



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 report, the following country groupings are used:

- Euro zone comprises Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia and Spain
- “G3” refers to the euro zone and United Kingdom, Japan, and the United States
- “G20” 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, the United States and the European Union
- “Asia-10” comprises China (CHN), Hong Kong (HK), India (IND), Indonesia (IDN), Korea (KOR), Malaysia (MYS), the Philippines (PHL), Singapore (SGP), Taiwan (TWN) and Thailand (THA)
- “Asia-7” comprises India, Indonesia, Korea, Malaysia, the Philippines, Taiwan and Thailand
- “NEA-3” comprises Hong Kong, Korea and Taiwan
- “SEA-5” comprises Indonesia, Malaysia, the Philippines, Singapore and Thailand

Abbreviations used for financial data are as follows:

- Currencies: Chinese Renminbi (RMB), Euro (EUR), Hong Kong Dollar (HKD), Indian Rupee (INR), Indonesian Rupiah (IDR), Japanese Yen (JPY), Korean Won (KRW), Malaysian Ringgit (MYR), Philippine Peso (PHP), Singapore Dollar (SGD), Taiwan Dollar (TWD), Thai Baht (THB), Vietnamese Dong (VND), US Dollar (USD)
- Stock Indices: Bombay Stock Exchange Sensitive Index (SENSEX), FTSE Bursa Malaysia KLCI (FBMKLCI), Hang Seng Index (HSI), Ho Chi Minh Stock Index (VNINDEX), Jakarta Composite Index (JCI), Korea Composite Stock Price Index (KOSPI), Nikkei 225 (NKY), Philippine Stock Exchange Index (PSEI), Shanghai Composite Index (SHCOMP), Stock Exchange of Thailand Index (SET), Straits Times Index (STI), Taiwan TAIEX Index (TWSE)

Other Abbreviations

ABSD	Additional Buyer Stamp Duty
ACU	Asian Currency Unit
ADB	Asian Development Bank
ADM	Asian Dollar Market
AEs	Advanced Economies
ASEAN	Association of Southeast Asian Nations
AT1	Additional Tier 1
AUM	Assets Under Management
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
BoE	Bank of England
BoJ	Bank of Japan
CAR	Capital Adequacy Ratio

CBRC	Chinese Banking Regulatory Commission
CBS	Credit Bureau Singapore
CCP	Central Counterparty
CCR	Core Central Region
CDP	Central Depository (Pte) Limited
CET1	Common Equity Tier 1
CIS	Collective Investment Scheme
CoCo	Contingent Convertible Capital Instrument
COE	Certificate of Entitlement
CPF	Central Provident Fund
CPI	Consumer Price Index
CPMI	Committee on Payments and Market Infrastructures
CPSS	Committee on Payment and Settlement Systems
CRAFT	Comprehensive Risk Assessment Framework and Techniques
CRILC	Central Repository of Information on Large Credits
CSRC	Chinese Securities Regulatory Commission
DBU	Domestic Banking Unit
DM	Developed Markets
DOS	Department of Statistics
EBIT	Earnings Before Interest and Tax
EBITDA	Earnings Before Interest and Tax, Depreciation and Amortisation
EC	European Commission
ECB	European Central Bank
ETF	Exchange-Traded Fund
EU	European Union
FI	Financial Institution
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
FSR	Financial Stability Review
GDP	Gross Domestic Product
GFC	Global Financial Crisis
G-SIB	Global Systemically Important Bank
ICR	Interest Coverage Ratio
IIF	Institute of International Finance
IMF	International Monetary Fund
IOSCO	International Organisation of Securities Commissions
IPTO	Insolvency and Public Trustee's Office
ISDA	International Swaps and Derivatives Association
IWST	Industry-Wide Stress Test
LCR	Liquidity Coverage Ratio
LEFS	Loan Enterprise Finance Scheme
LIBOR	London Interbank Offered Rate
LIS	Loan Insurance Scheme
LSAP	Large Scale Asset Purchase
LTD	Loan-to-Deposit
LTRO	Long-Term Refinancing Operations
LTV	Loan-to-Value
MAS	Monetary Authority of Singapore
MLP	Micro Loan Programme
MSD	Macroeconomic Surveillance Department
NEER	Nominal Effective Exchange Rate

NIM	Net Interest Margin
NPL	Non-Performing Loan
NSFR	Net Stable Funding Ratio
OCR	Outside Central Region
OIF	Offshore Insurance Fund
OIS	Overnight Indexed Swap
OMV	Open Market Value
OTC	Over-the-Counter
PBOC	People's Bank of China
PFMI	Principles for Financial Market Infrastructures
PMET	Professional, Manager, Executive and Technician
PONV	Point of Non-Viability
RBI	Reserve Bank of India
REIT	Real Estate Investment Trust
ROA	Return on Assets
RRR	Reserve Ratio Requirement
RWA	Risk-Weighted Assets
S&P	Standard & Poor's
SAAR	Seasonally Adjusted Annualised Rate
SAFE	SMEs' Access to Finance Survey Analytical Report
SCAV	Standing Committee on Assessment of Vulnerabilities
SGS	Singapore Government Securities
SGX	Singapore Exchange Ltd
SGX-DC	Singapore Exchange Derivatives Clearing Limited
SIBOR	Singapore Interbank Offered Rate
SIF	Singapore Insurance Fund
SIFMA	Securities Industry and Financial Markets Association
SME	Small and Medium-Sized Enterprise
SOR	Swap Offer Rate
STI	Straits Times Index
TDSR	Total Debt Servicing Ratio
TED	Treasury-Interbank Spread
TLAC	Total Loss-Absorbing Capacity
TSC	Transport, Storage and Communication
UMP	Unconventional Monetary Policy/Policies
URA	Urban Redevelopment Authority
WEO	World Economic Outlook
WGRMS	Working Group on Risk Mitigation Requirements

PREFACE

The Monetary Authority of Singapore (MAS) conducts regular assessments 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 analyses and results are published in the annual Financial Stability Review (FSR). 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. Section 2 starts by outlining key developments in Singapore's macroeconomic environment and financial system. This is followed by an analysis of the corporate and household sectors, then the banking sector, which plays a dominant role in Singapore's financial landscape. Finally, a review of the non-bank financial sector, which includes the insurance sector and capital market infrastructure and intermediaries, is also provided.

The production of the FSR was coordinated by the Macroeconomic Surveillance Department (MSD) team which comprises Chan Lily, Ng Heng Tiong, Choo Chian, Gay Bing Yong Kenneth, Ho Ruixia Cheryl, Ho Xinyi, Lam Mingli Angeline, Lee Su Fen, Lim Ju Meng Aloysius, Lim Weilun, Qiu Qiaoling Angeline, Soon Shu Ning Gael, Tan Chew Mui Eileen, Teoh Shi-Ying, Wong Siang Leng, Wong Siew Yann Justin, Yap Su-E, Yeo Siok Lee Denise, Yeoh Lye Choon Brian, Yip Ee Xiu and Yoe Xue Ting Selene under the general direction of Dr Lam San Ling, Executive Director (MSD). Valuable statistical and charting support was provided by members of the MSD Statistics Unit. The FSR also incorporates contributions from the following departments: Banking Departments I, II & III, Capital Markets Intermediaries Departments I, II & III, Economic Analysis Department, Economic Surveillance and Forecasting Department, Insurance Department, Market Conduct Department, Markets Policy and Infrastructure Department, Monetary and Domestic Markets Management Department, Prudential Policy Department and Specialist Risk 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/en/Regulations-and-Financial-Stability/Financial-Stability.aspx>

OVERVIEW

Global financial vulnerabilities remain amid policy uncertainties

Financial vulnerabilities bear close monitoring in the wake of accommodative monetary policies in G3 economies. The prolonged low interest rate environment and the search for yield have contributed to instances of heightened financial risk-taking and elevated asset valuations, especially in less liquid assets and markets.

In this environment, divergent G3 monetary policies could have financial stability spill-overs. Uncertainties over the timing and trajectory of interest rate normalisation in some G3 countries as well as the strength of the growth stimulus in other G3 countries could lead to disorderly adjustments in global financial markets and volatility in capital flows to Asia. These could in turn adversely impact some financial institutions and particularly highly leveraged corporates and households.

If these global risks materialise, they could lead to increased liquidity and default stresses in some segments of Asian financial systems

While strong global liquidity has underpinned buoyant financial conditions in Asia, this can quickly reverse amid normalising monetary conditions in the US.

A turn in investor sentiment and a potential disorderly exit from accommodative monetary policies could fuel liquidity and funding risks. Shocks from markets in the advanced economies (AEs) could lead to capital outflows and greater volatility in some Asian markets, particularly if uncertainty over the timing and course of US policy normalisation persists. Disorderly corrections in some asset classes, including property, could add to financial stability risks.

Highly leveraged corporates and households in Asia would be vulnerable to interest rate shocks, and potential foreign currency mismatch risks. Bank asset quality could decline as borrowers' debt servicing capacity weakens.

Nonetheless, Asian economies are expected to remain resilient due to improved fundamentals and active reforms. Efforts to strengthen public finances and build up international reserves have helped anchor investor confidence and should provide some buffer against external risks.

In Singapore, growing leverage, still-elevated property prices and rising cross-border banking exposures warrant close monitoring

In Singapore, the corporate debt-to-GDP ratio has trended upwards since the Global Financial Crisis (GFC), rising from 52% in Q2 2008 to 78% in Q2 2014. The household debt-to-income ratio has also edged up from 1.9 times in 2008 to 2.3 times in 2013. An interest rate hike combined with an earnings shock could increase the number of financially distressed corporates and households.

Private residential property market prices have moderated following the series of property measures introduced since 2009, but remain at an elevated level. There has also been increased interest in foreign property purchases, which could expose investors to foreign exchange and interest rate risks, as well as other risks arising from unfamiliarity with overseas property markets.

Foreign currency exposures in the banking system have risen alongside the growth in cross-border lending. A tightening of global liquidity conditions could pose funding risks to the banks.

In an uncertain economic climate, volatile external conditions could also lead to an unexpected and sharp deterioration in asset quality.

MAS is monitoring the above risks closely and taking pre-emptive measures to address them.

Corporate and household balance sheets are generally healthy, but the debt levels of highly leveraged households bear watching

Corporate balance sheets have remained firm, as evidenced by sound profitability and liquidity indicators. MAS' stress test of corporate balance sheets suggests that corporate debt servicing ability remains strong, even when firms are subject to interest rate and earnings shocks.

While highly leveraged firms may be vulnerable, they do not pose systemic risk, especially if accumulated cash reserves and hedging strategies are considered.

Household balance sheets have also remained healthy, with aggregate net wealth at about four times GDP. Household asset holdings have diversified away from property towards other financial assets, mitigating risks from over-concentration in any one asset class.

The pace of growth in household debt has slowed markedly, as MAS' policies to encourage financial prudence take effect. The growth in outstanding housing loans has moderated, alongside an improvement in the risk profile of such loans with new loans having lower loan-to-value (LTV) ratios and shorter loan tenures.

Notwithstanding some moderation in household leverage, the level of debt among highly leveraged households bears close watching. Households with high monthly debt service commitments, including those who have over-committed to property or have incurred high

levels of credit card and unsecured debt, will be vulnerable to interest rate or income shocks.

MAS will continue to monitor the level of household leverage and take further measures, where appropriate, to keep household debt at a manageable level. Highly leveraged households will need to work with banks and credit counselling agencies to reduce their debts via debt repayment plans.

MAS will also continue to monitor the property market and take appropriate measures to maintain a stable and sustainable market. Households should be mindful of additional risks associated with overseas property purchases.

Singapore's banking system remains resilient, but banks will have to be watchful of liquidity and credit risks

Singapore's banking system is sound and remains resilient to external shocks. Asset quality is healthy. The local banks' capital adequacy positions are well above regulatory requirements, and their liquidity positions are sound.

The results of MAS' industry-wide stress test (IWST) also indicate that banks would be able to meet regulatory capital requirements even under severe stress conditions.

The banking system is self-sufficient in funding domestic borrowing needs. Nonetheless, a potential tightening in foreign currency funding and liquidity could pose risks that bear close monitoring.

Banks should continue to maintain good credit underwriting practices and ensure that provisioning is prudent and robust to potential stress conditions. Banks should also continue to monitor and address risks arising from stresses to foreign currency funding and liquidity.

As global monetary conditions continue to evolve, MAS will continue to assess risks to the banking system from rising cross-border exposures, refining both quantitative and qualitative indicators and taking action where necessary.

Macroeconomic Surveillance Department
Monetary Authority of Singapore
27 November 2014

1.1 G3 Macroeconomic Environment and Financial System

Macroeconomic conditions in the G3 were mixed in 2014. While unconventional monetary policies (UMP) continued to support near-term growth, the recovery in G3 economies has been lacklustre, pointing to the need for policymakers to adopt structural reforms for longer-term sustainable growth.

Meanwhile, financial risks posed by UMP have become increasingly stark. While banking systems have strengthened over the past year, risks have continued to build up in asset valuations and market liquidity. Faster-than-expected rate rises, volatility spikes or geopolitical tensions could trigger market adjustments in the G3 that may spill over to other regions. Alongside efforts to boost economic growth, policies that address mounting financial vulnerabilities will be important.

Unconventional monetary policies continue to shoulder the burden of supporting growth...

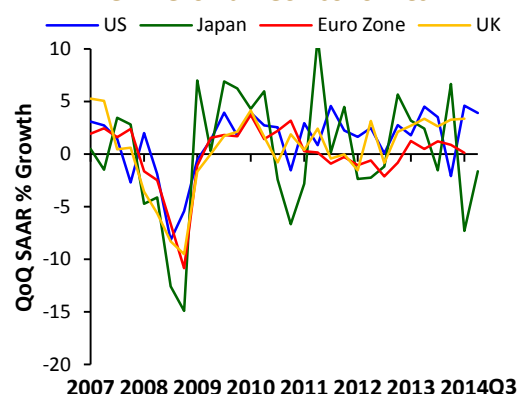
UMP has broadly continued to support economic growth in 2014, although G3 monetary policy is set to diverge going forward.

On the back of improving US growth prospects, the US Federal Reserve completed the tapering of its large-scale asset purchases (LSAP) and moved closer to raising the federal funds rate. The Bank of England (BoE) may also raise its benchmark interest rates in 2015. However, the European Central Bank (ECB) expanded monetary accommodation by lowering its benchmark rate and broadening its long-term refinancing operations (LTRO) to address faltering euro zone growth and deflationary pressures. The Bank of Japan (BoJ) also sustained its quantitative easing programme as the economy recently slipped into a recession.

... but divergent and disappointing growth outcomes highlight the need for structural reforms

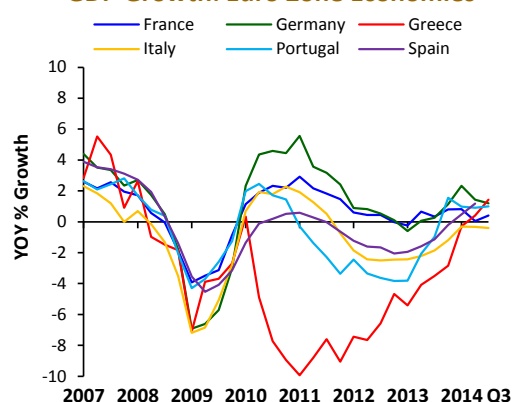
G3 economic performance was mixed in 2014 (Chart 1.1.1). US economic growth rebounded following a first quarter dip, as unemployment fell and business spending strengthened. UK growth continued to gain ground. However, growth remained weak in the euro zone as deflation worries and structural vulnerabilities came to the fore (Chart 1.1.2). Japan's gross domestic product (GDP) growth fell into negative territory

Chart 1.1.1
GDP Growth: G3 Economies



Source: CEIC

Chart 1.1.2
GDP Growth: Euro Zone Economies



Source: Eurostat

following a hike in consumption taxes in April.

Besides being uneven, G3 growth has also been sub-par. GDP forecasts have been repeatedly revised lower, and even US growth remains below potential (Chart 1.1.3).¹ This attests to the limits of monetary policy in supporting growth and the urgent need for other policy levers to pull their weight.

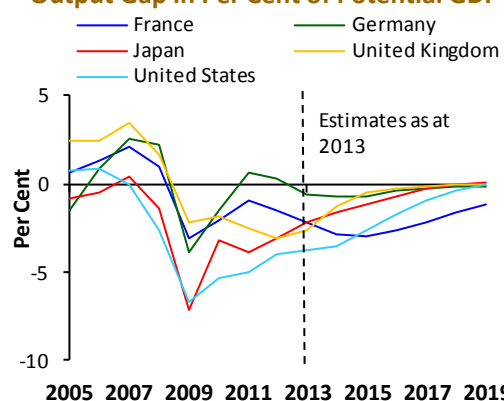
While banking systems continue to strengthen...

G3 banks have continued to strengthen over the year. Asset quality risks are gradually dissipating, and improving loan growth buoyed bank earnings. Accordingly, bank creditworthiness has strengthened. For example, the spreads of European bank credit default swaps have narrowed further (Chart 1.1.4).

US banks eased credit standards in 2014 amid a broad pickup in loan demand, while euro zone banks relaxed lending standards for the first time since 2007 (Chart 1.1.5) as demand for consumer credit increased. Japanese banks' lending standards also continued to ease (Chart 1.1.6).

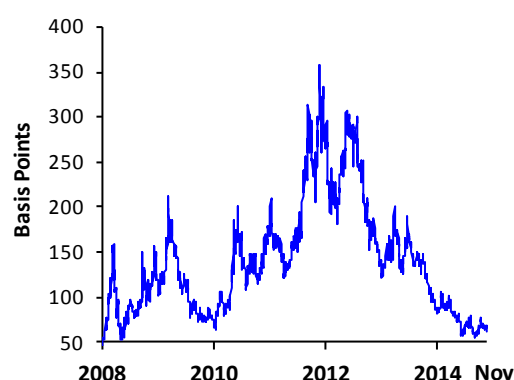
Credit growth will continue only if asset quality risks are mitigated. This includes addressing concerns raised following the ECB's asset quality review. Nevertheless, regulatory reforms have generally bolstered banking systems. Europe's banking union, with the single supervisory mechanism coming into effect in November 2014, will help boost confidence in European banks. Regulators are also addressing risks posed by "too-big-to-fail" entities, including introducing capital surcharges on global systemically important banks (G-SIBs). Additionally, the US and UK treasuries and central banks recently carried out coordinated "war games" to test the resilience of their financial system and to examine the cross-border implications of bank failures.

Chart 1.1.3
Output Gap in Per Cent of Potential GDP



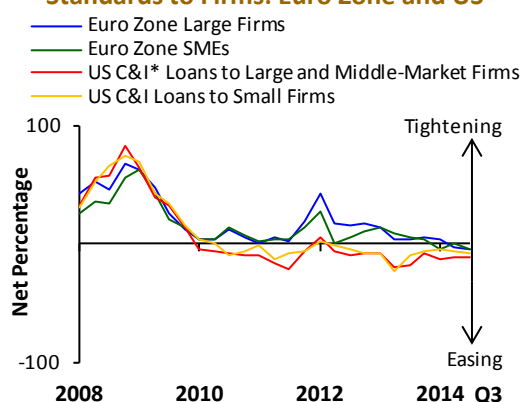
Source: International Monetary Fund (IMF) World Economic Outlook (WEO)

Chart 1.1.4
iTraxx Europe Senior Financial Index



Source: Bloomberg

Chart 1.1.5
Net Percentage of Banks Tightening Lending Standards to Firms: Euro Zone and US



Source: ECB, US Federal Reserve

*Commercial and Industrial

¹ The IMF cut projections for 2015 world GDP growth on 8 October 2014.

... accommodative monetary policies are adding to financial distortions...

Despite the improvement in banking systems, financial vulnerabilities are building up in the wake of accommodative monetary policies.

Continued financial risk-taking and search for yield amid a low-rate environment have contributed to pockets of elevated valuations in asset classes such as property and bonds.

Against this accommodative monetary policy backdrop, asset managers have pumped more money into less liquid assets (Chart 1.1.7), which raises market liquidity risks should such investors exit in a disorderly fashion. Concerns about liquidity are further compounded by declining dealer bond inventory (Chart 1.1.8). The fragility of investor sentiment is illustrated by the spike in volatility and dips in high-yield bond prices in October 2014 (Chart 1.1.9). A disorderly exit could affect markets in the US, Europe, and Asia to varying degrees. Such liquidity risks warrant close attention (See Box A: Corporate Bond Market Liquidity - Exiting a Crowded Theatre?).

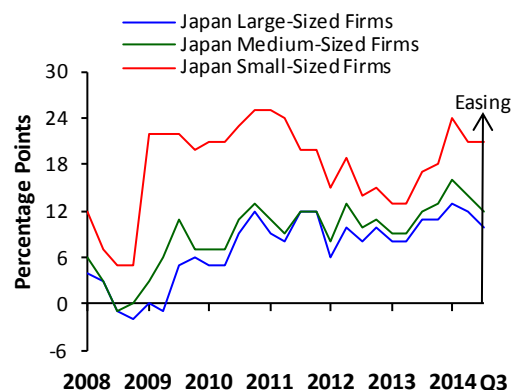
... and have dulled the impetus for appropriate fiscal action in G3 economies

Sovereign borrowing costs remained at historical lows (Chart 1.1.10). In the euro zone, sovereign prospects improved as Portugal and Spain followed Ireland in exiting the troika bailouts without a precautionary credit line.²

A delicate balancing act must be maintained between fiscal reform and pro-growth stimulus measures. On one hand, fiscal discipline must continue to be emphasised as debt-to-GDP ratios of G3 countries remain high relative to historical trends (Chart 1.1.11). On the other hand, where growth remains stubbornly sub-par in economies that are already fiscally prudent, fiscal flexibility to boost growth may be needed.

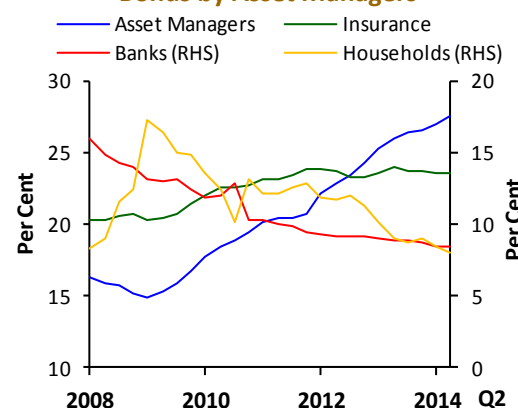
² The troika consists of the IMF, the European Commission (EC) and the ECB.

Chart 1.1.6
Diffusion Index of Credit Standards for Firms: Japan



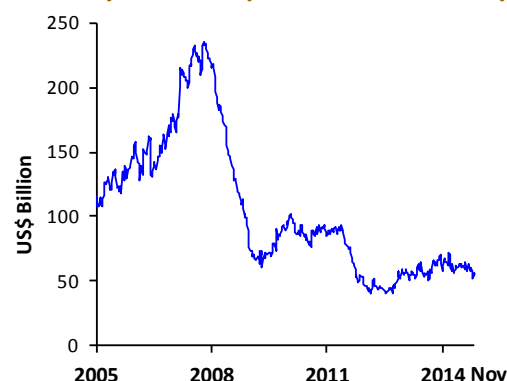
Source: BoJ

Chart 1.1.7
Increased Holdings of Corporate and Foreign Bonds by Asset Managers



Source: US Federal Reserve

Chart 1.1.8
Primary Dealer Corporate Bond Inventory



Source: US Federal Reserve

Reforms must continue to stimulate growth and build resilience

The present period of relative calm provides a good opportunity to pursue needed reforms. Structural reforms to boost the real economy need to be prioritised, as growth remains below potential.

At the same time, building systemic resilience remains a key priority. Geopolitical risks and health epidemics, over and above economic uncertainties, could lead to market volatility. Appropriate buffers would need to be built up against such risks.

While macroprudential policies can help address some financial stability risks arising from disorderly asset price corrections, their effectiveness depends on certain preconditions. These include having a clear mandate, a broad toolkit, and perhaps most importantly, political support.

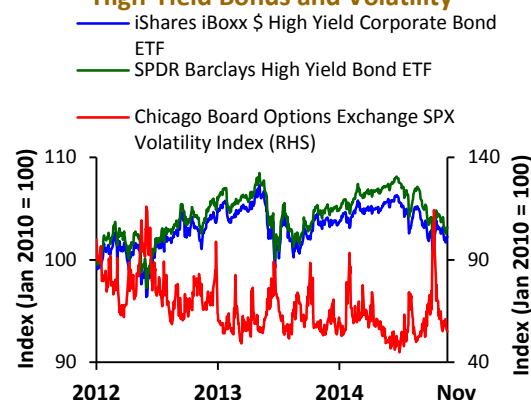
Furthermore, macroprudential policies alone may not be sufficient in constraining excessive financial risk-taking. It is important to follow through on ongoing regulatory reforms. At an appropriate time, monetary accommodation should be withdrawn. In addition, relevant steps need to be taken to mitigate liquidity risks (See Box A).

The progress of these structural and market reforms will have significant ramifications for economies outside the G3, given increased economic and financial interconnections between the G3 and the rest of the world, especially Asia.

Chart 1.1.9

Market Indices:

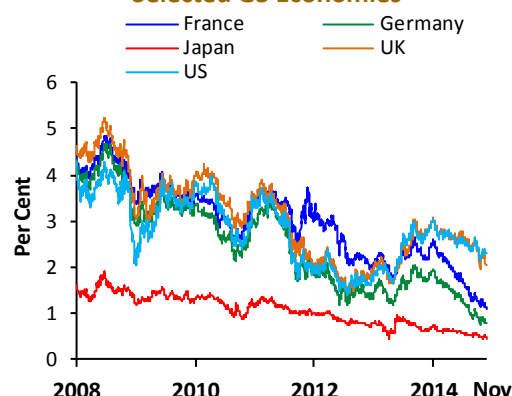
High-Yield Bonds and Volatility



Source: Bloomberg

Chart 1.1.10

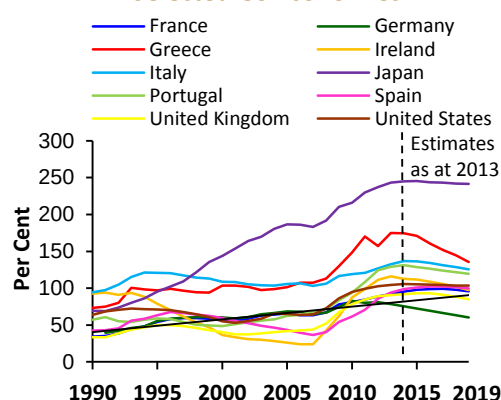
Ten-Year Sovereign Bond Yields: Selected G3 Economies



Source: Bloomberg

Chart 1.1.11

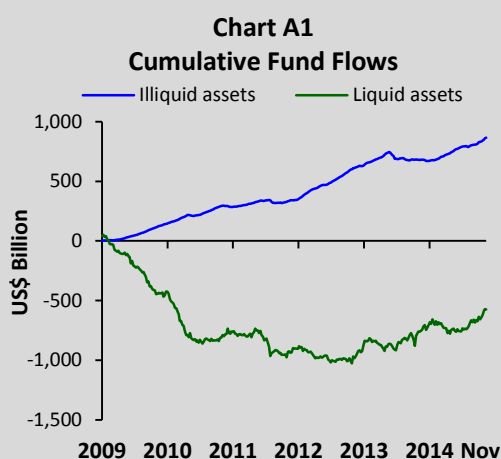
Public Debt-to-GDP Ratio: Selected G3 Economies



Source: IMF WEO

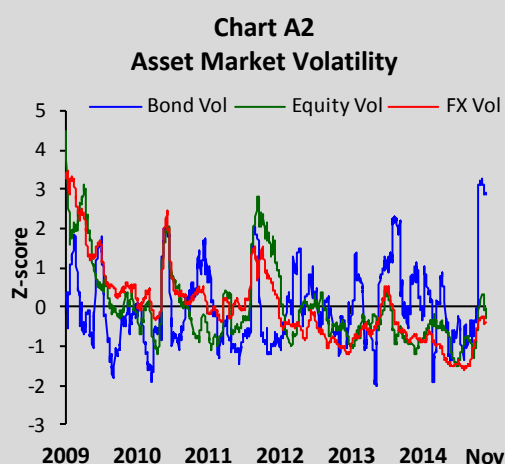
Box A**Corporate Bond Market Liquidity: Exiting a Crowded Theatre?**

Over the past few years, the search for yield amid a low interest rate environment has facilitated capital flows into less liquid assets (Chart A1). These inflows raise market liquidity risks should investors exit en masse. As lower market liquidity exacerbates market volatility, the risk of a disorderly exit is higher in less liquid markets. In particular, the recent volatility spike in October 2014 saw bond market volatility outpacing equity and foreign exchange market volatility (Chart A2), underscoring concerns that adjustments in bond markets could be disorderly amid lower bond market liquidity.



Source: EPFR, MAS estimates

Note: Fund flows into liquid assets are proxied by flows into money market funds, equity funds and government bond funds. Fund flows into illiquid assets are proxied by flows into bond funds (excluding government bond funds), and alternative funds.



Source: Bloomberg, MAS estimates

Note: Z-score indicates the number of standard deviations an observation is from the mean. Bond volatility is based on the Merrill Option Volatility Estimate (MOVE) Index. Equity volatility is based on the average volatility of the S&P500, Nasdaq, Nikkei, Eurostoxx, DAX, CAC and FTSE. FX volatility is based on the average volatility of G10 currencies, i.e. USD, EUR, GBP, JPY, CHF, CAD, AUD, NZD, NOK and SEK.

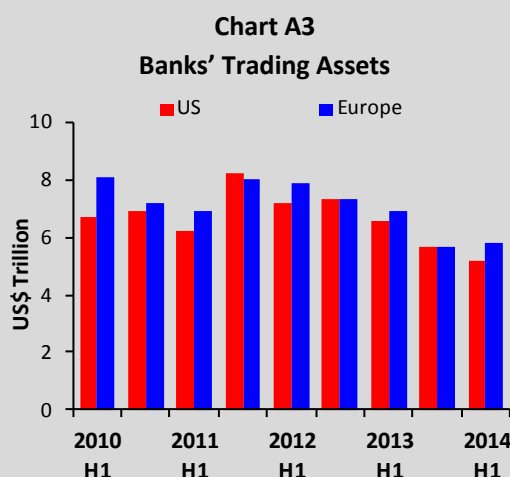
Bond markets have grown to be an increasingly important source of financing for corporates, and disruptions to the corporate bond markets would raise financing costs and adversely affect growth. As a result, liquidity risks facing corporate bond markets have attracted attention from policymakers and market participants, particularly in the US and Europe. In contrast, less attention has thus far been paid to Asian corporate bond markets. In this box, we examine the factors contributing to liquidity risks in the US, European and Asian corporate bond markets. We also suggest possible measures to address these risks.

We find that reduced dealer capacity to make markets and increasingly crowded positions in corporate bonds have altered the liquidity landscape of US and European corporate bond markets, making it more difficult to transact in secondary markets. At the same time, the increased activity of investment funds renders the markets more vulnerable to sudden pullbacks. In contrast, while Asian corporate bond markets have remained relatively less liquid, they could be subject to fewer shocks due to the higher participation of buy-and-hold investors. To address these liquidity risks, policymakers could look to boost secondary liquidity by promoting standardisation of bond issuances and/or improving transparency in the market, as well as improving risk disclosures.

US and Europe Corporate Bond Markets

Banks retreating from market-making

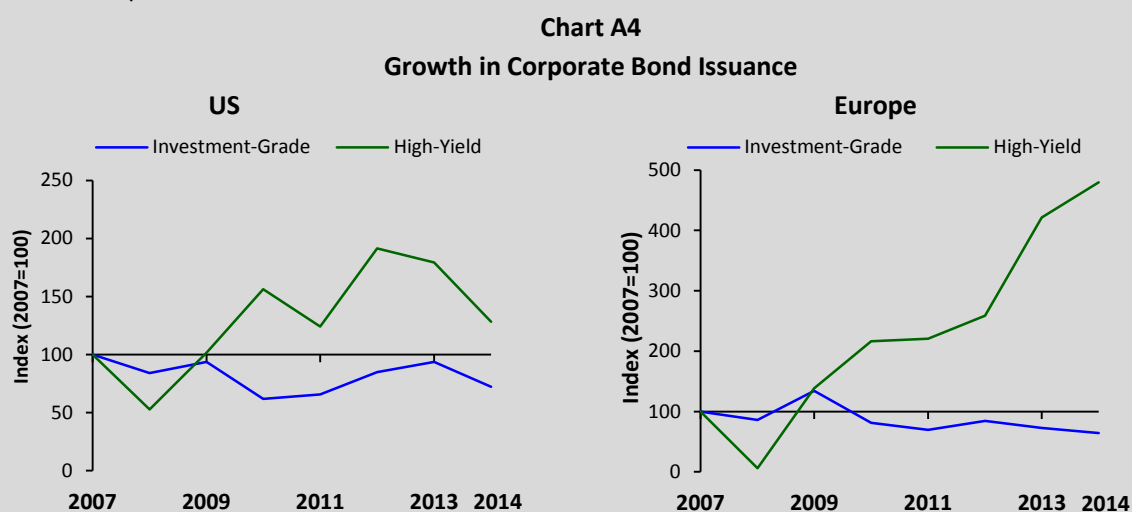
Regulatory reforms intended to make banks safer are also constraining banks' ability and willingness to provide liquidity in bond markets.³ Trading assets of US and European banks have shrunk considerably (Chart A3), as these banks have been shifting away from proprietary trading and market-making.



Source: SNL Financial, IMF

Investors thronging into illiquid high-yield bonds

Separately, the existence of a 'central bank put' has driven investors to riskier assets. Spurred by strong investor demand for corporate bonds amid higher risk appetite, corporate bond markets in the US and Europe saw record issuance in recent years. In particular, the growth in high-yield bond issuance has outpaced that of total corporate bond issuance (Chart A4), as investors reach for yield in the riskier and less liquid corners of the corporate bond market. With more investors trading in the same direction, exits from corporate bond markets, in particular the high-yield segment, could easily become crowded quickly when these positions unwind.



Source: Dealogic

Source: Dealogic

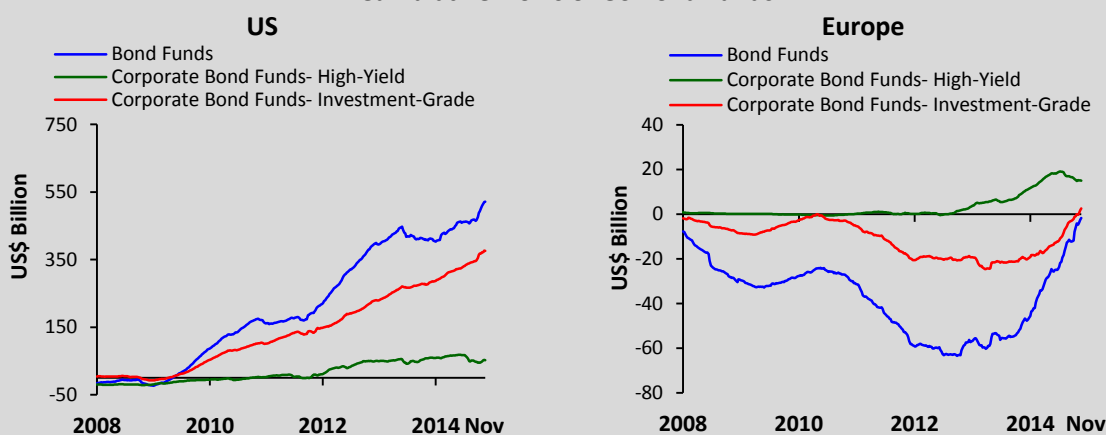
³ New Basel rules, such as the leverage ratio and higher capital charge for market risks, are making it more costly for banks to warehouse bond inventory, and structural reforms in the US and EU restrict banks from conducting proprietary trading.

Potential outflows from bond funds could further crowd the exits

Policymakers and market participants are growing concerned that sudden redemptions from high-yield bond funds could trigger a larger sell-off in the illiquid and increasingly crowded high-yield bond market. In addition, investments funds unable to liquidate their holdings in the illiquid high-yield bond market may be forced to sell more liquid assets, such as government bonds, to meet redemptions. Corporate bond investment funds could thus pose spill-over effects to other asset classes arising from liquidity risks.

