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TECHNICAL NOTE

SYSTEMIC RISK OVERSIGHT AND MACROPRUDENTIAL
POLICIES

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**Monetary and Capital Markets
Department**

This Technical Note was prepared by IMF staff in the context of the Financial Sector Assessment Program in People's Republic of China—Hong Kong Special Administrative Region, led by Ananthakrishnan Prasad. It contains technical analysis and detailed information underpinning the FSAP's findings and recommendations. Further information on the FSAP can be found at

<http://www.imf.org/external/np/fsap/fssa.aspx>

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Glossary

AI	Authorized (deposit-taking) Institution
BIS	Bank for International Settlements
CAR	Capital Adequacy Ratio
CET1	Common Equity Tier 1 Capital Ratio
CFR	Council of Financial Regulators
CCyB	Counter Cyclical Capital Buffer
CRE	Commercial Real Estate
DSTI	Debt Service to Income Ratio
FS	Financial Secretary
FSC	Financial Stability Committee
FSTB	Financial Services and the Treasury Bureau
GDR	Granular Data Reporting Initiative
GFC	Global Financial Crisis
HKMA	Hong Kong Monetary Authority
MA	Monetary Authority
IA	Insurance Authority
IO	Insurance Ordinance
LegCo	Legislative Council
LTV	Loan-to-Value Ratio
MaPP	Macro Prudential Policies
MAS	Monetary Authority of Singapore
MoU	Memorandum of Understanding
NBFI	Non-Bank Financial Intermediary
NDFC	Non-deposit Taking Finance Company
OECD	Organization for Economic Cooperation and Development
PSSVFO	Payment Systems and Stored Value Facilities Ordinance
SFC	Securities and Futures Commission
SFST	Secretary for Financial Services and the Treasury
THB	Transport and Housing Bureau
RMBS	Residential Mortgage Backed Security

EXECUTIVE SUMMARY¹

Institutional Setup and Systemic Risk Oversight

The institutional framework for Macprudential Policies (MaPP) in the Hong Kong Special Administrative Region (the Hong Kong SAR) is well established. According to the Basic Law, the Government of the Hong Kong SAR shall on its own formulate monetary and financial policies. The Financial Secretary (FS) and the Secretary for Financial Services and the Treasury (SFST) are responsible for policies for maintaining the stability and integrity of the financial system of the Hong Kong SAR. The Hong Kong SAR has a sector-based regulatory structure and the responsibilities and tools for safeguarding financial stability are spread across the Financial Services and the Treasury Bureau (FSTB) and three regulators (namely, the Hong Kong Monetary Authority (HKMA), Securities and Futures Commission (SFC) and Insurance Authority (IA)). There are good and well-structured interagency coordination and consultation mechanisms, through the Council of Financial Regulators (CFR) and the Financial Stability Committee (FSC), chaired by the FS and the SFST, respectively. Broad coordination between the CFR and government agencies on taxation and housing supply-side policies has also worked well. MaPP and risk assessment are communicated to the public openly and frequently through speeches, press releases and regular publications, including the Half-Yearly Monetary and Financial Stability Report of the HKMA and the Half-yearly Review Report of the Global and Local Securities Markets of the SFC.

The framework for systemic risk oversight is strong, and the authorities' staff are of high caliber. The responsibility of systemic risk oversight is shared among financial regulators, consisting of the HKMA, SFC and IA monitoring financial vulnerabilities in their respective sectors: banking, securities and futures, and insurance. The identification of sources of systemic risk is based on both model-based quantitative monitoring and a frequent risk-based surveillance dialogue with the financial industry. Each regulator has dedicated resources to collect data, develop analytical models, and conduct stress testing for systemic risk analysis in its respective sector. Data-sharing and the exchange of information among the regulatory authorities is frequent at various senior management and working levels and formalized by multiple Memoranda of Understanding (MoUs). Joint effort by the regulators on research and analytical projects, risk monitoring, and on-site supervision have also improved the exchange of insights among them. Analytical capacity, although differing among the regulators, is generally good. Targeted effort is underway at the HKMA to collect more granular data on residential mortgage loans and corporate loans for a deeper understanding of banks' exposures in the areas.

Nonetheless, there is room for improvement to strengthen systemic risk monitoring, improve data collection, enhance communication through a comprehensive and dedicated semi-annual financial stability report, and bring non-bank mortgage lending within the regulatory ambit.

¹ This technical note was prepared by Hui Miao (IMF/MCM).

- As an international financial center, Hong Kong is exposed to large cross-border capital flows and bank lending. Because the financial system in the Hong Kong SAR is becoming more complex and interconnected, the CFR/FSC secretariat should adopt a more comprehensive and systematic approach to identify and address systemic risk in the financial system as a whole. International experience suggests an important role is typically played by the central bank/monetary authority in macroprudential institutional setup. The FSC should continue to capitalize on the strength of the relevant organizational framework and expertise of the HKMA and other regulators in formulating and implementing macroprudential policy, to play a more prominent role in performing systemic risk monitoring and assessment. Collecting more comprehensive and granular data on cross-border exposures beyond the banking sector, household debt and corporate loans will improve the systemic risk monitoring framework.² Updating analytical work to assess, in a timely way, the impact of MaPP will also help calibrate the sequence and stance of macroprudential policy in the future.
- Clear and rich communication will promote public understanding of the need for policy actions, counter biases in favor of inaction, and enhance the legitimacy and accountability of macroprudential policy. Currently, the government and the regulators use various channels to communicate financial stability issues, such as top officials' speeches, respective websites, and press releases and circulars to financial institutions. The assessment of risks facing the banking sector in the HKMA's Half-Yearly Monetary and Financial Stability Report is extensive. The SFC also issues the Half-Yearly Review Report of the Global and Local Securities Markets, which covers performance and trends in Hong Kong and overseas markets and highlights potential risks or irregularities in various market segments. The communication of MaPP can be further enhanced by publishing periodic risk assessments and summaries of key CFR policy meetings. Periodic reports dedicated to financial systemic risks would also enhance the transparency of the work of the CFR/FSC and promote a broader awareness of risks in the financial system. Major policy announcements should be accompanied by background analysis and outreach, in order to gain broad support.
- Macroprudential policy needs to contain systemic risk in the financial system as a whole. Since banks are usually the key providers of credit to the economy, macroprudential policy often applies its policy levers to the banking system. However, because risks can migrate into the non-bank financial sector, sometimes in response to regulatory constraints, macroprudential policy should consider risks that build up in corporations or activities outside the banking system. The CFR should stay vigilant and consider expanding its regulatory perimeter when needed. Besides, regulatory and data gaps could emerge, given the institution-based approach to regulation and risk monitoring. Regular surveillance and data collection from non-bank lenders (e.g., property developers and Non-deposit Taking Finance Companies (NDFCs)) to households could be suitably strengthened to monitor and avoid leakages in macroprudential policies. The licensing, regulation and supervision of non-bank lenders to households are currently subject to different

² A separate interconnectedness and contagion analysis has been conducted in the Technical Note on solvency stress testing.

regulations. The HKMA has been able to indirectly influence the behavior of non-bank lenders through the banking system. However, as and when non-bank lending increases to systemically relevant proportions, more proactive regulation of their activities by the relevant authorities may be warranted.

Sources of Systemic Risk and Macroprudential Policy Toolkits

MaPP have been effective in containing systemic risks from rising household debt and elevated housing prices, but the authorities need to remain cautious about the fast pace of rising household indebtedness. The eight rounds of MaPP tightening, aimed at the housing sector, since the Global Financial Crisis (GFC) have created a substantial buffer for banks and households in terms of lowering loan-to-value (LTV) and debt service to income (DSTI) ratios of new residential mortgages and have reduced the tail risks of any potential housing market correction. Recent marginal relaxation of these substantial buffer (e.g. CCyB reduction and LTV Cap hike for commercial properties) in response to Covid-19 shock is well justified. However, the increase in household debt-to-GDP ratio in 2019 was among the fastest among Advanced Economies (AE), and the overall household debt-to-GDP ratio in the Hong Kong SAR was above the average among OECD economies. Thus, the authorities need to remain vigilant in responding to rising household indebtedness and overvalued housing market, despite the substantial buffer created, in the past, by MaPP. In addition, the fast growth of households' non-mortgage debt should be monitored closely. The authorities should be prepared to issue stricter guidelines as necessary to ensure adequate collateral, prudent liquidity standards, and appropriate haircuts for margin finance to contain financial leverage and to discourage excessive risk-taking by high-net-worth individual investors.

Although banks in the Hong Kong SAR are well capitalized and have low non-performing loans (NPLs), their corporate credit exposure to certain weak Mainland China (MC) borrowers could pose significant tail risks and should be closely monitored. Bond issuance and bank borrowing in the Hong Kong SAR by MC borrowers have been significant and growing quickly. Some borrowers (e.g., MC real estate developers) could face significant downside risks in an adverse scenario, based on our Probability of Default (PD) scenario analysis. The internal risk model, based on the historical default rate and backward-looking financial indicators, may underestimate the credit risks of certain MC borrowers given the rarity of defaults in the past. But more credit defaults are likely in the future as the credit fundamentals of some MC borrowers deteriorate and as market-based reform deepens in MC. Authorities should continue to ensure that the internal risk models used to determine the capital charge for potential high-risk MC borrowers, particularly MCM real estate borrowers with low credit ratings, should be sufficiently forward looking.

Table 1. Hong Kong SAR: Key Recommendations	
Recommendations for Implementation	Time¹
<i>Systemic Risk Oversight and Institutional Arrangement</i>	
Strengthen the systemic risk monitoring and data collection framework and adopt a more comprehensive and systematic approach to identify and contain systemic risk in the financial system as a whole. The CFR/FSC secretariat should continue to capitalize on the analytical expertise of the HKMA and other regulators in identifying systemic risks in the financial system.	I
Further strengthen the communication on macroprudential policy to convey legitimacy and accountability of policy actions, including through periodic CFR/FSC reports dedicated to financial systemic risks.	I
Consider expanding the macroprudential regulatory perimeter to include non-bank lenders to households, to better ensure that macroprudential policy can address systemic risk in the financial system. Particularly, the CFR should consider the need for non-bank lenders with respect to residential mortgages (e.g. property developers and NDFCs) are brought under prudent regulatory standards in case of a significant systemic impact.	ST
<i>Policy Toolkits</i>	
Remain vigilant about the fast pace of increase in household indebtedness, especially non-mortgage debt. Strengthen communications among regulators and compare regulatory standards and supervisory experiences on investment credit to high-net-worth individuals to ensure consistency of risk guidelines.	ST
Continue to closely monitor the credit and FX risks facing offshore corporate borrowers including loans to MC property developers and MC Local Government Financing Platforms, and authorities should continue to ensure that the internal risk models used to determine the capital charge for potential high-risk MC borrowers, particularly MCM real estate borrowers with low credit ratings, should be sufficiently forward looking.	ST
¹ I - Immediate (within 1 year); ST - Short term (within 1-2 years); MT - Medium Term (within 3-5 years).	

INTRODUCTION

1. Hong Kong SAR authorities have successfully implemented macroprudential policies over the past decade to mitigate systemic risk. Due to prudent fiscal policies — with the need to strive to achieve a fiscal balance written into the Basic Law, and the adoption of the Linked Exchange Rate System — authorities have often resorted to macroprudential policies to limit the buildup of financial vulnerabilities in corporate and household sectors. The current MaPP stance in the Hong Kong SAR is among the most stringent in the world, as indicated by the level of LTV/DSTI for new residential mortgages and Countercyclical Capital Buffer (CCyB) for the banking sector. Many innovative policy tools — such as stressed DSTI, and sector-specific risk weight floor — have been adopted and fine-tuned by the authorities to safeguard banking stability.

2. The authorities have flexibly adjusted MaPP in response to the deep economic recession due to Covid-19. In the face of the heightened economic uncertainty, the Government of the Hong Kong SAR has put on hold the bill in relation to the introduction of vacancy tax targeted at the property sector. The relaxation of eligibility for HKMC mortgage insurance program (e.g. mortgage with LTV up to 90 percent) has attracted more applicants and supported the demand for residential mortgage. Although LTVs and DSTI increased modestly in 2020 they still remain conservative. Existing MaPP toward the housing sector were kept unchanged considering the still resilient housing market and mortgage growth. In order to support the economy by encouraging overall bank lending, CCyB was cut twice from 2.5 percent in 2019 to 1 percent in March 2020. The non-residential property markets saw a further moderation in the first half of 2020. With the Covid-19 pandemic and escalating geopolitical tensions continuing to weigh on business confidence, the non-residential property markets are likely to remain under pressure. Consequently, the authorities increased the regulatory LTV cap for bank lending to finance commercial properties purchase from 40 percent to 50 percent in August 2020, the first increase since 2009. Overall MaPP stance is prudent and banks still maintain significant buffer for the financial stability.

