



Monetary Authority of Singapore

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Definitions and Conventions

As used in this report, the term “country” does not in all cases refer to a territorial entity that is a state as understood by international law and practice. As used here, the term also covers some territorial entities that are not states but for which statistical data are maintained on a separate and independent basis.

In this Financial Stability Review, the following country groupings are used:

- “G3” refers to the eurozone, Japan and the United States
- “G-20” refers to the Group of Twenty comprising Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom, and the United States
- “Asia 9” comprises Indonesia (IDN), Malaysia (MYS), the Philippines (PHL), Thailand (THA), Singapore, Korea (KOR), Taiwan, China (CHN) and India (IND)
- “Developing Asia” refers to IMF’s regional grouping of Afghanistan, I.R. of, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Fiji, India, Indonesia, Kiribati, Lao PDR, Malaysia, Maldives, Myanmar, Nepal, Pakistan, Papua New Guinea, the Philippines, Samoa, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, Tonga, Vanuatu and Vietnam
- “SEA5” comprises Indonesia, Malaysia, the Philippines, Singapore and Thailand
- “SEA4” comprises Indonesia, Malaysia, the Philippines and Thailand
- “NEA3” comprises Hong Kong, Korea and Taiwan
- “NIEs” refers to Hong Kong, Korea, Singapore and Taiwan

Abbreviations used for financial data are as follows:

- Currencies: Indian Rupee (INR), Indonesian Rupiah (IDR), Korean Won (KRW), Malaysian Ringgit (MYR), Philippine Peso (PHP), Taiwan Dollar (TWD), Thai Baht (THB)
- Stock Indices: Hang Seng Index (HSI), Bombay Stock Exchange Sensitive Index (Sensex), Jakarta Composite Index (JCI), Korea Composite Stock Price Index (KOSPI), Straits Times Index (STI)

Other Abbreviations

ACU	Asian Currency Unit
AFC	Asian Financial Crisis
ASEAN	Association of Southeast Asian Nations
BIS	Bank for International Settlements
B&C	Building and Construction
BOE	Bank of England
BOJ	Bank of Japan
BCBS	Basel Committee on Banking Supervision
CAR	Capital Adequacy Ratio
CCR	Core Central Region
CDO	Collateralised Debt Obligation
CDP	Central Depository (Pte) Ltd
CDS	Credit Default Swap
CEE	Central and Eastern Europe
CEIC	CEIC Data Company Ltd
CGFS	Committee on the Global Financial System
CIMB	CIMB Bank Berhad
CMBS	Commercial Mortgage Backed Securities
COE	Certificate of Entitlement
CPF	Central Provident Fund

CPI	Consumer Price Index
CRE	Commercial Real Estate
DBS	DBS Bank Ltd
DBU	Domestic Banking Unit
ECB	European Central Bank
EME	Emerging Market Economy
EU	European Union
FDI	Foreign Direct Investment
FSB	Financial Stability Board
FSI	Financial Stress Index, Asian Financial Stress Index (A-FSI), IMF's Emerging Market Financial Stress Index (EM-FSI)
FSR	Financial Stability Review
GDP	Gross Domestic Product
GFSR	Global Financial Stability Report
GSE	Government Sponsored Enterprise
HDB	Housing Development Board
IAS	Interest Absorption Scheme
ICAAP	Internal Capital Adequacy Assessment Process
IIF	International Institute of Forecasters
IMF	International Monetary Fund
IOL	Interest-Only Housing Loans
IOSCO	International Organisation of Securities Commissions
LIBOR	London Interbank Offered Rate
LTV	Loan-To-Value
MAS	Monetary Authority of Singapore
MBS	Mortgage-Backed Securities
MEPS+	MAS Electronic Payment System+
MSD	Macroeconomic Surveillance Department
MTI	Ministry of Trade and Industry
NBFI	Non-Bank Financial Institution
NEA	Northeast Asia
NPL	Non-Performing Loan
OCBC	Oversea-Chinese Banking Corporation Ltd
OCR	Outside Central Region
OECD	Organisation for Economic Cooperation and Development
OIS	Overnight Indexed Swap
OIF	Offshore Insurance Fund
OTC	Over-The-Counter
PPI	Property Price Index
ROA	Return on Assets
RCR	Rest of Central Region
S-REIT	Real Estate Investment Trust listed on SGX
SAAR	Seasonally Adjusted Annual Rate
SCB	Standard Chartered Bank
SEA	Southeast Asia
SGS	Singapore Government Securities
SGX	Singapore Exchange Ltd
SGX-DC	Singapore Exchange Derivatives Clearing Ltd
SIBOR	Singapore Interbank Offered Rate
SIF	Singapore Insurance Fund
SME	Small and Medium-sized Enterprise

SOR	Swap Offer Rate
TCE	Tangible Common Equity
TIPS	Treasury Inflation Protected Securities
TSC	Transport, Storage and Communication
UOB	United Overseas Bank
VIX	Chicago Board Options Exchange Volatility Index
WEO	World Economic Outlook

PREFACE

The Monetary Authority of Singapore (MAS) conducts a regular assessment of Singapore's financial system. Potential risks and vulnerabilities are identified, and the ability of the financial system to withstand potential shocks is reviewed. The analysis and results are contained in the Financial Stability Review (FSR), which is currently published once a year. The FSR aims to contribute to a better understanding among market participants, analysts and the public of issues affecting Singapore's financial system.

Section 1 of the FSR provides a discussion of the macroeconomic environment and financial markets both globally and in Asia. Against this backdrop, Section 2 analyses Singapore's macroeconomic environment and financial system. The health of the non-financial sector comprising both the corporate and household sectors is reviewed. This is followed by an analysis of the banking sector which plays a dominant role in Singapore's financial landscape. A review of the non-bank financial sector, which includes the insurance sector and capital markets intermediaries, is also provided. The section concludes with an overview of the outlook and risks for Singapore's financial system.

The production of the Review was coordinated by the Macroeconomic Surveillance Department (MSD) team which comprises Wong Nai Seng, Wang Liang Daniel, Simon Wells, Cheo Yew-Jiun James, Emma Ryan, Eng Han Wen Alvin, Fang Yihan, Alvin Foo, Foo Suan Yong, Hu Shilin, Kee Rui Xiong, Lim Ju Meng Aloysius, Patricia Chua, Rishi Ramchand and Teo Wan Yuan under the general direction of Chia Der Jiun, Executive Director (MSD). Valuable statistical and charting support was provided by Alvin Jason John, Choo Woon Yuen Karen, Goh-Tan Mui Choo Jenny, Kuah Lifen Michelle, Low Lie En Elys, Tan-Liew Bee Lan Connie, Tan Yian Gwek Felicia and Yee Chee Meng Aaron. The Review also incorporates contributions from the following departments: Banking Supervision Department, Capital Markets Department, Capital Markets Intermediaries Department, Complex Institutions Supervision Department, Economic Policy Department, Insurance Supervision Department, Prudential Policy Department and Reserve and Monetary Management Department. The FSR reflects the views of the staff of the Macroeconomic Surveillance Department and the contributing departments.

The FSR may be accessed in PDF format on the MAS website:

http://www.mas.gov.sg/publications/MAS_FSR.html

OVERVIEW

The global financial system came close to collapse in late 2008 and early 2009, following the failure of Lehman Brothers. World trade, capital flows and economic activity experienced sharp and synchronised contractions, brought on by the severe financial stress and freezing of credit markets.

Policy makers around the world responded with unprecedented action – monetary policy was loosened, large amounts of liquidity were injected into the markets, bank rescue plans and support measures were introduced or augmented, and substantial fiscal stimulus packages were announced.

The raft of policy measures appears to have helped stabilise the global financial system and set the stage for economic recovery. Economic activity has bottomed out and begun to recover. Funding market conditions have eased. Banks are generally better capitalised than at the start of 2009. In response to improving economic conditions, investor risk appetite has returned, triggering a strong rebound in financial markets. Barring further disruptions, the central outlook for the G3 points to a gradual recovery in 2010. Financial market conditions should improve with the recovery although credit losses are expected to persist for some time as the credit cycle runs its course and defaults continue to rise.

The extreme financial stress and collapse in world demand in late 2008 led to some turbulence in Asian financial markets and a sharp fall in economic growth throughout the region.

Nonetheless, as Asian economies had entered the turmoil with stronger macroeconomic and financial fundamentals than before the Asian financial crisis and Asian financial institutions had limited direct exposure to troubled assets, financial stress indicators did not reach the levels experienced during the previous crisis. Swift policy responses, combining substantial fiscal and monetary stimuli

and other support measures, also helped. Global inventory rebuilding provided a further fillip to growth.

As a result, Asia's recovery has been sharper and faster than expected, with a significant rebound in GDP growth since Q2 2009. Banking systems in the region have remained resilient, and credit spreads have narrowed to close to their pre-September 2008 levels. We expect Asian economies to continue to recover through 2010, although GDP growth rates would likely be below their long-term averages.

There are however several downside risks to this external outlook which the FSR highlights.

G3

- The rise in risk appetite and sharp rebound in financial markets since Q1 2009 may have outpaced economic fundamentals, given the uncertainties facing the global economy and financial system. Any perception of a stall in the recovery could raise risk aversion and trigger a repricing of financial assets. To the extent that the market recovery has been supported by policy stimuli, asset prices could be highly sensitive to the eventual reversal of these policies. Should these downside risks crystallise, banks' earnings prospects and asset quality would be negatively impacted, which could in turn intensify adverse feedback loops between the real economy and the financial system.
- Considerable writedowns by the financial sector are still expected, and could be a key headwind especially if banks' earnings prospects are tempered by a tepid recovery or a protracted period of lower growth. The strength of the recovery is tightly linked to prospects for banks since ongoing balance sheet repair, coupled with impaired securitisation markets, could mean credit

supply remains weak, amplifying any drag on the recovery.

- Against this uncertain backdrop, authorities must be cautious about removing support measures prematurely and undermining market confidence. But as the near-term fog lifts, risk would need to be transferred back to the private sector to avoid further strains on public finances. Moreover, moral hazard and expectations of government support could sow the seeds of future excesses.

Asia

- Any stall in G3 recovery would impact on Asia – particularly the more export-dependent economies. A re-evaluation of the region's growth prospects or increased risk aversion could trigger market volatility. In addition, to the extent that the run-up in Asian asset prices since Q1 2009 has been supported by abundant global liquidity, markets may be sensitive to the eventual removal of monetary accommodation. Such market volatility could prompt capital outflows from Asia and, in turn, exchange rate volatility.
- On the other hand, if the economic recovery continues, some Asian countries may need to begin to unwind monetary accommodation before the G3, given their stronger economic recovery and resilient credit supply. This could pose policy dilemmas. If monetary policy needs to be tightened significantly earlier than in the G3, carry trades, capital inflows and exchange rate appreciation pressure could result, potentially entailing a risk of asset price bubbles.

As a small open economy, Singapore has not been immune to the financial turmoil but has also benefited from the global recovery. After hitting a trough in March 2009, the domestic equity market has mounted a sharp rebound, in tandem with global and regional equity markets. US\$ funding strains in the Asian Dollar Market, which emerged in the immediate aftermath of Lehman's failure,

have abated. The Singapore economy contracted in Q4 2008 and Q1 2009, but has since posted two quarters of strong sequential growth. For the whole of 2009, GDP growth is projected to come in at between -2.5% and -2%, a much less adverse outcome than expected early this year. The corporate and household sectors have thus far weathered the economic slowdown relatively well on the back of strong balance sheets and Government policies such as the Special Risk-Sharing Initiative and the Jobs Credit Scheme.

Turning to the financial sector, banks and insurers have remained resilient through the crisis, maintaining high capital and liquidity ratios. The local banks' earnings have dipped but remained above market expectations. This, together with successful capital raising efforts during the crisis, should enable the local banks to absorb further credit losses in the coming quarters. Domestic financial conditions should continue to improve as the economy recovers.

However, the situation in the domestic financial system is not without downside risks. First, the sustainability of the global economic recovery remains uncertain and any adverse shock would weigh on the performance of the Singapore economy given its openness. Should economic recovery stall, corporate earnings may come under renewed strain and corporate refinancing may become more difficult. Unemployment may also rise if the economy slows again. The knock-on effects on consumer and corporate repayment capability could impair banks' asset quality, resulting in higher non-performing loans (NPLs) and provisioning charges. Loan growth could moderate again, holding back the recovery.

Second, despite the lingering uncertainties in the domestic and global economy, domestic property market activity has taken on its own dynamic. The Government introduced several measures in September 2009 to temper the exuberance in the market and pre-empt any

speculative bubble from forming. As Singapore emerges from recession and with the market expecting low interest rates to persist for some time, the risk of a renewed escalation of speculative momentum cannot be discounted. More measures might then be necessary. The nature and timing of such measures would have to be balanced against the still uncertain path of economic recovery.

As the economy recovers, MAS will continue to monitor global and domestic developments closely and stands ready to address any potential threat to Singapore's financial system.

Macroeconomic Surveillance Department
Monetary Authority of Singapore
9 November 2009

1 MACRO ENVIRONMENT

1.1 Global Financial Markets

At the start of 2009, the global financial system faced the prospect of systemic collapse. World trade, capital flows and economic activity experienced sharp and synchronised contractions, brought on by the severe financial system stress and freezing of credit markets that followed the failure of Lehman Brothers in September 2008. The subsequent turnaround since Q2 2009 has been sharper and faster than expected.

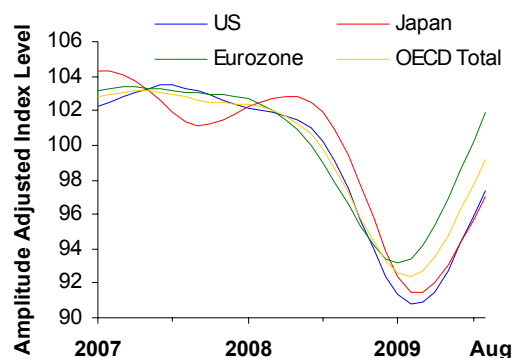
The global recession and financial dislocation triggered unprecedented and wide-ranging policy responses around the world. Monetary policy was loosened with policy rates, in many cases, reduced close to zero. Bank rescue packages and support schemes were established and existing measures augmented. Official guarantees were introduced and substantial fiscal stimulus packages were announced.

Monetary and fiscal stimuli appear to have helped to avert an economic depression and recovery is underway.

Government and central bank support measures aided market and economic stabilisation by restoring confidence and stimulating demand. This set the stage for recovery and by Q2 2009 leading indicators began to rebound (Chart 1.1). In turn, expectations for future global growth started to improve from Q2 2009 and growth forecasts stabilised (Chart 1.2). The US housing market, which triggered the crisis, also began to show signs of stabilisation. The Case-Shiller 20-City Index of house prices rose almost 5% between April and August 2009, while housing starts appeared to have levelled off over the same period (Chart 1.3).

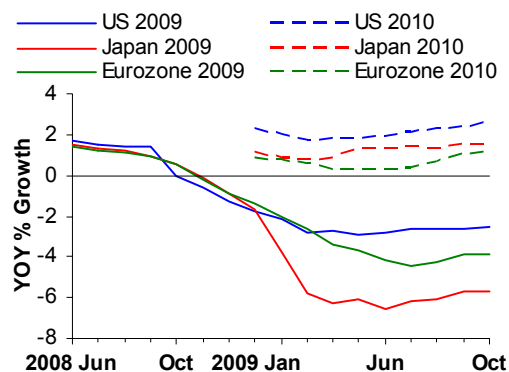
In response to improving economic conditions, financial markets rebounded strongly, as investor risk aversion declined. From its trough in March 2009 to the end of October 2009, the S&P 500 rose 53% and the CDX Investment Grade Index tightened about

Chart 1.1
OECD Composite Leading Indicators



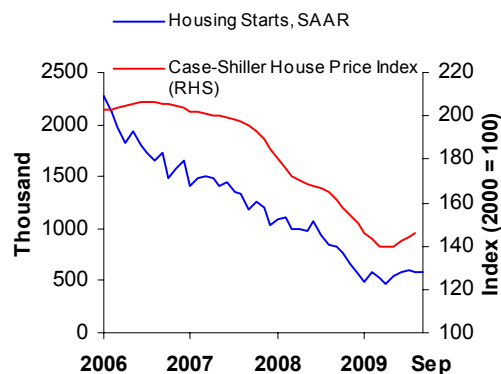
Source: Datastream

Chart 1.2
Consensus Forecasts of G3 GDP Growth



Source: Consensus Economics

Chart 1.3
US Housing Starts and House Prices



Source: Bloomberg

150 basis points (Chart 1.4). The VIX index of equity volatility fell from 50 to 31 over the same period.

Conditions in funding markets also improved as central bank support facilities helped mitigate counterparty credit risk concerns. US\$ 3-month Libor-OIS spreads had narrowed to 13 basis points by end-October 2009, close to their lowest levels since August 2007 (Chart 1.5), while the US commercial paper market has stopped contracting. Banks have issued long-term debt – both government-guaranteed and non-guaranteed – albeit at wider spreads than before the crisis (Chart 1.6).

As conditions stabilised, financial institutions have raised capital and grown earnings.

At the start of 2009, many banks were severely short of capital and governments in several countries recapitalised financial institutions directly. These capital injections – alongside the range of facilities announced in 2008 and Q1 2009 to support the liquidity positions of banks, depository institutions, money market mutual funds, issuers of commercial paper and holders of asset-backed securities – succeeded in stabilising global financial institutions.

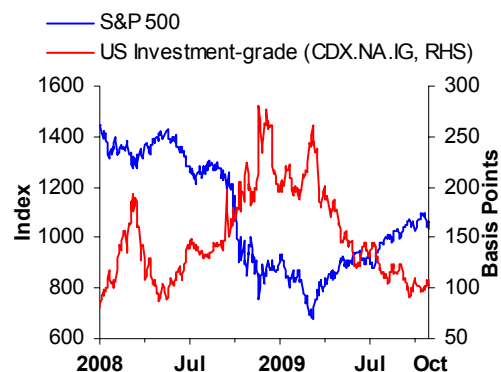
Authorities in the eurozone, the UK and the US also conducted “stress tests” to assess vulnerabilities in their respective banking systems. The US stress test of 19 major US bank holding companies was the most transparent, with scenarios and results made public. Following the US exercise, a few bank holding companies were required to raise additional capital.

Bank earnings improved in 2009, aided by the stronger-than-anticipated recovery. Net interest income benefited from wider interest margins. Profits from underwriting also increased, as did gains from trading, following the rebound in capital and asset market conditions. So far, higher earnings through Q2 and Q3 2009 have helped many banks raise their Tier 1 capital ratios (Chart 1.7).

However, financial systems remain fragile.

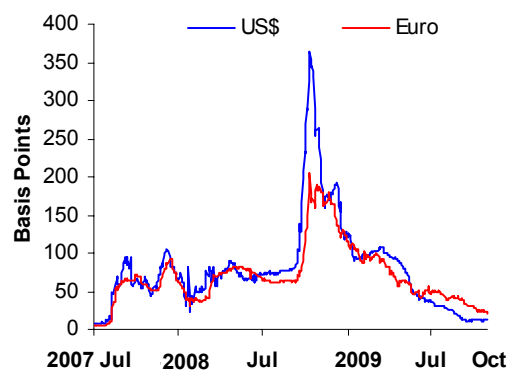
Although the risk of a systemic collapse has dissipated, the financial system remains fragile and

Chart 1.4
Indices of US Equities and CDS Spreads



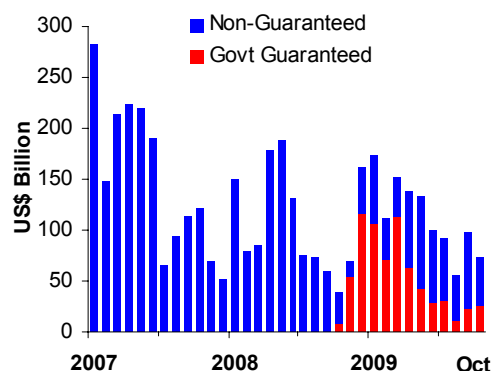
Source: Bloomberg, JP Morgan Chase

Chart 1.5
Three-month LIBOR-OIS Spreads



Source: Bloomberg

Chart 1.6
Debt Issuance by US and European Financial Institutions



Source: Dealogic

reliant on official support. National authorities continue to stand behind financial markets with a range of liquidity provisions and guarantees. While Tier 1 capital ratios have increased, common equity ratios have risen by less (Chart 1.7). Indeed, global capital raising has yet to match losses due to asset writedowns since the start of 2007, which may indicate expectations that financial institutions can offset future losses with higher earnings growth (Chart 1.8).

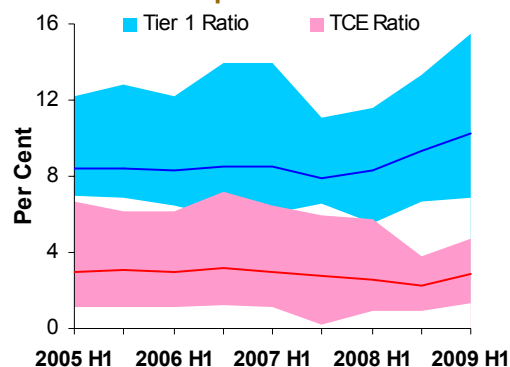
Further writedowns may reduce capital buffers.

However, if earnings prospects deteriorate, rebuilding of capital buffers may be hampered by further writedowns. Although improved economic and financial conditions led the IMF to revise down its estimate of total global writedowns from US\$4 trillion in April 2009 to US\$3.4 trillion in October 2009, its figures suggest considerable writedowns are still required. Of the estimated US\$2.8 trillion that banks may need to write down, only about half of these losses have been recognised to date¹ (Chart 1.9). Specific areas of concern include losses on commercial real estate (CRE) exposures and corporate loan portfolios, as well as other more traditional credit cycle losses (Chart 1.10).

In the US, losses on commercial property loans have contributed to a number of failures of small and medium-sized banks, as CRE loans form a large proportion of these banks' lending portfolios on average (Chart 1.11). This could further impair the supply of credit to smaller firms which are less able to access capital markets and may be relatively more reliant on these banks for funding. In Europe, while CRE lending constitutes a relatively small proportion of total lending, CRE credit risk may be concentrated in some institutions and jurisdictions.

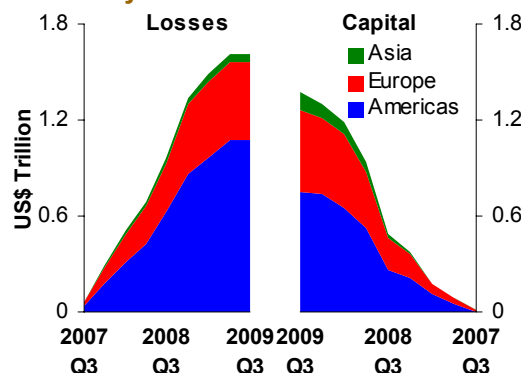
Similarly, non-bank financial institutions need to make an estimated US\$600 billion in total writedowns. This reflects not only losses on securities holdings but also on lending portfolios, which may be relatively high. A review² of large syndicated loans in the

Chart 1.7
Capital Ratios of Major US and European Banks



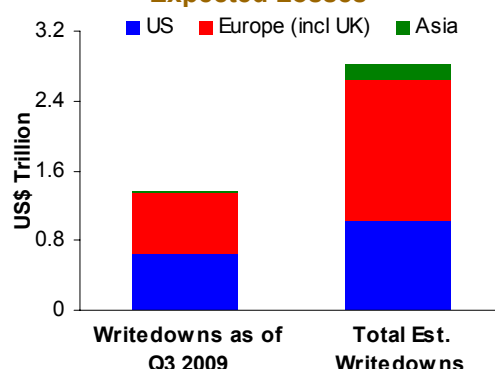
Source: Bloomberg, MAS estimates
Shaded swathes show the range between minimum and maximum; lines show average

Chart 1.8
Writedowns and Capital Raised by Global Financial Institutions



Source: Bloomberg

Chart 1.9
Global Bank Writedowns and Expected Losses



Source: IMF, Bloomberg, MAS estimates
Writedowns taken between Q2 2007 and Q3 2009;
Total losses expected between Q2 2007 and Q4 2010

¹ See the IMF's Global Financial Stability Report (GFSR), published in October 2009.

² *Shared National Credits Review 2009*, jointly prepared by the Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, and Office of Thrift Supervision.

US found that non-bank financial institutions held a disproportionately large share of impaired loans. Meanwhile, many hedge funds have yet to recover their losses from H2 2008, although rallies in asset markets have allowed them to post strong returns during 2009 following significant consolidation within the sector.

Bank lending remains tight, while capital markets have partially reopened.

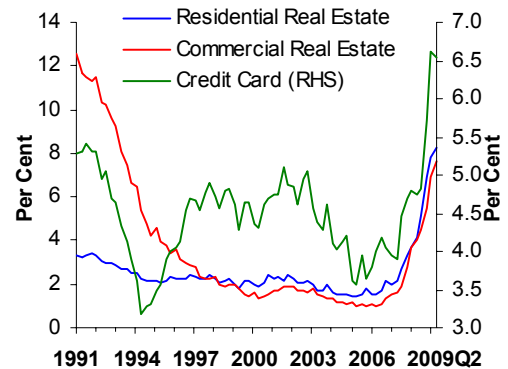
In response to the rise in defaults, banks in the G3 economies continue to raise provisions for credit losses. US and eurozone banks have also tightened lending standards (Chart 1.12). While the rate of tightening has slowed considerably since early 2009, the sustained tightening in lending standards has contributed to total outstanding loans in the eurozone changing little over the past year and declining considerably in the US (Chart 1.13).

As investor risk appetite returned to debt markets and bank lending remained tight, corporate borrowers may have turned increasingly to recovering capital markets for funding (Chart 1.14). Global investment grade corporate bond issuance surged to record levels in 2009. Market contacts suggested this increased issuance might have reflected corporates looking to issue longer maturity debt. Going forward, some of this opportunistic issuance may moderate, reducing the prospect for banks to boost earnings with underwriting fees.

Supply of non-bank credit remains impaired.

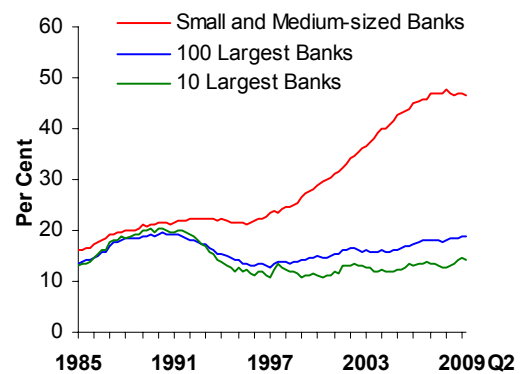
While some capital markets have begun to recover, public securitisation markets remain severely impaired. In Europe, almost all securitisation issuance has been retained by issuers, mostly for use as collateral with central banks. In the US, agency issuance has accounted for virtually all new MBS issuance since 2008 (Chart 1.15). Government support for securitisation markets has been extended. For example, in the US, eligibility for the Term Asset-Backed Securities Loan Facility was

**Chart 1.10
US Mortgage and
Credit Card Delinquency Rates**



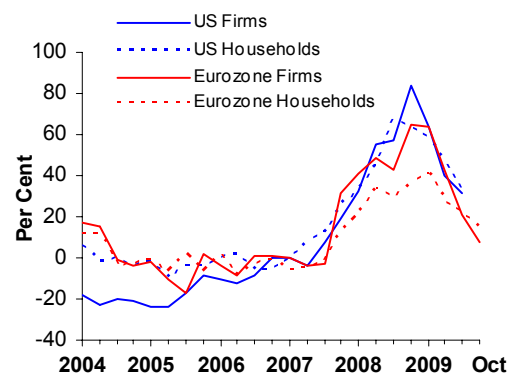
Source: Datastream

**Chart 1.11
US Banks' CRE Loans
As a Share of Total Loans**



Source: Federal Reserve

**Chart 1.12
Net Percentage of Banks
Tightening Lending Standards**



Source: Federal Reserve, ECB
US Firms refers to large and medium-sized firms; US Households refers to non-credit card consumer loans; Households series exclude residential mortgage loans

widened as the facility continues to support the beleaguered CMBS market.

