



# MALDIVES

## FINANCIAL SECTOR ASSESSMENT PROGRAM

### TECHNICAL NOTE ON MACROPRUDENTIAL POLICY

January 2024

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December 18, 2023

## TECHNICAL NOTE

MACROPRUDENTIAL POLICY

Prepared By  
**Monetary and Capital Markets  
Department**

This Technical Note was prepared by IMF staff in the context of a joint IMF-World Bank Financial Sector Assessment Program (FSAP) mission in the Maldives during February 18-March 2, 2023. 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

BCBS	Basel Committee on Banking Supervision
CAR	Capital Adequacy Ratio
CCyB	Countercyclical Capital Buffer
CIB	Credit Information Bureau
CMDA	Capital Market Development Authority
CRE	Commercial Real Estate
CY	Currency
D-SIB	Domestically Systemically Important Bank
d-SRI	Domestic Systemic Risk Indicator
DSTI	Debt Service to Income Ratio
FC	Foreign Currency
FCA	Financial Conduct Authority
FX	Foreign Exchange
FSAP	Financial Sector Assessment Program
HDC	Housing Development Corporation
HDFC	Housing Development Finance Corporation
HP	Hodrick-Prescott
HQLA	High-Quality Liquid Assets
LC	Local Currency
LCR	Liquidity Coverage Ratio
LTD	Loan-to-Deposit Ratio
LTI	Loan-to-Income Ratio
LTV	Loan-to-Value Ratio
MFLC	Maldives Finance and Leasing Company
MMA	Maldives Monetary Authority
MoF	Ministry of Finance
MoU	Memorandum of Understanding
MVR	Maldivian Rufiyaa
NBFI	Non-Bank Financial Institutions
NBS	National Bureau of Statistics
NOP	Net Open Position
NPL	Non-Performing Loan
NSFR	Net Stable Funding Ratio
PD	Probability of Default
RBI	Reserve Bank of India
RR	Reserve Requirements
RWA	Risk-Weighted Assets
SDFC	SME Development Finance Corporation
SOE	State-Owned Enterprise
SyRB	Systemic Risk Buffer

## EXECUTIVE SUMMARY<sup>1</sup>

**The Maldives Monetary Authority (MMA) is the entity responsible for maintaining financial stability.** The Board of the monetary authority has decision-making powers over MMA's three mandates (in order of priority): maintain price stability, maintain financial stability, provide assistance to the government in attaining economic development and stability. To maintain financial stability, MMA regulates and supervises the financial institutions and oversees the payments and settlements system. It also houses a Credit Information Bureau (CIB), a key element for both micro and macroprudential supervision. The securities market, outside of the scope of MMA, is regulated by the Capital Market Development Authority (CMDA).

**MMA does not have a macroprudential framework.** MMA's low capacity and sentiment that the financial system is isolated, simple, and low risk has resulted in a minimalist approach to its supervision. There is no macroprudential committee and no macroprudential mandate with clear objectives. The bulk of the work on macroprudential policy would need to be done by a financial stability unit at MMA, separate from the "banks and OFI division", as the latter lacks clear corresponding objectives and resources to safeguard financial stability. In addition, coordination with both CMDA and the main stakeholders of the financial system appears to be limited. Communication to the public is also sparse, with no publication of a financial stability report. Last, MMA suffers from a significant lack of data infrastructure. Despite the existence of the CIB, data quality appears to be insufficient with many gaps, and access to the database is too limited in practice.

**Systemic risk monitoring is very limited and only a few macroprudential instruments are implemented.** MMA does not monitor any indicator of systemic risk, but only a few macroeconomic series that are key to the tourism sector (e.g., tourist arrivals, number of bed-nights). Indicators of credit cycle, real estate, corporate performance, and household indebtedness are not monitored. In addition, MMA uses a single macroprudential instrument (leverage ratio), although it is contemplating introducing other selected tools (e.g., Loan-to-Value (LTV) and Debt-Service-to-Income (DSTI) limits).