Investors have started to scale back from high-yield bond funds (Chart A5) – such a gradual retreat could help mitigate the risks of sudden large redemptions from high-yield bond funds down the road. However, liquidity risks could be shifting to investment-grade corporate bonds. Outflows from US high-yield bond funds have occurred alongside inflows into US investment-grade corporate bond funds, a sign that investors could be switching into less risky, but still relatively illiquid investment-grade corporate bonds. Should inflows into US investment-grade corporate bond funds accelerate, these funds and the underlying market could become more vulnerable to shocks.

Chart A5
Cumulative Flows of US Bond Funds



Source: EPFR, MAS estimates

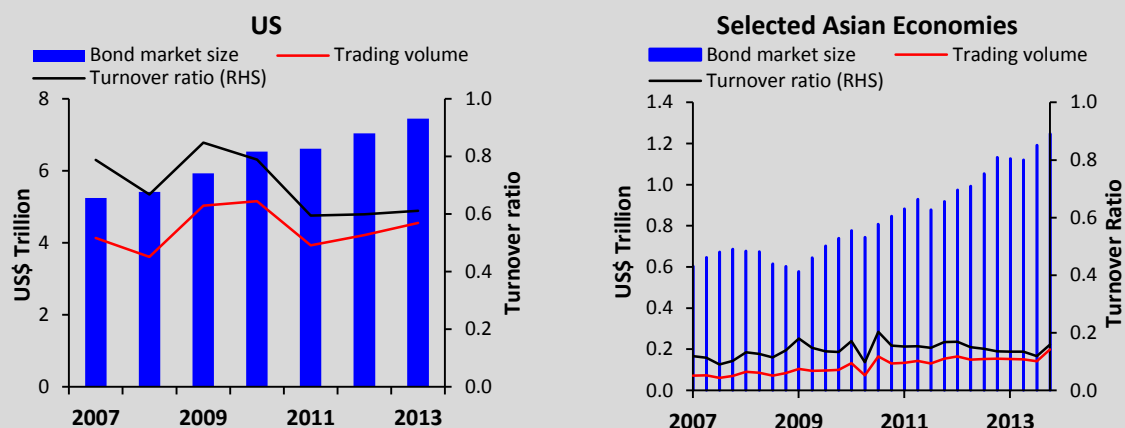
Source: EPFR, MAS estimates

Asian Corporate Bond Markets

Asian corporate bond markets are less liquid compared to developed markets (DM)...

Asian corporate bond markets are less liquid compared to their DM counterparts. The corporate bond turnover ratio (trading volume divided by market size) in Asia is substantially lower compared to that in the US (Chart A6).

Chart A6
Corporate Bond Turnover Ratios



Source: US Securities Industry and Financial Markets Association (SIFMA), MAS estimates

Source: Asian Development Bank (ADB) Asian Bonds Online

Note: Includes Hong Kong, Indonesia, Korea and Malaysia; China is excluded due to data irregularities

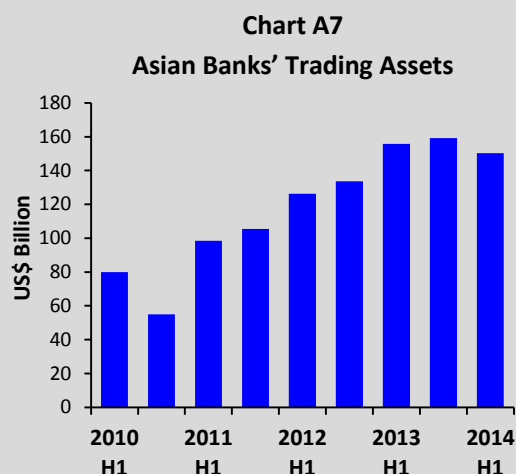
... but further examination suggests that Asian bond liquidity may be more resilient than expected

Despite its higher level relative to Asia, the corporate bond turnover ratio in the US has fallen post-global financial crisis (GFC). The US corporate bond market has therefore been less resilient to liquidity shocks, as the market has become bigger while trading volumes have fallen.

In Asia, the growth of secondary market liquidity has kept pace with primary market issuance, keeping the turnover ratio stable. A low and stable turnover ratio suggests that the market could be dominated by buy-and-hold investors. Such investors may be less susceptible to sudden pullbacks when global liquidity recedes, although accounting rules requiring mark-to-market valuation may pressure buy-and-hold investors to liquidate their bond holdings during times of stress. That said, Asian banks have been expanding their market-making and proprietary trading activities (Chart A7),⁴ and plans are also underway to boost corporate bond liquidity via platform trading.⁵ With Asian financial institutions (FIs) stepping in to fill the liquidity gap left by the retreat of US and European banks, the ability of Asian corporate bond markets to cope with selling pressures could be enhanced. Nonetheless, it will take time for Asian FIs to scale up their expertise in proprietary trading and market-making. As such, Asian corporate bond markets may have become more resilient to liquidity shocks, but are not immune to short-term volatility.

⁴ IFR Asia (8 March 2014), "Asian banks venture back to prop trading".

⁵ Financial Times (16 November 2014), "Singapore Exchange (SGX) talks to banks over launching Asian corporate bond platform".



Source: SNL Financial, MAS estimates

Note: Includes primary dealers of Asian origin in China, Indonesia, Hong Kong, Korea, Malaysia, Thailand

On balance, corporate bond markets in Asia could be less susceptible to disorderly adjustments

Faced with reduced dealer market-making ability and increased inflows into corporate bonds, US and European corporate bond markets have become less able to cope with selling pressures. In contrast, while Asian corporate bond markets continue to be relatively small and illiquid, their investor profile may enable them to be more resilient to sell-offs.

To mitigate liquidity risks in corporate bond markets, policymakers need to enhance secondary market liquidity while addressing the potential liquidity issues created by investment funds

To ensure that corporate bond markets are able to adjust smoothly to normalising monetary conditions, policymakers should look into enhancing secondary liquidity in the corporate bond markets, and reducing potential liquidity shocks which could be amplified by bond funds.

- Enhance secondary liquidity of bond markets:** A number of industry-led initiatives have been underway to address the risks of reduced liquidity in the corporate bond markets. For instance, a number of dealer banks have set up internal crossing networks to match client orders so as to pool liquidity. In addition, technology has been developed to facilitate the sharing of information on bond inventories across different liquidity pools. A number of industry players have also called for buy-side firms to step in to provide secondary market liquidity, and for secondary transactions to be shifted onto electronic trading platforms. This could help diversify the pool of liquidity providers, hence making the corporate bond market more resilient to shocks. With US and European banks withdrawing from market-making activities, there is greater room for other players such as Asian banks and buy-side firms to take a more active role in liquidity provision. A more diversified pool of liquidity providers would help make the corporate bond market more resilient to shocks. To complement industry efforts in boosting secondary liquidity, policymakers could consider promoting standardisation of bond issuances and improving transparency in bond markets, so as to boost trading volumes.

- **Address mismatch between liquidity promised by investment funds and the illiquidity of the underlying asset:** Another line of defence in addressing liquidity mismatches is to enhance investor education and require better risk disclosure by bond funds. This empowers investors to make better investment decisions. Beyond investor education, policymakers could intervene to ensure that investors adequately factor in liquidity risks in their investment decisions. One possible option is to set exit fees on bond funds. However, calibration of such exit fees has proven to be challenging as liquidity risk premia are difficult to estimate, and the introduction of exit fees could accelerate redemption, exacerbating sell-offs and liquidity risks. Another possible option could be to encourage investment funds to offer redemption terms (e.g. minimum holding periods) that align with the liquidity of the underlying assets.
- **Reduce liquidity mismatch by encouraging alignment of investment with appropriate risk appetite and investment horizon:** Institutional investors with long-dated liabilities, such as sovereign wealth funds and pension funds, are better positioned to provide long-term financing for investments in illiquid assets like infrastructure. This promotes better alignment of the liquidity risks of the investment with the investor's investment horizon, and also opens up a new source of long-term financing for corporate borrowers. Ongoing efforts to develop robust infrastructure debt and equity investment products (such as capital market instruments) could make it easier to assess the associated risk-returns and make infrastructure an asset class which is more accessible to these institutional investors. For investments which are more suited for shorter-term or more risk-averse investors, policymakers could consider putting in place regulatory safeguards to enhance risk disclosures and risk management practices.

Box B**Total Loss-Absorbing Capacity: Macroeconomic and Financial Stability Implications**

This box examines the impact of implementing a total loss-absorbing capacity (TLAC) requirement on G-SIBs. Overall, there could be a mild drag on global growth. However, there could be financial stability concerns should non-bank FIs hold a substantial share of TLAC instruments.

TLAC allows for loss absorbency beyond the current minimum regulatory capital requirement

The objective of TLAC is to provide sufficient resources for a G-SIB to be resolved without needing taxpayer capital support or causing severe systemic disruption. More specifically, TLAC allows a G-SIB to absorb losses beyond the current minimum regulatory capital requirement under the present Basel III rules – 8% of risk-weighted assets (RWA). This would provide more time and resources for authorities to resolve the G-SIB in an orderly manner.

TLAC requirement could cause G-SIBs' lending rates to rise by 33bps to 58bps, and global GDP growth to decline by 0.09 to 0.15 percentage points per annum over the next five years

The proposed TLAC requirement would raise G-SIBs' business costs, which if passed on to corporates and households in the form of higher costs of credit or reduced credit supply, may lead to lower economic activity.

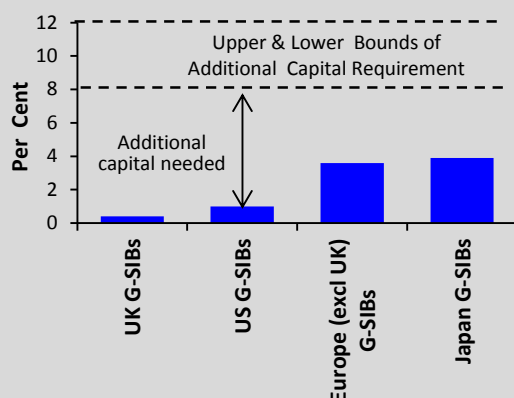
To assess the potential macroeconomic impact, we first estimate the additional capital needed to meet TLAC purposes after taking stock of surplus capital that qualifies for TLAC. Surplus capital available, after taking into account the Basel III minimum capital requirements and capital buffers (potentially totalling 13% of RWA⁶), are more limited at UK and US G-SIBs, averaging 0.4% to 1.0% of RWA respectively, whereas surplus capital at European (excluding UK) and Asian G-SIBs are higher, averaging 3.6% to 3.9% of RWA respectively (Chart B1). In aggregate, the additional capital needed could range between US\$787 billion to US\$1,470 billion, assuming that TLAC is calibrated at between 16% and 20% of RWA (Table B1).⁷

⁶ Comprising minimum capital requirement of 8%, capital conservation buffer of 2.5% and G-SIB surcharge of up to 2.5%. Countercyclical capital buffer has been excluded as the buffer requirement kicks in only when it is assessed that there is excessive credit growth.

⁷ The Financial Stability Board (FSB) consultative document "Adequacy of loss-absorbing capacity of global systemically important banks in resolution, November 2014" cites a possible TLAC range of 16% to 20% of RWA.

Chart B1

Surplus Capital Available to Meet TLAC as % of
RWA



Source: Banks' financial statements, MAS estimates

Table B1

Additional Capital Needed to Fulfil TLAC
Requirement Net of Surplus Capital

	TLAC at 16%	TLAC at 20%
UK G-SIBs	US\$ 103 bn	US\$ 192 bn
US G-SIBs	US\$ 481 bn	US\$ 761 bn
Europe (excl UK) G-SIBs	EUR 130 bn	EUR 307 bn
Japan G-SIBs	US\$ 37 bn	US\$ 124 bn
Total	US\$ 787 bn	US\$ 1,470 bn

Source: Banks' financial statements, MAS estimates

The additional capital needed for the TLAC requirement can be in the form of debt or equity.⁸ An extension of the Modigliani and Miller theorem suggests that a firm generally prefers debt capital which is cheaper than equity capital due to the tax relief on interest payments but not on dividend payments. Empirically, a recent OECD study estimates that the current cost of debt is around 4% to 6% (assuming investment-grade credit), whereas the cost of equity is almost twice that of debt - around 10%.⁹

Assuming debt capital will be used to fulfil the additional capital needed for TLAC and extrapolating from several past studies on Basel III capital requirements,¹⁰ implementing TLAC could increase G-SIBs' lending rates by 33bps to 58bps and reduce global GDP growth over the next five years by 0.09 to 0.15 percentage points per annum.¹¹

We also assess the ability of debt markets to absorb additional capital-raising to meet TLAC. Our estimates suggest that debt raising would be manageable for most jurisdictions, ranging between 9% and 38% of annual debt issuance for the European and Japanese debt markets (Table B2). However, it may be more difficult for the US debt markets, with the additional capital ranging between 38% and 60% of annual debt issuance. This may put further pressure on funding costs, which may in turn be passed on to borrowers in the form of higher lending rates than the above estimates.

Table B2

Additional Capital Needed as % of Annual Debt Issuance (average over last five years)

	TLAC at 16%	TLAC at 20%
UK G-SIBs	20%	38%
US G-SIBs	38%	60%
Europe (excl UK) G-SIBs	10%	23%
Japan G-SIBs	9%	31%

Source: Dealogic, MAS estimates

⁸ More specifically, there is an expectation that debt instruments will constitute an amount equal to or greater than 33% of the TLAC requirement, so as to help ensure that there are sufficient resources available in resolution.

⁹ OECD (2013), "Long-term investment, the cost of capital and the dividend and buyback puzzle".

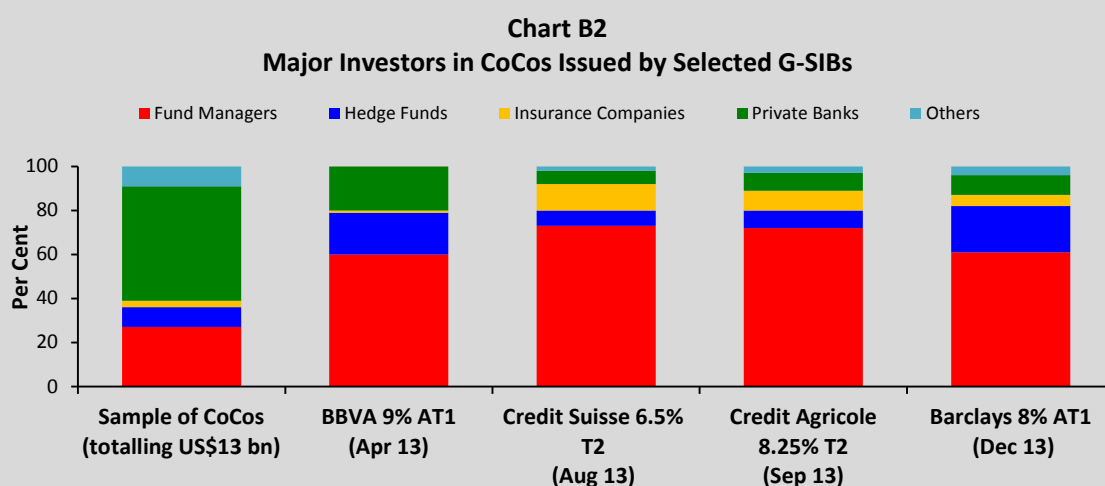
¹⁰ Earlier studies by Bank for International Settlements (BIS), IIF, IMF and OECD suggest that implementing Basel III via raising equity would result in increases in global lending rates ranging between 20bps to 360bps while annual GDP growth would be reduced by between 0.1 and 0.7 percentage points, over 2011 – 2015 than they would be in the absence of Basel III reforms.

¹¹ Our estimates are based on a linear extrapolation of the global estimates from past studies on Basel III capital requirements, scaled for G-SIBs' share of global banking assets.

There could be implications for G-SIBs' balance sheets and systemic risk

The proposed TLAC requirement may incentivise G-SIBs to switch to debt funding from deposit funding. However, the latter is typically a cheaper and more stable source of funding for banks, and would be useful for meeting the liquidity coverage ratio (LCR) and net stable funding ratio (NSFR) requirements. The amount of debt versus deposits that G-SIBs hold would depend to some extent on the trade-off between these requirements.¹²

Investments in TLAC by other FIs can also be a source of contagion in a crisis. Recent data on contingent convertible capital instruments (CoCos), which have similar loss-absorption features as TLAC, suggests that there have been rising interest in such products from non-bank FIs, in particular hedge funds and asset managers but also from insurance companies (Chart B2).¹³ Further, with the recent finalisation of the 2014 CoCo Supplement by the International Swaps and Derivatives Association (ISDA) which would allow credit default swaps to reference CoCos, investors could employ leverage and take on more risk when investing in this new credit asset class.



Source: BIS, Bank of America Merrill Lynch

To reduce the potential for system-wide contagion effects, the TLAC proposal discourages G-SIBs and other internationally active banks from holding TLAC instruments issued by G-SIBs. It may be relevant to consider whether to extend such restrictions to non-bank FIs, such as non-bank G-SIFIs and domestic SIFIs, to limit potential contagion to the non-bank sectors.

¹² The LCR requirement ensures that a bank has an adequate stock of unencumbered high quality liquid assets to meet liquidity needs. Under LCR, lower outflow rates are assigned to deposits whereas higher outflow rates are assigned to market funding. The NSFR requires banks to maintain a stable funding profile in relation to the composition of their assets and off-balance sheet items.

¹³ The Economist (13 September 2014) reported that the CoCos market, previously dominated by hedge funds, was seeing rising interest from fund managers. BIS Quarterly Review (September 2013) studied the investor base of a sample of Cocos, totalling US\$13 billion, and concluded that private banks and fund managers were major investors.

1.2 Asia Macroeconomic Environment and Financial System

Asian financial markets have largely stabilised following several episodes of LSAP tapering shocks in early 2014. Strong global liquidity and healthy risk appetites have continued to underpin buoyant financial conditions in Asia.

Asian policymakers need to remain watchful amid economic uncertainties surrounding the G3 recovery and the timing of rate hike by the US Federal Reserve. Asia's strong debt build-up and high valuations in some asset classes present financial stability risks. Global shocks could be amplified in Asia due to low market liquidity in the region and stresses from capital outflows, with uneven impact on different parts of Asia.

Looking ahead, Asian economies are expected to remain resilient amid active reforms by policymakers and improved economic fundamentals. The present reprieve in financial markets provides an opportunity for authorities to step up structural reforms and anchor investors' confidence in the region, while balancing their objective of near-term growth.

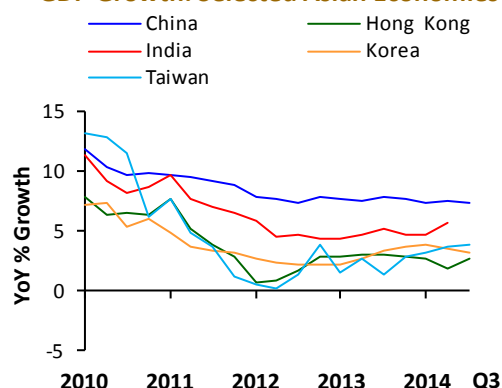
Asia's economic outlook remains mixed due to tentative recovery in external demand and varying domestic headwinds

Asia has seen an uplift in external demand on the back of G3 economic recovery, but downside risks remain as growth momentum in the G3 falters in late 2014. The outlook across Asia is mixed in the presence of varying domestic headwinds. Structural reforms and policy tightening in some countries will further constrain domestic demand.

The Chinese economy gained momentum in Q2 2014 on the back of increased infrastructure spending, but growth slowed to 7.3% y-o-y in Q3 2014 (Chart 1.2.1) as effects of fiscal stimulus waned. Export growth was offset by muted domestic demand amid an ongoing property downturn.

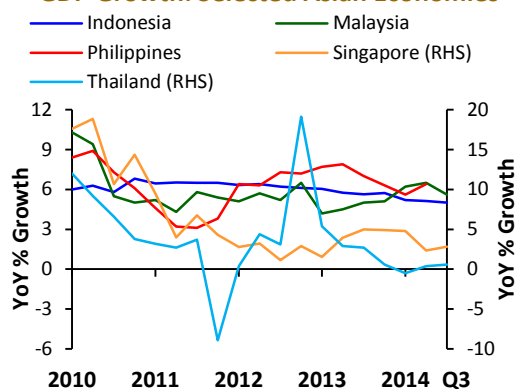
India displayed tentative signs of recovery in Q2 2014 with GDP growth of 5.7% y-o-y, up from 4.6% in the previous quarter (Chart 1.2.1). A revival in the manufacturing sector and stronger government spending, alongside improving investor sentiment, boosted economic activity.

Chart 1.2.1
GDP Growth: Selected Asian Economies



Source: Bloomberg

Chart 1.2.2
GDP Growth: Selected Asian Economies



Source: Bloomberg

South-east Asia remained generally resilient in Q2 2014 as a pickup in exports, led by stronger shipments to the US and the euro zone, provided some buffer against softening domestic demand.

Indonesia's GDP growth eased further to 5.0% y-o-y in Q3 (Chart 1.2.2) as past rounds of monetary policy tightening dampened domestic demand. Thailand's economy sustained positive growth momentum in Q3, expanding by 0.6% y-o-y, following a contraction in Q1 2014 (Chart 1.2.2).

Other Asian economies have seen sluggish domestic demand offsetting gains from external demand. Korea's GDP growth moderated with slowing private consumption as consumer sentiment weakened. In Hong Kong, retail sales were affected by political uncertainty and lower spending by Chinese tourists (Chart 1.2.1).

Looking ahead, Asia's economic momentum hinges on sustained recovery in the G3 and economic stabilisation in China.

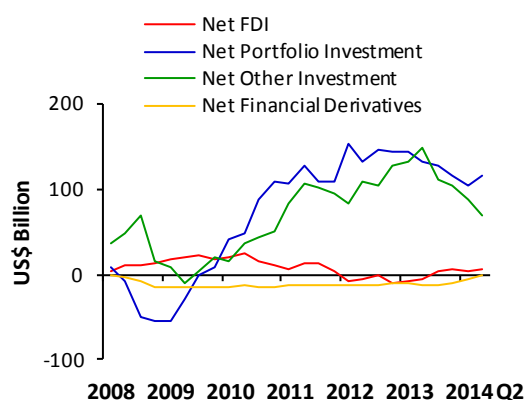
Chinese policymakers are likely to continue supporting domestic demand through fiscal and monetary easing. In the other Asian economies, a slowdown in growth momentum in China and some parts of G3 could continue to pose downside risks to external demand and growth.

Against this mixed economic outlook, net capital flows to Asia have reversed partially

Against this mixed economic outlook, net capital flows to Asia have turned negative, partially reversing the net inflows since 2010 (Chart 1.2.3).

Several Asian economies have received substantial financial flows in the past few years, particularly portfolio and other investment flows (widely regarded as shorter-term in nature), as Asian

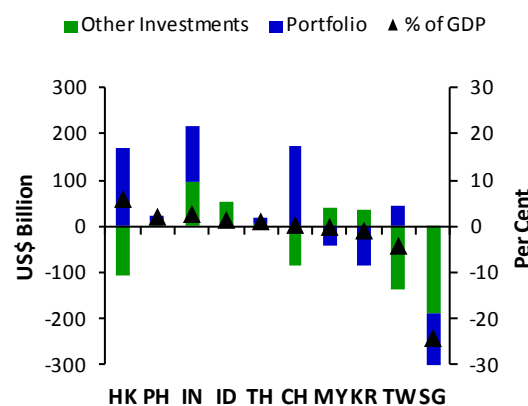
Chart 1.2.3
Cumulative Net Capital Inflows: Asia-7



Source: IMF Balance of Payments, CEIC

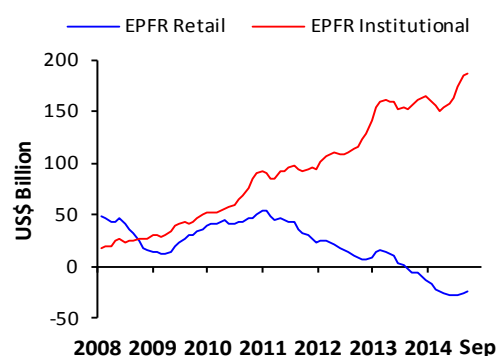
Note: Asia-7 comprises India, Indonesia, Korea, Malaysia, the Philippines, Taiwan and Thailand.

Chart 1.2.4
Cumulative Net "Other Investments and Portfolio" Flows:
Asia-10
2010-2014 Q2



Source: IMF Balance of Payments, MAS estimates

Chart 1.2.5
Cumulative Fund Flows By Type of Investors:
Asia-10
Equities



sovereigns and corporates benefited from historically low risk premia and global volatility (Chart 1.2.4).

During the episodes of tapering shocks in late 2013 and early 2014, exits from Asia-10 equities and bonds were driven mainly by retail funds, while institutional funds maintained or even increased holdings, reflecting longer-term optimism over growth prospects in emerging Asia (Chart 1.2.5).

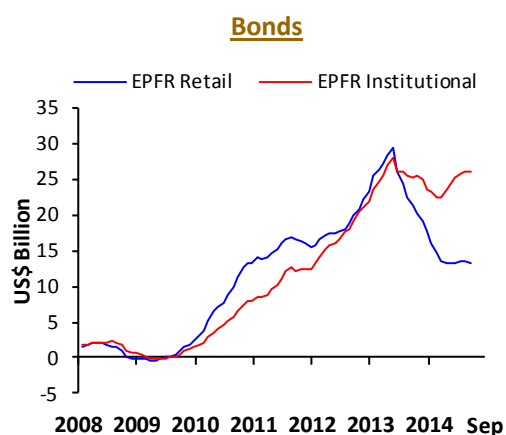
Looking ahead, uncertainty in the timing of an interest rate rise in the US is likely to lead to greater volatility in Asian capital flows. Asian policymakers will need to step up structural reforms and anchor investors' confidence as a buffer against potential shocks originating from markets in G3 economies. This could involve deepening and broadening domestic capital markets, and promoting a more diversified investor base.

Global shocks may be amplified in Asian markets through low market liquidity and herding behaviour among asset managers

Shocks originating from markets in G3 economies could lead to sudden capital withdrawals from emerging Asia's assets, with low market liquidity and herding behaviour amplifying such shocks.

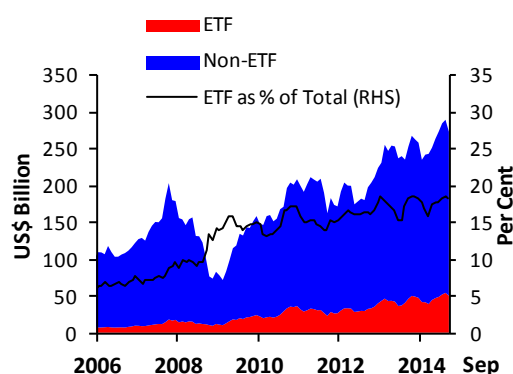
Liquidity risks could be propagated through portfolio investment channels, alongside low underlying market liquidity. The growth of liquidity transforming products such as exchange-traded funds (ETFs), which are frequently more liquid than the assets they track, exacerbates this risk.

Investments by ETFs into Asia-10 has been on the rise, accounting for over 18% of all equity investments by funds in 2014 (Chart 1.2.6). While ETFs occupy only a small proportion of overall market capitalisation in Asia, the high frequency of ETF trades, relative to overall trading activity on



Source: EPFR, MAS estimates

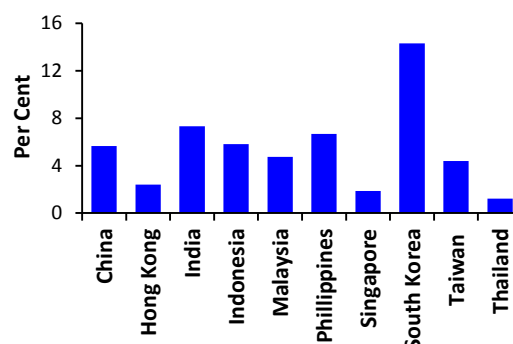
Chart 1.2.6
Net Assets of ETF funds in Asia-10 Equities



Source: EPFR, MAS estimates

Note: The Vanguard MSCI Emerging Markets ETF has been excluded as it was added to EPFR data in 2012.

Chart 1.2.7
% Average Daily Turnover in 2013 of Stock Exchange Attributed to ETFs: Asia-10



Source: Bloomberg, World Federation of Stock Exchanges, MAS estimates

Asian stock exchanges (Chart 1.2.7), calls for further monitoring of ETFs and their contribution to liquidity risk.¹⁴

Further, the active referencing of benchmark indices by asset managers could encourage herding behaviour and increase correlation of investment behaviour in Asian assets, potentially exacerbating any decline in asset prices.¹⁵

Asian financial markets have rallied following episodes of tapering shocks in early 2014

Asian financial markets have shrugged off episodes of tapering shocks in early 2014 on the back of resilient growth and intensifying reform efforts by policymakers in Asia.

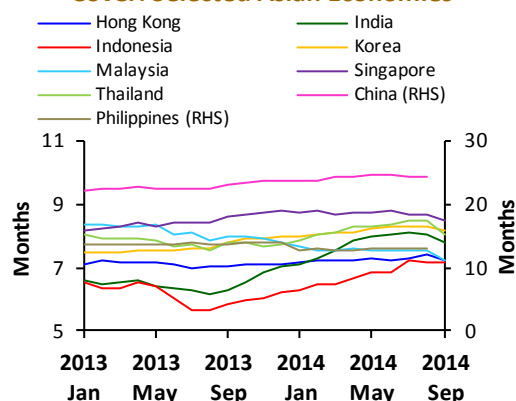
Economic fundamentals have improved since the currency, bond and equity market sell-offs in early 2014. Import coverage has also been strengthened through a strong build-up of international reserves (Chart 1.2.8).

Equity markets in Asia have rallied (Chart 1.2.9) as confidence in financial resilience bolstered investor sentiment.

Asian currencies have strengthened following the sell-off in early 2014. The Indian rupee and the Indonesian rupiah, which saw the most significant decline amongst Asian currencies during the tapering episodes, have stabilised (Chart 1.2.10).

Further, sovereign bond yields have fallen in several Asian economies (Chart 1.2.11) as foreign appetite for Asian sovereign credit picked up once again (Chart 1.2.12).

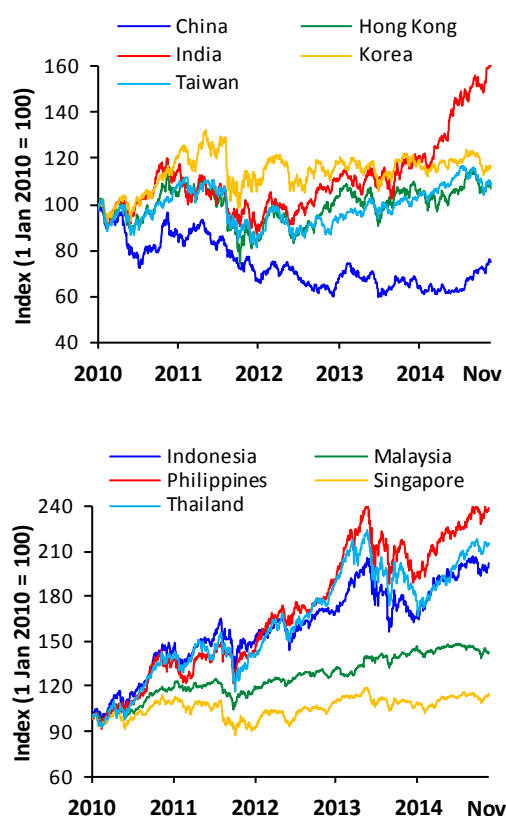
Chart 1.2.8
International Reserves: Months of Import Cover: Selected Asian Economies



Source: IMF

Note: Imports are calculated based on a 12-month rolling average basis.

Chart 1.2.9
Stock Market Indices: Asia-10



Source: Bloomberg

¹⁴ ETFs account for 0.48% of 2013 market capitalisation in Asia-10.

¹⁵ Ken Miyajima, Ilhyock Shim, BIS Quarterly Review (September 2014), "Asset Managers in Emerging Market Economies".

The continued search for yield has led to high valuations in selected asset classes, including property

Amid investors' continued search for yield, pockets of high valuation have arisen in some Asian asset classes, including property. Property tightening measures have dampened investor sentiment and cooled property markets in some economies, but property prices have persisted on an uptrend in other economies (Chart 1.2.13).

The dynamics in property markets warrant close attention, as a turn in investor sentiment could trigger a sharp correction in prices, which could in turn dampen domestic demand and growth through the negative wealth effect. Highly leveraged households and corporate entities that have borrowed using property as collateral would also be at risk.

Private sector debt has continued to rise in Asia, exposing corporates and households to risks in the event of a global or domestic shock

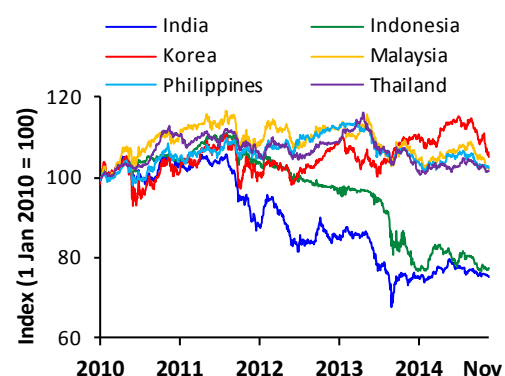
Elevated private sector debt levels in Asia have raised concerns that debt repayment burdens would be unsustainable for over-leveraged corporates and households when interest rates rise, or earnings decline in the event of a global or domestic shock.

Household debt relative to GDP has continued to rise across several economies (Chart 1.2.14), prompting authorities in some countries – such as Malaysia and Hong Kong – to implement additional measures to curb excessive borrowing.

Corporate debt relative to GDP has increased in some economies (Chart 1.2.15). Deteriorating interest coverage ratios (Chart 1.2.16) and debt-to-income ratios (Chart 1.2.17) reported by firms in some countries could indicate declining debt repayment capacities.

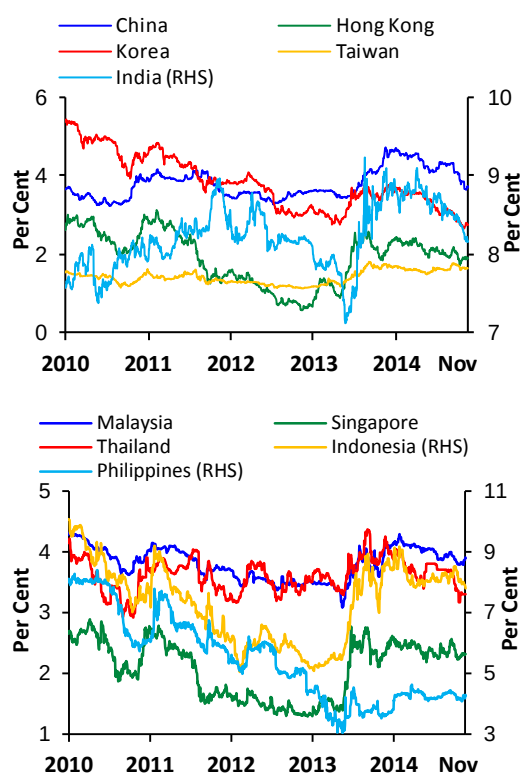
Some Asian corporates have capitalised on

Chart 1.2.10
Currency Indices: Selected Asian Economies



Source: Bloomberg

Chart 1.2.11
Sovereign Bond Yields: Asia-10



Source: Bloomberg

favourable financing conditions to frontload debt issuances before interest rates rise. Strong demand from global investors has underpinned the brisk issuance activity of local currency-denominated bonds (Chart 1.2.18) and a general narrowing of corporate bond spreads over the course of 2014 (Chart 1.2.19).

Growing dependence on foreign currency-denominated funding presents foreign currency mismatch risks

The pace of issuance of G3 currency-denominated bonds has also picked up significantly in 2014 (Chart 1.2.20). In several Asian economies, the share of outstanding corporate bonds that are denominated in foreign currency has increased (Chart 1.2.21).