The IMF, among others, has proposed a variety of regulatory and other reforms that would help to bring about a sustainable revival of securitisation activity.³ However, some markets – for example those for more complex re-securitisations – may not recover as regulatory requirements have been tightened to reflect the inherent risks in these transactions. In turn, credit supply may not regain previous levels and/or pricing.

Uncertainty surrounding the near-term outlook is high.

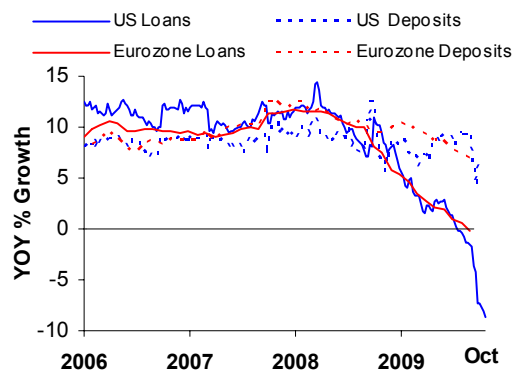
The ongoing fragility in the financial system is a major source of uncertainty surrounding the economic outlook. In particular, given the ongoing process of bank balance sheet repair, it is unclear whether banks will be able to meet the demand for credit as the global economic recovery continues.

At the same time, a central issue is whether private demand will rebound sufficiently as the effect of existing fiscal stimulus measures begins to wane. Fiscal deficits have widened sharply and financial system support has added sizeable contingent liabilities onto the public sector balance sheet. Should private demand remain subdued, the ability of some governments to provide further substantial stimulus and/or support measures while maintaining their credit ratings may be limited.

One indication of the current uncertainty in the economic outlook is that, despite the pace of US job losses moderating in H2 2009, the labour market recovery has been considerably more sluggish than in past recessions (Chart 1.16). This may reflect firms' caution in making hiring decisions in the face of uncertain future demand prospects.

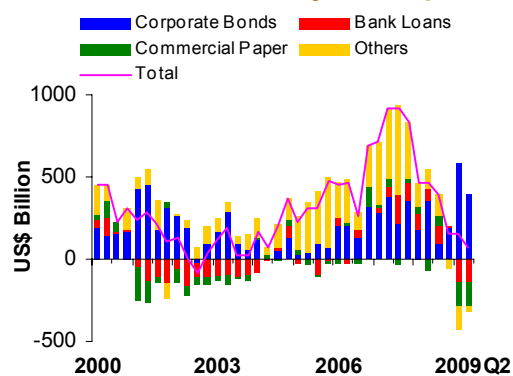
Another manifestation of economic uncertainty has been in the increasing dispersion in economists' inflation forecasts (Chart 1.17). On the one hand,

Chart 1.13
US & Eurozone Loan and Deposit Growth



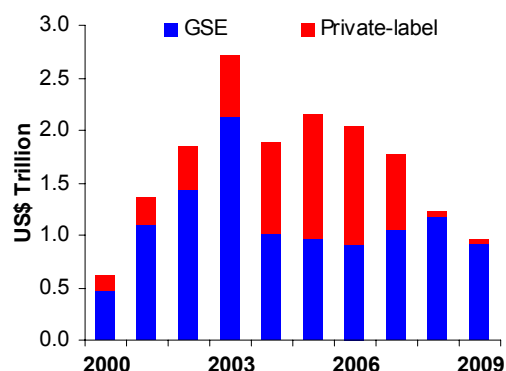
Source: Federal Reserve, ECB

Chart 1.14
Net Debt Funds Raised by US Corporates



Source: Federal Reserve

Chart 1.15
US MBS Issuance



Source: IMF
Data for 2009 is until end-June

³ See the IMF's October 2009 GFSR for a discussion of various proposed measures to restart securitisation.

there is the possibility that private demand will be subdued, limiting G3 growth and inflation. On the other hand, central bank balance sheet expansion and ballooning fiscal deficits have caused some observers to worry about longer-term inflation implications. This divergence of views may be one factor contributing to relatively high short-term interest rate uncertainty, which remains elevated despite declining implied volatility in other markets (Chart 1.18).

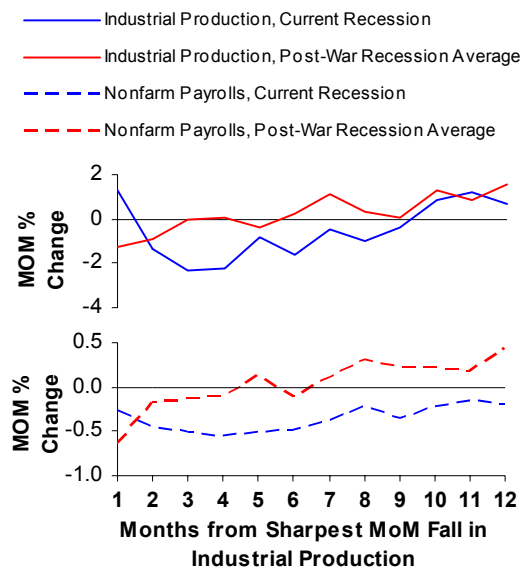
Medium term growth prospects may also be reduced by the crisis.

Looking forward, experience from past crises suggests that recovery from recessions associated with financial stress, such as the current one, tends to be protracted. In addition, the structural imbalances that were built up over a long period before the recent crisis may take an equally long time to correct and may therefore contribute to weaker medium-term growth prospects.

In the US, the world's largest economy, consumption faces a few potential headwinds. First, the decline in household asset values means that household debt may need to be reduced. The resultant higher savings rates could persist for several years. Second, access to credit is likely to be restrained over the medium term. The excessive leverage of the financial system and the reliance on short-term funding and securitisation before the crisis are unlikely to return, implying a structural change in the financial system. Indeed, past experiences with banking and housing crises suggest that credit growth may remain sluggish for several years (Chart 1.19).

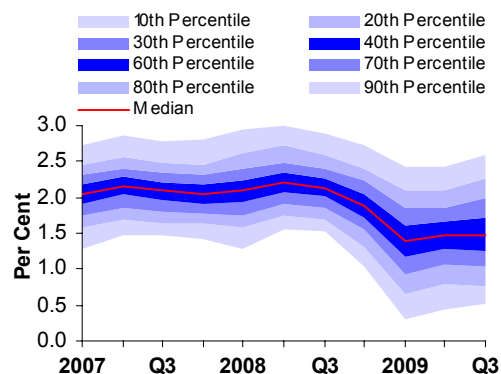
US investment growth may also be weaker in the medium term. A strong rebound in residential investment appears unlikely as weak demand and strong supply conditions persist even if the housing market has troughed. Indeed, home ownership has become less appealing as the prospects for capital gains have fallen, while the inventory to sales ratio remains above its historical average (Chart 1.20). Similarly, non-residential investment is likely to be

Chart 1.16
US Industrial Production and Employment During Recessions



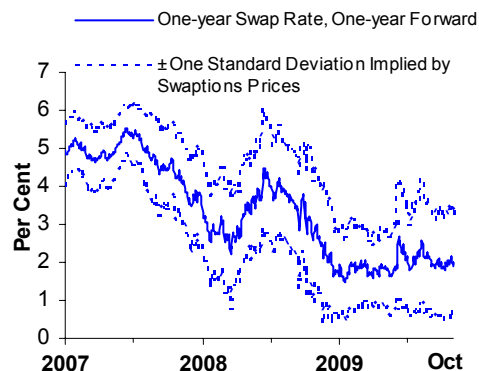
Source: Bloomberg, MAS estimates

Chart 1.17
Distribution of Professional Forecasters' One Year Ahead Inflation Forecasts



Source: Federal Reserve Bank of Philadelphia, MAS estimates

Chart 1.18
Short-term US Dollar Swap Rates and Implied Uncertainty



Source: JP Morgan Chase

influenced by the tepid prospects of other components of aggregate demand, as firms' decisions to develop productive capacity will depend on their outlook for the demand for their goods. Indeed, capital spending in the US has typically had a close relationship to consumption (Chart 1.21).

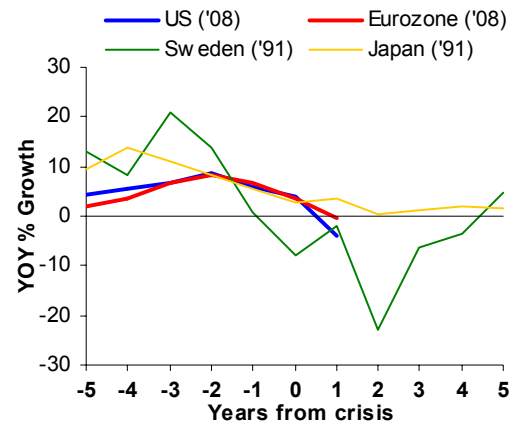
The potential headwinds facing the US are likely to be shared by other major developed economies to some extent. For instance, weak credit growth is likely to have an impact on consumption growth in the eurozone and UK (Chart 1.22). Meanwhile ballooning government debt is likely to induce reductions in government spending and/or higher taxes in most major developed economies, potentially acting as a drag on growth (Chart 1.23). At the same time, higher sovereign downgrade risk and greater supply of government bonds may push up real interest rates, increasing debt servicing costs and further reducing governments' spending power. Longer maturity real US dollar forward interest rates have risen markedly since the start of the year (Chart 1.24).

The recent rally in risky assets may be ahead of fundamentals.

The uncertainties surrounding the outlook for the global economy and banking sectors point to a number of risks to financial stability. Specifically, there is a risk that the recent rebound in financial markets has been driven more by sentiment and greater liquidity than better economic fundamentals. Indeed, some measures of equity risk premia suggest the US market is pricing in similar levels of risk to early 2008, despite the uncertainties currently facing the global economy (Chart 1.25). In addition, expectations for earnings growth in 2011 may be more optimistic than relatively muted economic growth forecasts (Chart 1.26). Moreover, the longer-term impact of the financial crisis remains unclear, which adds uncertainty to earnings growth and market prospects.

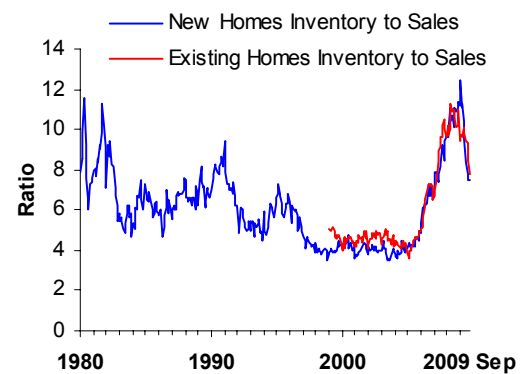
Market contacts reported that one factor behind the recent rally in asset prices had been plentiful liquidity resulting from accommodative monetary policy.

**Chart 1.19
Real Private Credit Growth
Before and After a Crisis**



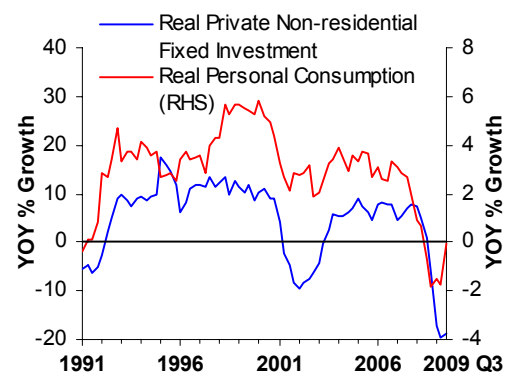
Source: CEIC
Crisis year denoted in brackets. US and Eurozone figures for 2009 show Q3 2009.

**Chart 1.20
US Homes Inventory to Sales Ratios**



Source: Bloomberg

**Chart 1.21
US Consumption and
Capital Spending Growth**



Source: Bloomberg

Contacts suggested that with official interest rates expected to remain low for a considerable period, a desire for capital preservation that prevailed in Q4 2008 and Q1 2009 might have given way to a search for higher nominal returns from Q2 2009 onwards, pushing up asset prices. Flows across the major US mutual fund types have been broadly indicative of this shift, with a US\$374 billion inflow into money market mutual funds in Q4 2008, followed by a US\$400 billion outflow in Q2 and Q3 2009 as risk appetite returned (Chart 1.27). Market contacts also reported that some investors believed governments can and will invariably act to prevent collapses in risky asset prices.

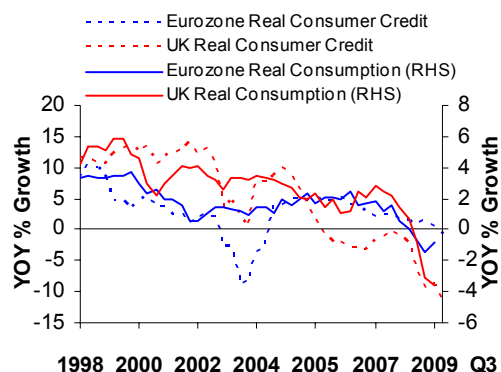
Given the speed of the financial market rebound and the still substantial uncertainty regarding global economic recovery, there is a risk of a sharp snap-back in risk appetite, especially if the economic recovery is not sustained.

The ongoing fragility of the financial sector means it remains vulnerable to a correction in financial markets or a slowing in the pace of recovery. Any crystallisation of downside risks facing G3 economies could negatively impact banks' earnings prospects and increase default rates further, limiting the capacity for earnings to absorb future losses. Moreover, if such a scenario were to lead to banks cutting back on lending to bolster balance sheets, adverse feedback between the real economy and banking system could intensify.

Economic uncertainty and ongoing financial sector fragility means authorities need to weigh risk of removing support measures too early...

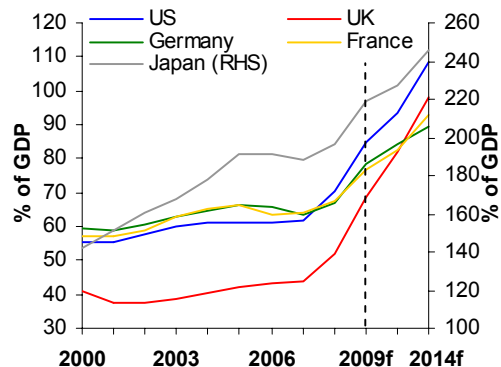
The uncertainties facing the economic recovery and financial sector suggest authorities need to exercise caution in removing financial support measures and monetary stimulus. Moreover, to the extent that global monetary and liquidity conditions have supported the recent rebound in asset prices, financial markets are likely to be highly sensitive to a withdrawal of monetary accommodation. As a result, exit strategies from current extraordinary policy measures may need to be timed properly and communicated clearly.

Chart 1.22
Eurozone and UK Consumption and Consumer Credit Growth



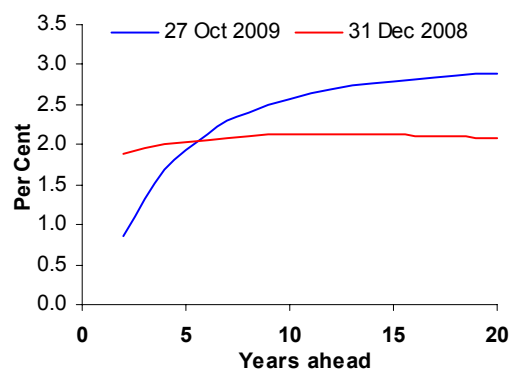
Source: ECB, BoE, CEIC

Chart 1.23
G3 Public Debt Projections



Source: IMF

Chart 1.24
US Dollar Real Forward Yield Curves



Source: Federal Reserve Board
Chart shows instantaneous real forward rates derived from TIPS prices

... although in the medium-term, risk should be transferred back to the private sector to mitigate moral hazard.

When the near-term fog lifts, however, authorities should act quickly to remove contingent liabilities from the public balance sheet and transfer risk back to the private sector. The wide-ranging support measures, while currently necessary, could raise moral hazard in future if expectations of official support become entrenched.

Through international fora such as the Group of Twenty (G-20) and Financial Stability Board (FSB), steps are being taken to mitigate this moral hazard and improve regulation of the global financial system. As noted in Box A, the G-20 has committed to a series of measures designed to strengthen the global financial system and achieve balanced global growth. For example, regulators have committed to developing bank capital rules that help to mitigate pro-cyclicality, prevent excesses building up in periods of strong growth and ensure adequate cushions.

The effectiveness of such rules will depend on the precise method of implementation. As explained in Box B, asymmetric information between banks and investors – and limited information more generally – may mean banks do not want to run down capital in downturns even if they are allowed to do so. Also, varying capital ratios through the economic cycle requires regulators to estimate the appropriate average ratio for the cycle, which is not easy *ex ante*.

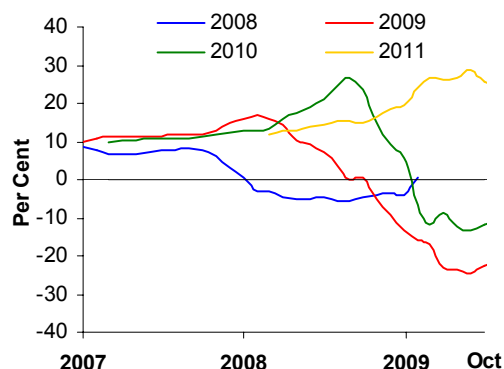
Despite the considerable design and implementation challenges ahead, it is crucial for the long-term financial stability outlook that authorities maintain their commitment to strengthening the global financial system and achieving balanced growth. The co-ordinated global policy response to the recent crisis helped avert a systemic collapse and mitigated the tail risks facing the financial system at the start of 2009. Similarly, a co-ordinated reform programme should help build a more robust global financial system.

Chart 1.25
S&P 500 Model-Implied Risk Premium



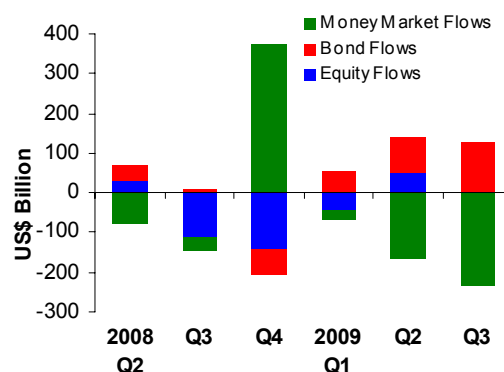
Source: Bloomberg, MAS estimates
Risk premium derived from a Dividend Discount Model assuming constant dividend growth rate of 3% and real interest rate of 2.5%

Chart 1.26
Calendar Year Earnings Per Share Growth Forecasts for S&P 500



Source: IBES

Chart 1.27
US Mutual Fund Flows



Source: Investment Company Institute

Summary: Key financial stability risks stemming from global financial markets

During the past year, large fiscal and monetary stimulus coupled with banking sector support measures have stabilised the financial system and economic recovery has begun. Reflecting this, financial markets have risen sharply since Q1 2009. Many commentators expect the gradual recovery to continue. However, the near-term outlook is highly uncertain and the financial system remains fragile. The backdrop of high uncertainty implies a number of inter-related risks to the global financial system:

- The rise in risk appetite and sharp rebound in financial markets since Q1 2009 entails a risk that markets have outpaced economic fundamentals, given the uncertainties facing the global economy and financial system. Any perception of a stall in the recovery could raise risk aversion and trigger a repricing of financial assets. To the extent that the market recovery has been supported by policy stimuli, asset prices could be highly sensitive to the eventual reversal of these policies. Should these downside risks crystallise, banks' earnings prospects and asset quality would be negatively impacted, which could intensify adverse feedback loops between the real economy and the financial system.
- Considerable writedowns by the financial sector are still expected. Banks' ability to absorb these losses is not assured, especially if their earnings prospects are tempered by a tepid recovery or a protracted period of lower economic growth. The strength of the recovery is tightly linked to prospects for banks since ongoing balance sheet repair, coupled with impaired securitisation markets, could mean credit supply remains weak, amplifying any drag on the recovery.
- Against this uncertain backdrop, authorities must be cautious about removing support measures prematurely and undermining market confidence. But as the near-term fog lifts, they should aim to transfer risk back to the private sector. Public finances of some major economies are stretched and many governments have taken on large contingent liabilities that could lead to substantial losses and weaken public finances further. Moreover, moral hazard and expectations of government support could sow the seeds of future excesses.

Box A: International Initiatives for Strengthening the Global Financial System**International cooperation in the aftermath of the global financial crisis**

Over the last two years, authorities around the world have mounted an unprecedented response to the global financial crisis to limit its impact on the real economy. This box summarises the work currently being undertaken by key international bodies to ensure that the global economic recovery is strong and sustainable and that regulatory failings which contributed to the crisis are not repeated.

Achieving strong, sustainable and balanced growth

At the Pittsburgh Summit in September 2009, leaders of the Group of Twenty (G-20) countries agreed on the need to sustain the strong policy response until a lasting recovery has been assured. They also agreed that, when the time is right, these extraordinary short-term support measures would need to be withdrawn in a cooperative and coordinated way. The G-20 has tasked the IMF and the Financial Stability Board (FSB) to work with countries to design credible and coordinated exit strategies.

At the Pittsburgh Summit, G-20 leaders also launched a new framework for countries to work together to generate more sustainable and balanced growth going forward. Large macroeconomic imbalances, both within and between countries, had built up prior to the global financial crisis. Whilst these imbalances unwound somewhat during the crisis, it is uncertain to what extent this represents a temporary or sustained move towards more balanced growth (see Box C for further discussion). The G-20 aims to secure the latter.

The details of the new framework, including the metric for measuring sustainable and balanced growth, have yet to be agreed upon. G-20 leaders have, however, pledged to ensure that their fiscal, monetary, trade and structural policies are collectively consistent with the objective of durable and balanced growth. They have also agreed to adopt macro-prudential and regulatory policies that will help prevent the build-up of boom-and-bust credit and asset price cycles.

The IMF will help the G-20 develop an analytical toolkit to assess whether countries' choices of domestic and external policies are contributing to strong, sustainable and balanced global growth.

Redesigning financial regulation

Under the aegis of the G-20, the FSB together with the Basel Committee on Banking Supervision (BCBS) has been working to improve the global financial regulatory framework.

Specifically, in July 2009, the BCBS finalised the proposals to enhance the Basel II framework – primarily in the treatment of certain securitisations – as well as proposals to introduce higher capital requirements for banks' trading books. These will be implemented by bank regulators no later than 31 December 2010.

In addition, the BCBS is developing new rules to improve both the quantity and quality of capital and is also considering the need for a capital surcharge to mitigate the risks posed by institutions deemed to be systemically important. To discourage excessive leverage, a leverage ratio will be introduced as a supplementary measure to the Basel II risk-based framework. Separately, the BCBS is also developing a framework for counter-cyclical capital buffers to promote the build-up of capital buffers in good times that can be drawn down in periods of stress. These proposals are expected to be finalised by the end of this year, and an impact assessment to be conducted next year, with final calibration to be completed by the end of 2010.

The BCBS will also introduce a liquidity coverage ratio requirement as part of a new global liquidity standard to be finalised by the end of 2009, while the BIS Committee on the Global Financial System (CGFS) is exploring possible measures which could help to mitigate cross-border liquidity risks.

Authorities are also working to ensure that the scope of regulation is adequate and harmonised across sectors. Accounting standard setters are working to improve standards on valuation and provisioning to reduce pro-cyclicality. The revised standards will seek international convergence so as to achieve a single set of high quality, global accounting standards. The International Organisation of Securities Commissions (IOSCO), meanwhile, has provided six high-level principles for the regulation of hedge funds. Across sectors, the Joint Forum is working to identify and analyse gaps in the existing regulatory framework, and is due to present a progress report to G-20 leaders in November 2009.

The FSB has also stated that it will establish measures aimed at reducing the systemic risks presented by financial institutions which are considered to be “too big to fail”. This may include requiring such institutions to put in place contingency plans for a systematic winding down should the need arise. Other measures to mitigate the likelihood of major insolvencies and to reduce moral hazard in the future could include additional capital, liquidity and other prudential requirements, as well as more intense and internationally coordinated supervision. Efforts are also underway to develop guidance on cross-border resolutions of global financial institutions.

In order to reduce incentives for excessive risk taking, the FSB has published standards for compensation practices. These standards aim to align decisions on compensation with long-term value creation and not excessive risk-taking.

Finally, new standards will be developed for the OTC derivatives market. These standards will, where appropriate, encourage central clearing of trades and standardisation of contracts to facilitate trading on exchanges. At the same time, standards for central counterparties are being improved. On a related front, the BCBS is reviewing rules on capital requirements for OTC derivatives and plans to issue new standards by the middle of 2010.

As these and other initiatives gather pace around the world, authorities have also taken a number of steps to lay the foundations for greater cross-border cooperation. Authorities around the world have started implementing the FSB Principles for Cross-border Cooperation on Crisis Management released in April 2009. These principles represent a commitment from authorities to work together to prepare for future episodes of financial stress through greater sharing of information and by ensuring that financial institutions develop resolution plans. Further steps towards establishing supervisory colleges for large complex financial institutions have been taken. The IMF and FSB have also begun to collaborate on identifying risks and vulnerabilities to the global economy and financial system on an ongoing basis.

Substantial efforts are underway to reform financial regulation. Going forward, the various international bodies overseeing the reform process face a delicate balance between imposing new, more stringent regulations at a time of fragility and acting too slowly or losing the impetus for reform. A considered and timely implementation of new standards would help ensure a smooth transition to a more robust global regulatory framework.

Box B: The Role of Signalling and Asymmetric Information in Designing Counter-Cyclical Capital Requirements

The financial system tends to be pro-cyclical, expanding rapidly in favourable economic conditions and contracting sharply in downturns, thereby amplifying economic cycles. Risk-based capital requirements for banks may exacerbate this pro-cyclicality if banks can maintain lower levels of capital during benign market conditions (e.g. unusually low defaults, market volatility and cross-asset correlations) but are required to hold more capital when conditions worsen.

The recent financial crisis has emphasised the need to consider the pro-cyclical impact of capital regulations. At their September 2009 meeting, the G-20 finance ministers committed to developing countercyclical capital requirements – capital buffers that can be built up in good times and drawn down in periods of stress (See Box A). While developing these new rules, it is important to consider how they may influence the behaviour of banks and investors. This box uses simple microeconomic analysis to draw out possible lessons for shaping effective counter-cyclical capital requirements.

Asymmetric information, signalling and capital ratios

Suppose a bank's management has more information than investors about the bank's exposures.⁴ This asymmetric information may lead investors, who are concerned about investing unwittingly in an excessively risky bank, to require a higher return and/or require the bank to target a higher capital ratio than they would if they had full information about the bank's exposures. This premium, sometimes known as a lemons premium, partly insures the investor against potential losses from risky exposures.

Another way to think about capital ratios is as a signal of a bank's health from management to investors and/or credit rating agencies, given the information asymmetries.

Bank and investor behaviour during a financial crisis

During a downturn or financial crisis, asymmetric information and signalling may incentivise bankers and investors to seek higher capital ratios. First, if investors incorporate a lemons premium into their expectations of a bank's capital level, then, like other risk premia, the lemons premium is likely to rise during a crisis. This is because the number of banks at risk of defaulting is likely to increase sharply during a crisis, raising the risk of adverse selection.⁵ To counteract the higher lemons premium during a crisis, banks would need to maintain even higher capital ratios to send successful signals of their health to investors.