3. In this context, this note reviews the current institutional arrangements for macroprudential policy, the systemic risk monitoring framework, sources of both domestic and cross-border systemic risks facing the Hong Kong SAR as an International Financial Center, and macroprudential toolkits in the Hong Kong SAR. It also offers recommendations to strengthen the policy framework. The note is structured as follows. Section I describes the current institutional setup and systemic risk oversight framework, and proposes recommendations for improvement. Section II surveys key systemic risks facing the Hong Kong SAR's financial system and evaluates the macroprudential policy toolkits. The impact of existing macroprudential policies is evaluated, and the options to broaden the available range of tools to mitigate risks in the corporate and household sectors are explored.

INSTITUTIONAL ARRANGEMENTS

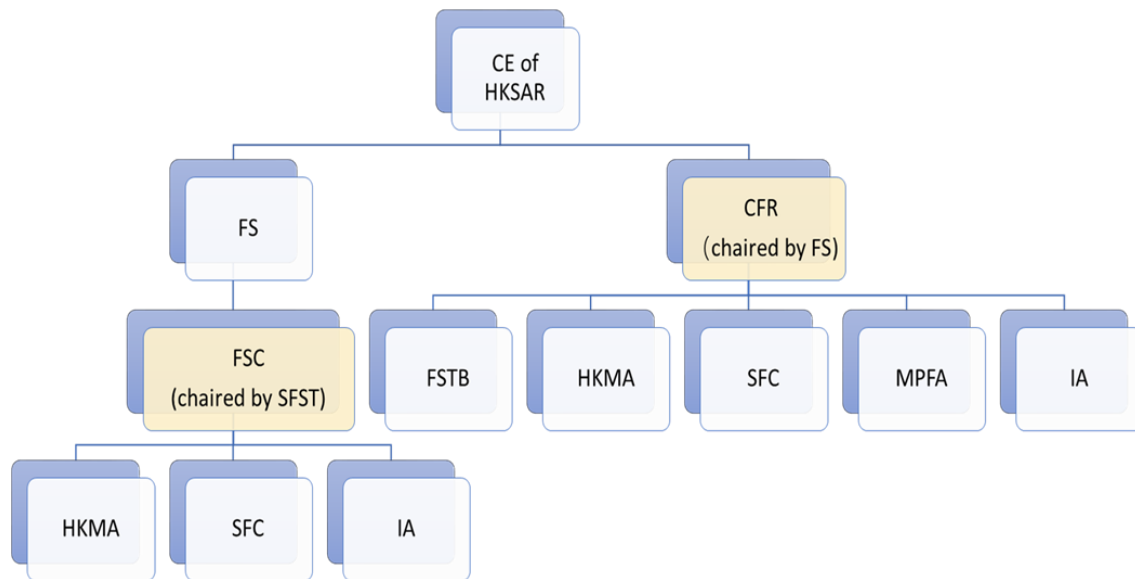
A. Overview of the Current Framework

4. International experience suggests that strong institutional arrangements for macroprudential policymaking are essential to ensure that macroprudential policy can work effectively. A strong institutional framework should assure the willingness to act and should counter the underlying risk of policy inaction bias that is the result of financial-industry lobbying and of the difficulties in quantifying the benefits and costs of macroprudential action. The institutional arrangement also needs to foster the ability to act when macrofinancial surveillance points to a buildup of systemic risks. In addition, the framework needs to promote effective cooperation and coordination among various institutions with a financial stability mandate. This section evaluates the current institutional arrangement against these three key principles, which are set out in the IMF Staff Guidance Note on Macroprudential Policy.

5. The institutional arrangement for macroprudential policy in the Hong Kong SAR is well established, with a clear legal framework and coordination mechanism. It is based on a cross-sectoral collaboration of regulators, under the leadership of the FS and the SFST, who are responsible for policies for maintaining the stability and integrity of the financial system of the Hong Kong SAR. The CFR and the FSC are mechanisms established, chaired by the FS and the SFST respectively, to support macroprudential policy coordination and consultation among financial regulators. The current sector-based regulators — consisting of the HKMA, SFC and IA — are responsible for the banking, securities and futures, and insurance sectors, respectively.

6. Systemic risk oversight is based on a culture of close interagency cooperation and information-sharing, underpinned by various MoUs and the CFR/FSC. The interagency coordination framework has multiple layers, including two interagency coordination committees (i.e. the CFR/FSC), and several multilateral MoUs and exchanges of letters. The CFR is chaired by the FS and comprises representatives from the FSTB, HKMA, SFC, IA and Mandatory Provident Fund Schemes Authority. The FSC is chaired by the SFST and comprises representatives from the HKMA, the SFC and the IA. The CFR and the FSC were established in 1999 and 2000, respectively, with explicit terms of reference (ToR) to promote cooperation and coordination among their members and to preserve financial stability. The CFR meets four times a year, while the FSC meets at least five times a year. Decisions of the CFR and the FSC are made unanimously and are recorded in the minutes of meetings, which are kept confidential because they often contain market-sensitive information.

7. The FSTB plays a leading role in policy coordination among regulators and other government agencies. The FSTB serves as the secretariat for the CFR/FSC and is responsible for setting up the agenda for the macroprudential policy discussion forum. The FSTB has coordinated MaPP with fiscal measures (e.g., taxation) under the Treasury Branch of the FSTB and the Inland Revenue Department, and with long-term housing supply policies under the Transport and Housing Bureau (THB). The FSTB can also propose changes in legislation to implement MaPP by expanding regulatory perimeter or macroprudential policy toolkits.

Table 2. Hong Kong SAR: Macroprudential Policy Committees (CFR and FSC)

Source: Hong Kong SAR authorities.

B. Agencies in Charge of MaPP in the Hong Kong SAR

Willingness to Act: Mandate and Accountability

8. Multiple institutions have a mandate for ensuring specific aspects of financial stability as defined in various laws, and each regulator can independently implement MaPP under its jurisdiction. The legal mandate of various authorities is well defined, and the FS oversees financial stability. Below are the details on each member of the CFR and its legal mandate.

- a. The FS shall be responsible for determining the relevant policy objectives at a macro level, while the SFST shall be responsible for formulating specific policies and overseeing their implementation through the regulatory authorities. Articles 106 to 113 of the Basic Law of the Hong Kong SAR set out the responsibilities of the government for public finance and monetary and financial affairs. The FS and the SFST are responsible for maintaining the stability and integrity of the financial system of the Hong Kong SAR.
- b. The Monetary Authority (MA), underpinned by the HKMA, is responsible for achieving the monetary policy objectives determined by the FS. Under the delegated authority of the FS, the MA manages and uses the Exchange Fund in accordance with the Exchange Fund Ordinance (EFO). The Exchange Fund is a discrete government fund established under the EFO with the primary objective of affecting the exchange value of the currency of the Hong Kong SAR, and may also be used for maintaining the stability and integrity of the monetary and financial systems of the Hong Kong SAR. Other statutory functions of the HKMA include regulating the banking sector and money brokers and maintaining the general stability and

effective working of the banking system pursuant to the Banking Ordinance (BO), and supervising stored value facilities and overseeing certain payment systems pursuant to the Payment Systems and Stored Value Facilities Ordinance (PSSVFO).

- c. The SFC has a regulatory objective to reduce systemic risks in the securities and futures industry under the Securities and Futures Ordinance (SFO). It supervises and regulates the mutual fund, brokers, and securities and futures markets and exchanges.
- d. The IA is responsible for regulating and supervising the insurance industry for the promotion of the general stability of the insurance sector in accordance with the Insurance Ordinance (IO).
- e. The CFR/FSC are the main forums to discuss systemic risks and MaPP. The mandates of the CFR and the FSC are clearly set out in their respective ToR. The CFR's objective is to contribute to the efficiency and effectiveness of regulation and supervision of financial institutions, the promotion and development of the financial markets and the maintenance of financial stability in the Hong Kong SAR. The FSC's role is to monitor financial development and formulate policy response. In other words, the CFR focuses more on strategic long-term policy issues while the FSC focuses more on ongoing monitoring and deliberation of short-term cyclical policies.

9. The HKMA has evolved as the main macroprudential regulator in the Hong Kong SAR and has a high degree of independence in making macroprudential policies related to the banking sector. The BO provides the HKMA with the legal basis for the regulation of the banking sector. The HKMA is responsible for determining prudential policies related to the banking sector and for cooperating with other financial regulators in the supervision of other businesses conducted by Authorized (deposit-taking) Institutions (AIs). The banking sector is the largest segment of the financial system in the Hong Kong SAR. Given its expertise and mandate, the HKMA has been the main macroprudential regulator in the Hong Kong SAR. Various active MaPP have been implemented by the HKMA with respect to bank lending business to contain vulnerabilities in the property market and corporate sector.

10. Financial regulators are accountable to the legislature (i.e. the LegCo) and the government through regular reporting on systemic risks and policy actions. The FS provides periodic briefing to the LegCo on the Hong Kong SAR's latest economic situation, covering the identification of potential systemic risks and the measures taken to address them. The HKMA also periodically provides briefings to the LegCo Panel on Financial Affairs (FAP) on Hong Kong SAR's financial stability and the work of the HKMA. Regulators also attend FAP briefings with the FSTB when legislation is to be introduced into the LegCo relating to matters under their purview, as well as attend Bills Committee or subcommittee meetings with the FSTB as the legislative process progresses through the LegCo.

Ability to Act: Powers and Resources

11. Dedicated professional teams, of high caliber, have been devoted to identifying and managing systemic risks. Dedicated teams with strong research and data analytical capacity have been set up within each regulator for systemic risk oversight and MaPP calibration. Routine risk monitoring and periodic stress testing exercises are complemented by ad-hoc, event-driven research for systemic risk oversight.

- a. The FSTB maintains close liaison with the regulatory authorities on a daily basis and prepares, with inputs from various financial regulators, daily report on key indicators of the performance of the Hong Kong SAR's financial markets. Regular, ad-hoc bilateral and multilateral liaison meetings are held between the FSTB and various financial regulators to ensure that potential systemic risks identified are properly communicated to FSC members.
- b. The HKMA has established the Macro Surveillance Committee (MSC), chaired by the Chief Executive of the HKMA, to identify potential risks and threats to the monetary and financial systems in the Hong Kong SAR and to discuss possible measures (e.g. CCyB) to address such risks. The HKMA established the Financial Stability Surveillance (FSS) Division in 2011 to conduct regular surveillance of financial stability issues and to support the work of the MSC. The FSS' Division's macrofinancial stability analysis helps identify risks or issues that may need to be explored, and this facilitates the MSC's discussion, deliberation and formulation of appropriate policy responses.
- c. The SFC set up a cross-divisional Risk Review Group (RRG) in 2017 to review and assess the risks facing the Hong Kong SAR's financial markets, and to consider appropriate regulatory responses. All operating divisions and CEO Office's Mainland Affairs Team periodically provide inputs on the top risks from their perspectives to the RRG. The RRG submits reports to the SFC Executive Committee and the SFC Board on a semi-annual basis.
- d. The Long-Term Business Division and the General Business Division of the IA are responsible for supporting macroprudential surveillance of the insurance industry. Dynamic Solvency Testing is conducted regularly to identify emerging risks and to follow up with appropriate supervisory interventions. The IA also conducts periodic surveys and thematic stress tests on all authorized insurers.

12. All financial regulators, who are also FSC members, have substantial powers to obtain relevant information. The HKMA's information-gathering powers under the relevant laws (including, among others, the BO and the PSSVFO) are exercisable against/in connection with regulated entities/persons falling within the HKMA's purview. In addition, there are certain circumstances where the HKMA may, in its supervision of regulated entities/persons, obtain information from persons who are not directly regulated by the HKMA. The SFC can collect data from exchanges, listed issuers and licensed entities/persons under the relevant laws and regulations (e.g. the SFO). The Companies Registry, which underpins the SFST, can collect data on registered companies under the Companies Ordinance.

13. The HKMA, SFC and IA have stepped up efforts to leverage technology for more automatic granular data collection and to support analytical work and risk monitoring.