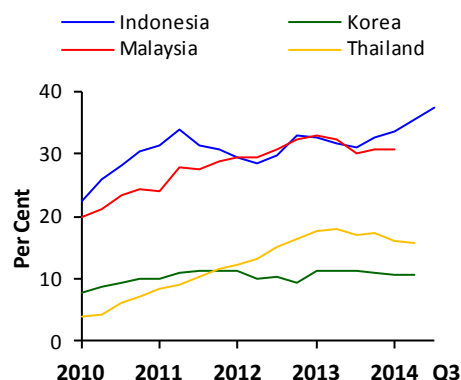
Leveraged entities in Asian economies are exposed to greater foreign currency mismatch risks. Borrowers may not actively hedge against foreign currency risks due to limited access to derivatives markets, or because they find the hedging costs too high.

Bank loan growth has moderated in Asia as credit standards tightened

While bond issuance has remained strong, bank loan growth has moderated in Asia (Chart 1.2.22).

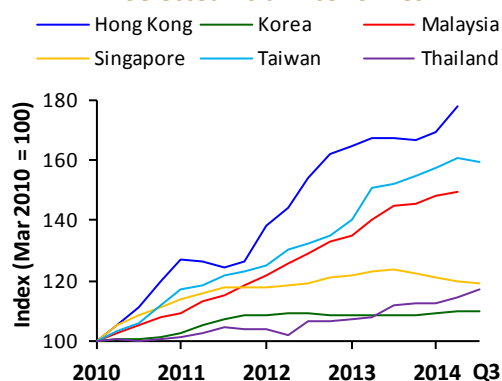
Banks in Asia have become more cautious in their lending, in response to rising borrower default risks. Credit standards have continued to tighten, albeit at a slower pace, alongside waning demand for loans in Q3 2014 (Chart 1.2.23). Banks in the Philippines have tightened credit standards for household loans, with stricter collateral requirements for housing loans and reduced credit lines for auto loans. Chinese banks have reined in lending to sectors with over-capacity such as the property sector.

Chart 1.2.12
Share of Government Bonds Held by Foreigners: Selected Asian Economies



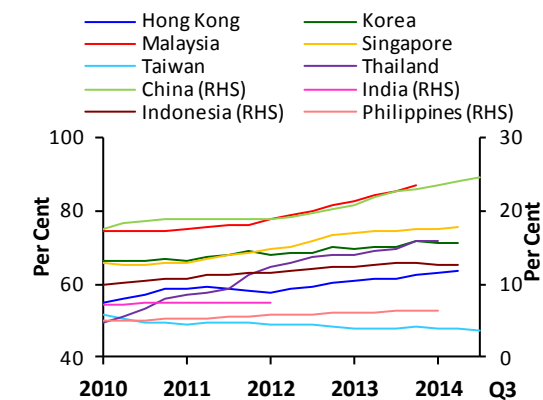
Source: ADB Asian Bonds Online

Chart 1.2.13
Property Price Index: Selected Asian Economies



Source: CEIC, Singapore Urban Redevelopment Authority (URA)

Chart 1.2.14
Household Debt-to-GDP Ratio: Asia-10



Source: CEIC

While international banks' lending to Asia-10 has remained strong in early 2014 (Chart 1.2.24), on the back of economic recovery and strengthened balance sheets, concerns over cross-border credit exposures to economies with rising numbers of distressed corporates could dampen international banks' lending in Asia going forward.

Asian banks should remain resilient as strong capital buffers provide cushion against declining asset quality and financial authorities enhance their oversight

Banks in Asia are likely to remain resilient, as strong capital buffers cushion them from declining asset quality.

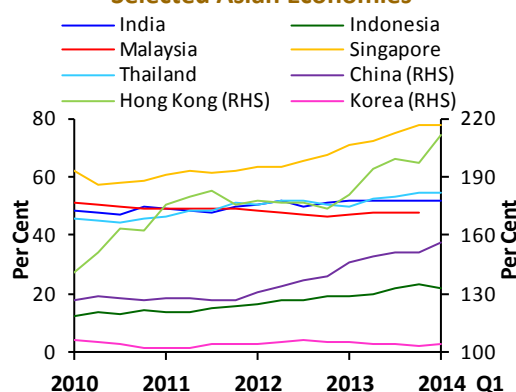
Non-performing loans (NPL) have risen in several Asian banking systems, and bank asset quality could decline further as corporates' debt servicing capacity weakens (See Box C: Asset Quality Risks in Asia).

Strong capital buffers should cushion Asian banks against declining asset quality. Banks have actively strengthened their funding and capital this year. A wave of bond issuance has been launched to comply with Basel III capital requirements, particularly by Chinese and Indian banks. In Thailand and India, regulators have allowed the sale of some types of bank capital securities to the public, as part of banks' capital-raising efforts.

Regulators in Asia cognisant of rising credit risks are keenly assessing asset quality in their banking systems. Bank Indonesia is closely monitoring the increase in bad loans in some sectors, which have approached their NPL ratio benchmark of 5%. India and China have implemented measures to mitigate risks arising from rising NPLs in the banking system (See Box D: Banking Reforms in China and India).

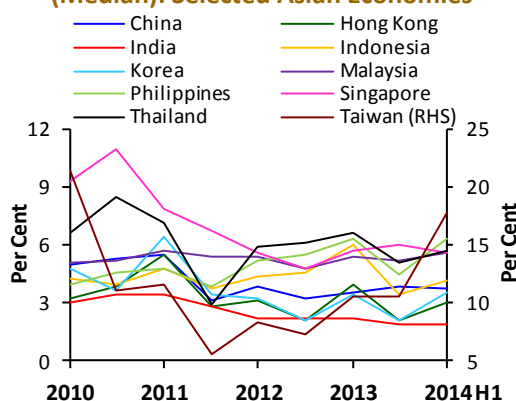
Deposit growth has moderated in most Asian

Chart 1.2.15
Corporate Debt-to-GDP Ratio:
Selected Asian Economies



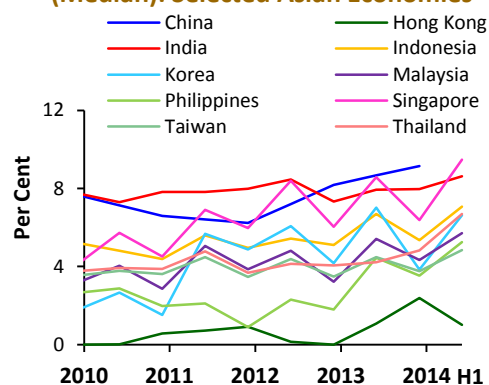
Source: BIS

Chart 1.2.16
Corporate Sector Interest Coverage Ratio
(Median): Selected Asian Economies



Source: Thomson Financial

Chart 1.2.17
Corporate Sector Debt-to-Income Ratio
(Median): Selected Asian Economies



Source: Thomson Financial

economies (Chart 1.2.25) as depositors search for higher yield in other asset classes. In several economies, deposit growth has not kept pace with loan growth, and the consequent rise in loan-to-deposit (LTD) ratios and funding concerns could constrain bank capacity to support new lending. Banks across several parts of Asia have already raised rates on time and fixed deposits to attract depositors. The intensifying competition for deposits could adversely impact the smaller banks in the banking system.

A pullback in funding by international banks amid evolving global monetary conditions could also exacerbate funding and liquidity risks in the Asian banking system.

Tightening of regulated lending has facilitated the growth in non-bank financing, but risks arising from shadow banking should be closely monitored

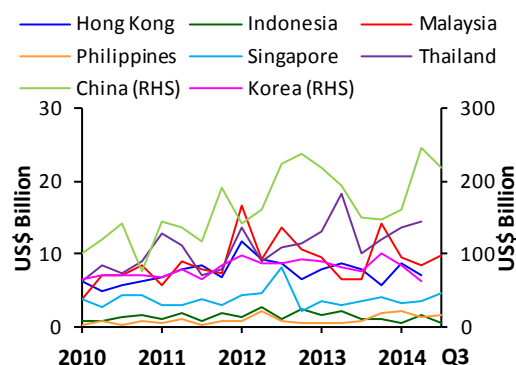
The tightening of bank credit in Asia has encouraged some borrowers to turn to non-bank financing. The size of non-bank financial intermediaries in most parts of Asia, as a proportion of GDP, remains small compared to advanced economies. In several economies, the growth in non-bank financing has been rapid, and has outpaced banking sector growth (Chart 1.2.26).

Rapid growth in non-bank financing has led to concerns over regulatory arbitrage and risks arising from the shadow banking sector.

Non-bank financial intermediaries in emerging markets can function as an alternative source of credit intermediation and facilitate the deepening of financial markets. Micro-lending in India, for example, and more diversified funding sources for corporate debt across Asia are not unwelcome developments.

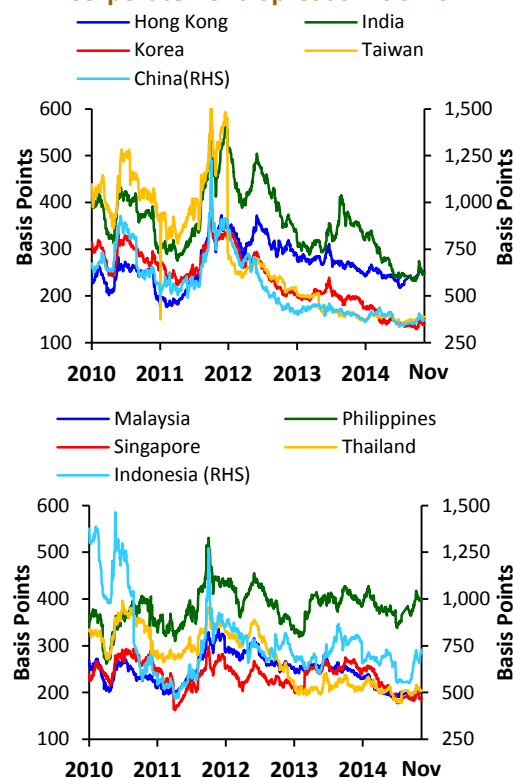
However, a precipitate shift towards unregulated lending could undermine efforts by authorities to

Chart 1.2.18
Local Currency-Denominated Corporate Bond Issuance: Selected Asian Economies



Source: ADB Asian Bonds Online

Chart 1.2.19
Corporate Bond Spreads: Asia-10



Source: JP Morgan

Note: Spreads comprise the difference between yields on US dollar-denominated corporate bonds in Asia and yields on US treasury bonds.

strengthen credit practices and contain systemic risks in the financial sector. Shadow banking entities that are linked to banks through funding arrangements would have negative spill-overs back to the banking system if their borrowers default. Where the loans have been transformed and sold to investors, a run on these shadow banking products could pose liquidity risks to the banking system.

Near-defaults by several shadow banking entities in China earlier this year have prompted increased regulatory scrutiny that has helped moderate the flows of shadow financing (Chart 1.2.27).

Asian policymakers will have to manage the balance between allowing non-bank credit intermediation to finance and stimulate real economic growth, and strengthening the regulatory oversight of shadow banking entities.

Asian economies are expected to remain resilient due to improved fundamentals and ongoing reform efforts

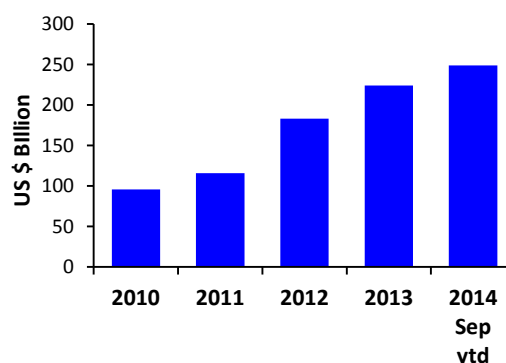
Governments in Asia have embarked on reforms to insulate their economies against external risks.

Efforts to improve economic fundamentals have helped to anchor investor confidence, and brought about sovereign debt rating upgrades in some countries, namely India, Vietnam and Thailand. Indonesia has issued Euro, rupiah and dollar-denominated bonds to finance future budget requirements, and Malaysia has also recently reiterated its goal of reducing its fiscal deficit this year.

Countries like Vietnam, Korea, Thailand and India have adopted growth stabilisation measures. Newly-elected governments in India and Indonesia are expected to keep the political impetus for reforms strong.

Some countries have taken steps to provide targeted assistance to particular sectors. For example, Indonesia, the Philippines, Thailand and

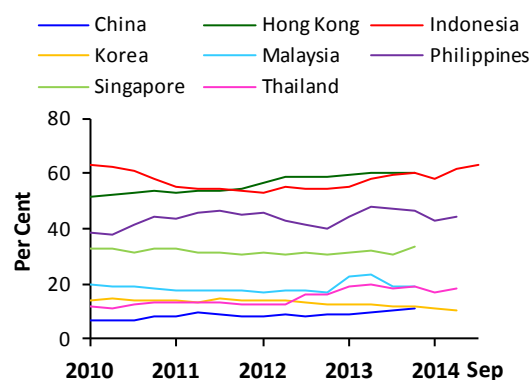
Chart 1.2.20
G3 Currency Bond Issuance: Aggregate of Selected Asian Economies



Source: ADB Asian Bonds Online

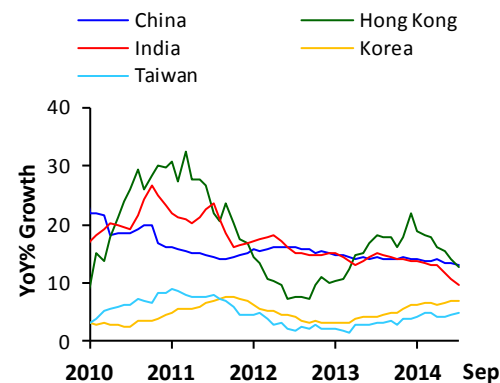
Note: Selected Asian economies comprise China, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand.

Chart 1.2.21
Foreign Currency-Denominated Corporate Bonds as a Share of Total Outstanding: Selected Asian Economies



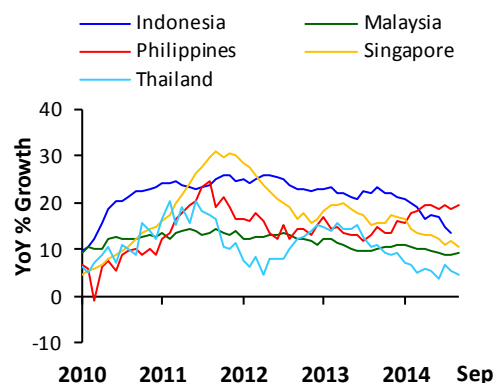
Source: ADB Asian Bonds Online

Chart 1.2.22
Loan Growth: Selected Asian Economies



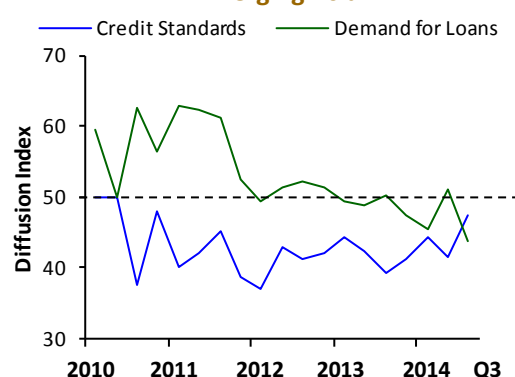
China have issued, or are taking steps to issue municipal bonds to fund infrastructure projects that could boost economic growth in the longer term.

Looking ahead, Asian economies are expected to remain resilient due to improved fundamentals and strong governmental action. It will be important for governments to strike the right balance between structural reforms and growth stabilisation, as well as targeted assistance to key sectors.



Source: CEIC

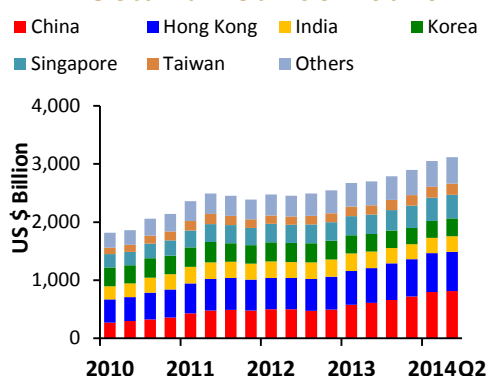
Chart 1.2.23
Credit Standards and Loan Demand
in Emerging Asia



Source: Institute of International Finance (IIF)

Note: "Emerging Asia" comprises China, India, Indonesia, Korea, Malaysia, the Philippines and Thailand. The diffusion index captures the average value of responses of all the banks in a region to each question in a survey. A diffusion index reading of 50 should be interpreted as a neutral reading; a reading above 50 indicates rising loan demand and easing credit standards, and vice versa.

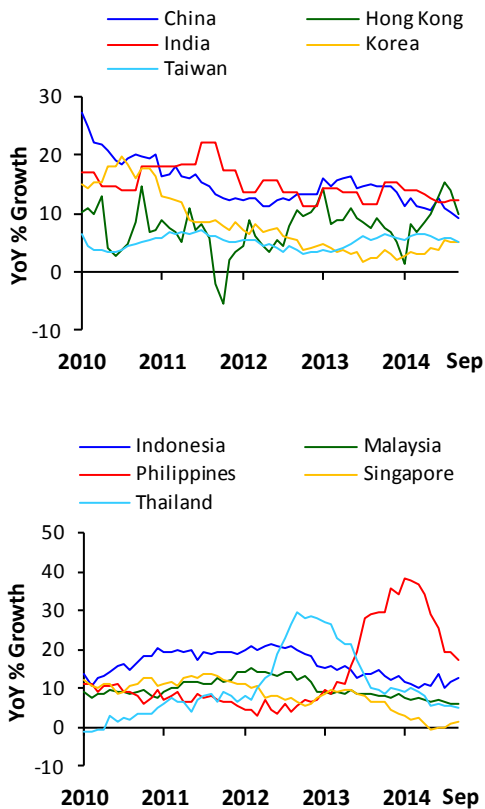
Chart 1.2.24
Global Bank Claims on Asia-10



Source: BIS

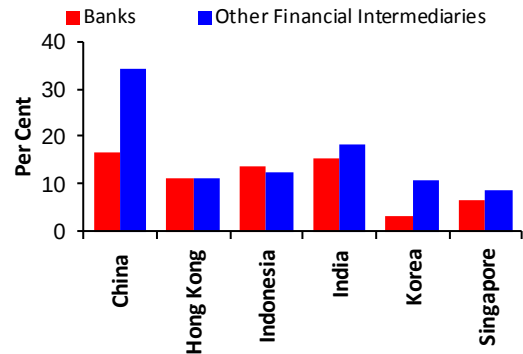
Note: "Others" comprise Indonesia, Malaysia, the Philippines and Thailand.

Chart 1.2.25
Deposit Growth: Selected Asian Economies



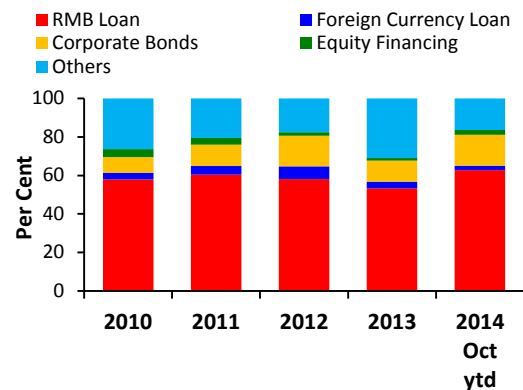
Source: CEIC

Chart 1.2.26
Compound Annual Growth Rate of Financial Intermediaries: Selected Asian Economies 2010-2013



Source: Standing Committee on Assessment of Vulnerabilities (SCAV) Global Shadow Banking Monitoring Report 2014

Chart 1.2.27
China's Total Social Financing



Source: CEIC

Note: Total social financing is a flow measure of aggregate new loans to the real economy in China. "Others" include entrusted loans, trust loans and bank acceptance bills, and serve as a proxy for flows of shadow banking.

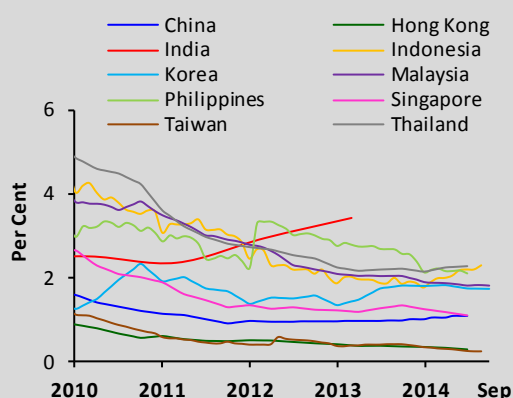
Box C

Asset Quality Risks in Asia

Rising corporate leverage and an increase in NPLs in some Asian banking systems have raised concerns over asset quality risks in banks' corporate loan books (Chart C1). Across most of Asia-10, corporate loans make up the majority of bank loan exposures (Chart C2). This box takes a closer look at asset quality risks in Asia by examining banks' corporate loan exposures and indicators of corporate leverage.

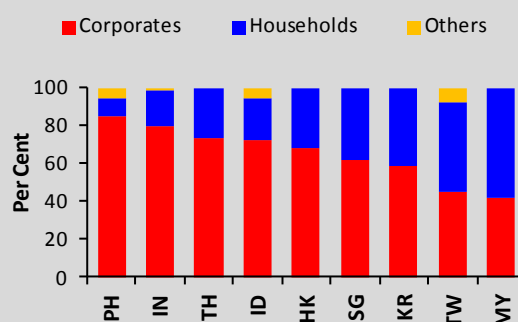
While banks in Asia remain broadly resilient, pockets of risk exist in specific sectors. Corporates' un-hedged exposures to foreign currency borrowings could also subject banks to foreign currency mismatch risks. Enhancing data collection initiatives could help authorities improve their oversight of asset quality risks posed by corporate borrowers.

Chart C1
Non-Performing Loan (NPL) Ratios: Asia-10



Source: CEIC

Chart C2
Breakdown of Total Bank Loan Books: Selected Asian Economies



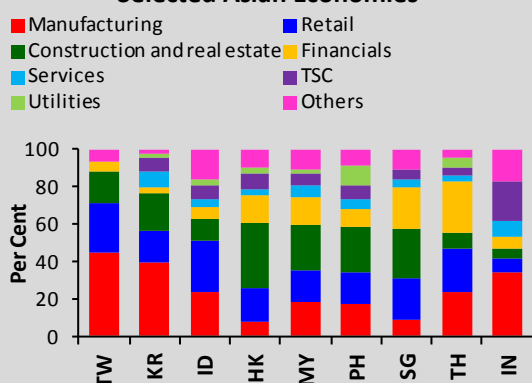
Source: Asia-9 Central Banks

Note: Excludes inter-bank loans

Banks in Asia are primarily exposed to manufacturing, retail and property sectors, but these sectors are affected by headwinds to varying extents

The manufacturing, retail and construction sectors combined account for more than 50% of banks' corporate loans in most Asian economies (Chart C3). Headwinds to these sectors are thus likely to affect asset quality to a greater extent. Strong capital inflows in recent years have also contributed to high valuations in certain asset classes, including property. Banks exposed to these sectors could be subject to additional asset quality risks in the event of a disorderly correction in market conditions.

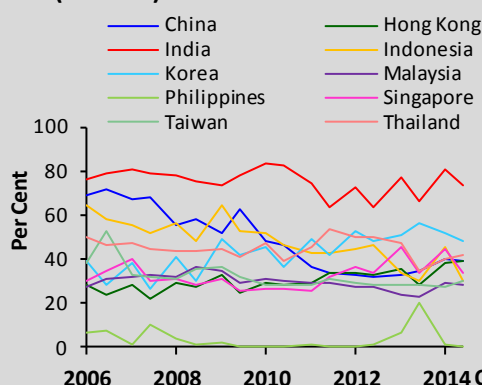
Chart C3
Breakdown of Corporate Loan Books by Sectors:
Selected Asian Economies



Source: Asia-9 Central Banks

A closer examination of corporates' credit risk metrics suggests that headwinds to the same sector would not have homogenous effects across countries. Within the manufacturing sector, for instance, while overall corporate leverage (as measured by the median debt-to-equity ratio) has remained relatively unchanged over time, manufacturers in some economies appear structurally more leveraged than others (Chart C4). Corporates in these economies could face greater debt repayment burdens in the event of an increase in borrowing costs.

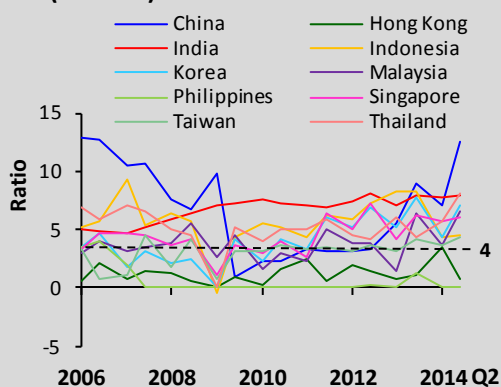
Chart C4
Manufacturing Sector Debt-to-Equity Ratios
(Median): Selected Asian Economies



Source: Thomson Financial, MAS estimates

A disparity in corporate leverage indicators is also observed in diverging median debt-to-income ratios (Chart C5), and interest coverage ratios (Chart C6). While manufacturers in most economies maintained a median interest coverage ratio of more than two, leverage relative to earnings seem to have increased for manufacturers in some economies. Country-specific movements could possibly be due to sub-sectoral exposures to more volatile industries (e.g. shipping and oil refining). In the event of an income shock, corporates which are highly leveraged in relation to earnings could come under strain.

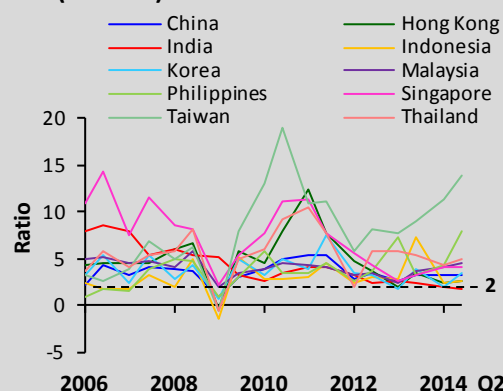
Chart C5
Manufacturing Sector Debt-to-Income Ratios
(Median): Selected Asian Economies



Source: Thomson Financial, MAS estimates

Note: Firms with a debt-to-income ratio of more than 4 times are considered highly leveraged.

Chart C6
Manufacturing Sector Interest Coverage Ratios
(Median): Selected Asian Economies



Source: Thomson Financial, MAS estimates

Note: Firms with an interest coverage ratio of less than 2 are considered "firms at risk".

Analysis of loan exposures and corporate health indicators would allow us to develop a more granular view of the overall asset quality risks to Asian banks.

Asset quality issues could also materialise from exposures to foreign currency mismatch risks

In the event of a currency depreciation, or increased exchange rate volatility, asset quality issues could materialise directly (through banks' direct foreign currency loan exposures) or indirectly (through other loan book exposures to affected corporates).

Banks in Asia have largely addressed direct currency mismatch risks through the use of hedging. However, they could still be subjected to indirect currency mismatch risks from exposures to corporates with large un-hedged foreign currency borrowings. Banks with large exposures to import-dependent sectors, such as the building and construction materials sector, would likely be more exposed. The likelihood of currency mismatch risks materialising is also contingent on the resilience of the domestic exchange rate to capital flow pressures.

Examining the currency breakdown of outstanding syndicated loans provides a proxy for banks' indirect foreign currency loan exposures. A preliminary breakdown suggests that banks in some economies are more exposed than others (Chart C7), though exposures could also be mitigated through the use of hedges.

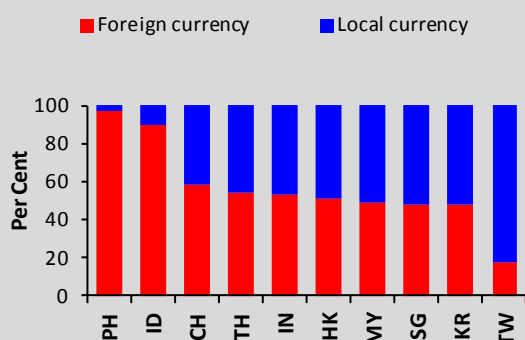
Anecdotal evidence suggests that corporate hedging activity has generally been low, due to market complacency and cost concerns.¹⁶ However, data limitations preclude more concrete conclusions on firm-level corporate hedging activities.¹⁷

¹⁶ See BIS Quarterly Review Page 42 (September 2014); Wall Street Journal (17 September 2014), "Lower foreign currency hedging can spell trouble for Indian firms"; Risk.net (10 October 2014), "Foreign activity in India forex futures remains low"; and Asia Risk (3 April 2014), "Asia corporates hesitate to hedge out interest rate risk".

¹⁷ The BIS Quarterly Review (September 2014) noted the difficulty in assessing risks to the corporate sector due to the lack of reliable data on corporate hedging activity.

Chart C7

Breakdown of Outstanding Syndicated Loans by Deal Nationality and Currency of Denomination:
Asia-10

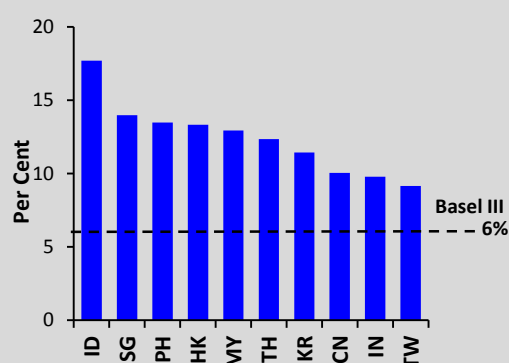


Source: Dealogic

Note: Data is as of end 2013.

Chart C8

Tier 1 Capital to Risk-Weighted Assets: Asia-10



Source: IMF Financial Soundness Indicators, Asia-10 Central Banks

Asian banks should remain resilient, while defences could be enhanced

Generally, Asian banks should remain resilient due to their ample capital buffers (Chart C8). Sound underwriting standards have also kept NPL ratios far below levels reached during the Asian Financial Crisis.¹⁸

Asian authorities have also implemented additional measures to address rising asset quality risks. For instance, central banks in Indonesia, Malaysia and India conduct regular stress testing exercises to assess banking system resilience to corporate defaults. Authorities in China and India have also introduced reforms aimed at improving bank asset quality (See Box D: Banking Reforms in China and India).

However, more could be done to strengthen oversight of corporate borrowers, particularly in relation to indirect risk exposures that may not be captured by conventional banking data (e.g. loans from other banks, leveraged loan issuances and extent of natural hedges). To build a more complete perspective of the asset quality risks posed by corporate borrowers, authorities could consider closer coordination with domestic bank regulators, which may be able to leverage on their supervisory capacities to bridge the data gap. Moving forward with the Financial Stability Board (FSB)-sanctioned reforms in their respective domestic countries could also help in overcoming data limitations with regards to hedging. Based on data findings, relevant authorities could then endeavour to address foreign currency mismatch risks by facilitating access to hedging instruments and reviewing hedging markets for potential avenues to bring down the cost of hedging.

¹⁸ NPL ratios reached 35% in some banking systems during the Asian Financial Crisis.

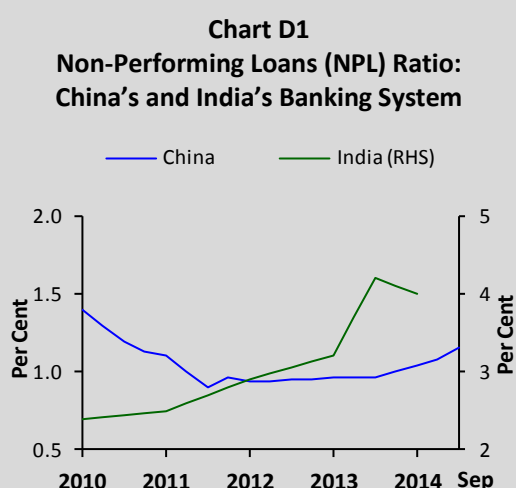
Box D Banking Reforms in China and India

Banking systems in Asia face a plethora of challenges in the present climate of macroeconomic uncertainty. These challenges underscore the importance of continued reforms to enhance banking system resilience. Close attention has been accorded to banking reform developments in China and India, given their status as economic juggernauts with significant trade and financial linkages with Asia and the rest of the world.¹⁹ This box analyses the motivations and challenges in implementing broad-ranging banking reforms in China and India. These reforms will have implications for asset quality, liquidity and funding risks, banking system competitiveness, as well as financial inclusion. Banking reforms in China and India will impose near-term costs, but their sustained momentum is critical to achieving long-term financial stability and growth.

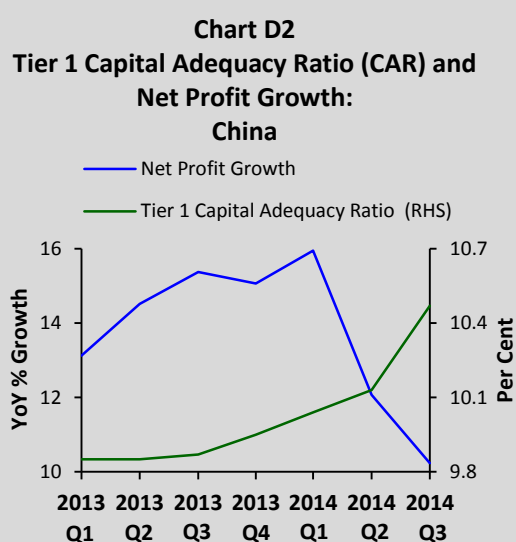
Emerging financial stability risks provide a strong impetus for banking reforms in China and India

The Chinese and Indian banking systems have already seen a decline in the asset quality of their loan portfolios (Chart D1) amid slower growth and lower corporate profitability. Normalising monetary policy in the US and an increase in the cost of financing for leveraged corporates could worsen borrower defaults (See Box C).

While official data indicates that Chinese bank capital positions remain healthy (Chart D2), reforms will be necessary to provide buffers against rising credit risk and declining bank profitability (Chart D2). Indian public banks are estimated to have a total capital shortfall of RS 2.4 trillion (US\$ 39.4 billion) in meeting Basel III capital requirements by 2019.



Source: CEIC



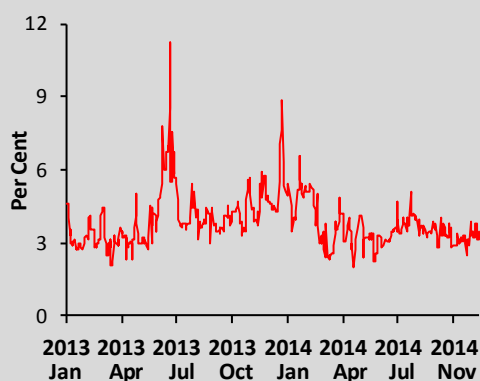
Source: CEIC

Increased risk aversion due to a combination of slowing growth, declining asset quality and expected higher interest rates could encourage liquidity hoarding in the banking system. In China, episodes of liquidity tightness in interbank markets in late 2013 and early 2014 (Chart D3) highlighted the liquidity risks for smaller Chinese banks that are relatively more dependent on the short-term interbank market for funding (Chart D4). While Indian banks are primarily funded by deposits and have low dependence on market funding (Chart D5), the

¹⁹ China and India continue to grow in importance as lending destinations for some Asian economies, including Singapore. This trend was earlier highlighted in the MAS FSR 2013 Box B "Intermediating Banking Flows in Asia".

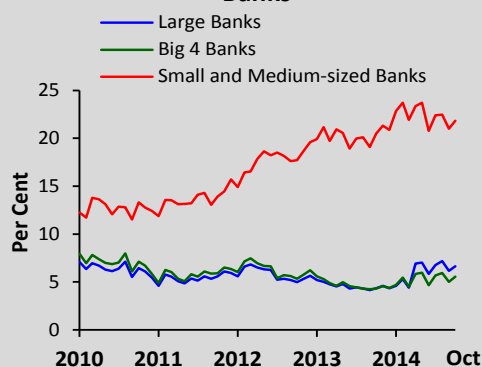
reliance on short-term liabilities (Chart D5) to fund longer-term assets such as infrastructure financing also makes them vulnerable to liquidity mismatch risks.

