out the effects of various government relief measures, the underlying CCPI inflation picked up to 6.3% year on year in Q3 from 5.7% in Q2, largely driven by higher food costs and private housing rents. On a three-month-on-three-month comparison, the annualised rate of CCPI inflation eased to 3.7% in October from 8.8% in April, mainly due to a moderation in food-price inflation. Excluding basic food and energy, core inflation declined to 3.7% from 6.0% over the same period, reflecting a smaller increase in the costs of dining out and other services (Chart 2.15).

**Chart 2.16**  
Consumer-price inflation by broad component



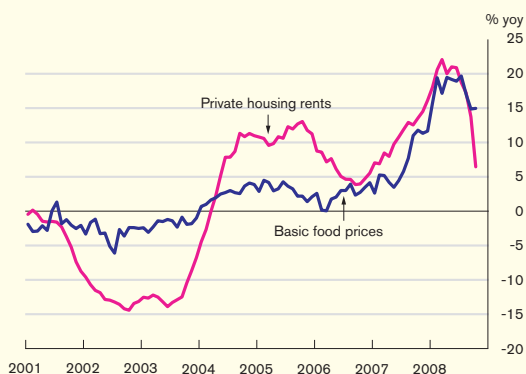
Sources: C&SD and staff estimates.

**Chart 2.17**  
Service-price inflation excluding rent



Sources: C&SD and staff estimates.

**Chart 2.18**  
Private housing rents and basic food prices



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

Disaggregate data show that price pressures receded in the tradable and service sectors except for housing rents. Growth of the tradable goods component of the CCPI dropped to 4.7% (annualised) quarter on quarter in Q3 from the peak of 13.2% in Q1, reflecting a smaller increase in basic food prices and declines in durable goods prices (Chart 2.16). Inflation pressures also diminished in the service sector excluding housing, as the rise in commercial rents and labour costs moderated, alleviating the operating costs for service providers (Chart 2.17). The rental component registered the fastest growth rate in the CCPI, with housing rents rising by 10.9% (annualised) quarter on quarter in Q3 following a gain of 8.8% in Q1. The rapid growth in housing rents in part reflected the property market boom in the first half of 2008, with residential property prices growing by 7.4% during the period. If the rental component is excluded from the CCPI, the quarter-on-quarter consumer-price inflation would be 3.1% (annualised) in Q3, lower than the underlying inflation of 5.3% and core inflation (excluding food and energy) of 4.7%.

With the easing of import-price inflation, the near-term inflation outlook will depend on developments in domestic cost factors. While the rental component has been the key driver of CCPI inflation, residential property prices declined notably by nearly 5% quarter on quarter in Q3. The market rental index of residential property also fell in tandem, by 2.2% over the same period. This suggests that the rapid rise in the rental component will end soon. On the supply side, growth in nominal payroll per person is expected to moderate as well given weaker domestic demand and less favourable labour market conditions. Monthly indicators show that growth in housing rents and basic food prices continued to decline in Q4, which will exert downward pressure on consumer-price inflation towards the end of this year (Chart 2.18).

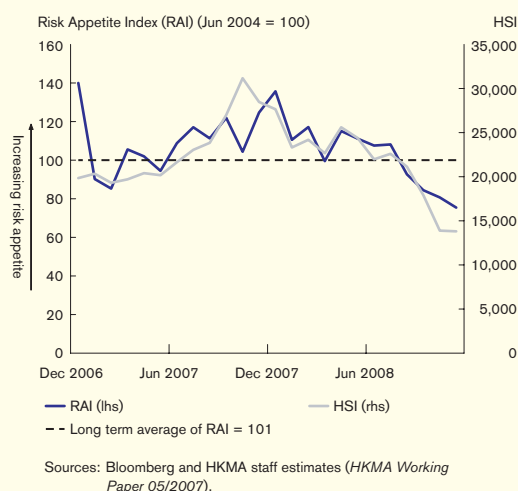
## Asset markets

Local equity prices slumped as the global financial crisis intensified. In the property market, house prices declined notably in the third quarter after the sharp increases in late 2007 and early 2008. Weakened sentiment and less favourable labour market conditions will continue to weigh on property market activity in the coming months. In the commercial property segment, rental values of office spaces and retail premises moderated as a result of the worsening external environment and domestic economic prospects.

**Chart 2.19**  
Equity prices in Hong Kong



**Chart 2.20**  
Risk Appetite Index

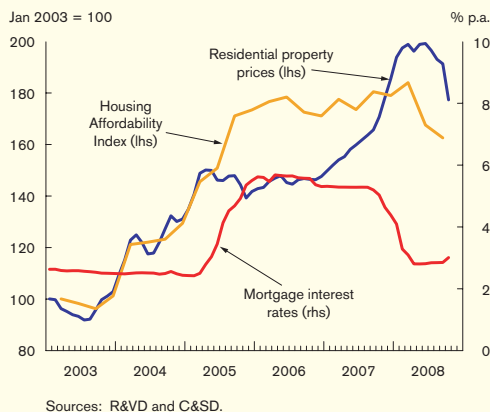


## 2.9 Equity market

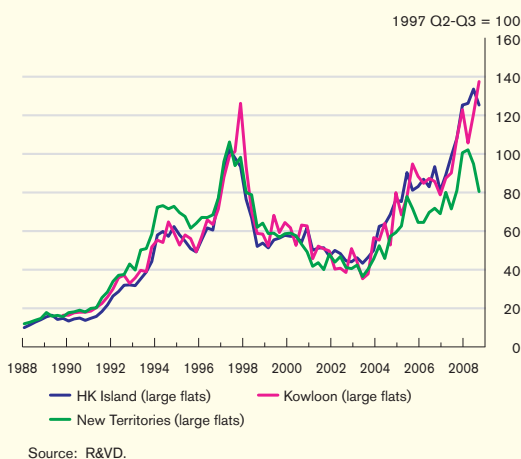
Local share prices have fallen sharply over the past six months (Chart 2.19). At the beginning of the review period, the market continued to be weighed down by concerns stemming from further monetary tightening and an overhang of non-tradable shares on the Mainland. However, as the economic outlook weakened, the Mainland authorities shifted their policy emphasis from controlling inflation to safeguarding growth. This provided short-lived support to local shares, especially H-shares and other China-related stocks. However, as the global financial crisis continued to unfold, a series of events – including the failure of Lehman Brothers, the near-collapse of AIG and the hiccup in passing the US\$700 billion rescue package in the US – sparked system-wide concerns about the safety of financial institutions, with interbank funding networks paralysed, depositor confidence badly shaken, and a credit crunch about to take hold. This triggered a major risk reappraisal in international capital markets. The local stock market went into a tailspin as risk appetite fell in October (Chart 2.20).<sup>17</sup> In a drive to restore confidence and stability in mid-October, the HKSAR Government joined other governments around the world in introducing extraordinary measures to unfreeze credit markets and protect depositors. However, the sell-off continued until the end of the month as heavy redemptions in investment funds accelerated amid

<sup>17</sup> Yu and Tam (2007), "Measuring Market Sentiment in Hong Kong's Stock Market", HKMA Working Paper 05/2007.

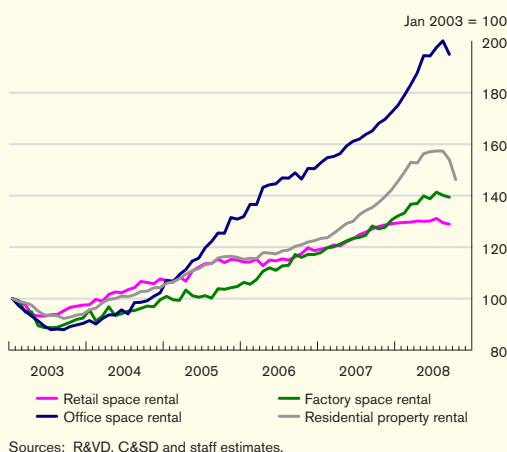
**Chart 2.21**  
Property price, interest rate and housing affordability



**Chart 2.22**  
Average transacted prices of luxury flats



**Chart 2.23**  
Rental indices by property type



increased risk aversion. Although the market stabilised in November, the review period still registered a sizeable 43.4% loss on the HSI.

## 2.10 Property market

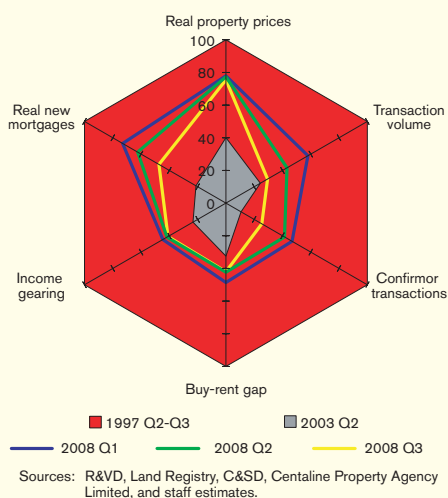
Property prices in Hong Kong declined notably in Q3 after the sharp increases in late 2007 and early 2008, as domestic asset markets were hit by the global financial crisis. Tighter credit conditions and weaker economic prospects restrained demand from home-buyers. On a quarter-on-quarter comparison, residential property prices declined by 4.7% in Q3 following a gain of 0.2% in Q2. Transaction volume contracted notably by 32% in Q3 after falling by 25% in the previous quarter. The more uncertain economic outlook and less favourable labour market conditions will continue to weigh on property market activity, with confidence waning amid the deepening credit crisis in the US and Europe. Nevertheless, lower house prices and the reduction in the best lending rate (BLR) improved housing affordability, providing partial support to the demand for small and medium-sized residential units (Chart 2.21).

At the higher-end of the property market, a breakdown by geographical area shows that average transacted prices of luxury flats (160 m<sup>2</sup> or above) have peaked on Hong Kong Island and in the Kowloon area, and have started to decline in the New Territories (Chart 2.22). Tighter credit and deteriorating economic prospects will exert downward pressure on the price of luxury flats in the coming months.

The rental market in the commercial segment has also experienced a downturn similar to that in the residential segment, as corporate owners deferred their expansion plans and streamlined their business operations. On a month-on-month comparison, office rents declined by 2.6% in September after reaching a peak in August (Chart 2.23). The rental value of prime office space in Central declined by 1.7% from HK\$965 per square metre in Q2 to HK\$949 in Q3, while office rents in other business areas remained relatively stable. Rental costs of retail premises and factory space levelled off in Q3, and are likely to moderate given the slowdown in domestic demand and business activities.



**Chart 2.24**  
**Graphical analysis of the housing market**



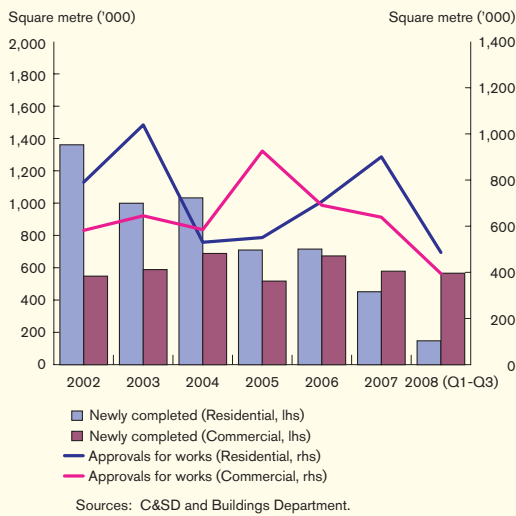
The rapid correction in house prices has raised concerns about the vulnerability of the domestic property market in the face of a recession. In particular, the number of residential property loans with negative equity increased notably as house prices declined by 11.0% from June to October. The six property market indicators in the graphical framework shows that transaction volume, real new mortgages and confirmed transactions contracted in Q3 from their recent highs in Q1, while real house prices, income-gearing ratio (a measure of housing affordability) and the buy-rent gap declined slightly (Chart 2.24).<sup>18</sup> This reflected moderation in both user and asset demand for residential property amid the economic downturn. When compared with previous cycles, there were no major signs of imbalances in the residential property market, with the six indicators staying within their comfort zones relative to the peak in mid-1997 and the trough in mid-2003.

The weakened economic sentiment and less favourable labour market conditions will continue to weigh on property market activity. That said, the extent of correction in house prices this time could be less acute than the property market downturn following the Asian financial crisis in 1997-98, as economic fundamentals and household balance sheet positions have strengthened. In addition, there was not a build up of overheating pressures prior to the recent downswing in the property market. Statistical analysis of the six graphical framework indicators, using a technique called the clustering method, also arrives at a similar conclusion. This suggests no significant imbalances in the domestic property market, and that the fall in house prices largely reflected deteriorations in the cyclical economic conditions.<sup>19</sup>

<sup>18</sup> For details of the graphical framework please see Chan, Peng and Fan (2005), "A Graphical Framework for Monitoring the Property Market in Hong Kong", *HKMA Quarterly Bulletin*, March 2005.

<sup>19</sup> For details about a clustering analysis of property market conditions based on the six indicators in the graphical framework, please read "Clustering Analysis of Property Market Indicators in Hong Kong", *HKMA Quarterly Bulletin*, December 2008.

**Chart 2.25**  
**Supply of residential and commercial properties**

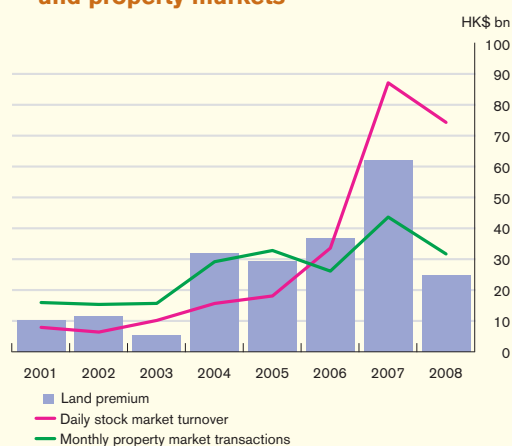


The supply of newly completed building units in the residential segment declined further during the first three quarters of 2008 over the same period in 2007, in part reflecting the tight land supply in past years. Newly completed residential properties (measured in terms of floor area built) declined by 28% year on year in 2008 Q1-Q3 following a contraction of 59% in 2007 Q1-Q3. Approvals for commencement of building residential units also fell by 36% after rising by 26% over the same period (Chart 2.25). In the commercial property segment, newly completed units increased during the first three quarters of 2008, while approvals for commencement of building works continued to drop, suggesting a tight supply of new office space and shopping areas in the near future. The moderation in the supply of residential and commercial units in the primary markets will likely support house prices and commercial rents over the medium term.

## Public finances

*The fiscal outturn for 2008/09 is likely to record a larger deficit than the Budget estimates, reflecting declines in tax revenue, stamp duties and land premium as the domestic economy experiences a cyclical downturn. On the back of sizable fiscal reserves, the policy measures unveiled in the 2008/09 Budget and the relief measures announced in July by the Chief Executive provide a timely fiscal stimulus to mitigate the negative impact of a synchronised global economic downturn.*

**Chart 2.26**  
Land premium and turnover in stock and property markets<sup>1&2</sup>



Notes:

1. Land premium is measured on a fiscal year basis, and the figure for 2008 is annualised based on the proceeds received in the first half of 2008/09.
2. The 2008 figure of stock market average daily turnover covers the period from January to November. The 2008 figure of property market average monthly turnover covers the period from January to October.

Sources: CEIC, Government Treasury and staff estimates.

### 2.11 Public finances

The Government is expected to record a deficit in 2008/09, in part reflecting various tax concessions and short-term relief measures. With the expansion in infrastructure investment and other public spending, the expansionary fiscal policy will help the domestic economy to counter the global financial crisis. The projection made in the Budget Speech suggests a deficit of HK\$7.5 billion (0.4% of GDP) in the current financial year. However, as growth in the domestic economy is forecast to slow considerably to 3-3.5% in 2008, compared with 4-5% envisaged in the Budget, direct tax revenue is likely to be lower than the budget estimates. Proceeds from stamp duties are expected to shrink given the contraction in stock market turnover and property transactions. Land premium could decline sharply as the near-term outlook for the property market worsens (Chart 2.26). While investment income from the placement of fiscal reserves with the Exchange Fund will not be affected by the sharp declines in financial asset prices, the actual fiscal deficit for 2008/09 could be much larger than the Budget projection.

With sizable fiscal reserves, which stood at 30% of GDP at the end of 2007/08, the Government can afford to adopt an expansionary fiscal policy to cushion the domestic economy against external shocks emanating from the global credit crisis. With economic growth having slowed considerably and inflationary pressures receding, the policy measures proposed in the Budget Speech and the relief measures announced by the Chief

Executive in July 2008 provide a timely stimulus to support economic growth. The Government has also pledged to accelerate capital spending on public works and infrastructure to create employment opportunities in the building and construction sectors. Other policy initiatives, such as the expansion of government guarantees to bank lending to SMEs and the provision of short-term loans to business owners to meet their operational and investment needs can also help corporations that are vulnerable to the credit crunch. Taken together, if the fiscal deficit widens to around 2% of GDP from the budget projection of 0.4%, the fiscal impulse would be equivalent to 5% of GDP, boosting domestic economic growth by over one percentage point.

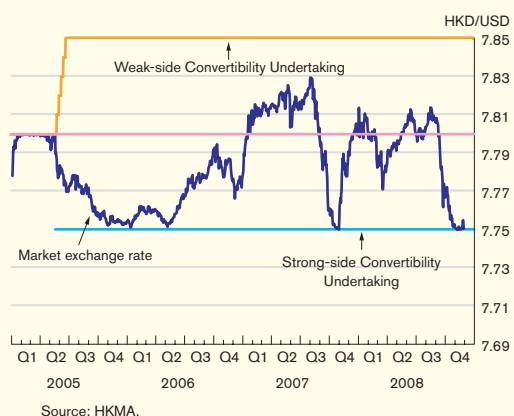
## 3. Monetary and financial sector

### Exchange rate, interest rates and monetary developments

The Hong Kong dollar spot exchange rate strengthened to the strong-side Convertibility Undertaking of 7.75 during the review period. After the global financial crisis deepened in mid-September, Hong Kong dollar interbank interest rates rose markedly. To ease money market stress, the HKMA conducted foreign exchange operations to inject liquidity into the banking system, announced five temporary measures to provide liquidity assistance to banks, amended the formula for the calculation of the Base Rate effectively lowering borrowing costs at the Discount Window, and increased the supply of Exchange Fund paper. As pre-emptive measures to bolster public confidence in the banking system, the Financial Secretary also announced a contingent capital facility for banks and introduced a temporary 100% deposit protection arrangement. As a result, local interbank interest rates moderated.