- a. The HKMA is currently undertaking a Granular Data Reporting (GDR) initiative to collect loan-level data from Als. GDR will provide the HKMA with more detailed information on banks' activities to conduct quantitative risk assessment. GDR will help close some data gaps in relation to household debt and corporate loans. The pilot program to collect granular mortgage and household data by the HKMA is very promising and will help improve analysis of mortgage risk.
- b. The SFC has established a Data Analytics Group to engage in data analytics projects. Various technologies such as artificial intelligence, machine learning and natural language processing have been applied to assist operating divisions in examining large amount of data to facilitate performance of the SFC's regulatory functions and uncover insights in areas including market misconduct investigation and identification of potential financial risks of licensed corporations. The SFC is also starting to utilize machine learning technologies, such as especially natural language processing, to analyze market intelligence.
- c. The IA will exercise direct regulatory powers over Hong Kong-incorporated holding companies of insurance groups with effect from March 29, 2021. With the new framework in place, the IA will have powers to ask a designated insurance group to produce accounts, returns, and other information.

Table 3. Hong Kong SAR: Shared Macroprudential Responsibility Among Regulators and Government Agencies						
	FS	SFST	HKMA	SFC	IA	THB
Identifying the buildup of systemic risk			√	√	√	
Recommending action(s) to be taken (on macroprudential policy)			√	√	√	
Deciding on action(s) to be taken (macroprudential regulation)	√	√	√	√	√	
Implementing and enforcing macroprudential policy decision(s)		√	√	√	√	
Assessing the impact of the macroprudential measures			√	√	√	
Reporting to the legislature about systemic risks and corrective actions	√	√	√	√	√	
Taxation related to property transactions and long-term land supply policies						√
Source: Hong Kong SAR authorities.						

C. Domestic Interagency Coordination and Cooperation

14. Interagency coordination takes place through quarterly committee meetings, as well as on an ad-hoc and event-driven basis at management and working levels. Given the compact structure of the Hong Kong SAR government, the relatively informal (in the sense of not being statutorily prescribed) coordination structure is flexible and efficient. In addition to regular quarterly meetings under the CFR/FSC, there are close communication and liaison at management and working levels among financial regulators and government agencies to exchange views on the latest development in the financial sector on a daily basis. The meetings under the MoU between the HKMA and the SFC are held at least annually. Issues of heightened regulatory attention are discussed, and views are candidly exchanged to facilitate the decision making. The HKMA and the SFC often conduct joint inspections on cross-sectoral risks and collaborate to monitor over-the-counter derivatives trade depository, and are conducting concurrent thematic reviews on spread charges and risk management and other practices. HKMA and SFC staff are seconded to the FSTB to, among others, support the CFR/FSC.

15. Besides the multi-agency CFR/FSC committees, various bilateral MoUs have been signed by the HKMA, SFC and IA to enhance collaboration and information-sharing with each other. These MoUs have ensured timely flow of information and coordination among regulators.

- a. An MoU between the SFC and the HKMA, signed in December 2002, sets out the roles and responsibilities of the two regulators under each major functional aspect of the regulatory regime, as well as the arrangements between them in relation to the exchange of relevant information and timely notification or referral of relevant matters. Each regulator will exchange prudential information on individual intermediaries, their associated entities and their staff that will enable or assist the other regulator in the performance of its statutory functions.
- b. The SFC and the IA entered into an MoU in December 2005. The MoU aims to reduce the duplication of regulatory efforts by specifying their respective responsibilities regarding the regulation of insurance-related investment products that are collective investment schemes and the sharing of information in respect of persons who are regulated under their respective supervisory regimes.
- c. In the light of the new statutory regime for insurance intermediaries under the IO, the HKMA and the IA entered into a new MoU in July 2019 (which superseded an early MoU signed in 2003). The new MoU sets out the framework for coordinating the regulation and supervision of entities or financial groups in which the two regulators have a common regulatory interest, and the collaborative arrangements with respect to the regulation and supervision of AIs' businesses of regulated activities under the IO.

16. MaPP and other macrofinancial policies are coordinated across government agencies and regulators under the leadership of the FSTB.

- a. **Coordination of Tax policy and MaPP.** The THB is the policy bureau for formulating housing policy, including the transaction-based property tax. There are effective communication channels between the THB, FSTB and HKMA to ensure that policies are introduced in a coordinated manner to promote the healthy and stable development of the property market for macroprudential purpose.
- b. **Coordination of crisis communication and management.** The Financial Services Branch Coordination Centre (FSBCC) facilitates communication and information-sharing in circumstances of high market volatility, or if a contingency event occurs in any segment of the financial sector. The FSBCC ensures that frontline regulators' actions and media responses are consistent with each other and that the flow of information among regulators is unobstructed.
- c. **Coordination of microprudential policy and MaPP.** The HKMA is responsible for the implementation of a relatively large number of macroprudential policies and other Basel III buffers (e.g. CCyB and Systemically Important Authorized Institution (SIB) buffer requirements). The MSC of the HKMA ensures that microprudential and macroprudential policies are well-coordinated to avoid potential overlaps. When there is any conflict in microprudential and macroprudential policies, the HKMA is expected to weigh the cost and benefit of different policy combinations and adopt the course that is optimal for financial stability based on all relevant information.

D. Communication Strategies of Macroprudential Policies

17. MaPP decisions are communicated openly to the public via speeches, blogs, official websites and press releases. Announcements related to the banking sector (e.g. CCyB and LTV/DSTI) are made by the HKMA both on its website and via circulars to banks. The FS, the SFST and each regulator also publish regular analyses and views about financial risks on their websites or blogs. In addition, the HKMA publishes the Half-Yearly Monetary and Financial Stability Report while the SFC publishes the Half-yearly Review Report of the Global and Local Securities Market. Press conferences and outreach to the general public about the changes of macroprudential policies or the release of major financial stability reports are conducted from time to time.

E. Systemic Risk Identification and Monitoring

18. The CFR/FSC mainly rely on inputs from regulators for systemic risk analysis, and each regulator conducts systemic risk monitoring in the sector for which it is responsible. The FSTB acts as the secretariat and initiates/coordinates some analyses, but has limited resources to conduct deep-dive systemic risk analysis. The HKMA, SFC and IA mostly analyze the risks facing institutions under their respective purviews. They regularly monitor major indicators that are relevant to risk developments in their respective sectors, in addition to various models and stress tests. The

monitored indicators range from those at the macro level (e.g., credit-to-GDP ratio, M2-to-GDP ratio, interest rates) to sectoral and micro-level indicators (e.g., NPL ratios, leverage, risk coverage ratio of securities). Table 4 provides detailed information on the monitoring framework of the HKMA, SFC and IA. Relevant indicators are monitored and analyzed internally by the three regulators, and indications of heightened risks trigger policy discussions, sometimes involving multiple regulators. The HKMA also publishes in-depth research notes on thematic risks, such as household leverage in the Hong Kong SAR and credit risks of offshore MC borrowers.

19. Stress testing is a common analytical tool to detect vulnerabilities. It has been conducted by the HKMA with top-down and bottom-up approaches for the banking sector, by the SFC for the securities and futures sector, and by the IA for the insurance sector. The HKMA conducts regular macrofinancial stress tests for credit, market and liquidity risks of large and medium-sized banks using both top-down and bottom-up approaches. The SFC conducts various stress tests for prudential supervision purposes, including stress tests for adverse market movement and stock price fluctuation to project the potential financial impact on SFC-licensed firms. The IA focuses on solvency in its bottom-up stress tests of life and non-life insurance companies and closely monitors the performance of large insurance companies.

20. The HKMA has also increased its monitoring of non-bank household lending through AIs and made efforts to reduce leakages from existing macroprudential policies. The HKMA does not regulate NDFCs or property developers, even though they have stepped into the lending space by lending to households — but the HKMA can indirectly influence the behavior of NDFCs and property developers that have credit relationships with AIs through the HKMA's regulatory handle over AIs. To ensure proper risk management by AIs and the effectiveness of the HKMA's macroprudential measures on residential mortgages, the HKMA has enhanced the supervisory requirements on AIs' exposures to non-AI entities that offer residential mortgage loans: namely, non-AI subsidiaries of locally-incorporated AIs, NDFCs, and property developers. To facilitate monitoring, the HKMA has been collecting from AIs the outstanding value of residential mortgage loans extended by these non-AI entities. Moreover, if an NDFC is a subsidiary of a locally incorporated AI, the HKMA will exercise consolidated supervision to ensure that the HKMA's macroprudential measures are also applicable to such subsidiary. The HKMA issued a circular in March 2015 requiring AIs to terminate their credit relationship with any NDFC if the NDFC's mortgage finance business does not comply with the HKMA's prudential guidelines and requirements. The HKMA introduced in May 2017 new risk management measures on AIs' lending to property developers. Among other things, AIs are required to set aside more capital for lending to property developers with mortgage exposures beyond certain thresholds. These HKMA measures have closed major data and regulatory gaps toward NDFCs, but more direct regulation and supervision of NDFCs by the relevant authorities will further improve the effectiveness of the existing macroprudential policies.

Table 4. Hong Kong SAR: Major Systemic Risk Monitoring Tools

Monitoring tools	FS/SFST	HKMA	SFC	IA
Stress testing		Banking sector (bottom up and top down)	Securities firms (bottom up and top down)	Insurance sector (bottom up)
Risk indicator	Daily market data	<p>quantity and price data on corporate/household leverage, risk pricing, liquidity and fund flows:</p> <ul style="list-style-type: none"> • Mortgage credit growth • Consumer credit growth • Household debt-to-GDP ratio • LTV ratio on new mortgages • Property-related credit growth • Non-property credit growth • Private Non-Financial Corporate (PNFC) debt to equity ratio • PNFC debt to income ratio • Current account • Net foreign assets • Gross external debt • Gross capital inflows • Term premium • Realized volatility • Price/earnings ratio • Investment grade bond spread • House price to rental ratio • Commercial Real Estate yield 	<ul style="list-style-type: none"> • Market position in cash and derivatives market • Margin financing (e.g., margin loan size, collateral coverage, bank borrowing etc.) • Key risk indicators in relation to credit risk, market risk, liquidity risk, operational risk (e.g. credit exposures indicator, credit default swap and credit valuation adjustment, client money deposit and sources of funding, credit facilities indicator, value-at-risk, etc.) • Fund managers are required to report any daily net redemption of 5 percent or more of the fund's net asset value and any deployment of liquidity tools (such as deferral of redemptions and suspension of dealing). The SFC may heighten the reporting requirements on SFC-authorized funds where appropriate (e.g. in view of COVID-19 outbreak, the SFC has lowered the daily net redemption reporting threshold from 5 percent to 2 percent) 	<ul style="list-style-type: none"> • Annual stress tests • Stress tests on long term insurers are also carried out quarterly • Ad-hoc stress tests are conducted when there are adverse market conditions for long term insurers
Data gap		Corporate loan level data, granular household and mortgage survey, Non-bank household lending		risk-based data
Source: Hong Kong SAR authorities.				

F. Recommendations to Strengthen the Institutional Framework for MaPP

21. While acknowledging the strong institutional setup and coordination mechanism under the CFR/FSC, we recommend further efforts to strengthen systemic risk assessment, improve data collection, enhance communication, and close regulatory gaps for non-bank mortgage lending.

