



SINGAPORE

FINANCIAL SECTOR ASSESSMENT PROGRAM

TECHNICAL NOTE—CRISIS MANAGEMENT, RESOLUTION, AND SAFETY NETS

This technical note on Crisis Management, Resolution, and Safety Nets on Singapore was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on June 24, 2019.

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CRISIS MANAGEMENT, RESOLUTION, AND SAFETY NETS

Prepared By
**Monetary and Capital
Markets Department**

This Technical Note was prepared in the context of an IMF Financial Sector Assessment Program (FSAP) mission held in Singapore during November 2018. It was led by Mr. Ulric Eriksson von Allmen. This note contains the technical analysis and detailed information underpinning the FSAP assessment's findings and recommendations. Further information on the FSAP program can be found at <http://www.imf.org/external/np/fsap/fssa.aspx>.

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Glossary

ABS	Association of Banks in Singapore
AMR	Asset Maintenance Ratio
CAR	Capital Adequacy Ratio
CCPs	Central Counterparties
CET1	Common Equity Tier 1
CMG	Crisis Management Group
CMT	Crisis Management Team
CoAgs	Cooperation Agreements
D-SIB	Domestic Systemically Important Bank
DI	Deposit Insurance
ELA	Emergency Liquidity Assistance
FMI	Financial Market Infrastructures
FSB	Financial Stability Board
FSCM	Financial Stability Coordinating Meeting
G-SIB	Global Systemically Important Bank
IADI	International Association of Deposit Insurers
ILF	Intraday Liquidity Facility
IWBE	Industry Wide Business Continuity Exercise
KA	Financial Stability Board's Key Attributes for Effective Resolution of Financial Institutions
MAS	Monetary Authority of Singapore
MEPS+	MAS Electronic Payments System
MOF	Ministry of Finance
MOU	Memorandum of Understanding
MRC	Management Resolution Committee
NCWOL	No creditor worse off than in liquidation
P&A	Purchase and Assumption
PBC	People's Bank of China
RMB	Renminbi
RRP	Recovery and resolution planning
RSU	Resolution Unit
SDIC	Singapore Deposit Insurance Corporation
SF	Standing Facility
SGD	Singapore Dollar

EXECUTIVE SUMMARY¹

The Monetary Authority of Singapore (MAS) is the designated resolution authority for financial institutions, including holding companies and domestic branches of foreign banks. In this role, MAS determines if the conditions for entry into resolution are met and designs and implements the resolution strategy. The Ministry of Finance (MOF) plays only a limited role in the technical decisions concerning bank resolution, intervening when the use of public resources is contemplated.

In 2017, the passage of amendments to the MAS Act strengthened the resolution framework. It introduced enhanced resolution powers and strengthened the framework for recovery and resolution of domestic systemically important banks (D-SIBs). These powers are broadly consistent with international best practices as outlined in the Financial Stability Boards (FSB) Key Attributes for Effective Resolution of Financial Institutions. The powers are generally applicable to all financial institutions.

The 2017 amendments strengthened resolution tools and gave MAS sufficient powers to manage the failure of large, complex institutions. MAS's original suite of resolution tools included powers to (i) take operational control of a financial institution, (ii) transfer assets and liabilities to a third party, (iii) establish a bridge institution and asset management company, and (iv) restructure share capital. The amendments introduced new tools, including powers to (i) require explicit recovery and resolution planning (RRP), (ii) implement temporary stays, (iii) bail-in some creditors, and (iv) conduct reverse transfer and onward transfer. In addition, the amendments established a cross-border recognition framework, a creditor compensation framework and (vii) a resolution funding framework. While these powers are in large part consistent with international best practice, as laid out in the FSB's Key Attributes, the bail-in powers do not extend to writing down or converting senior unsecured and uninsured creditor claims to equity.

The resolution functions in MAS are divided broadly between the supervisory teams and the Resolution Unit (RSU). The supervisory teams monitor banking institutions, develop the resolution plans, and take the lead in implementing the resolution plans. The RSU comments and provides input into the development of the plans. Based on a common supervisory dashboard of financial indicators, either the supervisory team or the RSU may identify institutions that have failed or about to fail. Normally, once a decision by the supervisors and the RSU has been made to resolve an institution, the RSU would formally escalate the case to the Crisis Management Team (CMT) (for resolution of an institution whose failure can have systemic impact or would require public resources) or to the Management Resolution Committee (MRC) (all other cases). The RSU does not have full-time staff but draws on the staff from various departments. While the supervisory staff is responsible for implementing resolution plans, the RSU is responsible for formulating policies, building expertise and institutional knowledge, and working with supervisory teams on recovery and resolution

¹ This Technical Note has been prepared by David S. Hoelscher (external expert, MCM). The FSAP team would like to thank the Singaporean authorities for their excellent cooperation.

planning. MAS is of the view that this flexible arrangement leverages the institutional knowledge of supervisors, allows for an objective challenge from the RSU, while avoiding “silos” that inhibit the exchange of information.

This resolution framework, while improved, has some limitations. First, the bail-in power should be extended to senior unsecured creditors. Such an extension would provide better protection to public funds during a resolution and be in line with international best practice. Second, MAS should revise the organization of its resolution function, establishing a core staff within the RSU that, over time, could take on an expanded role in both the design and implementation of resolution. Such a core staff is warranted as resolution and resolution planning are highly specialized activities that require investment in time and resources.

The resolution tools are well designed, with the exception of bail-in powers, but steps are still needed to operationalize the resolution plans. While internal guidelines to operationalize the resolution tools have been established, the procedures, sequencing, and timelines should be further developed and expanded. Issues include the phasing and timing of bail-in and the steps needed to coordinate resolution in a cross-border context. To this end, advanced work on developing playbooks and guidelines explaining the operational steps for executing the resolution plans is warranted.

MAS currently develops resolution plans for D-SIBs only. The resolution plans for each institution must be reviewed for both internal consistency and cross-institutional consistency. Some extension of resolution planning should be considered. First, extending resolution planning to other banks beyond D-SIBs would be beneficial. Second, continued efforts to identify critical functions are warranted. The effort to analyze such functions on a more granular or product level is appropriate. Third, the creditor hierarchy in liquidation as laid out in the Banking Act gives preference to domestic depositors. Depositors in branches of Singaporean banks located outside Singapore should be treated consistently with local depositors.

The funding arrangements for resolution aim at limiting public sector exposure to loss. Losses will be first borne by equity holders and unsecured subordinated creditors. When additional funds are required, the deposit insurance fund (DI Fund), built by ex-ante premiums from members, can be used to support the resolution of members on an equivalent cost basis. In addition, a Resolution Fund will be established to channel temporarily public resources to the resolved institution. Any MAS resources used in the Resolution Fund will be recovered from the industry. Some aspects of the Fund should be reviewed. First, central bank funding should not be used as a source of solvency support. Rather, resolution funding should be done through the use of government resources. If MAS funding is used for solvency support it should be only temporary and replaced by Government funding, Second, guidelines should be developed for the conditions and the pace of recovery of resolution costs from the industry. Third the Resolution Fund is allowed to provide liquidity support to the restructured institution. Such support should be temporary. A preferable solution is to regularize the restructured entity’s access to MAS support functions as quickly as possible.

Cross-border cooperation is an important element of the bank resolution and crisis management framework. MAS is home regulator to three D-SIBs and host regulator for another four D-SIBs. MAS has signed or is in the process of negotiating memorandums of understanding (MoUs) with key host supervisory or resolution authorities of the D-SIBs to formalize understanding on general crisis management and resolution cooperation. In addition, MAS participates in the Crisis Management Groups (CMGs) for six global systemically important banks (G-SIBs), as well as the regional CMGs for three other G-SIBs. MAS also signed multilateral institution-specific cooperation agreements (CoAGs) with CMG members and home resolution authorities.

MAS offers a number of liquidity functions to preserve financial stability. It conducts daily money market operations and offers two Singapore Dollar liquidity facilities (the Intraday Liquidity Facility and Standing Facility). MAS can also provide emergency liquidity assistance.

The Singapore Deposit Insurance Corporation (SDIC) operates the Deposit Insurance (DI) and Policy Owners' Protection Schemes in Singapore. The recent amendments allowing DI funds to be used for resolution measures adds new responsibilities to SDIC. Accordingly, this role in resolution should be explicitly recognized and the SDIC allowed to participate in discussions relating to the use of such funds. Over time, SDIC could continue to develop a stronger analytical capacity and understanding on bank resolutions to perform its role effectively and to participate more fully in the resolution planning. In addition, foreign exchange denominated deposits should be covered by the deposit insurance regime.