**To strengthen the *willingness and ability to act*, the FSAP team recommends establishing a comprehensive macroprudential framework.** The creation of a macroprudential committee with a clear mandate and decision-making powers is recommended. This committee would rely on a well-resourced financial stability unit, acting as a secretariat and providing data-driven recommendations. The unit's mandate and legitimacy would be enhanced by providing a legal definition of financial stability with clear intermediate objectives. Increasing coordination with the main stakeholders and communication to the public would strengthen transparency and accountability. To that aim, regular

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<sup>1</sup> This technical note was prepared by Etienne Vaccaro-Grange (MCM). The analysis benefited from discussions with the staff of the MMA and reviewers at the IMF.

meetings with the main actors of the financial system should be organized and an annual financial stability report should be published.

**MMA should consider creating a set of early warning indicators and further develop its macroprudential toolkit.** A comprehensive dashboard of both broad-based and sectoral indicators would help monitor systemic risks. Indicators of credit, real estate development, corporate performance, and household indebtedness should be considered for implementation. In addition, the introduction of several key macroprudential instruments would help prevent the emergence of systemic risk. MMA should follow through on its plan to introduce two household-related instruments (limits to LTV and DSTI ratios). The FSAP team recommends the development of additional instruments to safeguard bank liquidity and reduce the currency mismatch of banks (Liquidity Coverage Ratio (LCR), Net Stable Funding Ratio (NSFR) and Loan-to-Deposit (LTD) in both local and foreign currency) as well as other instruments recommended by the Basel Committee on Banking Supervision (e.g., Basel III capital buffers, Systemic Risk Buffer (SyRB), Basel Pillar 1/2 capital surcharge). Table 1 summarizes the main recommendations with the associated time horizons of implementation.

<b>Table 1. Maldives: Recommendations on Macroprudential Policy</b>	
<b>Recommendations</b>	<b>Timing<sup>1</sup></b>
<b><i>Institutional Framework</i></b>	
<b>Create a Macroprudential Committee housed in MMA. (¶20)</b> <ul style="list-style-type: none"> <li>Give macroprudential mandate and decision-making powers.</li> <li>Coordinate with MoF and CMDA, and other stakeholders as needed.</li> </ul>	ST
<b>Establish a Macroprudential Mandate. (¶21)</b> <ul style="list-style-type: none"> <li>Define financial stability in the law with clear macroprudential objectives.</li> </ul>	ST
<b>Create a financial stability unit at MMA. (¶22)</b> <ul style="list-style-type: none"> <li>Direct communication channel to the macroprudential committee (act as secretariat).</li> <li>Give clear objectives, including analysis of systemic risks, preparation of financial stability report.</li> <li>Increase human resources (head counts, budget allocation).</li> </ul>	ST
<b>Publish a Financial Stability Report. (¶23)</b> <ul style="list-style-type: none"> <li>Backward and forward-looking assessment of risks to financial stability.</li> <li>To be published in between annual reports to provide update of financial sector developments.</li> <li>Present to key stakeholders (e.g., MoF and the Parliament).</li> </ul>	MT
<b>Improve data infrastructure. (¶24)</b> <ul style="list-style-type: none"> <li>Grant access to CIB to relevant MMA divisions (banks and OFI division, future financial stability unit).</li> <li>Address various data gaps at CIB.</li> <li>Build a database of corporate financial data through MMA on-site inspections.</li> <li>Construct a property price index, leveraging existing information (e.g., at HDFC).</li> </ul>	I
<b><i>Systemic Risk Monitoring</i></b>	
<b>Develop systemic risk indicators. (¶26-¶33)</b> <ul style="list-style-type: none"> <li>Develop indicators for measurement and monitoring of systemic risk.</li> </ul>	MT
<b><i>Macroprudential Instruments</i></b>	
<b>Calibrate contemplated and other macroprudential instruments. (¶35-¶39)</b> <ul style="list-style-type: none"> <li>Introduce regulatory limits to LTV, LTI, LCR, NSFR, LTD ratios.</li> </ul>	MT
<b>Develop other instruments recommended by the BCBS. (¶40-¶45)</b> <ul style="list-style-type: none"> <li>Introduce Basel III capital buffers.</li> </ul>	MT
<sup>1</sup> I: Immediately; ST: Short term (less than 1 year); MT: Medium Term (1-5 years)	