Chart D3
China's 7-Day Interbank Repo Rate



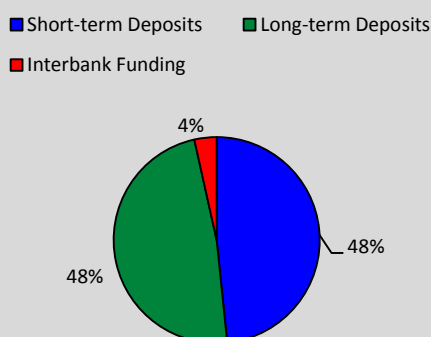
Source: Bloomberg

Chart D4
Chinese Interbank Funding as % Source of Funds: By Banks



Source: CEIC

Chart D5
Composition of Funding of Indian Commercial Banks



Source: Reserve Bank of India (RBI) Commercial Bank Survey
Note: Data is as of September 2014.

Risks from the rapid growth of non-bank financing have also arisen in China and India. In India, difficulty in accessing the formal banking system has encouraged the growth of unregulated savings schemes and informal money-lending activities. In China, small and mid-sized enterprises have also turned to non-bank financing, as banks tend to lend more actively to larger corporations. While non-bank financial entities have contributed to real economic growth by providing an alternative source of credit, they face risks in maturity and liquidity mismatches that could affect financial stability, alongside increased opportunities for regulatory arbitrage. Improved accessibility to bank credit, through the promotion of financial inclusion, will be important to reduce corporates' dependence on non-bank financing.²⁰

²⁰ Based on the G20 Financial Inclusion Indicators, Chinese banks serve over 60% of the adult population, while Indian banks in comparison serve 35% of the adult population (as of 2011). However, lending to rural areas remains limited at 7% and 8% of outstanding loans in China and India respectively.

Banking reforms will enhance the resilience and competitiveness of the banking system and promote social and developmental objectives

Policymakers in China and India have undertaken banking system reforms to address asset quality, liquidity and funding risks, and to promote competition and financial inclusion within the banking sector. Table D1 summarises and compares key reforms in the two countries.

Table D1

Key Banking Reforms: China and India

Type of Banking Reforms	China	India
NPL reforms to improve bank asset quality	<ul style="list-style-type: none"> Five local governments have been given approval to establish “bad banks” to buy NPLs from local banks, in addition to the four existing state-owned asset management firms. 	<ul style="list-style-type: none"> Reserve Bank of India (RBI) has pushed for earlier recognition of stressed assets. A Central Repository of Information on Large Credits (CRILC) has been set up to collect and disseminate credit data to banks on large credit exposures, which will help enhance credit underwriting standards.
Enhancement of liquidity and funding of banks	<ul style="list-style-type: none"> The Chinese Banking Regulatory Commission (CBRC) has required commercial banks to increase LCR to 100% by 2018. The Chinese Securities Regulatory Commission (CSRC) has launched a pilot scheme allowing banks to obtain funding through issuing preferred shares. CBRC has also introduced regulations to limit interbank borrowing of commercial banks to less than a third of liabilities. 	<ul style="list-style-type: none"> RBI issued guidelines on issuance of onshore long-term bonds which would allow both the loan and the bond to be on-sold in five years, better matching asset-liability maturities.
Opening up banking system to increased competition	<ul style="list-style-type: none"> CBRC has allowed qualified private capital (including Tencent and Alibaba) to establish FIs such as small and medium-sized banks.²¹ CBRC has issued administrative regulations allowing foreign lenders to open additional branches and issue bank capital instruments. Deposit rate liberalisation is expected to be achieved in one to two years, facilitating more competitive pricing.²² 	<ul style="list-style-type: none"> RBI released rules promising “near national” treatment limited to foreign banks with reciprocity for Indian banks in home countries, to encourage subsidiarisation of foreign banks. India also has plans to cut government holdings in public sector banks to below 50%, reducing the burden of government recapitalisation and encouraging better shareholder accountability from banks.
Promoting financial inclusion	<ul style="list-style-type: none"> The People’s Bank of China (PBOC) has reduced the required reserve ratio by 0.5% for banks that mainly lend to small businesses and rural borrowers. The State Council issued guidelines in late 2013, encouraging FIs to support small and medium-sized enterprise (SME) developments.²³ 	<ul style="list-style-type: none"> RBI has launched a plan to start 150 million bank accounts for poor households over the next year. Draft guidelines have also been issued for the establishment of niche banks (payments and small banks) to provide banking services to more businesses and households.

²¹ As of September 2014, CBRC has approved the establishment of five private banks.

²² This was mentioned by Bank of China Governor Zhou Xiaochuan in a press conference on the sideline of the National People’s Congress in March.

²³ One measure to support the development of small and micro-sized enterprises includes the stipulation that growth rate of loans provided to small and micro-sized enterprises shall not be lower than the average growth rate of all type of loans.

Policy trade-offs and sequencing of reforms will be key

A key challenge faced by both China and India in implementing their respective banking reforms is the trade-off with economic growth. Banking sector reforms that dampen credit growth could stifle financial deepening. The banking system in India is relatively small, with banking assets at 72% of GDP, compared to 270% in China. Analysts have estimated that a 1% increase in bank credit growth would contribute an additional 0.2% in real GDP growth for India and 1% in real GDP growth for China.²⁴

Policymakers have actively sought to balance growth and financial stability. In China, the reserve ratio requirement (RRR) has been reduced, in a targeted fashion, for banks with significant loans for small business, hence averting financial risks from a broad-based debt build-up across sectors while continuing to provide positive economic stimulus.

Indian policymakers have to manage the trade-off between promoting financial inclusion and enhancing bank resilience. Financial inclusion has meant providing banking services to less profitable and lower asset quality sectors. One such example is the current RBI requirement for banks to set aside stipulated percentages of lending to priority sectors of the economy, including micro and small enterprises.

The sequencing of reforms is also important. China has yet to fully liberalise its interest rates and also has some way to go in liberalising its capital account. The pace and timing of banking reforms will need to be balanced against progress in broader economic reforms, including efforts to internationalise the RMB. The completion of interest rate liberalisation may need to precede full capital account liberalisation and RMB internationalisation in order to avert potential capital flight in search of higher yield. A deposit insurance system, coupled with a resolution mechanism for distressed banks, may also have to be in place to support the increased competition in the banking system following full interest rate liberalisation.

Banking reforms are a step in the right direction, and sustained emphasis on increasing competitiveness within the Chinese and Indian banking systems would help anchor longer-term economic growth and financial stability

The present reform momentum in China and India, if maintained, will strengthen banking system competitiveness and facilitate the transition towards a market-oriented approach for credit allocation. The shift away from top-down credit allocation will encourage greater accountability and efficiency of individual banks, improve credit assessment and reduce NPLs.

²⁴ Goldman Sachs (February 2014), "Asia Economics Analyst- India: No 'banking' on growth". The lower sensitivity of GDP growth in India to bank credit growth is attributed by Goldman Sachs to the low level of absolute credit in India. India's bank credit-to-GDP ratio is 55% as compared to China's 240% (including shadow banking).

2 SINGAPORE'S MACROECONOMIC ENVIRONMENT AND FINANCIAL SYSTEM

2.1 Macroeconomic Developments and Financial Markets

The Singapore economy experienced moderate growth in the first three quarters of 2014, though with uneven performances across the sectors. Singapore's financial markets have remained resilient despite some volatility in global financial markets over the past year. Looking ahead, the diverging monetary policy paths of major central banks could lead to further volatility in international financial markets, with potential spill-over effects on Singapore's financial sector.

Singapore's GDP growth is expected to be moderate in both 2014 and 2015, but several challenges remain

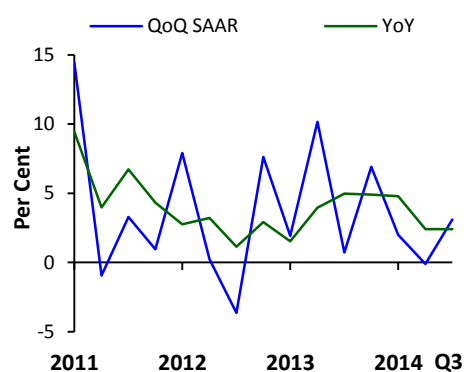
Singapore's GDP contracted 0.3% q-o-q SAAR in Q2 (Chart 2.1.1). Growth in the manufacturing sector contracted, reflecting a fall in semi-conductor output stemming from firm-specific factors. The broader domestic IT industry was also hampered by downward margin pressures.

In Q3, the economy benefited from some cyclical uplift, with growth turning positive to 3.1% q-o-q SAAR (Chart 2.1.1). Overall manufacturing activity picked up, with the electronics sector rebounding in Q3 2014 against strong growth in the US economy. However, some of these gains were offset by a decline in the external-oriented services industries, which were hit by weak trade activity in the region. In addition, domestic-oriented activities grew at a tepid pace, due in part to the weakness in construction activity and lacklustre retail spending excluding motor vehicle sales.

Looking ahead, the economy's expansion is expected to continue on a moderate trajectory over the next few quarters. While overall, the Singapore economy is expected to benefit from the pickup in the US, several sectors could continue to be capped by subdued demand in the euro zone and China. Against this backdrop, GDP growth is expected to be around 3% in 2014 and between 2-4% in 2015.

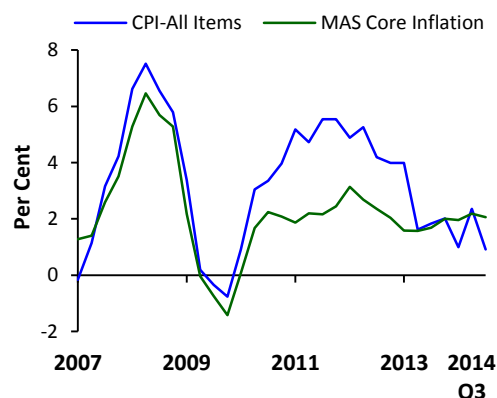
On the inflation front, domestic cost pressures have

Chart 2.1.1
Singapore's GDP Growth



Source: Department of Statistics (DOS)

Chart 2.1.2
CPI-All Items and MAS Core Inflation



Source: MAS

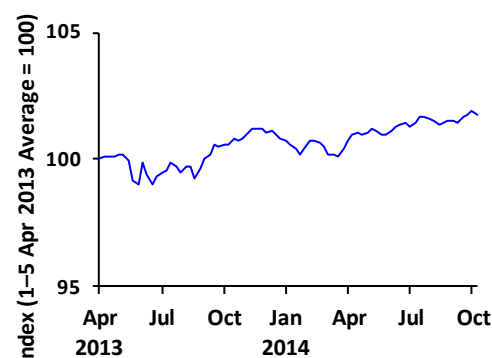
continued to increase amid the tight labour market. While this has translated into generally higher consumer prices, the cost pass-through has been uneven across items in the consumer price index (CPI) basket. Price increases were particularly evident in the non-tradable services sectors but had been weak for certain categories including household services and clothing & footwear, likely on account of intense competition. Meanwhile, external price developments have been broadly benign, although imported food inflation has been elevated owing to regional supply disruptions.

As a result, MAS Core Inflation, which excludes the cost of accommodation and private road transport, averaged slightly over 2% in the first three quarters of this year, up from 1.7% in 2013 (Chart 2.1.2). Meanwhile, CPI-All Items inflation was subdued at 1.4% in Q1-3 2014, compared to 2.4% in 2013 (Chart 2.1.2), due to the weakness in car prices and housing rentals.

Going forward, external price developments are expected to stay generally benign, given ample supply buffers in the major commodity markets. However, domestic food inflation could be impacted by higher prices of regional food supplies. At the same time, with the economy at full-employment, wages should continue to increase and filter through to prices of the services sector. Nevertheless, healthcare inflation over the coming quarters will be dampened by the recently enhanced subsidies, notably those under the Pioneer Generation Package, which has resulted in a one-off reduction in the price levels of the affected medical and dental services. Reflecting these factors, MAS Core Inflation is expected to come in at 2-2.5% in 2014 and 2-3% in 2015.

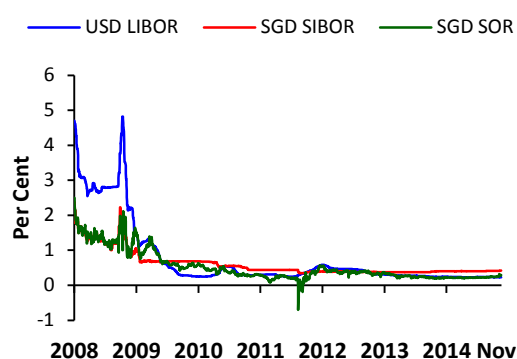
In addition, cost of private transport and imputed rentals on owner-occupied accommodation will continue to dampen inflationary pressures, amid the expected increase in the supply of certificates of entitlement (COEs) and newly-completed housing units. Consequently, CPI-All Items inflation could stay subdued for the rest of this year and throughout

Chart 2.1.3
S\$ Nominal Effective Exchange Rate (S\$NEER)



Source: MAS

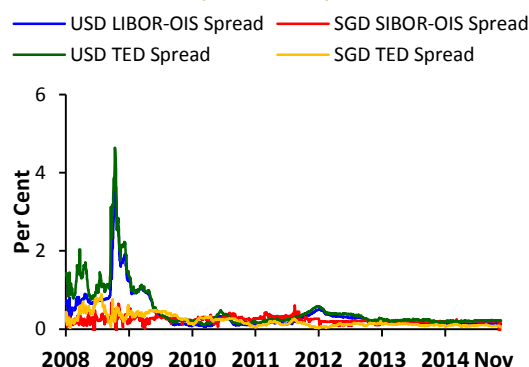
Chart 2.1.4
Three-Month Interbank Rates



Source: Bloomberg

Note: LIBOR refers to London Interbank Offered Rate.

Chart 2.1.5
Money Market Spreads



Source: Bloomberg

Note: USD Treasury-Interbank (TED) Spread is the difference between the three-month interbank rate and the yield on US three-month Treasury bills. SGD TED Spread is the difference between the three-month interbank rate and the yield on three-month MAS bills.

2015, averaging 1-1.5% in 2014 and 0.5-1.5% in 2015.

In October 2014, MAS maintained its monetary stance of a modest and gradual appreciation of the Singapore dollar nominal effective exchange rate (S\$NEER) (Chart 2.1.3). This policy stance was assessed to be appropriate for containing domestic and imported sources of inflationary pressure, and ensuring that inflation expectations remain well-anchored.

Singapore's financial markets have remained resilient, but could become more volatile ahead

Singapore's financial markets have remained stable through 2014, with advanced economies' UMP keeping global financial conditions easy and Singapore's economic growth holding up. However, markets are expected to experience more volatility in the period ahead, against the backdrop of diverging monetary policy settings of the major economies.

In the banking sector, Singapore's domestic liquidity conditions have remained stable over the past year (Chart 2.1.4). Counterparty credit risks have also been very modest, as reflected in the low and stable SGD and USD interbank overnight indexed swap (OIS) and Treasury-Interbank (TED) spreads (Chart 2.1.5).

In the Singapore Government Securities (SGS) market, the two-year SGS yield has edged higher in tandem with the corresponding US Treasury yield, against the expectation of US rate normalisation. The ten-year SGS yield fluctuated within a tight 45 bps range between January and November, as the Fed embarked on its LSAP exit (Chart 2.1.6).

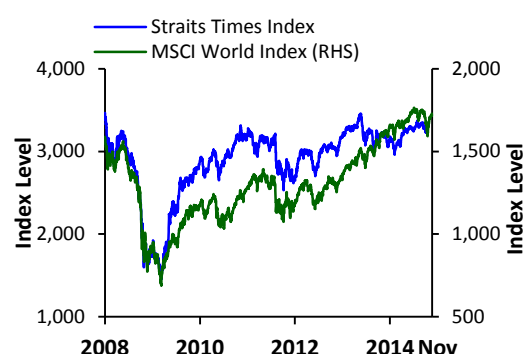
Singapore's equity market started off the year poorly with the Straits Times Index (STI) falling 6.4% in the month of January alone due to tapering concerns, but rallied from February to August, gaining 13.7% (Chart 2.1.7). However, the STI has edged down since, ending off in November just 4.8% higher than January, weighed down by concerns over global growth.

Chart 2.1.6
SGS Two- and Ten-Year Benchmark Yields and US Ten-Year Treasury Yield



Source: Bloomberg

Chart 2.1.7
Straits Times Index and MSCI World Index



Source: Bloomberg

Looking ahead, the diverging monetary policy paths of major central banks could lead to further volatility in international financial markets, with potential spill-over effects on Singapore's financial sector.

2.2 Corporate Sector²⁵

Singapore corporate balance sheets have remained firm, as corporates registered healthy profitability and held ample solvency buffers. The prolonged low interest rate environment post-GFC has seen corporate debt rising, with corporates taking the opportunity to finance capital expenditure or embark on restructuring. Some highly leveraged firms, however, could be vulnerable should economic conditions take a turn for the worse, together with a normalisation in interest rates. MAS' stress tests of corporate balance sheets suggest that corporate debt servicing ability remains strong and that corporates are generally able to withstand interest rate and earnings shocks.

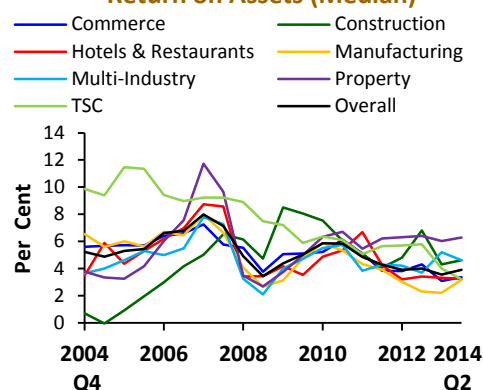
Corporate balance sheets remained on a firm footing

Corporate balance sheets have remained firm, supported by healthy economic conditions. Corporate profitability and liquidity are generally sound. The median return on assets (ROA) has stayed broadly stable at 3.9% in Q2 2014, compared with 4.0% in Q2 2013 (Chart 2.2.1). However, earnings in some sectors showed some weakness. The transport, storage and communications (TSC) sector continued to be weighed down by sluggish external demand in the logistics and shipping industries. Profit margins also came under pressure for some labour intensive sectors, such as the construction sector, due to tighter foreign labour restrictions.

The median current ratio stayed firm at 1.7 times, in line with its medium-term average (Chart 2.2.2). Reflecting the overall healthy state of corporates, the outlook for businesses remained positive for the period ending March 2015 (Chart 2.2.3).²⁶

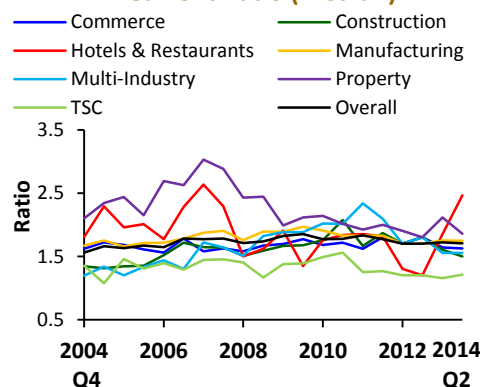
Debt-to-equity ratios have stabilised in the past year after trending upwards in the post-GFC period. The median debt-to-equity ratio declined marginally from 38% in Q2 2013 to 37% in Q2 2014, although it remains above the medium-term average of 34% (Chart 2.2.4).

Chart 2.2.1
Return on Assets (Median)



Source: Thomson Financial

Chart 2.2.2
Current Ratio (Median)



Source: Thomson Financial

²⁵ All corporate financial data cover only companies listed on the SGX. The latest data point provided is for Q2 2014.

²⁶ A net weighted balance of 1% of manufacturing firms expect a more favourable business situation in the six months ending March 2015, while a net weighted balance of 7% of firms in the services sector also maintain a positive outlook for the same period. Economic Development Board (EDB) (October 2014), "Survey of Business Expectations of the Manufacturing Sector, Q4 2014". DOS (October 2014), "Business Expectations Survey, Q4 2014".

Corporates may have taken advantage of the prolonged low interest rate environment to bring forward capital expenditure (Chart 2.2.5). Some corporates may also have taken on debt to aid restructuring as part of their efforts to boost productivity.

The asset quality of banks' corporate loan books remains high, with the NPL ratio for non-financial corporate loans remaining low at 1.3% (Chart 2.2.6). The number of bankruptcy petitions filed also fell from 102 in H1 2013 to 93 in H1 2014. However, the number of companies wound up rose from 54 in H1 2013 to 75 in H1 2014 (Chart 2.2.7).

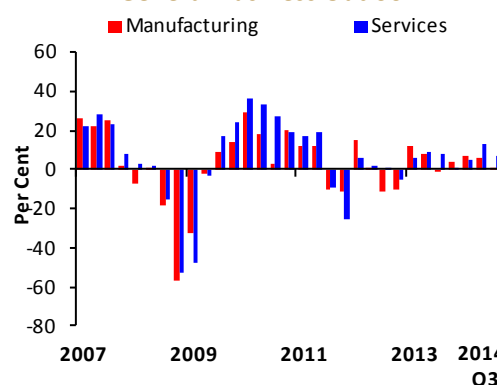
The debt servicing ability of corporates remains strong, with the median interest coverage ratio of corporates standing at a healthy 5.6 times in Q2 2014, broadly unchanged from a year ago. This suggests that corporates have significant buffers to cover interest expenses (Chart 2.2.8).

While highly leveraged corporates could face greater stress in servicing their debt if interest rates were to rise, stress tests suggest that on aggregate, firms remain resilient

The current low interest rate environment is unlikely to persist, and corporates' debt servicing burdens could increase with US monetary policy normalisation. Corporates that have taken on significant debt would be particularly vulnerable as a sharp rise in interest rates would leave them exposed to heavier debt servicing burdens.

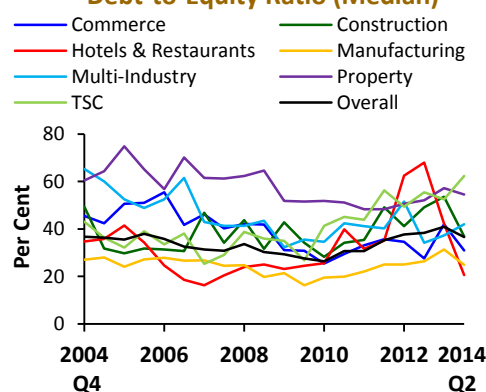
MAS' stress tests of corporate balance sheets suggest that the corporate sector is sound and generally robust to an interest rate and earnings shock (See Box E: Assessing the Risks of Corporate Leverage in Singapore).

Chart 2.2.3
General Business Outlook



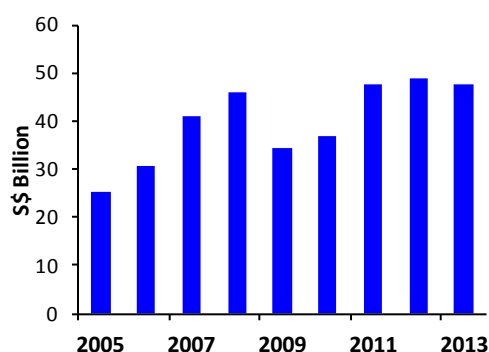
Source: DOS, Business Expectations Survey; EDB, Survey of Business Expectations of the Manufacturing Sector

Chart 2.2.4
Debt-to-Equity Ratio (Median)



Source: Thomson Financial

Chart 2.2.5
Capital Expenditure



Source: Thomson Financial

Despite moderation in the residential property market, property firms' balance sheets remain healthy

The moderation in residential property prices and transactions in recent quarters (See Box G: Update on the Singapore Private Residential Property Market) has resulted in lower earnings for property firms.²⁷ The median ROA for property firms fell from 5.5% in Q2 2013 to 3.9% in Q2 2014 (Chart 2.2.9), even as their debt-to-equity ratio rose from 55% to 65% (Chart 2.2.10).

The higher leverage of property firms was mitigated in part by their improving debt profile. The median short-term debt-to-total debt ratio for property firms fell from 31% in Q2 2013 to 22% in Q2 2014 (Chart 2.2.11). The median current ratio of property firms stood at a healthy 2.5 times, indicating that property firms hold liquidity buffers above the average across corporates.

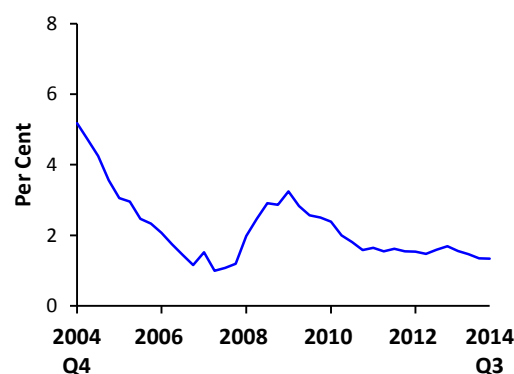
The balance sheets of real estate investment trusts listed in Singapore (S-REITs) – which are susceptible to interest rate rises and adverse changes in property market conditions – have also remained healthy (See Box K: Re-examining the Systemic Risks Posed by S-REITs).

Financing conditions for SMEs remain positive as bank credit to SMEs continues to grow robustly

Financing conditions for SMEs were generally positive as bank credit extended to SMEs registered robust growth. The volume of loans to SMEs grew by 12.6% y-o-y in Q2 2014, compared to 5.7% y-o-y in Q2 2013 (Chart 2.2.12). The growth in loans was driven mainly by an increase in term loans for property and factory upgrades and purchases.

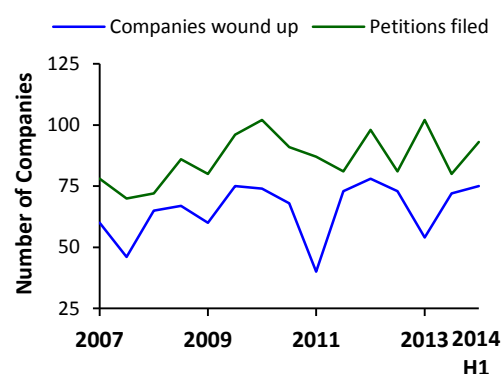
Similar to 2013, more than half of outstanding SME loans went to the construction and commerce sectors. These construction and commerce sectors accounted

Chart 2.2.6
Corporate NPL Ratios



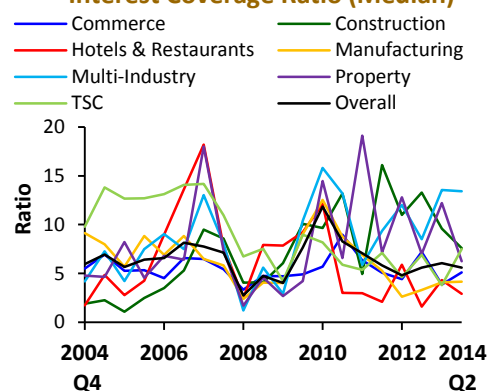
Source: MAS

Chart 2.2.7
Corporate Bankruptcies



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

Chart 2.2.8
Interest Coverage Ratio (Median)



Source: Thomson Financial

Note: Interest coverage ratio refers to earnings before interest and tax (EBIT) divided by interest expense.

²⁷ "Property firms" refers to firms in the property sector excluding S-REITs.

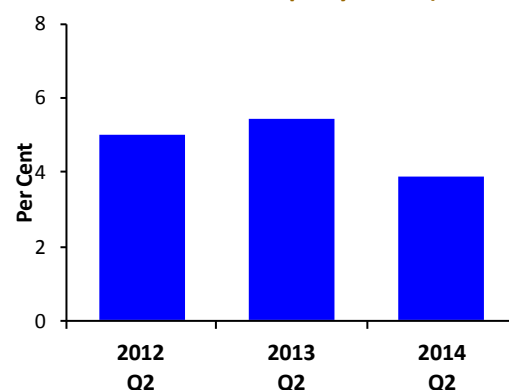
for 29% and 28% respectively of outstanding SME loans as at Q2 2014. The commerce sector's share declined from 33% a year ago (Chart 2.2.13).

Local banks continued to provide the majority of SME credit even as foreign banks increased their market share (See Box F: SME Financing in Singapore). The net interest margin (NIM) on SME loans narrowed to 1.7% in Q2 2014 from 2.3% in Q2 2013 due to increased competition for SME business (Chart 2.2.14).

The credit quality of banks' SME loan portfolios has remained strong, with the NPL ratio for SME loans falling to 0.7% in Q2 2014 (Chart 2.2.15). Almost 80% of outstanding SME loans as at Q2 2014 were collateralised. 56% of the loans were secured by property, mainly by commercial and industrial property (Chart 2.2.16).

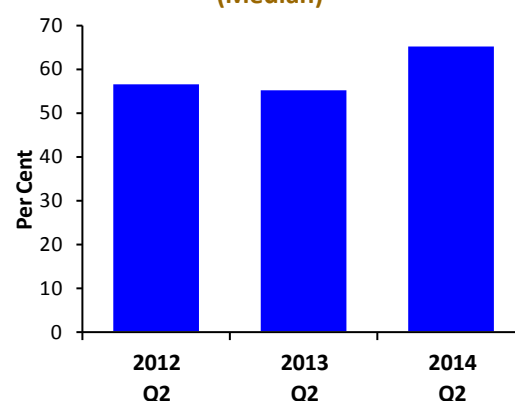
The outlook for SME lending remains optimistic. While banks expect to tighten credit terms and conditions for SMEs slightly in response to macroeconomic conditions, demand for and supply of SME credit are still expected to grow robustly.

Chart 2.2.9

Return on Assets for Property Firms (Median)

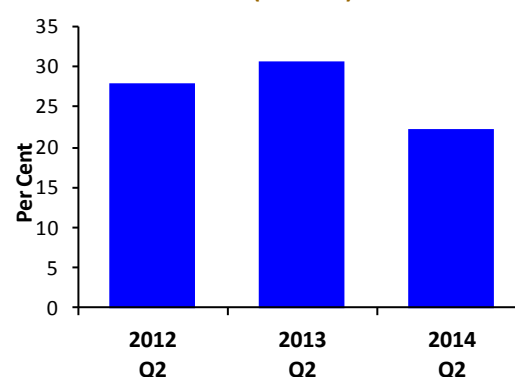
Source: Thomson Financial

Chart 2.2.10

Debt-to-Equity Ratio for Property Firms (Median)

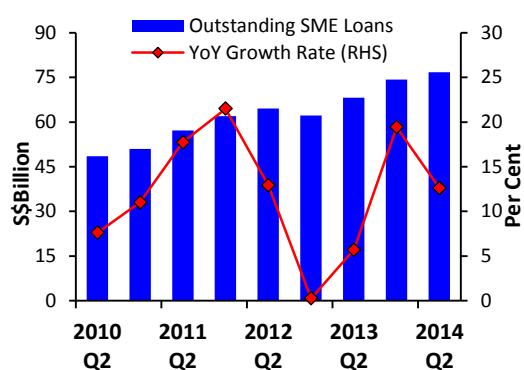
Source: Thomson Financial

Chart 2.2.11

Short-term Debt-to-Total Debt for Property Firms (Median)

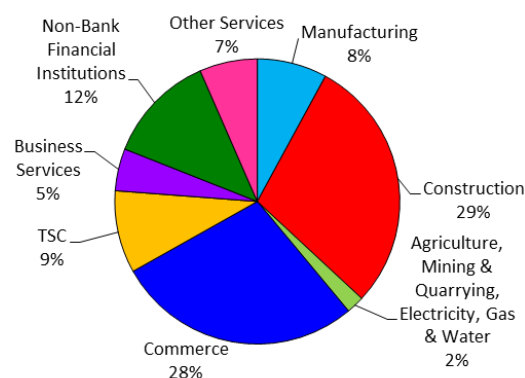
Source: Thomson Financial

Chart 2.2.12
SME Loans Outstanding



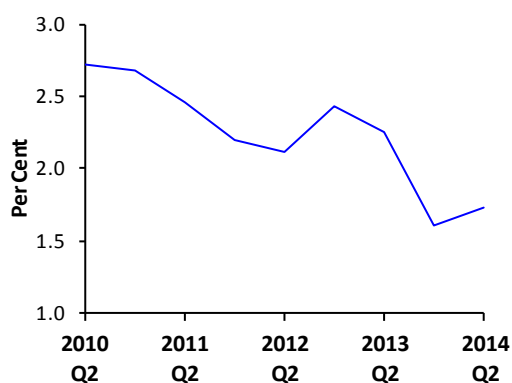
Source: MAS

Chart 2.2.13
SME Loans by Sector (as at Q2 2014)



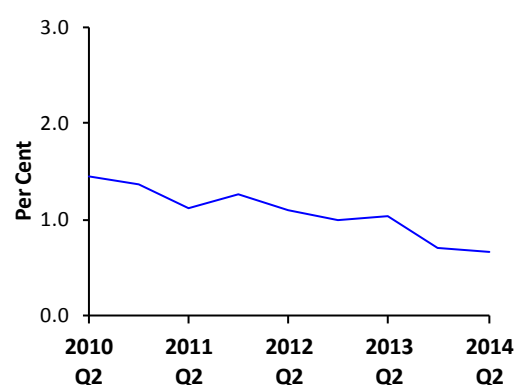
Source: MAS

Chart 2.2.14
Net Interest Margin on SME Loans



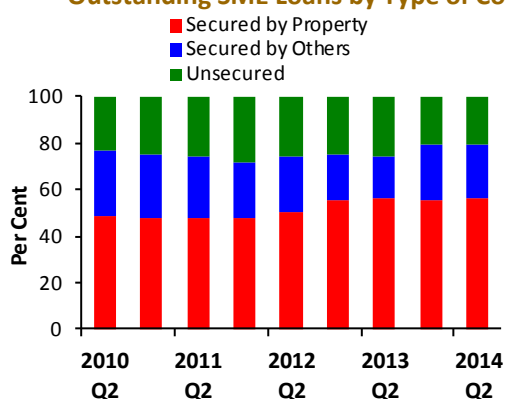
Source: MAS

Chart 2.2.15
NPL Ratio of SME Loans



Source: MAS

Chart 2.2.16
Outstanding SME Loans by Type of Collateral



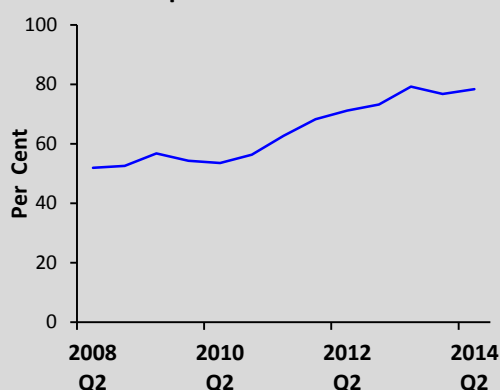
Source: MAS

Box E

Assessing the Risks of Corporate Leverage in Singapore

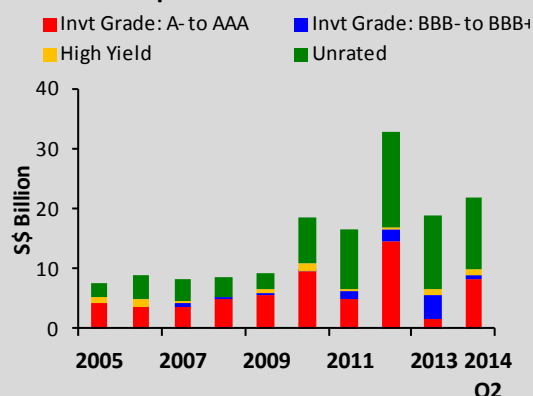
The prolonged low interest rate environment post-GFC has seen the debt-to-GDP ratio of Singapore corporates trend upwards, from 52% in Q2 2008 to 78% in Q2 2014 (Chart E1).²⁸ Corporates have taken advantage of low interest costs to finance capital expenditure or restructuring plans. Coupled with strong investor appetite for yield, corporate bond issuances are at levels not seen before the GFC (Chart E2). This has raised concerns about corporates' solvency risks. Indeed, corporate leverage has risen, as measured by listed firms' debt-to-equity, and debt-to-earnings before interest and tax, depreciation and amortisation (EBITDA) ratios. This is mitigated by healthy interest coverage ratios (ICR). MAS' stress tests of corporate balance sheets suggest that the corporate sector is sound and generally robust to interest rate and earnings shocks. Highly leveraged firms may be vulnerable, but they do not pose systemic risk, especially if accumulated cash reserves and hedging strategies are considered.