#### 3.1 Exchange rate and interest rates

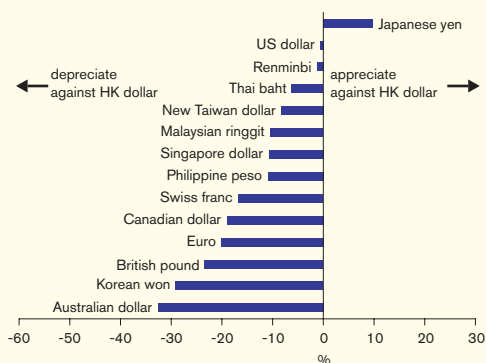
**Chart 3.1**  
Hong Kong dollar exchange rate



After trading within a narrow range of 7.7960 and 7.8139 between June and August, the Hong Kong dollar spot exchange rate strengthened towards the strong-side Convertibility Undertaking (CU) of 7.75 in September and October (Chart 3.1). The strengthening was reportedly due to the unwinding of the long-US-dollar-short-Hong-Kong-dollar carry trades and possible repatriation of funds into Hong Kong dollars by domestic corporations. As market participants continued to deleverage and reduce their exposure to risk, strong demand for Hong Kong dollars persisted. In late October and November, the spot exchange rate stayed close to 7.75, with the strong-side CU being triggered 27 times between 31 October and 28 November.

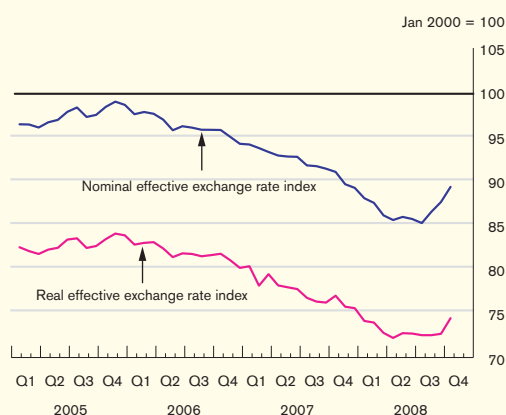
Under the Linked Exchange Rate system, movements in the bilateral exchange rates of the Hong Kong dollar against other currencies closely follow those in the bilateral exchange rates of the US dollar. From July to November, the US dollar appreciated sharply against other currencies except for the Japanese yen. The broad

**Chart 3.2**  
Bilateral exchange rates of the Hong Kong dollar since mid-2008



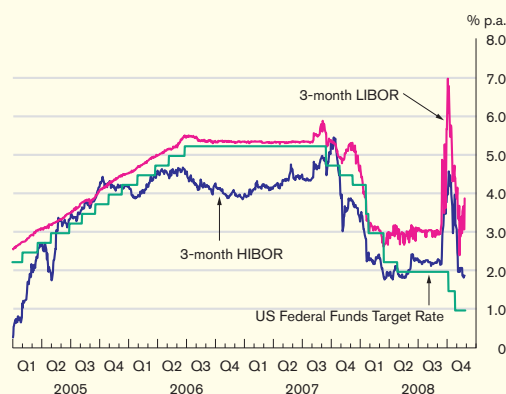
Note: Data ended on 29 November 2008.  
Source: HKMA.

**Chart 3.3**  
Nominal and real effective exchange rates



Note: Monthly average figures. Real effective exchange rate index is seasonally adjusted.  
Sources: HKMA staff estimates and C&SD.

**Chart 3.4**  
Interest rates of the Hong Kong dollar and US dollar



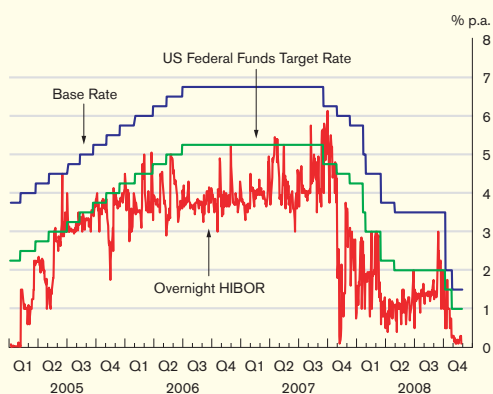
Source: HKMA.

rebound in the US dollar reflected a number of factors, including a flight to safety, sustained deleveraging, worsening international economic prospects, and expected cuts in policy interest rates outside the US. As a result, the Hong Kong dollar generally strengthened during the same period, with the Australian dollar, the Korean won and the British pound recording some of the largest depreciations against the Hong Kong dollar (Chart 3.2).

Accompanying the rally in the US dollar, the trade weighted nominal effective exchange rate index of the Hong Kong dollar appreciated by around 4.8% between July and October (Chart 3.3). The trade weighted real effective exchange rate index also rebounded by 2.4% in October, but it remained broadly stable in the third quarter of 2008 because the effect of a stronger Hong Kong dollar was offset by the impact of a decline in Hong Kong's headline inflation rate relative to its trading partners. In the second quarter of 2008, both indices were little changed along with a generally stable US dollar.

The US Fed cut the federal funds target rate by a total of 225 basis points in the first four months of 2008, and kept the target rate at 2% afterwards for about five months (Chart 3.4). Despite the aggressive easing of US monetary policy, term interbank interest rates for the US dollar stayed firm, signalling persistent tightness in the wholesale funding market. Against this background, the term HIBORs rose to higher levels in late May and June, partly because of worries about the deteriorating global macroeconomic outlook and its associated negative impact on money markets. From April to August, the overnight HIBOR gradually tightened, possibly reflecting

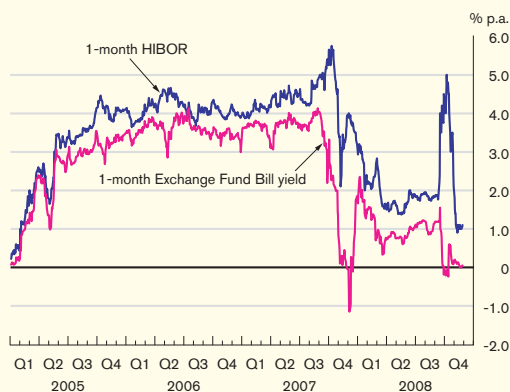
**Chart 3.5**  
Overnight and policy interest rates



Source: HKMA.

tighter funding conditions associated with increases in the Hong Kong dollar loan-to-deposit ratio (Chart 3.5). Global money market conditions tightened considerably after the investment bank Lehman Brothers filed bankruptcy in the US on 15 September. Because of the heightened perception of counterparty credit risk and stockpiling of liquidity for contingencies, Hong Kong dollar interbank interest rates spiked in tandem with soaring US dollar counterparts (Charts 3.4 and 3.5). The overnight and one-month HIBORs surged to intraday highs of 4% and 6% respectively on 18 September. Interest rate volatility also rose, and the HIBOR-LIBOR differentials fluctuated sharply, with interest rate discounts occasionally turning into premia. Term spreads in the local money market increased, as banks demanded higher compensation for borrowing periods longer than overnight.

**Chart 3.6**  
Interest rates of the Hong Kong dollar

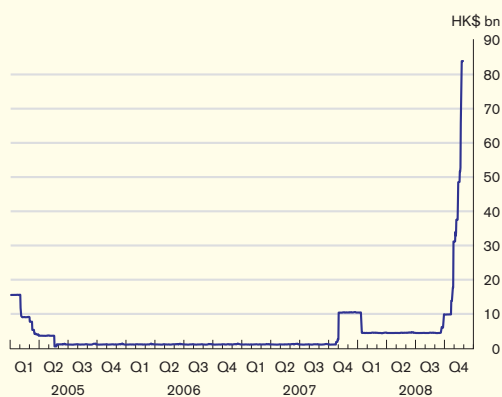


Source: HKMA.

On 24 September, a brief, small-scale retail deposit run on a local bank somewhat intensified tensions in the local interbank credit market. The mini-run was caused by unfounded rumours, spread by telephone short messages, about the bank's financial soundness. This led to some concerns among domestic banks that possible withdrawals by nervous depositors might increase pressure on their funding despite a bank's sound fundamentals. In Hong Kong's interbank market, there were also reports of a tiering of pricing, with local and foreign banks paying different costs for borrowings. Credit lines among some banks were also reportedly tightened due to prudential considerations. From mid-September to mid-October, unusually strong demand for Exchange Fund paper by banks for liquidity management purposes drove the yields of short-dated Exchange Fund paper to very low levels or below zero, resulting in a divergence between local interbank interest rates and the yields of corresponding Exchange Fund paper (Chart 3.6).

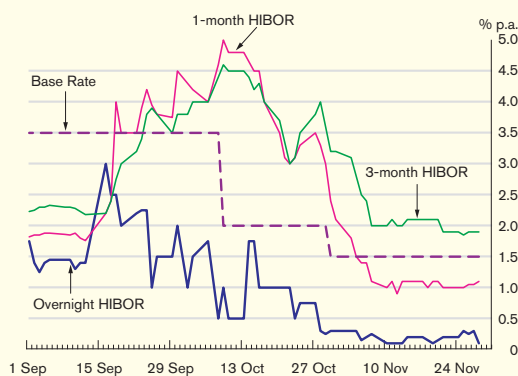
In view of the sharp increases in local interbank interest rates and the potential fragility of banking confidence caused by a small-scale local bank run, the HKMA proactively operated within the Convertibility Zone on 18 and 25 September to inject liquidity into the banking

**Chart 3.7**  
Aggregate Balance (before Discount Window Activity)



Source: HKMA.

**Chart 3.8**  
Base Rate and the interbank interest rates of the Hong Kong dollar



Source: HKMA.

system, purchasing US dollars against Hong Kong dollars and increasing the Aggregate Balance by HK\$1.6 billion on 22 September and HK\$3.9 billion on 29 September (Chart 3.7). The overnight and one-month HIBORs temporarily eased as a result.

In late September and early October, the term HIBORs continued to climb despite the softening overnight HIBOR following the HKMA's liquidity injections into the banking system (Chart 3.8). To address heightened credit and liquidity concerns among banks, the HKMA implemented five temporary measures on 2 October to provide additional longer term funding for licensed banks against a wider-than-usual range of collateral (Box 4 discusses various measures that have been taken by the HKMA and the Financial Secretary since late September).

The one-month and three-month HIBORs generally eased along with their US dollar counterparts following the change of the Base Rate formula on 8 October and the introduction of pre-emptive measures to bolster public confidence in the banking system on 14 October (Chart 3.8). According to the new Base Rate formula (the prevailing US federal funds target rate plus 50 basis points), the Base Rate was lowered twice to a historical low of 1.5% at the end of November, following two 50-basis-point reductions in the federal funds target rate on 8 October and 29 October. Reflecting the reduced borrowing cost at the Discount Window, the overnight HIBOR declined further.

The easing in the term HIBORs continued when the HKMA announced on 20 October that it would supply additional three-month Exchange Fund Bills to meet increased demand for such paper by the banks. On that date, the HKMA operated within the Convertibility Zone to neutralise the expected impact of the Exchange Fund Bill issuance on the level of the Aggregate Balance. The initial HK\$4 billion increase in the Aggregate Balance was subsequently offset in two steps by completing the allotments of the additional Exchange Fund Bills in late October and early November.



As the term HIBORs showed signs of renewed tightness in late October on concerns about the fallout from turbulence in certain emerging markets, the HKMA carried out three more within-zone foreign exchange operations, one on 23 October and two on 27 October, raising the Aggregate Balance further by a total of HK\$19.4 billion to HK\$31.5 billion on 29 October. Repeated triggering of the strong-side Convertibility Undertaking between 31 October and 28 November further improved interbank liquidity in the local money market. Reflecting persistent capital inflows, the Aggregate Balance expanded to HK\$84.3 billion on 28 November, compared with the previous historic high of around HK\$55 billion in early 2004 when the market speculated that the Hong Kong dollar would strengthen on the appreciation of the renminbi.

Local interbank interest rates moderated further in early November and became broadly stable afterwards. The overnight HIBOR closed at 0.1% on 28 November, compared with an intraday high of 4% on 18 September. The one-month and three-month HIBORs also declined to 1.1% and 1.9% respectively, after reaching more than 4% in mid-October.

## Box 4 Measures undertaken by the HKMA and the Financial Secretary in response to the global financial crisis

**Table B4.A**  
**Major policy initiatives since September 2008**

Announcement date	Measures and their effective periods
30 September	<b>Five temporary liquidity measures</b> (2 October 2008 – 31 March 2009)
8 October	<b>Modification of the Base Rate formula*</b> (9 October 2008 - 31 March 2009)
14 October	<b>Two precautionary measures to support confidence in the Hong Kong banking system</b> (14 October 2008 – 31 December 2010)
20 October	<b>Additional supply of three-month Exchange Fund Bills</b> (28 October 2008 and 4 November 2008)
6 November	<b>Two refinements to the fifth of the five temporary liquidity measures</b> (6 November 2008 – 31 March 2009)
24 November	<b>Additional supply of three-month Exchange Fund Bills</b> (2 December 2008)

# The change will be in place until the end of March 2009, before which a review will be made to determine an appropriate formula.

**Table B4.B**  
**Key policy actions taken in Hong Kong**

#### Liquidity provision

- Within-zone foreign exchange operations to inject liquidity into the banking system
- Five temporary measures to provide liquidity assistance to banks
- New Base Rate formula effectively lowering borrowing cost at the Discount Window
- Additional supply of Exchange Fund paper to improve banks' access to the expanded Discount Window

#### Contingent capital

- Contingent Bank Capital Facility

#### Depositors' confidence

- Temporary 100% deposit protection

Severe strains in global financial markets emerged in mid-September 2008 following the failure of the US investment bank Lehman Brothers. Responding to the stress on the local interbank market, the HKMA announced a series of temporary measures to help contain the liquidity and solvency risks in the domestic banking system (Table B4.A). These measures extended the existing monetary framework and provided further tools for the HKMA to mitigate the adverse impact of interbank credit market tensions on the local financial markets and the wider economy (Table B4.B).

#### *Liquidity assistance to licensed banks in Hong Kong*

From mid-September to October, the deteriorating financial conditions in the US and their contagious impact around the world heightened concern among licensed banks in Hong Kong about the credit worthiness of counterparties. This concern, coupled with a desire to preserve liquidity to meet their own contingent needs, led to a general shortage of interbank liquidity and difficulties on the part of individual licensed banks to obtain funding in the interbank market.

To address the problem, particularly at a time of instability and stress in the local financial system, the HKMA exercised its limited flexibility within the Convertibility Zone to inject liquidity into the banking system through a series of proactive foreign exchange operations. The Aggregate Balance rose markedly as a result.

However, local interbank interest rates with maturities of one month or above remained tight after the HKMA injected liquidity into the interbank money market in late September. At around the same time, unfounded rumours about the financial health of a local bank led to a short-lived retail deposit run, which in turn caused some worries among banks about the safety of their deposits as a source of funding. Against this backdrop, the HKMA announced on 30 September five temporary measures, with effect from 2 October 2008 to 31 March

**Table B4.C**  
**Liquidity assistance to licensed banks in Hong Kong: five temporary liquidity measures announced on 30 September**

(i) <b>Wider scope of collateral under the Discount Window</b>	Expanding eligible securities under the Discount Window to include US dollar assets of credit quality acceptable to the HKMA
(ii) <b>Term Discount Window borrowing</b>	Extending the term of the liquidity provided through the Discount Window from overnight to maturities up to three months
(iii) <b>Lowering interest rate at the Discount Window</b>	Waiving the penalty rate for using over 50% of the Exchange Fund paper holding in accessing the Discount Window
(iv) <b>Foreign exchange swaps</b>	Conducting foreign exchange swaps (between US dollars and Hong Kong dollars of various durations) with individual licensed banks when necessary
(v) <b>Term lending against collateral</b>	Lending term money to individual licensed banks against acceptable collaterals when necessary, and interest rate for such lending is determined with reference to market interest rates

**Table B4.D**  
**The Base Rate and the Discount Rate before 30 September**

Percentage of Exchange Fund paper held by a bank	Applicable Discount Rate consists of two tiers	Discount Rate (or Base Rate) formula
First 50%	<b>Base Rate</b> which is the higher of:	(a) 150 basis points + US Federal Funds Target Rate  (b) Simple average of the 5-day moving averages of the overnight and one-month HIBORs
Next 50%	<b>Base Rate with penal element</b> , which is the higher of:	(c) Base Rate + 5%  (d) Base Rate + overnight HIBOR

Note: Parts (c) and (d) were removed under the third of the five temporary liquidity measures, and, in the adjustment of the Base Rate formula, part (b) was removed and the 150-basis-point spread in part (a) was changed to 50 basis points.

**Table B4.E**  
**The expanded Discount Window**

Eligible collateral	Applicable Discount Rate	
	Overnight	1 to 3-month
Exchange Fund Paper	Base Rate	Base Rate + premium
US Treasuries	Base Rate	Base Rate + premium

Note: The Base Rate is determined as the prevailing US FFTR plus 50 basis points.

2009, to provide liquidity assistance to licensed banks in Hong Kong (Table B4.C).

The five temporary measures provided additional longer-term funding to banks against a wider range of collateral at a potentially lower interest rate cost. As a result of these backstop liquidity facilities, the banks should be more assured about the availability of funds, and be more willing to lend in the interbank market. Shortly after the measures were implemented, the overnight HIBOR gradually eased. However the liquidity in the longer end of the interbank market, especially beyond one month, remained tight in early October, reflecting persistent concerns about counterparty credit risk.

Subsequently, the HKMA announced on 6 November two refinements to the last of the five temporary liquidity measures introduced on 30 September, extending the maximum tenor of the collateralised term lending from one month to three months and lowering the interest rate for such lending. This partly reflected the secured nature of such term lending amid distortions and frictions in the term interbank funding market.

After the term HIBORs continued to climb in early October, despite easing overnight interbank interest rates, the HKMA announced on 8 October an adjustment in the methodology for the determination of the Base Rate in Hong Kong. (Table B4.D provides a summary of the structure of the Discount Rate and the Base Rate prior to 30 September 2008). With effect from 9 October, the formula for determining the Base Rate was changed by reducing the spread of 150 basis points above the prevailing US Federal Funds Target Rate (FFTR) to 50 basis points. The other leg relating to the moving averages of the relevant interbank interest rates was removed from the formula until 31 March 2009.

Under the expanded Discount Window, the borrowing cost is effectively lowered after adopting the new Base Rate formula (the prevailing US FFTR plus 50 basis points), overnight borrowings are charged at the unified Base Rate and term borrowings are charged at a premium over the Base Rate (Table B4.E). To further improve banks' access to the various newly-introduced liquidity

facilities, the HKMA announced on 20 October the issuance of HK\$4 billion of additional three-month Exchange Fund Bills in the tenders on 28 October and 4 November. On the announcement day, and in order to maintain the prevailing level of liquidity of the banking system, the HKMA operated within the Convertibility Zone by purchasing US dollars against Hong Kong dollars, so that the initial increase in the Aggregate Balance would be offset by the additional Exchange Fund Bill issuance. Subsequently, the HKMA announced on 24 November another issuance of additional three-month Exchange Fund Bills in a tender on 2 December. The increased supply of Exchange Fund paper helps to address the strong demand for the paper by banks for liquidity management, as evidenced by the very low yields of the short-dated Exchange Fund Bills.