Table 1. Table of Recommendations		
Singapore: Crisis Management, Resolution and Safety Nets		
Recommendations	Time*	Priority**
Institutional arrangements		
Establish a core staff within the RSU dedicated to resolution work and over time, transfer resolution planning to the RSU.	I	H
Resolution powers		
Expand the scope of bail-in to include senior unsecured debt securities.	M	M
Continue to develop guidelines and playbooks for the new resolution tools. Staff should be trained, and processes tested.	I	H
Recovery and resolution plans		
Require annual testing of recovery plans from D-SIBs using common stress assumptions across all banks.	C	M
Review the resolution plans for all institutions together, looking for common elements and assessing them in the context of a system-wide crisis.	C	M
Extend recovery and resolution planning to non-systemic institutions.	M	M

Table 1. Table of Recommendations (concluded)

Recommendations	Time*	Priority**
Resolution funding		
Develop and publish the method and timeline for the recovery of public funding.	I	M
Liquidity support channeled through the Resolution Fund should be phased out once the institution has access to market funding.	C	M
Crisis management		
The MAS-MOF Financial Stability Coordinating Meeting should meet on a regular basis to discuss systemic risk scenarios and plans to address such crises. Working Groups should meet regularly to review analytical tools and develop mechanisms for rapid policy response to a crisis.	C	M
Expand contingency planning for systemic crisis to include system-wide crisis simulation exercises for specific D-SIBs.	C	M
Deposit insurance		
SDIC should be notified of emerging distress and participate in discussions relating to the resolution of DI Scheme members.	I	H
SDIC could continue to develop its analytical capacity so it may participate more fully in bank resolution discussions where DI Funds are to be used.	M	M
Foreign exchange denominated deposits should be covered by SDIC. SDIC could pay out such deposits in Singapore dollars at the prevailing exchange rate at the time of failure	M	M
* C = continuous; I (immediate) = within one year; M (medium term) = 2-5 years ** H = high; M = medium; L = low		

INTRODUCTION

1. Important progress has been made in strengthening the framework for bank resolution, the safety net and crisis management in Singapore since the last FSAP. The passage of the 2017 amendments to the MAS Act strengthened the bank resolution regime and expanded resolution tools. New funding arrangements have been developed and the role and responsibility of the SDIC have been broadened.

2. The focus of this Technical Note is on this evolution of the bank resolution and safety net framework in Singapore. The note reviews current practices, taking into account international best practice principles as outlined in the Financial Stability Board's Key Attributes for Effective Resolution of Financial Institutions (KA) and the International Association of Deposit Insurers' Core Principles Effective Deposit Insurance Systems.² The note is structured as follows: After a brief discussion of the structure of the financial system, Section III examines crisis prevention and

² While these principles guided the analysis, this note does not constitute an assessment of compliance with such international standards.

preparedness framework. It examines the institutional arrangements, recovery planning and official liquidity support. Section IV reviews the resolution regimes in Singapore and Section V discusses crisis management arrangements. Cross border activity is particularly important in Singapore and Section VI reviews cross border arrangements for cooperation and resolution. Section VII discusses the role of the SDIC in the safety net.

STRUCTURE OF THE FINANCIAL SYSTEM

3. The financial system in Singapore comprises banks, insurance companies and capital market services licensees. MAS exercises integrated oversight of some 1,300 financial institutions. The system is dominated by banks, with assets equal to about 600 percent of GDP.

4. The banking system is large and global in nature. As of end-June 2018, there were 128 commercial banks with operations in Singapore, with total assets of SGD 2.6 trillion. They engage in a wide range of financial services, including traditional banking activities such as lending and deposit taking, investment banking, as well as corporate finance and fund management. The system is dominated by seven D-SIB banking groups; three are locally headquartered and four are foreign headquartered. The four foreign D-SIBs (HSBC, SCB, Citibank, and Maybank) hold assets amounting to 15 percent of total banking system assets. The total of the seven D-SIB groups represent over half of system-wide assets. There are 120 branches of foreign banks operating in Singapore.

5. MAS streamlined its banking licensing framework. With the phasing out of offshore banks, there are now two categories of commercial banks: full banks and wholesale banks. Full banks transact in a broad range of personal and corporate banking businesses, including the operation of current, savings and fixed deposit accounts, financing of exports and imports, transfer of funds, commercial letters of credit, trust receipts, traveler's checks and currencies. Wholesale banks engage in the same range of banking business as full banks, but do not carry out Singapore Dollar retail banking activities.

6. The financial system requires specialized skillsets and knowledge for effective regulation and resolution. Large and complex financial institutions form a significant part of the financial system. Furthermore, the cross-border nature of the banking system makes coordination and monitoring of international developments an essential element of resolution policies and practices.

Table 2. Banking System Structure as of 2018Q2

	Local		Foreign		Total	
	Number	Assets (In billions of Singapore dollars)	Number	Assets (In billions of Singapore dollars)	Number	Assets (In billions of Singapore dollars)
System total	4	982.7	124	1,662.2	128	2,644.9
D-SIBs 1/	4	982.7	8	407.8	12	1,390.5
Foreign branches	0	0	116	1,254.4	116	1,254.4
Others	0		0		0	

Source: MAS

1/ There are seven D-SIBs banking groups comprising twelve banking entities:

Locally-headquartered D-SIBs

1. DBS Bank Ltd (DBS)
2. Oversea-Chinese Banking Corporation Limited (OCBC) and Bank of Singapore Limited (BOS), a subsidiary of OCBC
3. United Overseas Bank Limited (UOB).

Foreign-headquartered D-SIBs

1. Citibank – Citibank N.A. (Citibank), Citibank Singapore Limited (CSL)
2. HSBC – The Hongkong and Shanghai Banking Corporation Limited (HSBC), HSBC Bank (Singapore) Limited (HSBCBSL), Hang Seng Bank Limited
3. Maybank – Malayan Banking Berhad (Maybank)
4. Standard Chartered Bank – Standard Chartered Bank (SCB), Standard Chartered Bank (Singapore) Limited (SCBSL)

CRISIS PREVENTION AND PREPAREDNESS

A. Institutional Framework

7. MAS is the designated resolution authority for financial institutions. It is responsible for all financial institutions including holding companies and domestic branches of foreign banks. In this role, MAS determines if the conditions for entry into resolution are met and designs and implements the resolution strategy. MAS is also responsible for reviewing firms' recovery plans, assessing their resolvability and drawing up firm-specific resolution plans.

8. The MOF plays only a limited role in the technical decisions concerning bank resolution. The MOF intervenes when public resources are at risk and when there are no viable private sector solutions for resolving a systemically important financial institution. The Minister for

Finance sits on the Board of MAS (though not on an ex officio basis) and, where joint action is required, the MOF and MAS have arrangements in place to coordinate on the crisis response.

9. The SDIC administers both the deposit insurance and policy owners' protection schemes. The SDIC is formally a “paybox”, responsible for the reimbursement of insured deposits. But recent amendments to the Deposit Insurance and Policy Owners' Protection Schemes Act have expanded SDIC's responsibilities to include the financing of resolution measures. Nonetheless, it does not participate in the design of resolution strategies or take decisions on resolution actions.

10. In April 2015, MAS introduced a framework for identifying and supervising D-SIBs. D-SIBs are banks that are assessed to have a significant impact on the stability of the financial system and proper functioning of the broader economy through their interconnectedness and complexity. The formal identification of systemically important institutions replaced MAS's previous practice of conducting economic impact assessments to identify potential risks posed to the financial sector. This revised practice is aligned with the principles set out by the Basel Committee on Banking Supervision for determining banks that are of domestic systemic importance.

11. In addition to the standard prudential requirements, D-SIBs are subject to supplementary regulatory requirements. These include local incorporation of retail operations for foreign banks with significant retail operations, recovery and resolution planning obligations, and liquidity coverage ratio requirements. Locally incorporated D-SIBs must also meet higher capital requirements – a minimum Common Equity Tier 1 (CET1) capital adequacy ratio (CAR) of 6.5 percent, Tier 1 CAR of 8 percent and Total CAR of 10 percent, as compared with the Basel III minimum requirements of 4.5 percent, 6 percent and 8 percent respectively.