## INTRODUCTION

1. **The assessment of macroprudential policy was conducted during the first mission of the FSAP in February-March 2023.** Following a World Bank Development Module in 2016, this is the first joint IMF-World Bank FSAP with the Maldives. This Technical Note provides a roadmap for establishing a framework for macroprudential policy as well as developing systemic risk indicators and macroprudential policy tools.
2. **The COVID-19 pandemic has taken a severe toll on the Maldives' tourism-dependent economy.** Tourism activity collapsed as containment measures, notably temporary border closures, were put in place to contain the spread of the virus. As a result, real GDP contracted by an unprecedented 32.9 percent in 2020. Although the economy rebounded with a 37.7 percent increase in economic activity in 2021, as tourist influx resumed, the pandemic has exacerbated pre-existing vulnerabilities. A persistently high fiscal deficit and a widening current account deficit coupled with rising government debt and a depletion of international reserves have put the Maldives in a difficult position despite near-record levels of tourist arrivals in recent months.
3. **The FSAP team identified several macro-financial sources of systemic risk.** Persistent FX shortages, a strong sovereign-bank nexus, and high loan concentration pose threats to financial stability. In addition, MMA's low capacity and sentiment that the financial system is isolated, simple, and low risk has resulted in a minimalist approach to its supervision. For instance, MMA has no macroprudential framework, no dashboard of early warning indicators of systemic risk, and only a single macroprudential instrument.
4. **Despite record levels of tourist arrivals, there is a persistent shortage of FX in the banking system.** Due to high current account deficits stemming from large-scale infrastructure projects and rising SOE and central government external debt service,<sup>2</sup> MMA's gross international reserves declined from USD 985 million in 2020 to USD 806 million in 2021 before rebounding to USD 832 million in 2022. These external imbalances have led to insufficient FX supply from MMA to banks and a persistent parallel market with a premium of about 15 percent. As a result, there may be unmet credit demand in FX in the economy and naturally hedged FX borrowers may encounter liquidity shocks if there is a stop in tourism and FX inflows. Going forward, high levels of external debt service from the public sector, along with tighter global financial conditions, may put additional strain on the exchange rate peg and could lead to a devaluation if the country also were to experience a severe economic shock.
5. **A strong sovereign-bank nexus poses risks to the banking sector.** The share of banks' holdings of government debt amounted to 135 percent of regulatory capital at end-2022, aided by zero risk weights and no regulatory limits on such holdings. In addition, some large SOEs have

<sup>2</sup> Debt service in percent of domestic GNFS exports grew from 7.5 percent in 2018, to 12.9 percent in 2019, and 37.4 percent in 2020, before declining thereafter. External PPG debt grew from 40.3 percent in 2019 to 74.9 percent in 2020, before reversing the trend in the following years.

unsustainable financial positions (e.g., HDC), which increases the need for government support and the contingent liabilities. If fiscal space were to tighten further, the government may no longer be able to provide support to the SOEs. This may eventually spill over to the financial sector.

**6. A high loan concentration exposes banks to a significant credit risk.** One bank is close to the supervisory single large exposure limit as the corporate sector is characterized by a few large firms. Due to weaknesses in the data quality and coverage of the credit information bureau (CIB), total household debt (service) is underestimated. In particular, the exclusion of non-regulated ‘lease-and-hire’ purchase firms is an important data gap that prevents a proper monitoring of household indebtedness.