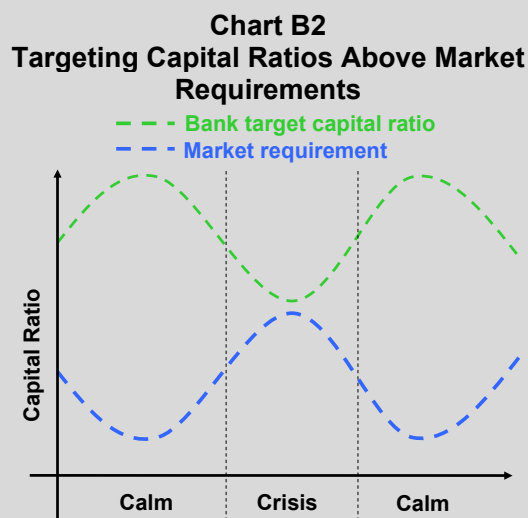
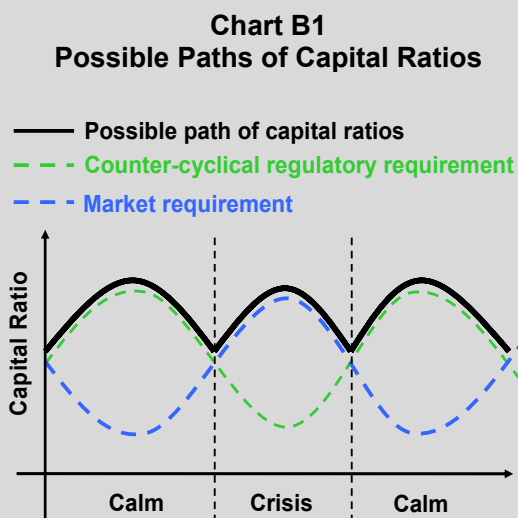
Second, signals of a bank's health, such as a high capital ratio, become more important during a crisis. Evolutionary biologist Amotz Zahavi theorised that in the animal kingdom, the more costly a signal is, the more it is perceived to be reliable. As a 'wasteful' display of strength, gazelles have been observed to jump up and down (known as 'stotting') when they see a lion, rather than running straight off. Similarly, during a period of stress, banks may find it more advantageous to maintain high capital ratios (that is, they may choose to stot) as the value of the signal of health may outweigh the cost of maintaining that signal.

The lemons premium and the signalling value of capital ratios are illustrated, in a highly stylised way, in Chart B1. Due to a rising lemons premium and an increasing signal value of capital ratios, investors and banks may desire higher capital ratios in crises than in calmer periods. The market requirement for capital ratios may thus follow the dotted blue line in Chart B1. In contrast, counter-cyclical regulatory requirements would follow the opposite pattern shown by the green line. Under the (perhaps unrealistic) assumption that banks choose to target the higher of the minimum capital ratios required by regulators and market

⁴ This assumption has been actively explored in financial literature, including in explaining firms' dividend policy, see "Imperfect information, dividend policy, and 'the bird in the hand' fallacy", Suddipto Bhattacharya, 1979.

⁵ In contrast, as few banks are in danger of default during good times, the adverse selection problem is limited and the lemons premium would correspondingly be small.

participants, the combined effect would be that capital ratios would follow the black line, i.e. they would rise in calm times as regulators require, but they may not be drawn down as intended in stress periods. Indeed, through the current crisis, the Tier 1 capital ratios of major US and European banks have on average risen rather than fallen, even in quarters with no public recapitalisation (Chart 1.7 in the main text). The market's expectations of larger buffers and/or the increased value of signalling a bank's stability via higher capital ratios may be among the driving factors for this observed increase.



Policy implications for counter-cyclical capital requirements

If market participants take account of information asymmetries in the manner suggested above, then these factors may have to be considered in designing effective counter-cyclical capital requirements. The timing and extent of the drawdown of capital buffers built up during periods of benign conditions will need to be carefully considered so as not to send unintended signals to the market.

One way to enable capital to be drawn down in crisis periods is for banks to consider the level of capital that investors would expect during a crisis when conducting their Internal Capital Adequacy Assessment Process (ICAAP) under Pillar 2 of the Basel II framework. Maintaining target capital ratios above the market-demanded level would provide leeway for banks to draw down their capital buffers during a crisis (Chart B2). This approach, however, implies higher capital ratios through the cycle.

To address the signalling effects of a capital drawdown, regulators could seek to coordinate drawdowns by major banks during a crisis. Different rates of capital drawdowns among banks may be interpreted as a signal of relative weakness. A 'standardised' reduction across banks could help neutralise the signal value. This may be likened to the situation in August 2007 when the Federal Reserve was reported to have orchestrated the simultaneous tapping of the discount window by major banks, in order to reduce the possible stigma attached to a single bank using the Federal Reserve liquidity facilities. However, neutralising the signal value in capital ratios may create a need for an alternative signal to give investors confidence regarding banks' solvency.

Another possibility could be to allow capital drawdowns only after the peak of the crisis. At that point both the lemons premium and the value of the capital ratio as a signal would be declining, thus providing room for capital drawdowns. Such flexibility is relevant as credit cycles typically lag economic cycles, i.e. credit losses usually do not peak until some time after economic growth and market sentiments have turned positive. One obvious limitation to this proposal is that determining the peak of a crisis would be difficult.

A weakness of all three approaches mentioned thus far is that they do not address the underlying asymmetric information problem, as they do not help inform investors about banks' solvency.

Stress tests may be able to address the asymmetric information problem directly by providing an alternative and independent signal of bank health. For example, the US bank stress tests conducted between February and May 2009 provided investors with an independent assessment of banks' risky exposures.

The provision of stress test information can be buttressed by capital back-stops that provide insurance against negative surprises. Such back-stops need not – and some commentators have argued should not – be wholly government funded. For instance, the US's Public-Private Investment Programme to buy troubled assets includes private participation. A method for providing private capital back-stops that has received some recent attention is the idea of contingent capital. This could be a bank-issued instrument that converts to equity when the bank's capital buffer falls below a pre-determined level. Placing the "strike" level of the contingent capital's embedded option just below the level that investors with senior claims would require during a crisis would provide a form of insurance.

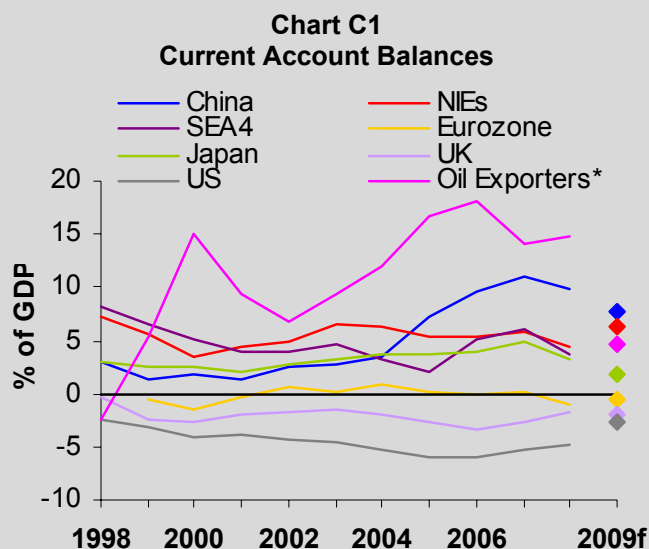
Conclusion

Applying concepts from asymmetric information theory can be helpful in identifying potential challenges in designing counter-cyclical capital requirements and some possible policy implications. Ways to address potential information asymmetry problems include providing credible signals, increasing transparency, and providing insurance to complement the provision of information. It may be useful to undertake similar analyses of other proposals for crisis response and regulatory reform.

Box C: Addressing Global Imbalances

As noted in Box A, at its September 2009 summit, the G-20 committed to work together towards more balanced global economic growth. Why such a commitment is necessary for enhancing financial stability has been well-discussed. This box attempts to offer some perspectives on what it may mean in practice. It argues that meaningful steps can be taken in several areas to help promote more balanced global growth.

The recent financial crisis has already led to a partial unwinding of the large global imbalances that built up between 2002 and 2007 (Chart C1). Some of this has been related to lower oil prices reducing the value of oil-producers' exports and, correspondingly, the price of importing energy. The extent to which this constitutes a sustained move toward more balanced growth is unclear. Already, with the stabilisation of financial systems and economies over the past six months, a significant part of the fall in oil prices has been reversed.



Source: IMF World Economic Outlook (WEO) Database Oct 2009, Datastream, CEIC

*Oil exporters include OPEC countries, Norway & Russia

Diamonds on the right represent IMF Oct 2009 WEO forecasts

Sizing the adjustment

A move toward more balanced growth does not require all countries to balance their current accounts at all times. Firstly, differing levels of economic development and demographics may mean it is desirable for some countries to maintain, at least for some time, a surplus of savings over investment, i.e. to run a current account surplus. Secondly, aiming to run a balanced current account at all times could inhibit global trade, the benefits of which are widely understood.

Nonetheless, a partial unwinding of existing imbalances would be beneficial, not least to mitigate the risk of trade and/or financial protectionism, which would be counter-productive. This would require surplus countries to boost spending and deficit countries to increase savings substantially. Some of the implications of these changes may seem unfavourable in the near term, and so challenge policy makers' commitment to achieve balanced growth. For example, according to analysis conducted by the Federal Reserve Bank of San Francisco⁶, reducing the ratio of US household debt to income, which is currently around 130%, to its 2002 level of 100% could (under certain assumptions) require an increase in the US savings rate from 4% to 10% by the end of 2018. This could mean a 75 basis point reduction in

⁶ "US Household Deleveraging and Future Consumption Growth", FRBSF Economic Letter, No. 2009-16, May 2009.

consumption and, in turn, GDP growth. As a consequence, the rest of the world may also have to accept slower growth than during the 2002-2007 period.

Structural reforms

Some of the foregone growth could be regained over time through steady progress in much-needed structural reforms. To increase consumption in surplus economies, disposable incomes must grow meaningfully. Efforts to boost productivity would help. Education and training, investments in technology and plugging infrastructure gaps would be key priorities.

Another measure that could provide considerable scope for emerging economies to set aside less precautionary savings and consume more would be to enhance social safety nets. Moreover, investments to develop these safety nets, e.g. better healthcare, would contribute to growth directly. In some countries, spreading growth more evenly between prosperous and less developed regions could also help boost consumption demand.

Financial sector development

Another priority would be to improve financial intermediation and increase the depth and breadth of financial markets. A more developed financial sector would help support economic growth by channeling funds for investment and infrastructure development. Stronger domestic markets would also help reduce the reliance on offshore markets to absorb excess savings. This would require building up a robust prudential framework and supervisory capabilities, as well as sound macroeconomic policies.

These structural and microeconomic reforms will take time to implement. Authorities therefore need to remain committed to promoting more balanced growth even after the global economy recovers fully from its current cyclical downturn. The alternative to such a concerted effort among advanced and emerging economies would be a missed opportunity to generate strong, sustainable and balanced global growth for the future.

1.2 Asian Financial System

Asia succumbed to the global financial crisis in the final quarter of 2008.

Although Asia’s financial systems were relatively insulated from the effects of the initial stages of the financial crisis, the extreme stress in global financial markets and collapse in world demand that followed the failure of Lehman Brothers in September 2008 led to turbulence in Asian financial markets and a sharp fall in economic growth throughout the region (Chart 1.28). Exports, both within the region and to the G3, contracted sharply and industrial production declined as firms ran down inventories (Chart 1.29). In several Asian economies, dimmer prospects for export industries may have led to cutbacks in private investment, exacerbating the slowdown in growth (Chart 1.30).

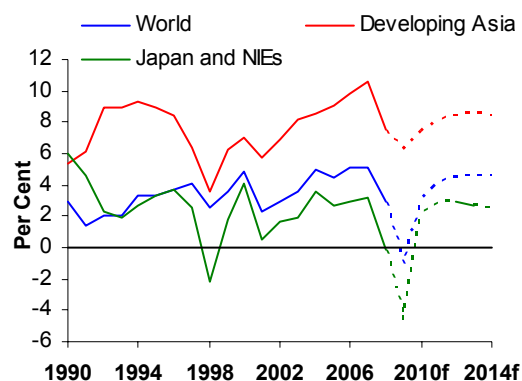
As risk aversion rose globally and Asian growth prospects weakened, there was a widespread sell-off in Asian assets from mid-October 2008 onwards. This prompted large capital outflows from Asia and greater exchange rate volatility. In foreign-currency markets, funding conditions tightened considerably as major financial institutions hoarded US dollars. Domestic currency money markets also experienced some strain.

The economic recovery, however, has been swift ...

Since Q1 2009, the economic recovery has been sharper and faster than expected. Asia saw a significant rebound in GDP growth in Q2 2009. In large part, this reflected a swift policy response that combined substantial fiscal and monetary stimuli. Indeed, growth in larger, more domestic-oriented economies remained positive throughout the crisis and rose in Q2 2009 while the more export-dependent economies contracted at a slower pace, lifted by global inventory rebuilding and a subsequent recovery in exports to China.

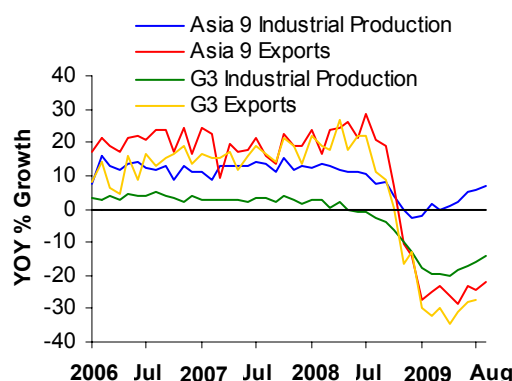
Improved macroeconomic prospects have been

Chart 1.28
Real GDP Growth and IMF Growth Forecasts



Source: IMF WEO Database Oct 2009

Chart 1.29
Industrial Production and Exports: Asia 9 and G3

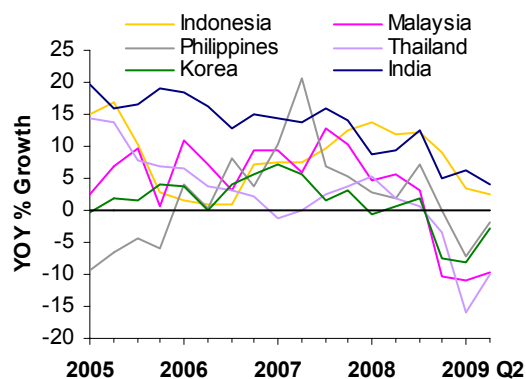


Source: CEIC, Datastream

Asia 9 comprises Indonesia, Malaysia, the Philippines, Thailand & Singapore (SEA5), Korea, Taiwan, China & India

Aggregate data for industrial production is weighted by the countries’ 2008 nominal GDP

Chart 1.30
Growth of Gross Fixed Capital Formation



Source: CEIC

reflected in upward revisions to economic growth forecasts for the region since Q2 2009, partially reversing sharp downward revisions through Q1 2009 (Table 1.31). Leading indicators suggest the recovery should continue; consumer confidence and business sentiment indicators across Asia have also been increasingly buoyant.

... financial stress has receded ...

As the crisis was transmitted into Asian financial systems and US\$ funding market conditions deteriorated, measures of Asian financial system stress increased (Chart 1.32). The authorities responded with extraordinary and wide-ranging support measures, including contingency or pre-emptive currency swap lines with the US Federal Reserve. Reflecting this, financial stress indicators did not reach the levels experienced during the Asian Financial Crisis and quickly fell back close to historical norms during Q2 2009. (Box D provides more details on measuring financial stress in Asia.)

... and Asian asset prices have risen sharply.

The stabilisation of financial systems, a more favourable economic outlook and an increase in global risk appetite led to a recovery in Asian equity prices, along with the rest of the world (Chart 1.33). At its mid-year peak, the Shanghai Composite was around 90% higher than at the start of 2009 and most other Asian equity markets reached levels more than 50% above those prevailing at the start of the year.

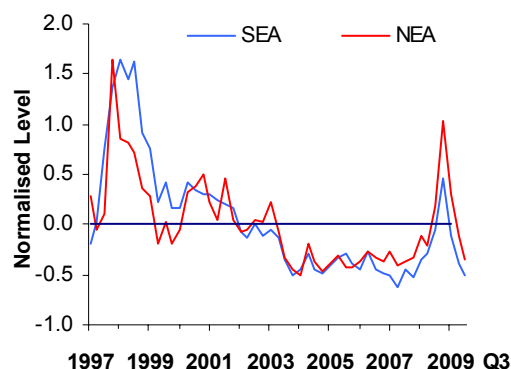
Similarly, currencies that had depreciated in Q4 2008 and Q1 2009 subsequently appreciated (Chart 1.34) and spreads on both corporate and sovereign bonds narrowed to pre-September 2008 levels (Charts 1.35 and 1.36). Market contacts reported that liquidity in Asian bond markets had improved to near pre-Lehman levels, fuelled in part by greater global liquidity and capital flows into the region. Indeed, the greater rise in Asian asset prices relative to the G3 may be attributed to investors moving to higher yielding assets as part of the recovery in global risk appetite described in Section 1.1.

Table 1.31
Consensus Forecasts of GDP Growth for 2009 and 2010

YOY %	2009		2010	
	Mar-09	Oct-09	Mar-09	Oct-09
Indonesia	3.4	4.4	4.7	5.4
Malaysia	-0.7	-2.8	3.6	4.4
Philippines	1.9	1.6	3.6	3.6
Thailand	-1.6	-3.5	3.2	3.9
Singapore	-4.7	-2.6	3.2	5.3
Hong Kong	-3.4	-3.1	2.4	3.7
Korea	-3.0	-0.8	3.5	4.1
Taiwan	-4.9	-4.0	2.9	4.2
China	7.0	8.4	8.3	9.5
India	5.2	6.1	7.8	7.5

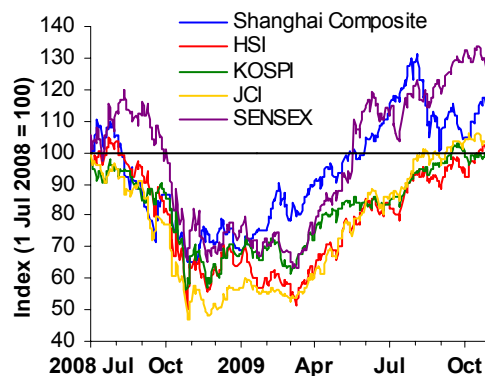
Source: Consensus Economics

Chart 1.32
Asia Financial Stress Index



Source: Bloomberg, CEIC, Thomson Financial, MAS estimates
SEA comprises Indonesia, Malaysia, the Philippines & Thailand; NEA comprises Hong Kong, Korea & Taiwan (NEA3)

Chart 1.33
Selected Asian Equity Indices



Source: Bloomberg

Asian banking systems have remained resilient ...

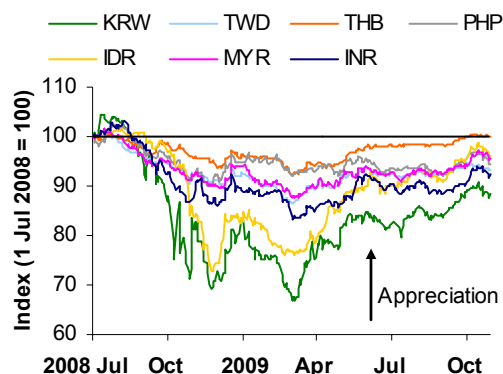
The sharp rise in risk aversion and counterparty credit risk that followed the failure of Lehman Brothers resulted in a sudden reduction in cross border banking flows in Q4 2008 and Q1 2009. Asia, which had received a surge in cross-border banking flows in the first half of 2008, experienced a larger retrenchment of funds relative to other emerging market regions (Chart 1.37). As explained in Box E, this may be partly attributed to foreign banks exercising restraint when cutting back lending to branches and subsidiaries in other emerging regions.

Asian banking systems have been largely resilient to this pullback in lending by foreign banks. This may be because, as a proportion of GDP, Asia's reliance on cross-border funding has declined over recent years despite the rise in absolute terms (Chart 1.38). Moreover, Asia as a region had large foreign reserves buffers that could act as a backstop (Chart 1.39). Also, as noted in the November 2008 FSR, Asian banking systems entered the crisis with relatively strong fundamentals, such as healthy capital cushions and low NPL ratios (Table 1.40). Asian corporates were also less leveraged and less exposed to currency and maturity mismatches than during the Asian Financial Crisis.

... and credit growth in the region has held up relatively well.

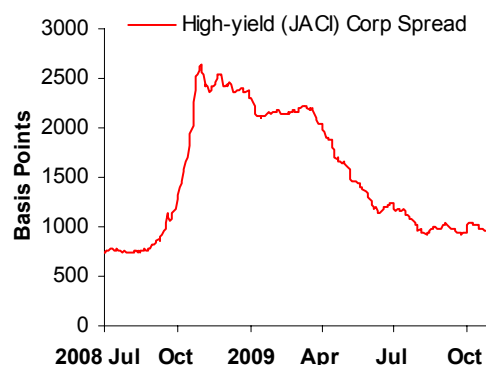
The relative resilience of banking systems and official measures designed to maintain credit supply meant financial intermediation in Asian domestic banking systems remained relatively intact. Although loan growth declined, the speed and size of the slowdown were more moderate than in the G3 (Chart 1.41). Asian banks were also aided in maintaining credit supply because of low exposures to 'troubled' securities and less reliance on wholesale funding relative to G3 banks. Indeed, for some countries, policies aimed at boosting lending have resulted in rapid credit growth.

Chart 1.34
Selected Asian Currency Indices



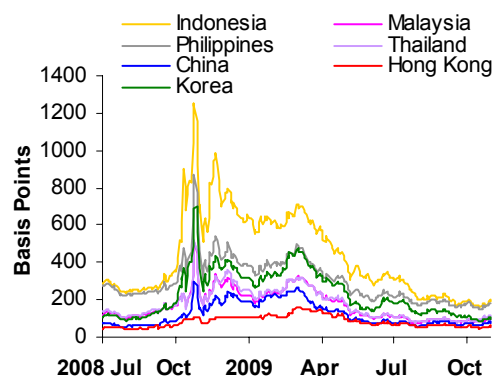
Source: Bloomberg

Chart 1.35
Asian Corporate Credit Spreads



Source: JP Morgan Chase

Chart 1.36
Selected Asian Sovereign CDS Spreads



Source: Datastream

For many Asian economies, the sustainability of the recovery may depend on the G3 ...

The resilience of Asian financial sectors and strength of the economic rebound mean that the recovery is likely to continue through the first half of 2010. Beyond that, however, the uncertainty surrounding the strength of G3 economic recovery translates into considerable uncertainty about the sustainability of the Asian recovery, particularly for more export-oriented economies. Historically, Asian export growth has tracked G3 GDP growth closely (Chart 1.42). The external demand outlook also influences investment decisions in the manufacturing sector.

The ongoing deleveraging in global banking systems means cross-border banking flows may also remain volatile, which could add to refinancing risks for corporates dependent on external finance and also certain banking systems with larger external liabilities. In October 2009, the IMF estimated that around US\$120 billion would be needed to refinance the foreign-denominated corporate debt in Asia maturing in 2009 and 2010.⁷

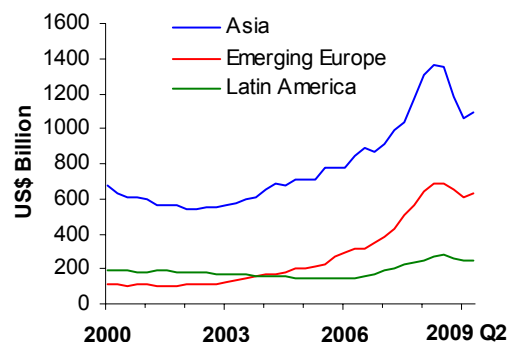
The sustainability of the Asian recovery is also dependent on the ability of Asian banking systems to perform credit intermediation. In some banking systems, NPLs have started to pick up from low levels but this may not yet be reflected in NPL ratios due to fairly high loan growth (Table 1.40). Should NPLs continue to rise, lending standards could tighten which may affect smaller firms dependent on bank funding.

... and this uncertainty may not have been fully factored into Asian financial markets.

Against this backdrop, there is a risk that prices in Asian equity markets have risen too quickly and may not be commensurate with the uncertain earnings outlook. Price to earnings ratios have risen to levels above recent peaks experienced in 2007, suggesting investors appear to be pricing in low risk and/or high

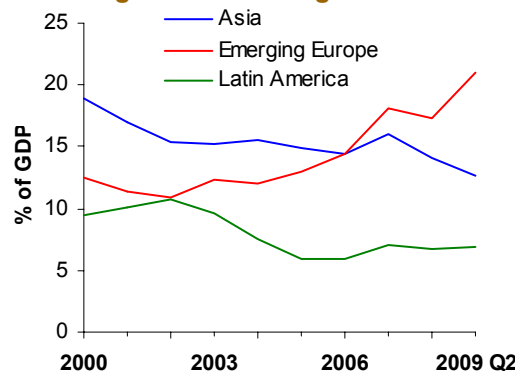
⁷ See the IMF's October 2009 GFSR

Chart 1.37
External Bank Loans to Borrowers in EME Regions



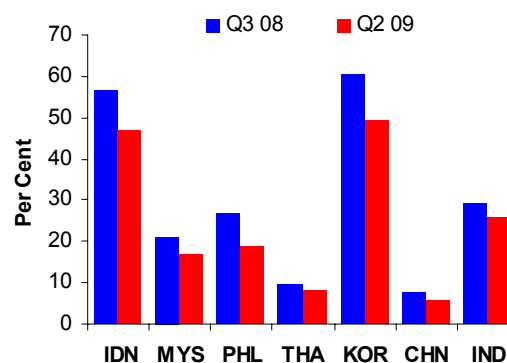
Source: BIS
Asia: India, China, NEA3 & SEA5; Emerging Europe: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovenia, Turkey; Latin America: Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela

Chart 1.38
External Bank Loans to Borrowers in EME Regions: Percentage of GDP



Source: BIS
Regions defined as in Chart 1.37

Chart 1.39
Foreign Bank Claims Due Within One Year as a Percentage of Foreign Reserves: Selected Asian Countries



Source: BIS, CEIC

earnings growth (Chart 1.43). Any re-evaluation of the region’s growth prospects could trigger market volatility. At the same time, the recent run-up in some regional markets may reflect robust domestic credit growth. Market analysts have commented that some of this credit might have found its way into financial markets, meaning some of the recent rally may be more reflective of generous earnings growth expectations and ample liquidity than of fundamentals.

Regional financial markets also remain vulnerable to swings in global risk appetite.

Possibly reflecting these concerns, portfolio inflows have moderated since September 2009 following strong inflows in Q2 and early Q3 2009 (Chart 1.44). Empirical analysis suggests that portfolio inflows tend to follow equity price rises – i.e. investors may, to some extent, be “return chasers” (see Box F). This suggests that a sizable fall in regional equity prices could prompt portfolio outflows and, in turn, exchange rate volatility.

One potential trigger for such a scenario could be a significant reduction in global risk appetite, perhaps associated with a tightening of liquidity conditions. As noted in the November 2008 FSR, global risk aversion played a large role in the sharp falls in regional asset prices during H2 2008. Historically, emerging market asset prices have been highly sensitive to changes in US monetary policy. For example, in April and May 2004, expectations of US policy tightening following an extended period of monetary accommodation led to a sharp widening in EME bond spreads. Preventing excessive swings in asset prices during periods of low global interest rates may require policy makers to use targeted measures more frequently.

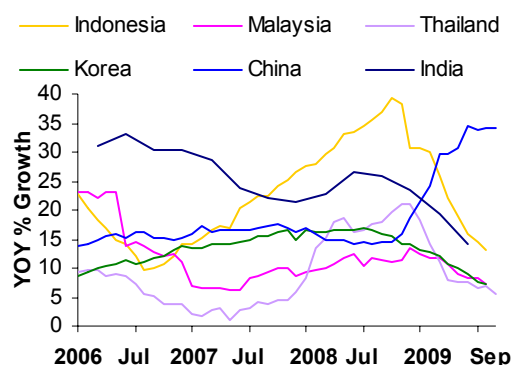
Consistent with the importance of global factors on regional markets, the correlations of equity returns across emerging markets and within Asia have been increasing over the past decade and particularly during the recent crisis (Chart 1.45). So despite inter- and intra-regional differences, Asian markets in general may remain vulnerable to global shocks.