B. Recovery Planning

12. The 2017 Amendments strengthened the framework for recovery and resolution planning. While such analysis was previously carried out by supervisors as part of their normal supervisory oversight, the 2017 Amendments introduced explicit powers allowing MAS to impose RRP requirements on all financial institutions and to require financial institutions to remove impediments to resolvability. MAS has identified seven banks as D-SIBs. It based its classification of systemic importance on a combination of quantitative and qualitative indicators taking into account factors including size, interconnectedness, substitutability and complexity.

13. MAS has specified the contents of the recovery plans it expects D-SIBs to prepare. They must outline the measures they will take to restore liquidity, capital, and address medium-term vulnerabilities. Banks must also report on the processes to update their recovery plan on an annual basis or whenever there is an event that could materially impact the recovery plan. MAS requires that the recovery plan be approved or endorsed by the bank's board of directors (for locally-incorporated banks) or chief executive in Singapore (for foreign bank branches).

14. MAS has made progress in implementing recovery planning. It has completed five formal annual reviews of the recovery plans of the locally headquartered D-SIBs. It has also reviewed

the recovery plans of the four foreign-headquartered D-SIBs. For each review of the recovery plans, MAS has provided comments and suggestions that the institutions should incorporate in the drafting of their subsequent recovery plan submissions to MAS. In assessing the recovery plans, MAS should factor into consideration possible overlap of resolution plans and analyze the implications for financial stability of D-SIBs resolution strategies in systemic crisis.

C. Official Liquidity Support

15. MAS can provide liquidity support through various modalities. It conducts daily money market operations, offers two Singapore Dollar (SGD) liquidity facilities and can provide emergency liquidity assistance.

Money Market Operations

16. MAS conducts daily money market operations. These operations are to manage banking system liquidity and to reduce excessive interest rate volatility. MAS conducts its money market operations with 13 primary dealers, comprising both local- and foreign-owned financial institutions. The issuance of MAS Bills is also used in such operations.

Business-as-Usual SGD Liquidity Facilities

17. MAS operates two business-as-usual SGD liquidity facilities for eligible financial institutions.³ The facilities are the: (i) MAS Intraday Liquidity Facility (ILF); and (ii) MAS Standing Facility (SF).

- The ILF allows eligible financial institutions to obtain SGD on an intraday basis through repurchase transactions. The ILF helps in managing the risk of payment timing mismatches, hence reducing the risk of a payment gridlock within the MAS Electronic Payments System (MEPS+). The ILF is provided at a rate determined by MAS, currently set at 0 percent. Singapore Government Securities and MAS Bills can be used as collateral for ILF transactions. MAS applies a haircut on the collateral.
- The SF allows eligible financial institutions to borrow SGD in exchange for collateral (via repurchase transactions, foreign exchange swaps or collateralized loans) or deposit SGD, on an overnight basis. The interest rate charged for borrowing is the MAS reference rate plus 50-basis points, while the corresponding rate for deposits is the MAS reference rate minus 50 basis points.⁴ This facility helps to reduce SGD interest rate volatility and enhances market confidence that liquidity needs will be met in times of stress. The majority of the SF transactions are

³ A financial institution that is a participant in MAS's real-time gross settlement system, MEPS+, and has entered into a Global Master Repurchase Agreement with MAS.

⁴ The reference rate is the weighted average of successful bids for MAS's S\$500m overnight clean borrowing conducted during MAS's Money Market Operations on the same day.

overnight deposits, and to a smaller extent, test repurchase transactions by financial institutions as part of their liquidity contingency planning efforts. Eligible collateral at the SF include Singapore Government Securities, MAS Bills, high quality SGD corporate bonds, foreign currencies & foreign currency-denominated securities.⁵ As with the ILF, MAS applies a haircut on collateral.

Foreign Currency Liquidity

18. MAS provides some USD liquidity to the market via USD-SGD foreign exchange swaps transacted at its daily money market operations with its primary dealers. Through such transactions, the primary dealers swap SGD for USD on overnight and term basis (usually not more than 3 months).

19. MAS has two renminbi (RMB)-denominated facilities. These facilities are aimed at promoting bilateral trade with and direct investment into China and to enhance financial stability in the offshore RMB market in Singapore. The MAS RMB Facility provides term RMB liquidity for trade, direct investments and financial stability purposes, and is funded by the MAS-People's Bank of China (PBC) bilateral currency swap arrangement. The MAS Overnight RMB Liquidity Facility, which is funded internally, provides overnight RMB liquidity to assure the market that short-term RMB funding is available if needed.

Emergency Liquidity Assistance Framework

20. MAS has the legal powers to provide emergency liquidity assistance (ELA). While MAS has not had to provide ELA, it has established the policies and mechanisms needed to provide back-stop liquidity. ELA can be extended to all banks licensed by MAS given their important roles in the economy and that they are subject to liquidity risk with financial stability implications.⁶ Other types of FIs are not granted ex-ante ELA eligibility, but MAS has the powers to provide such liquidity assistance to any FI in extraordinary situations to safeguard the stability of, or public confidence in the financial system. Some of the key guiding principles underpinning MAS's ELA framework include the following:⁷

- The bank has to be assessed to be viable on a forward-looking basis at the point of ELA provision,
- ELA will be provided only on a collateralized basis, and against a wide range of collateral, and

⁵ This is applicable to selected foreign currencies, where MAS has a cross-border collateral arrangement with a foreign central bank.

⁶ A bank for the purpose of ELA is as defined under section 2 of its Banking Act (Cap. 19) and excludes a merchant bank.

⁷ The monograph titled Emergency Liquidity Assistance in Singapore can be found at this link: <http://www.mas.gov.sg/~media/MAS/News%20and%20Publications/Monographs%20and%20Information%20Papers/Emergency%20Liquidity%20Assistance%20Monograph.pdf>.

- ELA lending will generally be at a premium above normal market rates, but below rates observed during times of stress.

21. MAS will only lend to banks that are assessed to be viable on a forward-looking basis.

The MRC comprising senior management members from supervision, policy and legal departments, determines the viability of a bank, based on both statistical indicators and a forward-looking evaluation. MAS's CMT will be triggered to discuss if ELA should be provided.

22. While MAS requires collateral for the provision of ELA, it can accept a wide range of collateral.

As ELA is designed for crisis situations, a bank in distress is likely to be in the midst of executing their recovery plans. While MAS will accept only high-quality assets, valued at market prices, during normal market conditions, it is able to expand the eligible collateral list to include other financial assets during a crisis. To safeguard MAS's balance sheet, appropriate haircuts will be imposed on the collateral. As part of MAS's supervisory powers, MAS may also take measures e.g., to limit risk-taking by ELA recipients.

23. MAS published its ELA framework in June 2019 to enhance the market's understanding of its ELA policy.

This move towards "constructive clarity" aims to provide adequate information to FIs on an ex-ante basis to support planning for liquidity stress and crisis management. This will also address possible issues that FIs may face when approaching a central bank in times of need. Additionally, MAS will be working with banks to operationalize the ELA framework (e.g., to clarify terms and conditions for accessing such emergency liquidity). In this way, banks can incorporate the use of ELA into their contingency planning while recognizing its corresponding obligations. Policy effectiveness will be strengthened by MAS's credible commitment to meeting emergency funding needs. The public disclosure of the ELA framework also supports good governance and allows MAS to be held accountable.

RESOLUTION REGIMES

A. Organization of Bank Resolution

24. MAS is governed by the MAS Act. Its functions include both on-going supervision of financial institutions and the resolution of failing or likely to fail financial institutions. The MAS Act and other Acts such as the Banking Act, Insurance Act, Securities and Futures Act give MAS the power to regulate and supervise financial institutions. MAS can also issue directions and guidelines. Legal authorization of MAS activities can be found in several sources:

- Acts: The Acts contain statutory laws under the purview of MAS, which are passed by Parliament. These have the force of law and are published in the Government Gazette. Examples are the Banking Act and Financial Advisers Act.
- Subsidiary Legislation: Subsidiary legislation is issued under the authority of the relevant Acts and typically fleshes out the scope of the provisions of the primary Act and spells out in greater

detail the requirements that financial institutions or other specified persons (e.g., a financial adviser's representative) must meet. Subsidiary legislation has the force of law but is not passed by Parliament. They are also published in the Government Gazette.