Chart E1
Corporate Debt-to-GDP



Source: Thomson Reuters, MAS estimates

Chart E2
Corporate Bond Issuances



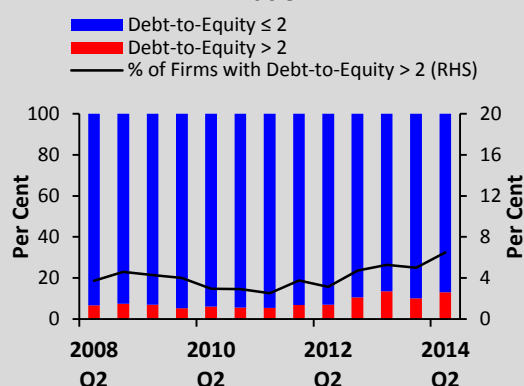
Source: Thomson Reuters, MAS estimates

Low borrowing costs have led to a shift in the capital structure of corporates from equity to debt

Post-GFC, the median debt-to-equity ratio of listed corporates has crept up to reach a high of 41% in Q4 2013 before moderating to 37% in Q2 2014. 5.7% of firms had debt-to-equity ratio of more than 2 times in Q2 2014, compared to 3.3% in Q2 2008. Their share of total corporate debt has stayed low at 13% in Q2 2014 (Chart E3).

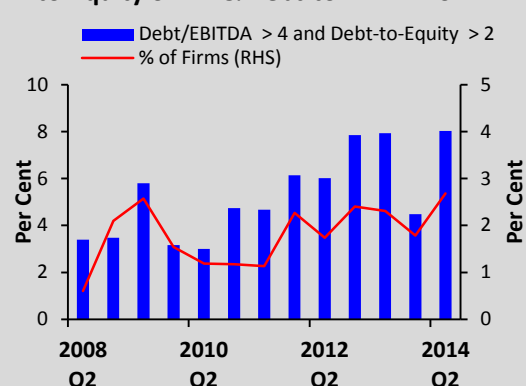
²⁸ This box is based on data for listed non-financial corporates in Singapore.

Chart E3
Share of Corporate Debt based on Debt-to-Equity Ratio



Source: Thomson Reuters, MAS estimates

Chart E4
Share of Corporate Debt Held by Firms with Debt-to-Equity of > 2 & Debt-to-EBITDA of > 4



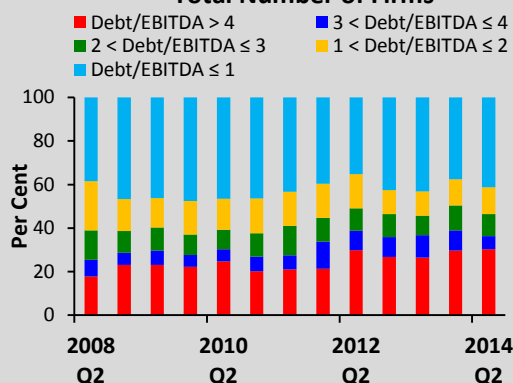
Source: Thomson Reuters, MAS estimates

Debt-to-EBITDA measures a firm's ability to repay debt; the higher the debt-to-EBITDA ratio, the more leveraged the firm is relative to earnings. The median debt-to-EBITDA ratio of listed corporates (adjusted for seasonality) has increased to 1.6 times in Q2 2014 from 1.5 times in Q2 2008.²⁹

The number of firms with debt-to-EBITDA ratios greater than 4 times has risen to 30% of listed corporates in Q2 2014, compared to 18% in Q2 2008 (Chart E5). Their share of total corporate debt increased to 61% from 32% over the period (Chart E6).

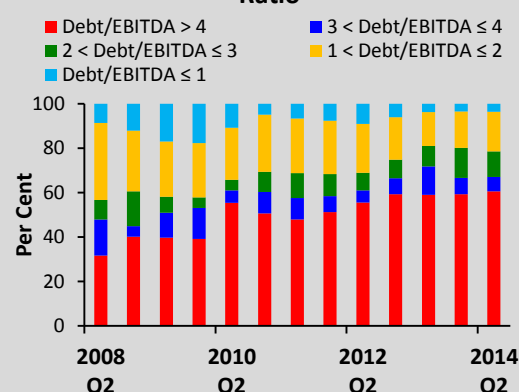
Corporates which are highly leveraged *both* in their capital structure and in relation to earnings, i.e. corporates with debt-to-equity ratio of more than 2 times *and* debt-to-EBITDA ratio of more than 4 times, form 3% of all listed corporates. They account for 8% of total corporate debt (Chart E4).

Chart E5
Number of Firms by Debt-to-EBITDA Ratio as % of Total Number of Firms



Source: Thomson Reuters, MAS estimates

Chart E6
Share of Corporate Debt based on Debt-to-EBITDA Ratio



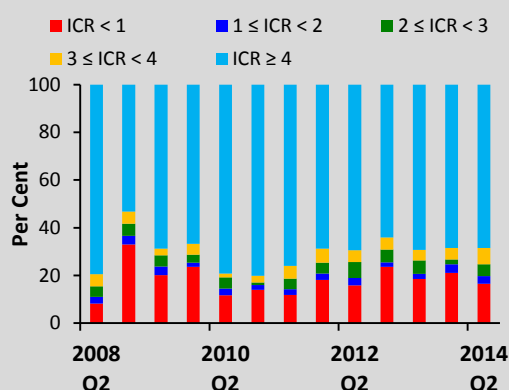
Source: Thomson Reuters, MAS estimates

²⁹ Adjusted Debt-to-EBITDA is calculated as total debt over the rolling average of four quarters of EBITDA to adjust for the seasonality of earnings.

The majority of corporates have sufficient solvency buffers to service interest expenses

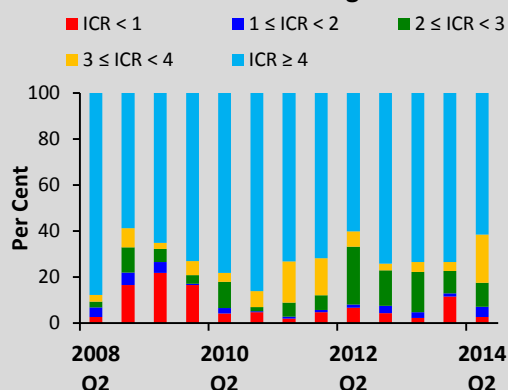
While debt-to-equity and debt-to-EBITDA ratios indicate that Singapore corporates have taken on more leverage, this could reflect corporates bringing forward capital expenditure or undertaking capital-intensive restructuring in a low interest rate environment, and is not necessarily imprudent. The ability of corporates to service interest expenses is measured by the ICR.³⁰ Firms with ICR of less than 2, make up less than 20% of all listed corporates (Chart E7). The amount of corporate debt held by such firms is smaller, at 7% of total corporate debt (Chart E8). By these measures, Singapore corporates' balance sheets remain healthy.

Chart E7
Number of Firms by Interest Coverage Ratio
as % of Total Number of Firms



Source: Thomson Reuters, MAS estimates

Chart E8
Share of Corporate Debt based on
Interest Coverage Ratio



Source: Thomson Reuters, MAS estimates

Some highly leveraged corporates are at risk to interest rate and earnings shocks. Accumulated cash reserves provide additional buffers

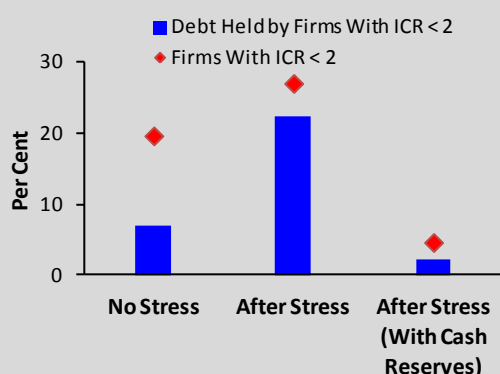
Highly leveraged corporates may be vulnerable to a severe stress scenario of falling earnings and higher interest rates, e.g. when an economic downturn coincides with normalisation of US monetary policy. Under a stress scenario of an increase in interest costs of 25% and a decline in EBITDA of 25%, MAS estimates that the percentage of firms with ICRs of less than 2 will rise from 20% to 27% of all corporates.³¹ The amount of debt held by such firms will increase from 7% to about 22% of total corporate debt (Chart E9).

Cash reserves provide an additional buffer against interest rate and earnings shocks. In the same stress test, the share of firms with ICRs of less than 2 declines to 5% (Chart E9) if their cash reserves are taken into consideration. The corresponding share of debt held by such firms falls to 2% of total corporate debt (Chart E9).

³⁰ ICR is measured by EBITDA over interest expense.

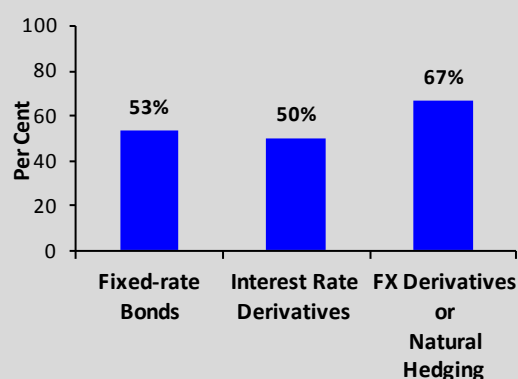
³¹ An earnings shock places further stress on corporates which are highly leveraged in relation to earnings.

Chart E9
Share of Firms and Share of Corporate Debt held by Firms with ICR < 2



Source: Thomson Reuters, MAS estimates

Chart E10
Hedging Strategies of 30 Largest Firms-at-Risk



Source: Thomson Reuters, MAS estimates

A significant number of Singapore corporates hedge against interest rate and currency risks

Interest rate risks may be mitigated through the use of interest rate derivatives or fixed-rate borrowings. Based on the annual reports of the 30 largest listed firms with ICR of less than 2 (accounting for 93% of the debt held by such firms), about half hedge interest rate risks using interest rate derivatives, and more than half had outstanding fixed-rate bonds (Chart E10).

In addition, 67% of these firms employed foreign exchange derivatives or had natural foreign currency hedges in place to address foreign currency mismatches and the risk of debt repayments denominated in foreign currencies (Chart E10).

Conclusion

Despite elevated corporate leverage levels, corporate balance sheets remain strong. MAS' stress tests suggest that the corporate sector is robust and able to withstand interest rate and earnings shocks. Although highly leveraged corporates would be vulnerable, many of them use hedging strategies to guard against interest rate and foreign exchange volatility. Accumulated cash reserves also provide additional buffers.

Nevertheless, leveraged corporates could do better in guarding against a protracted shock – when cash reserves may be eroded, and debt has to be refinanced or hedges renewed at higher rates. Singapore corporates should be pro-active in managing their debt and exercise caution before leveraging up further. MAS will continue to monitor the corporate sector and the risks related to interest rate normalisation and potential shocks from volatility in financial markets and an economic slowdown.

Box F SME Financing in Singapore

SMEs form a significant part of Singapore's economy. Providing SMEs with access to financing could help stimulate growth and facilitate economic restructuring. In Singapore, banks remain the predominant source of external financing for SMEs. MAS survey data indicates that bank credit to SMEs has been growing robustly, and that the financing landscape has become more competitive. Government schemes and alternative forms of financing, including crowdfunding, facilitate or supplement SMEs' access to credit.

Defining SMEs in Singapore

Globally, there is no standard definition of SMEs across jurisdictions, although common criteria include the number of employees, the size of sales turnover, and/or amount of capital. Further, the definition of an SME may vary across industries, making comparisons difficult.³² In Singapore, SPRING Singapore defines SMEs as enterprises with annual sales turnover of not more than \$100 million or enterprises with employment size of not more than 200 workers. This definition captures a wide range of firms, from sole proprietorships and start-ups to mature medium-sized firms with regional operations.

MAS' surveys on SME financing indicate that credit conditions for SMEs remain positive

MAS conducts an annual SME Financing Survey to obtain insights on bank lending trends and the financing landscape for SMEs.³³ The 16 FIs covered in this year's survey have significant SME lending portfolios, and account for about 80% of total domestic corporate loans.³⁴ They comprised three local banks, three finance companies and 10 foreign banks.

SME loan growth has been robust, growing annually by 12.2% on average between Q2 2010 and Q2 2014. Further, bank lending to SMEs is likely to remain healthy through to Q1 2015. Market contacts also expect demand for SME loans to continue growing, albeit at a slower pace than in recent quarters, due to more challenging economic conditions in the near-term. Banks expressed an increased willingness to extend credit to SMEs over the same period.

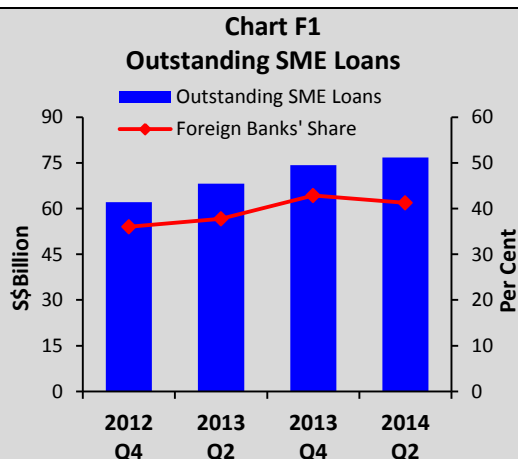
Alongside the expansion of banks' SME loan portfolios, market contacts also indicate that there has been increased competition for SME customers in Singapore. Indeed, there are signs that some foreign banks have grown their SME loan business, increasing their share of the SME loan market slightly (Chart F1). The share of SME loans granted to new borrowers (i.e. first-time borrowers with no prior or existing facility with the lending bank) has also risen steadily (Chart F2).

The overall credit quality of banks' SME loan portfolios has been strong, with NPL ratios dropping below 1.0% since Q4 2013. The trend of falling NPL ratios for SME loans is similar to that of the overall corporate loan portfolio. Given the smaller loan quantum and generally good credit quality, SME loans do not currently pose significant financial stability risks. Nonetheless, MAS' Industry-Wide Stress Test (IWST) results indicate that SME NPL ratios tend to increase more than that for large corporates under stress conditions. Therefore, banks would do well to continue to maintain prudent lending standards and monitor their SME loan portfolios closely.

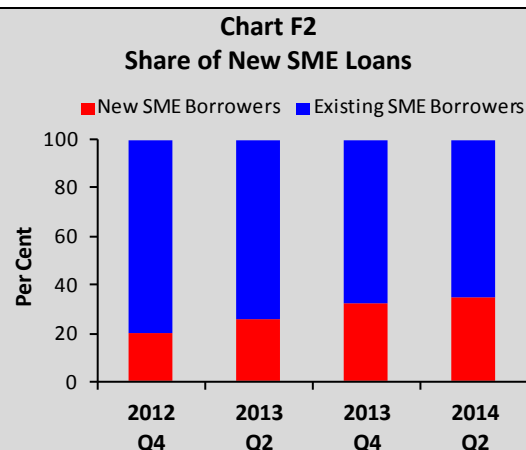
³² In Korea, the classification of SMEs differs across industries. For example, SMEs in the manufacturing and mining sectors include firms with fewer than 300 employees, while SMEs in the wholesale business sector include firms with fewer than 100 employees.

³³ In MAS' SME Financing Survey, SMEs refer to a corporation, partnership, limited liability partnership, sole proprietorship or trust with reported annual sales of less than \$100 million. This definition incorporates banks' feedback on the difficulty of maintaining updated records of the number of employees for each borrower.

³⁴ In this box item, domestic corporate loans are proxied by DBU corporate loans.



Source: MAS



Source: MAS

Government schemes exist to support SMEs' access to financing

SPRING Singapore offers a range of risk-sharing initiatives that support SMEs' access to financing. These include the Loan Enterprise Finance Scheme (LEFS), which provides local enterprises with loans to support capital expenditure on factories and equipment, the Micro Loan Programme (MLP), which supports smaller SMEs' financing needs for daily operations or equipment upgrades, and the Loan Insurance Scheme (LIS), which insures banks against the risks of SMEs defaulting on their trade loans. Banks participating in SPRING Singapore's schemes have shared that these schemes have increased their willingness to extend credit to SMEs.

The government enhances these schemes as necessary to address prevailing circumstances. During the GFC, the government enhanced the risk-share for loans made under the MLP to 90%, and launched the Loan Insurance Plus Scheme, where the government co-shares in the risk of new loans which are beyond the capacity of LIS insurers. The government announced in the 2014 Budget that it will increase the risk-share for loans made under the MLP to smaller and younger SMEs to 70% (from 50%).

Alternative sources of SME financing

While bank loans form an important source of financing for SMEs, SMEs may choose a mix of internal (e.g. the business owner's personal funds, retained earnings) and external financing based on their circumstances. For example, a joint survey³⁵ in September 2013 of European Union (EU) SMEs found that in the six months prior to the survey, about 20% of EU SMEs did not need any funding at all, about 25% used internal funds³⁶ in combination with external financing, and the rest used only external financing (primarily bank financing). EU SMEs indicated in the joint survey that the most common reason for not seeking bank financing was having sufficient internal funds, although a minority also cited possible loan rejection as a deterrent.

Banks' willingness to lend to SMEs and robust competition for SME customers, and various government loan schemes are helping to improve SMEs' access to bank financing. At the same time, various sources of non-bank external financing exist to meet the diverse financing needs of SMEs in Singapore. For example, venture capitalists and angel investors provide capital to smaller start-up SMEs in return for equity, reflecting the higher risk involved in financing such companies. Larger and more mature SMEs could tap the larger pool of financing available in capital markets by issuing debt.

³⁵ European Commission and European Central Bank (14 November 2013), "2013 SMEs' Access to Finance Survey Analytical Report (SAFE)".

³⁶ Internal financing was defined in the SAFE survey as "Retained earnings or sales of assets".

In recent years, additional forms of external financing have emerged. For example, crowdfunding allows firms or individuals to raise funds, typically via an online platform, from a large number of individual contributors, who may receive a reward or asset in return. Crowdfunding has been suggested as an alternative source of financing for start-ups and small companies, allowing businesses to obtain seed funding and test the viability of their business ideas. In equity-based crowdfunding, contributors invest in shares sold by a firm and receive a share of the profits, either as a dividend or as a distribution. In debt-based crowdfunding, contributors will receive a commitment from a firm to repay the contribution at pre-determined time intervals and interest rates.

The global crowdfunding market has grown significantly in recent years. In 2013, an estimated US\$2.8 billion of loans were originated through debt-based crowdfunding platforms, an increase of 145% from 2012. As at Q3 2014, total outstanding funds raised through debt-based and equity-based crowdfunding were estimated to be at US\$6.4 billion, with the US, UK and China making up 96% of all activity.³⁷ In Singapore, the concept of crowdfunding is still nascent. The government is currently studying the potential of crowdfunding as an alternative source of funding for start-ups and small companies in Singapore, and MAS is exploring the possibility of developing an appropriate regulatory framework for these new business models.

Conclusion

While access to financing is important in the development and growth of SMEs, other factors play a key role in SMEs' success. The overall business climate (including a consistent regulatory environment and reduced barriers to entry) sets the conditions under which SMEs compete. At an individual SME level, idiosyncratic factors such as competitors, business costs (including labour), customer demand and management capability dictate profitability and growth prospects. MAS will continue to monitor the state of SME financing in Singapore to support the growth and development of SMEs.

³⁷ Eleanor Kirby and Shane Worner (2014), "Crowdfunding: An Infant Industry Growing Fast", an IOSCO staff working paper.

2.3 Household Sector³⁸

Singapore's household balance sheets have remained healthy, with aggregate net wealth at about four times GDP. This is notwithstanding that the growth in household net wealth has slowed, following the moderation in residential property prices. Overall household asset holdings have also diversified away from property, towards other financial assets, mitigating risks from over-concentration in any one asset class.

The pace of growth in household debt has slowed markedly. Nonetheless, some highly leveraged households could be vulnerable should interest rates rise or the economy slow down.

MAS has taken pre-emptive measures over the past few years to curb excessive borrowing. MAS will continue to monitor the level of household leverage and take further measures to keep household debt at a manageable level.

**Household balance sheets have remained healthy.
The growth in household wealth has slowed,
reflecting trends in the property market**

On an aggregate basis, Singapore's household balance sheets have remained healthy. Household net wealth (defined as household assets less household debt) has grown at an average rate of 7.9% per annum in the past five years (Chart 2.3.1).

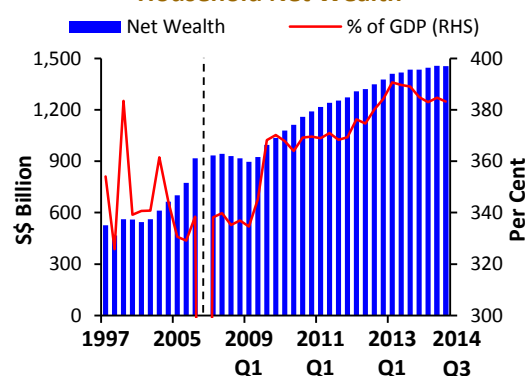
The moderation in residential property prices in recent quarters (See Box G: Update on the Singapore Private Residential Property Market) has tempered the growth in household wealth (1.4% y-o-y as at Q3 2014).

On an aggregate basis, the value of property assets, estimated at \$815 billion in Q3 2014, accounted for slightly less than half (at 47%) of total household assets (Chart 2.3.2).

**Growth in financial assets outpaced growth in
property assets**

The growth in the value of financial assets remained strong. The value of financial assets stood at \$930 billion as of Q3 2014, up 6.2% from a year ago. The

**Chart 2.3.1
Household Net Wealth**



Source: DOS

Note: Household net wealth is the difference between household assets and debt. Data for 1997-2007 are as at Q4.

³⁸ The assessment of households' health in this section is based on aggregated household balance sheets.

share of financial assets in total household assets has risen, from 50% in Q3 2011 to 53% in Q3 2014.

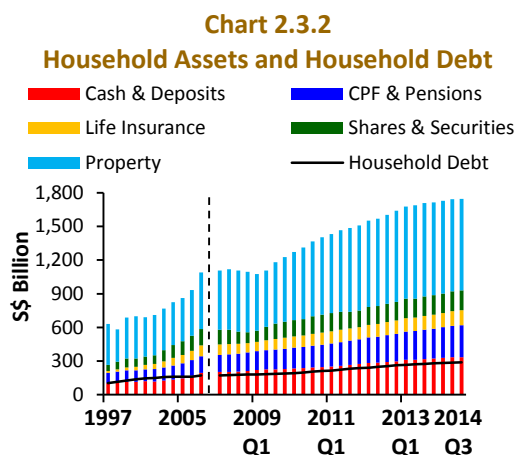
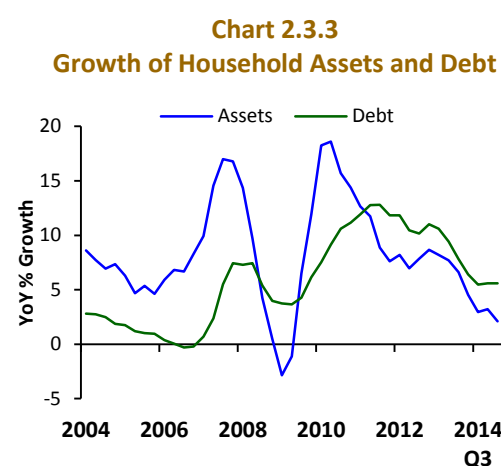
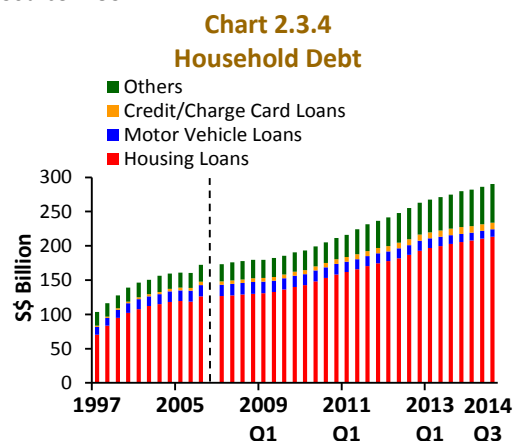
In particular, the growth in the value of financial assets was driven by a significant increase in cash and deposits, Central Provident Fund (CPF) savings and insurance assets, which grew by 5.7%, 8.9% and 8.7% y-o-y respectively in Q3 2014. The value of shares and securities increased by 1.9% compared to a year ago.

The diversification in household assets towards financial assets is a welcome development as it mitigates risks to household balance sheets from over-concentration in any one asset class. To further develop financial markets and broaden investment options for the retail market, MAS is working on initiatives to encourage well-rated companies to issue bonds, and to improve retail investors' access to the bond market.

Consumers should continue to exercise due diligence before committing to investment decisions, particularly given the rise in the number of non-conventional products offered to retail investors as alternative investments. Some of these products have features that are similar to regulated capital market products, but are deliberately structured to assign ownership of underlying physical assets to investors, thereby taking them outside the perimeter of MAS' regulatory framework.³⁹ To safeguard consumers' interests, MAS has proposed to extend to investors in these products the current regulatory safeguards for investors in capital markets.

MAS macroprudential measures have strengthened household balance sheets and slowed the pace of growth in household debt

The pace of growth in household debt has slowed markedly. In Q3 2014, household liabilities grew at 5.6% y-o-y, compared to an average of 9.2% over the



³⁹ Under the proposal, offers of precious metals buyback schemes and collectively-managed investment schemes (e.g. land or forestry investment schemes) will need to be accompanied by a prospectus and the intermediaries licensed by MAS.

last five years (Chart 2.3.3). The household debt-to-asset ratio has remained stable at about 17% as at Q3 2014.

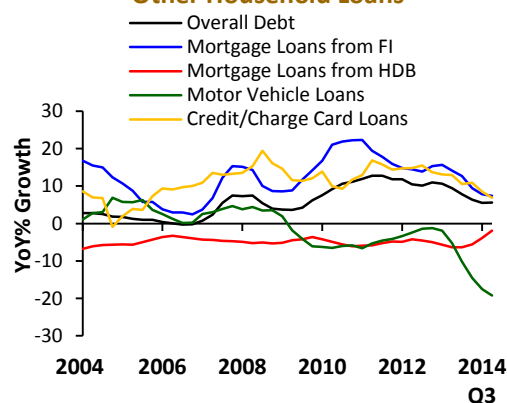
The property-related measures (See Box G), alongside rules on car loans and unsecured credit (See Box H: New Rules on Unsecured Credit Facilities and Credit Cards), have targeted the various components of household debt.⁴⁰

Housing loans continue to account for a large share of household sector liabilities (74% as at Q3 2014) (Chart 2.3.4). The growth of outstanding housing loans extended by FIs has moderated from a peak of 22% in Q1 2011 to 6.5% y-o-y as of Q3 2014 (Chart 2.3.5). The risk profile of new borrowers has improved, with almost all new housing loans granted since the introduction of the Total Debt Servicing Ratio (TDSR) framework falling within the 60% threshold. The share of new borrowers with TDSR below 40% has increased to 41% as of Q3 2014 from 37% in Q4 2013.⁴¹ The proportion of new borrowers with TDSR between 40% and 60% declined from 61% to 57% over the same period.

The share of housing loans in negative equity remains negligible. Outstanding housing loans with loan-to-value (LTV) ratios above 80% have declined from a high of 17% in Q3 2009 to 5.0% as of Q3 2014 (Chart 2.3.6). While the NPL ratio for housing loans remains low at less than 0.5%, close monitoring is warranted given the slight uptick in housing NPL ratio from 0.28% to 0.36% between Q1 and Q3 2014 (Chart 2.3.7). This uptick was attributed to a handful of high-end housing projects. The proportion of housing loan holders in arrears — holders of loans that are more than 30 days past due — was less than 1% as of Q3 2014.⁴²

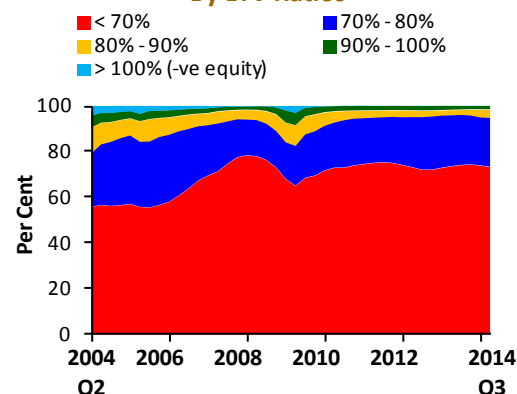
The next biggest component after mortgage loans is

Chart 2.3.5
Housing Loans and Other Household Loans



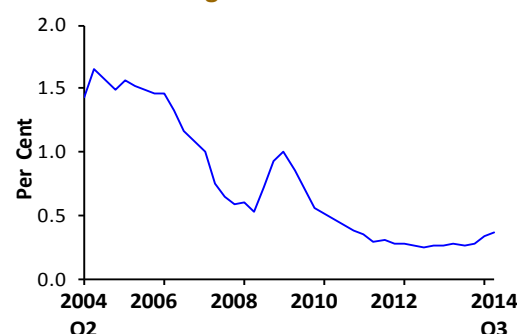
Source: DOS

Chart 2.3.6
Outstanding Housing Loans By LTV Ratios



Source: MAS

Chart 2.3.7
Housing Loan NPL Ratios



Source: MAS

⁴⁰ MAS re-introduced financing restrictions on motor vehicle loans in February 2013. The maximum LTV is 60% for a motor vehicle with open market value (OMV) that does not exceed \$20,000 and 50% for a motor vehicle with OMV of more than \$20,000. The tenure of a motor vehicle loan is capped at five years.

⁴¹ The TDSR was introduced in June 2013. Comparable estimates on TDSR distributions are not available prior to H2 2013.

⁴² Source: Credit Bureau Singapore (CBS)

motor vehicle loans, which accounted for about 3.6% of household liabilities as of Q3 2014, below the average of 6.1% in the last five years. The financing restrictions on motor vehicle loans have contributed to the continuing reduction in outstanding motor vehicle loans, with the value of such loans declining by 19% y-o-y in Q3 2014.

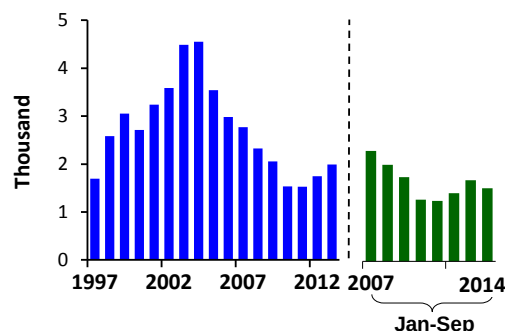
Credit/charge card loans grew by 7.0% y-o-y in Q3 2014, slower than the average of 12% y-o-y over the last five years. On the whole, the consumer credit situation remained strong. Credit card charge-off rates have remained largely stable at 4-5% since 2010.⁴³ Further, alongside moderation in the growth of the number of credit card holders, the y-o-y growth in the number of frequent revolvers has also moderated, from a peak of 12% in August 2012 to 4.5% in September 2014.⁴⁴ Nonetheless, MAS estimates that there is a small group of borrowers (about 3% of all credit card holders) who have incurred high levels of unsecured debts above their annual incomes (See Box H).

The generally sanguine environment of moderate economic growth, tight labour market conditions and low interest rates could change in the period ahead. This could pose strains on some households.

The number of individual bankruptcy orders made trended upwards, from 1,748 cases in 2012 to 1,992 cases in 2013 (Chart 2.3.8). Nonetheless, from January to September 2014, there were 1,385 cases – a decline of 9.8% over the same period last year.

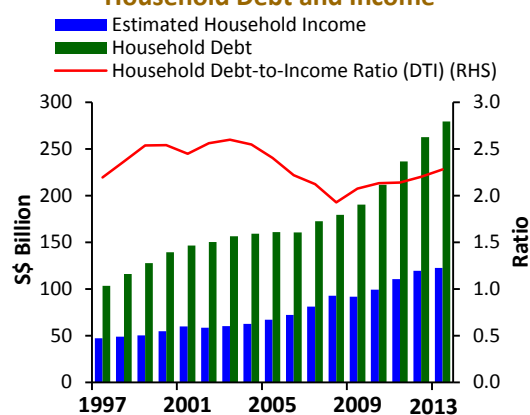
The credit profile of borrowers in Singapore has improved compared to two years ago as borrowers become more responsible in their debt management.⁴⁵ According to CBS, the share of borrowers with the top-tier credit score increased from 53% in March 2012 to

Chart 2.3.8
Number of Individual Bankruptcy Orders Made



Source: Ministry of Law, IPTO

Chart 2.3.9
Household Debt and Income



Source: MAS estimates, DOS

Note: Estimates of household debt are as at Q2, to be consistent with household income estimates.

⁴³ 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.

⁴⁴ "Frequent revolvers" refer to those who have not paid their outstanding balances in full for at least three consecutive months.

⁴⁵ Data prior to March 2012 are not available.

57% in September 2014. The share of borrowers with scores in the lowest tier also declined from 8.1% to 7.4% over the same period.⁴⁶

Despite moderation in household leverage, the level of debt among highly leveraged households poses a risk; reducing their level of debt will take time

Despite some moderation in the overall level of household indebtedness, the level of debt among highly leveraged households bears close watching. The household debt-to-income ratio has risen from a low of 1.9 times in 2008 during the Lehman crisis to 2.3 times in 2013 (Chart 2.3.9).

At higher levels of indebtedness, households are more vulnerable to payment difficulties in the event of interest rate or income shocks. Under an adverse scenario, households with debt at high TDSR levels may have limited room to cut back on spending in order to keep up with monthly debt repayments. For a highly leveraged household, reducing the level of debt will take time, and it will need to work with its bank and a credit counselling agency to reduce its debt via a debt repayment plan. In some cases, the sale of investment properties or rightsizing of homes may be necessary.

The risk of a downturn in the global economy even as the supply of new housing comes onstream and rental markets weaken could put further downward pressure on the property market.

MAS has taken pre-emptive action where appropriate, to curb excessive household borrowing over the past few years. MAS will continue to monitor lending and borrowing activities, and take further measures where necessary to keep household debt at a manageable level.

⁴⁶ The CBS scores measure the probability of the consumer defaulting within the next 12 months based on his or her credit history.

Box G**Update on the Singapore Private Residential Property Market**

Demand for private residential property continued to moderate in 2014. Monthly transaction volumes have fallen to less than half their numbers in the preceding two years, while prices registered the most sustained – albeit moderate – decline since Q2 2009 in the last four quarters. New housing loans have also contracted.

While prices have moderated following the series of property measures introduced since 2009, they remain at an elevated level. At the same time, purchases of foreign properties have risen in the last one to two years. While increased interest in foreign properties could reflect a desire to diversify investment assets, households should be mindful of the risks associated with investing in overseas property markets and conduct appropriate due diligence before committing to a purchase.

Private Property Prices and Transactions

Prices in the private housing market have declined for four consecutive quarters, by a cumulative 3.9% since Q4 2013 (Chart G1). However, prices remained at an elevated level, having increased by 62% from the trough in Q2 2009 to Q3 2013.

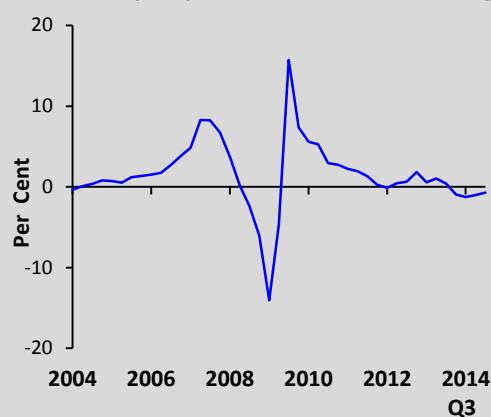
The price decline was broad-based, but the momentum varied across different market segments. Prices in the Core Central Region (CCR) trended down before other market segments, declining by 5.7% from the peak in Q1 2013 to Q3 2014. Prices of mass market homes in the Outside Central Region (OCR) started falling only two quarters later in Q4 2013, with a smaller decline of 2.3% since then (Chart G2).

Overall transaction activity in the private residential property market fell as buyers turned cautious, as some may be holding back their purchases in anticipation of further price declines.⁴⁷ Average monthly transactions moderated to 1,200 units in the first ten months of this year, down from 1,900 units in 2013 and a peak of 3,200 units in 2012. Sub-sale and resale activity remained subdued, while new sales – which had held up when sub-sales and resales declined previously – also fell, averaging 700 units per month in the first ten months of 2014, compared to 1,300 units in 2013 (Chart G3). The share of purchases by foreigners has remained low (Chart G4) since the implementation of the Additional Buyer Stamp Duty (ABSD).