- Further leveraging the resources and cross-sectoral expertise of the HKMA and other regulators to strengthen the FSC's systemic risk analysis.** In order to expand systemic risk monitoring and policy analysis, the FSC Secretariat should continue to leverage the capacity of each regulator analyzing the risks facing its own sector and should complement it with an assessment of interlinkages and contagion risk. The HKMA could take the lead to help strengthen the analytical capacity of the FSC, since it has more macrofinancial expertise (through its FSS Division, Research Department and MSC) and professional resources for such purposes as compared to the SFC and the IA, and since its remit covers most MaPP policy tools such as determining the LTV ratio, DSTI ratio and CCyB. The SFC and the IA should also continue contributing to analyzing systemic risks — particularly cross-sectoral risks, such as risks stemming from capital outflows, from margin funding for insurance products, from MC's economic slowdown, RMB volatility, property market correction and rising financial leverage. Because the Hong Kong SAR's financial system is becoming more complex and inter-connected, developing a holistic view of the financial system is important to identifying the linkages and contagion channels among sectors, which are important for limiting risk amplification and spillover.
- Enhancing the macroprudential reporting and communication strategy.** A (semi-) annual CFR publication of financial stability risks and macroprudential policies would enhance the transparency and accountability of macroprudential policies and provide a more broadly encompassing, system-wide view. This would complement existing publications, such as the HKMA's Half-Yearly Monetary and Financial Stability Report, the HKMA's Quarterly Bulletin, and the SFC's Half-yearly Review Report of the Global and Local Securities Markets. The HKMA's bulletin and the SFC's review also discuss issues related to macroprudential policy, with the former focusing on the banking sector and the latter covering various market segments. Macroprudential authorities in other jurisdictions typically publish a dedicated financial stability report covering the whole financial system. Such a report can also be used to guide discussion at CFR and as the basis for making macroprudential policies. Typically, a press conference is held by the Macroprudential Authority to officially release the (semi-) annual financial stability report. Cross-country examples of institutional arrangements and communications policies of Macroprudential Authorities in advanced countries are listed in Table 5 as reference. In addition, regular press releases on key issues discussed at quarterly CFR meetings will also bring more transparency to the work of the CFR. Market-sensitive information discussed in the CFR meetings should be excluded from the press release.
- Close data gaps on financial institutions' cross-border exposures, household and investor leverage.** Regulators have mainly been using periodic aggregate survey data or ad hoc data

request for risk analysis. More timely and granular survey data will further improve the accuracy of such analysis. Currently, only aggregate data are available for some key bank exposures, such as mortgage exposure and mainland corporate exposure. More granular data on key risks could help improve risk analysis. With more detailed data, stress tests can be conducted for various risk scenarios — for example, on the distribution of mortgage credit among different income groups and on the sensitivity of MC's corporate credit exposure to economic and financial volatility. The authorities have been strengthening data and information collection, including the HKMA's GDR initiative for granular loan-level data. These are some examples of data gaps:

- a) Loan-level granular data on credit exposure to MC corporate sector will help improve the assessment of the resilience of these credits with regard to RMB volatility, refinancing risks and macroeconomic shocks.
- b) More information on household lending by non-bank lenders (e.g., NDFCs and property developers) and their underwriting standards will help estimate the total household debt and associated vulnerability.
- c) Household-level mortgage data will help clarify the distribution of leverage among different income groups. More information about DSTI/LTV breakdown by different income and age groups could be useful.
- d) More granular data on non-mortgage household debt will help assess the overall leverage and liquidity/maturity mismatch risks from leveraged investment by high-net-worth individuals.
- e) The investor base of MC high-yield bonds in the Hong Kong SAR and their linkages to the broker and banking sector will help assess the contagion risk in case of rising defaults among such bonds.

22. Regulatory gaps toward non-bank mortgage lenders could be reduced. As bank lending to households is tightly regulated by existing MaPP, household credit supplied by NDFCs and property developers has been increasing at a fast pace, although their aggregate size is still small compared to the lending by the banking sector. The HKMA has improved information-gathering about residential mortgages provided by NDFCs and property developers, but collection of more information about the underwriting standards and size of non-bank household lending by the relevant authorities could be helpful. Prudent lending standards should also be set up for all NDFCs and property developers to limit the buildup of household debt from non-bank lenders. All household debt should preferably be registered with a credit registry, and the DSTI calculation for mortgage applications should include all household debt besides mortgages. Cross-country experiences on policies to deal with non-bank mortgage lenders are highlighted in Table 6.

23. The authorities should continue to develop contingent unwinding strategies of the current macroprudential policy stance, to prepare for the eventuality of a continuing economic recession. Substantial buffers built by past MaPP offered ample policy room to the authorities to deal with large macroeconomic shocks. Due to the economic shocks from the COVID-

19 virus, financial conditions tightened significantly, and credit growth slowed in 2020. The relaxation of CCyB was thus proper to support the banking sector for credit provision. The Hong Kong SAR's housing prices largely remained resilient throughout 2020 despite the economic contraction, partly because the substantial buffer created by past MaPP has reduced the need for "fire sales". Considering the overstretched housing prices at the current levels, there is no need to relax the taxation policies immediately. However, if housing prices were to drop sharply, taxation policies could be adjusted gradually, because taxation policies have been proven more effective in influencing housing price dynamics. LTV/DSTI policies should be adjusted only after household indebtedness improves and only after property price overvaluation risks dissipate. A proper communication about the sequencing, criteria and goals for unwinding the current macroprudential policies would improve effectiveness and minimize side effects.

24. Coordination with other public mortgage insurers could be improved to limit leakage from existing MaPP. The Hong Kong Mortgage Corporation (HKMC) provides mortgage insurance for high LTV mortgages to promote home ownership and the stability and the integrity of Hong Kong SAR's monetary and financial systems, largely based on home values. For home values below HKD 8 million, the HKMC can support mortgage LTV ratios of up to 90 percent. For home values between HKD 8 million and HKD 10 million, the HKMC can support mortgage LTV to 80 percent. The HKMC might consider targeting income levels or certain social groups (e.g., young people or low middle-income household), instead of home values, to limit potential leakages from MaPP. Currently, the HKMA sets LTV limits at 30 percent to 60 percent based on the market value of the residential property, the type of mortgage loans assessment (self-use versus non-self-use or company held), outstanding mortgages of applicant (first-time or applicant who already have outstanding or guaranteed other mortgage(s)), and income source (derived mainly in or outside of HKSAR). The share of HKMC-insured mortgages in total residential mortgage originations has been increasing, following the recent relaxation of HKMC insurance eligibility. The changes in HKMC insurance eligibility would have an effect of promoting wider home ownership for low middle-income groups, young people and first-time homebuyers. It would be helpful for greater clarity in the interplay of policy goals between macroprudential policies and social policies.

Table 5. Hong Kong SAR: International Comparison of Macroprudential Institutional Setup

Country	Designated Macroprudential Authority	Interagency Coordination Mechanism	Communication /Publications
Australia	Australian Prudential Regulation Authority (APRA), Reserve Bank of Australia (RBA)	Council of Financial Regulators (CFR) that consists of representatives from RBA, APRA, the Australian Securities and Investments Commission, and the Australian Treasury	Semi-annual Financial Stability Review by RBA, Quarterly Statement by CFR on its latest meeting and discussion, Annual report by CFR on its activities
Singapore	Monetary Authority of Singapore (MAS)	An interagency task force that comprises representatives from MAS, the Ministry of Finance, and the Ministry of National Development	MAS publishes Annual Financial Stability Review
Mexico	Financial System Stability Council (FSSC)	FSSC comprised by nine voting members: The Minister of Finance (Chair) and one Deputy Minister; the Governor of the Central Bank of Mexico and two Deputy Governors; the heads of three supervisory agencies (Banking, Pension funds, and Insurance); and the head of the Deposit Insurance Agency	FSSC holds quarterly meeting, FSSC publishes annual financial stability report and holds regular press conference
Canada	The Minister of Finance shares the MaPP responsibilities with sector regulators	Senior Advisory Committee chaired by deputy Minister of Finance has the same membership as the Financial Institutions Supervisory Committee, i.e. Office of the Superintendent of Financial Institutions, the Department of Finance, the Bank of Canada, the Canada Deposit Insurance Corporation, and the Financial Consumer Agency of Canada	Bank of Canada publishes annual financial stability report

Source: IMF annual Macroprudential policy survey.

Table 6. Hong Kong SAR: Selected Country Experience to Deal with Mortgage Lending by NBFIs

Country	Non-bank Mortgage Providers	Extending MaPP regulations to NBFi lenders
Canada	Specialized mortgage finance companies (SMFC) are not regulated at federal MaPP authority, but the mortgage originated by SMFC typically need buy insurance from regulated insurance companies	The federally regulated mortgage insurers are required to observe the LTV/DSR limit on mortgage by SMFC before selling the insurance. The authorities start to collect information on mortgages originated by non-federally regulated lenders
South Korea	In addition to banks, NBFIs (e.g. insurance companies and consumer lenders) provide residential mortgage	The Financial Services Commission, the MaPP authority, applied the same uniform standard (e.g. 70 percent LTV and 60 percent DTI) on all mortgage lenders regardless the sources of origination (banks or NBFIs)
Singapore	Besides the banks, NBFi lenders are involved in mortgage origination and consumer lending. MAS as the integrated financial regulator and MaPP authority can regulate most NBFIs. Property developers were also offering deferred payment scheme for mortgage finance	<p>MAS-regulated financial institutions, which are currently permitted to grant residential mortgage loans, are subject to the uniform MaPP limits on LTV ratios: (1) banks (including foreign bank branches); (2) merchant banks; (3) finance companies; and (4) direct insurers. Moreover, the Ministry of Law also imposes the same LTV limits on residential mortgages granted by licensed money lenders</p> <p>The MAS has banned the interest absorption scheme (IAS) and interest-only housing loans (IOL) and restricted the deferred payment schemes (DPS) for all property developers</p>
U.K.	In addition to banks, NBFIs (e.g. mortgage finance companies) provide residential mortgage	MaPP authority requires that the uniform MaPP standard is applied to all U.K.-regulated mortgage lenders

Sources: IMF Annual Macroprudential Policy Survey and Article IV report.

SYSTEMIC RISKS AND MACROPRUDENTIAL TOOLKIT

A. Vulnerabilities of Rising Household Debt and Elevated Housing Prices

25. The Hong Kong SAR's household debt-to-GDP ratio has exceeded the average level of developed economies but appears manageable at aggregate level. Household debt gradually increased from 51 percent of GDP in 2007 to 88 percent in 3Q2020, driven by both low interest rates and strong income growth (Figure 3). The significant drop of household income in 2020 under the Covid-19 impact also contributed to the rise of household indebtedness. Residential mortgages account for two-thirds of household debt, while the remaining one-third consists mainly of credit card debt, unsecured personal loans, secured loans for investment purposes, and top-up mortgages. Non-bank household lenders (such as NDFCs and property developers) also provide credit to households, but their aggregate amount is estimated to be less than 5 percent of GDP or 7% of outstanding residential mortgage. Bank for International Settlements (BIS) data show that the current level of household credit to GDP of 79 percent in the Hong Kong SAR is above the average of 72 percent in all advanced economies in 2019. However, considering the high savings rate and the large amount of financial assets held by Hong Kong SAR residents, the current level of household debt appears manageable at the aggregate level.³ More granular data such as household debt to income for different income groups would be useful to assess the distribution of leverage and locate the most vulnerable households.

26. The rapid growth of household debt warrants close monitoring and a tight macroprudential policy stance. The pace of household debt buildup accelerated (and the household debt-to-GDP ratio increased) by 9 percent to 81 percent in 2019. Those levels and pace of increase are among the highest in advanced economies, according to BIS data. The rapid growth of household debt is driven by both mortgage debt and households' investment-related loans. The recent relaxation of eligibility for the HKMC's mortgage insurance program⁴ provided strong support to homebuyers in need of putting down less money upfront as down payment with mortgages of up to 90 percent LTV. Moreover, high-net-worth individuals have been taking advantage of low interest rates and borrowing more for leveraged financial investment. Together with the increase in assets under management of the booming private bank industry in the Hong Kong SAR, the demand for margin loans by high-net-worth clients also increased at a faster pace. As a result, investment-related loans to individuals have been growing at an annual rate of 15 percent since the GFC and reached 25 percent of GDP in 2019.

27. The credit quality of residential mortgages remains solid, supported by low LTV and DSTI. Due to the continued tightening of MaPP on the housing sector since the GFC, LTV and DSTI ratios of newly approved mortgages have been declining steadily over time. The average LTV ratio and DSTI ratio of new mortgages were low, at 57 and 37 percent respectively, as of Dec 2020. The low LTV/DSTI ratios have created substantial buffers for banks and households to deal with housing

³ "Understanding household indebtedness in Hong Kong", HKMA Research Memorandum 07/2018.

⁴ The LTV requirement and maximum value of residential property eligible for HKMC-insured mortgage was relaxed in 4Q2019.

price corrections and income shocks. But the reported LTV/DSTI ratios of new residential mortgages only consider bank mortgages and do not include non-bank lending to households as second mortgage, which are believed to be relatively small at this moment (e.g. less than 5% of GDP in 2019).