- Directions: Directions detail specific instructions to financial institutions to ensure compliance. They have legal effect and penalties apply for a breach of directions.

25. Bank resolution activities in MAS are divided between the supervisory teams and the RSU. The supervisory teams monitor the on-going financial position of financial institutions and are responsible for reviewing the recovery plans, as well as developing and periodically updating the resolution plans for the institutions. The supervisory staff is assisted by the newly established RSU, which replaced the previous ad hoc resolution-working group. The RSU supports the supervisory team and reviews the resolution plans. For the resolution planning process, the RSU provides input on the selection of resolution tools and operational steps, as well as providing an independent review of bank-specific resolution plans. Based on a common supervisory dashboard of financial indicators, the supervisory team together with the RSU determines whether a bank has failed or about to fail. .

26. The RSU does not have full-time staff but draws on the staff from various departments including policy, legal and supervision departments. The RSU is chaired by the Assistant Managing Director (Policy, Risk and Surveillance) who oversees both resolution policy and resolution implementation. The RSU is composed of three work streams: resolution policy, resolution execution and legal affairs. The RSU is responsible for formulating policies, building expertise and institutional knowledge, and working with supervisory teams on matters relating to recovery and resolution planning. The RSU represents MAS at international fora on resolution issues, e.g., FSB workgroups and participate in CMG meetings. MAS's view is that such an organizational structure allows staff to be allocated to the most critical activities and to take advantage of the synergies among different groups in MAS. RSU staff divide their time between work on resolution activities and activities in their other departments.

27. The triggers for escalating the case of a financial institution to the CMT or MRC for resolution are based on both quantitative and qualitative indicators. This decision is not limited to balance sheet insolvency as other quantitative triggers to assess the institution's financial condition include capital, liquidity and credit indicators. These indicators are posted on the supervisory dashboard, which contains all supervisory data needed to evaluate the soundness of an institution. Examples of qualitative triggers include whether the institution has serious governance issues or risk management and control deficiencies, whether the institution's business is being conducted in a manner detrimental to public interest, or whether the institution has lost public or creditor confidence.

28. The need for triggering the resolution of an institution can be determined jointly by the supervisors and the RSU and approved by the MRC or CMT. The supervisory staff will determine whether the institution is non-viable and will identify a resolution strategy. The RSU will determine whether there is a viable private sector solution and if there is a public interest reason for

resolving (rather than liquidating) the institution. If the supervisors and RSU agree to recommend that the institution be resolved, the RSU will present the resolution proposal to the MRC. The MRC is chaired by the Deputy Managing Director for Financial Supervision and includes the heads of supervisory, policy, legal and technology risk and payments units. If the proposed resolution plan requires public funding or involves a D-SIB or a bank whose failure will have systemic impact, the case is escalated to the CMT. The CMT is a coordination forum chaired by MAS's Managing Director and comprises senior management from both the supervisory and central banking functions of MAS. In the case of disagreement between the supervisors and the RSU, the RSU has the authority to escalate independently breaches in supervisory indicators to the MRC/CMT for decisions on whether to trigger resolution. Consideration could be given to authorizing the supervisory staff to escalate a case independently if there is no agreement with the RSU.

29. The approval of the Minister-in-charge of MAS is required to implement certain resolution actions.⁸

The Minister-in-charge of MAS must approve any plan that includes the use of public monies, the transfer of the business of, or shares in, a failing institution to a third party, or the restructuring of the share capital of a failing institution. MAS takes the view that the involvement of the Minister-in-charge of MAS is a necessary step to bring public interest considerations to the decision-making process. MAS argues that this arrangement balances expeditiousness and fairness to stakeholders and gives more legitimacy to the chosen resolution strategy. The Minister-in-charge of MAS is not involved in determining the operational and technical aspects of the resolution process but approves implementation of the resolution plan.

30. Once approved by the MRC or CMT, the supervisors are responsible for implementing the resolution plan. The supervisory staff will be supported by the RSU as well as by an intervention team with staff drawn from relevant units of MAS. The intervention team will assist in the assessment of the institution's financial condition, help monitor the progress of the institution's financial condition, and help carry out the resolution plan.

31. This arrangement for resolution of financial institutions has a number of benefits but there are some limitations. This framework allows supervisors to use their in-depth knowledge of the institution in developing resolution plans and avoids "silos" that inhibit the exchange of information and technical knowledge. Moreover, the risks of forbearance are ameliorated as the RSU independently has the authority to escalate the case to the MRC/CMT. However, this arrangement has some limitations:

- When multiple functions are performed by one unit, conflicts of interest may arise. The supervisory and resolution objectives may, in some cases, conflict. While such conflicts will be resolved at the MRC or CMT, the difference may delay rapid implementation of the strategy.

⁸ The minister-in-charge of MAS is a Cabinet-level appointee responsible for overseeing MAS activities and is accountable to the Parliament for the actions taken by MAS. Currently, the minister-in-charge of MAS is the Deputy Prime Minister and Coordinating Minister for Economic and Social Policies.

- Resolution and resolution planning are highly specialized activities that require investment in time and resources. Not having dedicated staff and dividing responsibilities among different staff could slow the development of necessary skills and procedures. Moreover, supervisors may not have the detailed skills and experience necessary to implement complex resolution plans.
- Internationally accepted principles (the Key Attributes) call for an operationally independent unit responsible for resolution. While such independent need not be institutionally independent, it should be operationally independent from other central bank functions.

32. This organization of resolution functions should be strengthened. The RSU should have a dedicated core staff that specializes in resolution policies and practices. Over time, as experience and technical skills are deepened, the RSU should take over a large portion of resolution activities, including implementation of the resolution plan. The roles and responsibilities of each area should be clearly defined, dedicated staff should specialize in the activities of each unit, and internal policies identified to manage potential conflicts.

33. The final approval of the Minister-in-charge of MAS could compromise or appear to compromise the operational independence of MAS. Although the Minister-in-charge of MAS is not involved in developing the technical aspects of the resolution, the Minister-in-charge should not be required to approve individual resolution strategies such as purchase and assumption. Consideration could be given to ways to ensure MAS's operational independence in bank resolution.

34. Courts are not involved in triggering and implementing resolution of financial institutions. Court orders are not required for MAS to exercise its resolution powers. Rather, court orders are required for certain specific actions incidental to resolution, including the claw back action for any salary, remuneration or benefits given to the directors and executive officers of the non-viable institutions, winding-up of institutions and imposition of a moratorium.

35. Courts will not review the merits of MAS's decision but only review whether MAS's actions were within its legal authority. If the claim against MAS is successful (which can only arise where MAS's actions are "ultra vires" and were not taken in good faith), the remedial actions can include: (i) a prohibitory order, preventing MAS from proceeding, thus requiring MAS to suspend implementation of the action, (ii) a mandatory order to compel MAS to carry out its duties, or (iii) a quashing order to halt a decision outside of MAS's jurisdiction. The "quashing order" could be used by the Court to require MAS to reverse the resolution action.

36. The ability of the courts to reverse a decision of MAS introduces some uncertainty. Financial stability could be undermined if MAS decisions that have already been implemented are overturned and the action reversed. However, while courts may reverse resolution actions, the grounds to do so are limited to cases where MAS has acted outside of its scope of authority and in bad faith. No such ruling has been made to date. Moreover, to forestall court challenges, MAS has put in place internal processes to ensure the legality of its actions.

B. Resolution Toolkit

37. MAS determines resolution options in light of a medium-term or forward-looking assessment of viability of the institution. In assessing an institution's viability, MAS takes into consideration a wide range of indicators including:

- continued deterioration in the institution's financial condition, in terms of erosion of regulatory capital and/or assets in a manner that may be detrimental to its depositors, policy owners, investors or other creditors;
- increasing signs of financial distress, such as the need to trigger sales of illiquid assets;
- insolvency or serious capital deficiencies;
- serious governance issues or risk management and control deficiencies;
- inability of the institution to meet regulatory and licensing requirements on an on-going basis;
- loss or likely loss of confidence in the institution by the public, financial markets, depositors, or creditors;
- actual or likely failure of recovery measures, or the recovery measures are likely to have a material negative impact on the stability of the financial system, or inability of the institution to implement the recommended steps. Projected financial performance (e.g., three-year operating plan) and the plausibility and consistency of assumptions (e.g., reliance on non-recurring income sources) underlying the projection;
- Potential changes to funding model.