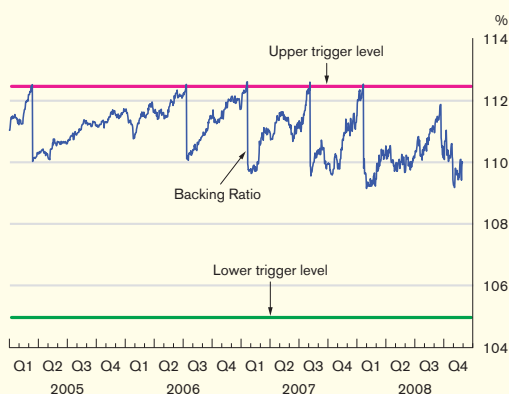
*Two new precautionary measures to strengthen confidence in Hong Kong's banking system*

In addition to liquidity facilities, the Financial Secretary announced on 14 October two new precautionary measures to further strengthen confidence in Hong Kong's banking system. First, a Contingent Bank Capital Facility was introduced to help provide comfort to banks on the availability of additional capital when necessary, and thus guard against systemic failures in the financial system. Secondly, the Exchange Fund will be used to temporarily guarantee the repayment of all customer deposits held with all Authorized Institutions in Hong Kong (including Restricted Licence Banks and Deposit-taking Companies). The temporary 100% deposit protection applies to both Hong Kong dollar and foreign currency deposits, including those held with Hong Kong branches of overseas institutions. Both measures will remain in force until the end of 2010. The new arrangements are not expected to be triggered, as the Hong Kong banking sector is fundamentally sound. The deposit guarantee may introduce distortions to the banking system, for example, by affecting the incentives for prudent management of risks by banks, the competitive environment among banks and the need for depositors to exercise due diligence. This, in turn, may lead to moral hazard. The HKMA will pay additional supervisory attention to this potential hazard.

### 3.2 Monetary Base and the Backing Ratio

The Monetary Base expanded notably between late September and November, first as a result of a transitory increase in the Certificates of Indebtedness (CIs) and subsequently because of rises in the Aggregate Balance. In late September, as customers withdrew deposits amid a mini-run on a local bank, demand for legal tender notes and coins increased. This, coupled with the effects of month-end and a long holiday for Mainland visitors, caused a temporary surge in the CIs. In late October and November, the Aggregate Balance rose markedly on the back of foreign exchange operations conducted by the HKMA and the frequent triggering of the strong-side CU.

**Chart 3.9**  
**Backing Ratio**



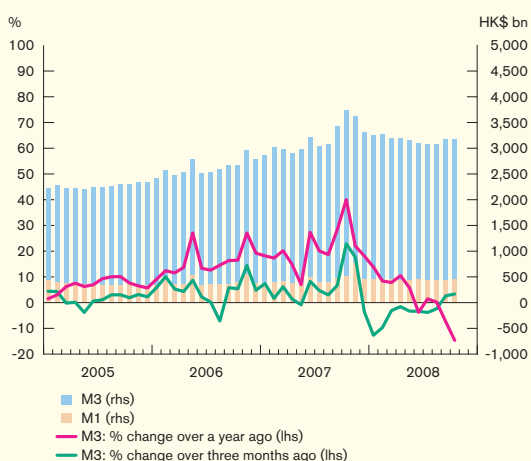
Note: The Backing Ratio is the ratio of Backing Assets to the Monetary Base. Under the arrangements for transferring assets between the backing portfolio and the investment portfolio of the Exchange Fund, when the backing ratio reaches 112.5% (the upper trigger level), sufficient assets will be transferred from the backing portfolio to the investment portfolio to reduce the ratio to 110%. Should the backing ratio drop 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%.

Source: HKMA.

Reflecting the combined effects of the increase in the Monetary Base and valuation losses associated with the strengthening of the Hong Kong dollar against the US dollar, the Backing Ratio generally decreased after reaching 111.88% on 21 September (Chart 3.9). The Backing ratio closed at 109.99% on 28 November and it has not surpassed the upper trigger level of 112.5% since 22 January 2008.

### 3.3 Money, credit and monetary conditions

**Chart 3.10**  
**Hong Kong dollar M3**



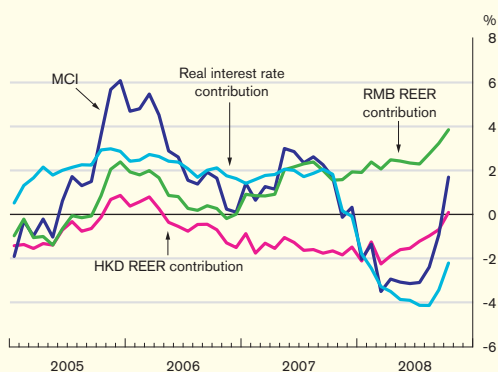
Note: Hong Kong dollar M1 is not seasonally adjusted.

Source: HKMA.

After peaking at the end of October 2007, Hong Kong dollar M3 broadly declined between November 2007 and August 2008 (Chart 3.10). As a result, the year-on-year growth rates of the broad money trended downward and the quarter-on-quarter growth rates turned negative. The contraction in broad money was due partly to a reversal of exceptional credit demand associated with vibrant IPO activities in 2007. A portfolio shift from Hong Kong dollar deposits to foreign currency deposits, notably the renminbi, also partially constrained the money creation process in local currency. Indeed, Hong Kong dollar deposits accounted for 50.3% of total deposits at the end of August this year, down from 52.4% at the end of December 2007.

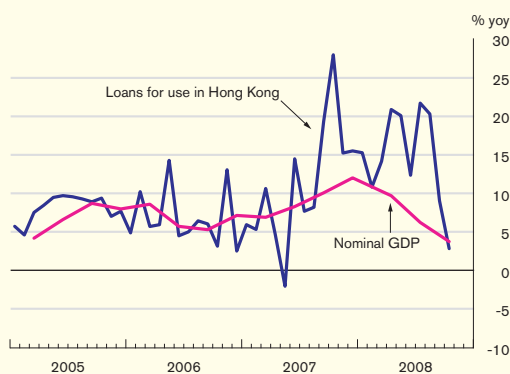
Hong Kong dollar broad money rebounded somewhat in September when stress in the local interbank credit market began to intensify. Analysed by the asset-side counterparts of Hong Kong dollar M3, the rebound was mainly due to a rise in the net foreign currency assets.

**Chart 3.11**  
**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 REERs.  
 Sources: HKMA and staff estimates.

**Chart 3.12**  
**Loans for use in Hong Kong and nominal GDP**



Sources: HKMA and C&SD.

This suggests some inflow of funds into Hong Kong dollars, consistent with the strengthening of the currency and reports of repatriation of funds. Hong Kong dollar time deposits also expanded markedly during that month, partly supported by modest increases in time deposit interest rates in the second half of September. In view of the dislocation in the local wholesale funding market, some banks tried to secure more stable and longer-term funding by raising their time deposit interest rates for retail customers. In October, Hong Kong dollar M3 continued to edge up, possibly reflecting repatriation of funds from overseas.

The year-on-year growth rates of seasonally-adjusted Hong Kong dollar M1 declined between January and October 2008, partly because of weaker transaction demand alongside an economic slowdown. Legal tender notes and coins in circulation, where those held by the non-bank public constituting a component of the narrow money, posted a marked monthly increase in September, as a mini-run on a local bank and a long holiday for Mainland visitors raised the demand for physical currency.

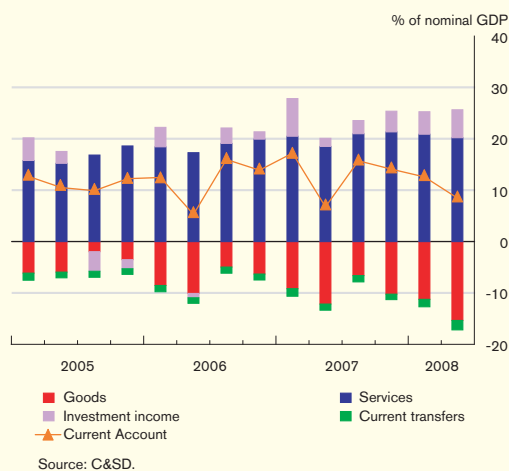
Local monetary conditions tightened in the latter part of 2008, as indicated by a sharp rebound in the monetary conditions index (MCI) (Chart 3.11). The tightening was due to a higher real interest rate in Hong Kong and the appreciation of both the Hong Kong dollar and the renminbi real effective exchange rate indices.

While year-on-year growth in loans for use in Hong Kong remained firm before September, loan growth slowed visibly afterwards, attributable to the economic downturn, a weak stock market and the dislocated interbank funding market. Loans for use in Hong Kong grew by 9.1% year on year in September and 2.9% in October, compared with double digit growth in the previous 12 months (Chart 3.12). Analysed by economic use, trade financing loans declined by 2.9% in the third quarter of 2008, on the back of shrinking trade flows. It was the first time this figure had declined since the second quarter of 2007. Growth in property-related loans also decelerated. This partly reflected a quiet property market amid weaker economic activity. As Hong Kong dollar loans increased at a slower rate than deposits in September, the Hong Kong dollar loan-to-

deposit ratio decreased by 2.4 percentage points to 81.4% at the end of September – the first decrease in the ratio since the beginning of 2008.

Recent evidence also suggests that stress in the interbank credit market appears to have spread to the retail level, negatively affecting household and corporate borrowers. Despite a 25-basis-point reduction in the BLRs in early November, banks kept their BLRs unchanged when the US Fed cut its target rate by 50 basis points each on 8 and 29 October. Mortgage interest rates for newly approved loans also increased slightly. In addition, anecdotal evidence reveals that lending to SMEs was particularly affected.

**Chart 3.13**  
Contributions to Current Account surplus



**Table 3.A**  
Balance of Payments Account by standard components

In per cent of GDP	2006		2007		2008	
			Q3	Q4	Q1	Q2
<b>Current Account</b>	12.1	13.5	15.8	14.1	12.6	8.6
<b>Capital and Financial Account</b>	-14.2	-15.5	-19.4	-17.0	-8.2	-5.1
Capital transfers	-0.2	0.7	1.7	0.2	0.6	0.5
<b>Financial non-reserve assets (net change)</b>	-10.9	-9.1	-17.7	0.2	4.5	-3.0
Direct investment	0	3.2	5.4	1.1	13.7	-19.8
Portfolio investment	-14.1	2.3	2.9	8.6	-45.6	5.9
Financial derivatives	1.8	3.6	3.0	0.8	2.6	2.9
Other investment	1.4	-18.2	-29.0	-10.4	33.8	8.1
<b>Reserve assets (net change)</b>	3.2	7.1	3.4	17.4	13.4	2.5
<b>Net errors and omissions</b>	2.2	2.0	3.6	2.8	-4.4	-3.5

Source: C&SD.

### 3.4 Balance of Payments

Latest Balance of Payments (BoP) statistics showed an expansion in reserve assets for the twelfth consecutive quarter. The rise in reserve assets was due to investment incomes from foreign currency reserve assets as well as purchases of US dollars by the HKMA.

The current account remained in surplus in the first half of 2008, as the persistent surpluses in service trade exceeded the widened deficits in merchandise trade (Chart 3.13 and Table 3.A). The service trade surpluses were mainly due to trade-related services, while the positive contribution of net exports of financial services shrank in the second quarter due to a tumbling stock market.

The non-reserve financial account recorded net outflows in the second quarter of 2008, after registering net inflows in the previous quarter (Table 3.A). The portfolio investment account recorded sizable net outflows of almost 40% of nominal GDP in the first half of 2008, partly because non-residents reduced their holdings of Hong Kong debt securities. The “other investment” account saw a strong increase in net inflows (about 40% of nominal GDP) after significant net outflows in the second half of 2007. The significant net inflows in the “other investment” account in the first half of 2008 reflected decreases in overseas deposits as well as reductions in overseas borrowing of the local non-bank sector.

## Banking sector performance

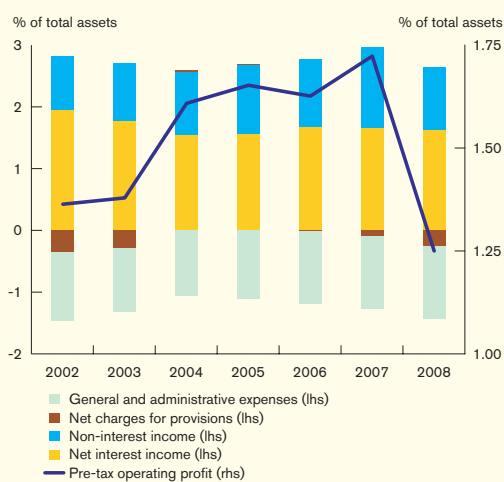
The profitability of retail banks remained healthy despite declining during the assessment period because of lower interest and non-interest income and a rise in provisions for loans and investment portfolios. Capitalisation was strong and liquidity was structurally resilient. Interbank liquidity tightened sharply in mid-September, feeding through from the effects of the US and European markets, but the situation improved following various pre-emptive measures taken by the Government and the HKMA. While there were signs of deterioration in the credit risk to corporate lending, the systemic risk to the banking sector appeared to be contained. However, as uncertainty has increased and the business environment deteriorated, banks might seek to protect their balance sheets through tightening credit, which could adversely affect the economy and, in turn, their own asset quality.

### 3.5 Profitability and capitalisation

#### Profitability

The profitability of retail banks, measured by pre-tax operating profit as a percentage of total assets, continued to fall in the six-month assessment period<sup>20</sup> to September 2008 (Chart 3.14). However, it still remains at a healthy level. Decreases in net interest income and non-interest income, together with significant rises in provisions for bad and doubtful debts and for investment securities amid the sub-prime crisis, exerted downward pressure on the banks' profitability.

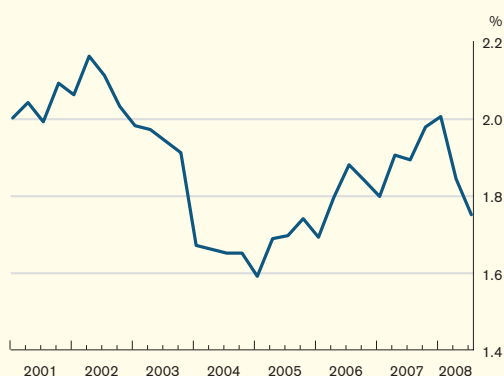
**Chart 3.14**  
Profitability of retail banks



<sup>20</sup> Unless otherwise stated, the assessment period in this Chapter refers to the six-month period from the end of March 2008 to the end of September 2008.

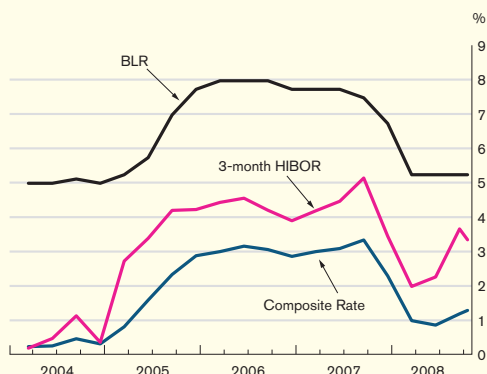


**Chart 3.15**  
Net interest margin of retail banks



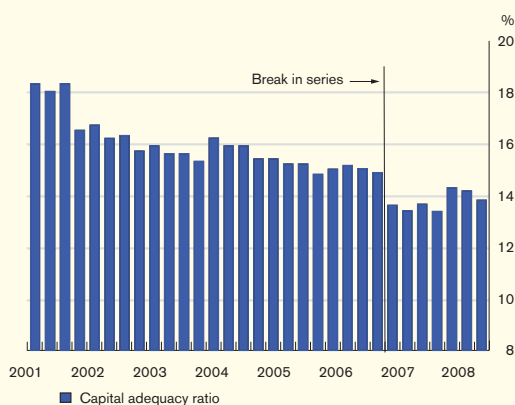
Note: Quarterly annualised figures.  
Source: HKMA.

**Chart 3.16**  
Composite interest rate



Note: End of period figures.  
Source: HKMA.

**Chart 3.17**  
Capitalisation of locally-incorporated AIs



Source: HKMA.

Net interest margins narrowed in the assessment period (Chart 3.15), although their negative impact on banks' income was partially offset by an expansion of interest-bearing assets, mainly loans and advances to customers. While interest margins from HIBOR-based lending of banks widened as a result of higher HIBORs, lower interest margins from BLR-priced lending put significant pressure on banks' overall interest margins. During the assessment period, the BLR<sup>21</sup> remained unchanged<sup>22</sup> (from the end of April 2008 to the end of October 2008), while the composite interest rate, which reflects the average cost of funds of retail banks, rose by 49 basis points, reflecting upward adjustments of interbank and customers' time deposit rates amid tight liquidity conditions. The three-month HIBOR increased more rapidly by 127 basis points (Chart 3.16).

### Capitalisation

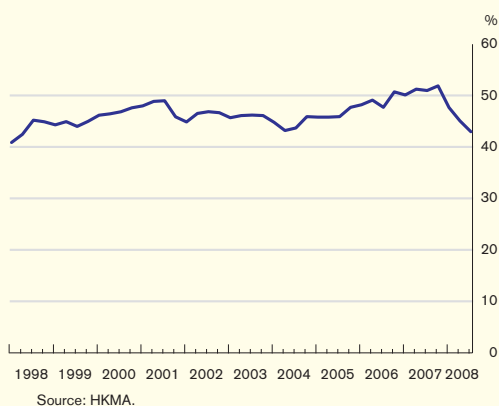
The aggregate consolidated capital adequacy ratio of locally incorporated AIs decreased to 13.8% at the end of September from 14.3% at the end of March 2008 (Chart 3.17).<sup>23</sup> This level remained well above the minimum international standard of 8%.

<sup>21</sup> BLR refers to the rate quoted by The Hong Kong and Shanghai Banking Corporation Limited.

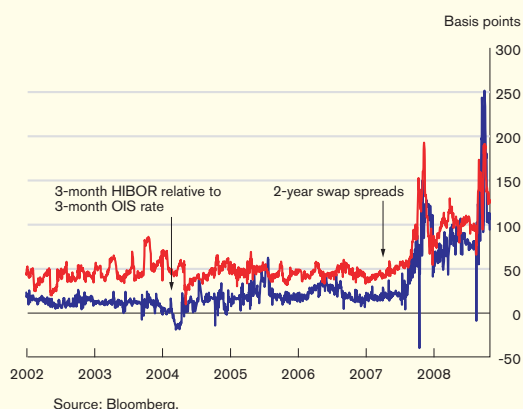
<sup>22</sup> Most retail banks adjusted their BLRs downward by 25 basis points on 10 November 2008.

<sup>23</sup> 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.

**Chart 3.18**  
Liquidity ratio of retail banks



**Chart 3.19**  
Spreads of the 3-month HIBOR relative to 3-month OIS rate and 2-year Hong Kong dollar swaps



### 3.6 Liquidity and funding

In 2008 Q3, the average liquidity ratio of retail banks decreased further to 43.0% from 47.7% in 2008 Q1. The ratio remained substantially higher than the regulatory minimum of 25% (Chart 3.18).