28. Housing prices appear overvalued relative to income and rent, based on both historical norms in the Hong Kong SAR and international comparison. The four-fold increase in property prices since the GFC has made the Hong Kong SAR one of the least affordable housing markets in the world (Figure 4). Relative to the historical norm of housing price to income and rent, the Price-to-Income level is more than 25 percent above, and the Price-to-Rent level is more than 29 percent above, their long-term averages since the GFC. This indicates the elevated risk of a property bubble. Compared to other economies with recent housing booms, the Hong Kong SAR stands out — both in the absolute level of price appreciation and in overvaluation risks (Figure 4). Despite the sharply rising unemployment rate and falling income in 2020 caused by Covid-19, housing prices, supported by the lower mortgage rates and chronic housing shortage, have held up surprisingly well and have remained largely stable in 2020.

29. More careful assessment of the various risks facing banks' non-mortgage debt to households would be helpful, and regulations on margin finance for investment products should be suitably compared and communicated between the SFC and the HKMA. HKMA Research (Cheung et al., 2018) found that more than 70 percent of non-mortgage household debt is made up of secured loans, comprising bank lending backed by financial assets granted to high-net-worth individuals and top-up financing secured by properties. The risk management policies of banks, according to HKMA research, are generally prudent. However, as the reach for yield pushes investors to make more leveraged bets on market risk, duration risk and credit risk, the margin financing for illiquid and low-grade credit bond could create significant risk in times of market stress. The disorderly unwinding of such leveraged investments could cause major market volatility and contagion: In the worst case, it could lead to a margin-call spiral and significant market dislocation. The heightened market volatility following the concerns about the potential default of a major MC developer in September 2020 is just one example of such market contagion. Therefore, regular surveillance of banks' risk management practices in this area is warranted. In addition, the margin finance policies and investment conduct requirements should be comparable between the HKMA and the SFC to avoid regulatory arbitrage (e.g. the eligibility requirement and proper haircuts for margin loans to non-investment-grade bonds). Recent rules⁵ by SFC implemented in October 2019 to tighten margin finance requirement for non-investment grade bond is timely and proper to contain the risk of providing margin financing for investment products.

⁵ The SFC has issued new guidelines to provide guidance on risk management standards expected of brokers conducting securities margin financing activities. The new guidelines, which took effect on 4 October 2019, set out qualitative requirements and quantitative benchmarks for margin lending policies and key risk controls.

B. Calibration of Macroprudential Policies in the Housing Sector

30. The current stance of MaPP on housing - the tightest among all developed economies - has created substantial buffers for both banks and households. The housing market has been a focus of the authorities for both financial stability and social cohesion purpose. Eight rounds of MaPP tightening have been adopted since 2009 (Annex 1). Various demand-side measures have been adopted in terms of LTV/DSTI, risk weight floor for mortgages, and taxation. Compared to other countries with significant housing booms, housing MaPP stance is among the tightest globally (Table 7).

31. Calibration of changing MaPP stance is found to have been asymmetric in the past. The HKMA has been adjusting MaPP policies in response to the changing macro and housing market conditions since 1997. MaPP were eased five times after the Asian Financial Crisis and tightened eight times since the GFC. Figure 1 presents the relationship between macroprudential policy actions relative to quarterly mortgage volume growth and housing price change in Z-scores. MaPP easing is defined as -1 while tightening is defined as +1 depending on LTV and DSTI adjustment. MaPP tightening typically follows a rapid increase of housing price and mortgage volume growth. New mortgage growth has slightly lagged the housing price changes, but it is closely linked to housing prices. Based on the multimodal logit regression of changes in the MaPP stance on explanatory variables (Table 8), we found that tightening is more likely driven by rising housing prices above certain thresholds (e.g. +0.5 Z-score). The easing of MaPP is more likely driven by weak mortgage growth, although the relationship is not strong. In practice, the timing and magnitude of deployment of macroprudential measures by HKMA are based on research on property cycles and dashboard monitoring, extensive discussions, and market intelligence gathering. There have been episodes when the LTV ratio is relaxed amid strong housing price appreciation. From our discussions with the authorities, the calibration of MaPP is a combination of rules and expert judgement. Discretionary judgment of the overall economic outlook and financial conditions are also key factors behind policy adjustments.

Table 7. Hong Kong SAR: Comparison of MaPP on Residential Mortgage in AE with Housing Boom

	Hong Kong SAR	Singapore	Sweden	Australia	New Zealand	Canada
CCyB	1.0%	0%	0%	0	0%	0%
Housing sector capital buffer/requirement	New mortgage loans approved by IRB banks is subject to a risk weight of the higher of 15% or the level determined by their own IRB models.		The risk-weight floor for mortgages is 25% for banks using the internal ratings-based approach.	Residential mortgage exposures should have at least 25 percent risk weights on average.	Residential Mortgages are subject to risk weights ranging from 35% to 100%; loans with higher LTV ratios and those don't qualify for lender's mortgage insurance are associated with higher risk weights.	
Limits on loan-to-value ratio	30-60% depending on the market value of the residential property, the type of mortgage loans assessment, outstanding mortgages of applicant,	Individual borrowers: 15%-75%; Nonindividual borrowers: 15%	85%	Speed limit curtailing annual growth in a bank's investor housing lending to 10 percent		The minimum down payment for properties up to \$500,000 is 5%, and that for the portion of the house price above \$500,000 mortgages is 10%. The LTV limit for non-owner occupied properties and those priced above \$1M is 80%. Non-conforming mortgage loans is subject to a maximum LTV limit of 65%.
Limits on debt-service-to-income ratio	30-50%; stressed Debt Service Ratio of 40-60% (assuming an interest rate hike of 300 basis points)	60% maximum ratio applicable to all loans, except for mortgage equity withdrawal loans with LTV ratios of 50% and below.				Maximum Gross Debt Service of 39% and maximum Total Debt Service ratio of 44%; stress test for uninsured mortgage borrowers of 2 percentage points higher than the contractual mortgage rate being offered.
Limit on amortization periods	30 years	35 years for private properties and Executive Condominiums (Ecs); 30 years for loans granted by financial institutions for the purchase of an Housing and Development Board (HDB) flat; 25 years for housing loans granted by HDB				25-year amortization limit was applied for loans to be eligible for government-backed mortgage insurance
Stamp duties	1) Special Stamp Duty of 10-20% for properties held less than 36 months; 2) Buyer's Stamp Duty of 15% for any residential property acquired by any person (including a company incorporated); 3) New Residential Stamp Duty (NRSD) of 15% for real estate transactions except acquisition of a single residential property under a single instrument, by a HKPR acting on his/her own behalf and is not a beneficial owner of any other residential property in Hong Kong at the time of acquisition.	1) Seller's Stamp Duty on holding periods of up to three years with rates ranging from 4 percent (for properties sold in the third year) to 12 percent (for those sold within the first year); 2) 12 percent for Singapore Citizens (SCs) buying their 2nd residential property; 15 percent for SCs buying their 3rd and subsequent residential property; 5 percent for Singapore Permanent Residents (SPRs) buying their 1st residential property; 15 percent for SPRs buying their 2nd and subsequent residential property; 20 percent for foreigners; 25 percent for entities; 30 percent for housing developers (with 25 percent remittable, subject to conditions)			The Bright Line test was changed such that profits from the resale of non-primary residences purchased on or after March 29, 2018, within five years became automatically income-taxable.	1) A property transfer tax of 20% on foreign nationals purchasing residential property in the Greater Vancouver region District, the Capital Regional District, the Fraser Valley, the Central Okanagan and the Nanaimo Regional District. 2) A property transfer tax of 15% on foreign nationals purchasing residential property in the Greater Golden Horseshoe.

Source: IMF annual macroprudential policy survey.

Figure 1. Hong Kong SAR: Calibration of HKMA MaPP on Housing Sector

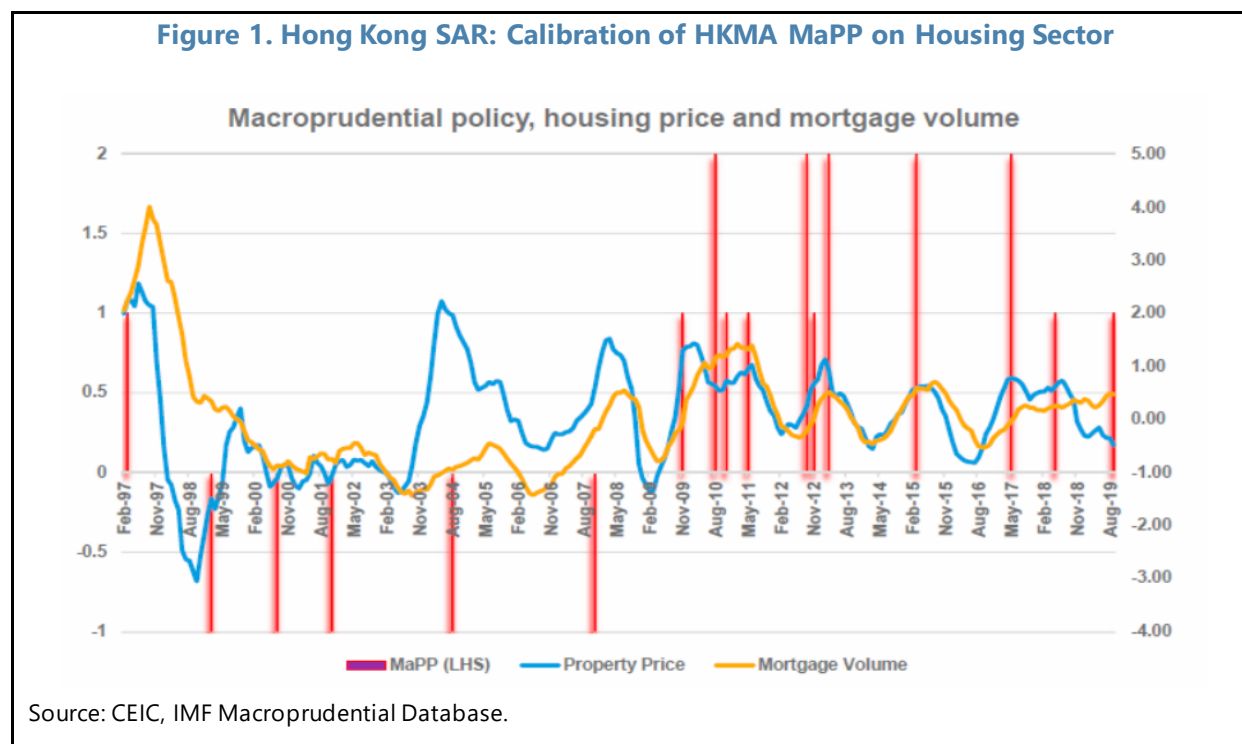


Table 8. Hong Kong SAR: Multimodal Logit Regression Analysis of MaPP Stance Volume

MaPP Stance	Explanatory Variables	Coefficient
Easing (-1)	Housing Price % yoy	-0.06
	Mortgage Volume % yoy	-0.73
	Constant	-4.14
Tightening (+1)	Housing Price % yoy	0.74**
	Mortgage Volume % yoy	0.25
	Constant	-3.96
Tightening (+2)	Housing Price % yoy	0.62***
	Mortgage Volume % yoy	0.10
	Constant	-4.13

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: IMF staff estimate. Note: Independent variables are lagged vis-à-vis the easing or tightening of MaPP to overcome a weak form of endogeneity.

C. Effectiveness of Macroprudential Policies on Housing Sector

32. MaPP are found to be effective in improving the resilience of the mortgage portfolio, while it has a muted impact on housing prices and mortgage growth. We ran a simple regression based on the quarterly data from 1997 to 2019 of actual LTV, mortgage growth and property price on various lagged explanatory variables including the historical MaPP stance. MaPP stance of LTV is defined as the simple average of all LTV limits regarding different value categories of housing units. The results show that actual LTV of new mortgages will drop by 3 points if LTV limits decrease by 10 points⁶. Thus, an LTV requirement is binding for many mortgage borrowers. Mortgage growth is more driven by the lagged housing price and interest rate changes. Housing prices are mostly explained by incomes and interest rates, while MaPP is not significant in affecting housing prices and mortgage growth. However, recent IMF studies found that the effectiveness of Macroprudential policies in different countries is less conclusive⁷.