38. The resolution toolkit before the 2017 amendments to the MAS Act in 2017, gave MAS a series of effective resolution powers to address failing institutions. That suite of resolution powers included authority to:

- take operational control of a financial institution by replacing senior management;
- transfer the business (assets and liabilities of a financial institution) to a third party;
- establish a bridge financial institution and asset management company;
- cancel or restructure the whole or any part of the share capital of a financial institution;
- transfer shares in a financial institution to a third party; and
- order the wind down of a financial institution, subject to an order of the Singapore courts.

39. While broadly effective for local institutions, these tools were considered insufficient to deal with the failure of a large, global financial institution. In keeping with the proposals of the FSB's Key Attributes, the MAS Act was expanded in 2017. In addition to having the power to require explicitly RRP from systemically important institutions, MAS was given additional powers:

- **Bail in:** Under this resolution tool, MAS has the power to write-down, or convert into equity, (i) unsecured subordinated debt, (ii) unsecured subordinated loans, and (iii) contingent convertible instruments and contractual bail-in instruments. However, the statutory bail-in regime does not apply to senior unsecured debt. Bail-in powers can be exercised while the bank remains open, allowing for a combined strategy of recapitalization through bail-in and sale to, or merger with, an acquiring institution. MAS will have discretion to depart from the statutory creditor hierarchy, for example to maximize value in the interest of all creditors as a group or if deemed in the public interest).
- **Temporary stay:** MAS has the power to impose a temporary stay on the termination rights of counterparties. Such stays can last up to 2 business days and limit the ability of creditors to accelerate closeout of the contract.
- **Creditor compensation:** Where creditors and shareholders of a non-viable financial institution receive less in a resolution than what they would have received in a liquidation, the MAS Act gives them the right to compensation for the difference.

40. While these additional powers are broadly consistent with the Key Attributes, the scope of bail in powers is not fully aligned with international best practice. The authorities have restricted the scope of bail-in to equity holders, unsecured subordinated debt holders, contingent convertible instruments and contractual bail-in instruments. The statutory bail-in regime will not apply to senior unsecured debt. MAS is of the view that extending the scope of bail-in increases the risk of contagion to the financial system and creates uncertainty among investors. In the event bail-in is insufficient, the Resolution Fund (see below) could be used to support implementation of resolution measures. MAS also notes that D-SIBs are subject to higher prudential requirements than the Basel framework, and that their capital adequacy and leverage ratios are above minimum regulatory requirements.⁹

41. Notwithstanding such considerations, the limitation on imposing bail-in on senior unsecured creditors reduces the potential funding available in a resolution and is not aligned with international best practice as laid out in the Key Attributes. MAS should expand the scope of the bail in regime to include senior unsecured debt securities. Funding costs in a failure are difficult to estimate and public resources available through the Resolution Fund may be inadequate. Allowing senior creditors to be subject to bail in would strengthen the credibility of a resolution

⁹ Minimum capital requirements for D-SIBs in Singapore are 2% higher than the Basel III framework, while their current leverage ratios are comparable or in excess of the requirements established under the Total Loss-Absorbing Capacity (TLAC) standard (i.e., 6.75% of the Basel III leverage ratio denominator).

strategy that emphasizes a private sector solution. In addition, resolution plans by home authorities of D-SIBs located in Singapore may require bail-in of such creditors

42. Establishing a bridge bank can be an effective resolution tool when no other private sector solution is available. The RSU should continue to develop detailed guidelines and playbooks for the rapid establishment and implementation of a bridge bank. While MAS explained that it is able to grant straight-through approval to license the bridge bank and is putting in place drawer templates to ensure quick establishment of the bridge bank, the supervisory staff should consider establishing a number of licensed empty or shell bridge banks. Market concerns about the establishment and licensing of such empty bridge banks should be minimal, particularly (i) if done during periods of financial stability and (ii) if MAS explains that it is merely strengthening its resolution toolkit.

43. A bank can be placed in temporary public ownership but only under limited conditions. Public resources can be used only after private sector solutions have been exhausted and MAS assesses that the use of other resolution tools cannot meet MAS's resolution objectives. In general, losses would have been imposed on equity holders and unsecured subordinated creditors to the fullest extent possible, or appropriate, before a bank is placed in temporary public ownership. If a public sector-owned bridge bank is established, it will be expected to meet all relevant prudential requirements.

44. The resolution tools are largely in line with international best practices as defined by the Key Attributes (with the exception of the design of bail-in powers) but steps are still needed to operationalize such tools. While MAS has developed some internal guidance on the operational aspects of resolution tools, the procedures, sequencing and timelines should continue to be developed and expanded. Issues include the phasing and timing of bail-in and the steps needed to coordinate resolution in a cross-border context. To this end, continuing to develop playbooks and guidelines explaining the operational steps for executing the resolution plans is warranted. Advanced work on determining appropriate steps for asset valuation in a cross-border context and developing funding strategies are important next steps in operationalizing the resolution plans.

C. Resolution Plans and Resolvability Requirements

Resolution Plans

45. MAS currently develops resolution plans only for D-SIBs. It requires D-SIBs to submit relevant information on their critical functions and inter-dependencies, including an assessment of the feasibility of separating or isolating the critical business activities or functions of the bank in a resolution scenario. Information requirements include identification of the branch network, Singapore-incorporated subsidiaries, and any material non-bank subsidiaries. Information is required on business activities, operations within the group and operations outsourced to third parties, and both business lines and critical functions. This information is used by MAS to develop appropriate resolution plans.

46. Resolution plans for each institution are reviewed for internal consistency but should also be assessed in the context of a system-wide stress event. While drafted by the supervisory staff, the RSU comments on the proposed policy stance and identifies possible implementation challenges and impediments. The RSU can propose changes to the plan or identify aspects of the financial institution that should be modified to improve resolvability. In addition to reviewing individual resolution plans, the supervisory teams and RSU should analyze the implications for financial stability if several D-SIBs target the same resolution strategy and plan to turn to the same sources of capital.

47. MAS has completed the second round of resolution plans and resolvability assessments. As the home resolution authority of the Singapore banks, MAS leads the development of the group resolution plans and the assessment of their resolvability. For the four foreign D-SIBs, MAS assesses the resolvability of their local operations. Group resolution plans and resolvability assessment for these banks are led by the home resolution authorities and MAS will work with the home resolution authorities to sufficiently incorporate the Singapore operations. The resolution plans have largely covered areas such as list of critical functions, preferred resolution strategy, steps for executing stabilization tools and communication strategies amongst others. These plans do not include the assumption of extraordinary funding assistance but may consider the use of the Resolution Fund (see below).

48. Development of the resolution plans and resolvability assessments should be accelerated. These plans are being developed in an iterative fashion. MAS has developed resolution plans for the three local banks and conducted two rounds of resolvability assessments for all seven of the D-SIBs. In the review process, gaps in the assessment have been identified. The lessons learned will be used to complete the development of the next round of resolution plans. While detailed balance sheet plans are still under preparation, the identification of granular critical functions, funding requirements, and review of the need for structural changes are underway. Such work should be accelerated. In addition, MAS management should be included in the deliberations of the adequacy of the plans. The objective would be to determine if the internal procedures for decision-making and implementing the resolution plans are robust. MAS could also consider the expansion of consultations with the industry on the design and adequacy of such plans.

49. A central aspect of the resolution planning is identification of critical functions. Financial institutions are expected to identify critical services including a list of products with cross-border booking arrangements, related branches in other jurisdictions, and institutional cross-border institutional arrangement such as treasury and IT services. The financial institutions are expected to assess the extent to which such services are material to core business lines. To date, work on identifying critical functions has focused on broad categories and activities of the institution and has not extended to detailed product level. Next steps include the development of methodologies to identify critical functions at the detailed product level and procedures to determine whether the discontinuing of a function has a systemic impact.

50. The selection of the resolution strategy is guided by several criteria. MAS gives priority to resolution options that are based on private sector participation and that limit the need for

public resources. For foreign headquartered D-SIBs, the resolution strategy would aim at ensuring continuity of critical services in Singapore and respect both the creditor hierarchy and no creditor-worse-off-than-in-liquidation principles.