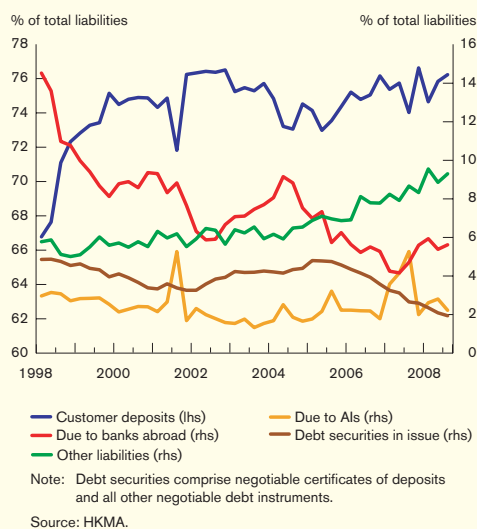
Following the bankruptcy of Lehman Brothers in mid-September, local interbank liquidity tightened sharply, feeding through from the effects in the US and European markets. The tightening was evident in a rise in the spread of the 3-month HIBOR relative to the 3-month Hong Kong dollar OIS rate<sup>24</sup> (Chart 3.19), with both credit and liquidity risk premiums reaching a high level. Box 5 provides a detailed analysis of how these two risk factors have evolved during the current financial crisis. The spread, which indirectly measures the availability of funds in the interbank market, signalled an increase in reluctance among interbank participants to lend among themselves, due to heightened counterparty risk. The panicky situation improved somewhat following the introduction of the extended deposit protection by the Government. The HIBOR-OIS spread eased further after the announcement on 20 October 2008 of an additional supply of 3-month Exchange Fund Bills of about HK\$4 billion.

However, banks, particularly those more reliant on obtaining funds from the interbank market, remained cautious as the HIBOR-OIS spread increased again to a peak of 252 basis points towards the end of October. The continued tight liquidity conditions are shown by the much stickier downward adjustment in the 2-year Hong Kong dollar swap spread<sup>25</sup>, a proxy for banking liquidity

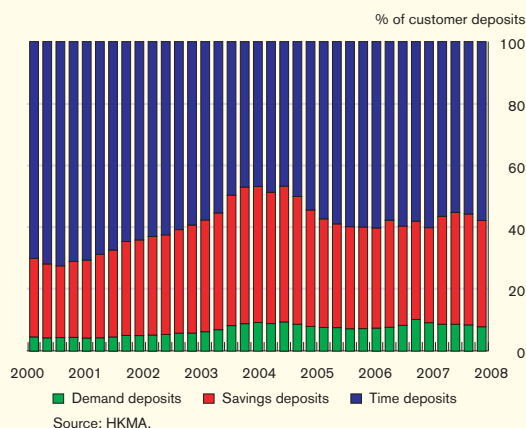
<sup>24</sup> An OIS is an interest rate swap in which the floating leg is linked to an index of daily overnight rates. The two parties agree to exchange at maturity, on an agreed notional amount, the difference between interest accrued at the agreed fixed rate and interest accrued at the floating index 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 3-month HIBOR relative to 3-month OIS rate generally reflects the credit and liquidity risks of the interbank market.

<sup>25</sup> Swap spreads are differences between “fixed-for-floating” interest rate swap rates and corresponding Exchange Fund paper yields of the same maturity.

**Chart 3.20**  
Liabilities structure of retail banks



**Chart 3.21**  
Structure of customer deposits of retail banks



over the medium term (Chart 3.19).<sup>26</sup> In other words, although banks may take some comfort from the recent government action at the short end of the yield curve, they are still worried by uncertainty over the availability of funds at the longer end.<sup>27</sup>

While counterparty risk rose in interbank markets globally, the contagion risk arising from interbank exposures in the domestic market appeared to be contained. For retail banks as a whole, the amount due to other AIs in Hong Kong accounted for only 2.2% of total liabilities by September 2008, while the amount due from other AIs in Hong Kong contributed just 7.3% of their total assets.

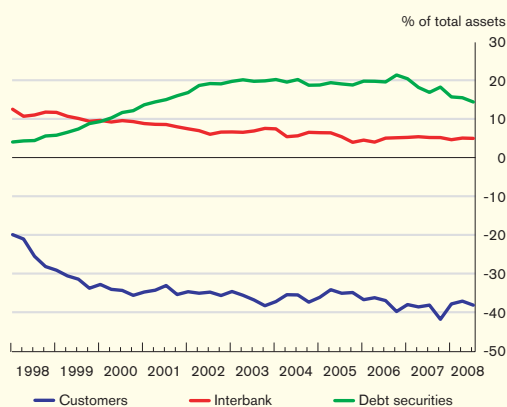
Other structural factors influencing the long-run liquidity conditions of the banking sector were fairly stable in the assessment period. Specifically, customer deposits, which are more stable than other funding sources, were still the principal sources of retail banks' funding and accounted for 76% of total liabilities in September 2008 (Chart 3.20).

Partly due to more attractive time deposit rates being offered by banks to improve their own liquidity amid tight interbank conditions, time deposits registered increases of 8.5% and 2.3% in 2008 Q3 and Q2 respectively. As a result, the share of time deposits rose to 57.8% in September from 55.2% in March, whereas that of savings and demand deposits fell to 34.3% (from 36.1%) and 7.9% (from 8.7%) respectively (Chart 3.21).

<sup>26</sup> 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*.

<sup>27</sup> Both the HIBOR-OIS spread and the 2-year Hong Kong dollar swap spread narrowed significantly to 94 and 127 basis points respectively at the end of November, probably reflecting early signs of stabilisation in the local wholesale fund market. Nevertheless, the spreads are still higher than their respective levels before the crisis.

**Chart 3.22**  
Retail banks' funding gaps,  
by type of funding

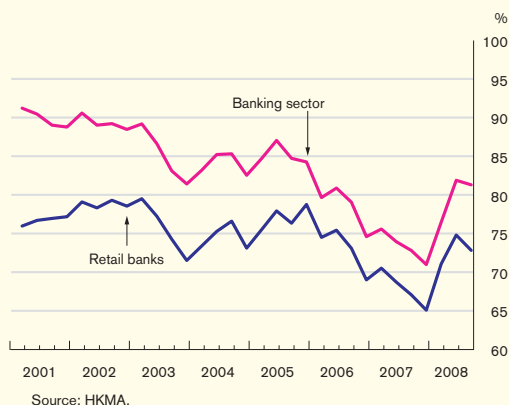


Notes:  
 1. Measured as assets less liabilities in the balance sheet categories shown, as a percentage of total assets.  
 2. "Customers" comprises all non-AI borrowers and depositors.  
 3. Debt securities comprise negotiable certificates of deposits and all other negotiable debt instruments.  
 Source: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

Unlike their US and some European counterparts, retail banks in Hong Kong generally maintained a negative "customer funding gap", with the amount of customer loans being smaller than the amount of customer deposits. The gap widened slightly to -38.1% in September 2008 from -37.7% in March (Chart 3.22), indicating that there should not be structural weaknesses in the liquidity structure of retail banks.

At the end of September 2008, the all currencies loan-to-deposit ratio for the banking sector as a whole increased to 58.6% from 55.0% in March 2008 and that for retail banks to 50.1% from 49.4%. However, both ratios decreased in the third quarter as deposit growth slightly outpaced loan growth. The Hong Kong dollar loan-to-deposit ratio also increased to 81.4% for the banking sector, and to 72.9% for retail banks, from 76.5% and 71.1% respectively (Chart 3.23).

**Chart 3.23**  
Hong Kong dollar loan-to-deposit ratios

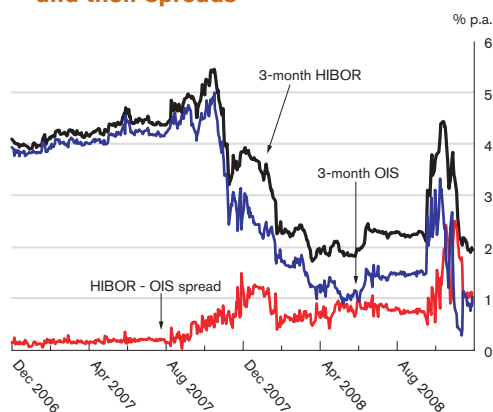


Source: HKMA.

As shown by the current financial turmoil, the liquidity and default risks of banks can stem from their market risk. Using a new liquidity stress-testing framework with interaction between market and credit risks, Box 6 assesses the ability of individual banks in Hong Kong to weather severe liquidity shocks stemming from a prolonged period of asset market disruptions. The results suggest that banks can withstand the liquidity shocks. However, if such shocks were to coincide with interest rate increases due to monetary policy tightening, some banks may be more prone to significant liquidity risk.

## Box 5 An indicative decomposition of the HIBOR – OIS spreads

**Chart B5.1**  
3-month HIBOR, 3-month OIS rate  
and their spreads



Sources: Bloomberg and HKMA estimates.

The spread of the 3-month HIBOR relative to the 3-month Hong Kong dollar OIS rate indirectly measures the availability of funds in the interbank market. It is generally viewed as reflecting two types of risk. The first is related to liquidity. The spread reflects the different interbank funding costs (the liquidity premiums paid by banks) of 3-month lending and overnight lending rolled over for 3 months. A second component of the spread stems from counterparty default risk.<sup>28</sup> An interesting issue has emerged in the Hong Kong dollar money market since the second half of 2007 – the divergence between the 3-month HIBOR and OIS. Chart B5.1 shows that the divergence started some time in 2007 Q4, widening from about 18 basis points to some 120 basis points in December 2007. Despite the drop in HIBOR in the first half of 2008, the spread was still about 80 basis points. Following the bankruptcy of Lehman Brothers, the spread surged to 200 basis points in September. This Box disentangles the credit risk component from the liquidity risk factor in the 3-month HIBOR – OIS spread, and examines the pattern of these factors during the current financial crisis.<sup>29</sup>

### *Decomposition method*

The prices of 5-year CDSs for four major banks in Hong Kong are used to provide a rough estimate of the credit risk premiums in the 3-month HIBOR – OIS spread.<sup>30</sup> Similar to the assumptions in the methodology used by

<sup>28</sup> The counterparty default risk arises because HIBOR is the rate for unsecured loans to banks and therefore subject to counterparty default risk. Liquidity risk arises due to a bank's need to protect its liquidity position at a time of funding uncertainty, or its inability to borrow funds from the interbank market.

<sup>29</sup> The methodology is similar to those in the Bank of England (2007), "An Indicative Decomposition of LIBOR Spread", *Bank of England Quarterly Bulletin*, Q4; Michaud and Upper (2008), "What Drives Interbank Rates? Evidence from the LIBOR Panel", *BIS Quarterly Review*, March; Imakubo, Kimura and Nagano (2008), "Cross-currency Transmission of Money Market Tensions", *Bank of Japan Review*, July; and McAndrews, Sarkar and Wang (2008), "The Effect of the Term Auction Facility on the London Inter-Bank Offered Rate", *Federal Reserve Bank of New York Staff Report No. 335*, July.

<sup>30</sup> Note that due to data availability, the CDS prices of one local entity are used, while the CDS prices of the other three are the parent companies of their corresponding local entities. CDS prices are obtained from the Bloomberg and JPMorgan websites.

the Bank of England (2007), any difference between the interbank rate – OIS spread and the estimated credit risk premiums corresponds to the liquidity risk factor in the interbank market.<sup>31</sup>

To infer the credit premium from CDS prices, it is necessary to calculate the market-implied default probabilities (*MIDP*) for the underlying securities embedded in the CDS prices. Such probabilities can be derived from CDS prices by assuming a specific recovery rate. Following Gapen et al (2008), the *MIDP* can be obtained through the equation as follows:<sup>32</sup>

$$MIDP = \frac{1 - \exp(-S \cdot t)}{1 - R}$$

where *S* is the CDS price, *t* is the time horizon (which is equal to 5) and *R* is the recovery rate (assumed to be constant at 40% in this analysis). As the *MIDP* derived is the cumulative default probability for a 5-year horizon, it is converted into a 3-month horizon using the formula  $1 - (1 - MIDP)^{1/20}$ . The credit premium (*CP*) can then be inferred from the annualised 3-month implied default probability (*IDP3*) by the following equation:<sup>33</sup>

$$CP = - \frac{\ln [(1 - R) \cdot \exp(-IDP3 \cdot (1/4)) + R]}{(1/4)}$$

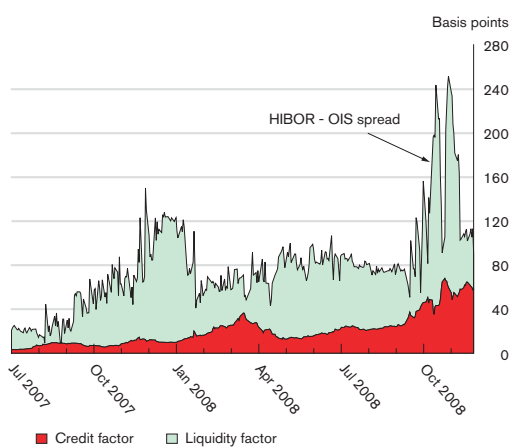
Once the credit premium for each of the four banks is derived, a simple average of these estimated credit premiums is taken as the credit premium in the 3-month HIBOR – OIS spread. The residual of the spread is assumed to be the non-credit (liquidity) premium.

<sup>31</sup> The assumption suggests that the credit and liquidity risks are entirely independent. However, there is an issue concerning the potentially positive correlation between the credit and liquidity factors. In addition, the CDS prices may not purely reflect the credit risk of the entities. Liquidity issues may also factor into these CDS prices due to the possibly illiquid CDS markets. Therefore, the results should be regarded as an indicative decomposition of the credit and liquidity factors.

<sup>32</sup> See Gapen, Gray, Lim and Xiao (2008), "Measuring and Analyzing Sovereign Risk with Contingent Claims", *IMF Staff Papers*, Vol. 55, No. 1.

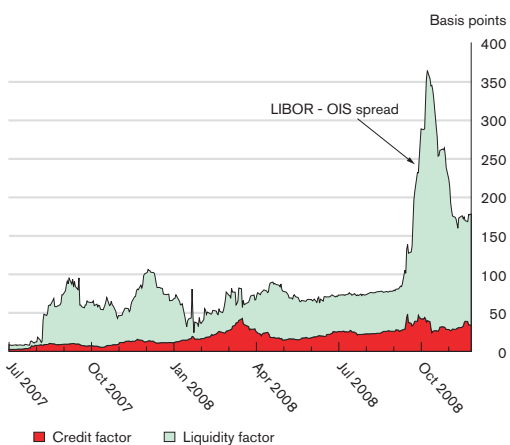
<sup>33</sup> See Manning (2004), "Exploring the Relationship between Credit Spreads and Default Probabilities", *Bank of England Working Paper No. 225*.

**Chart B5.2**  
**Decomposition of 3-month Hong Kong dollar HIBOR – OIS spreads**



Source: HKMA estimates.

**Chart B5.3**  
**Decomposition of 3-month US dollar LIBOR – OIS spreads**



Source: HKMA estimates.

*Stress in the interbank market - credit and liquidity factors*

Chart B5.2 shows the decomposition of 3-month HIBOR – OIS spreads into credit and liquidity risk factors from July 2007 onwards. It is shown that the HIBOR – OIS spread widened in September 2007 following reports of significant asset write-downs by major US and European banks due to sub-prime-related investments. A significant portion of the spread was due to the increase in liquidity risk premium. While the spread fell in January 2008, it remained high as the credit risk premium rose again during the Bear Stearns event in March 2008. Following the collapse of Lehman Brothers in September 2008, local interbank liquidity and credit risks increased, leading to the sharp rise in the HIBOR – OIS spread. Compared with the decomposition of the 3-month US dollar LIBOR – OIS spreads based on the same methodology in Chart B5.3, the situations in these two interbank markets are very similar.<sup>34</sup> This may suggest that the tightened Hong Kong dollar interbank market was feeding through from the effects in the US dollar money market.

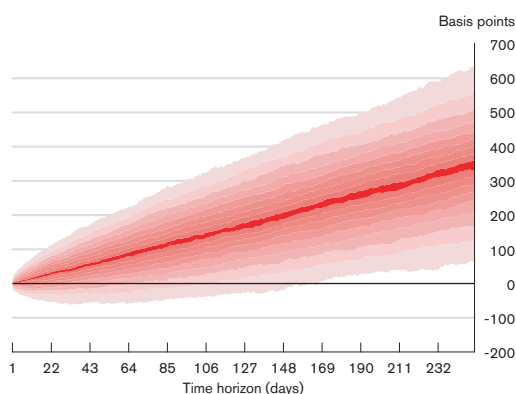
With new measures to support confidence in the Hong Kong banking system and global efforts to support financial stability, local liquidity conditions have eased further in November 2008 and the HIBOR – OIS spread has come down. In summary, the decomposition method provides a tool for measuring and monitoring credit and liquidity risk factors in a stressed interbank market.

<sup>34</sup> The decomposition is based on the CDS prices for banks in the US dollar LIBOR panel.

## Box 6

### A liquidity risk stress-testing framework with interaction between market and credit risks

**Chart B6.1**  
**Simulated paths of cumulative changes in credit spreads of high-yield non-financial corporate bonds**

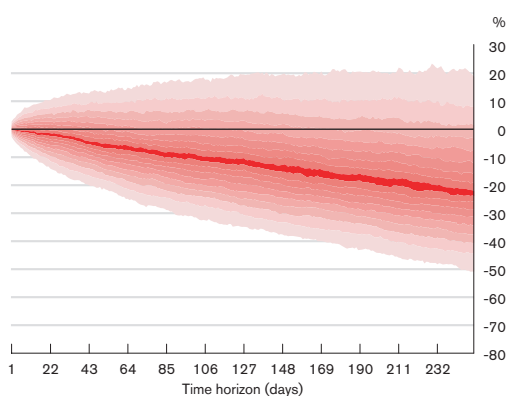


**Notes:**

1. The spread is defined as the difference between the yield-to-maturity of the JPMorgan Global High-yield Index and the 7-year swap rate.
2. The time series of the spreads for the period July 2007 - June 2008 (i.e. after the onset of the sub-prime crisis) is used for simulations.

Sources: JPMorgan, Bloomberg and staff estimates.

**Chart B6.2**  
**Simulated paths of cumulative percentage changes in prices of Hong Kong equities**



Note: The time series of the HSI for the period mid-March 2000 to October 2002 (i.e. after the burst of the internet bubble) is used for simulations.

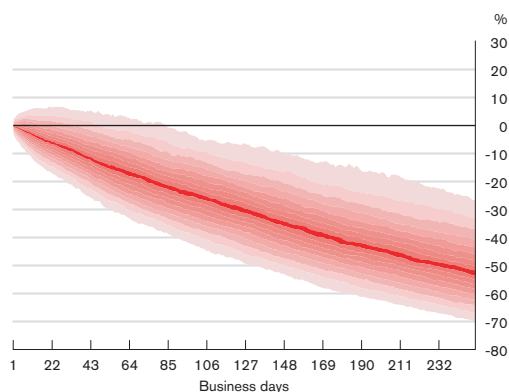
Sources: Bloomberg and staff estimates.