Table 9. Hong Kong SAR: Effect of Macroprudential Policies on LTV, Mortgage Growth and Housing Price

VARIABLES	(1) actual LTV	(2)	(3) mortgage growth	(4)	(5) property price	(6)
<i>lagged change in LTV limits</i>	0.294*** (0.101)	0.261** (0.101)	-0.0365 (0.0553)	0.000446 (0.0481)	0.000590 (0.00169)	0.000590 (0.00169)
<i>lagged change in DSTI limits</i>	-0.131 (0.138)	-0.143 (0.137)	-0.00528 (0.0721)	0.0163 (0.0624)	-0.00308 (0.00232)	-0.00308 (0.00232)
<i>lagged GDP growth</i>	-0.025 (0.0711)	0.032 (0.0777)	0.164*** (0.0382)	0.0431 (0.0368)	0.00335** *	0.00335** *
<i>lagged change in HIBOR</i>	-0.318 (0.277)	-0.237 (0.276)	0.309* (0.159)	0.241* (0.138)	0.0136*** (0.00465)	0.0136*** (0.00465)
<i>log diff of property price</i>		-1.913 -5.752		11.60*** (3.096)		
<i>Constant</i>	-0.003 (0.119)	-0.016 (0.118)	-0.147** (0.0653)	-0.166*** (0.0565)	0.000893 (0.00201)	0.000893 (0.00201)
Observations	203	203	181	181	203	203
R-squared	0.060	0.097	0.123	0.356	0.101	0.101

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

⁶ The regression results on the impact of LTV cap on realized LTV is similar to Wong, Ho and Tsang (2015).

⁷ See more cross-country studies by Alam Zohair and etc. (2019), Pau Rabanal (2018) and Salim D. and Xiaoyong Wu (2015)

33. The unintended consequence of consecutive MaPP tightening may include declining secondary market liquidity and the fast price appreciation of low-value housing units. The demand-side control measures, such as mortgage loan restrictions and property transaction taxation, may discourage potential buyers given the higher taxation cost and more restrictions on obtaining mortgage loans. This impact of demand for housing may reduce the willingness of current homeowners to sell their units. The declining secondary market liquidity of housing effectively reduces the supply of second-hand homes and may contribute further to the housing market imbalance. In mature markets, secondary market supply is typically much larger than primary market supply. In the meantime, property demand is pushed to the small units, as the LTV and DSTI limits on the low value housing units are less binding given the same household income. Figure 4 shows that price of small units rose almost 100 percent more than that of big units since the GFC, although previously their prices tended to move together before MaPP tightening. The fast appreciation of low-value units may increase the leverage of less affluent households, as they are more likely to buy low-value units given the income restrictions.

34. NDFCs' and property developers' lending to households increased quickly from a low base and may warrant a further policy response if the pace is sustained. Non-bank household lenders in the Hong Kong SAR (such as property developers and NDFCs), which are not directly regulated by the HKMA, have increased their lending to households. The data on total non-bank lending to households is estimated to be small — less than 5 percent of GDP in 2019. As of June 2019, property developers extended mortgage loans of HKD 41 billion with higher LTV ratios — up to 90 percent — equivalent to 3 percent of outstanding residential mortgages of AIs. Other finance companies and brokers may also have provided household finance secured by financial assets or property. Tight MaPP toward bank mortgage resulting in leakages of mortgage business to non-bank lenders need to be closed with some prudent standard on non-bank household lending. The international experiences dealing with non-bank mortgages are listed in Table 6.

35. In order to prevent leakages from tight macroprudential policies, the HKMA has imposed a floor on risk weight that needs to be applied by AIs for exposures to property developers that offer high LTV mortgages. For AIs using an Internal Ratings-Based (IRB) Approach in calculating capital charges for credit risk (IRB banks), they can continue to determine the capital risk weights for their credit exposures to a property developer based on their approved IRB models. However, they should apply the following risk weight floors for their credit exposures to a property developer offering mortgages with high LTV ratios for the purpose of calculating their capital adequacy ratios (CARs): (a) a risk weight floor of 50 percent, if the property developer's mortgages-to-equity (MTE) ratio exceeds 5 percent but does not exceed 10 percent; and (b) a risk weight floor of 100 percent, if (i) the property developer's MTE ratio exceeds 10 percent or (ii) the AI cannot obtain information from the property developer for calculating the MTE ratio. For AIs using a Standardised Approach in calculating capital charges for credit risk, the adjusted capital risk weighting should be adjusted (via Pillar 2 add-on to minimum requirement): (a) 1.5 times the existing applicable risk weight (subject to a cap of 150 percent), if the property developer's MTE ratio exceeds 5 percent but does not exceed 10 percent; and (b) 2 times the existing applicable risk weight (subject to a cap of 150 percent), if (i) the property developer's MTE ratio exceeds 10 percent or (ii) the AI cannot obtain information from the property developer for calculating the MTE ratio. Given the strong capital

positions of large Hong Kong SAR property developers, property developers still have room to offer sizable mortgages. This policy has reduced the property developers' incentive to extend mortgages.

D. Vulnerabilities of Corporate Exposure to Offshore MC Borrowers

Credit Exposure to High-yield Bond Issuance from MC

36. Offshore bond issuance by MC borrowers has increased rapidly and poses significant credit risks. Since the GFC, offshore MC bond issuance saw rapid growth due to globally easy monetary conditions and tight borrowing conditions in MC. Annual issuance of offshore non-bank MC bonds increased to US\$190billion in 2019 — more than 10 times the total issuance of US\$18billion in 2014. Non-bank MC corporate bond outstanding totals US\$662billion: Most of them are short-term (2-3 years) and only one-third have investment-grade ratings (Figure 6).

37. High-yield MC offshore bond issuers from certain sectors (e.g. real estate) could face high default risk in adverse scenario. MC real estate developers account for 30 percent of total MC offshore bond issuance. Their bond tenor shortened, and their yield increased in 2019. Offshore bonds of the major MC developers (rated well below investment grade) offer a yield at double-digit levels, with an average maturity of around two years. Their business revenues are mostly from onshore MC property development and are denominated in RMB. Thus, the currency mismatch and refinance risks are high. A few major defaults by MC borrowers or global market volatility could freeze the high-yield offshore market and could exacerbate the refinance and interest-rate risks for MC borrowers relying on the offshore high-yield bond market. The credit fundamentals (such as debt to equity and interest coverage ratios) have been weakening over time (Figure 6). Our PD analysis shows that real estate sector borrowers from MC could increase significantly in an adverse scenario.

38. The investor base of these MC high-yield offshore bonds is not transparent, although spillovers to AIs are still possible. Bloomberg data show that only a small portion (e.g., a single-digit percentage) of these MC high-yield bonds are held by large global fixed-income funds. It is believed that most of such global fixed-income funds are in turn held by private bank clients and MC NBFIs in the Hong Kong SAR. Direct holdings of MC high-yield corporate bonds by Hong Kong SAR banks are very low⁸. However, Hong Kong SAR banks may provide margin finance for some of these investors, and bond defaults may lead to cross-defaults of bank loans to the same group of high-yield borrowers. Nevertheless, more visibility on the investor base of MC high-yield bonds and their linkages to Hong Kong SAR banks will help analyze the risks and help design proper macroprudential policies in case of materialization of credit risks of these MC high-yield corporate bonds. Regulators have made progress to ensure that there will be conservative haircuts and collateral standards for margin funding provided by banks or brokers for leveraged investors of MC high-yield bonds. The recent new SFC rules enacted in Oct 2019 on margin finance provided by brokers for non-investment grade bonds are welcome policy tightening to contain this risk.

⁸ Direct holding of MC high-yield corporate bond by Hong Kong banks is only HKD41bn as of September 2019, which is insignificant relative to their balance sheet or capital.

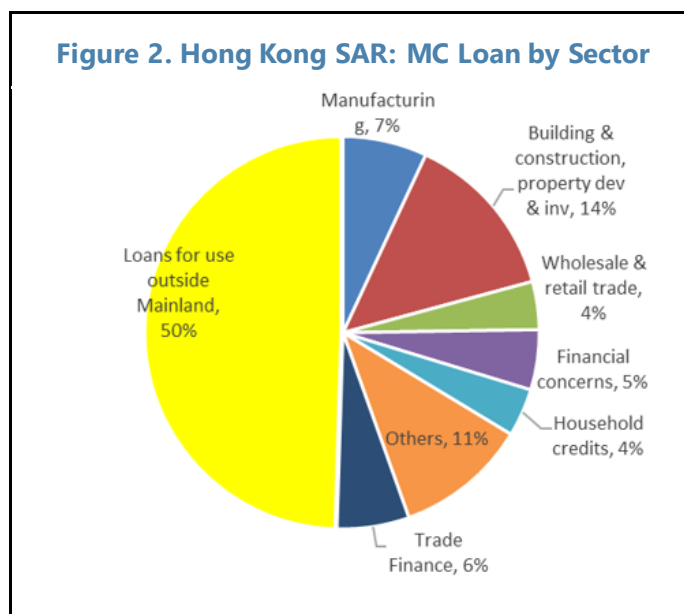
Credit Exposure from Bank loans to MC Borrowers

39. Credit exposure to MC borrowers from Hong Kong SAR banks is large and has performed well in the past. MC loans account for 39 percent of total loans and 17 percent of total assets of Hong Kong SAR banks as of June 2020. The growth rate of MC loans has been largely in line with the overall loan growth in the banking sector. The gross classified loan ratio for Mainland-related lending was only 0.75% in end-2019, which was slightly higher than NPL for total loans of 0.57%.

40. Bank lenders to MC borrowers are diverse in terms of ownership and the credit exposure could be systemic for some banks. In 2019, 42 percent of MC corporate loans are offered by global bank branches, where 20 percent of MC corporate loans are from MC bank branches and 22 percent are from non-MC bank branches. 43 percent of MC corporate loans are from local Hong Kong SAR banks, and the rest (15 percent) is from MC bank subsidiaries (Figure 6). For global bank branches, the MC exposure is still relatively small compared to their global loan book. For local Hong Kong SAR banks and Hong Kong subsidiaries of MC banks that relied on local funding, the credit risks from MC corporate borrowers is large though still manageable at current level for their operations⁹.

41. MC borrowers are diversified, although the real estate sector accounts for around 14 percent of total MC loans. Based on an HKMA survey of MC corporate exposure, 40 percent of MC corporate borrowers are highly rated state-owned enterprises of MC government, while 14 percent corporate borrowers from the real-estate sector may represent high risk. Some MC property developers are also frequent issuers of offshore high-yield bonds in Hong Kong.

42. Credit exposure to MC borrowers should be closely monitored and analyzed with more granular and corporate level data, and if needed, proper guidance on risk exposure should be proposed for banks' exposure to MC property developers to ensure proper capital charges and prevent excessive risk-taking. Credit defaults of MC corporate borrowers have been rare in the past and partly due to the perceived implicit guarantee by Mainland authorities, some firms are viewed by investors as "too-big-to-fail". But as market-based reform deepens, credit defaults from high-risk MC borrowers may happen more frequently, and investors are more likely to reprice the credit risk of MC borrowers in that scenario. Banks based on an internal model on past data and

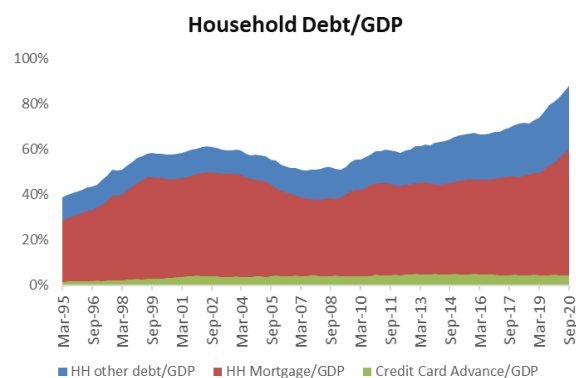


⁹ Please see Hong Kong FSAP technical note on bank stress testing for more details on banks' exposure to MC borrowers.

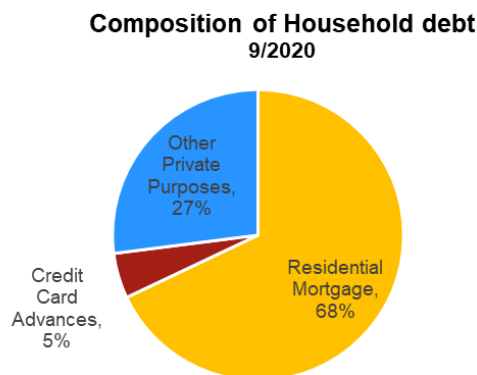
backward-looking financial indicators to determine risk weight may underestimate the credit risks of these MC borrowers. Authorities should continue to ensure that the internal risk models used to determine the capital charge for potential high-risk MC borrowers, particularly MCM real estate borrowers with low credit ratings, should be sufficiently forward looking.