51. Some extension of resolution planning should be considered. First, extending requirements to other banks beyond D-SIBs would be advantageous. MAS has indicated that resolution planning requirements could be expanded to non-systemically important banks. RRP requirements are applied proportionally and resolution planning could be undertaken in the context either of their CMGs or bilaterally with the resolution authorities in home countries. For non-systemically important banks, MAS adopts a proportional approach to resolution planning, focusing on areas such as crisis management plans, business continuity procedures, and contingency capital and funding plans. Resolution plans for such institutions should include liquidation. Second, the continued efforts to identify critical functions is warranted. The effort to analyze such functions on a more granular or product level is appropriate. Finally, resolution planning should be extended to nonbank financial institutions. While permitted under the law, such work is in its infancy.

52. MAS has the power to require financial institutions to remove impediments to their orderly resolution. Such requirement could include steps to reduce an institution's complexity. For example, MAS can require changes in an institution's practices, organization and structure (including operational, legal and financial structures). MAS recognizes that the assessment of resolvability is an iterative and ongoing process and has thus far taken a consultative approach in engaging financial institutions improve their resolvability. To date, MAS has not had to use this power.

53. The creditor hierarchy in liquidation gives preference to deposits placed in Singapore. According to the creditor hierarchy in liquidation plan, outlined in the Banking Act, deposits placed outside Singapore will rank equally with general creditors in a liquidation. This practice, while not uncommon internationally, does not comply with international best practice (Key Attributes). Moreover, it raises two concerns. First, such preference for domestic depositors could undermine the scope for coordinated responses in the event of stress and even encourage ring fencing in host jurisdictions. Second, coordination of resolution actions among host authorities may be complicated by significant differences in the treatment of such deposits. MAS should consider equal treatment for deposits located inside and outside of Singapore.

Resolvability Assessments

54. As part of the resolution planning process, MAS conducts resolvability assessments of financial institutions. These assessments aim at determining the feasibility of the resolution plan for resolving a bank in an orderly manner. Banks provide detailed information on their operations and structure. With that information, supervisors, together with the RSU, identify potential limitations to resolution. MAS currently conducts such assessments only for the D-SIBs but is considering expanding the scope of such assessments.

55. Two rounds of resolvability assessments have been completed and another is planned. As part of the assessment, the supervisors identify critical functions, mapping of critical shared

services within the organization. They focus on the feasibility and credibility of implementing the proposed resolution plans. The main focus on the two rounds have been on (i) identifying information gaps, identifying management and organizational issues, (ii) clarifying critical functions and critical shared services (iii) analyzing the capability to report information in times of crisis, (iv) estimating capital and liquidity needs and (v) examining operational continuity. For the Singapore banks, MAS will continue to coordinate with the host resolution authorities to further develop the group resolvability assessment.

56. The financial institutions have provided their estimates of the funding needs in resolution. The estimates were based on their views on the key risks and stresses their institution might face. While this step gives an insight into the possible weaknesses and gaps identified by each institution, it should be complemented by a test of the system using shocks that are consistent across the market. While the individual stress tests will identify what the individual institution considered more appropriate, a system-wide shock will identify how the whole system would respond to given shocks.

57. MAS should continue to conduct resolvability assessments and take steps to address identified barriers to resolvability. Such barriers may be of a structural nature but may also relate to implementation steps of the resolution strategies. While the initial information collection process has been effective, the testing resolution plans should be conducted with senior management of MAS as well as selected institutions. This testing procedure will strengthen crisis preparation and crisis management capacities. In particular, the limited scope of bail-in-able securities may pose a funding challenge that could be identified through such assessments. Moreover, for foreign-owned institutions, the resolvability assessment should take place in the context of the parent resolution plans where bail-in may be more extensively relied on.

D. Resolution Funding

58. The funding arrangements for resolution aim at limiting public sector exposure to financial loss. Any cost incurred in resolving an institution will first be borne by that institution, where losses will be imposed on its shareholders and unsecured subordinated creditors. If additional resources are needed, the resolution will be financed by the banking sector, either through the use of the deposit insurance fund or from the newly created Resolution Fund. The Resolution Fund will channel financial resources initially provided by MAS but then recovered from the industry.

59. The 2017 amendments to the Act authorized MAS to use the DI Fund to finance the resolution of DI Scheme members. SDIC is not involved with decisions on the use of its fund. Safeguards for excessive use of the DI Fund include a limit on the total amount of DI funds to what would have been paid out, net of estimated asset recoveries, in a depositor payout.

60. The 2017 Amendments also created a framework for establishing a Resolution Fund for failed institutions. This fund is an account used to channel resources from the SDIC and MAS for the resolution of financial institutions, including banks. Given the relatively small size of the DI Fund and the conditions for its use (i.e., only for the resolution of DI Scheme members and subject

to the equivalent cost criterion), the primary source of funding will be in the form of loans from MAS channeled through the Resolution Fund. The range of use of the resolution fund is broad and will be available to:

- make a loan or discharge a guarantee for a liability;
- (re)capitalize a bridge bank or resolved institution;
- make payment of creditor compensation and meet any associated costs;
- any other purpose in support of a resolution measure.

61. The Resolution Fund has not been established as a permanent entity but is a financial account that will be established by MAS for each financial institution in resolution. The Resolution Fund will have a trustee to administer the fund. In a resolution, funds will first be drawn from the DI Fund. If more funding is required, the trustee may obtain a loan from MAS. The trustee will then recover the sums withdrawn from the Resolution Fund from the industry on an ex-post basis and repay loans from MAS.

62. The Resolution Fund can be used to recapitalize a financial institution under resolution. At the Minister-in-charge of MAS's direction and MAS's recommendation, the Resolution Fund can be used during resolution for recapitalizing the institution, providing a guarantee, and providing liquidity support. Before channeling public monies to a restructured institution, MAS must determine that no private sector solution exists, and that shareholders and subordinated debt holders have absorbed losses. The resolution is initially funded by SDIC resources and then by MAS credit. Any use of the resolution fund will be recovered from the industry through imposition of levies on industry members.

63. Safeguards apply to the use of the resolution fund. The resolution fund may only be used after losses have been imposed on shareholders and unsecured subordinated creditors to the fullest extent possible or appropriate. As senior debt is exempt from the scope of the proposed bail-in regime, the resolution fund may have to be tapped in situations when losses and resolution costs exceed the capital and unsecured subordinated debt of the resolution entity.

64. The Resolution Fund is a useful channel for public funds (loans from MAS to the Resolution Fund) that provides a mechanism for recovery, but some aspects should be revised. As the operationalization of the fund is still being developed, some design features should be reviewed or considered.

- Central bank funding may be easiest to mobilize, but, based on international practice, is not the preferred source of recapitalization funding. Recapitalization of an insolvent or undercapitalized institution should be through the use of government resources. Under urgent situation, when central bank funding is the only option, central bank funds may be used on a temporary basis but must be repaid by the government as quickly as possible. MAS is of the view that there are benefits to MAS providing the initial loan to the resolution fund as it is more expeditious

and MAS is better placed to evaluate the extent of funding support required. More importantly, there are mechanisms in place to provide for the recovery of the resolution cost from the industry.

- A resolution fund may be established for each institution under resolution. The Act currently allows different trustees to be appointed for each Resolution Fund established. Having a different trustee for each Resolution Fund introduces an administrative complication and raises the possibility of uneven treatment. Rather, a single trustee could be appointed to administer all Resolution Funds established at any one time. This approach would allow for easier oversight.
- Guidelines should be developed and published on the expected pace of recovery of public funds. Such guidelines should ensure such recoveries occur and they balance the need for speed with the conditions in the market. Recoveries should begin during relatively stable economic conditions.
- The provision of liquidity for the effective implementation of resolution tools such as purchase and assumption (P&A) transactions is appropriate but liquidity support for on-going operations of the restructured institution should be provided directly by MAS rather than through the Resolution Fund once the institution is assessed to be viable. The fund is unlikely to have the capacity to evaluate the continued financial conditions of the entity, will not be able to value or collect any required collateral for the open assistance, and cannot require corrective actions in light of the entity's performance. A preferable solution is to regularize the restructured entity's access to MAS support functions as quickly as possible.