The supply of new housing units due for completion in the near-term (Chart G5) will continue to exert pressure on vacancy rates (Chart G6) and rentals (Chart G7) for investment properties. The anticipated increase in mortgage costs as interest rates normalise would likely dampen housing demand as well.

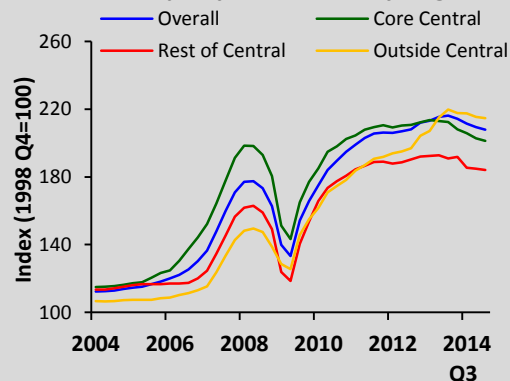
⁴⁷ This encompasses new sale, sub-sale and resale transactions.

Chart G1
Private Property Price Index (Q-o-Q Change)



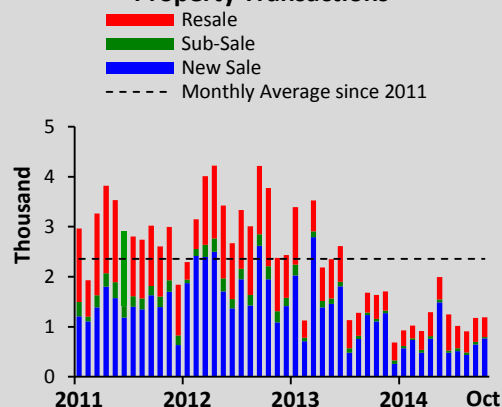
Source: URA

Chart G2
Private Property Price Index by Region



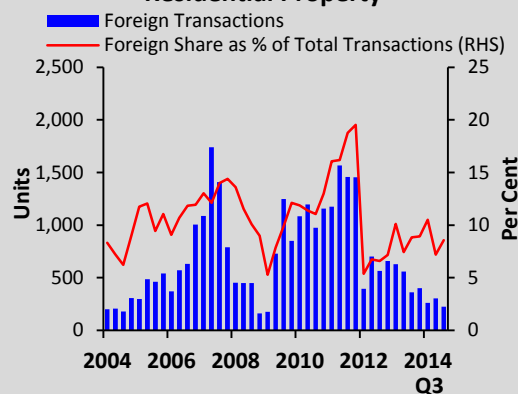
Source: URA

Chart G3
Number of Private Residential Property Transactions



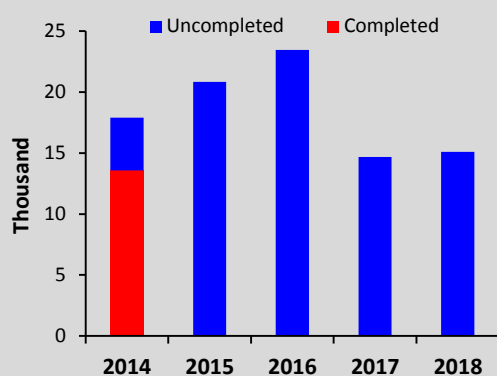
Source: URA

Chart G4
Foreign Transactions for Private Residential Property



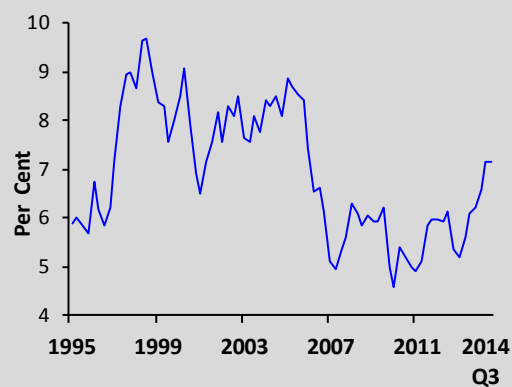
Source: URA

Chart G5
Supply of Private Residential Properties by Expected Year of Completion (As at Q3 2014)



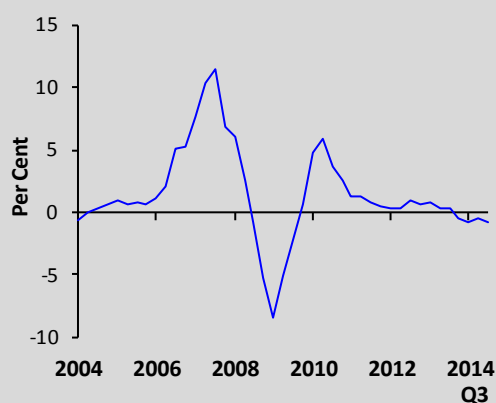
Source: URA

Chart G6
Vacancy Rates for Private Residential Property



Source: URA

Chart G7
Private Residential Rental Index (Q-o-Q Change)



Source: URA

Housing Loans

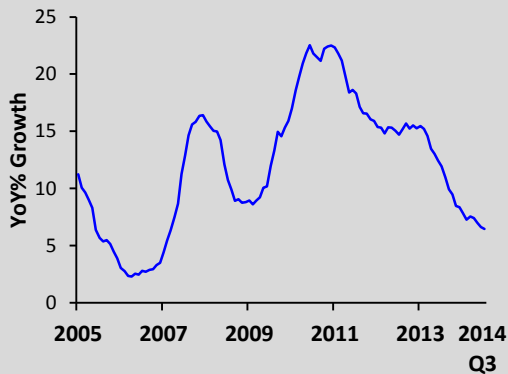
The property-related measures have tempered the growth of outstanding housing loans, with y-o-y growth moderating from the peak of 23% in August 2010 to 6% in September 2014 (Chart G8). The volume of new housing loans, which generally tracks housing transactions, contracted from \$11.4 billion in Q2 2013 to \$6.7 billion in Q3 2014. New housing loans taken up since the introduction of the various property measures have lower LTV ratios and shorter loan tenures. The share of new private housing loans with LTV ratios above 70% declined from 77% in Q2 2010 to an average of 65% since 2012 (Chart G9). The average tenure of new private housing loans has also declined, from 30 years in 2012 to 25 years in Q3 2014 (Chart G10). Borrowers taking multiple loans accounted for 15% of all new housing loans as of Q3 2014, compared to 30% in 2011 (Chart G11).

The banking system remains sound and is resilient to risks arising from the property market. There is a healthy buffer against property price reductions with the average outstanding housing LTV ratio in the banking system just under 50%. The banking system's housing NPL ratio – loans that are more than 90 days past due – remained very low; a slight uptick from 0.28% to 0.36% between Q1 2014 and Q3 2014 was attributed to a handful of defaults for high-end housing projects (Chart G12). The proportion of housing loan holders in arrears – holders of loans that are more than 30 days past due – was less than 1% as of Q3 2014.⁴⁸ Further, under the stress scenario in MAS' IWST exercise, banking system housing NPL ratios remained below 6% and banks continued to meet their minimum regulatory total capital adequacy ratio (CAR) requirement of 10%.⁴⁹

⁴⁸ Source: CBS

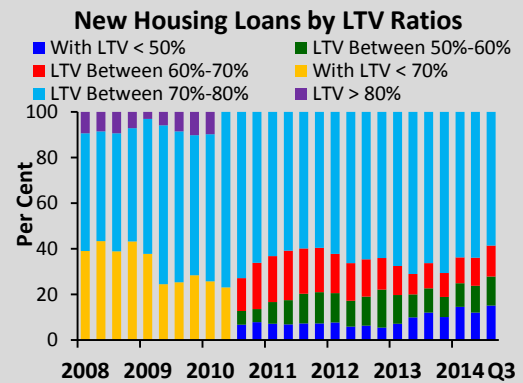
⁴⁹ The IWST incorporates scenarios of US economic growth collapsing on the back of a US rating downgrade, a crisis in Europe and an underperforming Chinese economy. In Singapore, the scenario envisaged rising unemployment, a sharp drop in property prices and a jump in corporate sector defaults.

Chart G8
Housing Loan Growth



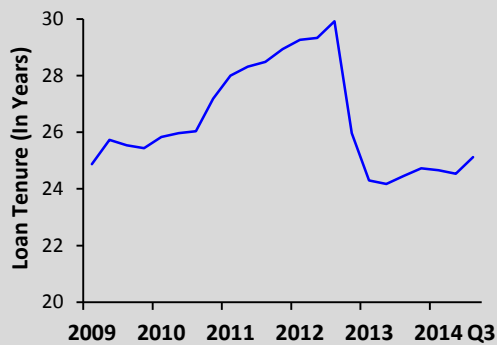
Source: MAS

Chart G9



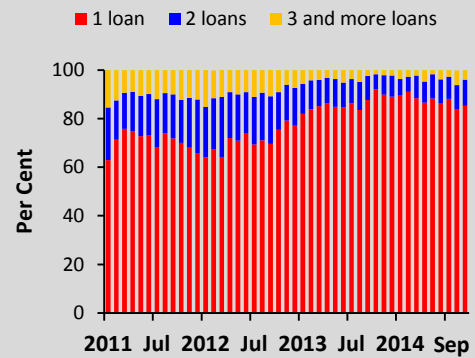
Source: MAS

Chart G10
Average Loan Tenure of New Private Housing Loans



Source: MAS

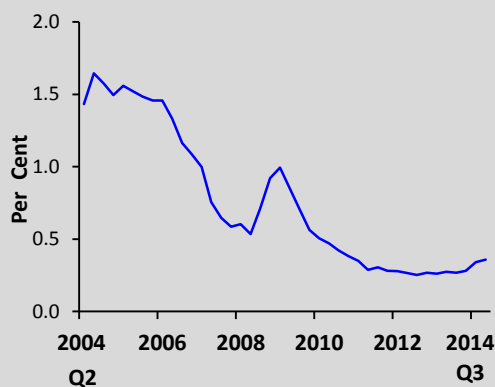
Chart G11
Share of New Housing Loans Borrowers With Existing Housing Loans



Source: MAS

Note: The number of housing loans includes new housing loans under application.

Chart G12
Housing Loans NPL Ratio



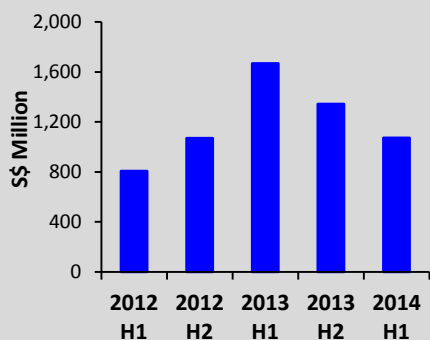
Source: MAS

Purchase of Overseas Properties

Banks' exposures to foreign property loans remained low, comprising less than 2% of total housing loan exposures. Nonetheless, real estate agencies in Singapore have seen increased interest in overseas property purchases, from across a broader spectrum of Singapore buyers. Based on an MAS survey that covers data collected on overseas properties transacted by real estate agencies in Singapore, the value of overseas property purchases transacted in Singapore rose from \$1.9 billion in 2012 to \$3.0 billion in 2013, before moderating to \$1.1 billion in H1 2014 (Chart G13).⁵⁰ Properties in the UK, Malaysia and Australia accounted for 91% of total transactions by value and 76% by number in H1 2014, but households also purchased properties in Japan, the Philippines and Thailand. The lower price quantum of properties in some markets might have made them more attractive to lower- and middle-income households.

Households should be mindful of additional risks associated with overseas property purchases. Besides foreign exchange and interest rate risks, investors may be unfamiliar with conditions in overseas markets, including risks associated with property price cycles, the legal and regulatory frameworks governing property purchases and financing agreements, and any measures taken by authorities to manage non-residents' holdings of property. In some emerging markets, the tenant pool is not established and the rental markets are not sufficiently mature to provide assurance of investment returns. Households should also do their financial sums carefully – as they would for Singapore properties – before committing to additional debt to finance foreign property purchases.

Chart G13
Overseas Property Transactions
by Singaporeans (Value)



Source: MAS survey on overseas property transactions by real estate agencies in Singapore, July 2014

Conclusion

Private property prices in Singapore have moderated but remain at an elevated level. New housing loans have declined in tandem with the fall in transactions. The property measures have also contributed to restoring financial prudence, but the prospect of higher interest rates remains a risk for some highly leveraged households. MAS will continue to monitor the property market and take appropriate measures to maintain a stable and sustainable market.

⁵⁰ In an earlier May 2014 survey which covered fewer real estate agencies, the value of overseas properties purchases by Singaporeans transacted by real estate agencies in Singapore was estimated at \$2 billion in 2013.

Box H

New Rules on Unsecured Credit Facilities and Credit Cards

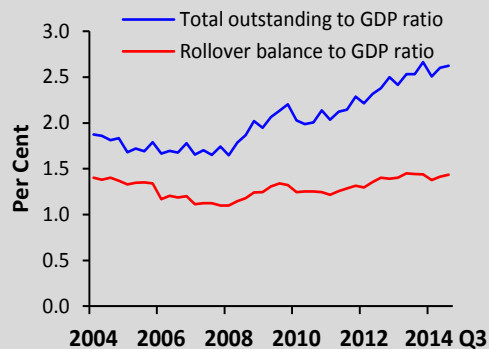
Credit card usage in Singapore has risen

The use of credit cards has become more commonplace, as evidenced by the increase in the number of credit and charge cards issued, from 5.9 million in 2008 to 9.3 million in 2013. This translated to an increase in card penetration rate from 3.1 in 2008 to 4.4 in 2013.⁵¹ These trends have been brought about in part by the increased convenience and acceptance of such cards, a growing working population, and a general rise in affluence. The number of professionals, managers, executives and technicians (PMETs) in the resident workforce has grown by 2.8% per annum between 2008 and 2013. The number of individuals with incomes of \$2,500 or higher rose at an average rate of 5.6% per annum over the same period.⁵²

Consumer credit situation in Singapore remains healthy

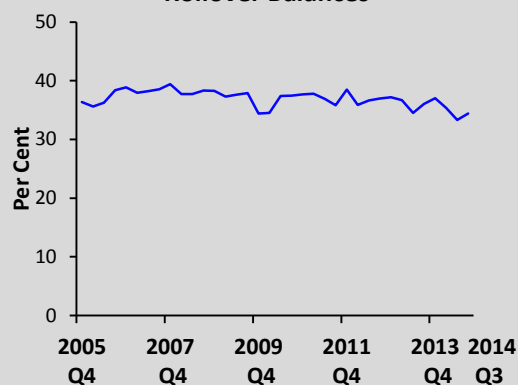
The consumer credit situation in Singapore remains sound on the whole. While the ratio of outstanding credit card balances to GDP has grown with increasing card usage, the ratio of rollover balances to GDP has remained low at about 1.4% (Chart H1).⁵³ The proportion of revolvers has also stayed broadly stable at about 35% of all credit cardholders (Chart H2).⁵⁴ Bad debts written off from credit cards (i.e. charge-off rates⁵⁵) have remained low at 4-5% of average rollover balances (Chart H3). Nonetheless, MAS estimates that about 3% of credit card holders have accumulated unsecured debts that exceed their annual incomes.

Chart H1
Credit Card Rollover Balances as % of GDP



Source: MAS

Chart H2
Percentage of Credit Card Holders with Rollover Balances



Source: MAS

⁵¹ Card penetration rate is defined as the total number of cards divided by the total number of economically active residents aged fifteen years and above. Data is as at June 2013.

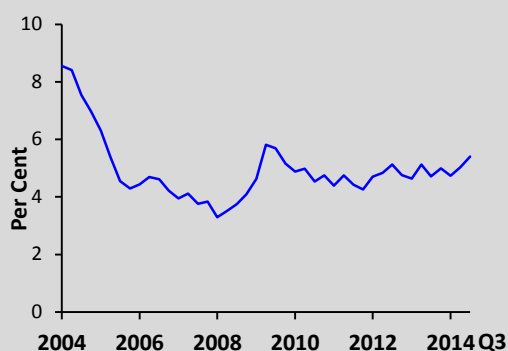
⁵² For an individual to qualify for a credit card facility, he has to have a minimum annual income of \$30,000. This is about \$2,500 in monthly income.

⁵³ Rollover balance is defined to be the amount of the outstanding balance that is not paid in full within the billing month.

⁵⁴ "Revolvers" refer to credit cardholders who do not pay in full their outstanding credit card balances.

⁵⁵ 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.

Chart H3
Credit Card Charge-Off Rates



Source: MAS

To encourage financial prudence and enhance FIs' lending practices, MAS has strengthened unsecured credit and credit card rules as set out below.

Enhanced credit assessment

Since June 2014, FIs have been required to conduct checks with credit bureaus and take into account the total credit limits and total outstanding debt balances of a borrower before they can grant a borrower a new credit card, a new unsecured credit facility or an increase in credit limit.

Measures to prevent accumulation of debt

With effect from June 2015, an FI will not be allowed to grant additional unsecured credit to a borrower who is 60 days or more past due on any credit card or unsecured credit facility. In addition, other FIs will not be able to increase credit limits or grant new unsecured facilities to this individual.

FIs will also be prohibited from granting further unsecured credit to a borrower whose outstanding unsecured debt aggregated across all FIs exceeds his annual income for three consecutive months or more.

Information disclosure by FIs

From June 2015, FIs will be required to disclose to a borrower who has rolled over unsecured debt, the total amount and time needed to pay off his debts fully if he settled only the FI's required minimum payment every month. He will also be informed of the amount of debt that will accumulate if the debt were to be accrued over the next six months. Such disclosure is aimed at raising awareness on the cost of rolling over debts so that borrowers can make more informed borrowing decisions.

Conclusion

The consumer credit situation is healthy and the regulatory actions taken are pre-emptive. The strengthened rules will further encourage prudent lending and help prevent borrowers from accumulating excessive debts. MAS will continue to monitor trends in unsecured credit facilities and credit cards.

2.4 Banking Sector

Singapore's banking system remains resilient through 2014. The local banking groups have maintained healthy funding and capital positions amid regional expansion.

Loan growth has decelerated over the past year, in both the non-bank and interbank markets. Asset quality remains healthy. Banks should continue to maintain good credit underwriting practices and ensure that provisioning is prudent and robust to potential stress conditions.

In line with increasing cross-border exposures, the banking system's foreign currency exposures have risen. Banks should continue to monitor foreign currency funding risks closely as they expand in the region and grow their foreign currency lending. Domestically, SGD funding remains adequate with non-bank deposits sourced from Singapore exceeding financing needs of the corporate and household sectors.

Bank loan growth has moderated since the turn of the year

Overall loan growth has slowed since the turn of the year to 7.4% y-o-y in Q3 2014 from a recent peak of 12.6% in Q4 2013. Both non-bank and interbank loan growth contributed to the slowdown (Chart 2.4.1).

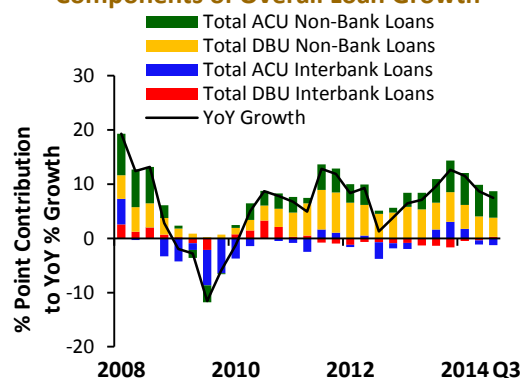
Non-bank loan growth moderated from 19.7% y-o-y in Q4 2013 to 14.0% in Q3 2014. Macroprudential measures on housing loans, as well as a subdued domestic and regional growth outlook, have reined in loan growth to households and corporates.

The interbank loan market contracted 2.5% y-o-y in Q3 2014. While Domestic Banking Unit (DBU) interbank loan growth has been flat or negative since Q3 2011, Asian Currency Unit (ACU) interbank loan growth turned negative only in Q2 2014.

Cross-border non-bank exposures, particularly to Asia, continue to increase, as both Asian and European banks in Singapore grew their loan books

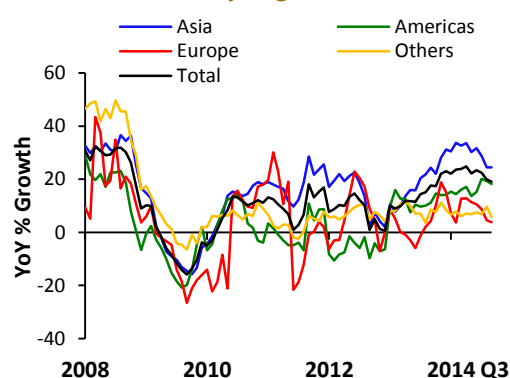
Banks in Singapore have grown their cross-border loan books as an increasing number of local and international corporates use Singapore as a funding hub to expand across Asia. As a result, ACU non-bank loans posted strong growth of 19.0% y-o-y in Q3 2014 (Chart 2.4.2).

Chart 2.4.1
Components of Overall Loan Growth



Source: MAS

Chart 2.4.2
Growth in Cross-Border ACU Non-Bank Loans by Region



Source: MAS

Asia continues to dominate cross-border lending from Singapore, accounting for 63% of cross-border ACU non-bank loans in Q3 2014, up from 60% a year ago (Chart 2.4.3).

Total syndicated loans grew by 7.5% y-o-y in Q3 2014, up slightly from 7.3% in Q3 2013. Total trade finance facilities grew 16.8% y-o-y in Q3 2014, compared to 29.3% in Q3 2013. The slower growth was due to a 10.7% y-o-y contraction in letters of credit in Q3 2014, compared to growth of 24.4% in Q3 2013. However, this was outweighed by continued robust y-o-y growth in bills and trust receipts of 31.2% and 14.4% respectively.

Over the past year, European banks in Singapore retained their market shares in the expanding syndicated loan and trade finance space, halting the gains made by the local and other Asian banks in the immediate aftermath of the GFC (Chart 2.4.4).

Cross-border interbank loans have contracted over recent months; the Americas is the exception

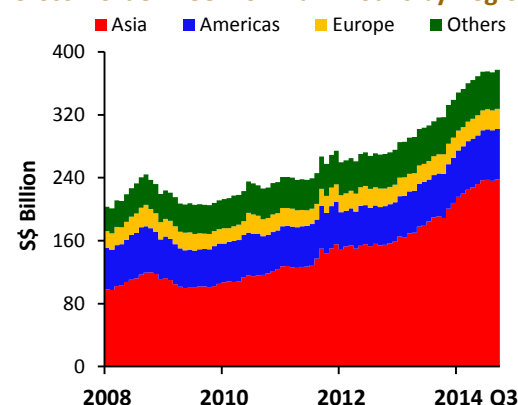
Cross-border ACU interbank loans contracted in recent months across all regions except for the Americas (Chart 2.4.5). The recent revival in interbank lending to the Americas reversed a four-year trend of declining interbank loans to that region.

DBU non-bank loan growth has moderated over the past year

DBU non-bank loan growth has moderated from 17.0% y-o-y in Q4 2013 to 10.6% y-o-y in Q3 2014 due to slower growth in property-related loans (Chart 2.4.6). Based on a survey of banks, non-bank loan growth could continue to moderate in the near future, especially for housing loans.

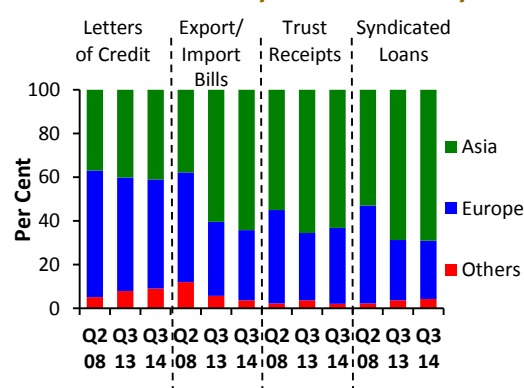
The banking system is self-sufficient domestically, but foreign currency funding gaps could constrain future growth in cross-border lending

Chart 2.4.3
Cross-Border ACU Non-Bank Loans by Region



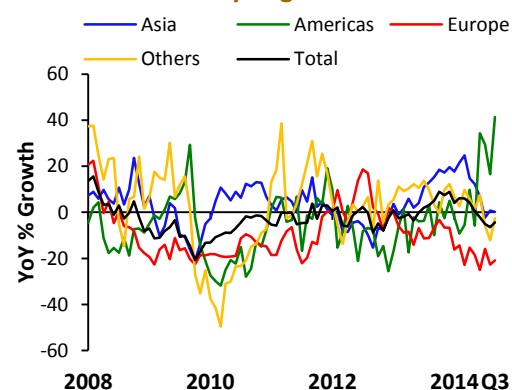
Source: MAS

Chart 2.4.4
Trade Finance and Syndicated Loan Market Shares by Bank Nationality



Source: MAS

Chart 2.4.5
Growth in Cross-Border ACU Interbank Loans by Region



Source: MAS

Domestic SGD funding remains adequate as non-bank deposits sourced from Singapore exceed loans to Singapore corporates and households. Excess deposits are channelled into cross-border lending (See Box I: Funding Needs and Cross-border Exposures of Singapore's Banking System: Financing the Domestic Economy and Beyond).

However, overall funding and liquidity risks in the banking system bear close monitoring. The growth in non-bank deposits declined steadily since Q3 2013, reaching 4.7% y-o-y in Q3 2014, while non-bank loans grew at a faster clip of 14.0% y-o-y over the same period.

As a result, loan-to-deposit (LTD) ratios have trended upwards. The overall LTD ratio rose to 110.7% in Q3 2014 from 101.7% in Q3 2013, driven primarily by a higher foreign currency LTD ratio. The foreign currency LTD ratio reached a high of 146.4% in May 2014 before coming down to 139.9% in Q3 2014 (Chart 2.4.7). The upward trend in the foreign currency LTD ratio was due mainly to rising foreign currency loans. In contrast, the SGD LTD ratio remains healthy at 84.3% in Q3 2014 (Chart 2.4.7).

Rising LTD ratios could put pressure on the availability and cost of funding to support growth in cross-border lending (See Box J: Funding Liquidity in Singapore's Banking System: Making Sense from Different Perspectives).

Asset quality remains strong, but banks should ensure loan provisions are adequate and robust to a reversal in current low NPLs

Asset quality of non-bank loans remains strong. The overall NPL ratio in Q3 2014 was 1.1%, a slight improvement over 2013 (Chart 2.4.8). The NPL ratio for the TSC sector has declined from a peak of 8.2% in Q3 2013 to 5.6% in Q3 2014, reversing a six-year trend of rising NPLs. Although accounting for only 7.1% of outstanding non-bank loans, the TSC sector contributed the largest share of overall NPLs at 36%.

Chart 2.4.6

DBU Non-Bank Loans by Sector

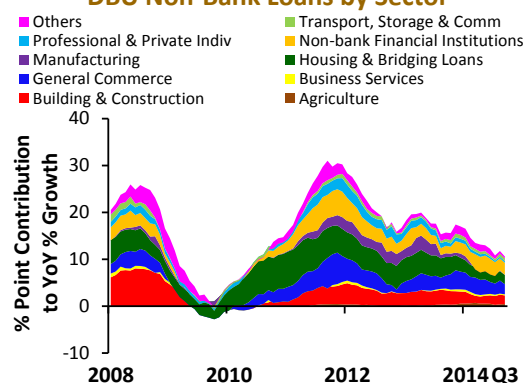


Chart 2.4.7

Banking System

Loan-To-Deposit Ratios

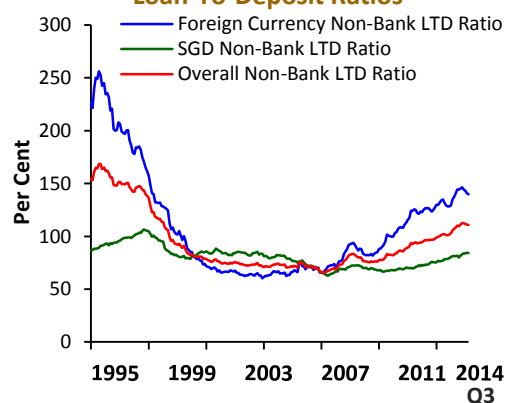
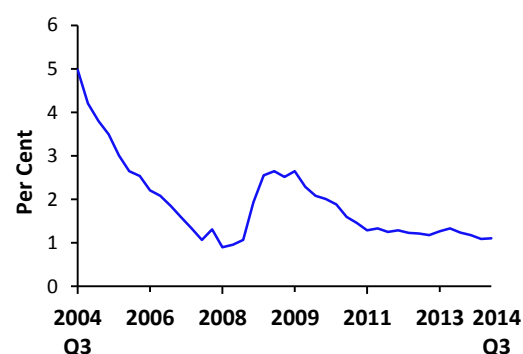


Chart 2.4.8

Overall NPL Ratio



Banks should maintain prudent provisioning practices. Due to a prolonged period of low and declining NPL levels, expectations of low NPLs could become entrenched in banks' risk assessments. While banks' total loan loss provisions have risen in tandem with loan growth, specific provisioning coverage is close to historical lows (Chart 2.4.9), reflective of current low NPL levels and high collateral values. A sharp downturn in the global economy or a reversal in interest rates could lead to an unexpected spike in NPLs even as the value of collateral declines. Banks should ensure their loan provisions are adequate and robust in stress.

Local banks' capital and funding remain resilient amid regional expansion

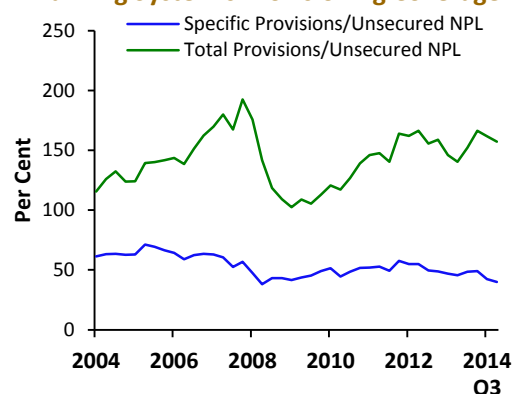
Local banks' earnings and net profit remained strong (Chart 2.4.10). This was underpinned by steadily rising net interest income due to expanding NIM (Chart 2.4.11), and growth in other income. However, rising competition for deposits could put pressure on NIM in the year ahead.

Local banks' capital positions remain well above MAS' and Basel III's regulatory requirements. Tier 1 CAR averaged 13.5% in Q3 2014 (Chart 2.4.12). Local banks are well-placed to meet fully loaded Basel III requirements.⁵⁶

Local banking groups' overall LTD ratio has remained steady at 85.7% in Q3 2014 (Chart 2.4.13). Their foreign currency LTD ratio declined since Q2 2013, with the USD LTD ratio falling below 100% (Chart 2.4.14) following measures taken by local banks to improve USD funding.

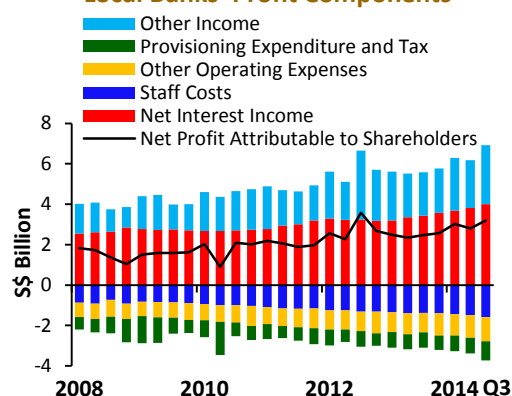
The asset quality of local banking groups has improved as the aggregate NPL ratio fell to an all-time low of 0.9% as of Q3 2014 (Chart 2.4.15). Local banks should continue to ensure that risk management keeps up with and is commensurate with shifts in business strategies, including an increase in cross-border exposures.⁵⁷

Chart 2.4.9
Banking System's Provisioning Coverage



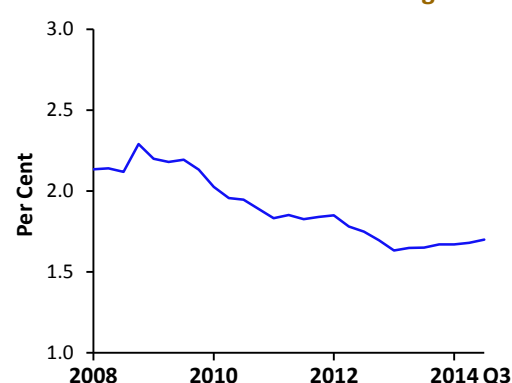
Source: MAS

Chart 2.4.10
Local Banks' Profit Components



Source: Local banks' financial statements

Chart 2.4.11
Local Banks' Net Interest Margin

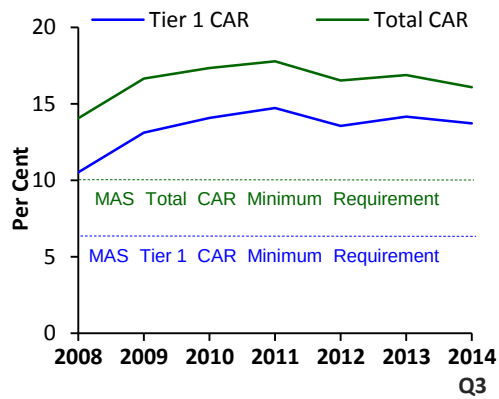


Source: Local banks' financial statements

⁵⁶ Fully implemented Basel III capital requirements in Singapore include minimum Common Equity Tier 1 (CET1) CAR of 6.5%, Tier 1 CAR of 8%, Total CAR of 10% and a Capital Conservation Buffer of 2.5% to be met with CET 1.

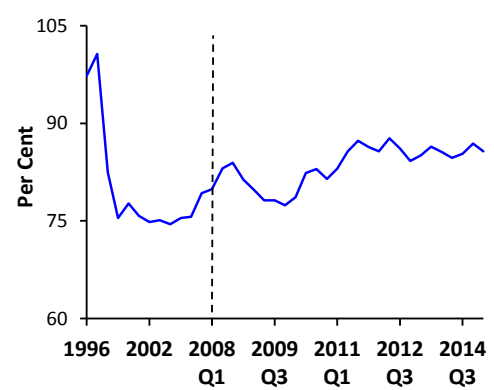
⁵⁷ In this regard, local banks have taken pains to provide greater transparency to shareholders and analysts on how they address counterparty, funding and liquidity risk related to trade finance and expansion into China.

Chart 2.4.12
Local Banks' CAR



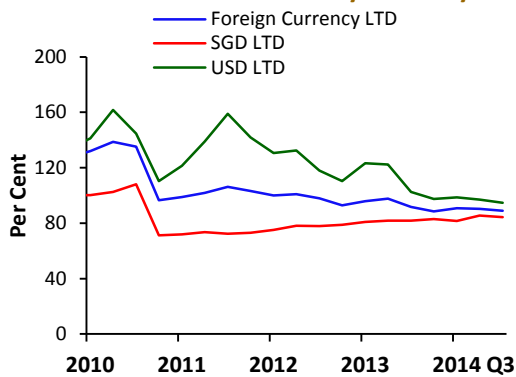
Source: Local banks' financial statements

Chart 2.4.13
Local Banks' Gross LTD Ratio



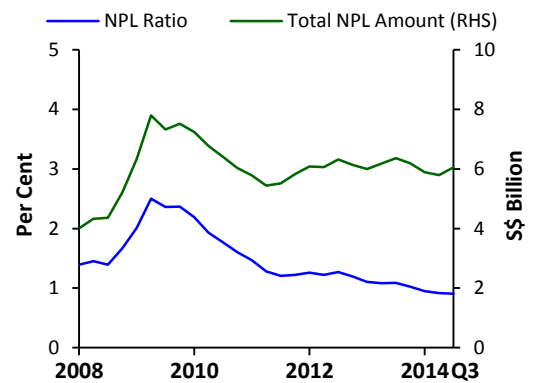
Source: Local banks' financial statements

Chart 2.4.14
Local Banks' LTD Ratios by Currency



Source: Local banks' financial statements

Chart 2.4.15
Local Banks' NPLs



Source: Local banks' financial statements

Box I

Funding Needs and Cross-Border Exposures of Singapore's Banking System: Financing the Domestic Economy and Beyond

As global monetary conditions continue to evolve, there are growing concerns that global liquidity could tighten, with consequent impact on the banking system. This box examines the funding needs and cross-border exposures of Singapore's banking system. We find that Singapore's banking system is self-sufficient in supporting domestic lending, as it is underpinned by strong domestic funding and is not reliant on external liquidity. As the pattern of cross-border credit intermediation evolves, Singapore banks would do well to carefully monitor their increasing exposures to emerging Asia.