Table 1.40
Commercial Banks’ NPL Ratios and Capital Adequacy Ratios (CAR)

	07 Q4	08 Q1	08 Q2	08 Q3	08 Q4	09 Q1	09 Q2
NPL Ratio (%)							
SEA	5.0	4.7	4.4	4.1	3.8	4.1	4.0
NEA	1.0	1.0	0.9	0.9	1.0	1.2	1.2
CAR (%)							
SEA	15.8	15.5	15.0	14.9	14.2	15.1	15.5
NEA	12.1	12.1	12.0	11.8	12.6	13.3	13.8

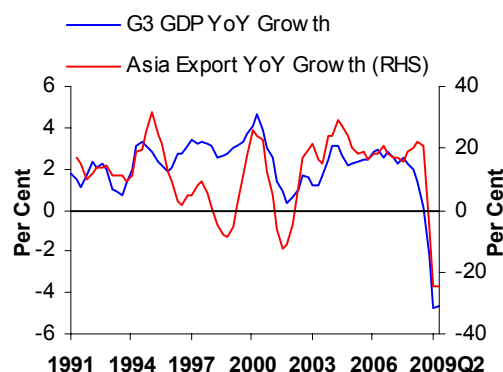
Source: CEIC, MAS estimates
SEA comprises Indonesia, Malaysia & Thailand
NEA comprises Hong Kong, Korea & Taiwan (NEA3)

Chart 1.41
Loan Growth: Selected Countries



Source: CEIC

Chart 1.42
G3 GDP Growth & Asia Export Growth



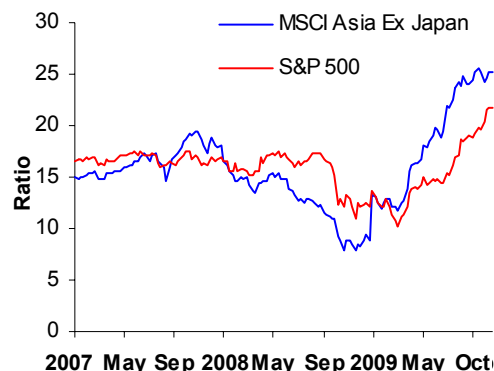
Source: CEIC, Datastream
Asia comprises SEA5, NEA3, China & India (Singapore data excludes exports to Indonesia)

Further ahead, different speeds of recovery may present policy challenges for Asia.

If the downside risks mentioned above do not materialise, new challenges may emerge. In particular, given the stronger economic recovery and resilient credit supply, Asia may need to remove monetary accommodation before the G3. This could pose potential challenges. Higher interest rates in Asia could exert appreciation pressure on currencies, which could stifle recovering export growth. In addition, carry trades and capital inflows could reinforce these pressures and increase the risk of asset price bubbles.

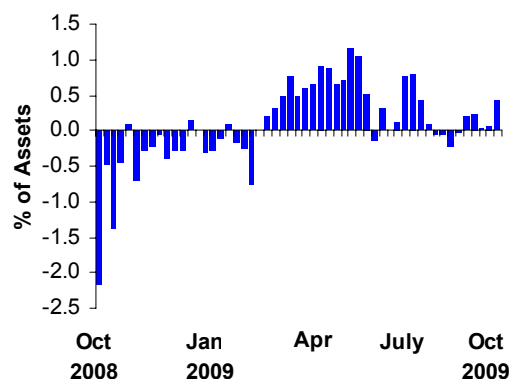
The recovery of Asian economies and stability of financial systems may signal structural resilience in Asia. Nevertheless, rising asset prices have created the risk of higher volatility if downside risks to the Asian recovery crystallise and/or global risk appetite recedes again. Further ahead, policy challenges remain for Asia. These include policy dilemmas if the recovery in Asia is faster than the G3, as well as developing sustainable solutions to global imbalances.

**Chart 1.43
Price-Earnings Ratios:
Selected Equity Indices**



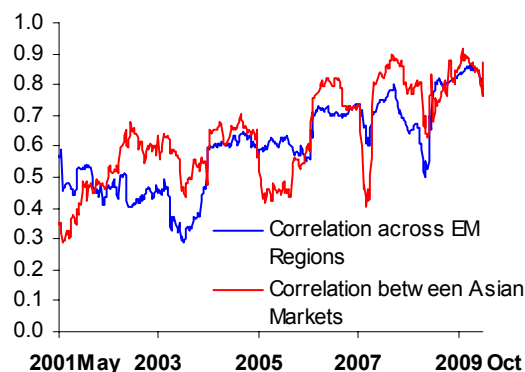
Source: Bloomberg

**Chart 1.44
Asia ex Japan
Weekly Equity Mutual Fund Flows**



Source: EPFR Global

**Chart 1.45
Equity Correlation Within Asia and Across
Emerging-Market Regions**



Source: Bloomberg, MAS estimates
Index correlation coefficients derived by assuming bilateral correlations between index constituents are equal. Asia index comprises all economies included in the MSCI Asia Index excluding China and India; EM index comprises all in the MSCI EM index

Key financial stability risks stemming from the Asian financial system

The economic rebound in Asia has been swifter than many had anticipated. Indicators of financial system stress have fallen sharply and, despite a significant fall in cross-border bank lending to Asia in Q1 2009, credit supply has been resilient. The relatively strong fundamentals of regional banking systems and improved economic outlook suggest Asian financial systems should continue to recover during the initial part of 2010.

Beyond that, as with the G3, uncertainty remains high and there are risks along the path of gradual recovery:

- Any stall in G3 recovery would impact on Asia – particularly for the more export-dependent economies. A re-evaluation of the region's growth prospects or increased risk aversion could trigger market volatility. In addition, to the extent that the run-up in Asian asset prices since Q1 2009 has been supported by abundant global liquidity, markets may be sensitive to the eventual removal of monetary accommodation. Asset price falls could prompt capital outflows from Asia and, in turn, exchange rate volatility.
- On the other hand, if the economic recovery continues, some Asian countries may need to remove monetary accommodation before the G3, given the stronger economic recovery and resilient credit supply. This could pose policy dilemmas. If monetary policy needs to be tightened significantly earlier than in the G3, carry trades, capital inflows and exchange rate appreciation pressure could result, potentially entailing a risk of asset price bubbles.

Box D: Asian Financial Stress Indicators

The recent financial turmoil has prompted renewed debate about the causes and impact of financial system stress. Measures of financial stress are useful for analysing these issues empirically. There have been several recent attempts at constructing such measures, including those featured in IMF's World Economic Outlook in October 2008 and April 2009. This box outlines a possible Financial Stress Index for Asia (an A-FSI). Such a measure may be a useful tool for monitoring financial stress in Asian economies and for understanding the causes and impact of financial stress.

Constructing an A-FSI

The starting point for an A-FSI is recent work by the IMF in constructing Emerging Market Financial Stress Indices (EM-FSI). The EM-FSI has several desirable features. First, it is a continuous variable, providing information on the intensity of stress, not just the occurrence, as in the case of a binary variable. Second, the EM-FSI includes more securities market components than previous stress indicators, to reflect the growing importance of capital markets and the interaction between banks and capital markets. Securities market data also allows observations of the EM-FSI at a higher frequency than standard financial soundness indicators, which are often observed only on a quarterly basis. Third, the EM-FSI includes a variable to capture exchange rate changes, which are a common source and indicator of stress in emerging markets.

The A-FSI extends the IMF work along two lines. First, despite growing capital markets, banks remain the predominant channel of financial intermediation in Asia. The banking system is therefore a key determinant of overall financial health in Asia. Thus three high-frequency banking sector indicators are added to increase the weight of banking indicators in the index. Second, the change in exchange rate component is replaced by a measure of exchange rate volatility, on the basis that sharp shifts in exchange rates, regardless of the direction of the move, could be destabilising.

The individual components of the A-FSI are listed in Table D1. They are normalised and variance-weighted to construct country indices and then combined into a GDP-weighted average across economies to derive a regional index.

Table D1: Subcomponents of the A-FSI

Subcomponent	Description
Stock returns	Monthly returns on the main stock index.
Stock return volatility	Stock return volatility derived from a GARCH (1,1) model.
Sovereign spreads	Sovereign credit spreads (except India and Hong Kong, where an index of corporate bond spreads is used).
Change in official foreign reserves	Monthly change in official foreign reserves.
Exchange rate volatility	Monthly average exchange rate volatility.
Bank index beta	The CAPM beta of the bank sub-index relative to the main stock index.
Equity-based bank risk measure	A bank credit risk measure derived from a Merton-style credit risk model ⁸
Short-term interbank rate ⁹	3-month interbank rate (CD rates used for Korea and Taiwan).
Bank credit rating	Credit ratings of major domestic banks converted into one-year default probabilities using transition matrices.

⁸ See "On the Pricing of Corporate Debt: The Risk Structure of Interest Rates", Robert Merton, 1974, and *Advanced Credit Risk Analysis*, Didier Cossin and Hugues Piroette, 2000.

Interpreting the A-FSI

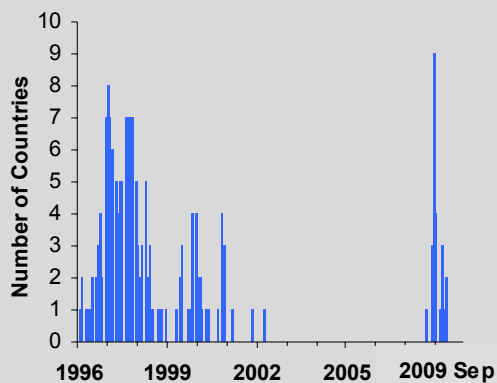
Before discussing key observations, two caveats need to be highlighted. First, the A-FSIs are comparable across time but not across economies, as their values are normalised within the economy's own observed data. Second, the A-FSIs on their own do not measure the real economic impact of the stress. This would depend on other factors such as the economy's financial sector exposure.

Decomposing the A-FSI by region shows that financial stress in SEA during the recent crisis was considerably less than during the AFC (Chart 1.32 in main text). This may reflect Asia entering the 2008 crisis with better fundamentals than at the start of the AFC. Banking systems were healthier, with lower loan to deposit ratios and reliance on external financing. Asian economies had also strengthened current account and fiscal balances, and built up substantial foreign exchange reserves (see Box C in the November 2008 FSR).

The stress experienced during the AFC was not only relatively more intense than the 2008 crisis for Asia, it was also more prolonged. Four or more Asian economies experienced financial stress more than one standard deviation above their norm in the 12 months between October 1997 and October 1998 compared with only two months – October and November 2008 – during the recent crisis (Chart D2). Reflecting the global nature of the more recent crisis, however, all 9 economies experienced a large increase (i.e. more than one standard deviation) in their respective A-FSIs during the recent crisis, unlike during the AFC.

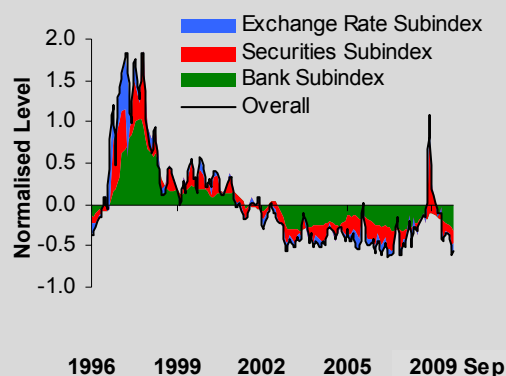
The sources of stress for the region in these two crisis episodes also differ. Early in the AFC, the SEA A-FSI rose due to both banking sector and exchange rate stress (Chart D3). Subsequently, exchange rate pressures subsided while banking sector stress lingered. In contrast, the increase in the SEA A-FSI during the recent crisis resulted mostly from strains in the securities markets.

Chart D2
Number of Asian Economies with an A-FSI More Than One Standard Deviation Above its Sample Average



Source: Bloomberg, CEIC, Thomson Financial, MAS estimates

Chart D3
Decomposition of SEA4 A-FSI



Source: Bloomberg, CEIC, Thomson Financial, MAS estimates

⁹ Short-term interbank interest rates embody expectations about future monetary policy as well as interbank credit and liquidity premia, which are indications of financial stress. However, the lack of Overnight Index Swap (OIS) rates or similar instruments in most Asian markets means it is difficult to strip out the monetary policy component. The interbank rate is therefore included in levels.

Do FSIs provide information on real economic activity?

The usefulness of the A-FSI as a measure of financial stress lies partly in the degree to which movements in the index are related to economic activity. This can be examined with simple econometric tests (Granger causality tests) to establish whether changes in the A-FSI typically preceded changes in credit growth and/or GDP growth.¹⁰ For this exercise, the interbank interest rate component of the A-FSI was excluded owing to its straightforward link to credit growth.

The results show that movements in the A-FSIs (excluding interest rates) preceded either credit growth or GDP growth, with lower GDP and credit growth following periods of higher stress, in 7 out of 9 Asian economies (Table D4). Empirical tests thus provide tentative evidence of a significant relationship between movements in the A-FSI and subsequent economic conditions.

Table D4: Results of Granger-Causality Tests for A-FSIs, Credit Growth and GDP Growth

	India	China	Korea	Taiwan	HK	Indonesia	Malaysia	Philippines	Thailand
FSI Granger causes credit growth	No (0.15)	No (0.99)	Yes (0.01)	Yes (0.03)	Yes (0.00)	Yes (0.00)	No (0.24)	Yes (0.10)	Yes (0.01)
FSI Granger causes GDP growth	Yes (0.00)	Yes (0.00)	No (0.20)	No (0.20)	Yes (0.03)	Yes (0.00)	No (0.47)	Yes (0.00)	No (0.30)

Source: MAS estimates

Note: P-values in brackets. The A-FSI is assumed to Granger-cause credit or GDP growth if the p-value is 10% or less. Cells highlighted in green where the sum of the coefficients on four lags of the A-FSI is negatively signed, as expected.

The A-FSI outlined above is an example of a monitoring tool and summary statistic of financial stress in the region. Such measurements of financial conditions will gain importance as Asia's financial markets continue to deepen and play a larger role in the region's economies. The recent financial crisis has also underlined how seemingly unrelated financial market events overseas can affect regional markets. Measures such as the A-FSI provide a basis for further studies on the impact of financial stress and potential contagion.

¹⁰ Q-o-Q growth rates were used for the real economy variables. Statistically significant test results suggest that lagged values of the A-FSIs can explain movements in the real economy variables, providing some evidence that movements in the A-FSI are indeed correlated with economic activity. The Granger-causality tests were conducted using four lags of the dependent variable and A-FSI.

Box E: Recent Trends in Emerging Market Capital Flows and Implications for Financial Stability

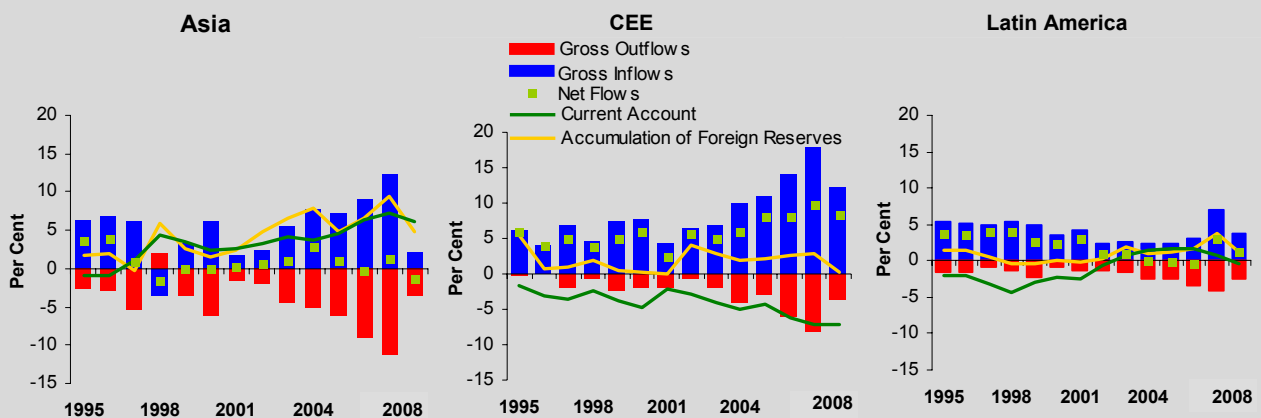
The surge in cross-border capital flows over recent years has brought many benefits, but volatile capital flows can introduce greater risks to financial systems and pose policy challenges.¹¹ This box reviews recent trends in capital flows to emerging market economies (EMEs) and analyses the implications for financial stability.

Over the past few decades, numerous studies have analysed the macroeconomic challenges presented by capital flows. In general, the focus has been on *net* flows, which are important for understanding macroeconomic implications. For financial stability analysis, gross capital flows (inflows and outflows) are also informative. Net flows may conceal the actual financial linkages between economies and any imbalances that might be present in the composition, maturity structure and currency denomination of capital inflows and outflows.

Historical trends in gross capital flows

There have been two periods of accumulation of large gross capital flows to EME regions in the last 20 years. The first started in the early 1990s and ended abruptly with the Asian Financial Crisis in 1997-98. The second – and larger – of the two began building in the early 2000s, peaking in 2007 before the onset of the current crisis. Gross capital inflows to EME regions in 2007 were more than seven times higher in absolute terms than in 2002. This was accompanied by an equally large increase in capital outflows over the same period. In 2007, total gross inflows and outflows as a percentage of GDP were at or close to their historical peaks in all EME regions (Chart E1).

Chart E1
Gross Capital Flows in EME Regions as a Percentage of Regional GDP



Source: IMF Balance of Payments and WEO Database Oct 2009, MAS estimates

Asia: China, India, NEA3, SEA5

CEE: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovenia, Turkey

Latin America: Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela

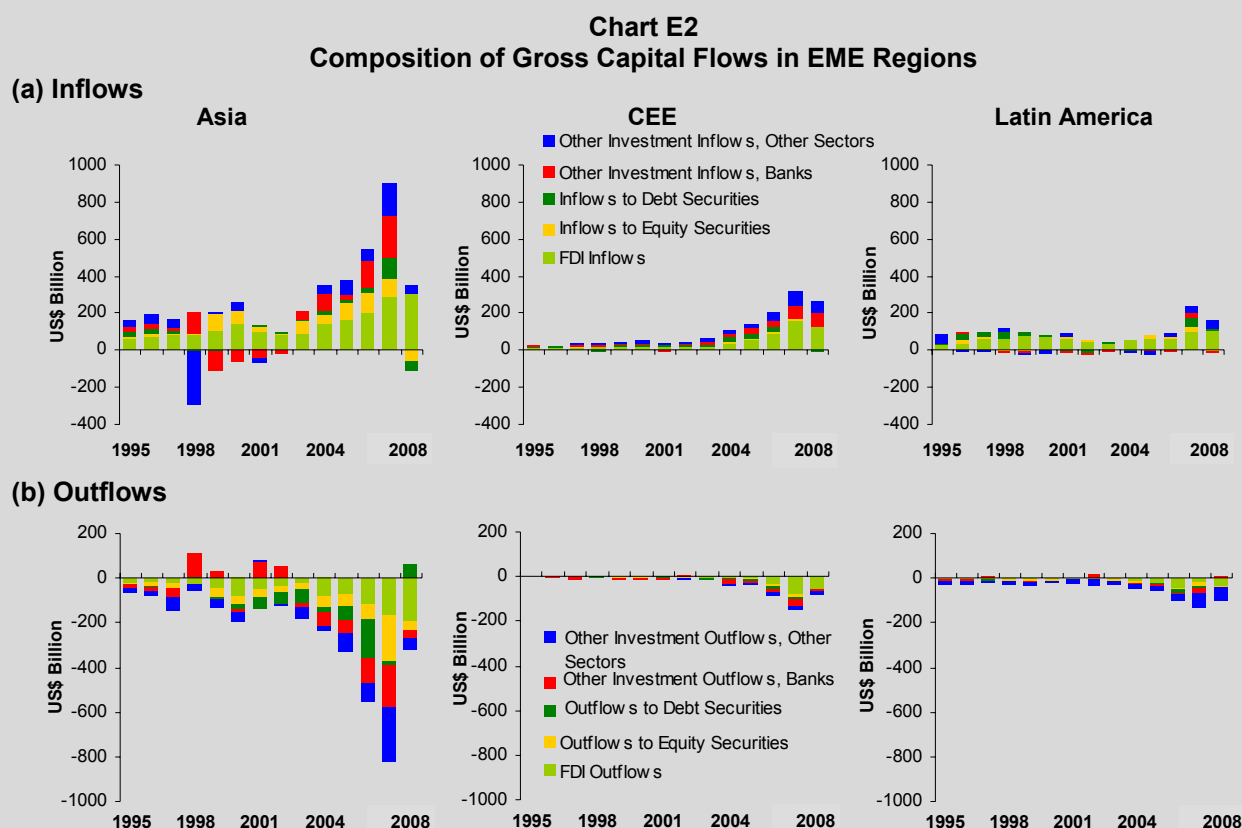
The charts show gross capital inflows and outflows to and from individual EMEs within a region. They therefore include intra-regional capital flows.

Gross capital inflows represent inward foreign direct investment (FDI), net purchases by foreign investors of local debt and equity securities and deposits and loans to local banks. A negative inflow indicates a reduction in foreign ownership of local assets.

Gross capital outflows represent outward FDI, net purchases by local investors of foreign debt and equity securities and deposits and loans to foreign banks. A positive outflow indicates a decrease in domestic ownership of foreign assets.

¹¹ Because of data limitations, flows listed under private capital flows in the IMF Balance of Payments can include some official flows. To avoid any confusion, we look at both private and official flows. Private flows, however, are typically much larger than official flows.

The composition of gross capital flows has changed over time. FDI continues to be a key driver of both capital inflows and outflows, but the importance of portfolio investment and cross-border lending flows, which are typically more volatile, has increased over time (Chart E2).



Source: IMF Balance of Payments; MAS estimates

Gross inflows and outflows are as defined in Chart E1.

Capital flows through the recent crisis

FDI

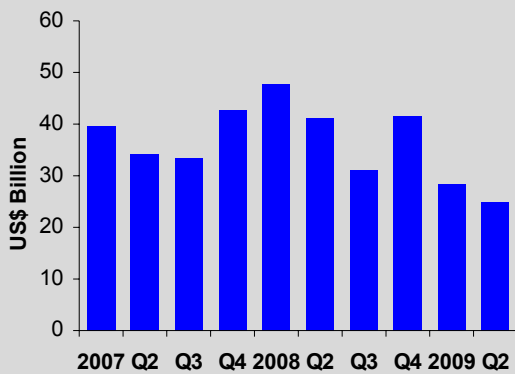
FDI is generally considered to be the most resilient form of capital inflow. Consistent with this, gross inflows of FDI to EME regions have proved relatively stable during the recent financial crisis, declining in absolute terms only in Central and Eastern Europe (CEE) in 2008 (Chart E2). In 2009 there has been some moderation in FDI flows to EME regions, on the back of a slump in global capital (Chart E3).

Cross-border lending

Cross-border loans to EMEs began contracting in Q2 2008. The pace of contraction has been sharper in both absolute and percentage terms for Asia than for other EME regions (See Chart 1.37 in the main text). This occurred despite the general perception that Asia was less risky than other EME regions, e.g. sovereign CDS spreads generally widened more in CEE than in Asia.

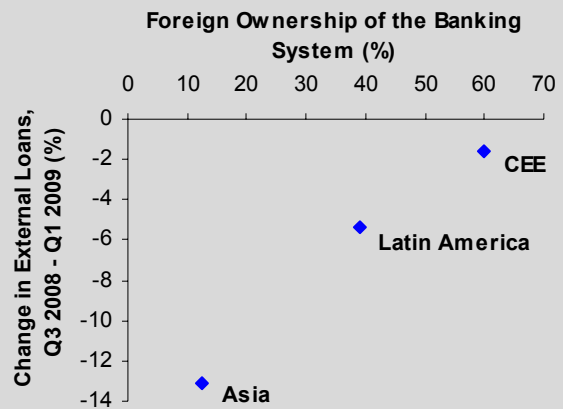
Cetorelli and Goldberg (2009) find that internal lending from parent banks to overseas subsidiaries held up better than “unaffiliated” cross-border loans to EME regions during the recent crisis. Parent banks exercising restraint in withdrawing funds to EME subsidiaries may have contributed to the smaller contraction in cross-border lending to non-Asia EME regions, where foreign ownership of domestic banking systems tend to be higher than in Asia (Chart E4). Policy interventions, such as the joint IMF-EU efforts to coordinate international banks’ continued commitment to some CEE economies (known as the “Vienna Initiative”), probably helped too.

Chart E3
Foreign Direct Investment Inflows to Asia



Source: CEIC
Comprises NEA3, SEA5 and India

Chart E4
Cross-border Lending vs. Foreign Ownership of Banking System



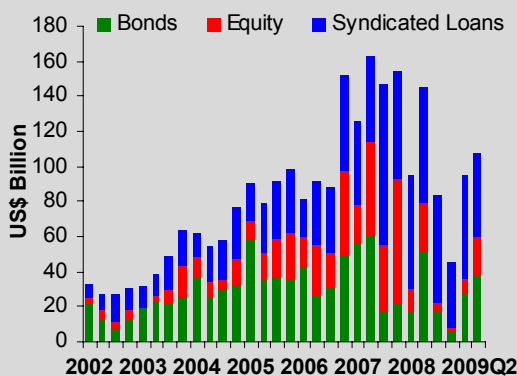
Source: BIS, Federal Reserve Bank of New York, IMF WEO Database Oct 2009 and MAS estimates
Change in external loans is adjusted for exchange rate changes; Foreign ownership of the banking system is a GDP-weighted regional average

Portfolio flows

Gross portfolio debt inflows to EME regions contracted sharply in 2008 as risk aversion spiked and market confidence plummeted. In Q2 and Q3 2009, there was some revival of primary debt issuance by both EME corporates and sovereigns, reflecting higher investor optimism around the outlook for EMEs (Chart E5).

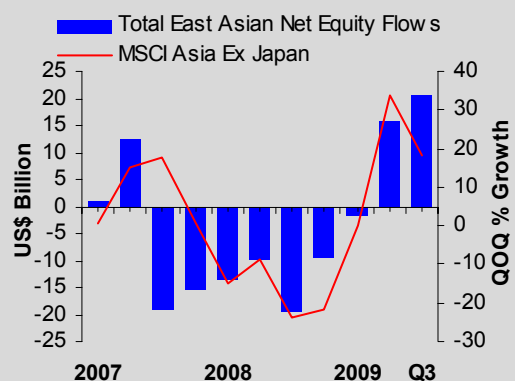
In Asia, gross capital outflows to debt securities were small in 2007, suggesting that domestic investors bought few foreign debt securities as the sub-prime crisis began to unfold. Indeed, outflows turned positive in 2008, indicating that domestic investors were liquidating their foreign bond holdings and repatriating funds from abroad.

Chart E5
New EME debt and Equity Issuance



Source: IMF GFSR, various issues
Total of equity, syndicated loan and international bond issuances in Asia, Emerging Europe and Latin America

Chart E6
Net Foreign Purchases in East Asian Stock Markets



Source: Bloomberg
Economies included are Taiwan, Korea, Thailand, Indonesia & the Philippines

Equity portfolio flows have been similarly volatile. In Asia, inflows to equity securities turned sharply negative in 2008 as foreign investors pulled out of Asian equity markets. As noted in the main text, the tide turned in Q2 2009 and foreign investors returned to Asian equity market as signs of economic recovery emerged (Chart E6). More recently, there have been increased sales of Asian equities by foreign investors on the back of concerns around rapid credit growth and asset price inflation. However, *net* equity purchases by foreigners have remained positive.