E. Resolution of Nonbank Financial Institutions

65. The enhanced resolution powers from the 2017 reforms can also be used in the resolution of an insurance company. There are over 100 insurance companies in Singapore; MAS has identified four systemically important ones. These companies are required to prepare recovery plans based on the resolution powers outlined in the Act. The four systemically important firms represent approximately 80 percent of the industry's assets. MAS has reviewed the recovery plans of the four firms and provided comments, which will be incorporated in the recovery plans to be presented by the firms in 2019.

66. Powers available for the resolution of insurance companies remain under development. MAS currently has the authority to change management, conduct P&A operations, transferring assets and liabilities into a bridge institution or another solvent institution, transfer insurance contracts; administer existing insurance contracts and fulfill obligations; and restructure policy liabilities of insurance companies to allocate losses to policyholders upon the transfer of the insurance business. In this context, MAS can require an insurance company to halt the sale of new policies and run off the existing portfolio of policies through liquidation of assets. While the 2017 Act established a bail-in regime for the insurance sector and the use of temporary stay powers for reinsurance contracts, regulations permitting the use of such powers are under development.

67. Systemically important insurance companies will be resolved while non-systemically important firms may be wound up. MAS has the powers, among other resolution powers, to transfer policies and liabilities to a bridge institution, recapitalize the insurance company or sell it to a viable institution. Non-systemically important insurance firms may be wound-up under the corporate insolvency law.

68. The full range of the resolution toolkit applies to FMIs as well. MAS has set requirements for preparing RRP on all locally-incorporated FMIs. MAS is working with the institutions to review and refine those plans. The resolution regime does not include sector-specific powers for FMIs, though in the case of central counterparties (CCPs), MAS is able to enforce their rulebook by using its powers to take control of a financial institution.

F. Safeguards

69. The reforms introduce a “no creditor worse off than in liquidation” (NCWOL) safeguard. Under this safeguard, creditors and shareholders that receive less in a resolution than what they would have received had the financial institution been liquidated, will have a right to compensation for the difference. When MAS exercises any resolution powers on a financial institution that directly affects creditors’ or shareholders’ rights, the Minister-in-charge of MAS will appoint an independent assessor to determine appropriate compensation. Where MAS has recognized a foreign resolution action, any compensation that a creditor or shareholder is eligible for under the law of the foreign country will be counted as part of their compensation. All compensation payable under the MAS Act will be paid from the Resolution Fund.

CRISIS MANAGEMENT REGIME

A. Institutional Arrangements

70. An inter-agency committee exists to coordinate policy development and implementation. The Financial Stability Coordinating Meeting (FSCM) is an inter-agency committee composed of representatives from MAS and the MOF. The objectives of the Committee are to coordinate and execute policies required to address an emerging crisis, particularly if the use of public fund is under consideration. The FSCM serves as a venue for information exchange and policy coordination during stable times. In times of crisis, the committee meets as frequently as needed focus on joint decision-making and execution of the crisis response. Under the MAS Act, the MAS can share information with domestic and foreign authorities with respect to resolution, subject to safeguards for confidentiality.

71. In preparation for a crisis, the FSCM considers strategies and plans, in an inter-agency context, to be activated during such crises. The effectiveness of the plans will be evaluated, *inter alia*, through simulations and exercises. It also works with other relevant agencies (e.g., the Ministry of Communications and Information) on communication. The FSCM does not meet on a regular basis but on recommendation of MAS. The chairmen may convene a meeting in the absence of a

recommendation from MAS. MAS is likely to call for a meeting when joint crisis management actions may be required, including the commitment or use of public funds.

72. The committee plays an important role in risk identification and policy response.

Consideration could be given to more regular meetings where risks are identified, and scenarios developed on how to respond. Such meetings could primarily take place at the working-group level but, periodically, should involve principal authorities. Although such topics may be managed by MAS, relatively regular meetings between MAS and MOF to discuss risk scenarios and response plans can be productive in ensuring that the data needs and channels of information flows are well established.

B. Identification of Systemic Risk

73. MAS monitors the buildup of systemic risk. Such risk is defined as any event that could have a widespread adverse effect on the financial system. They could emerge from the interconnectedness among financial institutions as well as between financial institutions and other economic actors. MAS monitors a broad suite of indicators covering five broad sectors: banks, nonbank financial institutions, corporates, households, and the external sector. Linkages within and between these sectors are identified through the analysis of regulatory and market-based data. The Macro-prudential Surveillance Department is the key department tasked with monitoring of systemic risk.

74. In the event of a crisis, MAS will assess the potential impact on the economy and financial market participants. MAS has a framework for identifying, on an ex-ante basis, banks whose failure will have a significant impact on the domestic economy and financial markets. The identification takes into account factors such as interconnectedness and the significance of the banks' linkages with the real economy. It will use that approach to evaluate the potential for contagion from any given failure of institutions, including those that have not been designated as systemically important. MAS will assess if the financial institution's failure could have a broader impact. If warranted, MAS may consider triggering resolution, even if the institution has not been previously assessed to be systemically important.

C. Crisis Simulations

75. MAS conducts both individual and inter-institutional exercises to prepare itself for crisis management. Over the years, MAS has conducted various internal Business Continuity Planning and crisis management exercises, with scenarios ranging from cyber-attacks, physical terrorism and a pandemic outbreak. MAS has also initiated a series of simulations testing for resolution planning. MAS has conducted tabletop exercises aimed at identifying information gaps and clarifying roles and responsibilities in the resolution process. To date, these exercises have been carried out at a staff level. They intend to expand these efforts to include senior management in MAS and, subsequently, to involve selected financial institutions to test the resolution procedures.

76. Conducting crisis simulations is an essential step in finalizing resolution plans. Given that many of the resolution powers have never been exercised, MAS is encouraged to accelerate the development of simulations and to finalize the operational guidelines and playbooks for the resolution of complex institutions.

77. MAS conducted simulations with the industry. It organized the Industry Wide Business Continuity Exercise (IWBE) in partnership with the Association of Banks in Singapore (ABS). The aim of the exercise is to identify means of maintaining financial stability in the face of major operational disruptions. The exercise provided opportunities to test, review and update business continuity plans and crisis management plans in the face of major operational disruptions. To this end, each successive IWBE has enabled all participants to refine communication and coordination processes internally and with external stakeholders. Five exercises have been conducted thus far. An average of 130 financial institutions participated in each run.

CROSS BORDER COOPERATION

A. Cooperation with Foreign Supervisory and Resolution Authorities

78. Cross-border cooperation is an essential element of the bank resolution and crisis management framework in Singapore. Both the large presence of foreign banks and Singapore's interconnectedness with the global economy make coordination an essential element of crisis management. MAS is home regulator to three D-SIBs and host regulator for another four D-SIBs. In addition, it is host regulator for a large number of branches of foreign firms. There is a legal framework in place for MAS to share information with foreign resolution authorities. MOUs and CoAGs have also been signed on information sharing. However, most concern information sharing and supervisory exchange rather than resolution strategies.

79. MAS is home regulator to three D-SIBs.¹⁰ As a home regulator, MAS conducts regular supervisory colleges for the three banking groups, where information is shared on RRP, assessment of the banks' recovery plans, and preferred resolution strategy. In addition, MAS seeks to identify where the Singapore-based banks have significant operations in host financial systems. In this context, MAS has signed or is in the process of signing MOUs with key host supervisory/resolution authorities. These MOUs provide for information sharing and cooperation in times of crisis and may include a dedicated section with information on recovery and resolution plans. MAS will coordinate the execution of resolution plans with the host resolution authorities.

80. MAS is host regulator to four D-SIBs and a large number of foreign-bank branches.¹¹ For banks with a significant presence in Singapore, MAS participates in their CMGs or regional CMGs and supervisory colleges. These coordinating fora allow MAS to coordinate information sharing and

¹⁰ DBS Bank, Oversea-Chinese Banking Corporation and United Overseas Bank.

¹¹ The foreign-owned D-SIBs include Citibank, Standard Chartered Bank, HSBC Bank, and Maybank.

provide an avenue for updating progress made on improving resolvability and for sharing MAS's assessment of the banks' progress.

81. MAS has signed CoAgs with resolution authorities responsible for financial institutions in Singapore that are part of a G-SIB. CoAgs support the preparation of RRP and implementation of resolution measures. They include firm-specific agreements involving either home/host agreements (bilateral CoAgs) or including all members of a firm's cross-border CMG (multilateral CoAgs). These agreements lay out the legal and resolution regimes, detailing how they interact with a firm's business. Six bilateral CoAgs have been signed together with three multilateral, regional CoAgs (within the APEC region). The CoAgs focus largely on ensuring cooperation and exchange of information. They provide high-level principles on resolution strategies.