As illustrated by recent developments in the US and European banking systems, the interaction of market and credit risks for banks can lead to systemic crises. While the banking systems in most other economies have so far remained relatively resilient, they are not immune to similar crises because of three common features running through all banking systems. First, banks' balance sheets are inevitably exposed to common market risk factors, as they generally hold similar financial assets. Thus, significant asset price declines, even in a single market, could expose many banks to substantial market-risk losses. Secondly, the capital available for banks to serve as a buffer against such losses is limited, as banks usually operate with a relatively high level of financial leverage. This suggests that banking systems in general are vulnerable to multiple default risk during severe market shocks. Thirdly, interbank markets are sensitive to default risk. Significant increases in the default risk of banks could result in tightened interbank markets, creating systemic liquidity shortages. It is however noted that the resilience of a banking system would depend on other bank-specific factors too (e.g. some well-managed banks may be able to anticipate a crisis and take pre-emptive measures to contain losses).

For banking stability it is, therefore, important to assess the extent to which a banking system is exposed to such an interaction of risks. This Box introduces a new stress-testing framework to assess the liquidity risk of banks in this context. In the framework, we assume there is a prolonged period (one year) of negative exogenous asset price shocks in some major financial markets, including debt, equities and structured financial assets. The asset price shocks are simulated from their historical price movements, where the respective asset prices had declined significantly. For debt securities, the shocks are imposed by simulating future paths of the risk-free interest rate, credit spreads of AAA, AA, A, BBB, and high-yield non-financial corporate bonds. Shocks for equities and structured financial assets are simulated from

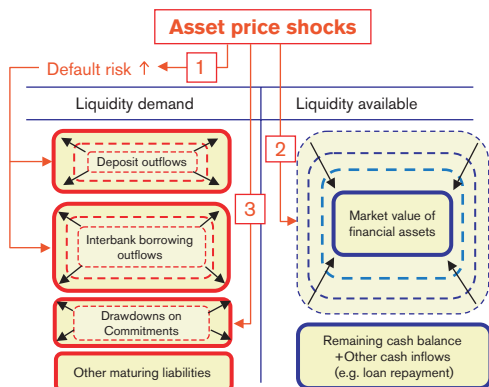


**Chart B6.3**  
**Simulated paths of cumulative percentage changes in prices of structured financial assets**



Note: The time series of the ABX Index (2007 H1 AAA) for the period July 2007-June 2008 (i.e. after the onset of the sub-prime crisis) is used for simulations.  
 Sources: JPMorgan and staff estimates.

**Chart B6.4**  
**Impacts of asset price shocks on banks' liquidity**



selected price indices.<sup>35</sup> The simulated paths of the asset price shocks for high-yield corporate bonds, Hong Kong equities and structured financial assets are shown in Charts B6.1 to B6.3 respectively.

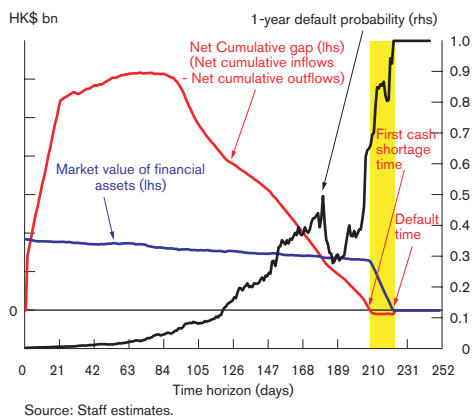
Chart B6.4 illustrates how the asset price shocks increase banks' liquidity risk through three channels. First, severe mark-to-market losses on the banks' assets increase their default risk and thus induce significant retail and interbank deposit outflows. In the framework, the linkage between market and default risks of banks is implemented using a Merton-type model, while the relationship between default risk and retail deposit outflows is estimated econometrically. The sensitivity of interbank deposit outflows to default risk is revealed from the Bear Stearns debacle. Secondly, the ability to generate liquidity from asset sales continues to evaporate due to the shocks. Thirdly, banks are exposed to contingent liquidity risk, as the likelihood of drawdowns on their irrevocable commitments increases in such stressful financial environments.<sup>36</sup>

Contagion risk is also incorporated in the framework through banks' linkage in the interbank and capital markets. Specifically, an increase in default risk of a bank will reduce the market value of its outstanding debt. Other banks that either have interbank lending to the bank or hold some debt securities issued by the bank will experience mark-to-market losses on their assets, and thus be exposed to higher default risk.

<sup>35</sup> The HSI and the MSCI World Equity Index are selected as the price indices for equities listed in Hong Kong and elsewhere respectively. For simplicity, we assume that a majority of structured financial assets are related to US sub-prime mortgages. Therefore, the ABX Index, which is a credit default swap index for sub-prime mortgage-backed securities, is selected as the price index for structured financial assets.

<sup>36</sup> An obvious observation regarding contingent liquidity risk in the sub-prime crisis is that the risk is highly correlated with the prices of sub-prime mortgage-related securities. During the turmoil, some banks bailed out some special investment vehicles (SIVs) because of either contractual obligations or reputational concerns, posing a significant contingent liquidity risk to the banks. The SIVs which needed to be bailed out usually experienced significant declines in their net asset values as a result of decreases in the prices of sub-prime mortgage-related securities. To incorporate this into the framework, we postulate that a portion of banks' irrevocable credit commitments is correlated with the prices of sub-prime mortgage-related assets.

**Chart B6.5**  
**An illustrative example for simulations**  
**of the first cash shortage time**  
**and default time**



With this framework, daily cash outflows of individual banks can be simulated given the exogenous asset price shocks. For any business day  $t$  in the 1-year stress period<sup>37</sup>, each bank is assumed to counterbalance the simulated cash outflows by using the cash available at  $t$  (the sum of operating income arrived at  $t$ , the interbank lending, loans to customers and financial assets matured at  $t$ , and the remaining cash balance at the close of the previous business day). We assume that all banks cannot generate additional liquidity by taking more deposits, and they have to liquidate financial assets to offset cash outflows if there is a shortfall in cash.

Using the Monte Carlo method, the framework quantifies liquidity risk of individual banks by estimating two indicators, the expected first cash shortage time (FCST) and the expected default time (DT). A bank's FCST is defined as the first business day that the bank fails to meet its liquidity outflows by its cash balance, and DT is defined as the first business day that the bank fails to meet its liquidity outflows even after liquidating all its saleable financial assets. Chart B6.5 shows an illustrative example of simulations of the FCST and DT, together with the simulated evolution of other important variables in the stress period amid the asset price shocks, including the market value of financial assets, the net cumulative gap (defined as the net cumulative cash inflows minus the net cumulative cash outflows) and the 1-year default probability of a bank.

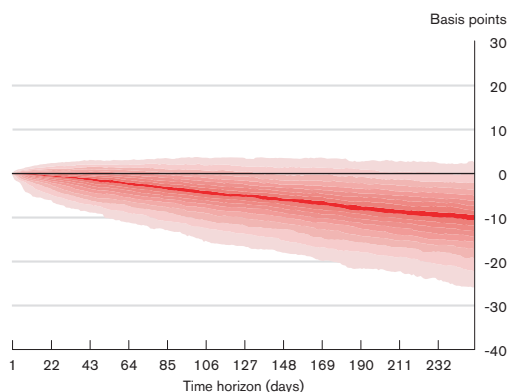
The framework is applied to a group of 12 listed banks in Hong Kong. Data for the banks' balance sheets, including the maturity profile of assets and liabilities, and the composition of financial assets, are mainly from their 2007 annual financial reports, except for the banks' exposures on structured financial assets, which are supplemented by Fitch (2008).<sup>38</sup>

Two stress scenarios, A and B, are considered in this study. The severity of major asset price shocks is assumed to be the same in these two scenarios, but Scenario B is more severe than Scenario A in other

<sup>37</sup> We assume there are 252 business days in the 1-year stress period.

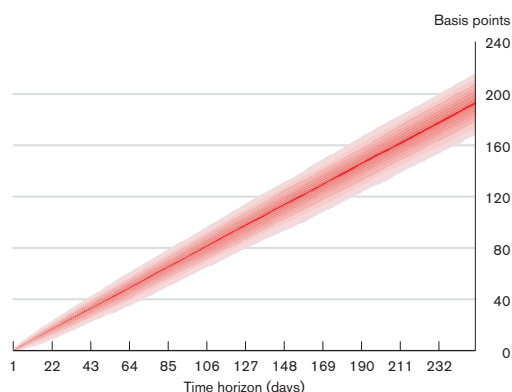
<sup>38</sup> Fitch Ratings (2008), "Banks in Asia excluding Japan: Update on Exposure to Sub-prime and Structured Credit Products".

**Chart B6.6**  
**Simulated paths of cumulative changes in the risk-free interest rate in Scenario A**



Note: The time series of the 3-month USD LIBOR for the period August 2006 - July 2007 is used for simulations.  
 Sources: Bloomberg and staff estimates.

**Chart B6.7**  
**Simulated paths of cumulative changes in the risk-free interest rate in Scenario B**



Note: The time series of the 3-month USD LIBOR for the period July 2004 - June 2006 is used for simulations.  
 Sources: Bloomberg and staff estimates.

assumptions. Scenario A assumes a neutral stance of the US monetary policy and thus the risk-free interest rate hovers around the initial level in the stress horizon, while Scenario B assumes that interest rate hikes occur due to US monetary policy tightening (Charts B6.6 and B6.7). In addition, other assumptions, such as the extent to which the asset price disruptions affect the banks' operating income, the asset quality of their loan portfolios, and the likelihood of drawdowns of banks' irrevocable commitments are more severe in Scenario B. Details of the assumptions in Scenarios A and B are presented in Table B6.A.

Based on the two indicators, FCST and DT, the stress-testing results suggest that the liquidity risk of banks in Hong Kong would be contained in the face of a prolonged period of asset price shocks under Scenario A. However, a few banks would be subject to significant liquidity risk when such shocks coincided with interest rate hikes due to monetary tightening (in Scenario B). Such tightening is, however, relatively unlikely in the context of the shocks.

**Table B6.A**  
**Assumptions in stress Scenarios A and B**

Assumptions	Scenario A	Scenario B
Stance of the US monetary policy	Neutral	Tightening
Classified loan ratio	Increases by 200 basis points	Increases by 500 basis points
Returns on assets	Decreases by 25%	Decreases by 50%
Portion of sub-prime mortgage-related irrevocable commitments	5%	10%

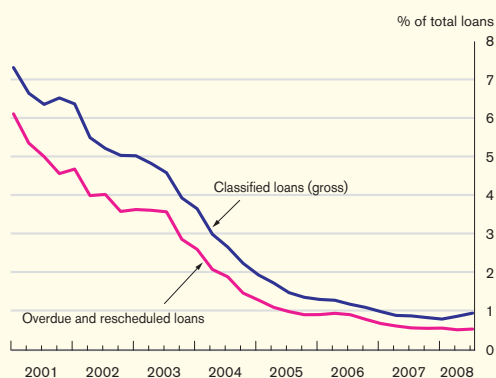
**Table 3.B**  
**Simulated impact on the interest margin of mortgage loans acquired in the last year<sup>1,2</sup>**

	Basis points
Average pricing of mortgage loans acquired in the last year	280
<b>HIBOR-financed loans</b>	
Funding Cost <sup>3</sup>	221
Current Net Mortgage Margin <sup>4</sup>	19
Estimated Reduction of Mortgage Margin	41
<i>Simulated Net Mortgage Margin after Impact</i>	-22
<b>Time deposit rate-financed loans</b>	
Funding Cost <sup>3</sup>	210
Current Net Mortgage Margin <sup>4</sup>	30
Estimated Reduction of Mortgage Margin	4
<i>Simulated Net Mortgage Margin after Impact</i>	26
<b>Effective deposit rate-financed loans</b>	
Funding Cost <sup>3</sup>	112
Current Net Mortgage Margin <sup>4</sup>	128
Estimated Reduction of Mortgage Margin	3
<i>Simulated Net Mortgage Margin after Impact</i>	125

Notes:

- For a detailed description of the model, see "Interest Rate Risk in the Pricing of Banks' Mortgage Lending", *HKMA Research Memorandum 05/2005*. The simulation is for the 12 months ending October 2009. It is based on the market situation up to end-October 2008, with the use of monthly average data up to that month.
- Under the scenario of an increase in 200 basis points in HIBORs.
- Proxied by the simple average of the composite interest rate of selected retail banks based on their sources of funds.
- Current net mortgage margin is derived by subtracting the funding cost as well as the operating and credit costs from the average mortgage pricing. The operating and credit costs are estimated to be 30 basis points and 10 basis points respectively.

**Chart 3.24**  
**Asset quality of retail banks**



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

Source: HKMA.

### 3.7 Interest rate risk

A major interest rate risk facing the banking sector is the basis risk stemming from the relationship between the BLRs and HIBORs. To some extent, this is an outcome of fierce competition in the mortgage markets, which leads to thin interest margins to serve as a buffer against the basis risk. As the mortgages acquired by banks in the past year or so were generally priced at BLR minus 2.75% to 3.00%<sup>39</sup>, the average effective mortgage rate of banks' mortgage portfolios may be lowered to less than 2.75% to 3.00%. The recent surge in the HIBORs could turn the mortgage portfolios of banks that rely on interbank funding into loss-making assets. Table 3.B presents the simulation results of the impact of interest rate increases on RMLs over the next 12 months. The simulation incorporates the transmission effect of an increase of 200 basis points in HIBORs on BLRs. The results show that, if a sudden rise in HIBORs by 200 basis points occurs, the net interest margin of HIBOR-financed RMLs would be negative (-22 basis points). Banks that are reliant on interbank markets to fund their mortgage portfolios should closely monitor the basis risk.

### 3.8 Credit risk

The asset quality of retail banks remained healthy during the six months to September 2008. In the *June 2008 Report*, we pointed out that some signs had appeared of a modest deterioration in the credit risk of corporate lending. This risk appears to have increased since the previous assessment. The classified loan ratio registered its first increase since December 2001 to 0.88% in June 2008 from 0.81% in March 2008. The ratio increased further to 0.96% in September. In addition, the ratio of overdue and rescheduled loans increased to 0.55% in September 2008 from 0.53% in June, after decreasing from 0.57% in March 2008 (Chart 3.24).

<sup>39</sup> Recent information up to the end of November 2008 showed that some mortgage loans were priced at BLR minus 2.25% to 2.5%.

**Table 3.C**  
**Loans for use in Hong Kong by AIs**

	Quarter-on-quarter % changes				Share of total (%) Sep 2008
	Dec 2007	Mar 2008	Jun 2008	Sep 2008	
Loans for use in Hong Kong <sup>1</sup>	-4.5	6.3	4.7	2.7	
Of which:					
Trade financing	4.1	8.4	15.2	-2.9	7.9
Mortgages <sup>2</sup>	2.2	2.4	2.7	0.7	23.5
Manufacturing	1.7	16.1	4.9	4.5	5.5
Transport and transport equipment	6.0	5.2	-0.1	6.3	5.8
Electricity and gas	9.4	-2.1	14.1	-5.4	1.1
Information technology	-11.7	34.6	8.1	25.6	1.3
Building, construction, property development and investment	4.2	6.2	4.6	4.4	23.9
Wholesale and retail trade	2.8	16.6	15.5	0	5.6
Financial concerns <sup>3</sup>	9.5	7.2	1.4	9.5	10.7
Stockbrokers	-86.4	-4.2	-19.0	-20.6	0.4
Credit card advances	8.7	-6.1	1.6	0.4	2.5

Notes:

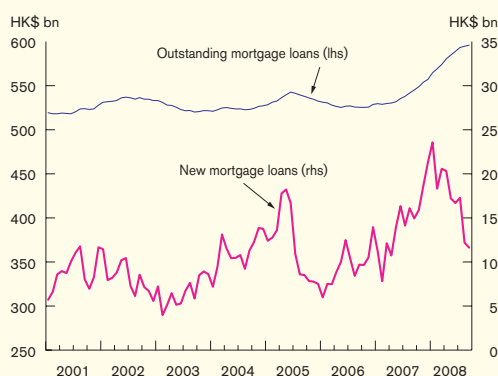
<sup>1</sup> Including trade financing loans.

<sup>2</sup> Mortgage loans include loans for the Home Ownership Scheme, the Private Sector Participation Scheme and the Tenants Purchase Scheme.

<sup>3</sup> Loans for financial concerns include loans to investment and insurance companies, futures brokers and finance companies.

Source: HKMA.

Domestic lending by AIs grew by 4.7% and 2.7% in the second and third quarters of 2008 respectively, after expanding by 6.3% in the first quarter. It appears the growth momentum slowed somewhat amid a highly uncertain economic environment. The performance of loans to different economic sectors varied (Table 3.C). Property-related loans increased. Credit for building, construction, property development and investment increased further by 4.4% and 4.6% in 2008 Q3 and Q2 respectively. Against the backdrop of weakening property market sentiment, residential mortgage lending edged up by just 0.7% in 2008 Q3, after increasing by 2.7% in 2008 Q2 (Chart 3.25). The share of property-related loans in total domestic lending decreased slightly to 47.4% in September 2008, from 47.9% in the *June 2008 Report*.

**Chart 3.25**  
**Outstanding and new mortgage loans of surveyed AIs**


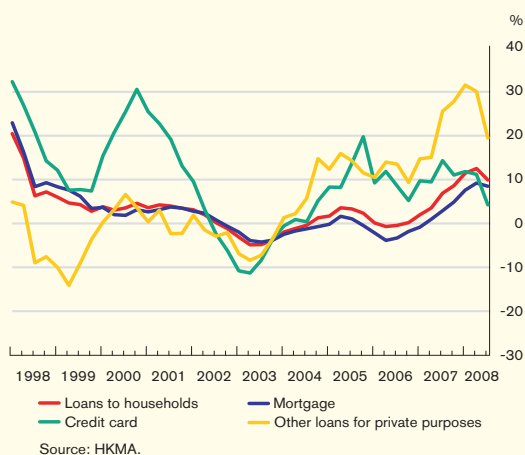
Source: Residential Mortgage Survey, HKMA.

Lending to stockbrokers continued to shrink and registered decreases of 19.0% and 20.6% in 2008 Q2 and Q3 respectively, in line with the poor performance of the local stock market in the assessment period. Despite this, lending to financial concerns, which mainly comprises lending to investment companies, continued to grow by 9.5% in 2008 Q3, after expanding by 1.4% in 2008 Q2. With the higher counterparty risk of financial institutions amid the current financial crisis, the asset quality of such loans should warrant closer monitoring.