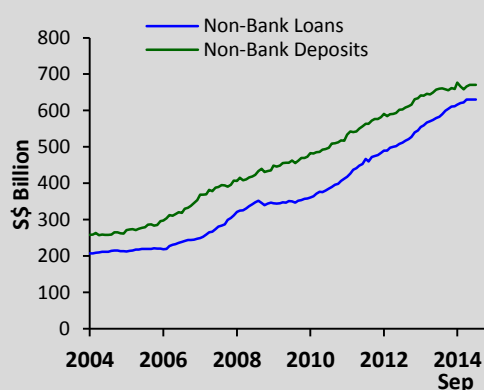
Singapore's banking system is self-sufficient in supporting domestic lending

Singapore's banking system has sufficient domestic non-bank funding to support domestic lending and does not rely on foreign liquidity (Chart I1). Underpinned by a healthy domestic funding position, the banking system would likely be able to continue lending to non-bank borrowers and support the Singapore economy, even if global financial conditions were to tighten suddenly.

Singapore is a net provider of funds to the rest of the world

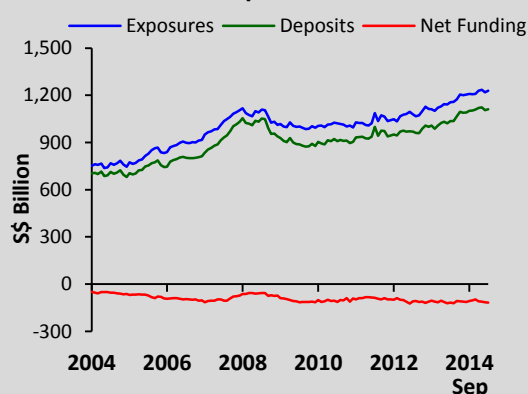
Singapore's banking system is a net provider of funds to the world. On average, about 90% of cross-border exposures are funded by cross-border deposits (Chart I2).⁵⁸ This gap arises because the banking system is able to channel surplus domestic deposits into cross-border loans and investments.

Chart I1
Domestic Non-bank Loans and Deposits



Source: MAS

Chart I2
Banking System's Cross-border Exposures and Deposits



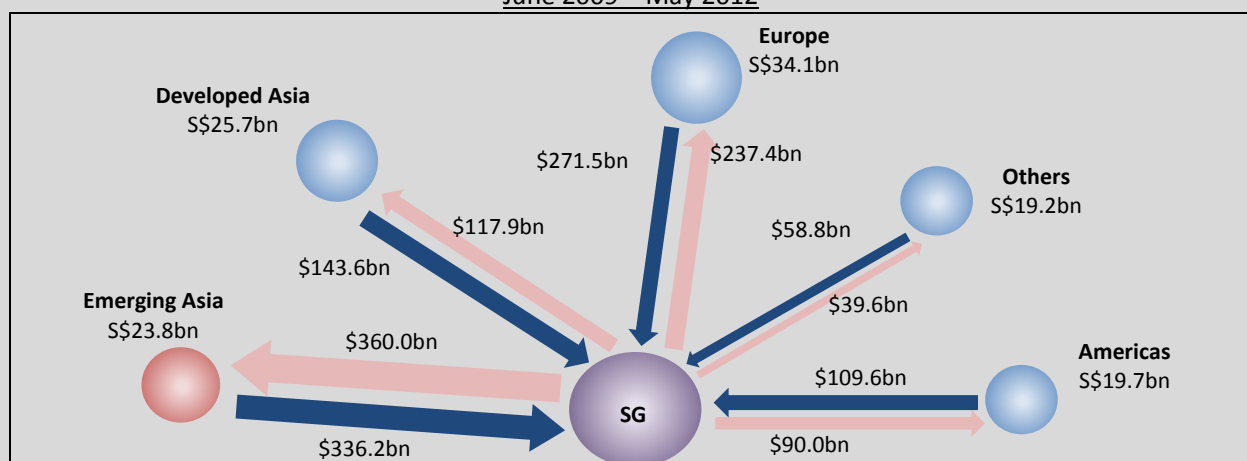
Source: MAS

The banking system channels funds from advanced economies to emerging Asia

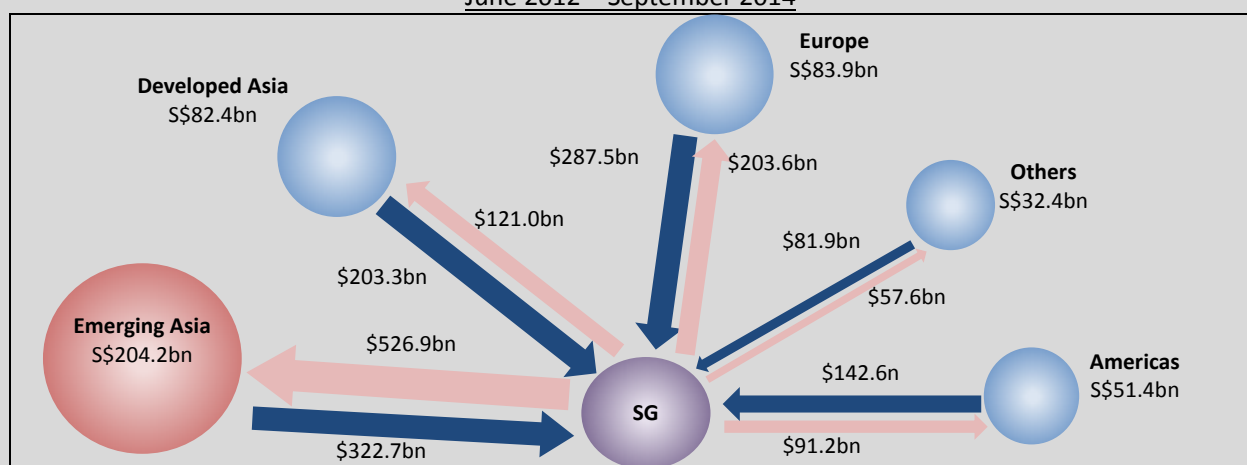
Since 2008, the banking system's role has evolved from being a net lender to advanced economies to being a conduit of funds to emerging Asia. This role has grown in recent years, with deposits from Europe, the Americas and developed Asia increasingly being channelled to emerging Asia (Figure I1). This shift in the pattern of cross-border credit intermediation could be attributed to stronger growth in emerging Asia relative to advanced economies in recent years, and the ongoing search for yield in the current low interest rate environment.

⁵⁸ Cross-border exposures are defined as the sum of cross-border interbank loans, non-bank loans and investments.

Figure I1
Fund Flows to and from External Sources
 June 2009 – May 2012



June 2012 – September 2014



Source: MAS

Note: Amount shown at a blue (red) arrow refers to the average monthly gross inflow from (gross outflow to) the specific region, with the width of the arrow corresponding to the amount. Amount shown at a node refers to the average monthly net fund flows from or to the region, with the colour of the bubble indicating whether the region is a net borrower (red) from or a net depositor (blue) with banks in Singapore, and the size of the bubble corresponding to the amount.

Banks in Singapore need to monitor risks from increased financial linkages with emerging Asia

Singapore's financial linkages with emerging Asia have multiplied, with the region accounting for more than half of the banking system's cross-border exposures. While emerging Asia has become more resilient to external shocks following the Asian Financial Crisis and emerged relatively unscathed from the GFC, the region is not without risks.

MAS' most recent IWST included a stress scenario based on a disorderly market adjustment to policy normalisation in the US. The results showed that credit losses from emerging Asia are slightly higher than those from other regions in the event of a sharp increase in interest rates and an economic slowdown, although banks' cross-border exposures on the whole remain relatively healthy.

Growth in emerging Asia has slowed in recent quarters and could face further challenges amid more volatile external conditions. Banks in Singapore need to carefully monitor the risks arising from their increased cross-border exposures to the region. MAS will also remain vigilant in its cross-border surveillance as global monetary conditions continue to evolve.

Box J**Funding Liquidity in Singapore's Banking System: Making Sense from Different Perspectives**

This box describes the potential liquidity risks to Singapore's banking system and factors which could mitigate such risks. Driven by foreign currency loans, Singapore's overall LTD ratio, a measure of liquidity in the banking system, has exceeded 100% since 2013. This reflects Singapore's role as an international financial centre in intermediating fund flows to the region. The potential liquidity risks from such activities are partly mitigated by the banks' access to intragroup funding and the short-term nature of a significant portion of their loans. MAS' stress tests also indicate that banks' liquidity positions are likely to remain resilient even under conditions of severe stress.

Overall LTD ratio is driven by foreign currency loans

Since 2013, Singapore's overall LTD ratio has remained above 100%, which indicates that total non-bank loans exceed total non-bank deposits. This trend has been driven by the foreign currency LTD ratio, which was 140% as at September 2014. In contrast, the SGD LTD ratio has remained below 100%, indicating that SGD deposits are more than sufficient to meet the borrowing needs of Singapore corporates and households in the local currency.

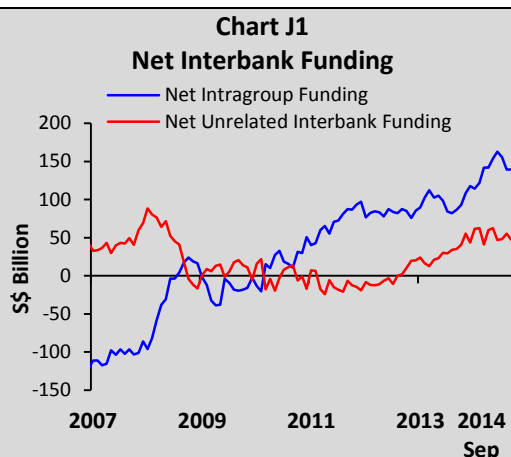
The higher foreign currency LTD ratio is a consequence of Singapore's role as an international financial centre. Singapore's banking system extends credit to the region to support trade and growth, mostly in the form of foreign currency-denominated non-bank loans. Additionally, foreign banks use Singapore as a funding hub, funding these loans to the region through intragroup deposits from their head office or other related banks outside Singapore. Such loans therefore contribute to the higher foreign currency LTD ratio as intragroup deposits are not included in LTD calculations.

Liquidity stresses could be mitigated by net intragroup funding and short-term trade finance

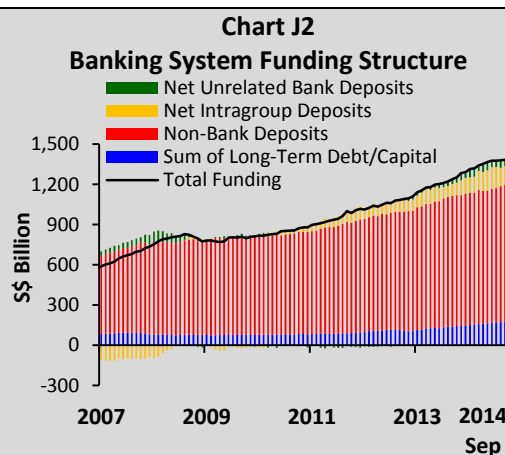
Intragroup funding could partly mitigate potential liquidity squeezes during periods of heightened risk. During the GFC, while net unrelated interbank funding fell by nearly S\$100 billion from peak to trough, net intragroup funding increased by similar amounts (Chart J1), implying that banks substituted intragroup funding for unrelated interbank funding when the latter became unavailable. Indeed, net intragroup funding has increasingly played a more significant role in the banking system's funding structure (Chart J2), accounting for 10.1% of total funding as at September 2014.

However, intragroup funding can pose additional liquidity risks to the banking system under certain circumstances. While intragroup funding reduces counterparty risk, an event that leaves a bank unable to access head office funding could stress its liquidity position.⁵⁹ To mitigate the risk of such an event, MAS assesses whether the head offices of foreign banks are able and willing to support their branches in Singapore. This includes regular reviews of the liquidity profiles of foreign banks' head offices and ongoing interactions with their home regulators.

⁵⁹ Related parties are less likely to unexpectedly withdraw funding compared to unrelated counterparties.



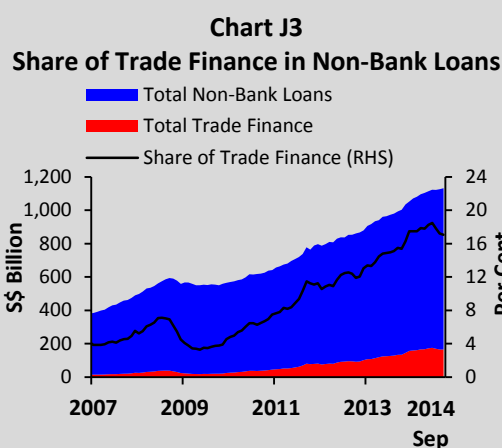
Source: MAS



Source: MAS

Another mitigating factor is that trade finance accounts for a significant portion (17.0% as at September 2014) of the non-bank loans extended by the banking system (Chart J3). Trade finance facilities are generally short-term with tenures of less than a year. The shorter tenure of trade finance facilities reduces the potential for tenure mismatches where long term assets are funded by short-term liabilities.

Under liquidity stress, banks could allow a portion of their trade finance portfolio to mature. In addition, trade finance facilities are self-liquidating. This allows banks to better control the pace of deleveraging instead of doing so abruptly, which could disrupt the flow of credit.



Source: MAS

Note: In this box, bills discounted are used as a proxy for trade finance.

MAS takes a comprehensive approach to monitoring banks' liquidity risk profiles

Liquidity risk is regularly and explicitly assessed under the Comprehensive Risk Assessment Framework and Techniques (CRAFT), MAS' risk assessment framework for FIs. MAS considers multiple factors when assessing banks' liquidity risk profiles. Besides monitoring LTD ratios, MAS reviews other quantitative indicators such as banks' funding structures and tenure mismatches. MAS will also be implementing the LCR along the timeline prescribed by the Basel Committee on Banking Supervision (BCBS). The various indicators allow supervisors to identify potential sources of liquidity stress. As described above, MAS monitors the ability and willingness of head offices to support their branches in Singapore. Liquidity risk is also considered along with other risk types as it does not always occur in isolation.

In addition, MAS regularly stress tests banks' liquidity positions as part of its annual IWSST. The most recent stress test results indicate that banks' liquidity positions are likely to remain resilient even under conditions of severe stress. Nevertheless, banks that had assumed the availability of interbank/intragroup funding or swap market liquidity under stressed scenarios, faced vulnerabilities if these sources were not available. Following the IWSST, these banks are now able to refine their liquidity contingency plans to better manage stress situations where these funding sources become unavailable.

MAS will continue to be vigilant in monitoring liquidity in the banking system, refining both quantitative and qualitative indicators as necessary to identify and mitigate liquidity risks.

2.5 Non-Bank Financial Sector

2.5.1 Insurance Sector

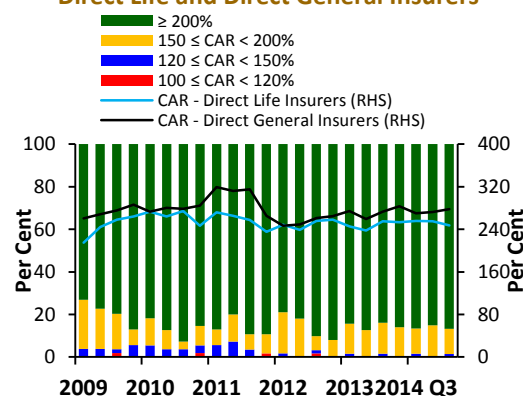
The insurance industry remains well-capitalised, with strong investment income and underwriting profits

The insurance industry in Singapore remains well-capitalised. As at Q3 2014, more than 80% of insurers have CAR of above 200%, well above the regulatory minimum of 120%. The average CAR for the direct life and direct general insurance industry are 248% and 278% respectively (Chart 2.5.1.1).

New business premiums of the direct life insurance industry amounted to \$2.46 billion in the first three quarters of 2014, a 3.6% decrease as compared to the corresponding period last year. The reduction in premiums was largely attributable to a drop in non-participating whole life and endowment products sold. New premiums for participating and non-participating business dropped 2.4% y-o-y and 10.2% y-o-y respectively.⁶⁰ In contrast, there was a healthy growth of 9.1% y-o-y in new business premiums related to investment-linked policies (Chart 2.5.1.2).

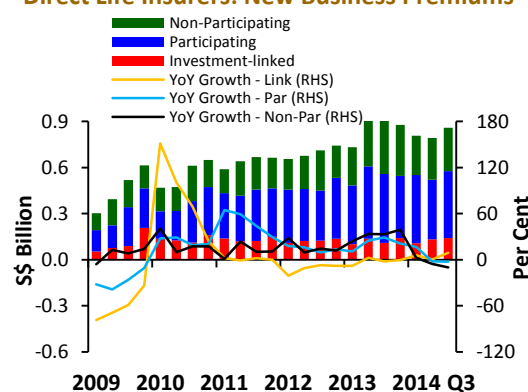
Despite a slight fall in new business premiums, direct life insurers' net income improved significantly to \$1.4 billion for the first three quarters of 2014, mainly attributable to the investment profits reported (Chart 2.5.1.3). As a result of an overall rise in equity prices and slight drops in longer-term bond yields, unrealised profits as well as dividend/interest income from debt and equity securities contributed to the growth of investment profits. Volatility in net income observed over the quarters largely mirrors the volatility in investment income as assets are valued on a mark-to-market basis.

Chart 2.5.1.1
Capital Adequacy Ratio of
Direct Life and Direct General Insurers



Source: MAS

Chart 2.5.1.2
Direct Life Insurers: New Business Premiums



Source: MAS

Note: Refer to footnote 60.

⁶⁰ In this section, y-o-y % growth is defined as the growth rate of the cumulative quarters for the year. For example, y-o-y % growth as at Q3 2014 should be interpreted as the increase in new business premiums from the first three quarters of 2013 to the first three quarters of 2014.

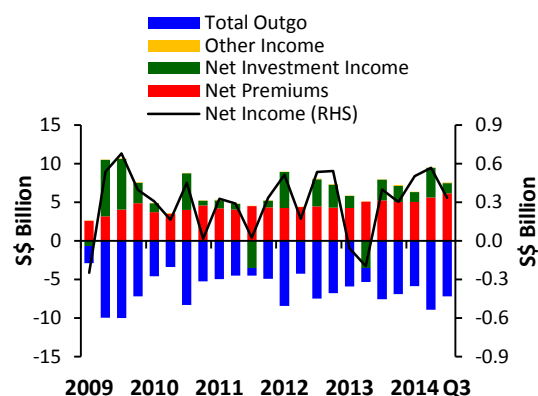
The general insurance sector saw healthy business growth for both the Singapore and Offshore Insurance Funds (SIF and OIF respectively). Gross premiums for direct general insurers' SIF and OIF in Q1-Q3 2014 grew by 3% y-o-y and 14.1% y-o-y respectively (Chart 2.5.1.4). Fire/property and motor insurance continued to be the top two lines of business, accounting for 28.2% and 19.2% of total direct general insurance premiums respectively. Gross premiums for general reinsurers also grew by 1.4% y-o-y and 9.4% y-o-y for their SIF and OIF respectively, with OIF business accounting for 94% of the total general reinsurance premiums.

General insurers achieved underwriting profits for the first three quarters of the year, even though profits fell compared to the corresponding period in 2013. Direct general insurers' underwriting profits dropped by 66% y-o-y to \$207 million, largely due to losses from OIF Marine & Aviation Cargo, OIF Property and SIF Marine Hull & Liabilities business (Chart 2.5.1.5). General reinsurers' underwriting gains also dropped by 35% to \$495 million in 2014 as a result of losses from OIF Casualty and Marine Hull & Liabilities business. In terms of investment performance, both direct general insurers' and reinsurers' investment income improved in 2014, reporting profits of \$186 million and \$353 million respectively. Similar to direct life insurers, the investment profits were largely attributable to unrealised profits and interest/dividend income from their debt and equity investments.

Uncertainties in US monetary policy normalisation and a soft reinsurance market pose short-term investment and underwriting risks for insurers

Globally, there is concern that insurers may invest in higher-yielding riskier assets under the current low investment rate environment. However, we note that insurers in Singapore remain prudent in their investment portfolios, with no significant shifts to riskier assets. Due to the nature of insurance liabilities, insurers tend to invest in assets with long durations (particularly life insurers) or assets which can be easily

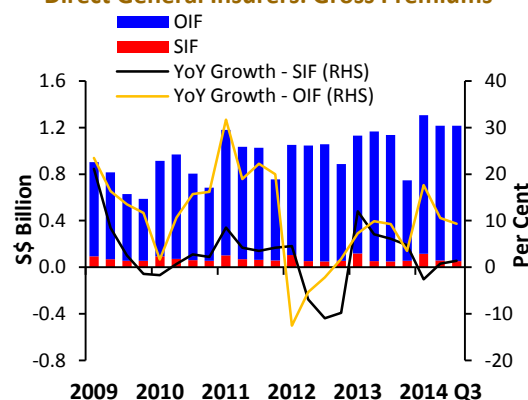
Chart 2.5.1.3
Direct Life Insurers' Net Income By Source



Source: MAS

Note: Total Outgo = Net Premiums + Net Investment Income + Other Income - Net Income. Items under Total Outgo include net claims settled, increase/decrease in policy liabilities, expenses, etc.

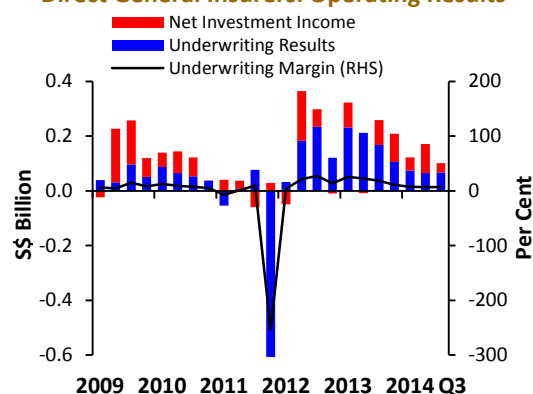
Chart 2.5.1.4
Direct General Insurers: Gross Premiums



Source: MAS

Note: Refer to footnote 60.

Chart 2.5.1.5
Direct General Insurers: Operating Results



Source: MAS

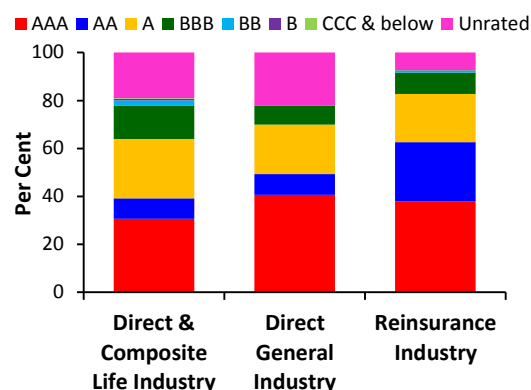
Note: The chart is truncated at -\$600 million. The underwriting loss and underwriting margin was \$2.1 billion and -254% in Q4 2011, respectively.

liquidated (particularly general insurers). Insurers hold most of their assets in corporate debt, government securities and equities, in addition to cash and deposits. Around 80% of the debt holdings are in investment-grade securities, followed by unrated debt securities, which are mostly issued by Singapore Statutory Boards (Chart 2.5.1.6). More than 80% of insurers' sovereign debt holdings are in SGS and US Treasury bills/bonds (Chart 2.5.1.7). Insurers' equity holdings are also not overly concentrated in any particular industry, and are largely Singapore-issued stocks.

Uncertainties surrounding US monetary policy normalisation could pose some short-term risks to insurers' investment performance and balance sheets, especially for life insurers. Life insurers tend to hold longer-duration fixed-income securities to match their longer-term liabilities. A rapidly rising interest rate will result in reduction in the mark-to-market value of insurers' fixed-income investments. There could also be an increase in policy surrenders from policyholders searching for higher yield from the capital markets. However, a persistent higher interest rate will improve insurers' balance sheets over the longer term, as insurers can benefit from higher coupon income from new fixed income assets. In addition, insurers' liabilities will be discounted at a higher interest rate, which will reduce their liabilities and improve their balance sheets.

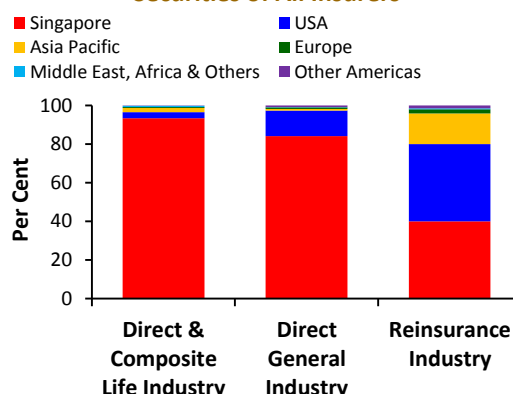
Looking ahead, a softening market may continue to pose a challenge to the reinsurance industry globally. The increasing availability of alternative capital from sources such as pension and private equity funds, and the recent absence of large losses have built up underwriting capacity in the reinsurance market. In addition, sluggish demand from reinsurance buyers is being observed as cedants are increasingly retaining more risks and purchasing reinsurance on a more global operational and centralised approach. Reinsurers should continue to be prudent in managing their underwriting risks in the face of soft market conditions.

Chart 2.5.1.6
Credit Rating Profile of Debt Securities of All Insurers



Source: MAS

Chart 2.5.1.7
Country Exposure of Government Debt Securities of All Insurers



Source: MAS

2.5.2 Capital Markets Sector

Capital market intermediaries continue to maintain stable financial positions as capital markets remain sound

MAS monitors the financial strength of capital market intermediaries and maintains close engagement with exchanges and clearing houses which are responsible for frontline oversight of their members. Securities and derivatives members of the Singapore Exchange (SGX) have maintained adequate financial resources to meet regulatory requirements and their financial obligations to SGX, and remain vigilant in monitoring customer exposures.

In August 2014, MAS introduced proposals to further enhance the market structure and practices of Singapore's securities markets to promote fair, orderly and transparent trading. These proposals, which include introducing a minimum collateral requirement for trading of listed securities, will further strengthen credit risk management practices in the industry and promote prudent investing among investors.

Fund management companies have transitioned to the enhanced regulatory regime

Assets under management (AUM) by fund managers in Singapore grew 11.8% y-o-y to \$1.82 trillion as at end-2013. From 2011 to 2013, the Singapore fund management industry recorded an average AUM growth of 10.7%, amid global and domestic regulatory reforms aimed at strengthening the regulatory oversight of funds and fund managers.

Following the abolishment of the exemption regime for fund managers in August 2012, more than 350 former exempt fund managers have been granted approval to operate as licensed or registered fund managers as of end-August 2014. With the completion of the transition process for these fund managers, MAS is stepping up our on-going supervision and inspection programs to keep pace with developments both globally and in Singapore.

As the industry grows, MAS will continue to monitor the risks associated with the activities of fund managers operating in Singapore. In September 2014, MAS conducted a survey of hedge fund managers in Singapore. The survey served to better inform MAS of the profile and footprint of hedge funds being managed out of Singapore.

Reforms to domestic over-the-counter (OTC) derivatives market are underway

MAS remains fully committed to fulfilling the G20 and FSB reforms to the OTC derivatives markets. In October 2013, MAS began its implementation of mandatory trade reporting of OTC derivatives, starting with interest rate and credit derivatives contracts. All banks began mandatory reporting of such derivatives contracts from 1 April 2014 to DTCC Data Repository (Singapore) Pte Ltd, a trade repository licensed by the MAS. Reporting by other types of entities – non-bank FIs and significant derivatives holders – followed in stages. Reporting of foreign exchange derivatives contracts booked in Singapore is slated to begin on 1 May 2015 for banks, and MAS will consult on the phasing in of mandatory reporting of the remaining classes of OTC derivatives contracts subsequently.

On mandatory central clearing, MAS will be consulting on the detailed regulations for implementation in the coming months. With the growing use and concentration of risks in central counterparties (CCPs), concerns that CCPs may have become the new “too-big-to-fail” have arisen. To address these concerns and ensure the continued rigor of risk management standards on CCPs, the Committee on Payments and Market Infrastructures (CPMI, formerly the Committee on Payments and Settlement Systems (CPSS)) and the International Organisation of Securities Commissions (IOSCO) in April 2012 established international risk management standards for systemically important financial market infrastructures, including CCPs.

MAS adopted the CPSS-IOSCO Principles for Financial Market Infrastructures (PFMI) as part of its supervisory objectives and approach in January 2013, and has applied it to the domestic systemically-important CCPs regulated by MAS. Both domestic systemically-important CCPs, The Central Depository (Pte) Limited (CDP) and Singapore Exchange Derivatives Clearing Limited (SGX-DC), were assessed against the PFMI as part of the IMF’s Financial Sector Assessment Programme (FSAP) in November 2013. Both CCPs were assessed to have high compliance with international standards, and were rated “Observed” for all but one principle (which was rated as “Broadly Observed”).

MAS is in the process of studying margin requirements for non-centrally cleared OTC derivatives, taking guidance from the BCBS and IOSCO framework published in September 2013. The requirements aim to reduce counterparty credit risk and limit contagion risk for such contracts. Alongside the work on margin requirements, IOSCO formed a Working Group on Risk Mitigation Requirements (WGRMS), chaired by MAS, to develop standards on risk mitigation techniques, including documentation, confirmation, portfolio reconciliation and compression, valuation and dispute resolution. The WGRMS has published a consultation report on the proposed standards. MAS intends to adopt requirements in line with the final recommendations issued by the WGRMS.

MAS continues to review other aspects of our OTC derivatives regulatory regime, including the regulation of intermediaries dealing in OTC derivatives and of OTC derivatives market operators, and is committed to implement a sound and effective regulatory framework that is well-placed to facilitate and achieve the objectives of the G20 and FSB OTC derivatives reforms.

Box K

Re-examining the Systemic Risks Posed by S-REITs

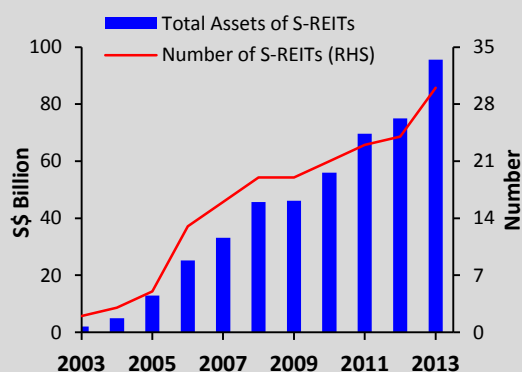
S-REITs successfully weathered the refinancing difficulties encountered during the GFC, in part due to policy measures taken by MAS and SGX to facilitate secondary fund raising.⁶¹ Post-GFC, the S-REIT sector has rebounded strongly. S-REITs have grown faster than the global REIT sector, and currently account for a larger share of SGX market capitalisation and turnover than in 2009. This box examines the leverage and funding risks faced by S-REITs today, and assesses the systemic risks they pose.

S-REITs have experienced strong growth

In the low interest rate environment post-GFC, S-REITs have been seen as an attractive investment and an important source of funding for the property sector. There were 30 S-REITs as at end-2013, compared to 16 in 2007. Between 2007 and 2013, the total assets of S-REITs grew 19.3% per annum (Chart K1), far outpacing the 7.0% per annum growth in real estate trusts and funds globally.⁶²

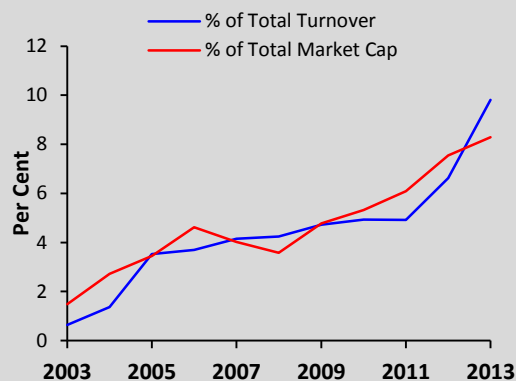
The strong growth of S-REITs has increased significance in Singapore's financial sector. In 2013, S-REITs accounted for 8.3% of market capitalisation and 9.8% of market turnover on the SGX, up from 4.8% and 4.7% respectively in 2009 (Chart K2). The rising significance of the S-REIT sector was due to more S-REIT IPOs as well as higher property valuations (Chart K3). Commercial and industrial rents have also risen, contributing to S-REITs' earnings and appeal to investors (Chart K4).

Chart K1
Growth of S-REITs



Source: Bloomberg

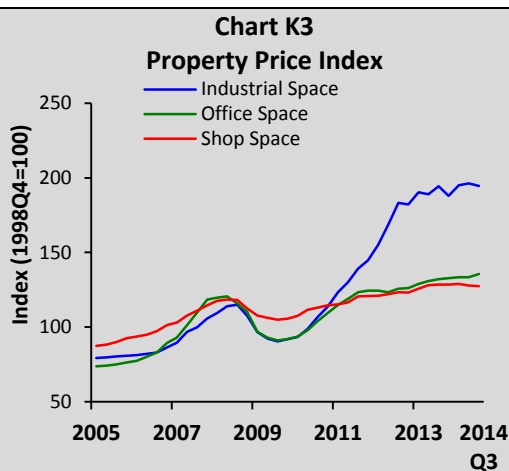
Chart K2
S-REIT sector as a Percentage of SGX



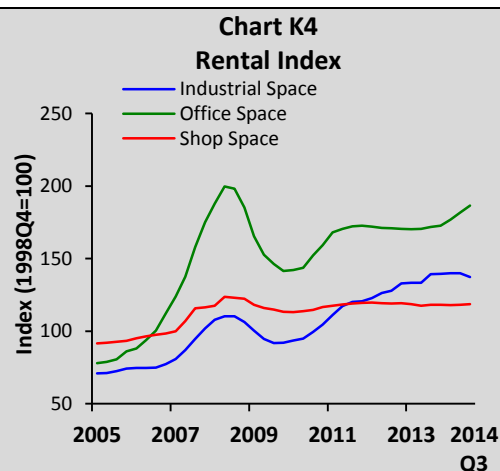
Source: Bloomberg

⁶¹ Box H in the 2009 FSR featured a case study on corporate refinancing of S-REITs during the GFC. <http://www.mas.gov.sg/~media/MAS/Regulations%20and%20Financial%20Stability/Financial%20Stability/FSR%202009.pdf>.

⁶² The data is obtained from FSB's 2014 shadow banking monitoring exercise. In this exercise, the FSB considers REITs under the broader category of real estate trusts and funds.



Source: URA, JTC



Source: URA, JTC, IRAS

S-REITs today are more resilient to funding shocks

S-REITs experienced refinancing pressure during the GFC when approximately one-third of their debt matured within the same year in 2009 (See Box H in FSR 2009). S-REITs have since taken steps to improve their resilience to funding shocks, through better management of overall leverage and debt maturity.

Most S-REITs are well under the leverage limit set out in the Singapore Code of Collective Investment Schemes (CIS Code).⁶³ In 2013, rated S-REITs had a median leverage ratio of 35% while unrated S-REITs had a median leverage ratio of 29%. The weighted-average debt maturity of the S-REIT sector has increased to 3.2 years, from 2.1 years at the end of 2008. The overall debt maturity profile has improved, with maturities spread out over a longer period (Chart K5).⁶⁴

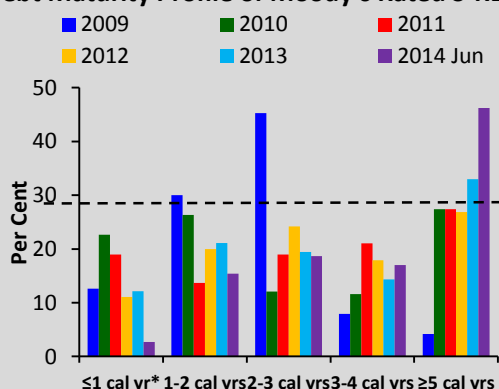
To hedge against the risk of rising interest rates, S-REITs have used derivatives to convert their floating-rate borrowings to fixed rates. While the median interest coverage ratio for the S-REIT sector declined to 2.7 times in Q4 2008, stress test results indicate that S-REITs are currently well placed to weather interest rate hikes. Under a stress scenario of a 3 percentage point increase in interest rates and 10% fall in EBITDA, the sector's median interest coverage ratio would still be relatively healthy at 3.6 times (Chart K6).⁶⁵

⁶³ The CIS Code currently restricts S-REITs to a maximum leverage ratio (total borrowings and deferred payments over fund's deposited property) of 35% if the S-REIT does not have a credit rating and 60% if the S-REIT is rated.