Figure 3. Hong Kong SAR: Household Debt

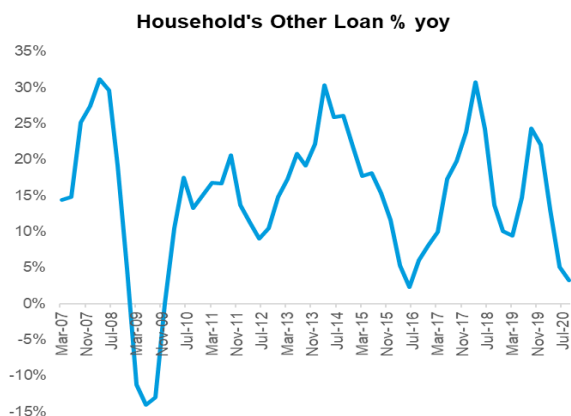
Household debt has increased at a faster pace...



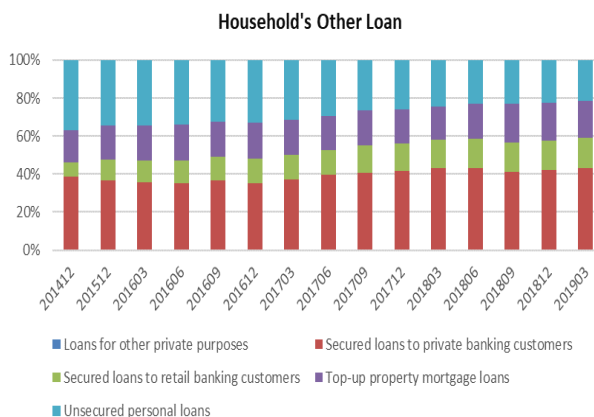
...driven by mortgage and other debt.



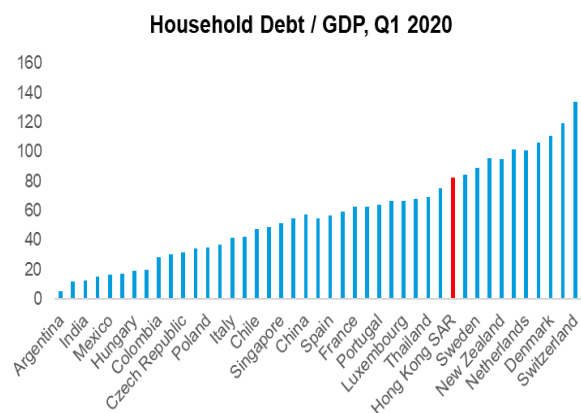
Household's other debt growth averaged 15 percent yoy for a decade...



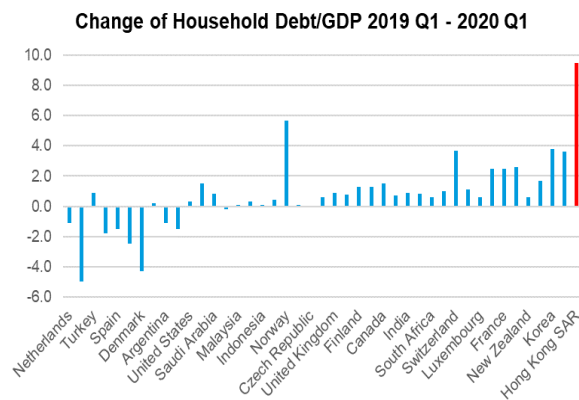
...household's other debt is mostly secure by financial assets.



The level of household debt is above many peers...



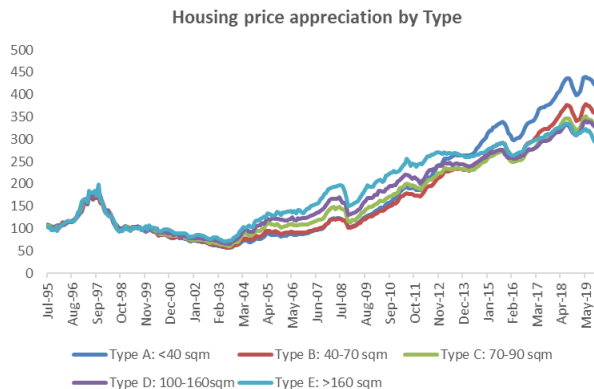
...and its recent growth rate is the highest.



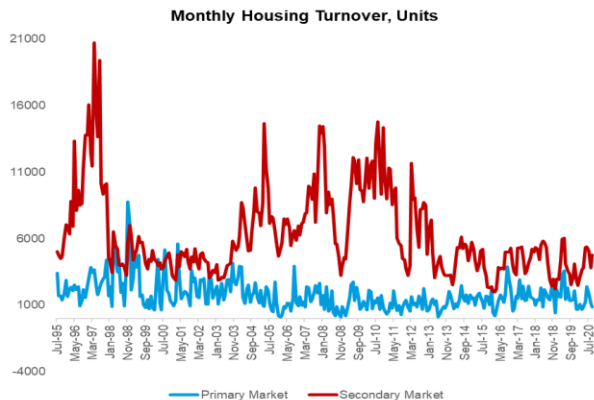
Sources: BIS, CEIC.

Figure 4. Hong Kong SAR: Housing Market and Residential Mortgage

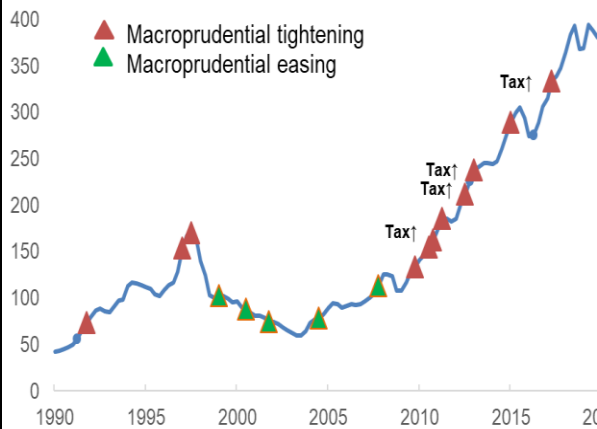
Housing price rose four times since GFC...



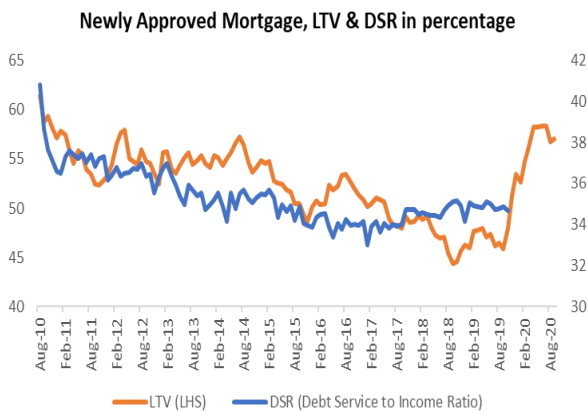
... amid low turnover.



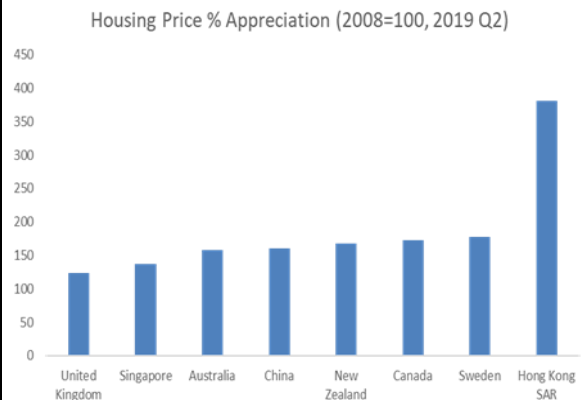
MaPP tightened eight rounds post GFC...



... credit quality of new mortgage remains solid



Housing price rose the most among OECD...



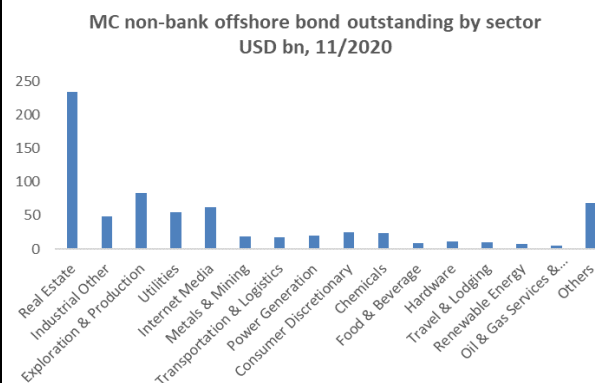
...and showed signs of overvaluation.



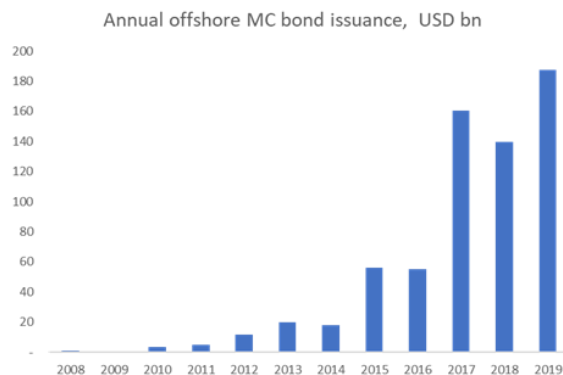
Sources: OECD, HKMA, CEIC.

Figure 5. Hong Kong SAR: Offshore Non-Bank Bond of Mainland China Borrowers

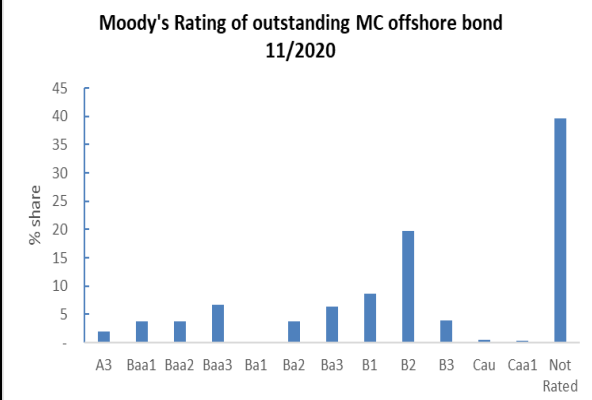
Total outstanding non-bank offshore MC bond is big...



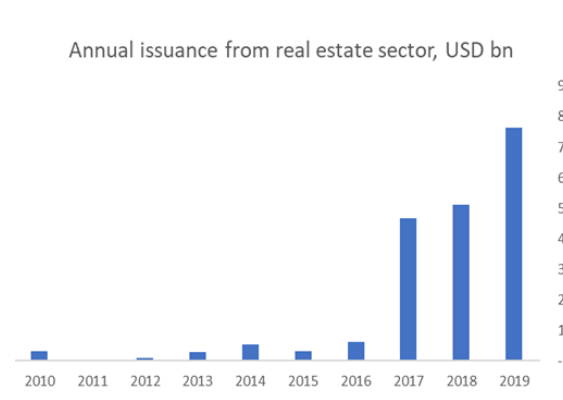
...As MC offshore bond issuance surged in last few years.



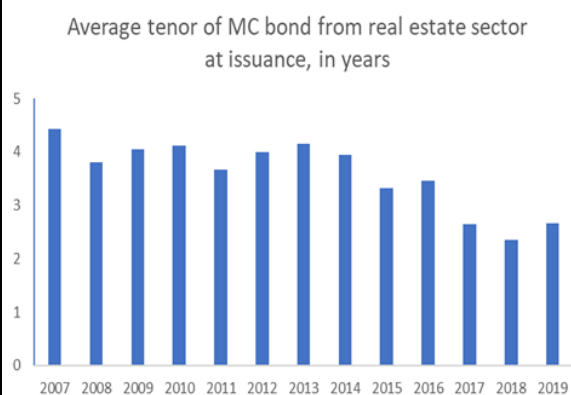
Only 16% of issuers are rated investment grade...



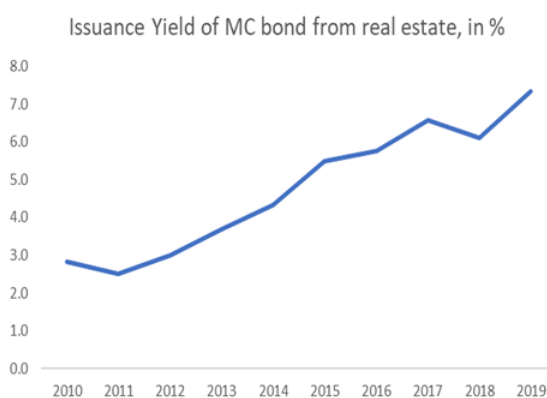
...real estate sector saw most issuance...