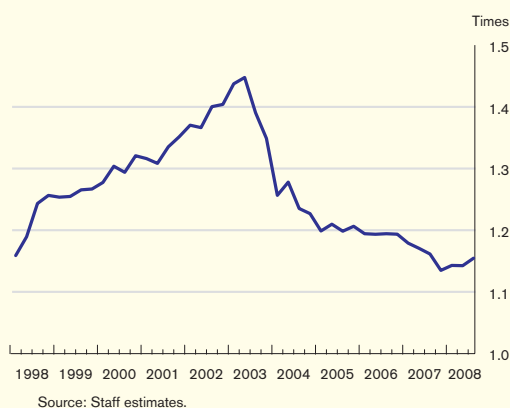
Among other sectors, loans to the information technology and manufacturing sectors registered significant growth, while loans to the transport and transport equipment sector reversed the decline of 0.1% in 2008 Q2 and expanded by 6.3% in 2008 Q3. By contrast, loans to the electricity and gas, and trading financing sectors decreased in 2008 Q3, after expanding in 2008 Q2. Credit card lending and loans to the wholesale and retail trade sector increased marginally in 2008 Q3, having increased in 2008 Q2.

The loan growth along with the benign economic environment of the previous three quarters appears difficult to maintain in view of the current turmoil. With the deteriorating business climate, banks might tighten credit supply and this may have a negative impact on economic prospects, as an adverse cycle begins to develop.

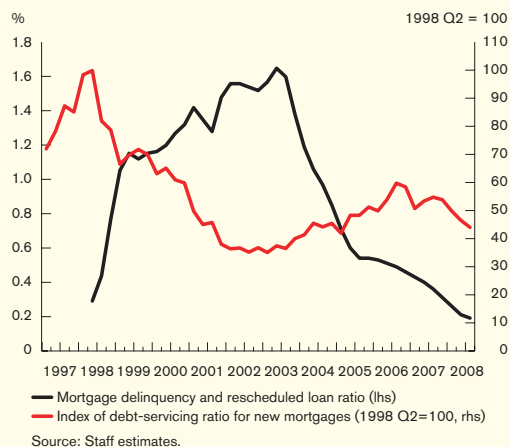
**Chart 3.26**  
Annual growth of lending to households by AIs



**Chart 3.27**  
Effective housing capital gearing ratio



**Chart 3.28**  
Household debt-servicing burden of new mortgages



### Household exposures

Loans to households<sup>40</sup> accounted for 31.4% of total loans for use in Hong Kong<sup>41</sup> in September 2008. The share has dropped steadily since September 2002.

Loans to households grew by 9.7% year on year in September 2008, slowing from the 11.2% growth in the *June 2008 Report*. This was due mainly to the slower growth momentum of unsecured household loans. Reflecting this, credit card lending and other loans for private purposes grew less rapidly by 4.0% and 19.1% year on year in September 2008 respectively, compared with 11.6% and 31.3% respectively in the *June 2008 Report*. By contrast, mortgage loans grew by 8.2%, which was slightly higher than that in the last assessment (Chart 3.26).

The indicators of the vulnerability of household sector debt have been mixed in the six-month period. The effective housing capital gearing, defined as the ratio of market value of total housing stocks to their net asset value<sup>42</sup>, edged up to 1.16 in September 2008 from 1.14 in March, as a result of falls in property prices during the period (Chart 3.27).

However, the index of debt-servicing ratio for new mortgage loans<sup>43</sup>, which serves as an indicator of the debt burden of mortgagors, decreased further to 44.0 in 2008 Q3 from 48.9 in 2008 Q1 (Chart 3.28). The improvement in the debt-servicing burden of new mortgages was mainly due to decreases in the average mortgage loan amount.

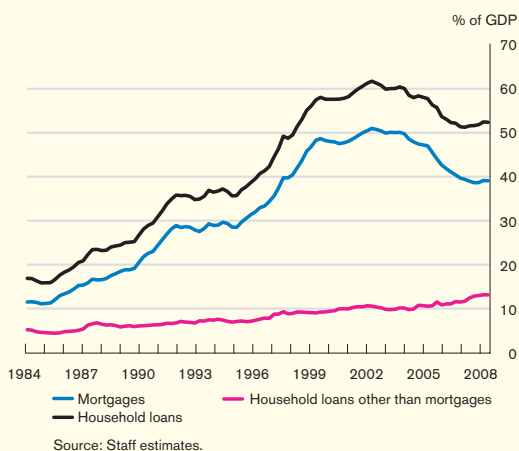
<sup>40</sup> Loans to households constitute lending to professional and private individuals, excluding those for business purposes. Mortgage lending accounts for a major proportion of loans to households, while the remainder comprises mainly unsecured lending via credit cards and other personal loans for private purposes.

<sup>41</sup> Loans for use in Hong Kong include trade financing loans.

<sup>42</sup> Defined as the market value subtracted by the outstanding mortgage lending from banks.

<sup>43</sup> 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 quality of household debt.

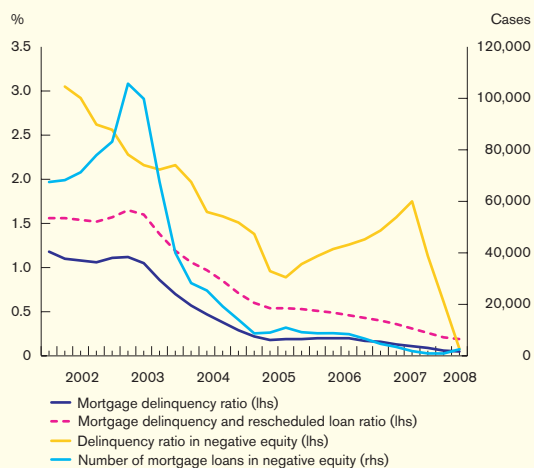
**Chart 3.29**  
**Household debt leverage**



On the other hand, the ratio of household debt to GDP remained unchanged at 52% at the end of September 2008 (Chart 3.29). The current ratio level is still significantly lower than its peak of 61%.<sup>44</sup>

The asset quality of banks' overall mortgage portfolios continued to improve. The delinquency ratio reached a record low of 0.05% in October 2008, down from 0.08% in April. The rescheduled loan ratio also fell to 0.13% from 0.16%. At the same time, the delinquency ratio of negative mortgage loans also decreased to 0.08% in September 2008, from 1.13% in March. The number of negative equity cases, however, increased to 2,568 at the end of September 2008 from 953 at the end of March. This compares with a peak of about 106,000 cases at the end of June 2003. The increase was primarily a result of declining property prices (Chart 3.30).

**Chart 3.30**  
**Negative equity and mortgage delinquency ratio of surveyed AIs**



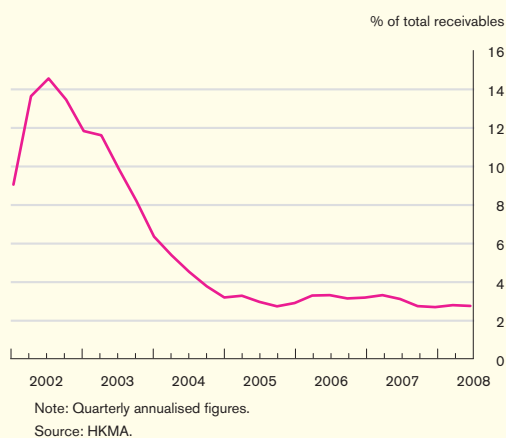
Notes:

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 end-June 2003.

Source: HKMA.

<sup>44</sup> In 2002 Q2.

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

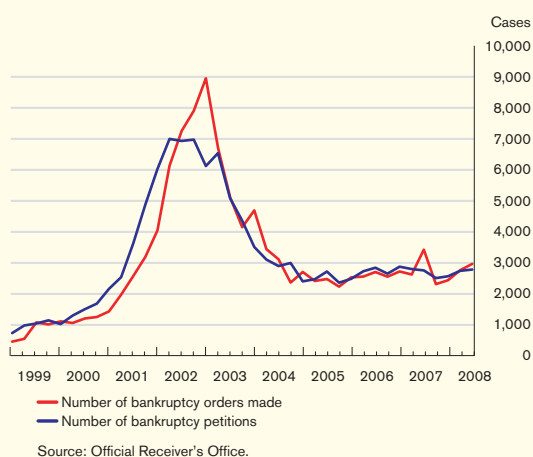


On the asset quality of the credit card portfolio, the annualised charge-off ratio increased slightly to 2.74% in 2008 Q3 from 2.68% in 2008 Q1 (Chart 3.31). By contrast, the number of bankruptcy orders made and petitions presented fell to 8,808 and 9,063 respectively in the first ten months of 2008, representing decreases of 9.7% and 3.0% compared with the same period last year (Chart 3.32).

**Corporate exposures<sup>45</sup>**

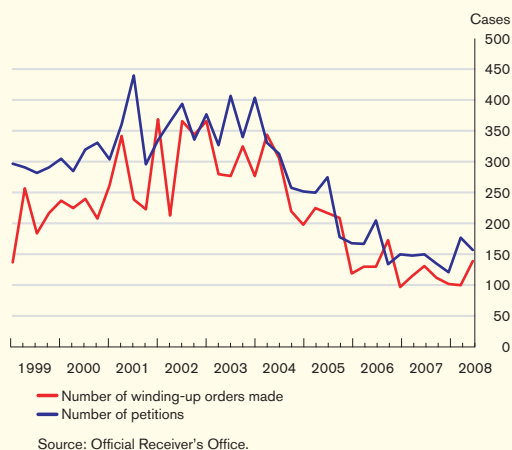
In September 2008, loans to corporations accounted for 68.1% of loans for use in Hong Kong<sup>46</sup>, and grew less rapidly by 8.9% year on year in September 2008, compared with 15.7% growth reported in the *June 2008 Report*.

**Chart 3.32**  
**Number of bankruptcies**



With the worsening business climate, various indicators showed that the credit risk of corporate loans deteriorated somewhat in the assessment period. The credit risk of the corporate sector, as shown by statistics on compulsory winding-up of companies, increased. In the first ten months of 2008, the number of bankruptcy petitions presented by companies increased by 5.9% from the same period last year to 521, while the number of orders made edged up by 0.8% to 386 (Chart 3.33).

**Chart 3.33**  
**Winding-up orders and petitions**

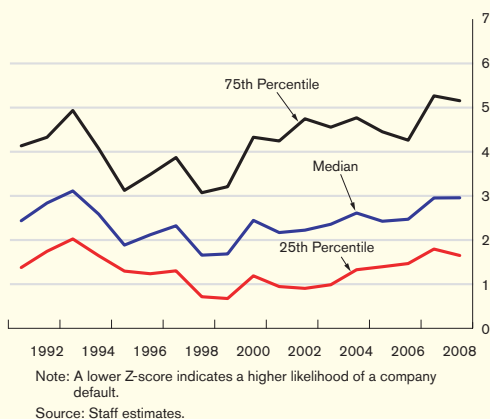


<sup>45</sup> Excluding interbank exposures.

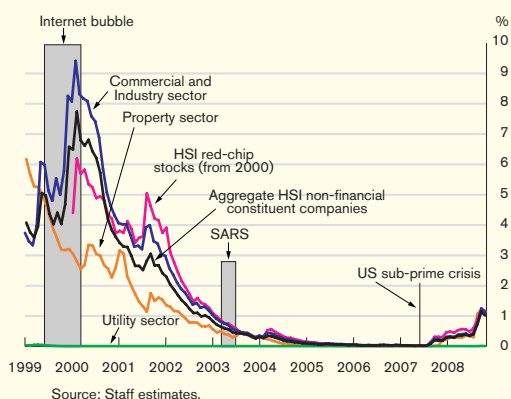
<sup>46</sup> Loans to corporations comprise loans for use in Hong Kong (including trade financing loans) except lending to professional and private individuals.



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



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



The Altman's Z-score<sup>47</sup>, which 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, indicated that the health of the non-financial corporate sector in Hong Kong worsened slightly in 2008 (Chart 3.34).<sup>48</sup>

At the same time, the aggregate default probability estimates of the HSI non-financial constituent companies<sup>49</sup> increased to 1.0% in November 2008, from 0.4% in the *June 2008 Report* (Chart 3.35). The increase was due mainly to a sharply lower and more volatile equity market, reflecting a deteriorating credit outlook for the local corporate sector against the backdrop of a highly uncertain economic environment. Nevertheless, compared with the recent peak level of 7.7% following the bursting of the internet bubble, the current level of default risk appears to be moderate. The estimates for individual HSI constituent sectors and the red-chip constituent stocks broadly follow the same trend.

### China exposures

Retail banks' aggregate exposures to non-bank Chinese entities increased further to HK\$696 billion (9.3% of total assets) at the end of September 2008, from HK\$628 billion (8.6% of total assets) at the end of March. For the banking sector as a whole, the total amount of non-bank Chinese exposures also increased to HK\$949 billion (7.9% of total assets) from HK\$890 billion (7.4% of total assets). The banking sectors' aggregate exposures to companies and individuals for purchasing properties in China increased marginally to HK\$12 billion at the end of September 2008.

<sup>47</sup> See Altman (2000), "Predicting Financial Distress of Companies: Revisiting the Z-score and ZETA models", *Working Paper*, New York University. 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.

<sup>48</sup> Non-financial corporations refer to companies listed on the Hong Kong Main Board and the Growth Enterprise Market, excluding H-share companies, investment companies, and those engaged in banking, insurance and finance. Data are from Thomson Financial. The 2008 figures are preliminary and cover only a limited number of companies that had reported their 2008 interim results by the time of writing. They are subject to revision and should be used with caution.

<sup>49</sup> Details of the methodology can be found in Yu and Fung (2005), "A Structural Approach to Assessing the Credit Risk of Hong Kong's Corporate Sector", *HKMA Research Memorandum 24/2005*.

**Chart 3.36**  
**Aggregate default probabilities of non-financial constituent companies of the SSE 180 A-share Index**



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

Credit loss (CL) (%) <sup>1</sup>	Baseline scenarios	Stressed scenarios			
		GDP shock <sup>2</sup>	Property price shock <sup>3</sup>	Interest rate shock <sup>4</sup>	Mainland China GDP shock <sup>5</sup>
Mean	0.33	1.19	0.97	0.67	0.42
VaR at 90% CL <sup>6</sup>	0.67	2.02	1.67	1.26	0.85
VaR at 95% CL	0.86	2.41	2.04	1.58	1.10
VaR at 99% CL	1.38	3.37	2.94	2.43	1.75
VaR at 99.9% CL	2.34	4.88	4.47	3.88	2.92
VaR at 99.99% CL	3.38	6.56	6.22	5.69	4.86

Notes:

1. Measured as a percentage of the loan portfolios.
  2. Reductions in Hong Kong's real GDP (2005 Chain) by 2.3%, 2.8%, 1.6%, and 1.5% respectively in each of the four consecutive quarters starting from 2008 Q4 to 2009 Q3.
  3. Reductions in Hong Kong's real property price by 4.4%, 14.5%, 10.8%, and 16.9% respectively in each of the four consecutive quarters starting from 2008 Q4 to 2009 Q3.
  4. A rise in real interest rates (HIBORs) by 300 basis points in the first quarter, followed by no change in the second and third quarters and another rise of 300 basis points in the fourth quarter.
  5. A fall in Mainland China's real GDP by 3.0% in only the first quarter (i.e. 2008 Q4).
  6. CL denotes the confidence level.
- Source: Staff estimates.

The aggregate default probabilities of the Chinese corporate sector, which are estimated using equity prices and financial data of non-financial constituent companies of the SSE 180 A-share Index<sup>50 & 51</sup>, suggested that banks in Hong Kong involved in China lending may be exposed to increasingly high credit risk (Chart 3.36).

### Macro stress testing of credit risk<sup>52</sup>

Using the macro stress testing framework<sup>53</sup>, the ability of the current Hong Kong banking sector to withstand a variety of macroeconomic shocks is assessed. The shocks include reductions in Hong Kong's real GDP, falls in the Mainland real GDP, rises in real interest rates, and reductions in real property prices.<sup>54</sup> The assessments assume the economic conditions in 2008 Q3 as the current environment, and examine the effect of these individual shocks on the credit losses of the banking sector for a two-year period (up to the end of 2010 Q3). The Monte Carlo simulation method is adopted to generate the credit loss distribution for each stress scenario. The simulated distributions of credit losses of the banking sector for the baseline scenario, which assumes current economic conditions, and for the four stressed scenarios with different macroeconomic variables as the stress origin are presented in Table 3.D.

In the baseline scenario, the expected credit loss rate in 2010 Q3 is 0.33% of the total loan portfolios. Introducing the hypothetical shocks substantially increases the expected credit loss rate, which would range from 0.42% (Mainland China GDP shock) to 1.19% (Hong Kong GDP shock).

<sup>50</sup> 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. The default probabilities are derived from a structural model proposed 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. Details of the methodology can be found in Yu and Fung (2005).

<sup>51</sup> Following the announcement of the fiscal stimulus package of RMB4 trillion by the State Council, the aggregate default probabilities of the Chinese corporate sector decreased to around 4% at the end of November 2008 from the peak of about 6% at the end of October 2008.

<sup>52</sup> Macro stress testing refers to a range of techniques used to assess the vulnerability of a financial system to "exceptional but plausible" macroeconomic shocks.

<sup>53</sup> 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.

<sup>54</sup> The shocks are calibrated to be similar to those occurring during the Asian financial crisis. For details, see notes of Table 3.D.

Focusing on the tails of the credit loss distributions, Table 3.D shows that even for the VaR at the confidence level of 90%, banks would continue to make a profit in some stressed scenarios<sup>55</sup>, suggesting that the current credit risk of the banking sector is moderate. However, under the extreme case for the VaR at the confidence level of 99.9%, banks' maximum credit loss with shocks from different origins would range from 2.92% (Mainland China GDP shock) to 4.88% (Hong Kong GDP shock) of the portfolios. The estimated maximum losses are similar to those experienced by the market after the Asian financial shock.<sup>56</sup> Nevertheless, the occurrence of such extreme scenarios would have a very small probability.

### 3.9 Systemic risk of the banking system

Based on the latest information in 2008 Q3, the composite early warning system of banking distress<sup>57</sup> indicates that the banking sector remained resilient. The risk of systemic banking distress in Hong Kong appeared to be contained, with the estimated probability of banking distress continuing to fall within the range of the lowest fragility category.<sup>58</sup>

It should, however, be pointed out that as equity prices of bank stocks fell and their volatility increased in the assessment period, some financial market indicators seemed to perceive a higher risk compared to the

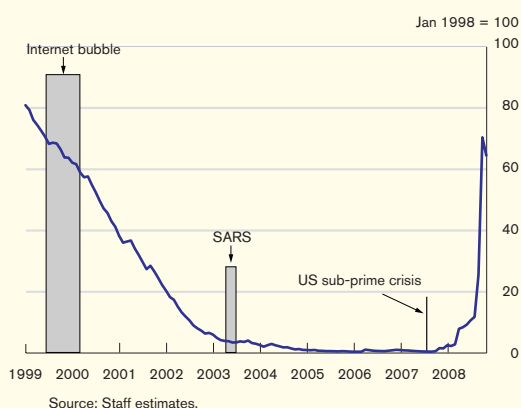
<sup>55</sup> For retail banks' pre-tax operating profit as a percentage of total assets, see Chart 3.14.