Outlook for capital flows to Asia

FDI flows to EMEs may continue to moderate. Global capital investment has contracted sharply, both as a result of increased spare capacity and also lower retained profits to fund investment. The Institute of International Finance predicts that net FDI flows to EMEs will decline by 23% y-o-y in 2009 and rise slightly, by around 5%, in 2010. However, FDI to Asia is likely to remain large relative to FDI flows to other EME regions, reflecting the rapid economic recovery and stronger growth prospects in Asia.

Portfolio investment flows have been volatile over the last year and are likely to remain so as near-term uncertainty is high and asset prices volatile. To the extent that inflows have been spurred by abundant liquidity in the G3, portfolio flows may be sensitive to any moves to tighten monetary policy. Further, a sharp fall in Asian equities may lead to outflows if foreign investors follow the market or “chase returns”. Indeed, there is empirical evidence of return chasing by foreign equity investors (Box F).

Banking flows to Asia began to stabilise in Q2 2009. As noted in the main text, Asia has been resilient to the contraction in cross-border lending in Q4 2008 and Q1 2009. The ability of Asian banking systems to absorb such outflows may lead market participants to consider Asia more resilient going forward. Even as cross-border loans have fallen, foreign exchange reserves have remained stable. But the risk of renewed capital volatility remains as G3 banking systems stay fragile (see main text).

Conclusion

Understanding capital flows is important for financial stability. Opening the capital account can bring important benefits, such as risk sharing and more efficient allocation of productive resources. Greater connectivity within the international financial system can make it more robust, as it allows diversification of risk. Nonetheless, shifting capital flows can present policy challenges. While Asia has been resilient to a decline in capital flows during the recent crisis, it will be important to monitor trends in capital flows and their drivers going forward in order to design appropriate policy measures.

References

Cetorelli, N and Goldberg, L (2009), “Globalized Banks: Lending to Emerging Markets in Crisis”, *Federal Reserve Bank of New York Staff Reports*, No. 377.

Box F: Investigating the Relationship between Foreign Net Equity Flows and Equity Returns in Asia

The uncertain economic outlook carries the risk of more volatile asset prices going forward. This box explores the relationship between equity returns and foreign equity flows into and out of Asia, to shed light on the potential impact of greater asset price volatility on capital flows.

The relationship between equity purchases by foreign investors and equity returns has been widely researched. The majority of studies find a positive relationship between *current* portfolio equity flows and *past* returns, i.e. rising equity prices are followed by positive net purchases of equities by foreign investors.¹² This relationship is often termed “return-chasing” or “momentum trading”. A common explanation for return-chasing is that foreign investors have extrapolative expectations, forming views about future equity returns based on recent past returns. Foreign investors might be more likely to do this than domestic investors if they find it harder, or more costly, to access information on domestic markets. Some studies, however, find a positive relationship between *current* equity returns and *past* equity flows.¹³

Existing empirical studies on the relationship between equity flows and equity prices pre-date the recent crisis period. To explore the relationship through the crisis, regressions of *current* net equity purchases by foreigners on *lagged* values of these purchases and total equity returns in US dollar terms can be estimated.¹⁴ Data are available for six Asian countries: India, Indonesia, Korea, the Philippines, Taiwan and Thailand.

To investigate whether equity flows typically precede equity returns (and/or vice versa), econometric (Granger causality) tests can be used. The results show that key results from existing studies largely hold from 2008 onwards, i.e. during the crisis. Specifically, there is evidence of return chasing in all but two of the sample countries included (the Philippines and Taiwan) both before and after 2008. The tests fail to find a significant relationship when repeated to establish if past capital flows typically precede equity returns.

Table F1
Results of Granger Causality Tests

		India	Indonesia	Korea	Philippines	Taiwan	Thailand
Dollar returns 'Granger cause' net purchases	Full sample	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)
	1 Jan 1999- 31 Dec 2007	Yes (0.000)	Yes (0.001)	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)
	1 Jan 2008- 30 Jun 2009	Yes (0.000)	Yes (0.007)	Yes (0.000)	No (0.728)	No (0.479)	Yes (0.000)

Probability values reported in parentheses, testing the null hypothesis that dollar equity returns do not Granger cause net equity purchases.

The results are therefore consistent with a degree of “return chasing” by foreign investors investing in Asian equity markets. This suggests some of the recent capital flows into Asia might have been driven by the strong equity market performance. It also suggests that capital outflows could result should there be a sharp fall in Asian equities.

¹² See for example Bohn and Tesar (1996), Chai-Anant and Ho (2008) or Bekaert et al (2002).

¹³ See Clark and Berko (1997).

¹⁴ Following Chai-Anant and Ho (2008), we estimate $y_t = \alpha_0 + \alpha_1 y_{t-1} + \dots + \alpha_5 y_{t-5} + \beta_1 x_{t-1} + \dots + \beta_5 x_{t-5} + \epsilon_t$, where y_t represents daily net equity purchases by foreigners (scaled by market capitalisation), x_t represents daily total stock market returns (in US\$), and ϵ_t represents random disturbances which cannot be accounted for by the model.

References

Bekaert, G, Harvey, CR and Lumsdaine, RL (2002), "The Dynamics of Emerging Market Equity Flows", *Journal of International Money and Finance*, No. 21 (3), pp.295-350.

Bohn, H and Tesar, L (1996), "US Equity Investment in Foreign Markets: Portfolio Rebalancing or Return Chasing?", *American Economic Review*, No. 86 (2), pp.77-81.

Chai-Anant, C and Ho, C (2008), "Understanding Asian Equity Flows, Market Returns and Exchange Rates", *BIS Working Papers*, No. 245.

Clark, J and Berko, E (1997), "Foreign Investment Fluctuations and Emerging Market Stock Returns: The Case of Mexico", *Federal Reserve Bank of New York Staff Reports*, No. 24.

2 SINGAPORE'S MACROECONOMIC ENVIRONMENT AND FINANCIAL SYSTEM

2.1 Macroeconomic Developments

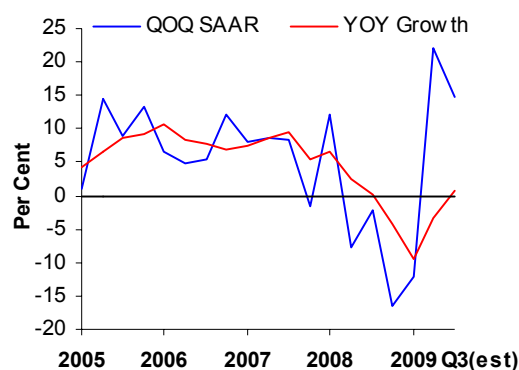
Singapore's economy has rebounded from the trough and recovery has become broad-based.

The worldwide financial turmoil and ensuing global economic slowdown caused the Singapore economy to contract sharply over Q4 2008 and Q1 2009. However, y-o-y growth turned positive in Q3 2009 after three quarters in negative territory. On a q-o-q SAAR basis, the Singapore economy rebounded by 22.0% in Q2 2009 and 14.9% in Q3 2009, following four consecutive quarters of contraction (Chart 2.1).

The stronger-than-expected Q2 and Q3 2009 uplift reflected improvements in credit and financial market conditions and the pickup in manufacturing output as firms replenished inventories. These in turn spurred a rebound in domestic asset market activities and trade-related industries. A resurgence in residential property transactions helped boost real estate services, construction and property-related bank lending. The financial services sector expanded by 22.8% q-o-q SAAR in Q2 2009, driven by a rebound in activity in sentiment-sensitive segments. Offshore lending and the insurance segment provided a further boost. Reflecting the better-than-expected outcome, MTI has revised Singapore's GDP growth forecast for 2009 upwards to between -2.5% and -2%, from -6% to -4% previously.

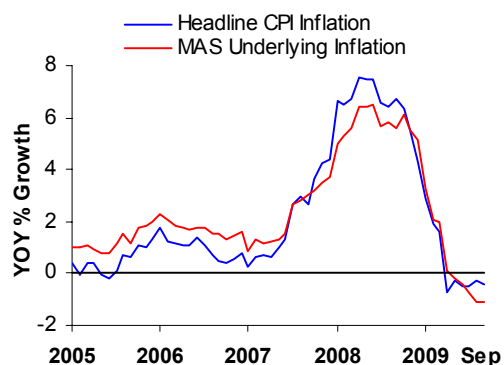
CPI inflation averaged -0.4% y-o-y over the period from April to September 2009, due largely to significantly lower prices of oil-related items. The inflation rate for other goods and services also fell sharply, amidst weak consumer sentiment and muted domestic cost pressures in response to the economic downturn (Chart 2.2). For the rest of 2009 and into 2010, CPI inflation is expected to be driven by external factors, especially higher oil, food and commodity prices in world markets. Domestic sources of inflationary pressures will continue to be

Chart 2.1
Singapore's GDP Growth



Source: Department of Statistics

Chart 2.2
Headline CPI and MAS Underlying Inflation



Source: MAS

restrained by subdued factor costs, at least until the first half of 2010, reflecting the temporary slack in the labour market and upcoming supply of commercial space. CPI inflation is likely to be around 0% in 2009, before rising to 1-2% in 2010.¹⁵

2.2 Financial Markets

Global funding strains did not spill over significantly into Singapore.

The global credit crunch, coupled with the contraction in the G3 economies, impacted Singapore's financial markets in late 2008 and early 2009. Singapore interbank rates briefly came under upward pressure in September/October 2008, amid the dislocation in global money markets. The domestic equity market experienced sharp declines. Financial markets in Singapore have rebounded strongly since Q2 2009 along with the robust turnaround experienced by financial markets globally.

In line with other US\$ centres, the Asian Dollar Market (ADM) experienced some strains in Q4 2008. However, uncertainty surrounding US\$ funding in the ADM has since abated with the pre-emptive establishment of the US\$30 billion swap line with the US Federal Reserve in October 2008 and the return of more normal money market conditions globally. As a result, the US\$ SIBOR has fallen by 4.5 percentage points since its crisis peak in October 2008 (Chart 2.3).

In the S\$ money market, MAS maintained a higher level of liquidity in the system and expanded its Standing Facility to all participating MEPS+ banks, which helped alleviate liquidity concerns. Heightened counterparty risk aversion globally following Lehman Brothers' collapse saw some spill-over into Singapore. Nonetheless, the S\$ SIBOR-OIS spread and the S\$ TED spread remained quite stable (Chart 2.4), as liquidity and counterparty default concerns in the S\$ money market were relatively muted.

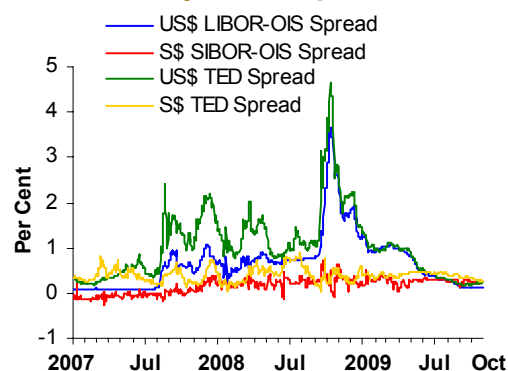
Singapore's open financial markets are not immune

Chart 2.3
3-month Interbank Rates



Source: Bloomberg

Chart 2.4
Money Market Spreads



Source: Bloomberg

¹⁵ This forecast does not take into account any potential revision to the Annual Values of HDB flats.

to global dislocations. MAS has therefore enhanced its liquidity provisioning measures to help ensure stable domestic liquidity conditions should another disruption to worldwide funding markets occur (see Box G).

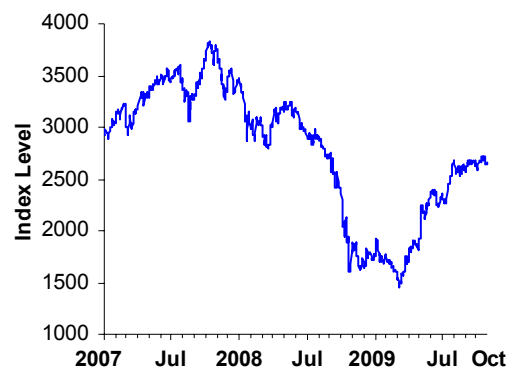
The equity market has rallied with the return of risk appetite and confidence...

The domestic equity market declined sharply in line with regional and global equity markets, but a swift turnaround has since occurred. Between March 2008 and March 2009, when the domestic equity market hit a trough, the Straits Times Index (STI) lost some 50% of its value and average turnover volume declined by almost a fifth. (See Section 2.4 for discussion on impact of equity market decline on households.) Since then, the domestic equity market has rebounded strongly to recover about 90% of the earlier decline as risk appetite returned (Chart 2.5). Renewed portfolio inflows into the region from foreign institutional and retail investors on hopes of an early economic recovery have added momentum to the rebound in the domestic equity market.

In the Singapore Government Securities (SGS) market, yields have remained low, which suggests prevailing confidence in the resilience of Singapore's economy and the Government's fiscal discipline (Chart 2.6). The yield curve has also steepened in line with the global trend as major central banks have signaled commitment to accommodative monetary policies and low interest rates for an extended period of time until clearer signs of sustained recovery emerge.

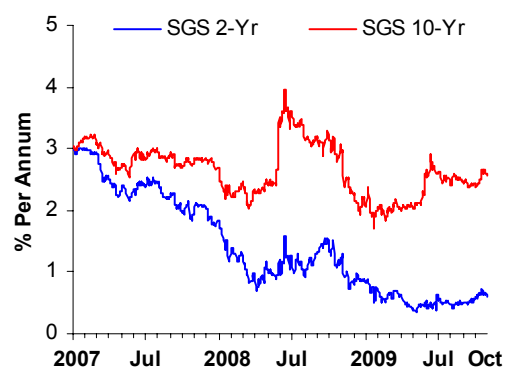
Given the current uncertain prospects for a sustained global economic recovery, a number of commentators and investment advisers have commented that the domestic equity market might have risen too quickly since there has not been a broad-based improvement in company earnings. A re-evaluation of growth prospects or decline in risk appetite could trigger some market volatility.

**Chart 2.5
STI**



Source: Bloomberg

**Chart 2.6
SGS 2- and 10-year Benchmarks**

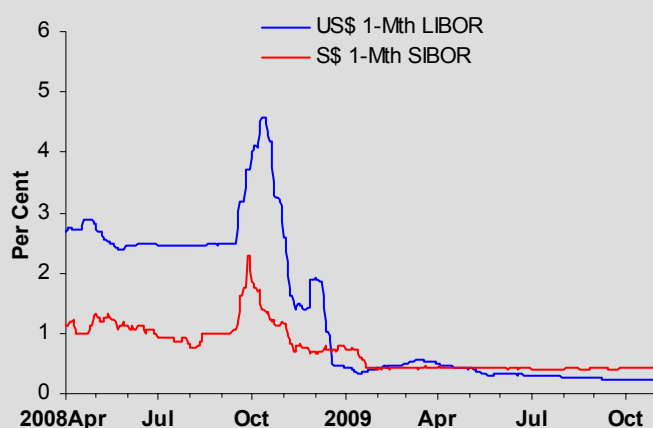


Source: Bloomberg

Box G**Enhancement to MAS' Liquidity Provisioning Measures**

In the months following the collapse of Lehman Brothers in September 2008, money markets globally were under strain. Although the Singapore dollar money markets did not experience the seizure that gripped other global funding markets, the openness of Singapore's financial system meant it could not be immune from the global dislocations. To ensure the smooth functioning of financial markets, MAS reassured financial institutions that they would have access to Singapore dollar and US dollar liquidity in two ways:

- i. MAS kept a higher level of Singapore dollar liquidity in the banking system;
- ii. MAS entered into a precautionary US\$30 billion swap arrangement with the US Federal Reserve.

Chart G1

Source: Bloomberg

In addition, MAS had earlier in 2008 expanded eligibility for MAS' Standing Facility to all banks that participate in the MAS Electronic Payment System. To strengthen further the resilience of financial markets, MAS introduced two more enhancements to the MAS Standing Facility:

- i. MAS will accept AAA-rated S\$ debt securities issued by supranationals, sovereigns, and sovereign-guaranteed companies as collateral in the Standing Facility, in addition to SGS. Given this change, MAS will also permit banks to treat these securities as Tier 2 liquid assets, with the same zero risk weighting as SGS. This will help banks to better manage their risks and liquidity profiles.
- ii. MAS will also enter into cross-border collateral arrangements with other central banks to accept well-rated foreign currencies and government debt securities as collateral in the Standing Facility.

2.3 Corporates¹⁶

Strong corporate balance sheets helped buffer against earnings and liquidity pressures.

The economic downturn squeezed domestic corporate earnings and raised concerns about heightened corporate refinancing risks. Fortunately, most corporates have built up strong balance sheet buffers in the past few years, which helped them weather the crisis relatively well.

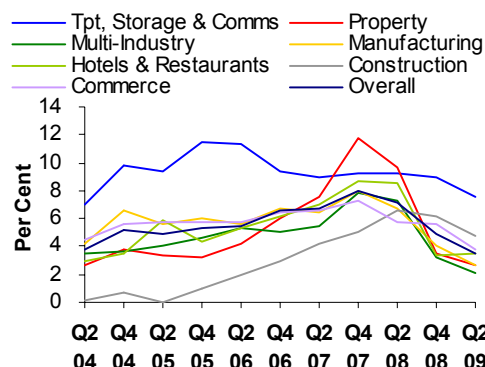
As the economic slowdown worsened in late 2008 and early 2009, corporate profitability came under pressure. Return on Assets (ROA) fell sharply across most sectors in Q4 2008, although the pace of decline has since moderated as of Q2 2009 (Chart 2.7).

Falling profitability in turn led to a sharp decline in interest cover in Q4 2008 (Chart 2.8). Against the backdrop of tighter credit conditions and impaired capital markets, concerns over refinancing difficulties for some corporates, especially REITs, arose in the latter part of 2008 and early 2009 (See Box H). Conditions have since improved, with the interest coverage ratio for the median firm rising substantially from 2.7 in Q4 2008 to 4.7 in Q2 2009. MAS estimates show that it would take an 80% fall in earnings or a 420 basis point rise in interest rates for the median firm’s interest coverage ratio to fall below one.

Corporates have generally entered this downturn from a position of strength, having built up their cash reserves from strong earnings in the past few years. As a result, corporate liquidity has remained sound across all sectors, with current assets exceeding current liabilities for about 90% of firms covered. While corporate liquidity – as measured by the current ratio – fell noticeably across all industries in Q4 2008, it stabilised by Q2 2009 (Chart 2.9).

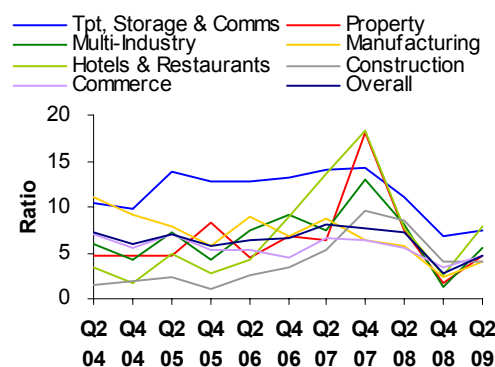
In aggregate, domestic corporates appear well-

Chart 2.7
Return on Assets (Median)



Source: Thomson Financial

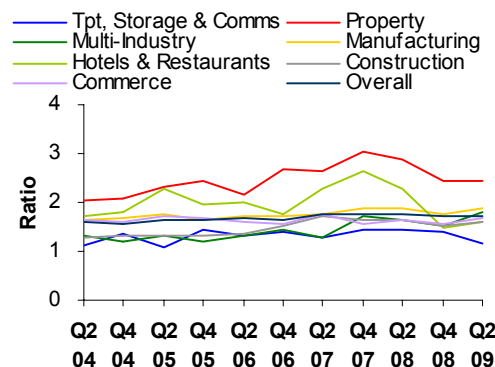
Chart 2.8
Interest Coverage Ratio* (Median)



Source: Thomson Financial

* Earnings before interest & tax divided by interest expense

Chart 2.9
Current Ratio* (Median)



Source: Thomson Financial

* Current assets divided by current liabilities

¹⁶ All corporate financial data cover only corporates that are listed on SGX as of December 2008. The latest data point provided is Q2 2009 as most of the companies that are required to report earnings on a half-yearly basis tend to do so in Q2 and Q4.

positioned to cover their interest expense and other liquidity needs, although financial strength varies across sectors and individual corporates, depending on their particular recovery prospects and funding profiles.

Large corporates' access to funding starting to improve; SMEs benefited from government financing schemes.

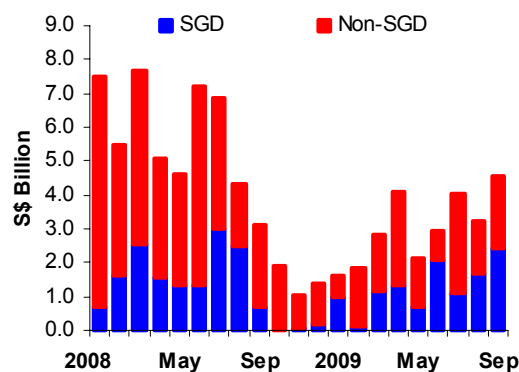
Given the uncertain economic environment and expectations of weakened corporate performance, banks adopted a more cautious stance towards their corporate exposures in late 2008 and H1 2009. Market contacts cited banks' own balance sheet constraints, declining collateral values, deteriorating corporate performance, and increased loss-given-default as possible factors constraining loan supply to large corporates.

Fund raising activity in other corporate funding markets also declined due to falling risk appetite and poor valuations. Corporate debt issuance contracted to S\$27.3 billion in the first nine months of this year, compared with S\$51.9 billion for the same period last year (Chart 2.10). The initial public offer (IPO) market was similarly quiet, with no new corporate listing on the Singapore Exchange (SGX) Mainboard between December 2008 and July 2009 (Chart 2.11).

In contrast, market contacts noted that small and medium-sized enterprises (SMEs) were not as affected by tightened credit conditions. Government financing schemes introduced in February 2009 have helped support SME lending by increasing the government's risk share in loans to SMEs as well as the permitted loan quantum. From February to September 2009, participating financial institutions registered loans worth about S\$4.9 billion with the majority going to SMEs. This was about seven times the value of loans approved over the same period in 2008¹⁷.

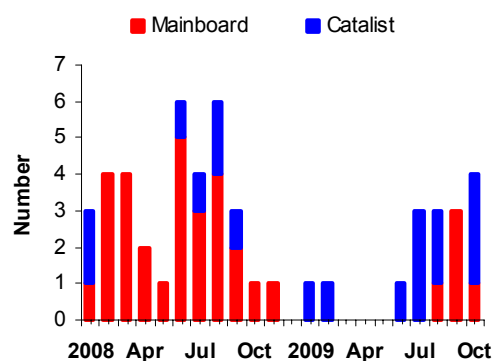
Although access to funding trended downward in H1 2009, incipient signs of a recovery have emerged.

**Chart 2.10
Corporate Debt Issuance**



Source: MAS

**Chart 2.11
Number of Initial Public Offers**



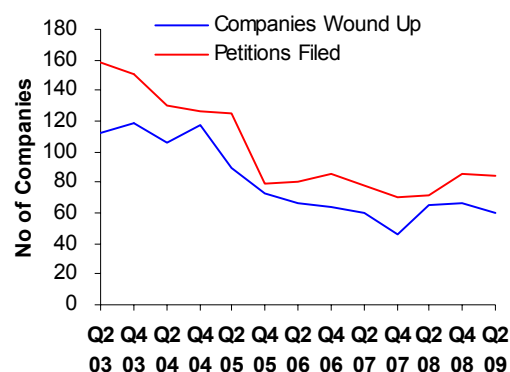
Source: SGX

¹⁷ Reply By Mr Tharman Shanmugaratnam, Minister For Finance, in response to questions in Parliament on 19 October 2009.

Surveys show that business owners in the manufacturing and services industries expect business conditions to improve in Q4 2009.¹⁸ Corporate bankruptcies have remained low (Chart 2.12). The STI has rebounded strongly since March 2009, reflecting the general improvement in investor sentiment and a return of risk appetite. With better valuations, the IPO market has started to revive with 13 new corporate listings since July 2009 raising S\$258.2 million (Chart 2.11). Market contacts reported that conditions in the corporate debt market appeared to be turning around, although primarily for better-known companies. Market contacts also suggest that credit terms and conditions would likely ease going forward if sustained economic recovery takes root.

Supported by healthy balance sheets, the corporate sector has weathered a difficult year and is well-placed to emerge from the current crisis on a firmer footing. However, companies' finances could come under renewed stress if the global and therefore Singapore's economic recovery were to stall and cause earnings to fall. Further, with both the bond and securitisation markets still relatively inactive, corporates and REITs are expected to remain reliant on bank financing. If interest rates were to rise sharply from their current low levels and lead to higher debt servicing costs, the corporate sector could come under strain.

Chart 2.12
Corporate Bankruptcies



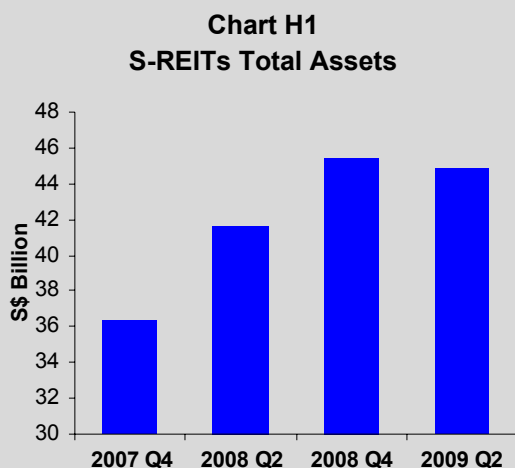
¹⁸ Survey of Business Expectations of the Manufacturing Sector, Q4 2009, Economic Development Board and Business Expectations Survey Services Sector, Q4 2009, Department of Statistics.

Box H
Real Estate Investment Trusts – A Case Study on Corporate Refinancing
During the Financial Crisis

The economic downturn triggered by the global financial turmoil in late 2008 saw domestic corporate earnings come under pressure, and led to funding strains in some cases. This box describes the particular challenges faced by Real Estate Investment Trusts listed on SGX (S-REITs).

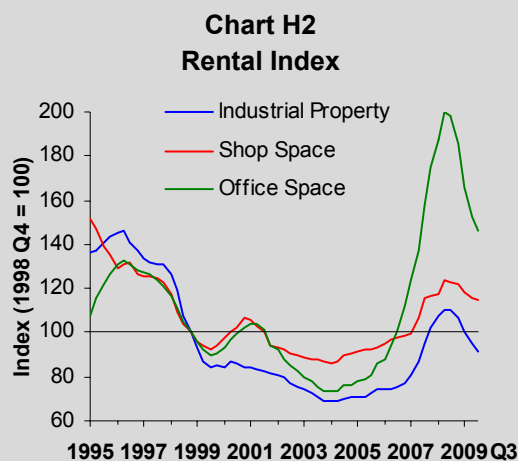
In the years before the onset of the current crisis, S-REITs had embarked on an aggressive asset acquisition strategy, which saw assets growing from S\$36.3 billion in end-2007 to about S\$45 billion at end-2008 (Chart H1). Such asset acquisitions were typically financed by equity and debt, with several S-REITs relying on short-term uncommitted bank financing and issuances of commercial mortgage-backed securities (CMBS).

As S-REITs are required to distribute at least 90% of any taxable income to unit-holders¹⁹, S-REITs have limited retained earnings. As a result, S-REITs are dependent on debt and equity markets and bank financing to fund asset purchases and to meet their large and lumpy refinancing needs. Loans to S-REITs are typically collateralised by property and contain covenants that are tied to property values.