...average tenor shortened...



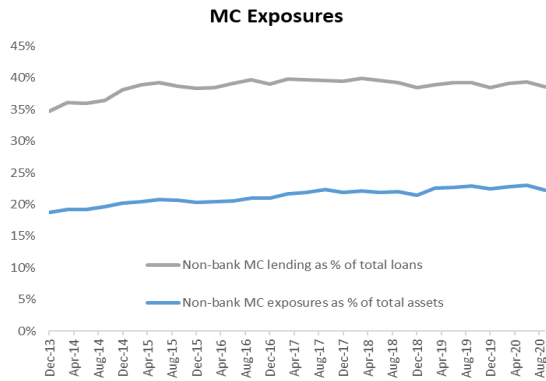
...and issuance yield increased.



Sources: Bloomberg, IMF staff estimate.

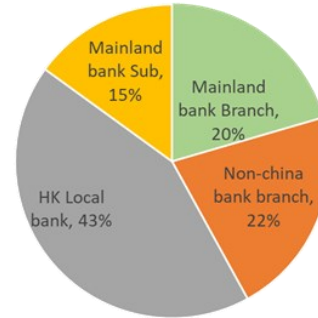
Figure 6. Hong Kong SAR: Hong Kong Bank Lending to Mainland China Borrowers

MC exposure is large and steady...

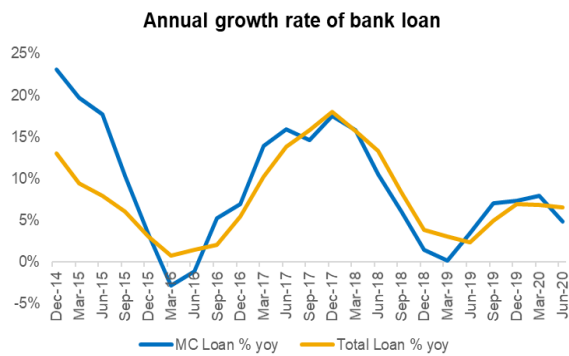


... lending is shared by branch and sub.

MC lending by bank type, Dec 2018

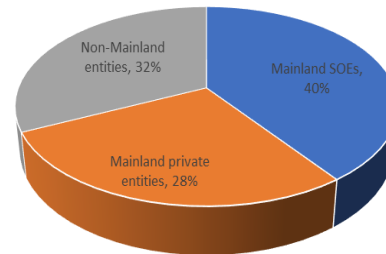


Growth rate of MC loan is in line with overall loan...



...MC loan by ownership types is dispersed.

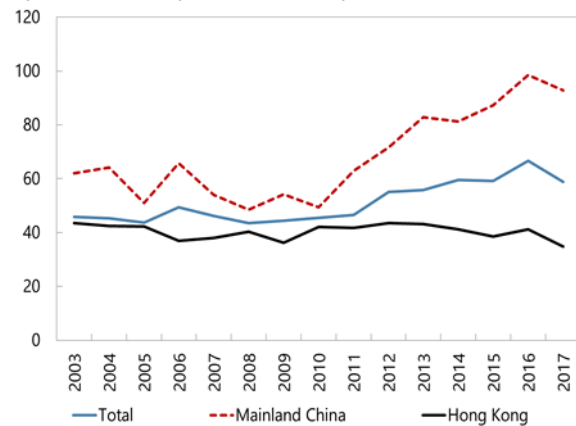
Borrower by ownership type



Leverage of MC corporate increased...

Total Debt to Total Equity

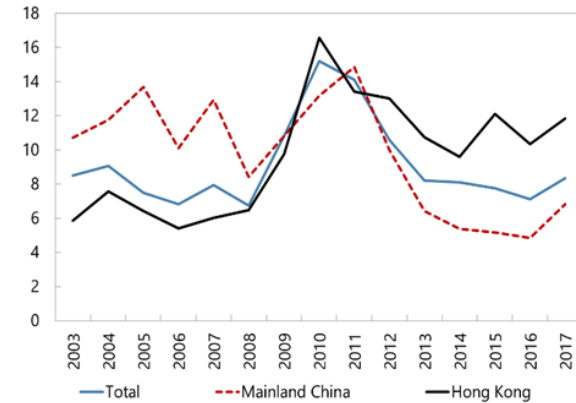
(In percent, median of top 100 non-financial corporations)



...and debt servicing capacity weakened.

Interest Coverage Ratio

(EBIT over interest expense, median of top 100 non-financial corporations)



Sources: HKMA, IMF staff estimates.

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Annex I. Summary of Property Market Measures Introduced Since 2009

Date	Price Range	LTV CAP	Max Loan Amount	Other
Oct 2009	Greater than or equal to HK\$20mn	60 percent (previously 70 percent)		
Aug 2010	Less than HK\$20mn	Remains 70 percent	HK\$12mn	Debt-service-to-income ratio (DSR) capped at 50 percent for all income groups; previously was 60 percent for high income groups; also must be set such that were mortgage rates to go up by 2 percentage points, the stressed DSR would not exceed 60 percent Special Stamp Duty set at 15 percent for residential properties resold within first six months of purchase, 10 percent if resold between six and 12 months, 5 percent if resold between 12 and 24 months LTV cap for industrial and commercial properties mortgage loans at 50 percent.
	Greater than or equal to HK\$12mn	60 percent (previously 70 percent for properties valued between HK\$12mn and HK\$20mn)		
	Less than HK\$12mn	Remains 70 percent	HK\$7.2mn	
	Not owner-occupied, any price range	60 percent (previously 70 percent)		
Nov 2010	Greater than or equal to HK\$12mn	50 percent (previously 60 percent)		
	Greater than or equal to HK\$8mn and less than HK\$12mn	60 percent (previously 70 percent)	HK\$6mn	
	Less than HK\$8mn	Remains at 70 percent	HK\$4.8mn	
June 2011	Not owner-occupied, any price range	50 percent (previously 60 percent)		LTV cap lowered by further 10 percentage points for borrowers with main income from outside Hong Kong SAR; LTV cap for net-worth based mortgage loans lowered from 50 percent to 40 percent, irrespective of property value.
	Greater than or equal to HK\$10mn	50 percent		
	Greater than or equal to HK\$7mn and less than HK\$10mn	60 percent (previously 70 percent for properties valued between HK\$7mn and HK\$8mn)	HK\$5mn	
	Less than HK\$7mn	Remains at 70 percent	HK\$4.2mn	

Date	Price Range	LTV CAP	Max Loan Amount	Other
Sep 2012	Greater than or equal to HK\$10mn	Remains at 50 percent		For borrowers with multiple properties under mortgages,
	Greater than or equal to HK\$7mn and less than HK\$10mn	Remains at 60 percent	HK\$5mn	(i) LTV cap lowered by further 20 percentage points for borrowers with main income from outside Hong Kong SAR; (ii) LTV cap for net-worth based mortgage loans lowered from 40 percent to 30 percent, irrespective of property value
	Less than HK\$7mn	Remains at 70 percent	HK\$4.2mn	DSR ratio capped at 40 percent for all income groups; previously was 50 percent; also must be set such that were mortgage rates to go up by 2 percentage points, the DSR would not exceed 50 percent; previously was 60 percent; mortgage applicants without outstanding mortgages were not subject to the DSR limits reduction.
	Not owner-occupied, any price range	Remains at 50 percent		Maximum tenor of all new property mortgage loans capped at 30 years Buyer's Stamp Duty set at 15 percent for all residential property transactions except local (i.e. Hong Kong SAR permanent resident) buyer. Special Stamp Duty raised to 20 percent for residential properties resold within first six months of purchase, 15 percent if resold between six and 12 months, 10 percent if resold between 12 and 36 months.
Oct 2012				

Date	Price Range	LTV CAP	Max Loan Amount	Other
Feb 2013	Greater than or equal to HK\$10mn	Remains at 50 percent		LTV cap for standalone car park spaces set at 40 percent with maximum tenor at 15 years; LTV cap for industrial and commercial properties mortgage loans at 40 percent; previous was 50 percent.
	Greater than or equal to HK\$7mn and less than HK\$10mn	Remains at 60 percent	HK\$5mn	
	Less than HK\$7mn	Remains at 70 percent	HK\$4.2mn	DSR ratio capped at 40 percent for all income groups; the stressed DSR would not exceed 50 percent were mortgage rates to go up by 3 percentage points; previously was by 2 percentage points; mortgage applicants without outstanding mortgage were not subject to the DSR limits reduction.
	Not owner-occupied, any price range	Remains at 50 percent		Risk weight floor of 15 percent introduced on new residential mortgages for banks using IRB approach. Ad valorem Stamp Duty raised from the scale of \$100 to 4.25 percent to the scale of 1.5 percent to 8.5 percent except local buyers who do not own any other residential property in Hong Kong SAR at the time of purchase or whose purchase is to replace their only residential property in Hong Kong SAR.

<i>Date</i>	<i>Price Range</i>	<i>LTV CAP</i>	<i>Max Loan Amount</i>	<i>Other</i>
Feb 2015	Greater than or equal to HK\$10mn	Remains at 50 percent		DSR ratio capped at 40 percent for all income groups, irrespective of loan purpose; the stressed DSR would not exceed 50 percent were mortgage rates to go up by 3 percentage points; self-occupied or replacement and without outstanding mortgage were exempted. Risk weight floor of 15 percent introduced on all new and existing residential mortgages for banks using IRB approach by Jun 2016; 10 percent for existing mortgage by Jun 2015; previously risk weight only introduced on new mortgages.
	Greater than or equal to HK\$7mn and less than HK\$10mn	Remains at 60 percent	HK\$5mn	
	Less than HK\$7mn	60 percent (previously 70 percent)	HK\$4.2mn	
	Not owner-occupied, any price range	Remains at 50 percent		
Nov 2016				Ad valorem Stamp Duty on residential properties raised to a flat rate of 15 percent (also known as the New Residential Stamp Duty) except local buyers who do not own any other residential property in Hong Kong SAR at the time of purchase or whose purchase is to replace their only residential property in Hong Kong SAR.

Date	Price Range	LTV CAP	Max Loan Amount	Other
Apr 2017				New Residential Stamp Duty applied to purchases of multiple residential properties under a single instrument
May 2017	Greater than or equal to HK\$10mn	Remains at 50 percent		LTV cap lowered by 10 percent points for borrowers with one or more pre-existing mortgages.
	Greater than or equal to HK\$7mn and less than HK\$10mn	Remains at 60 percent	HK\$5mn	For self-occupied or without outstanding mortgage, DSR ratio capped at 50 percent for all income groups, irrespective of loan purpose; the stressed DSR would not exceed 60 percent were mortgage rates to go up by 3 percentage points; DSR ratio caps lowered by 10 percent points for pre-existing mortgages or non-self-occupied.
	Less than HK\$7mn	Remains at 60 percent	HK\$4.2mn	DSR ratio caps lowered by 10 percent points for borrowers whose income is mainly derived from outside Hong Kong SAR.
	Not owner-occupied, any price range	Remains at 50 percent		Risk weight floor of 25 percent (previously 15 percent) for all new residential mortgages and 15 percent for all existing residential mortgages for banks using IRB approach.

Date	Price Range	LTV CAP	Max Loan Amount	Other
June 2018				<p>Required developers to offer no less than 20 percent of the total number of flats subject to the same pre-sale consent at each turn of sale.</p> <p>Proposed to introduce “Special Rates” on unsold or unleased first-hand private flats at 200 percent of the flat’s rateable value (roughly 5 percent of the property value). The bill to implement the “Special Rates” was introduced into the Legislative Council for scrutiny in October 2019.</p>
Sept 2019				<p>Under the proposed bill, if a new apartment remains unsold for 12 months after it’s completed, the developer will be subject to a vacancy tax unless the unit is rented out. The tax would be a flat rate of 200 percent of the unit’s estimated annual rental value. Estimated to be 5 percent of property value.</p>
Aug 2020				<p>LTV caps for mortgage loans on non-residential properties are adjusted upward by 10 percentage points, from 40% to 50% for general cases.</p>
Oct/Nov 2020				<p>The proposed introduction of the Vacancy Tax bill was suspended, and the bill was withdrawn from LegCo.</p>