⁶⁴ This graph is obtained from a Moody's report and only applies to 14 S-REITs.

⁶⁵ During the period when S-REITs faced refinancing difficulties in H2 2008, the rental index for office space declined by 7%, industrial space declined by 4% and shop space by 1%.

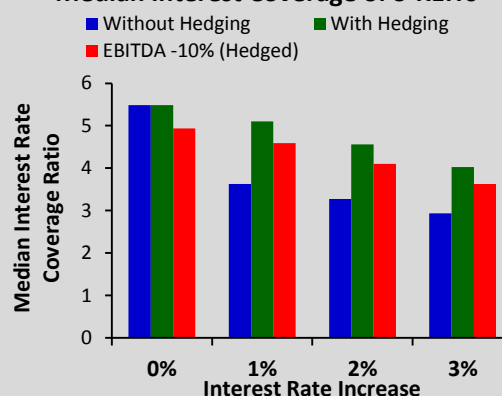
Chart K5
Debt Maturity Profile of Moody's Rated S-REITs



Source: Moody's

*"cal yr" refers to "calendar year"

Chart K6
Median Interest Coverage of S-REITs



Source: Annual Reports, MAS Analysis

S-REITs are not shadow banking entities, but may pose systemic risks to the financial system

The CIS Code requires S-REITs to invest primarily in physical real estate.⁶⁶ S-REITs therefore do not fall within the FSB's definition of shadow banking as they do not perform credit intermediation.

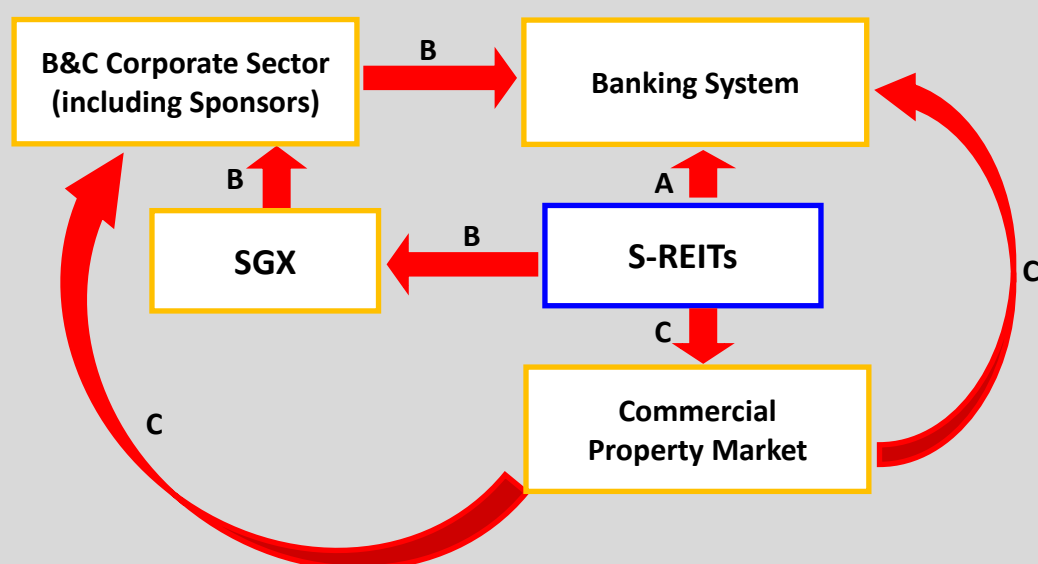
Nonetheless, S-REITs can be a source of systemic risk. This is because they invest in properties, which generally have longer holding periods and are significantly less liquid than S-REITs' sources of funding.

To assess the systemic risks posed by S-REITs, it is important to understand the potential transmission channels (Figure K1). A stress on the S-REIT sector could directly impact the banking system if S-REITs default on their borrowings (Figure K1, Arrow A). A shock that impacts S-REITs' ability to pay dividends or put downward pressure on property prices may cause their market capitalisation to fall. Falling unit prices or dividends may affect the financial standing of S-REIT investors, and in turn their ability to meet other financial obligations such as loan repayments. A key group of investors would be S-REIT sponsors as they typically retain significant stakes in their REITs (Figure K1, Arrows B).

Stresses which force S-REITs to liquidate their assets may put downward pressure on property prices. S-REITs may need to do so to raise cash if rental incomes weaken due to an economic downturn. Falling property prices could have downstream implications for firms in the building and construction sector, which could face revenue and cash flow difficulties if the value of their projects decline. A depressed property market could also lead to a negative feedback loop if S-REITs have loan covenants tied to property values, e.g. where a decline in the value of an S-REIT's property holdings would lead to lending banks requesting for collateral top-ups (Figure K1, Arrows C).

⁶⁶ This is unlike REITs in some other markets which can invest in non-physical assets including property loans.

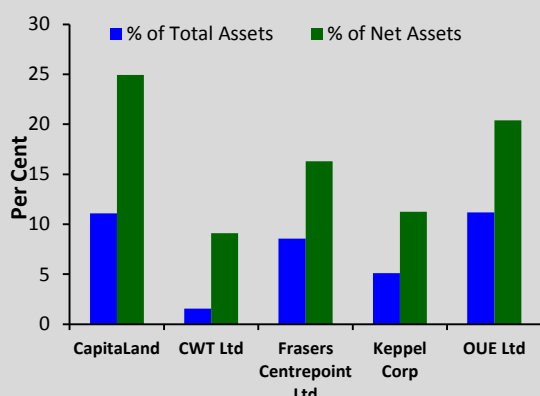
Figure K1
Transmission Channels of S-REITs



Direct exposures of the banking system to S-REITs are small while indirect exposures are relatively well mitigated

Applying the above framework, we assess that S-REITs do not currently pose significant systemic risk to the financial system. Bank loans to S-REITs are less than 3% of total non-bank lending. The risk of indirect spill-overs through S-REIT sponsors is low as the major sponsors have healthy balance sheets and their investments in S-REITs represent only a small share of their total assets (Chart K7).

Chart K7
S-REITs' Assets as Percentage of Sponsors' Assets



Source: Annual Reports, Bloomberg

While S-REITs are better placed to withstand funding shocks, their growing systemic importance bears monitoring

S-REITs are better placed to withstand funding shocks today than during the GFC period, largely due to better debt management. While the rapid growth of the S-REIT sector may raise systemic risk concerns due to the increased linkages of S-REITs with other parts of the financial system and the economy, risks to the banking system remain well contained. MAS will continue to monitor the resilience of the S-REIT sector, together with its potential as a source of systemic risk.

Box L

Innovative Financial Products: CoCos and Unconventional Lending

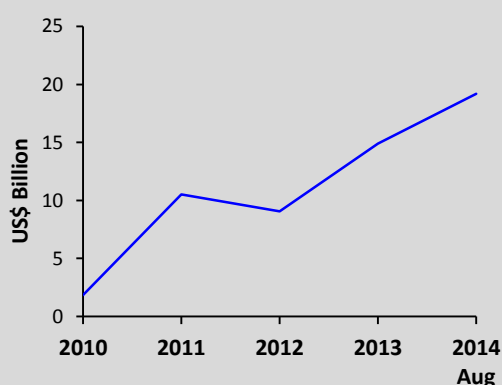
Some innovative financial products have emerged post-GFC in response to investor demand for alternative assets in a low interest rate environment. The regulatory push for banks to rebuild capital positions with instruments that must meet new requirements under Basel III, together with technological advancements, has also catalysed the creation of new products. These innovative products introduce new risks into the financial system. If these risks are not well understood and mitigated, they could build up over time and threaten financial stability. This box looks at two such innovative products: contingent convertible capital securities (CoCos), and unconventional lending.⁶⁷

Global issuance of CoCos has grown with the introduction of Basel III capital requirements

CoCos are hybrid capital instruments that may undergo a principal write-down or be converted to equity under specified circumstances.⁶⁸ Investors generally receive higher yields on CoCos than on senior debt, since CoCos carry the risk of write-down or conversion.

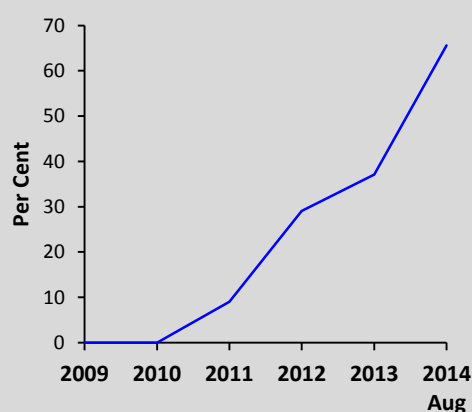
CoCo issuance increased from US\$1.9 billion in 2010 to US\$19.2 billion in the first eight months of 2014 (Chart L1), with about 93% of the 2014 issuances accounted for by Europe. The increase has been driven primarily by the issuance of CoCos which qualify as regulatory capital under the Basel III capital framework (Chart L2). To qualify as regulatory capital under Basel III, such instruments must be able to absorb losses at the Point of Non-Viability (PONV) – a trigger point determined by regulators.

Chart L1
CoCo Issuance⁶⁹



Source: Bloomberg, Dealogic, MAS estimates

Chart L2
Proportion of CoCo Issuance that Qualify as
Regulatory Capital under Basel III



Source: Bloomberg, MAS estimates

⁶⁷ Unconventional lending refers to lending by credit providers outside of the banking system. In this box, we consider two forms of unconventional lending – security-based crowdfunding and direct lending funds.

⁶⁸ For the purpose of Box L, the term “CoCos” includes regulatory capital instruments which contain loss absorption features at the PONV.

⁶⁹ This refers specifically to bank-issued CoCos, i.e. does not include those issued by insurance companies, non-bank financial institutions or corporates.

There are risks associated with the pricing and holding of CoCos

CoCos are complex instruments with structures that often differ across issuances, in terms of trigger levels and loss absorption mechanisms. CoCos can be easily mispriced due to uncertainties in three areas: regulators' discretion in establishing when PONV has been reached, behaviour of the securities upon conversion, and the amount of losses that holders of CoCos would suffer when they are triggered.

In particular, as CoCos are relatively new instruments, there is considerable uncertainty over how investors will behave and thus how prices will behave during periods of stress and high market volatility. For example, there is concern whether investors who hold CoCos that convert to equity upon activation of the trigger would front-run the trigger by short-selling bank shares, thereby putting pressure on banks' share prices. Existing shareholders may also rush to sell their stakes in anticipation of subsequent dilution of their holdings. Such market dynamics may reduce the effect of CoCos on bank recapitalisation and negatively impact investor confidence.

Singapore banks have issued small amounts of CoCos, but risks are mitigated

The three local banks are well-capitalised. Nonetheless, all of them have issued small amounts (\$6.2 billion) of CoCos with a PONV feature.⁷⁰

There are mitigants in place to address the risks associated with local banks' CoCo issuance and investment. The local banks have issued CoCos only to accredited and institutional investors, such as private banks, fund managers, insurance companies, public sector entities, etc. These investors would generally be in a better position to assess the features and risks of the new instruments. There are also rules in place to discourage the local banks from investing excessively in CoCos issued by other banks, which would increase interconnectedness and the risk of contagion in a crisis. These include rules that require banks to deduct from their own regulatory capital any investment in the regulatory capital instruments of another bank. In addition, MAS' large exposure limits prohibit a bank from holding exposures to a single counterparty that represent more than 25% of its capital.

Unconventional lending has evolved to address gaps in the traditional bank lending market

Another new product that has evolved following the GFC is unconventional lending. Security-based crowdfunding and direct lending funds are two forms of unconventional lending.

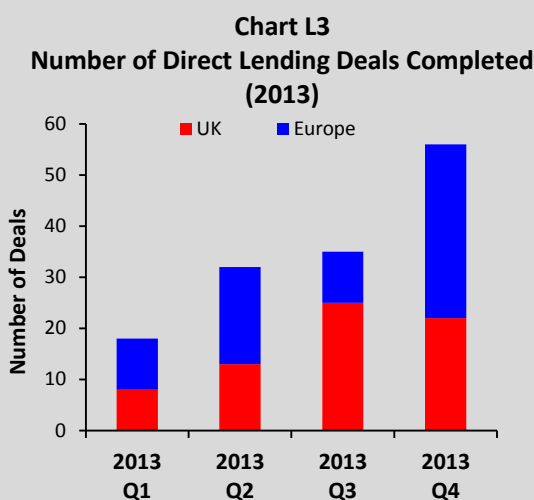
Security-based crowdfunding, which refers to debt-based and equity-based crowdfunding, has grown rapidly in the last five years, and is now estimated to be approximately US\$6.4 billion globally.⁷¹ The phenomenon is driven by web-based intermediaries who are able to operate with lower overhead costs than traditional FIs. Their internet-enabled business models also provide an alternative form of financing to entrepreneurs and small businesses, by matching them online with individual lenders looking for higher yield and willing to take on risks shunned by banks.

Direct lending funds first emerged after the US savings and loan crisis in the late 1980s and early 1990s, when banks reduced credit to corporates. Similarly, banks in the Euro zone and the UK have cut their corporate loan books post-GFC to repair their balance sheets and comply with Basel III requirements. Direct lending

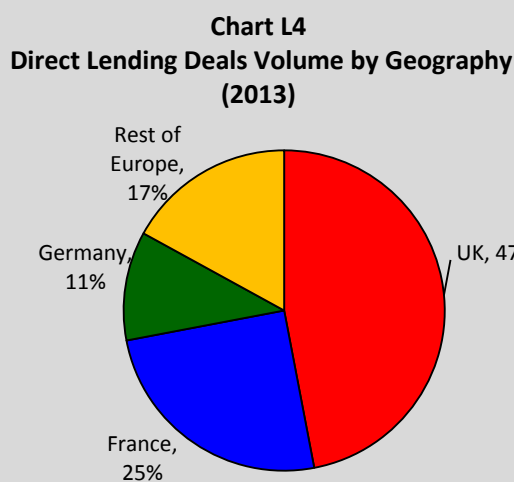
⁷⁰ DBS has issued additional Tier 1 (AT1) capital instruments with the PONV feature, OCBC has issued Tier 2 capital instruments with the PONV feature while UOB has issued both Additional Tier 1 and Tier 2 capital instruments with the PONV feature.

⁷¹ Eleanor Kirby and Shane Worner (February 2014), "Crowdfunding: An Infant Industry Growing Fast", an IOSCO staff working paper.

players have stepped in to provide alternative financing, with funds from institutional and accredited investors. The number of deals has experienced significant growth in 2013 (Chart L3), with the UK, France and Germany accounting for 83% of deal volumes in Europe (Chart L4). In comparison to security-based crowdfunding, the direct lending market is much larger, with several announced funds in the region of billions of US dollars each.⁷²



Source: Deloitte



Source: Deloitte

Presence of credit and liquidity risks in unconventional lending

Credit risks in unconventional lending are amplified by information asymmetries. For instance, debt-based crowdfunding intermediaries may not have the requisite expertise to accurately assess credit risks. Alternative credit rating models, such as those based on investor reviews, have not been implemented effectively thus far. For direct lending, large and experienced firms usually have professional credit teams but smaller players may not have the capabilities to build such expertise. In most jurisdictions, direct lending funds are not required to hold capital, hence their ability to weather losses may be weaker compared to banks if there is insufficient provision.

In the area of liquidity risks, some debt-based crowdfunding sites facilitate a secondary market for lenders, though this is not prevalent yet. Direct lending funds face significant liquidity risks as loans are inherently illiquid. Hence, most direct lending funds subject investors to lock-up periods, so as to mitigate liquidity risks. In addition, the failure of a crowdfunding site or direct lending fund might lead to contagion if there are strong linkages with the traditional banking system. Such interconnectedness is low at the moment, as these entities have not employed significant bank leverage, based on anecdotal evidence and industry feedback.

Emergence of security-based crowdfunding

The Singapore government is studying the potential of crowdfunding as an alternative source of funding for start-ups and small firms. MAS is exploring the possibility of developing an appropriate regulatory framework for such activities. Direct lending, on the other hand, is relatively muted in Singapore – and in Asia more generally – due to the continued dominance of banks in the region.

⁷² In March 2014, London-based fund manager Hayfin raised more than €2 billion to lend directly to medium-sized European companies, making it one of the largest of such funds to date.

Conclusion

The nascent market for CoCos in Singapore could see future growth. Unconventional forms of lending have grown rapidly in other markets but are only starting to develop in Singapore. While the risks posed by these innovative products, in particular CoCos, are currently low and generally mitigated, their nature and magnitude will continue to evolve as the markets develop. MAS will continue to monitor these developments and their associated risks.

Box M Virtual Currencies

Introduction

In the span of a few years, Bitcoin has gone from a niche phenomenon to a widely publicised virtual currency that has attracted considerable interest since 2013. Bitcoin drew the attention of the international media when the price of a bitcoin increased from a few cents to over US\$1,000 towards the end of 2013. Opinions on the fundamental reasons for the increase in the price of Bitcoin and its sustainability were, and continue to be, strongly divided. However, there is little dispute that Bitcoin and other similar virtual currencies are now on the radars of the financial industry, technology entrepreneurs, law enforcement, and regulators around the world. Virtual currencies represent both opportunities for technological disruption in finance, and risks for regulators to manage.

Background to Virtual Currencies

Without going into technical details, Bitcoin and other similar crypto-currencies⁷³ can be thought of as an innovation that enables the almost instantaneous transfer of value over the internet without the need for centralised clearing and settlement.

The key innovation that makes this possible is the ‘blockchain’, a distributed public repository of all Bitcoin transactions ever made, which consequently forms an ownership record for anyone who has a bitcoin. The blockchain ensures that every bitcoin that the user receives is genuine and has not been concurrently sent to another party. In the blockchain, transaction information is deliberately stored in a manner that does not identify users. This simultaneous public and private nature of the blockchain is what gives Bitcoin its reputation for pseudonymity.

Risks

Virtual currency usage has the potential to pose risks to financial stability, consumer protection, money-laundering and terrorism-financing.

Financial stability: At present, virtual currencies pose limited risks to financial stability given the low usage of virtual currencies relative to national currencies. The low usage of virtual currencies can be attributed to volatile prices and the lack of widespread acceptance amongst both physical and online merchants.

Consumer protection: MAS has issued advisories to warn consumers of the risks in owning, using, and speculating in virtual currencies. As a result of media coverage of the dramatic rise in the price of Bitcoin, some consumers may have been attracted to speculate in virtual currencies. In addition to the potential of loss of funds due to sharp dips in the price of virtual currencies, consumers also expose themselves to the risk that the intermediary they deal with may fail. As these intermediaries are usually unregulated, should these intermediaries fail, consumers are likely to lose both the funds and the virtual currency stored with these intermediaries. Further, consumers who store virtual currency with a cloud-wallet also expose themselves to the risk that cyber criminals may compromise the cloud-wallet provider’s security and steal their virtual currency.

⁷³ Bitcoin and other similar crypto-currencies, commonly referred to as “virtual currencies”, are the focus of this box item.

Money-Laundering and Terrorism-Financing: The electronic and pseudonymous nature of virtual currencies makes them an attractive medium for the cross-border movement of funds for illicit purposes. MAS has announced in March 2014 that it will introduce regulations for virtual currency intermediaries in Singapore to mitigate this risk. Amongst other requirements, virtual currency intermediaries will be required to conduct customer due diligence checks. MAS notes that regulation in a single jurisdiction will not be sufficient to combat money-laundering and terrorism financing risks, and that a common approach for regulation of virtual currency intermediaries is needed across jurisdictions.

In the event that virtual currency usage becomes more widespread globally, MAS will consider further measures to address any impact to financial stability and consumer protection.

STATISTICAL APPENDIX

SINGAPORE NON-FINANCIAL SECTOR

Table A.1: Corporate Sector's Financial Ratios and Number of Companies Wound Up

Table A.2: Household Sector's Financial Indicators

SINGAPORE FINANCIAL SECTOR

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

Table B.2: Local Banks' Selected Financial 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: Corporate Sector's Financial Ratios and Number of Companies Wound up

	H2 2010	H1 2011	H2 2011	H1 2012	H2 2012	H1 2013	H2 2013	H1 2014
Median Return on Assets (Per Cent)								
Transport, Storage & Communication	6.3	6.1	5.1	5.2	5.7	5.8	4.0	3.2
Property	6.3	6.7	5.5	5.9	6.3	6.4	6.0	6.3
Multi-Industry	5.5	5.7	3.8	4.3	4.2	3.7	5.2	4.6
Manufacturing	5.9	5.3	4.3	3.7	3.0	2.3	2.2	3.2
Hotels & Restaurants	4.9	5.3	6.7	4.3	3.2	3.4	3.3	3.2
Construction	7.5	6.1	5.1	4.0	4.8	6.8	4.3	4.6
Commerce	5.2	6.1	5.1	3.8	3.8	4.3	3.1	3.4
Median Current Ratio (Ratio)								
Transport, Storage & Communication	1.5	1.6	1.3	1.3	1.2	1.2	1.2	1.2
Property	2.1	2.0	1.9	2.0	1.9	1.8	2.1	1.9
Multi-Industry	2.0	2.0	2.3	2.1	1.7	1.8	1.6	1.6
Manufacturing	1.9	1.8	1.8	1.8	1.7	1.7	1.8	1.7
Hotels & Restaurants	1.8	1.8	1.9	1.8	1.3	1.2	1.9	2.5
Construction	1.8	2.1	1.7	1.9	1.7	1.8	1.6	1.5
Commerce	1.7	1.7	1.6	1.8	1.7	1.8	1.6	1.6
Median Total Debt/Equity (Per Cent)								
Transport, Storage & Communication	41.3	45.0	43.9	56.2	49.4	55.5	52.4	62.3
Property	51.8	51.2	48.3	49.0	50.6	52.1	57.2	54.4
Multi-Industry	34.5	42.4	41.1	43.7	51.5	34.1	37.2	42.0
Manufacturing	19.4	19.9	22.0	25.0	25.0	26.4	31.3	24.9
Hotels & Restaurants	25.5	39.8	31.6	32.1	62.4	67.9	42.3	20.5
Construction	28.2	34.1	35.3	48.4	41.1	49.1	53.5	36.9
Commerce	25.4	29.4	33.1	34.7	34.5	27.6	41.9	30.9
Median Interest Coverage Ratio* (Ratio)								
Transport, Storage & Communication	8.2	5.9	5.4	7.1	4.6	6.9	3.8	7.5
Property	14.4	7.1	19.1	7.7	12.8	7.0	12.2	6.3
Multi-Industry	15.8	12.7	5.9	9.4	12.0	8.5	13.5	13.4
Manufacturing	13.1	8.8	6.9	5.3	2.6	3.3	4.1	4.2
Hotels & Restaurants	12.1	3.0	3.0	2.0	5.9	1.6	4.3	2.9
Construction	9.7	13.2	4.9	12.6	11.0	13.3	9.6	7.6
Commerce	5.7	9.0	6.4	5.1	4.4	7.2	3.9	5.1
Number of Companies Wound Up								
All Sectors	68	40	73	78	73	54	72	75

Source: Thomson Financial, Ministry of Law

* Earnings before interest and tax divided by interest expense.

Note: A revised list of firms (all SGX-listed firms as of October 2014) was included in the computation of ratios for H2 2013 and H1 2014 in the table above.

Table A.2: Household Sector's Financial Indicators

	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
Per Cent (unless otherwise stated)										
Household Assets (S\$ Billion)	1568.5	1603.4	1640.6	1678.0	1689.5	1709.3	1715.2	1727.3	1744.0	1745.0
Residential Property Assets as % of Total Assets	49.7	49.4	49.6	49.1	49.3	48.8	48.3	47.7	47.1	46.7
Household Liabilities (S\$ Billion)	247.9	255.0	262.8	267.4	271.2	274.9	279.6	282.0	286.4	290.3
Household Liabilities to Assets Ratio (%)	15.8	15.9	16.0	15.9	16.1	16.1	16.3	16.3	16.4	16.6
Household Liabilities as % of GDP	70.3	71.9	73.3	74.1	74.5	74.6	75.0	74.7	75.6	76.3
Per Cent (unless otherwise stated)										
Credit Card Charge- Off Rate*	4.8	5.1	4.8	4.6	5.1	4.7	5.0	4.7	5.0	5.4
Housing & Bridging Loan NPL Ratio	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
Professional & Private Individuals Loan NPL Ratio	0.7	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5
Number of Individual Bankruptcy Orders	446	425	461	485	576	475	456	394	555	436

Source: DOS, MAS and Ministry of Law

* 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's* Selected Financial Indicators

	2011**	2012**	2013**	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
Loan Concentration (% of Total Commercial Bank Loans)										
Interbank Loans	46.0	42.5	39.0	40.5	40.3	39.8	39.0	37.4	36.0	36.1
Non-Bank Loans	54.0	57.5	61.0	59.5	59.7	60.2	61.0	62.6	64.0	63.9
Loans through the Asian Dollar Market (% of Total Commercial Bank Loans)										
Total ADM Loans	60.9	58.6	59.9	58.2	58.9	59.5	59.9	59.0	58.9	58.7
Of which to (% of Total Asian Dollar Market Loans):										
USA	4.9	3.3	3.1	3.4	2.9	3.0	3.1	3.1	3.6	3.3
United Kingdom	6.9	6.6	6.5	6.4	6.5	5.8	6.5	3.7	4.7	5.8
Switzerland	4.0	3.8	3.0	3.3	3.2	3.7	3.0	2.3	1.9	1.9
Japan	6.6	8.7	7.2	8.0	6.8	7.5	7.2	7.4	6.6	6.6
Hong Kong	10.2	8.9	10.2	9.2	9.8	10.3	10.2	11.4	10.6	10.0
Interbank	58.1	56.7	53.7	54.5	54.7	54.5	53.7	50.8	49.2	49.3
Non-Bank	41.9	43.3	46.3	45.5	45.3	45.5	46.3	49.2	50.8	50.7
Loans through Domestic Banking Units (% of Total Commercial Bank Loans)										
Total DBU Loans	39.1	41.4	40.1	41.8	41.1	40.5	40.1	41.0	41.1	41.3
Of which to (% of Total DBU Loans):										
Manufacturing	3.3	4.3	4.6	5.3	5.2	4.7	4.6	4.3	4.3	4.3
Building & Construction	11.7	12.4	13.2	12.7	13.0	13.3	13.2	12.7	13.2	13.5
Housing	22.8	24.0	24.1	23.8	24.1	24.5	24.1	23.5	23.8	23.9
Professionals & Private Individuals	9.1	9.6	9.5	9.4	9.5	9.5	9.5	9.2	9.3	9.4
Non-Bank Financial Institutions	9.6	10.3	11.1	10.0	10.3	10.5	11.1	11.5	11.9	11.5
Banks	27.0	22.5	16.8	21.2	19.7	18.2	16.8	18.2	17.2	17.3
Per Cent										
DBU Net Interest Income to Total DBU Loans	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5
Per Cent										
Liquid DBU Assets to Total DBU Assets	9.9	9.7	9.3	9.9	9.9	9.5	9.3	8.7	9.1	9.2
Liquid DBU Assets to Total DBU Liabilities	10.7	10.5	10.0	10.7	10.7	10.2	10.0	9.4	9.8	9.9
All DBU Loans to All DBU Deposits	102.5	105.3	110.4	104.5	105.6	107.7	110.4	112.8	113.2	112.5
DBU Non-Bank Loans to DBU Non-Bank Deposits	87.0	94.6	106.8	96.5	99.5	101.8	106.8	107.0	111.7	111.0
DBU Non-Bank Loan Growth (y-o-y)	30.3	16.7	17.0	19.7	17.7	15.7	17.0	13.5	12.3	10.6
DBU Non-Bank Deposit Growth (y-o-y)	11.4	7.4	3.6	8.9	8.6	6.5	3.6	2.4	0.0	1.5

Source: MAS

* Data relates to all commercial banks, Singapore operations only.

** Annual figures are as at Q4.

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

	2011**	2012**	2013**	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
Capital Adequacy (Per Cent)										
Regulatory Capital to Risk-Weighted Assets (RWA)	16.0	18.1	16.4	16.9	16.3	16.1	16.4	16.1	16.8	16.0
Regulatory Tier I Capital to Risk-Weighted Assets (RWA)	13.5	14.9	13.8	14.2	13.6	13.5	13.8	13.7	14.0	13.5
Shareholders' Funds to Total Assets^	8.7	9.2	8.4	8.9	8.6	8.3	8.4	8.4	8.6	8.5
Asset Quality (Per Cent)										
Non-Bank NPLs to Non-Bank Loans	1.2	1.2	1.0	1.1	1.1	1.1	1.0	0.9	0.9	0.9
Total Provisions to Non-Bank NPLs	125.5	128.3	135.4	133.7	134.3	131.2	135.4	146.2	149.1	148.6
Specific Provisions to Non-Bank NPLs	39.3	41.8	34.8	39.9	38.7	35.7	34.8	35.4	34.4	32.4
Loan Concentration (% of Total Loans)										
Interbank Loans	13.3	12.7	15.5	13.6	13.3	14.4	15.5	15.7	14.9	14.4
Non-Bank loans	86.7	87.3	84.5	86.4	86.7	85.6	84.5	84.3	85.1	85.6
Of which to (% of Total Loans):										
Manufacturing	8.1	7.9	7.9	8.9	8.8	8.1	7.9	7.8	7.9	8.0
Building & Construction	12.1	12.6	12.8	12.9	13.0	13.0	12.8	12.6	12.7	12.9
Housing	20.7	22.0	19.8	21.3	20.8	20.4	19.8	19.6	19.8	20.4
Professional & Private Individuals	8.3	8.8	8.4	8.6	8.7	8.6	8.4	8.7	8.9	8.8
Non-Bank Financial Institutions	10.7	10.7	8.8	8.9	8.9	8.8	8.8	9.3	9.5	9.0
Profitability (Per Cent)										
ROA (Simple Average)	1.0	1.1	1.0	1.1	1.0	1.0	1.0	1.1	1.1	1.0
ROE (Simple Average)	11.1	12.0	11.5	11.8	11.3	11.6	11.5	13.2	12.8	12.4
Net Interest Margin (Simple Average)	1.9	1.8	1.7	1.7	1.7	1.6	1.7	1.7	1.7	1.7
Non-Interest Income to Total Income	37.3	43.6	39.5	42.6	40.9	40.1	39.5	41.4	38.3	42.2

Source: Local banks' financial statements, MAS calculations

* Local banks' consolidated operations.

** Annual figures are as at Q4.

^ Figures include assets of Great Eastern Holdings.

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

	2011	2012	2013	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
Year-on-Year % Change										
Policies	5.9	-0.6	-2.1	-17.6	3.0	5.9	0.1	6.9	-7.4	-8.8
Annual Premiums	23.0	19.6	26.0	20.4	39.8	26.5	17.7	7.2	-20.5	-14.3
Single Premiums	16.4	-10.0	17.3	-18.0	27.7	31.9	29.1	29.2	17.5	24.7
Sum Insured	27.0	15.3	-8.0	-7.5	-6.4	3.4	-19.8	11.4	12.0	0.7

Source: MAS

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

	2011	2012	2013	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
S\$ Million (% of Total Assets)										
Debt Securities	61,041 (63.2)	71,347 (66.1)	72,000 (65.3)	71,770 (65.5)	69,997 (65.2)	71,365 (65.3)	72,131 (65.3)	74,226 (65.4)	77,535 (66.1)	79,558 (66.3)
Equity Shares	19,218 (19.9)	21,931 (20.3)	25,545 (23.2)	23,343 (21.3)	23,091 (21.5)	24,221 (22.2)	25,392 (23.0)	26,577 (23.4)	26,957 (23.0)	27,306 (22.8)
Cash & Deposits	7,172 (7.4)	5,695 (5.3)	4,695 (4.3)	5,409 (4.9)	5,706 (5.3)	5,047 (4.6)	4,813 (4.4)	4,029 (3.5)	4,049 (3.5)	4,759 (4.0)
Loans	3,885 (4.0)	3,320 (3.1)	3,314 (3.0)	3,369 (3.1)	3,370 (3.1)	3,278 (3.0)	3,314 (3.0)	3,333 (2.9)	3,281 (2.8)	3,261 (2.7)
Land & Buildings	3,056 (3.2)	3,109 (2.9)	3,188 (2.9)	3,111 (2.8)	3,067 (2.9)	3,073 (2.8)	3,188 (2.9)	3,188 (2.8)	3,213 (2.7)	3,212 (2.7)
Other Assets	2,164 (2.2)	2,512 (2.3)	1,594 (1.4)	2,601 (2.4)	2,109 (2.0)	2,308 (2.1)	1,604 (1.5)	2,198 (1.9)	2,188 (1.9)	1,867 (1.6)
Total Assets	96,537 (100)	107,914 (100)	110,336 (100)	109,604 (100)	107,341 (100)	109,292 (100)	110,441 (100)	113,552 (100)	117,223 (100)	119,964 (100)

Source: MAS

Table B.5: General Direct Insurers: Gross Premiums

	2011	2012	2013	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
S\$ Million										
Total Operations	5,056.5	5,524.6	5,999.8	1,545.6	1,485.0	1,428.2	1,349.3	1,716.2	1,564.3	1,492.6
SIF	3,423.6	3,626.7	3,738.1	1,048.9	908.5	884.2	828.0	1,111.2	940.4	876.6
OIF	1,632.9	1,897.9	2,261.7	496.7	576.5	544.0	521.3	605.0	623.9	616.0

Source: MAS

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

	2011	2012	2013	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
S\$ Million										
Marine & Aviation										
- Cargo	84.9	80.7	77.2	19.6	20.3	19.6	18.4	20.7	18.8	20.3
- Hull & Liability	113.3	122.3	116.5	18.9	20.1	27.0	30.0	24.3	26.3	27.1
Fire	155.7	161.5	173.0	53.5	46.2	39.5	32.4	50.3	50.6	45.1
Motor	1,103.1	1,150.1	1,125.4	318.9	278.5	264.7	263.6	312.6	266.3	252.7
Work Injury Compensation	258.4	297.7	329.2	103.3	84.3	80.6	61.0	114.7	85.8	84.2
Personal Accident	207.4	225.5	240.5	62.7	63.8	60.3	57.1	66.8	68.6	61.2
Health	164.4	213.0	229.1	84.5	57.6	46.2	42.5	114.4	73.8	60.8
Miscellaneous	326.1	354.9	382.0	91.9	105.2	92.6	89.9	97.3	105.1	98.3
Total	2,413.3	2,605.7	2,672.9	753.3	676.0	630.5	594.9	801.1	695.3	649.7

Source: MAS

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

	2011	2012	2013	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014	Q3 2014
Per Cent										
Marine & Aviation										
- Cargo	28.2	22.0	22.0	22.4	31.5	25.2	14.3	45.8	19.4	46.1
- Hull & Liability	71.7	54.5	50.9	76.4	56.5	66.0	34.7	80.5	82.7	73.8
Fire	27.2	44.6	33.4	24.0	34.9	41.4	36.5	25.0	22.2	23.4
Motor	68.5	66.2	62.4	67.1	63.3	65.5	56.7	62.5	57.5	62.8
Work Injury Compensation	66.8	64.8	68.9	57.8	65.1	72.1	77.9	66.6	58.7	72.8
Personal Accident	28.3	34.9	30.3	28.4	32.2	31.8	28.3	30.5	25.2	32.8
Health	63.1	62.8	65.8	68.8	70.3	62.2	63.3	70.2	64.5	66.8
Miscellaneous	33.7	20.8	26.9	35.3	14.7	31.7	39.4	33.0	25.8	35.3
Total	56.0	53.6	52.2	54.7	51.5	55.5	51.1	54.8	48.4	55.3

Source: MAS