82. The frequency and intensity of coordination has increased but continued progress is warranted. Work at both the supervisory college level and the CMGs has intensified as resolution planning becomes more developed. The different levels of preparedness among home and different host jurisdictions, however, places some constraints on the effective cooperation. Effective resolution of a failed cross-border firm would require a broadly consistent resolution toolkit. Intensified efforts at implementing resolution planning in the jurisdictions where Singaporean banks have subsidiaries may be warranted.

B. Cross-Border Recognition Framework

83. The 2017 Amendments also establish a framework to recognize foreign resolution actions. This statutory framework enables MAS to recognize, fully or in part, the resolution action of a foreign resolution authority. This framework does not provide for a formal requirement for reciprocity. Rather MAS will first determine financial conditions in the affected subsidiary or branch and determine if, under Singaporean prudential regulations, the resolution powers can be applied. MAS will decide on the appropriateness of any action, ensuring that such action will not:

- have a widespread adverse impact on the financial system or economy;
- result in inequitable treatment of any Singapore creditor or shareholder;
- be contrary to the national interest or public interest;
- have material fiscal implications;
- be against any other condition prescribed by regulations.

84. The recognition of foreign resolution actions must be initiated by the foreign resolution authority. MAS then reviews the request and determines if the proposed actions do not have a negative impact on the financial system (as described above). The decision to recognize fully or in part the resolution action is subject to the approval of the Minister-in-charge.

DEPOSIT INSURANCE SYSTEM

85. The SDIC operates the deposit insurance and policy owners' protection schemes. It is designated as a simple pay-box responsible for the payout of depositors in a liquidated member institution. The formal objective of the deposit insurance system is the protection of small-scale depositors rather than a broader objective of ensuring financial stability. The recent decision to expand the use of the DI Fund to cover part of the costs of resolution suggests that SDIC is more accurately termed a pay-box plus insurer. While SDIC contributes to resolution funding, it has no say in the use of those funds. Rather, MAS determines its use, with the Minister-in-charge's approval. However, with the expansion in the use of DI fund for resolution, the role and responsibility of SDIC has increased, with implications for both the design features of SDIC and SDIC's role in the resolution framework.

86. In keeping with best international practice, as outlined by the International Association of Deposit Insurers (IADI) Core Principles for Effective Deposit Insurance Systems, SDIC should participate in the decision-making progress where the DI Fund may be used. Currently, SDIC participates only once the CMT implements a resolution plan that requires SDIC funding. However, SDIC would be better placed if it were notified of emerging distress once an institution is considered to be close to failure or about to fail. The MOU in information sharing with MAS, accordingly, should be updated and provide SDIC with early access to supervisory warning of a potential failure. Over time, SDIC could continue to develop its capacity and analytical capacity concerning bank resolutions in order to perform its role effectively.

87. SDIC is a public company limited by guarantee. It is operationally independent and has its own Board of Directors and management. The Board of Directors is directly accountable to a cabinet-ranking official, currently the Minister-in-charge of MAS

88. SDIC's Board of Directors and management have full control of SDIC's operations and day-to-day decisions in fulfilling its mandate, including recruitment of staff and determination of salary scales and packages to attract and retain staff.

89. The Board of Directors is composed of six Directors. All Directors are appointed by the members¹² of SDIC and can be drawn from the private sector. Directors may hold other positions (e.g., in industry or academia) but must be independent of covered institutions. A chief executive, appointed by the Board, is responsible for the day-to-day management of SDIC. Active private banks are not permitted to serve on the Board

90. Membership in the deposit insurance system is compulsory for all full banks and finance companies. Both locally incorporated institutions and foreign branches are included in the deposit insurance system. Wholesale bank, however, are excluded as they generally do not take

¹² As a company limited by guarantee, SDIC has no shareholders. Instead, it has Members who each provide a guarantee of a nominal amount. These Members of the company are not DI Scheme members and they are appointed by the Minister-in-charge of MAS.

retail deposits. In addition, all MAS licensed direct life and general insurers (other than captive or specialist insurers) are required to be members of the Policy Owners' Protection Scheme unless exempted by MAS.

91. The maximum coverage level is SGD 75,000 per depositor per institution and is largely appropriate. This is estimated to fully cover 91 percent of insured depositors. The DI coverage level is applied equally to all members. The DI Scheme only covers deposits denominated in Singapore dollars. Foreign currency deposits are excluded from the system. Shareholder deposits are covered although deposits by other banks are not.

92. A number of the design features of SDIC should be adjusted. Two reforms are warranted. First, in keeping the best international practice as outlined in IADI's Core Principles, foreign-exchange denominated deposits should be covered by the deposit insurance system. Currently, such deposits are excluded from coverage, arguing that such retail deposits are small. However, retail deposits could grow and, from a financial stability perspective, all deposits should be covered up to the insurance level. SDIC could clearly state that it would pay out such deposits in Singapore dollars at the prevailing exchange rate at the time of failure, avoiding any exchange losses for SDIC. MAS, however, is of the view that covering foreign-exchange denominated deposits increases the costs to the deposit insurance system while offering little additional protection to small-scale depositor. This is because of the low proportion of small-scale depositors that currently hold foreign-currency denominated deposits. Second, deposits of large and controlling shareholders should be excluded from coverage. International best practice is that controlling shareholders are responsible for the safety and soundness of their bank and should not be protected by deposit insurance.

93. The DI Fund is built up through ex ante premiums paid by member institutions. As of March 2018, the DI Fund held approximately SGD 290 million. The targeted DI Fund size is 0.3 percent of total insured deposits. On April 1, 2019, the coverage level was raised to SGD 75,000. Accordingly, premium rates were increased to between 2.5 and 8 basis points. The target level of the fund would remain at 0.3 percent of total insured deposits. This level of the fund is considered broadly adequate. Monte Carlo estimates conclude that the Fund is adequate at a confidence level of 99.9 percent.

94. The Fund has two emergency liquidity back up facilities in the case SDIC cannot meet payout obligation. If the DI Fund is insufficient to payout deposits in a failed bank, SDIC may levy additional premiums on members. If additional funding is needed, SDIC has in place a standing liquidity facility for emergency funding allowing SDIC to borrow up to SGD 20 billion from MAS. Procedures for activating the credit line are streamlined and it can be mobilized within one working day. If necessary, the liquidity agreement limit can be revised.

95. Premium contributions to the DI Fund are paid on an ex ante basis. All members pay an annual risk-based premium. The premiums are between 2.5 and 8 basis points of their insured deposit base, depending on whether they are locally incorporated and their prevailing asset maintenance ratio ("AMR"). For foreign bank branches, AMR measures the holding of sufficient quality assets (e.g., cash, government securities, deposits with MAS and mortgage loans) that may

be used to meet insured depositors' claims. The use of the AMR is a proxy for the recovery rate. The AMR does not provide an indicator of risk in the system. MAS should consider revising the premium framework and adopt a more risk-based approach to premium determination.

96. SDIC is able to meet the payout target of seven working days where it involves the failure of a small or medium sized bank. Banks are able to provide deposit data in a format that allows for rapid processing and the SDIC can quickly produce information on a single-customer view basis. Payout for larger more complex banks, however, is more challenging. Currently payout is made by sending checks to depositors. In the case of larger banks, writing such a large number of checks would delay the payout process, SDIC is currently developing an electronic payment solution. SDIC should accelerate the development of their electronic payment solution and apply that mechanism for the payout of all banks. This activity could include identifying appropriate agent banks and conducting adequate public relations effort, so depositors are aware of the new procedures.

97. SDIC is subrogated to the rights of insured depositors. As such, SDIC has a claim on recovered assets of the failed bank for the amount of DI payouts made. These claims of SDIC, and premium contributions due and payable by the failed bank, are accorded priority over uninsured deposits.

98. SDIC conducts regular simulation exercises with all DI Scheme members to ensure that they are operationally ready to provide such information within a day of payout being triggered. In addition, SDIC has run three simulations covering the payout process end-to-end. These simulations last seven to ten days and include participation of selected DI Scheme members, MAS and SDIC. The objective is to test the effectiveness and efficiency of each stage of the payout process where SDIC is involved.