Source: Thomson Financial

Data includes about S\$3 billion and S\$570 million in new listings in Q2 2008 and Q4 2008 respectively



Source: Urban Redevelopment Authority

Refinancing Concerns Arising From The Economic Downturn

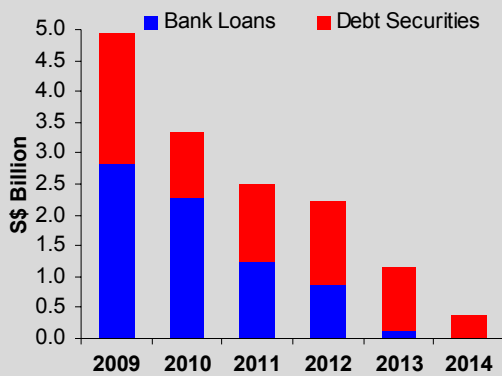
The S-REITs sector has had a difficult year. The rapidly deteriorating economic outlook and depressed financial markets following the onset of the current crisis saw S-REITs come under refinancing pressure. Rental yields on commercial and industrial space were declining, which squeezed S-REITs' earnings (Charts H2 and H8). This caused the debt servicing capability of S-REITs to deteriorate, with the interest cover²⁰ for the median S-REIT declining from 6 times to 2.7 times between Q2 2008 and Q4 2008. In addition, as at end-2008, about one-third of S-REITs' total indebtedness or about S\$4.9 billion was maturing in 2009. Of the debt maturing in 2009, about half was due in the first half of the year (Chart H3). Bond and securitisation markets had seized up, making it difficult for REITs to raise debt financing.

¹⁹ Under the Singapore Income Tax Act, in order to achieve tax transparency (income is taxed at the investor's level, rather than at the REIT level), S-REITs are required to distribute at least 90% of any taxable income to unit-holders in the same year the income is derived.

²⁰ Measured as earnings before interest and tax over interest expense.

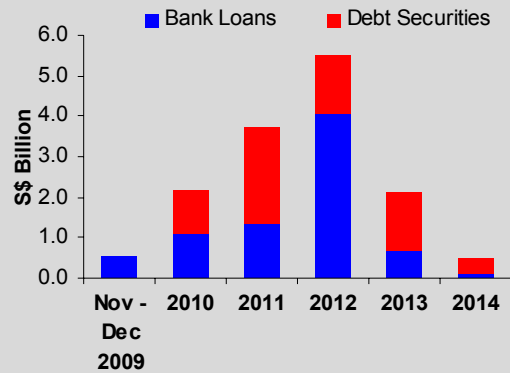
Access to loans became constrained as banks were more cautious in light of the uncertain economic environment in early 2009, tightening credit conditions and becoming more selective of prospective customers (see Section 2.5 of main text). Falling property valuations did not help, and the total assets of S-REITs declined between Q4 2008 and Q2 2009 (Charts H5 and H1). These factors hurt the unit prices of S-REITs - the total market capitalisation of S-REITs fell to S\$15.4 billion at end-March 2009, compared with a high of S\$31.2 billion at end-December 2007. The FTSE S-REIT index fell 61% during this period, more than the 51% decline of the broader STI index (Chart H6). The lower valuations made equity fund raising less attractive. In sum, a substantial number of S-REITs faced limited funding options and refinancing risks were evident in late 2008 and early 2009.

Chart H3
REITs Debt Maturity Schedule (Dec 2008)



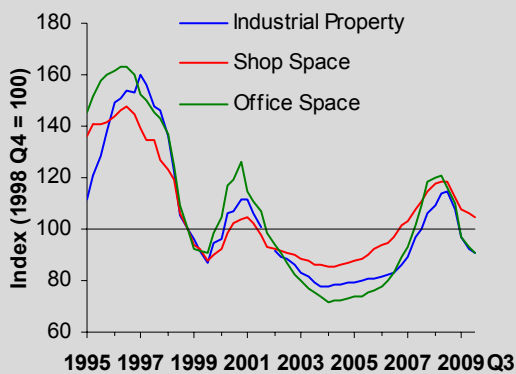
Source: MAS

Chart H4
REITs Debt Maturity Schedule (Oct 2009)



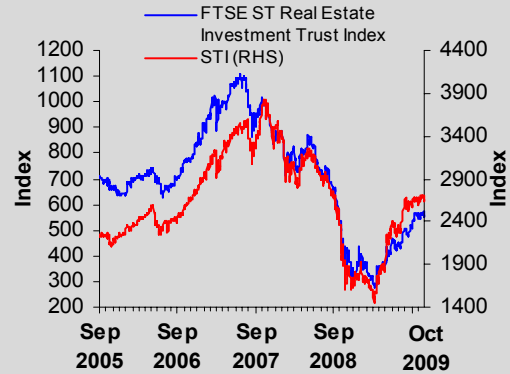
Source: MAS, S-REITs' latest financial results as of end-Oct 09

Chart H5
Property Price Index



Source: Urban Redevelopment Authority

Chart H6
Equity Indices



Source: Bloomberg

Policy Responses

MAS and SGX introduced measures in late 2008 and early 2009 to help alleviate some of the refinancing challenges faced by the corporate sector, and S-REITs in particular. These included amending SGX listing rules to facilitate rights issues and private placements for listed issuers seeking to raise fresh equity and clarifying the application of the leverage ratio²¹ requirement for S-REITs in MAS' Property Fund Guidelines²². Under the Property Fund Guidelines, leverage ratios of S-REITs are capped at 35%. S-REITs may exceed this limit up to a maximum of 60% if they obtain and disclose a credit rating.

Specifically, MAS clarified via a circular in January 2009 that an increase in the aggregate leverage ratio of an S-REIT due to a decline in property values will not amount to a breach of leverage limits in the Property Fund Guidelines and that refinancing of existing debt will not be construed as incurring additional borrowings. S-REITs may also arrange refinancing ahead of the maturity of existing loans without the new financing counting towards the regulatory leverage limit, if the funds had been earmarked for repaying maturing facilities.

SGX worked with MAS to introduce measures to facilitate secondary fund raising by listed issuers, including S-REITs. The first set of measures, announced by SGX in December 2008 and January 2009, were targeted at shortening the exposure period for listed issuers undertaking rights issues. A shorter exposure period facilitated rights issues by reducing the underwriters' effective market risk, which had increased due to volatile market conditions. These measures included permitting issuers to put in place sub-underwriting arrangements with their major shareholders/unitholders without the need to hold an extraordinary general meeting (EGM) to obtain specific shareholders'/unitholders' approval, subject to certain safeguards to protect the interests of minority shareholders/unitholders.

In February 2009, SGX announced a second set of temporary measures²³ to facilitate fund raising efforts by allowing listed issuers to:

- (i) issue up to 100% of their issued capital via a pro-rata renounceable rights issue without the need to hold an EGM to obtain shareholders'/unitholders' approval; and
- (ii) place out new units at discounts of up to 20%, subject to shareholders'/unitholders' approval.

Taken together, these measures have helped S-REITs to raise funds in a more timely manner and provide greater assurance that fund raising exercises would be successful.

Immediate Refinancing Pressures Have Abated But Downside Risks Remain

Following the announcement of the aforementioned measures and the improving economic conditions beginning around Q2 2009, there have been several cases of successful refinancing by S-REITs (Table H9) and the immediate refinancing pressures appear to have abated. As of end-October 2009, almost all S-REITs have managed to refinance their borrowings due in 2009, barring one or two smaller S-REITs by asset size that could continue to face refinancing difficulties.²⁴ Several S-REITs have also paid off their debts maturing in 2010. This has improved S-REITs' debt maturity profile, with debt maturing in 2009 and 2010 representing only 18.5% of total borrowings at end-October 2009 compared with 57% at end-2008 (Charts H3 and H4). Consequently, debt servicing ability has also improved, with the interest cover of the

²¹ Measured as the ratio of total borrowings and deferred payments over the fund's total deposited property.

²² These can be found in the Code of Collective Investment Schemes on the MAS website:

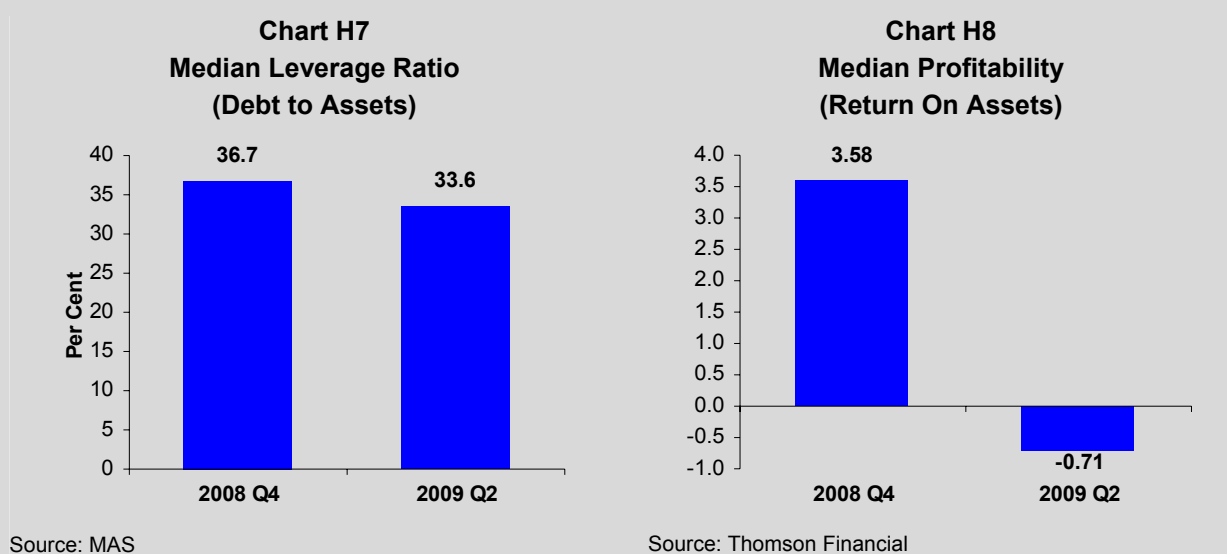
http://www.mas.gov.sg/resource/legislation_guidelines/securities_futures/sub_legislation/Amendments_to_Code_on_CIS_28_Sept_2007.pdf

²³ These measures will be in force until 31 Dec 2010.

²⁴ For example, Saizen REIT announced on 3 November 2009 that it had defaulted on one of its CMBS loans.

median S-REIT rising from 2.7 times to 5.6 times between Q4 2008 and Q2 2009. The median leverage ratio has gone down slightly from about 37% in Q4 2008 to about 34% in Q2 2009. In addition, the decline in rental income has started to show tentative signs of stabilisation, with rents for office, shop and industrial space declining at a more moderate pace on a q-o-q basis in Q3 2009 relative to Q2 2009. Together with the general recovery in the equity market, these factors have contributed to the rising market capitalisation of S-REITs, which almost doubled from S\$15.4 billion to S\$29.2 billion between end-March and end-October 2009. The FTSE S-REIT index has since risen some 60% from its March 2009 low (Chart H6).

In general, REITs with strong sponsors were less exposed to refinancing risks, as banks and credit rating agencies factored in the likelihood of strong parental support. Indeed, there were cases of REITs with strong sponsors having better access to capital markets and managing to secure loans on more reasonable terms compared to smaller S-REITs with weak or no sponsors.



Notwithstanding the positive developments, downside risks are present. The strength of global economic recovery is still uncertain, and financial markets remain vulnerable to heightened market volatility should economic recovery falter (see Section 1.1). Any sudden and large declines in financial markets may reverse the improving credit conditions in recent months. Market contacts reported that the domestic CMBS market remained largely closed. Refinancing concerns could resurface for some S-REITs, especially those without the backing of a strong sponsor. In addition, tenant retention remains a challenge and the rental yields for commercial and industrial space could deteriorate further if the economic recovery stalls.

In sum, most S-REITs have successfully weathered the difficult challenges brought about by the onset of the global financial turmoil in late 2008. However, given the current economic uncertainties in the near-term and the cyclical nature of property markets in general, it is important for S-REITs to continue to exercise financial discipline in managing their liquidity and assuming a conservative stance towards their overall leverage levels. S-REITs can become more resilient going forward if they adopt a funding profile that is less reliant on short-term facilities, and develop greater financial flexibility.

Table H9
Selected S-REITs Refinancing

S-REIT	DATE	FINANCING TYPE	DEBT REFINANCED (\$ Million)	DETAILS
K-REIT Asia	30-Sep-09	Equity Raising	501	Proposed one-for-one rights issue to raise some S\$620 mn. 80.8% of gross proceeds to repay loans. 18.5% of proceeds to be used to fund K-REIT's potential acquisitions and asset enhancement initiatives.
Frasers Commercial	22-Sep-09	Bank Financing	500	Transferable term loan facility for a term of three years from date of drawdown. Used to repay outstanding amount of loan note facility of up to S\$550 mn arranged by Commonwealth Bank of Australia and CBA Asia Limited. DBS, OCBC, SCB and Commonwealth Bank of Australia are mandated lead arrangers. Interest rate is the Singapore Swap Offer Rate plus a margin of 2.65% per annum.
Fortune REIT	24-Aug-09	Bank Financing	445	Secured debt facilities of up to HK \$3,100 mn for four years maturing in 2013 to refinance existing term facility due in June 2010. In addition, a rights issue to raise gross proceeds of HK\$ 1,889 mn.
Parkway Life REIT	06-Aug-09	Bank Financing	50	Secured an Islamic revolving credit facility of S\$ 50 mn offered by The Islamic Bank of Asia for a period of three years.
CDL Hospitality Trust	09-Jul-09	Bank Financing	350	Three- year S\$ 350 mn committed bank facility from DBS consisting of a S\$ 279 mn committed secured term loan facility and S\$ 80mn committed revolving credit facility. Floating Singapore swap offer rate plus margin of 2.6% per annum.
First REIT	10-Jun-09	Bank Financing	70	Three-year S\$ 70 mn credit facility.
Suntec REIT	28-April-09	Bank Financing	825	Secured an S\$ 825 mn loan facility, comprising S\$725 million three-year loan and a S\$100 million seven-year fixed-rate loan with all-in interest margin at below 3.75%. Club loan was granted by DBS, OCBC, UOB, Citibank N.A., SCB, Natixis and CIMB. New facility to refinance existing debt under its medium-term notes programme and \$700 million of CMBS maturing in end 2009.

Source: Media Reports, S-REIT's published announcements

2.4 Households²⁵

Strong balance sheets have helped households weather challenging environment.

Households have on the whole weathered the crisis relatively well, thanks to strong balance sheets. The asset quality of household loans has not deteriorated significantly and so should not affect the stability of the banking system.

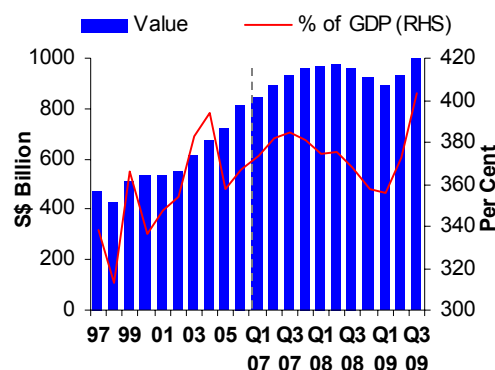
Household net wealth stood at an estimated S\$1,001 billion in Q3 2009, after hitting a trough at S\$895 billion in Q1 2009 (Chart 2.13). The recent improvement can be attributed largely to a recovery in the equity and property markets since Q1 2009. After declining in Q4 2007 and Q1 2009, household holdings of equity and managed funds are estimated to have recovered by about 40% to S\$150 billion in Q3 2009, in tandem with the rising global equity markets. Similarly, property holdings have turned around, up by an estimated 9% to S\$537 billion in Q3 2009 from the low of S\$491 billion in Q2 2009 (Chart 2.14).

Aggregate household net wealth is at about 4 times of GDP, up from about 3.6 times in Q1 2009. Furthermore, household assets remain more than 6 times that of household liabilities (Chart 2.15). Cash and CPF balances alone have exceeded total household liabilities since 2006.

Rise in household liabilities appear restrained, and asset quality has not deteriorated markedly.

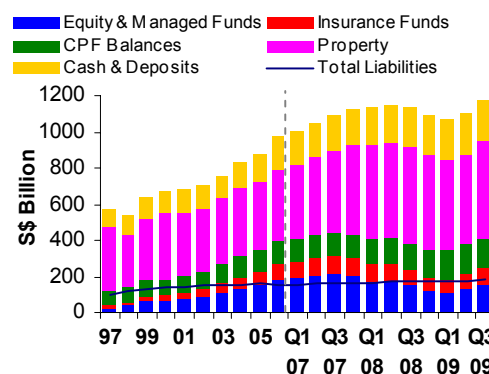
Households have been cautious in taking on new liabilities given the uncertain economic outlook. Total liabilities increased moderately by 4.4% y-o-y in Q3 2009, which is much lower than the long-term average growth rate of about 13%. Most of the increase came from housing loans, which account for the bulk of household borrowing. After moderating from around 15% in Q4 2007 to 8.8% in Q4 2008,

**Chart 2.13
Household Net Wealth**



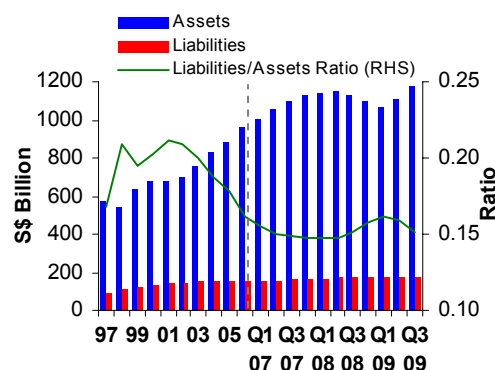
Source: MAS estimates
Net household wealth= household assets-liabilities.
Estimates of GDP are used for Q3 2009.

**Chart 2.14
Household Assets and Liabilities**



Source: MAS estimates

**Chart 2.15
Household Liabilities to Assets Ratio**



Source: MAS estimates

²⁵ Households play an important role in the banking system as depositors and borrowers. Household deposits make up around half of domestic non-bank deposits and loans to households account for about half of domestic non-bank loans.

housing loan growth has seen a recent uptick to 12% in Q3 2009 due to increased activity in the property market (Chart 2.16). (See Box I for an assessment of the private residential property market.)

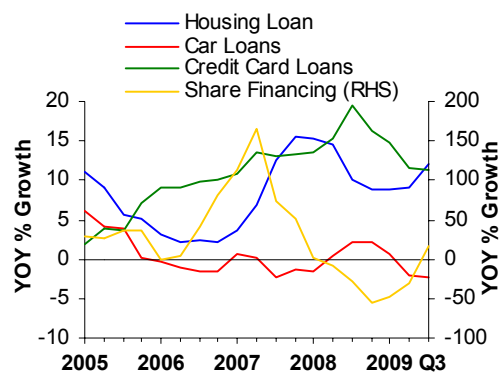
Share financing loan growth recovered from negative territory in Q2 2009 to 18% in Q3 2009, along with the rebound in the stock markets. As share financing represents less than 1% of total household debt currently, this development is not expected to affect household balance sheets and the stability of the banking system materially. Other components of household debt showed subdued growth (Chart 2.16). On a y-o-y basis, credit card loan growth slowed from 19.5% in Q3 2008 to 11.4% in Q3 2009. Car loans contracted by 2.2% in Q3 2009 as a result of falling car sales. This could be attributed, in part, to the decision by the Land Transport Authority to reduce the Certificate of Entitlement (COE) quota for the fiscal year starting April 2009.

Household remuneration growth has outpaced the rate of increase in household debt in the last few years, such that the household debt to remuneration ratio has been declining (Chart 2.17). However, the ratio may rise this year, as the downturn would likely constrain wage growth. As of June 2009, average wages had contracted 2.1% y-o-y, compared to a 3.8% rise in household liabilities over the same period.

While the share of outstanding housing loans with Loan-To-Value (LTV) ratios above 80% has risen from about 8% in Q4 2008 to about 17% in Q3 2009, housing loans with negative equity remain low at less than 3% of total housing loans (Chart 2.18). The higher LTV ratios reflect, in part, falling valuations as property prices were on the decline between Q3 2008 and Q2 2009. Banks reported that credit standards for housing loans have remained stable to date and that LTV ratios for new housing loans have not risen substantially. This is corroborated by data on housing loan asset quality which remains robust, with NPLs at less than 1% as of Q3 2009 (Chart 2.19).

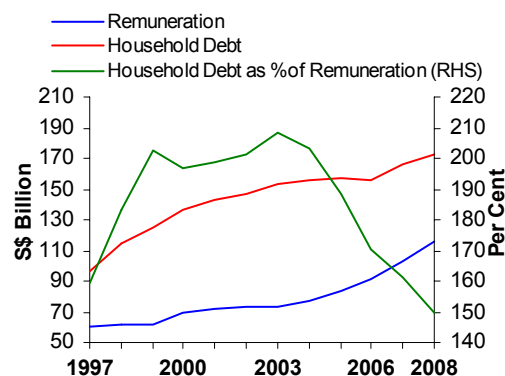
The credit card charge-off rate has risen to 5.7%, one percentage point above the medium-term average

Chart 2.16
Housing and Other Household Loans



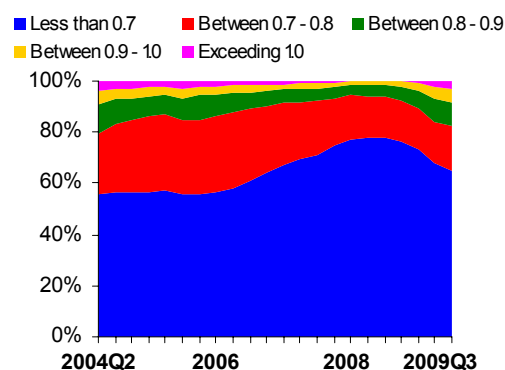
Source: MAS

Chart 2.17
Household Debt and Remuneration



Source: Department of Statistics, MAS estimates
Remuneration is used as a proxy for household income

Chart 2.18
Outstanding Housing Loans by LTV Ratios



Source: MAS

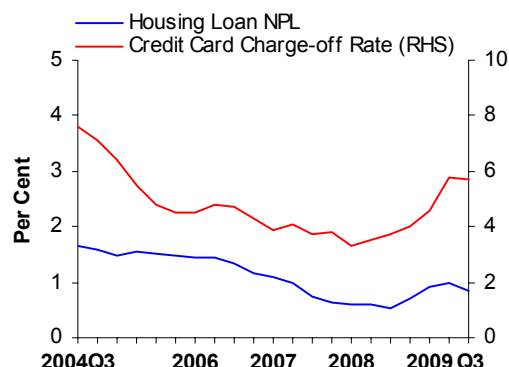
since 2004 of about 4.7%. Nonetheless, credit card loans comprise a relatively small share of total household debt at about 3% as of Q3 2009. The moderately higher charge-off rate for credit cards has not translated to an increase in individual bankruptcies, with the number of bankruptcy orders remaining low between January and September 2009 compared to previous time periods (Chart 2.20).

Healthy positions suggest households likely to weather downside risks ahead.

In short, households have generally weathered the crisis relatively well on the back of their strong balance sheets. However, the impact might not have been uniform across different household income groups. Those who were retrenched or highly-leveraged would likely have come under more pressure.

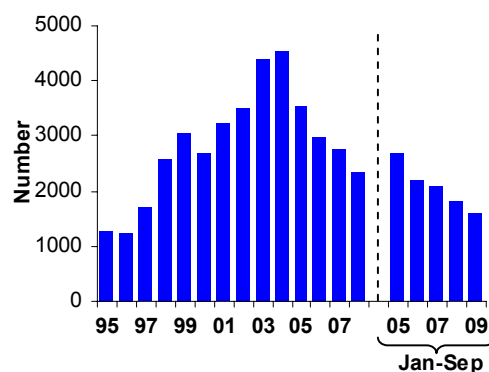
Looking ahead, households may be tempted to take on more leverage in the short term, given strong market sentiment in the domestic equity and property markets and expectations that low interest rates could persist for some time. This might expose households to increased risks in light of the still-uncertain paths of economic recovery and interest rates. The current healthy balance sheet position suggests that households in general would be well-placed to weather these downside risks. While household-related NPLs could rise again if these downside risks crystallise, they are not expected to be substantial given robust bank lending standards, and hence not likely to adversely affect the stability of the banking system.

Chart 2.19
Housing NPL Ratio and Credit Card Charge-Off Rate



Source: MAS
Charge-off rate is calculated by annualising the ratio obtained from dividing bad debts written off with the average rollover balance

Chart 2.20
Number of Bankruptcy Orders Made



Source: Ministry of Law, Insolvency and Public Trustee's Office

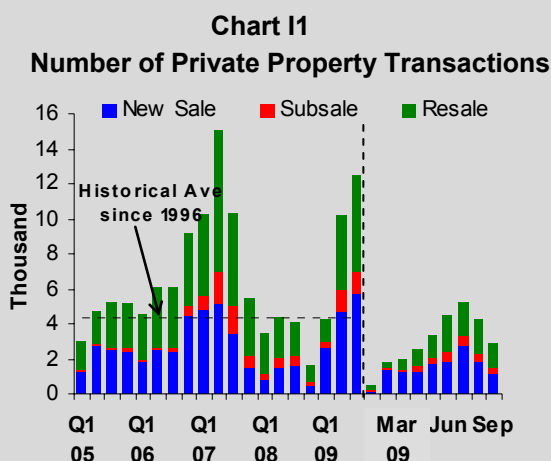
Box I

Singapore Private Residential Property Market

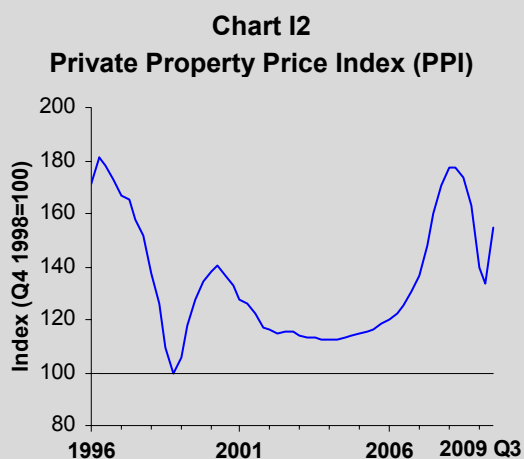
Demand for private residential property started recovering in Q1 2009, and has since seen strong growth. While the market rebound may appear to be aligned with improved prospects for the domestic economy, the current low interest rate environment has also played a part by reducing the cost of property financing. If unchecked, this could lead to a rising spiral of demand and prices as more and more property buyers and speculators are drawn into the market, and expose the property market to the continuing risks in the global economy. Should growth turn out weaker than expected, property buyers and speculators could face capital losses as the market corrects. Conversely, if the recovery stays on course, interest rates will eventually rise and drive up financing costs with severe implications for those who have overextended themselves. Arising from these concerns, the Singapore Government announced measures on 14 September 2009 aimed at pre-empting any speculative bubble from forming to ensure a stable and sustainable property market.

Private Property Transactions

New sales of private residential property started to pick up significantly in February 2009, reaching a high of more than 2,700 units in July 2009. New sales for the year have now reached about 13,000 units as of end September 2009, exceeding the 4,300 units sold for the whole of 2008. If the current momentum continues, new sales in 2009 are likely to exceed the record level seen in 2007 (Chart I1). In line with the surge in transactions, the private property price index bottomed out in Q2 2009 and rose sharply in Q3 2009 (Chart I2).