<sup>56</sup> In the event, 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.

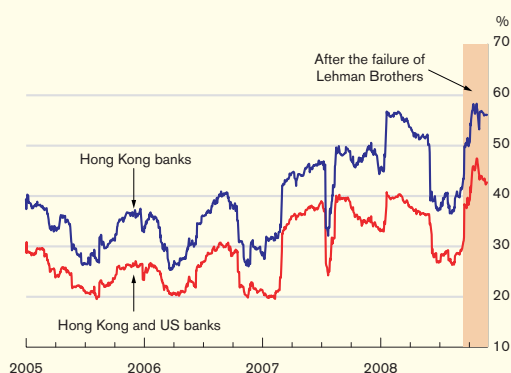
<sup>57</sup> The composite early warning system is capable of estimating banking distress probability based on 10 leading indicators. These include macroeconomic fundamentals, currency crisis vulnerability, default risk of banks and non-financial companies, asset price misalignments, credit growth, and the occurrence of banking distress in other Asia-Pacific economies. 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*.

<sup>58</sup> The composite early warning system is a four-level risk rating system. We follow Demirgüç-Kunt and Detragiache (2000), "Monitoring Banking Sector Fragility: A Multivariate Logit Approach", *World Bank Economic Review*, Vol. 14(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 per cent respectively.

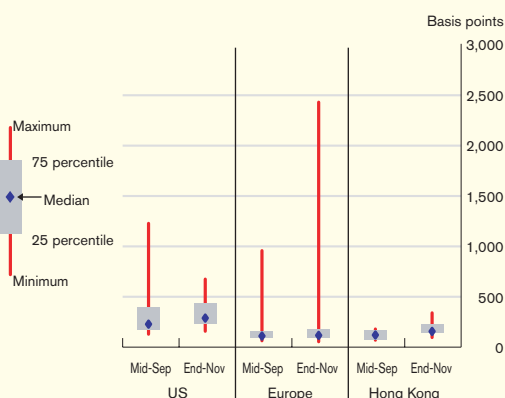
**Chart 3.37**  
The banking distress index  
(Jan 1998 = 100)



**Chart 3.38**  
Co-movement of banks' equity returns



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



assessment based on the composite early warning system.<sup>59</sup> In particular, the banking distress index<sup>60</sup> (January 1998 =100) of banks in Hong Kong, which is mainly constructed by equity data, increased from about 7 in April 2008 to 25 in September and surged further to 64 at the end of November, reaching a similar level to that registered following the bursting of the internet bubble (Chart 3.37). The sharp increase in the index since September was due mainly to the higher volatility and co-movements of equity returns of banks both within and between the Hong Kong and US stock markets, following the failure of Lehman Brothers (Chart 3.38). Although this index is a partial indicator compared with the composite early warning system, its recent sharp spike does highlight the risk assessment of the banking system by financial market participants, which probably reflects the effects of the distressed US and European banking systems feeding through to the Hong Kong banking system. Such interdependency was evident in the tightened interbank liquidity in the US, Europe and Hong Kong markets during 2008 Q3 (see Section 3.6 above).

The feeding through effect was also reflected in the CDS market, where CDS spreads of financial institutions in the US, Europe and Hong Kong increased generally since mid-September. It should be noted, however, that compared with their US and European counterparts, the risk level of individual banks in Hong Kong was still very moderate (Chart 3.39).

### 3.10 Foreign currency position

The overall foreign currency position, including both spot and forward, for all AIs stood at HK\$55 billion at the end of August 2008. The position has been declining steadily from its record high of HK\$98.5 billion at the end of May 2003.

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

<sup>59</sup> Their negative impacts on the composite early warning system, however, were partially offset by improvement in the asset price misalignments.

<sup>60</sup> The banking distress index was formerly named as the multiple default risk index of the banking system in Hong Kong in 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.E**  
**Key performance indicators of the banking sector<sup>1</sup> (%)**

	Sep 2007	Jun 2008	Sep 2008
<b>Interest rate</b>			
1-month HIBOR <sup>2</sup> (Quarterly average)	4.62	1.62	2.14
3-month HIBOR (Quarterly average)	4.64	2.03	2.42
BLR <sup>3</sup> and 1-month HIBOR spread (Quarterly average)	3.10	3.63	3.11
BLR and 3-month HIBOR spread (Quarterly average)	3.08	3.22	2.83
Composite interest rate <sup>4</sup>	3.34	0.85	1.18
<b>Retail banks</b>			
<b>Balance sheet developments<sup>5</sup></b>			
Total deposits	6.7	1.4	4.6
Hong Kong dollar	7.6	-2.0	4.2
Foreign currency	5.1	6.3	5.2
Total loans	5.4	5.0	2.3
Loans to customers inside Hong Kong <sup>6</sup>	5.2	4.3	2.6
Loans to customers outside Hong Kong <sup>7</sup>	8.7	13.2	-0.3
Negotiable instruments			
Negotiable certificates of deposit issued	-11.4	-22.3	-0.9
Negotiable debt instruments held	0.2	-2.4 <sup>r</sup>	-2.8
<b>Asset quality<sup>8</sup></b>			
As percentage of total loans			
Pass loans	97.47	97.75	97.61
Special mention loans	1.64	1.38	1.43
Classified loans <sup>9</sup> (gross)	0.89	0.88	0.96
Classified loans (net) <sup>10</sup>	0.67	0.68	0.70
Overdue > 3 months and rescheduled loans	0.58	0.53	0.55
<b>Profitability</b>			
Bad debt charge as percentage of average total assets <sup>11</sup>	0.05 <sup>r</sup>	0.06 <sup>r</sup>	0.16
Net interest margin <sup>11</sup>	1.89 <sup>r</sup>	1.84 <sup>r</sup>	1.75
Cost-to-income ratio	40.0 <sup>r</sup>	43.6 <sup>r</sup>	48.2
<b>Liquidity ratio (Quarterly average)</b>	51.0	45.1	43.0
<b>Surveyed institutions</b>			
<b>Asset quality</b>			
Delinquency ratio of residential mortgage loans	0.13	0.06	0.05
Credit card receivables			
Delinquency ratio	0.36	0.32	0.31
Charge-off ratio — quarterly annualised	3.10	2.78	2.74
— year-to-date annualised	3.10	2.68	2.67
<b>All locally incorporated AIs</b>			
<b>Capital adequacy ratio (consolidated)</b>	13.6	14.2	13.8

## Notes:

- <sup>1</sup> Figures related to Hong Kong office(s) only except where otherwise stated.
  - <sup>2</sup> With reference to the HKD Interest Settlement Rates released by the Hong Kong Association of Banks.
  - <sup>3</sup> With reference to the rate quoted by The Hongkong and Shanghai Banking Corporation Limited.
  - <sup>4</sup> 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.
  - <sup>5</sup> Quarterly change.
  - <sup>6</sup> Loans for use in Hong Kong plus trade-financing loans.
  - <sup>7</sup> Includes "others" (i.e. unallocated).
  - <sup>8</sup> Figures related to retail banks' Hong Kong office(s) and overseas branches.
  - <sup>9</sup> Classified loans are those loans graded as "substandard", "doubtful" or "loss".
  - <sup>10</sup> Net of specific provisions / individual impairment allowances.
  - <sup>11</sup> Year-to-date annualised.
- <sup>r</sup> Revised figure.

## 4. Outlook, risks and uncertainties

The global financial crisis has entered a new phase, spreading from Wall Street to Main Street, and from the epicentres to the periphery. Given its scale and severity, the major advanced economies will likely enter a protracted recession. Hong Kong is also set for a significant economic slowdown. The primary risk to monetary and financial stability lies in a cycle of financial contagion and loss of confidence. Nevertheless, the financial system in Hong Kong has entered this bout of instability from a position of strength, and the authorities have taken decisive action to contain the fallout from the market volatility. The economy can be expected to weather the crisis without sustaining long-lasting damage to its growth potential and productive capacity.

### 4.1 Global outlook

The global economic outlook deteriorated substantially in recent months in the face of continued financial sector deleveraging and falling producer and consumer confidence. In its latest projections released in November, the IMF revised down its forecast for global growth in 2009 to 2.2% from 3.8% in its April forecasts (Table 4.A). Growth in all leading advanced economies is expected to contract on a full-year basis in 2009, the first such fall in the post-war period. The Consensus Forecasts also project real GDP in 2009 to slow significantly from the 2008 levels.

**Table 4.A**  
Global growth and inflation 2007-09

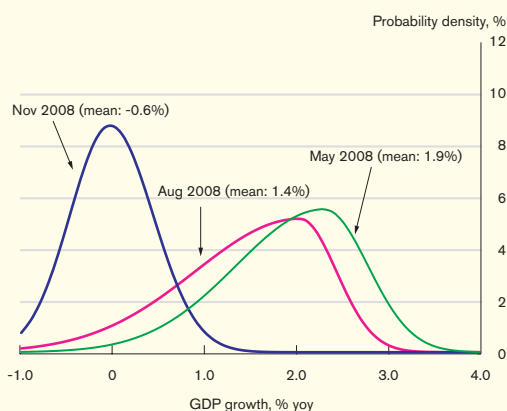
(% yoy)	2007	2008 Forecast	2009 Forecast
<b>IMF</b>			
<b>Global growth<sup>1</sup></b>	5.0	3.7	2.2
	(4.9)	(3.7)	(3.8)
US	2.0	1.4	-0.7
Euro area	2.6	1.2	-0.5
Japan	2.1	0.5	-0.2
Emerging Asia	10.0	8.3	7.1
<b>Inflation</b>			
Advanced economies	2.2	3.6	1.4
Emerging and developing economies	6.4	9.2	7.1
<b>Consensus Forecasts<sup>2</sup></b>			
<b>Global growth<sup>3</sup></b>	3.9	2.6	1.1
US	2.0	1.4	-0.6
Euro zone	2.6	1.0	-0.2
Japan	2.0	0.6	-0.1
North East Asia	9.8	7.7	6.3
South East Asia	6.4	5.0	3.7
<b>Global inflation<sup>3</sup></b>	3.2	4.9	2.9
US	2.9	4.2	1.4
Euro zone	2.1	3.4	1.8
Japan	0	1.6	0.6
North East Asia	4.0	5.7	2.7
South East Asia	3.9	9.0	5.6

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.

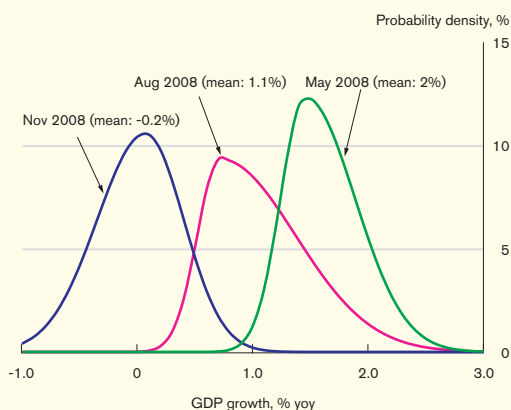
Sources: IMF World Economic Outlook Update, November 2008 and Consensus Forecasts, November 2008.

**Chart 4.1**  
**US: probability distribution of growth forecasts for 2009**



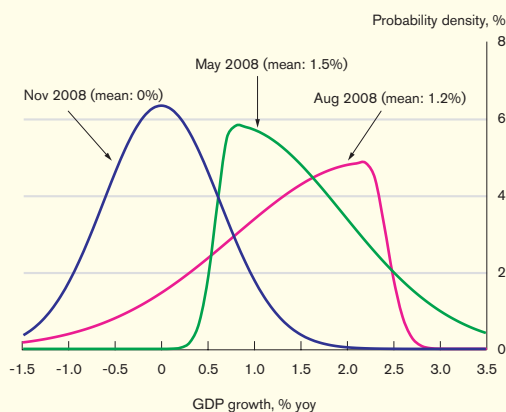
Source: Staff calculations based on Consensus Forecasts.

**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.

In the US, the outlook is for a deeper and more protracted recession than those experienced in the past two decades, as households respond to depreciating real and financial assets and tightening financial conditions. The IMF forecasts the US economy to contract by 0.7% in 2009, following a slowdown in growth to 1.4% this year. The mean of Consensus Forecasts for US growth in 2009 has been declining substantially since May 2008 from slow growth to a contraction of 0.6%, and the distribution has become less dispersed (Chart 4.1). Credit conditions, which were already tight, turned more severe following intensification of the credit crisis, which will drag on personal consumption and business investment. Asset price declines have damaged household and corporate balance sheets, which will take time to repair, while soft external demand coupled with a strong dollar will mean less outside support for the economy. The decline in house prices is expected to continue due to the worsening credit crunch and deteriorating labour market conditions.

The euro area also looks set to head into a recession. The mean of Consensus Forecasts for euro area growth in 2009 suggests a contraction of 0.2%, down from 2% growth in May (Chart 4.2). Growth in the euro area is expected to be hard hit, as their banks' high exposure to the US credit problems are leading to tightening financial conditions and falling confidence. Even if comprehensive support packages to address the growing concerns are put in place rapidly, it will take time to return perceptions of counterparty risk to more normal levels. As such, banks' deleveraging will weigh noticeably on economic growth over the coming quarters.

In Japan, the mean of Consensus Forecasts for growth in 2009 has also been declining since May to just zero growth (Chart 4.3). Although financial conditions have tightened to a lesser extent than in other major economies, in part owing to Japanese banks' lower exposure to securitised products, the stock market has fallen sharply, driven by concerns about the weaker growth outlook. The support to growth from net exports is expected to decline. Slowing external demand from the US and Europe and diminishing profit expectations are weighing on corporate sentiment and companies' investment plans.

**Chart 4.4**  
Imports in the US during recessions



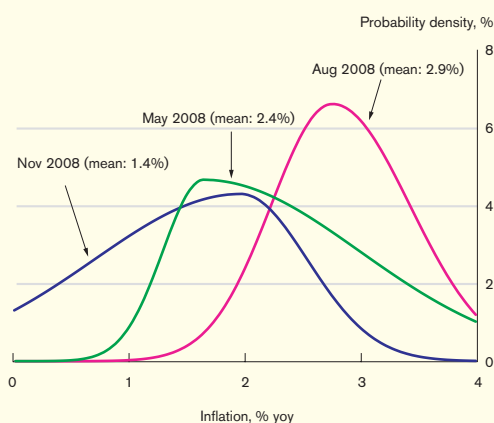
Sources: CEIC and staff estimates.

Economic growth in Mainland China is expected to moderate in 2009 due to both weaker domestic and external demand. On the domestic front, consumer sentiment has been affected by the decline in asset prices, and unemployment is on the rise, particularly in the coastal areas as production slowed. Private investment is expected to decelerate as profit margins are squeezed by over-capacity and weakening demand. On the external side, recessions in the developed economies are deepening. Analysis of US imports during previous recessions suggests exports from China may experience little growth in 2009 (Chart 4.4).

On the policy front, the Mainland authorities kept the renminbi stable against the US dollar, despite the fast depreciation of other emerging market currencies. With the effectiveness of the monetary policy constrained by banks' willingness to lend, the growth outlook on the Mainland largely hinges on the impact of the fiscal stimulus package. By announcing the RMB4 trillion package, the Mainland authorities appeared determined to achieve the 2009 growth target.

Taking Mainland China and other emerging Asian economies as a group, the IMF also revised downwards its projections to 7.1% in 2009, from 8.3% in 2008. Growth in China itself is projected to moderate to 8.5% in 2009, from the expected still high level of 9.7% in 2008. Developing Asia, including the Mainland generally have suffered smaller markdowns, because their financial positions are typically more robust; they have benefited from improved terms of trade from falling commodity prices; and they have already initiated a shift towards macroeconomic policy easing.

**Chart 4.5**  
US: probability distribution of inflation forecasts for 2009



Source: Staff calculations based on Consensus Forecasts.

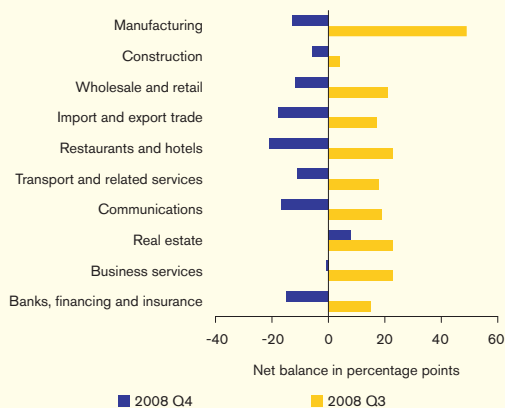
Global consumer-price inflation is projected by the IMF to increase to 4.8% in 2008 from 4.0% in 2007, reflecting rising fuel and food prices until the middle of this year. However, the combination of stabilising commodity prices and increasing economic slack in the face of the global downturn is expected to help ease inflationary pressures. The IMF forecasts global consumer-price inflation to ease to 3.7% in 2009, while the Consensus Forecasts also project inflation to ease from the 2008 level. For the US, the mean of Consensus Forecasts for CPI inflation in 2009 has been revised downwards significantly to 1.4% from August (Chart 4.5).



The immediate outlook for global financial markets remains highly uncertain, although extraordinary measures introduced by governments around the world to rescue financial institutions, followed by further monetary easing and fiscal stimulus plans, have restored calm to a considerable extent. The deleveraging process will inevitably continue in the household, corporate and financial sectors. Asset prices, therefore, are still likely to come under pressure. During the course of this adjustment, there will be uncertainties over the final delivery of the rescue package in the US and, in countries where blanket guarantees for bank deposits and interbank transactions were offered by governments, whether their institutional strength can withstand the pressure if banking distress increases again.

In the longer term, the risks to the outlook stem from how severely the deleveraging process will impinge on the real economy and how much cushioning macroeconomic policy can provide. A deep and protracted recession and sharply rising unemployment in advanced economies could lead to a rise in protectionism. It is dangerous, but tempting, to attribute the current crisis to globalisation, putting pressure on governments to back-peddle on free trade and financial liberalisation. Therefore, while we may have been through some of the most turbulent times, the risks to the outlook for global financial markets clearly remain.

**Chart 4.6**  
**Results of Business Tendency Survey:**  
**Views on expected changes in volume**  
**of output in 2008 Q3 and Q4**



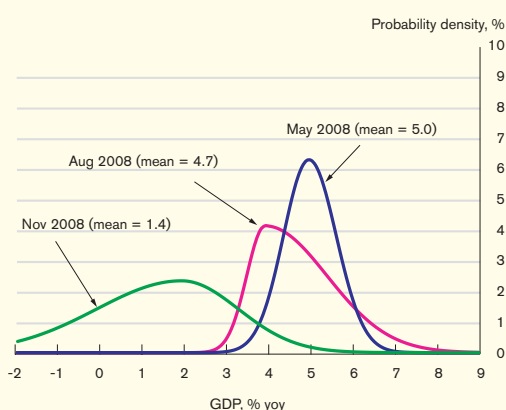
Note: Net balance refers to the difference between the percentage points of respondents expecting a rise over those expecting a decline.