Source: Urban Redevelopment Authority



Source: Urban Redevelopment Authority

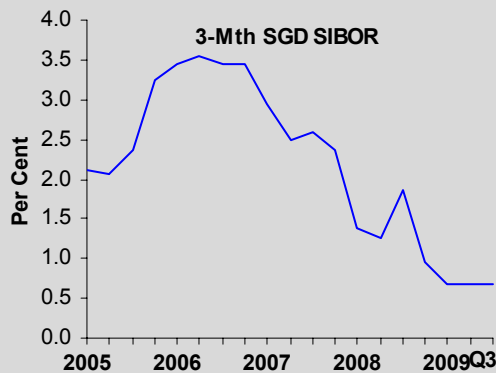
Demand Drivers

The resurgent demand in the property market could have been caused by a combination of pent-up demand from HDB upgraders, the low interest rate environment (Chart I3), signs of improvement in Singapore's economic outlook and the recent stock market rally. Indeed, in the early part of the year, the recovery in buying activity appears to have been driven mainly by HDB upgraders drawn by the attractive pricing of some projects. In Q1 2009, about 56% of transactions in the private property market were buyers with HDB addresses²⁶ which was higher than the 36% quarterly average seen in 2008. The recovery in buying activity has now broadened to buyers with private addresses²⁷ increasing from 44% of all transactions in Q1 2009 to 63% in Q3 2009 (Chart I4).

²⁶ Buyers with HDB addresses serve only as a rough proxy for HDB upgraders, since such buyers could also be buying for investment as opposed to owner-occupation.

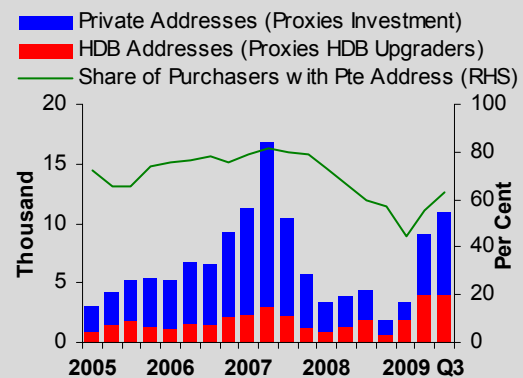
²⁷ Buyers with private addresses serves only as a rough proxy for buyers with investment intent, as it is recognised that such buyers could also be buying for owner-occupation.

Chart I3
Singapore Interest Rates



Source: MAS

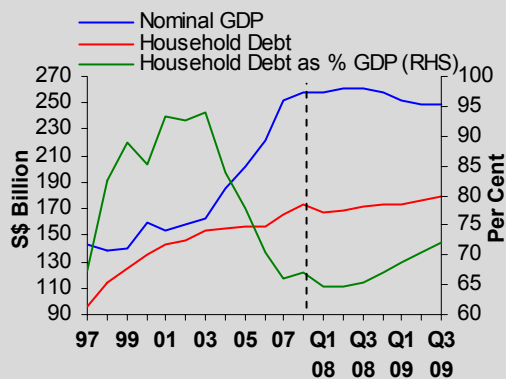
Chart I4
Transactions by Purchaser Address



Source: Urban Redevelopment Authority

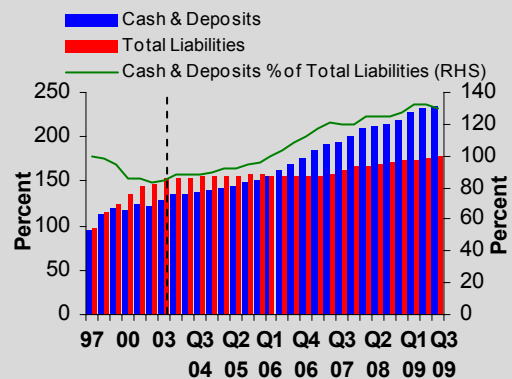
Singapore households entered the challenging economic environment with a relatively strong balance sheet (See Section 2.4). This is a key factor underpinning the buying resurgence in the property market as it suggests that households are in a relatively good position to take on more debt for property purchases. In Q3 2009 the household debt to GDP ratio stood at 72%, below the long-run average of about 80% from 1997 (Chart I5). In addition, liquid assets have exceeded household liabilities since 2006 (Chart I6).

Chart I5
Household Debt as Share of GDP



Source: MAS estimates
Estimates of GDP are used for Q3 2009.

Chart I6
Household Assets as a Share of Liabilities



Source: MAS estimates

Initial Concerns

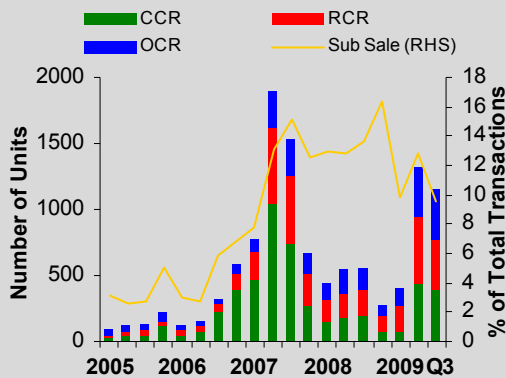
Amid the increased transaction activity, the private property market was showing signs of exuberance. The private property price index rose sharply by 15.8% in Q3 2009, the largest q-o-q increase since Q1 1981. Sub-sale²⁸ transactions as a share of all transactions, a proxy for speculative activities, averaged 11% over Q2 and Q3 2009, which was below the peaks seen in 1996-1997 but close to the 13% average seen during the buoyant property market in 2007-2008 (Chart I7). There were also reports of overnight queues at show flats and private residential projects being sold-out within days.

²⁸ Sub-sale is defined as the sale of a unit by one who has signed an agreement to purchase the unit from a developer or a subsequent purchaser before the issuance of the Certificate of Statutory Completion and the Subsidiary Strata Certificates of Title or the Certificates of Title for all the units in the development.

While Singaporeans and Permanent Residents comprise the bulk of private property purchasers, the share of foreign individual buyers and companies has been rising, reaching 12.5% in Q3 2009, up from 8% seen in Q2 2009. Although this is lower than the 24%²⁹ peak in 2007-2008, foreigners' and companies' interest in private residential properties could increase moving forward if the recovery in private residential property prices and global economic conditions is sustained (Chart 18).

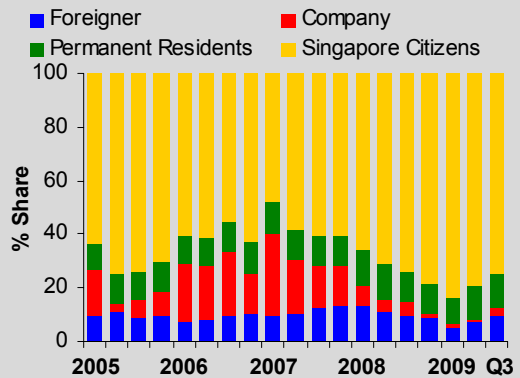
On the supply side, pipeline supply of 34,120 unsold units as of Q3 2009 is now lower than the 43,400 unsold units in Q4 2008, before the surge in transaction activity reduced developers' unsold inventory. While the unsold inventory in Q3 2009 has edged closer to the historical low of 30,300 unsold units in Q2 2007, pipeline supply is expected to be replenished as developers buy new sites or activate sites in their existing land banks. Six sites on the Reserve List of the H2 2009 Government Land Sale (GLS) programme have been recently triggered for sale. These sites can yield about 2,000 units and could be made available for sale within a year. The recently announced reinstatement of the GLS Confirmed List next year will also play a role in improving pipeline supply (Chart 19).

Chart 17
Sub-sales of Private Residential Properties



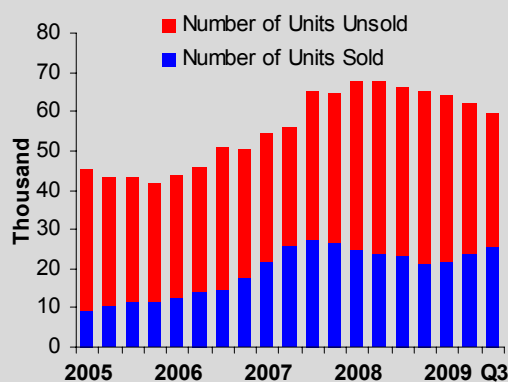
Source: Urban Redevelopment Authority

Chart 18
Transactions by Purchaser Type



Source: Urban Redevelopment Authority

Chart 19
Supply Pipeline



Source: Urban Redevelopment Authority

²⁹ The figure of 24% is computed by taking the average of the quarterly share of foreign individual buyers and companies in the private residential property market for the 8 quarters between 2007 and 2008.

Measures to Ensure a Stable and Sustainable Property Market

The Government announced on 14 September 2009 measures to ensure a stable and sustainable property market. These include (i) reinstating the GLS Confirmed List in H1 2010 and replenishing the supply of Reserved List sites in the GLS;³⁰ (ii) disallowing the Interest Absorption Scheme and interest-only loans; and (iii) non-renewal of assistance measures for property developers announced in the 2009 budget when these expire early next year.

Initial market reactions have been positive. In general, property analysts and consultants have welcomed the Government's calibrated approach to promote stability and sustainability in the property market. The consensus view was that the measures might dampen excessive speculative demand but will not likely impact negatively on genuine buyers and derail recovery in the property market. Following the announcement of the September 2009 measures, new sales of private residential properties have slowed down to about 1,100 units in September 2009, compared with the monthly average of 2,000 units sold between May and August 2009. The share of sub-sale transactions also fell to 9% in Q3 2009 (from 13% in Q2 2009), indicating that speculative activities could have become more subdued. Most analysts expect lower monthly sales and some setting in of price resistance with private property prices increasing at a slower pace for the rest of the year after rapid price increases in Q3 2009. Nonetheless, it remains likely that total new sale transactions for the year will meet or even exceed transaction activity in 2007.

Looking Ahead

Going forward, price levels and transaction activity bear close monitoring. As Singapore emerges from recession and with the market expecting low interest rates to persist for some time, the risk of a renewed escalation of speculative momentum cannot be discounted. The nature and timing of further measures, if deemed necessary, would have to be balanced against the still uncertain path of economic recovery.

³⁰ The Ministry of National Development announced on 6 November 2009 that 8 residential sites will be placed on the Confirmed List and another 16 residential sites on the Reserve List of the H1 2010 GLS Programme.

2.5 Banking Sector

Slowdown in loan growth has moderated, but recovery largely dependent on state of economy.

The global economic downturn led to slowdowns in trading and business activity over H2 2008 and early 2009, reducing demand for loans. Banks have also been more cautious amid counterparty credit risk concerns and expectations of weakened corporate performance given the economic uncertainty.

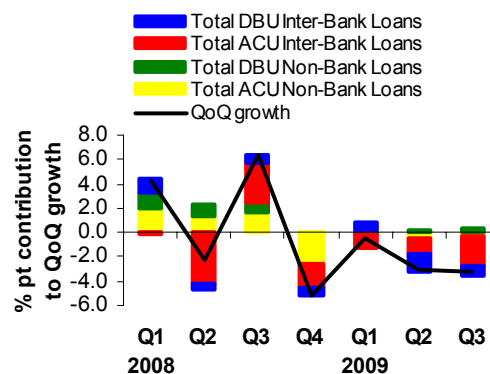
Overall Asian Currency Units (ACU) lending contracted 16% between its October 2008 peak and September 2009, with the bulk of the contraction reflecting cutbacks in cross-border interbank loans (Chart 2.21). The contraction of interbank loans has been due largely to reduced flows to Europe, though this contraction follows a markedly larger ramp-up in net lending to Europe than to other regions in the past four to five years. Interbank flows to East Asia and the Americas have been resilient (Chart 2.22). ACU non-bank lending has also declined since October 2008, although the moderation has been broad-based across all regions.

Total Domestic Banking Units (DBU) lending fell in Q3 2009, weighed down by weakness in interbank loans. In contrast, outstanding DBU non-bank loans have virtually recovered to the October 2008 peak after bottoming out in April 2009. Nonetheless, business lending remains lacklustre, compared to the strong recovery in consumer lending over the past few quarters (Chart 2.23).

Consumer loan growth since Q1 2009 has been underpinned by a surge in housing loans given the heightened activity in the domestic private property market recently. Nonetheless, banks' exposure to the property sector remains within regulatory limits (See Box J) and their loan exposures overall continue to be well-diversified.

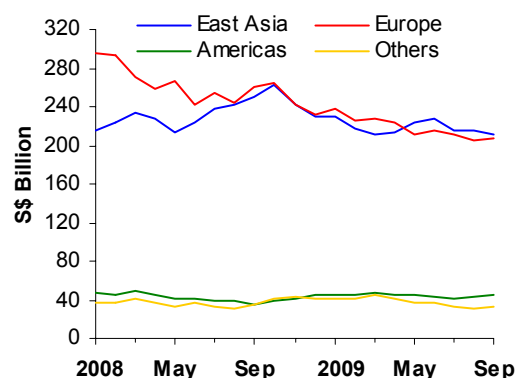
The weakness in business lending is attributable to both tightened credit conditions as well as lower credit demand from corporates most affected by the economic slowdown, particularly for trade-sensitive

Chart 2.21
Components of Overall Loans Growth



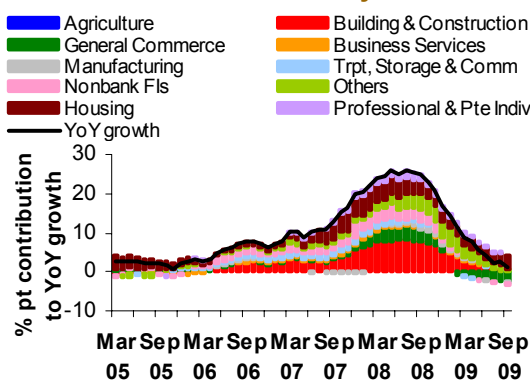
Source: MAS

Chart 2.22
ACU Inter-Bank Loans by Region



Source: MAS

Chart 2.23
DBU Non-Bank Loans by Sector



Source: MAS

sectors like General Commerce. Significant loan contractions were also seen for the Manufacturing and TSC sectors, where end-demand has yet to pick up. Banks have been mindful of continued weaknesses in corporate balance sheets and the potential for further delinquencies. However, Government measures, notably the risk-sharing schemes introduced in early 2009 to facilitate lending to SMEs, have helped alleviate funding strains on creditworthy firms. Market contacts reported that credit conditions were stabilising and corporates' access to credit would likely improve slightly over H2 2009. Nonetheless, business lending is not expected to recover substantially until end-demand picks up decisively, which in turn depends on whether the G3 economies see a strong and sustained recovery.

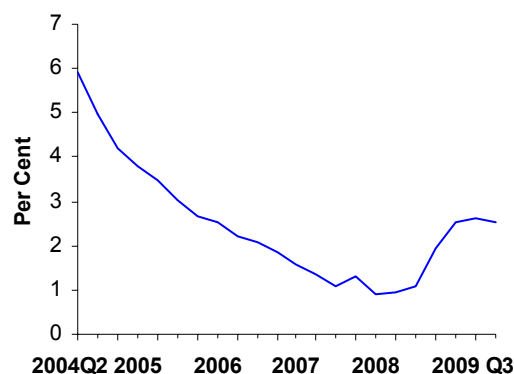
Loan delinquencies and NPLs typically lag the economy. While the global economy slowed through 2008, the banking system's NPL ratio started to deteriorate only in the later part of the year. Between Q3 2008 and Q3 2009, the NPL ratio rose from 1.06% to 2.51% (Chart 2.24). While the economy is recovering, it is too early to determine conclusively if NPLs have peaked as the credit cycle is known to lag the economic cycle.

Local banks' asset quality has deteriorated moderately, but earnings have rebounded and balance sheet management has been prudent.

For the local banks, the impact of the global financial crisis has been felt most keenly in deteriorating asset quality and lower profitability. The average NPL ratio for the local banks rose one percentage point to 2.4% from a year ago (Chart 2.25), which resulted in higher provisioning costs (Chart 2.26). This put some pressure on the earnings of the local banks, which declined on a y-o-y basis in the three quarters beginning Q4 2008.

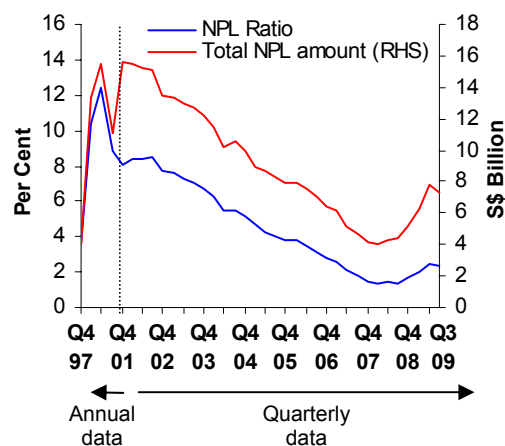
Nevertheless, having entered the crisis on a sound footing, the local banks' earnings have consistently topped analysts' estimates. Indeed, y-o-y earnings growth turned positive in Q3 2009. This resilience in earnings was due to a stable source of net interest income and robust trading and fee income alongside more recent improvements in market sentiment.

**Chart 2.24
Overall NPL Ratio**



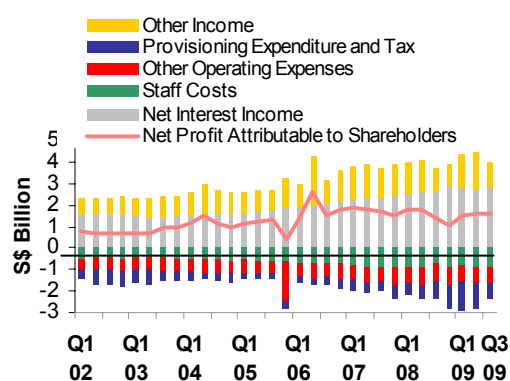
Source: MAS

**Chart 2.25
Local Banks' NPLs**



Source: Local Banks' Financial Statements

**Chart 2.26
Local Banks' Profit Components**



Source: Local Banks' Financial Statements

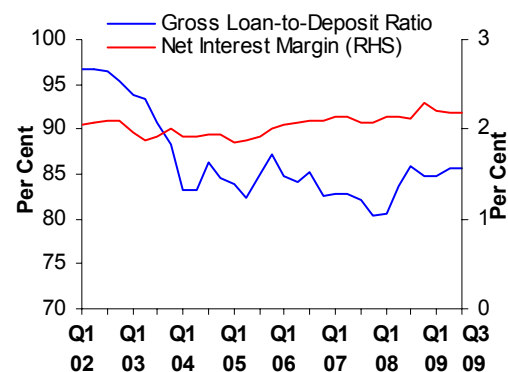
Gross loan-to-deposit ratios remain healthy at 86% as of Q3 2009 even as loan books have expanded. Given their stable and relatively cheap deposit funding base, net interest margins have stayed above 2% throughout the ongoing downturn (Chart 2.27).

Reflecting stronger earnings and the recovery in risk appetite globally, local banks' share prices have doubled from their March 2009 lows (Chart 2.28). CDS spreads of the local banks have narrowed some 240 to 270 basis points between October 2008 and October 2009.

While the local banks have weathered the ongoing downturn quite well and NPLs have moderated as of Q3 2009, further deterioration in asset quality and some earnings pressure going forward cannot be discounted if the global economic recovery stalls and significant financial dislocations resurface. Further, the better-than-expected earnings of the local banks over the first three quarters of 2009 are partly attributable to substantial trading revenue gains from recovering financial markets. Financial markets may still falter if the recovery is not sustained.

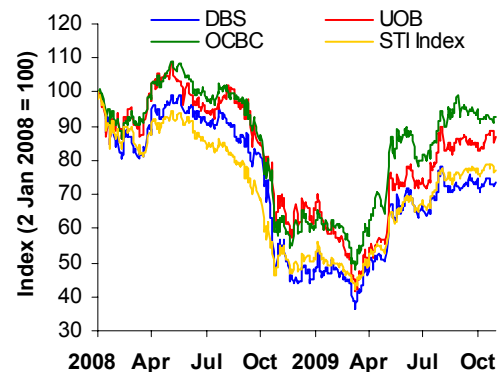
However, the local banks have taken measures to deal with these downside risks. Successful capital raising efforts during the crisis in addition to prudent balance sheet management have bolstered the local banks' capital levels. Tier-1 Capital Adequacy Ratio (CAR) now averages 13.5%, well above MAS' regulatory requirements and in line with peer banks and market expectations of well-capitalised banks (Chart 2.29). Exposures to CDOs and other 'toxic' assets have been minimal and already provisioned for. Earnings are expected to be steady and sufficient to offset higher provisioning charges even if NPLs were to rise in the coming quarters. Stress test results reported by the local banks also provide some reassurance that they will remain well-capitalised even under an adverse scenario for 2010.

Chart 2.27
Local Banks' Loan-to-Deposit Ratio and Net Interest Margin



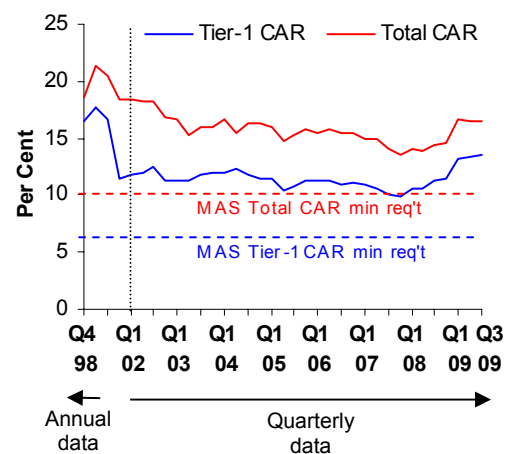
Source: Local Banks' Financial Statements

Chart 2.28
Local Banks' Share Prices vs. STI



Source: Bloomberg

Chart 2.29
Local Banks' CAR



Source: Local Banks' Financial Statements

Box J
Banks' Property Exposures

In line with the contraction in the Singapore economy and an ensuing decline in financial intermediation between the latter part of 2008 and Q3 2009 arising from the onset of the financial crisis, the y-o-y growth of property-related loans fell for both Building and Construction (B&C) loans and Housing loans between H2 2008 and early 2009 (Chart J1). More recently, the private residential property market has rebounded sharply. The take-up of uncompleted private residential units has remained high since February 2009, and reached a historical high of more than 2,700 units in July 2009. The number of units sold between January to September 2009 alone was triple that for the whole of 2008. Consequently, housing loan y-o-y growth has been on a rising trend after reaching a low in January 2009. B&C loan growth, on the other hand, has continued to decline. Despite the recovery in housing loans, the banking system's Section 35 Ratio peaked in Q1 2009 at 16.7% and declined to 15.4% in Q3 2009, with almost all banks experiencing a decline in the ratio between Q1 and Q3 2009, as banks reduced their exposures to property firms (Chart J2).

Building & Construction Loans

The banking system's loan exposures continue to be well-diversified, with lending to the B&C sector accounting for about 18% of total non-bank DBU loans in September 2009. The share has remained broadly stable since Q3 2008 (Chart J3). While non-performing B&C loans increased marginally between Q3 2008 and Q2 2009, NPLs have since stabilised. Indeed, the asset quality of B&C loans has stayed high, with the NPL ratio remaining at less than 1% in Q3 2009 (Chart J4). The risk of escalating NPLs for B&C firms has receded somewhat given the recent recovery in the property market and with it, the improving financial condition of these firms. Nonetheless, further moderate increases in NPL numbers for B&C and property-related loans cannot be ruled out until the economy is on a firm and sustainable recovery path.

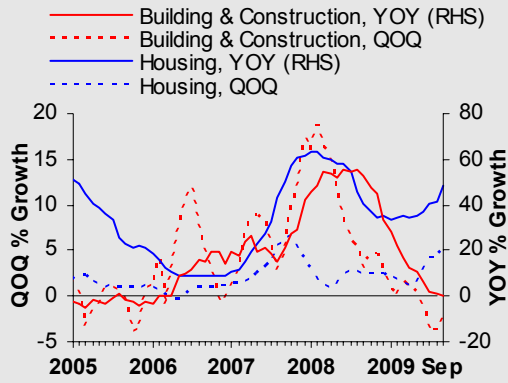
Housing Loans

In September 2009, housing loans accounted for about 32% of non-bank DBU loans which is in line with its medium-term average of 32% since 2004. More than 70% of housing loans are for owner-occupied residential properties, which is suggestive of a lower risk profile. While the share of outstanding loans with LTV above 80% has risen from 8% in Dec 2008 to 17% in September 2009, negative equity loans as of Q2 2009 have increased only slightly compared to end-2008, and remains very low at less than 3%. The asset quality of housing loans remains high with NPL ratios remaining below 1% as of Q3 2009. Nonetheless, NPL ratios of housing loans could edge up given lagged effects of the economic downturn on the credit cycle.

The removal of the Interest Absorption Scheme (IAS) and the ban on Interest-Only Housing Loans (IOL) announced on 14 September as part of a wider set of measures to curb speculation in the property market will also encourage prospective home-buyers to consider carefully their ability to afford properties over the long term. This in turn will help promote a more healthy and sustainable property market in the long-run, and consequently, moderate the credit risks of housing loans in the banking system going forward.

Chart J1

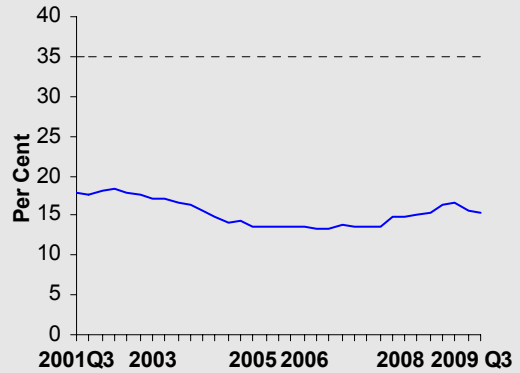
Property-Related Loans Growth



Source: MAS

Chart J2

Banking System Section 35 Ratio

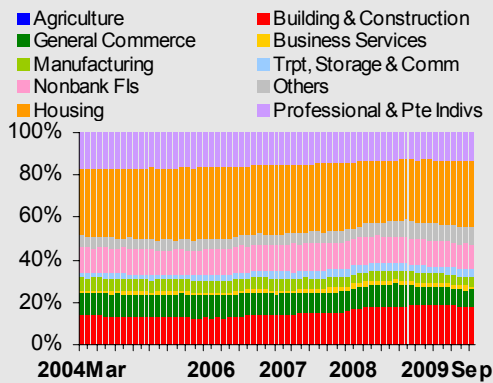


Source: MAS

Property exposures include loans to property and non-property corporations, housing loans for investment purposes, property-related debt instruments, guarantees, performance bonds, qualifying certificates and other contingent liabilities

Chart J3

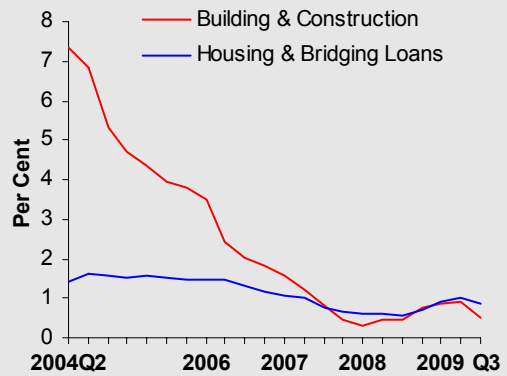
DBU Non-Bank Loans by Industry



Source: MAS

Chart J4

Property-Related NPL Ratios



Source: MAS

2.6 Non-bank financial sector

2.6.1 Insurance Sector

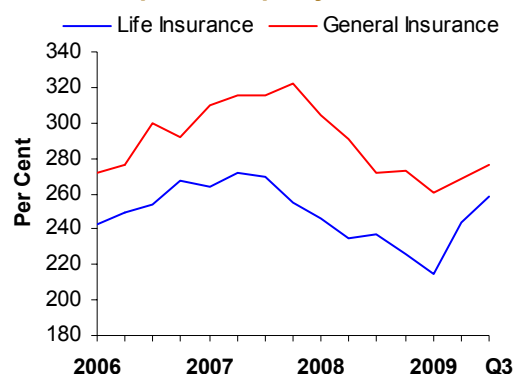
Singapore's insurance sector has not been immune to financial contagion but capital positions remain healthy.