Source: C&SD.

## 4.2 Domestic outlook

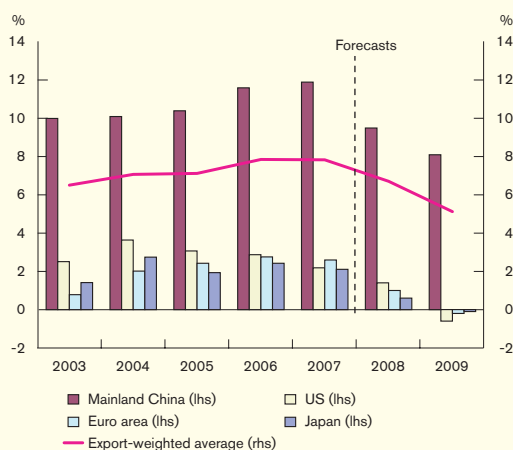
The outlook for the Hong Kong economy has deteriorated sharply as the financial crisis takes its toll on real economic growth and asset prices across the globe. The Quarterly Business Tendency Survey indicated that the majority of the surveyed sectors expect the volume of business and output to fall rapidly in 2008 Q4 (Chart 4.6). For all the sectors as a whole, the difference between the proportion of respondents expecting the business environment to get better and those expecting it to worsen dropped to -15 percentage points in Q4, the first negative reading since the Survey's inception. This suggests that companies have turned pessimistic about the near-term business prospects. The PMI decreased to 38.8 in November from an average of 48.2 in Q3,

**Chart 4.7**  
**Hong Kong: probability distribution**  
**of growth forecasts for 2009**



Source: Staff estimates based on market consensus.

**Chart 4.8**  
**Growth in Hong Kong's main**  
**trading partners**



Sources: Consensus Forecasts and staff estimates.

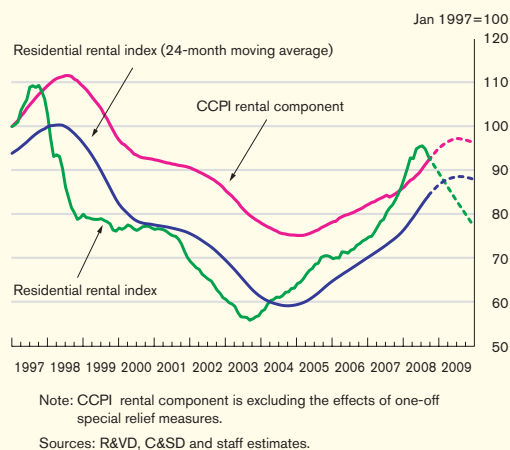
pointing to further contraction in business activities. Overall, these indicators show a gloomy picture for growth in real GDP in Q4.

Two consecutive quarters of negative quarter-on-quarter real GDP growth in 2008 Q2 and Q3 signified that the Hong Kong economy was already in a technical recession. Reflecting high uncertainties about the depth and duration of the recession, the dispersion of the range of Consensus Forecasts has increased notably since the last *Report*, with a bias towards the downside (Chart 4.7). On average, market consensus projects real GDP growth of 3.6% in 2008 and 1.4% in 2009. However, a group of major private sector banks have revised downward the growth forecast for 2009 to an average of -0.3% recently. This suggests that the economic contraction that started in 2008 Q2 is generally expected to continue in the first half of 2009, and a moderate recovery may start to take place in the second half the earliest.

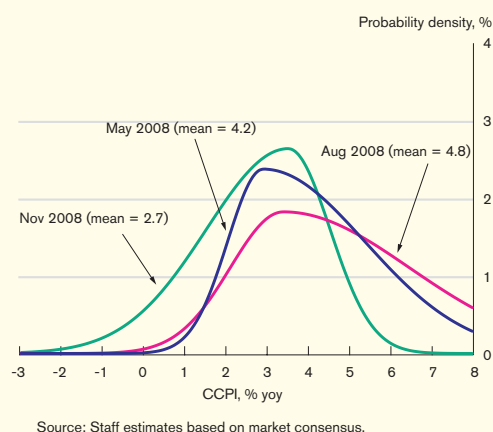
The strength of the anticipated economic rebound in Hong Kong in 2009 will hinge importantly on the pace of recovery of external demand. Market consensus expects the trade-weighted average output of Hong Kong's key trading partners to grow by about 5.1 percentage points in 2009, a sharp slowdown from the 7.8 percentage points growth registered in 2007 and below the trend-growth recorded since the early 2000s (Chart 4.8). This suggests market expectation of a rather subdued global economic recovery.

Domestic demand is expected to post only a moderate recovery in 2009, restrained by rising unemployment. Experience during the SARS period suggests that if an external shock is short-lived, the rise in the unemployment rate is unlikely to last long, with employers regarding the downturn as temporary and less likely to close or scale down their businesses. However, if the duration of the recession is long, the rise in the unemployment rate can be more significant. As the current economic downturn involves the resolution of the global financial crisis which is likely to take some time, the unemployment rate may rise throughout 2009, restraining consumption demand in Hong Kong. For private capital investment, the growth of machinery and equipment investment is likely to be lacklustre with the

**Chart 4.9**  
**CCPI rental component and market rents**



**Chart 4.10**  
**Hong Kong: probability distribution of headline inflation forecasts for 2009**



presence of spare capacity in the early stages of an economic recovery. Building and construction investment is restrained by limited land supply and the delay in construction of projects by property developers because of falling property prices. To cope with the downturn, the Government pledged to speed up public infrastructure investment, but it may be some time before the effects are seen.

Underlying inflation is expected to ease in 2009 on the back of sub-par economic growth, falling global food and commodity prices and declining housing rents. Domestically, the sharp rise in property prices from the second half of 2007 to mid-2008 put upward pressures on private housing rents feeding through to the rental component of the CCPI throughout 2008. There is normally a close relationship between the 24-month moving average of the private residential rental index and the CCPI rental component (Chart 4.9). Assuming that the private residential rental index peaked in 2008 Q3 and declines by 1.2% per month thereafter, the year-on-year CCPI rental inflation should reach 10.2% and 1.9% in 2008 and 2009 respectively, with the peak in January 2009. Nevertheless, given the current market conditions, the pass-through from market rentals to the rental component of the CCPI may be faster than implied by the historical relationship. In such a case, rental inflation is likely to peak sooner. The non-rental component of the CCPI inflation is also expected to ease on the back of moderating economic activities and decreases in food and commodity prices.

Headline inflation may rise at a slower pace than underlying inflation, mainly reflecting the effects of a number of one-off special relief measures, such as the rates waiver for the whole of the 2008/09 fiscal year and the waiver of electricity fees. The latest market consensus predicts headline CCPI inflation to rise by 2.7% (in a range of -0.2% to 4.5%) in 2009 (Chart 4.10).

### 4.3 *Uncertainties and risks*

Crisis management on an almost unprecedented scale worldwide, involving government guarantees and the bail-out of systemically important financial institutions, appears to have prevented a meltdown of the global financial system. However, the crisis has entered a new phase, spreading from Wall Street to Main Street, and from advanced countries to emerging market economies. A credit crunch is underway in the major economies and a feedback loop between financial-markets deleveraging and real economic activity has gathered pace. At the same time, a general flight to safety by investors is affecting emerging market economies, and some have sustained sharp depreciations in their currencies and losses in foreign exchange reserves as risk aversion escalated.

As an international financial centre and trade entrepôt, Hong Kong's financial system has been severely affected by the global shocks — equity prices have fallen sharply and money markets have been under pressure. The primary risk to monetary and financial stability lies in a cycle of financial contagion and loss of confidence. To bolster confidence, the Government has taken decisive action and deployed a wide range of precautionary measures, including emergency liquidity support, a temporary full deposit guarantee arrangement, and a contingent bank capital facility. While these financial policies should be effective in stemming contagion to the Hong Kong banking system, they are not meant to resist movements in asset prices, which will continue to adjust along with global markets. External shocks through both the financial market and trade channels will inevitably have significant fallout for the Hong Kong economy well into 2009.

Although the global economy looks set to enter a synchronous downturn, its depth and duration is highly uncertain. This is because the global economy might be at a turning point where the potential for non-linearity in economic and financial developments might undermine attempts at model-based forecasts for the economic outturn. As such, it is useful to supplement quantitative projections with historical episodes of the US recessions and use them as a basis to gauge the depth and length of the economic downturn.

**Table 4.B**  
**US recessions and related economic indicators**

Time period	Peak-to-trough contraction	Duration	Unemployment rate	Global growth
1929 Q3 -1933 Q1	30.5%	15 quarters	From 3.2% (1929) to 24.9% (1933) +21.7% points	n.a.
1980 Q1 -1980 Q3	2.2%	3 quarters	From 5.6% (May 1979) to 7.8% (Jul 1980) +2.2% points	2.0% yoy (1980)
1981 Q3 -1982 Q4	2.9%	6 quarters	From 7.2% (Jul 1981) to 10.8% (Dec 1982) +3.6% points	0.9% yoy (1982)
1990 Q3 -1991 Q1	1.3%	3 quarters	From 5.2% (Jun 1990) to 7.8% (Jun 1992) +2.6% points	1.5% yoy (1991)
2001 Q1 -2001 Q4	0.4%	4 quarters	From 3.9% (Dec 2000) to 6.3% (Jun 2003) +2.4% points	2.2% yoy (2001)

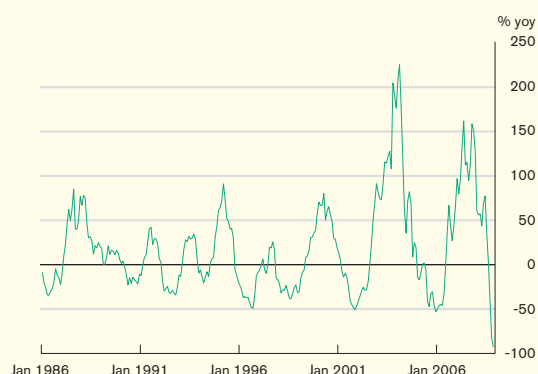
Sources: Bloomberg and IMF.

Table 4.B shows the contraction in the US GDP and the rise in the unemployment rate in selected US recessions, as dated by the National Bureau of Economic Research. The Great Depression stood out in the severity of its impact, as output contracted by 30% and the unemployment rate jumped over 21 percentage points, while the recession dragged on for almost four years. Then, the fallout from the stock market crash was exacerbated by tightening monetary conditions and inappropriate policies. In the current crisis, advanced and emerging economies alike introduced extraordinary measures to stabilise financial market conditions and support economic activity. These policy measures, whether financial, monetary, or fiscal, should serve to put a floor to economic growth, and help buttress the global economy from a recession in the style of the Great Depression. To the extent that further systemic events may be averted and monetary and fiscal policies serve to keep the economy afloat, extreme and large-scale interruptions to growth may be avoided.

Nevertheless, a protracted recession in the US may be unavoidable. The process of deleveraging will continue given the scale of balance sheet contraction needed by financial institutions. Credit to businesses and households will remain highly restrained; household and corporate balance sheets, damaged by asset price declines, will take time to be repaired; and housing prices have yet to stabilise. Together, these point to a downturn that will be drawn-out and a subsequent recovery that may only be tepid. Therefore, it may be optimistic to expect a recession as shallow and short as those of 2001 or 1990-91. Some economic indicators, such as retail sales, are already showing signs of sharper declines than experienced during the past two recessions. Perhaps the recession in 1981-82 might be a more comparable scenario for our current situation. Then, the recession lasted six quarters, unemployment went up 3.6 percentage points, while output contracted by almost 3% from peak to trough.

For emerging markets, especially relatively open economies, a prolonged US recession together with economic contractions in the euro area and Japan will mean the loss of an important support to growth. The Baltic Dry Index, which provides an indication of the

**Chart 4.11  
Baltic Dry Index**



Source: Bloomberg.

**Table 4.C  
Past recessions in Hong Kong and the related economic indicators**

Episodes of recessions	Time period	Peak-to-trough contraction	Duration	Unemployment rate
Asian financial crisis	1997 Q4 -1998 Q4	8.8%	5 quarters	From 2.1% (Sep 1997) to 6.3% (Dec 1999) +4.2% points
Burst of the global IT bubble and the 9-11 event	2001 Q1 -2001 Q4	2.1%	4 quarters	From 4.4% (Jan 2001) to 7.5% (Jul 2002) +3.1% points
SARS period	2003 Q1 -2003 Q2	2.5%	2 quarters	From 7.3% (Nov 2002) to 8.5% (Jun 2003) +1.2% points

Source: Staff estimates.

volume of global trade, has already experienced its sharpest fall since the mid-1980s (Chart 4.11). If the global economy matched the slowdown observed in 1982, it might only grow by about 1% in 2009.

In such a global economic environment, how badly will Hong Kong’s economy be affected? Again, it is useful to supplement quantitative projections with a scenario analysis based on experience (Table 4.C). Hong Kong has been through three major recessions in the past decade involving external shocks – the Asian financial crisis in 1997-98, the bursting of the global IT bubble coupled with the terrorist attack in the US in 2001, and the outbreak of SARS in 2003. The economic contraction during the Asian financial crisis was probably the worst recession in Hong Kong’s recent history. During that crisis, the property market bubble burst, putting households in negative equity positions and damaging their balance sheets; and the overvaluation of the Hong Kong dollar real exchange rate posed significant difficulties for the economy. Indeed, the correction to the overvaluation resulted in a prolonged period of deflation. The local economy contracted by almost 9% from the peak to the trough for five consecutive quarters from 1997 Q4 to 1998 Q4, while the unemployment rate rose sharply to peak at 6.3% in December 1999.

The bursting of the IT bubble and the terrorist attack on 11 September hit the US economy in 2001. Hong Kong was not immune to these developments and experienced a recession. While domestic demand was not particularly hard hit, Hong Kong’s exports to major trading partners shrank notably. The economic contraction was not deep, with real GDP declining by about 2% from peak to trough. However, the duration of the recession was quite long, covering four consecutive quarters and leading to a significant increase in the unemployment rate.

After the recession in 2001, sustained economic recovery in Hong Kong was disrupted by the outbreak of SARS between March and June 2003. The epidemic markedly weakened domestic demand resulting in a peak-to-trough decline in output of 2.5% over two quarters. The SARS-induced recession was short-lived, with the local economy staging a swift and broad-based rebound. This helped prevent a sharp rise in the unemployment rate, which declined shortly after the disease was contained.

Assessing the depth and duration of a recession in the Hong Kong economy in 2008 and 2009 based on these previous episodes, it is plausible to expect a recession that is more severe and longer than the global IT downturn and the SARS episode as the current crisis is far more challenging for the global economy.

However, the depth of the recession is likely to be less severe than the Asian financial crisis, because the Hong Kong economy is now in a better shape than it was in 1997; there were no major macroeconomic and financial imbalances before the crisis began and therefore little need to correct for economic excesses as in 1997. The loose monetary policy in the US also cushions the Hong Kong economy under the Linked Exchange Rate system. Nevertheless, if the recession in the major economies turns out to be much deeper and more protracted than now envisaged, then the economic downturn in Hong Kong will be worse.

The Hong Kong economy has entered the current global financial crisis from a position of strength, with the balance sheets of both the private and public sectors strong, and both factor and product markets remaining flexible. In the coming months, the bank credit portfolio is likely to worsen and credit growth will slow significantly. The banks will also face pressure on profits from declining margins as well as the loss of fee income from a decline in capital market activities. While further declines in stock and property prices are possible and difficulties in individual financial institutions cannot be ruled out, the financial system as a whole is likely to weather the crisis without long-lasting damage to its institutional strength and productive capacity.

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# Glossary of terms

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## **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 (RLBs) and deposit-taking companies (DTCs).

## **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 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.

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# Abbreviations

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<b>3m moving avg.</b>	Three-month moving average
<b>3m-on-3m</b>	Three-month-on-three-month
<b>ADP</b>	Automatic Data Processing
<b>AIG</b>	American International Group
<b>ASEAN</b>	Association of Southeast Asian Nations
<b>Als</b>	Authorized Institutions
<b>bn</b>	Billion
<b>BLR</b>	Best Lending Rate
<b>BoP</b>	Balance of Payments
<b>CCPI</b>	Composite Consumer Price Index
<b>CDS</b>	Credit Default Swap
<b>C&amp;SD</b>	Census and Statistics Department
<b>CIs</b>	Certificates of Indebtedness
<b>CPI</b>	Consumer Price Index
<b>CU</b>	Convertibility Undertaking
<b>DAX</b>	Deutscher Aktien Index
<b>DCC</b>	Dynamic Conditional Correlation
<b>ECB</b>	European Central Bank
<b>EU</b>	European Union
<b>FAI</b>	Fixed-Asset Investment
<b>FDI</b>	Foreign Direct Investment
<b>Fed</b>	Federal Reserve Board
<b>FFTR</b>	Federal Funds Target Rate
<b>GDP</b>	Gross Domestic Product
<b>HIBOR</b>	Hong Kong Interbank Offered Rate
<b>HKMA</b>	Hong Kong Monetary Authority
<b>HKSAR</b>	Hong Kong Special Administrative Region
<b>HSI</b>	Hang Seng Index
<b>IMF</b>	International Monetary Fund
<b>IPO</b>	Initial public offering
<b>IT</b>	Information technology
<b>LIBOR</b>	London Interbank Offered Rate
<b>lhs</b>	Left-hand scale
<b>MCI</b>	Monetary Conditions Index
<b>mn</b>	Million

<b>MSCI</b>	Morgan Stanley Capital International
<b>n.a.</b>	Not available
<b>NDF</b>	Non-deliverable forward
<b>NEER</b>	Nominal effective exchange rate
<b>NIEs</b>	Newly Industrialised Economies
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OIS</b>	Overnight Index Swap
<b>p.a.</b>	Per annum
<b>PBoC</b>	People's Bank of China
<b>PMI</b>	Purchasing Managers' Index
<b>PPP</b>	Purchasing Power Parity
<b>PPI</b>	Producer Price Index
<b>qoq</b>	Quarter-on-quarter
<b>R&amp;VD</b>	Rating and Valuation Department
<b>RAI</b>	Risk Appetite Index
<b>REER</b>	Real effective exchange rate
<b>repo</b>	Repurchase agreement
<b>rhs</b>	Right-hand scale
<b>RMB</b>	Renminbi
<b>RMLs</b>	Residential Mortgage Loans
<b>RRR</b>	Reserve requirement ratio
<b>SARS</b>	Severe Acute Respiratory Syndrome
<b>S&amp;P 500</b>	Standard and Poor's 500 Index
<b>SI</b>	Spillover Index
<b>SMEs</b>	Small and medium-sized enterprises
<b>SSE</b>	Shanghai Stock Exchange
<b>T-bill</b>	Treasury Bill
<b>TOPIX</b>	Tokyo Stock Price Index
<b>UK</b>	United Kingdom
<b>US</b>	United States
<b>USD</b>	US dollar
<b>VaR</b>	Value-at-risk
<b>VAT</b>	Value-added tax
<b>yoy</b>	Year-on-year

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