The financial turmoil over the past year has cast the spotlight on the asset portfolios of internationally active insurers, with initial concerns about their exposures to 'toxic' assets and potential impact on capital levels. Internationally, such concerns remain but have abated given recent improvements in financial markets. While difficulties faced by international insurers at their group level would have an impact on their operations in Singapore, the domestic insurance sector has remained sound and well-capitalised over the past year. Life insurers and general direct insurers have maintained CARs well over the regulatory warning level of 120% (Chart 2.30). While capital buffers are not yet back at pre-crisis levels, they remain robust³¹.

The strong recovery in global financial markets in the past several months has led to a sharp recovery in investment income for life insurers, from an unrealised loss of \$5.35 billion in Q4 2008 to an unrealised profit of \$6.51 billion in Q3 2009 (Chart 2.31). This in turn has contributed to a rise in total net income of life insurers, which rebounded from a \$250 million deficit in Q4 2008 to a \$645 million profit in Q3 2009. Premium income increased from a trough of \$2.52 billion in Q1 2009 to \$3.93 billion in Q3 2009, slightly lower than the 2007 quarterly average of \$4.02 billion.

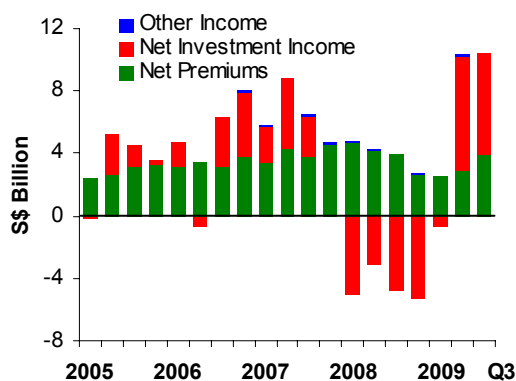
In terms of business volumes for life insurers, new business premiums overall (including both investment-linked and non-investment-linked products) are recovering. Following four consecutive quarters of declining business volume, new business premiums rebounded significantly in

Chart 2.30
Capital Adequacy Ratios



Source: MAS

Chart 2.31
Direct Life Insurers' Income by Source (SIF)



Source: MAS

³¹ MAS' regulations prevent the co-mingling of insurance fund assets with those of the insurers' respective head offices and parent companies.

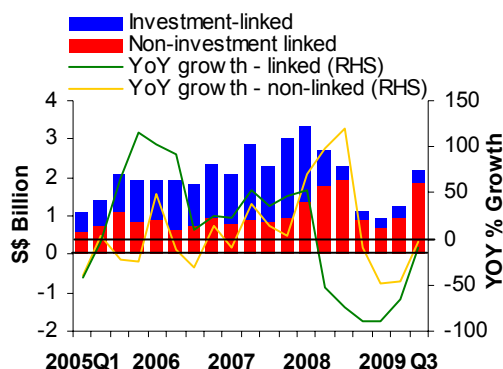
Q2 and Q3 2009. Notably however, despite the improvement in investment environment, demand for investment-linked insurance products remains subdued. New business premiums for investment-linked products have not recovered from the steep 60.2% fall experienced between Q2 and Q3 2008. As of Q3 2009, these premiums were still at only 36% of their pre-crisis levels (Chart 2.32).

General direct insurers also saw operating profit rise significantly in Q2 2009. This was supported by an improvement in investment and underwriting income. Investment income rebounded from a \$86 million loss in Q4 2008, to a \$160 million gain in Q3 2009 (Chart 2.33). Concurrently, underwriting profits rose 179% between Q4 2008 and Q3 2009 to \$95.7 million. General insurers have been placing greater emphasis on adequate pricing, as they were unable to rely on investments to supplement earnings prior to the recovery of investment income.

Gross premiums for general insurers fell slightly in Q3 2009 after a 24% q-o-q rebound in Q1 2009 but still represented a 4.6% increase y-o-y (Chart 2.34). Both Singapore and Offshore Insurance Funds (SIF and OIF respectively) contributed to the growth in gross premiums. Notably, SIF motor business saw a hardening of rates due to losses incurred from higher than expected claims. Growth in OIF business was driven by marine and aviation hull business as well as business written by new entrants in the Singapore insurance market. On the whole, premium growth trends suggest that general insurers in Singapore have not been significantly affected by the economic slowdown, except where the insurance business pertains directly to economic activity that has seen a decline (e.g. marine cargo).

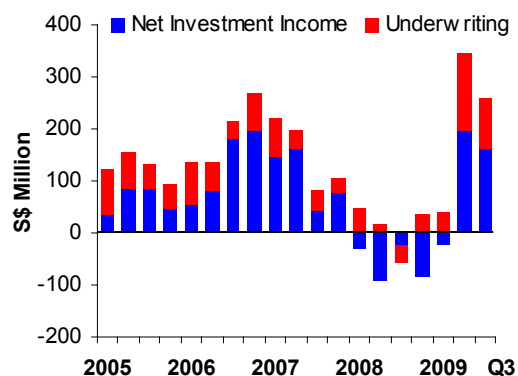
Overall, strong balance sheets have enabled both life insurers and general insurers to weather the financial crisis. The recent upturn in financial markets has contributed to a turnaround in investment results, while business volumes could continue to improve if the economic recovery is sustained. However risks remain in both the global financial system and wider economic environment. Recovery may not be smooth. There is potential

Chart 2.32
Direct Life Insurance: New Business Premiums (Linked vs. Non-linked) (SIF)



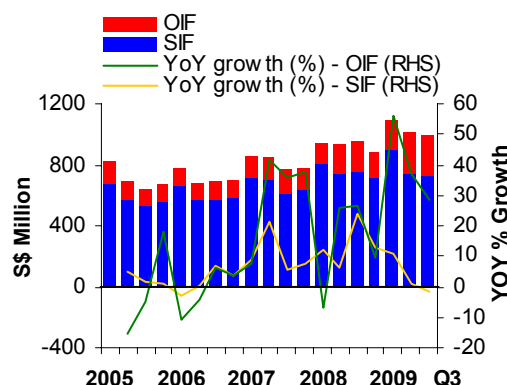
Source: MAS

Chart 2.33
General Direct Insurance: Operating Results (SIF & OIF)



Source: MAS

Chart 2.34
General Direct Insurance: Gross Premiums (SIF & OIF)



Source: MAS

for renewed strains in the real economy, which could again negatively affect the Singapore insurance sector.

2.6.2 Capital Markets Intermediaries

SGX members remained resilient despite greater market volatility. Recovery in assets under management has come with improved market sentiment.

Capital markets intermediaries represent a smaller share of domestic financial sector assets than banks and insurance companies. Nonetheless, MAS and SGX have remained vigilant in monitoring the financial position of these intermediaries. On their part, SGX securities and derivatives members have continued to maintain adequate financial resources to meet regulatory requirements and to monitor their customer exposures closely.

Trades have been cleared and settled smoothly without the need to call on SGX's clearing funds. Nonetheless as part of its continual risk management review, SGX has proposed enhancements to the structures of the clearing funds of the Central Depository (Pte) Ltd (CDP) and Singapore Exchange Derivatives Clearing Ltd (SGX-DC) to make them more scalable in accordance with their activity levels. For the securities market, SGX has taken steps to reduce the number of failed deliveries, and plans to implement changes to its systems to track short sales. The increased transparency of short selling activities will enhance SGX's ability to monitor the extent and impact of short selling in Singapore.

Following the default and early redemption of several structured products in late 2008, investors in Singapore who had bought these products were adversely affected. MAS required financial institutions that distributed these products to put in place independent, fair and transparent complaints handling and resolution processes. The financial institutions have since completed reviewing most

complaints and communicated the outcomes of their reviews to affected investors. MAS also conducted investigations into the sale and marketing of such unlisted investment products, and has proposed changes to the regulatory framework to safeguard investors' interests and promote higher industry standards.

In H1 2009, some investment managers saw an increase in their assets under management from the lows of 2008, supported largely by asset appreciation. Coupled with an improvement in market sentiment, investment managers reported fewer fund closures and suspensions as compared to H2 2008. With renewed investor interest, a number of investment managers also saw more subscriptions than redemptions in the H1 2009.

Key risks to Singapore's financial system

The financial turmoil and ensuing global economic downturn has affected the Singapore economy. Despite recent improvements in domestic credit and financial conditions, together with significant inventory restocking activity, the economy is still expected to contract between -2.5% and -2% for 2009. Nonetheless, investor and business sentiment have improved with recent signs of recovery. Domestic financial markets have rebounded sharply. Liquidity strains experienced in the latter part of 2008 have abated. The financial system has remained sound, and the credit and money markets have continued to function smoothly. Banks expect credit availability to improve through H2 2009, although actual lending conditions may vary across sectors.

Downside risks remain though. Across the world, significant challenges remain in the transition to private sector-driven growth as governments prepare to exit from their expansionary policies. The sustainability of the global economic recovery remains uncertain, and any adverse shock would weigh on the performance of the Singapore economy given its openness. Should economic recovery stall, corporate earnings may come under renewed strain, and corporate refinancing may become more difficult. Unemployment may also rise if the economy slows again. The knock-on effect on consumer and corporate repayment capability would impair banks' asset quality, resulting in higher NPLs and provisioning charges. Loan growth could moderate again, and hold back the recovery.

Despite the lingering uncertainties in the domestic and global economy, domestic property market activity has taken on its own dynamic. The Government introduced several measures in September 2009 to temper the exuberance in the market and pre-empt any speculative bubble from forming. As Singapore emerges from recession and with the market expecting low interest rates to persist for some time, the risk of a renewed escalation of speculative momentum cannot be discounted. More measures might then be necessary. The nature and timing of these measures would have to be balanced against the still uncertain path of economic recovery.

Overall, these challenges are not expected to be severe or to significantly undermine the soundness of Singapore's financial system. Nonetheless it has to be recognised that Singapore's open economy makes it vulnerable to exogenous shocks, and the path and pace of recovery is dependent on end-demand picking up significantly in key export markets. The attendant risks to Singapore's financial stability thus bear close monitoring. However, Singapore's strong economic fundamentals and sound financial system put it in good stead to weather the downside risks that may arise.

Statistical Appendix

SINGAPORE NON-FINANCIAL SECTOR

Table A.1: Corporates' Financial Ratios and Insolvency

Table A.2: Households' Financial Indicators

SINGAPORE FINANCIAL SECTOR

Table B.1: Banking Sector's Financial Soundness Indicators

Table B.2: Local Banks' Selected Financial Soundness Indicators

Table B.3: Direct Life Insurers: Total New Business Gross Premiums

Table B.4: Direct Life Insurers: Asset Distribution of Singapore Insurance Fund (Non-Linked Assets)

Table B.5: General Direct Insurers: Gross Premiums

Table B.6: General Direct Insurers: Composition of Net Premiums of Singapore Insurance Fund

Table B.7: General Direct Insurers: Incurred Loss Ratio of Singapore Insurance Fund

SINGAPORE NON-FINANCIAL SECTOR

Table A.1: Corporates' Financial Ratios and Insolvency

	H2 2005	H1 2006	H2 2006	H1 2007	H2 2007	H1 2008	H2 2008	H1 2009
Median Return on Assets (Per Cent)								
Transport, Storage & Communications	11.5	11.3	9.4	9.0	9.2	9.2	8.9	7.5
Property	3.2	4.2	6.0	7.6	11.7	9.7	3.5	2.7
Multi-Industry	4.6	5.3	5.0	5.5	7.8	7.3	3.2	2.1
Manufacturing	6.0	5.6	6.7	6.5	8.0	6.7	4.1	2.7
Hotels & Restaurants	4.4	5.3	6.2	7.0	8.7	8.6	3.4	3.4
Construction	0.9	2.0	3.0	4.2	5.0	6.5	6.2	4.7
Commerce	5.7	5.7	6.4	6.6	7.3	5.8	5.5	3.8
Median Current Ratio (Ratio)								
Transport, Storage & Communications	1.5	1.3	1.4	1.3	1.4	1.5	1.4	1.2
Property	2.4	2.2	2.7	2.6	3.0	2.9	2.4	2.4
Multi-Industry	1.2	1.3	1.4	1.3	1.7	1.6	1.5	1.8
Manufacturing	1.7	1.7	1.7	1.8	1.9	1.9	1.8	1.9
Hotels & Restaurants	2.0	2.0	1.8	2.3	2.6	2.3	1.5	1.6
Construction	1.3	1.4	1.5	1.7	1.6	1.6	1.5	1.6
Commerce	1.7	1.6	1.6	1.8	1.6	1.6	1.6	1.7
Median Total Debt/Equity (Per Cent)								
Transport, Storage & Communications	32.2	39.1	33.5	38.1	25.2	29.1	38.7	35.9
Property	74.8	65.1	56.8	70.1	61.6	61.3	62.3	64.5
Multi-Industry	52.5	48.9	52.4	61.5	42.9	41.3	41.4	43.4
Manufacturing	24.0	27.1	27.8	26.7	26.8	24.5	24.8	19.7
Hotels & Restaurants	41.5	34.4	24.6	18.6	16.3	20.5	23.9	25.0
Construction	29.8	31.8	31.4	30.7	46.8	34.1	43.7	31.6
Commerce	50.6	51.0	55.4	41.7	46.2	40.2	42.1	41.8
Median Interest Coverage Ratio * (Ratio)								
Transport, Storage & Communications	12.7	12.7	13.1	14.1	14.2	11.0	6.7	7.5
Property	8.2	4.5	6.8	6.4	18.0	7.4	1.7	4.6
Multi-Industry	4.2	7.5	9.0	7.5	13.0	8.1	1.2	5.6
Manufacturing	5.7	8.8	6.9	8.8	6.5	5.8	2.4	4.0
Hotels & Restaurants	2.8	4.3	9.0	13.6	18.2	7.8	2.5	7.9
Construction	1.1	2.5	3.5	5.3	9.5	8.6	4.0	4.1
Commerce	5.3	5.3	4.5	6.6	6.5	5.4	3.3	4.7
Insolvency								
Companies Wound-up	73	66	64	60	46	65	67	60

Source: Thomson Financial, Ministry of Law

* Earnings before interest and tax divided by interest expense

A revised list of firms (all SGX-listed firms as of December 2008) was included in the computation of ratios in the table above, hence the data may not be identical to that previously published.

Table A.2: Households' Financial Indicators

	Q2 2007	Q3 2007	Q4 2007	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009
Per Cent (unless otherwise stated)										
Household Assets (S\$ billion)	1052.2	1095.7	1124.6	1134.2	1149.6	1131.5	1093.8	1067.9	1104.7	1180.0
Residential Property Assets as % of Total Assets	40.5	41.8	43.3	45.5	46.1	47.3	48.0	46.3	44.5	45.5
Household Liabilities (S\$ billion)	158.2	162.9	166.3	166.8	169.3	171.2	172.7	173.0	175.7	178.8
Household Liabilities to Assets Ratio (%)	15.0	14.9	14.8	14.7	14.7	15.1	15.8	16.2	15.9	15.2
Household Liabilities as % of GDP *	67.6	67.1	66.1	64.6	64.9	65.5	67.1	68.8	70.4	72.0
Per Cent (unless otherwise stated)										
Credit Card Charge-Off Rate **	4.1	3.8	3.8	3.3	3.5	3.8	4.1	4.6	5.8	5.7
Housing & Bridging Loans NPL Ratio	1.0	0.8	0.6	0.6	0.6	0.5	0.7	0.9	1.0	0.9
Professional & Private Individuals Loans NPL Ratio	1.2	0.9	0.8	0.7	0.7	0.9	3.2	5.2	3.2	2.7
Number of Individual Bankruptcy Orders	687	673	680	590	586	649	502	579	657	358

Source: MAS estimates, Ministry of Law, Ministry of National Development, Urban Redevelopment Authority and Singapore Department of Statistics.

* Estimates of GDP were used for the calculations for Q3 2009 as the figure was not available at the time of publication.

** Charge-off rate for the quarter is calculated by annualising the ratio obtained from dividing bad debts written off for the quarter by the average rollover balance for the same quarter.

SINGAPORE FINANCIAL SECTOR

Table B.1: Banking Sector* Financial Soundness Indicators

	2006**	2007**	2008**	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009
Loan Concentrations (% of Total Commercial Bank Loans)										
Bank Loans	64.1	61.2	57.0	59.7	56.4	56.7	57.0	56.8	55.8	54.3
Non-Bank Loans	35.9	38.8	43.0	40.3	43.6	43.3	43.0	43.2	44.2	45.7
Loans through the Asian Dollar Market (% of Total Commercial Bank Loans)										
Total ADM Loans	70.2	70.7	67.9	69.6	68.4	68.9	67.9	67.1	67.5	67.0
Of which to (% of Total Asian Dollar Market Loans):										
United Kingdom	15.0	12.8	9.7	10.8	10.6	11.0	9.7	8.8	9.8	10.3
Japan	11.2	9.7	11.4	10.3	9.3	10.1	11.4	10.0	12.5	11.7
Hong Kong	8.0	8.5	7.0	7.9	7.9	7.4	7.0	7.2	7.6	7.5
USA	7.5	7.0	7.0	6.8	6.4	5.5	7.0	7.6	7.0	7.3
Switzerland	6.3	7.0	5.5	6.3	5.5	4.9	5.5	6.2	6.5	5.9
Banks	75.1	71.3	67.6	69.3	65.9	66.0	67.6	66.8	66.7	65.7
Non-Bank	24.9	28.7	32.4	30.7	34.1	34.0	32.4	33.2	33.3	34.3
Loans through Domestic Banking Units (% of Total Commercial Bank Loans)										
Total DBU Loans	29.8	29.3	32.1	30.4	31.6	31.1	32.1	32.9	32.5	33.0
Of which to (% of Total DBU Loans):										
Manufacturing	3.4	2.8	2.8	2.8	2.9	2.8	2.8	2.8	2.8	2.9
Building & Construction	8.3	10.1	12.0	10.9	11.6	11.4	12.0	12.0	12.3	12.2
Housing	20.1	19.8	19.1	18.5	18.6	18.2	19.1	19.0	20.4	21.7
Professionals & Private Individuals	10.2	9.5	9.1	8.8	9.1	8.8	9.1	8.8	9.5	9.6
Non-Bank Financial Institutions	7.5	8.5	8.0	8.2	8.0	7.8	8.0	7.6	7.8	8.1
Banks	38.4	36.9	34.8	37.9	35.9	36.0	34.8	36.3	33.1	31.1
Profitability (Per Cent)										
DBU Net Interest Income to Total DBU Loans	2.12	2.05	2.07	1.99	2.02	1.99	2.07	2.03	2.12	2.13
Liquidity (Per Cent)										
Liquid DBU Assets to Total DBU Assets	9.8	10.1	9.8	9.5	9.6	9.0	9.8	10.2	10.4	10.7
Liquid DBU Assets to Total DBU Liabilities	10.6	10.8	10.7	10.3	10.3	9.6	10.7	11.1	11.2	11.6
All DBU Loans to All DBU Deposits	92.8	96.1	94.9	98.0	97.3	98.2	94.9	93.5	91.0	91.2
DBU Non-bank Loans to DBU Non-Bank Deposits	71.4	74.1	78.3	75.4	78.4	79.9	78.3	74.3	73.1	73.1
DBU Non-Bank Loan Growth (YoY)	6.3	19.9	16.6	23.8	24.9	24.8	16.6	8.6	4.2	1.1
DBU Non-Bank Deposit Growth (YoY)	21.8	15.6	10.3	13.7	8.9	10.6	10.3	10.2	11.7	10.5

Source: MAS

* Data relates to all commercial banks, Singapore operations only

** Annual figures are as at Q4

Table B.2: Local Banks* Selected Financial Soundness Indicators

	2006**	2007**	2008**	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009
Capital Adequacy (Per Cent)										
Regulatory Capital to Risk-Weighted Assets	15.4	13.5	14.7	14.1	13.9	14.3	14.7	16.7	16.5	16.5
Regulatory Tier I Capital to Risk-Weighted Assets	11.2	9.8	11.5	10.5	10.6	11.3	11.5	13.1	13.3	13.5
Shareholders' Funds to Total Assets	9.6	9.2	8.3	8.7	8.5	8.5	8.3	9.6	10.2	10.5
Asset Quality (Per Cent)										
Non-Bank NPLs to Non-Bank Loans	2.8	1.5	1.7	1.4	1.4	1.4	1.6	2.0	2.5	2.3
Total Provisions to Non-Bank NPLs	89.5	115.6	109.1	118.9	117.2	120.9	109.4	96.8	83.9	91.0
Specific Provisions to Non-Bank NPLs	41.3	39.9	43.7	38.8	41.4	43.6	43.6	40.4	34.8	38.0
Loan Concentration (% of Total Loans)										
Bank Loans	22.8	16.2	13.8	17.7	17.1	16.6	13.8	14.9	17.2	17.0
Non-Bank loans	77.2	83.8	86.2	82.3	82.9	83.4	86.2	85.1	82.8	83.0
Of which to (% of Total Loans):										
Manufacturing	8.4	9.2	9.2	9.1	8.9	9.4	9.2	9.0	8.1	8.2
Building & Construction	9.5	11.4	13.2	12.1	12.3	12.3	13.2	13.0	12.5	12.1
Housing	21.0	20.6	20.3	19.8	19.7	19.2	20.3	20.0	20.0	20.8
Professionals & Private Individuals	8.7	8.6	8.5	8.2	8.4	8.1	8.5	8.3	8.4	8.4
Non-Bank Financial Institutions	10.5	12.3	11.7	11.8	11.4	11.2	11.7	12.1	11.7	11.3
Profitability (Per Cent)										
ROA (Simple Average)	1.4	1.3	1.0	1.2	1.2	1.1	1.0	1.0	1.1	1.1
ROE (Simple Average)	13.7	12.9	10.7	12.2	12.5	11.9	10.7	11.4	11.2	11.0
Net Interest Margin (Simple Average)	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2
Non-Interest Income to Total Income	42.6	39.1	32.2	36.5	36.4	34.2	32.2	37.0	37.9	35.7

Source: Local Banks, MAS calculations

* Local banks' global operations

** Annual figures are as at Q4

Table B.3: Direct Life Insurers: Total New Business Gross Premiums

	2006	2007	2008	Q4 2007	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009
Year-on-Year % Change											
Policies	-67.5	17.3	4.5	35.7	35.3	12.0	0.0	-18.9	-36.3	3.3	10.5
Annual Premiums	-16.4	31.4	23.0	43.7	49.1	45.3	34.1	-14.9	-22.4	-8.5	-7.6
Single Premiums	29.4	27.6	-11.6	27.5	60.3	-10.2	-5.5	-68.4	-76.6	-59.7	-3.3
Sums Insured	-55.2	24.1	26.8	80.3	21.5	17.2	100.7	-14.5	-0.5	5.8	-37.0

Source: MAS

Table B.4: Direct Life Insurers: Asset Distribution of Singapore Insurance Fund (Non-Linked Assets)

	2006	2007	2008	Q4 2007	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009
S\$ Million (% of Total Assets)											
Debt Securities	43,697 (59.6)	47,857 (59.7)	47,139 (63.2)	47,882 (59.6)	47,404 (60.4)	46,346 (59.1)	46,738 (60.2)	47,298 (63.2)	46,280 (62.8)	47,700 (61.5)	50,886 (61.2)
Equity Shares	17,572 (24.0)	19,450 (24.3)	12,763 (17.1)	19,661 (24.5)	17,458 (22.2)	17,504 (22.3)	15,558 (20.0)	12,794 (17.1)	12,731 (17.3)	15,554 (20.0)	18,132 (21.8)
Cash & Deposits	4,462 (6.1)	3,428 (4.3)	4,882 (6.5)	3,517 (4.4)	3,936 (5.0)	4,235 (5.4)	5,187 (6.7)	4,863 (6.5)	5,246 (7.1)	4,684 (6.0)	4,187 (5.0)
Loans	3,391 (4.6)	3,633 (4.5)	3,971 (5.3)	3,635 (4.5)	3,679 (4.7)	3,898 (5.0)	3,834 (4.9)	3,970 (5.3)	4,064 (5.5)	4,041 (5.2)	4,069 (4.9)
Land & Buildings	2,139 (2.9)	3,319 (4.1)	2,987 (4.0)	3,315 (4.1)	3,315 (4.2)	3,305 (4.2)	3,302 (4.2)	3,011 (4.1)	2,997 (4.1)	2,996 (3.9)	2,900 (3.5)
Other Assets	2,029 (2.8)	2,426 (3.0)	2,800 (3.8)	2,315 (2.9)	2,705 (3.4)	3,173 (4.0)	3,071 (4.0)	2,856 (3.8)	2,361 (3.2)	2,601 (3.4)	2,971 (3.6)
Total Assets	73,290 (100)	80,114 (100)	74,542 (100)	80,324 (100)	78,497 (100)	78,461 (100)	77,690 (100)	74,792 (100)	73,679 (100)	77,576 (100)	83,145 (100)

Source: MAS

Table B.5: General Direct Insurers: Gross Premiums

	2006	2007	2008	Q4 2007	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009
S\$ Million											
Total Operations	2,850.5	3,224.5	3,686.7	785.4	931.4	931.9	947.9	881.1	1,090.0	1,010.5	991.2
SIF	2,385.9	2,621.9	2,962.5	630.9	804.4	739.9	748.3	712.3	892.1	746.9	734.3
OIF	464.6	602.6	724.2	154.5	127.0	192.0	199.6	168.8	197.9	263.6	256.9

Source: MAS

Table B.6: General Direct Insurers: Composition of Net Premiums of Singapore Insurance Fund

	2006	2007	2008	Q4 2007	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009
S\$ Million											
Marine & Aviation											
- Cargo	111.7	117.0	124.0	28.4	34.2	30.7	34.5	29.4	25.9	19.4	22.6
- Hull & Liability	59.1	72.1	76.0	22.4	11.6	16.7	23.7	20.9	14.4	19.4	23.9
Fire	113.9	119.1	123.1	26.2	34.3	32.6	30.1	26.6	39.3	38.9	30.2
Motor	655.5	710.9	817.7	180.7	222.0	205.2	210.9	208.3	265.7	241.2	246.0
Work Injury Compensation	140.7	178.9	224.0	35.5	64.3	63.5	58.5	41.0	73.6	58.6	53.3
Personal Accident	164.4	188.9	211.8	40.5	52.4	57.0	51.3	51.1	56.6	43.2	39.4
Health	138.2	165.0	198.2	40.0	68.1	51.5	48.6	39.2	71.4	33.9	28.1
Miscellaneous	231.2	277.6	312.7	66.5	77.6	80.7	87.6	66.9	76.0	85.7	79.9
Total	1,614.7	1,829.5	2,087.5	440.2	564.5	537.9	545.2	483.4	622.9	540.3	523.4

Source: MAS

Table B.7: General Direct Insurers: Incurred Loss Ratio of Singapore Insurance Fund

	2006	2007	2008	Q4 2007	Q1 2008	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009
Per Cent											
Marine & Aviation											
- Cargo	26.6	27.3	30.0	23.3	27.3	23.2	47.1	28.6	30.5	23.8	23.0
- Hull & Liability	35.0	41.4	53.2	56.1	62.1	39.5	70.2	23.3	95.6	69.1	60.6
Fire	24.5	20.0	18.7	27.5	13.5	15.6	19.1	38.0	33.1	19.9	7.9
Motor	68.7	88.8	92.2	84.7	87.2	98.8	101.7	95.4	81.5	79.0	72.1
Work Injury Compensation	95.0	74.0	70.4	71.4	65.1	79.6	80.0	53.7	66.6	73.3	73.2
Personal Accident	21.3	30.2	27.3	35.8	22.1	19.6	36.5	35.7	34.4	12.0	19.9
Health	74.4	60.1	60.0	90.4	57.5	57.6	52.5	55.0	48.9	16.7	64.1
Miscellaneous	25.2	25.1	27.9	18.5	22.3	35.5	31.9	23.2	37.7	49.7	30.5
Total	51.8	58.1	60.6	59.8	57.1	62.3	68.4	59.6	61.7	50.7	55.1

Source: MAS