**7. MMA does not have a macroprudential framework.** MMA has a minimalist approach to its macroprudential policy. There is no institutional framework in place (no macroprudential mandate, no coordination committee to discuss financial stability issues). MMA has no definition of systemic risk, does not conduct any regular analysis of financial stability, and does not publish any financial stability report. It has no relevant data at its disposal, apart for a few macroeconomic series that are key to the tourism sector (e.g., tourist arrivals, number of bed-nights). In addition, only a single macroprudential instrument is in place (a leverage ratio), although MMA has been contemplating introducing selected tools (e.g., LTV, DSTI limits, liquidity instruments).

**8. Against this backdrop, the FSAP teams recommends the introduction of a macroprudential framework to help MMA maintain financial stability.** A comprehensive macroprudential framework, including: (i) strong institutional arrangements to ensure the *willingness* and *ability to act* of the macroprudential authority, (ii) the development of broad-based and sectoral early warning indicators, and (iii) the use of relevant macroprudential instruments, constitute the basis for a sound macroprudential policy working towards maintaining financial stability.

## INSTITUTIONAL FRAMEWORK

### A. Willingness to Act

**9. A strong institutional framework is essential to ensure that macroprudential policy can work effectively.** The framework needs to assure *willingness to act* and counter biases for inaction or insufficiently timely action that can arise from difficulties in quantifying the benefits of macroprudential action. A clear mandate can counter these biases and underpin the legitimacy of policy action when surveillance points to elevated systemic risks. Equally important, the framework needs to foster the *ability to act* in the face of evolving systemic threats, by assuring access to information and an effective surveillance capacity, and by assigning an appropriate range and reach of macroprudential instruments to the macroprudential authority. It needs finally to promote *effective cooperation* in risk assessments and mitigation, in a manner that preserves the autonomy of separate policy functions. This section evaluates the current institutional arrangements in the Maldives against these three key principles, which are set out in the IMF [Staff Guidance Note on Macroprudential Policy](#) (IMF 2014a).

**10. MMA is the designated authority in charge of financial stability in the Maldives.**

Although it does not have a proper macroprudential mandate or framework, MMA is the entity in charge of “*maintaining financial stability without prejudice to maintaining price stability conducive to the sustainable growth of the economy*”, as per its mandate (MMA Act, 2020 amendment section 4). MMA is responsible for regulating and supervising the financial sector other than the securities market, which is regulated by CMDA. MMA also regulates the payment system and houses the CIB, both of which are an important part of the financial market infrastructure.

**11. MMA does not have a legal definition of financial stability but only an operational one.**

MMA states on its website: “*Financial stability can be defined as a condition in which the financial system is able to withstand shocks and facilitate the smooth intermediation of funds and the efficient settlement of payments. In order to maintain financial stability, the Maldives Monetary Authority regulates and supervises the financial institutions to safeguard their health and oversees the payments and settlements system.*” The prioritization of the three mandates was recommended by IMF Legal Department during a desk review of the Maldives Monetary Authority Act in November 2019.

**12. Decisions on financial stability are made by the board of MMA, also in charge of monetary policy decisions.**

There is no macroprudential committee or body with decision-making powers. As shown in Table 2 (IMF 2014a), MMA currently follows Model 1. While integration under one roof can improve coordination across monetary and financial regulatory functions, this can also create risks. For instance, dominance of monetary policy on the agenda and the absence of secretariat for macroprudential issues may curtail the *ability to act*. In addition, perceived failures in macroprudential policy can affect the credibility of the monetary authority, especially in the absence of clearly separate accountability frameworks for monetary and prudential action (IMF 2011).

**Table 2. Maldives: Models for Macroprudential Decision-Making Bodies**

Model	Model 1	Model 2	Model 3
<b>Ownership of macroprudential policy mandate</b>	Board of the Central Bank	Committee within the Central Bank	Committee outside of the Central Bank
<b>Separate body coordinating across Policies</b>	No	No	Possible
<b>Role of the MoF</b>	None	Can be on the Committee	Can be on the Committee

Source: IMF [Staff Guidance Note on Macroprudential Policy](#) (IMF 2014a)

**B. Ability to Act**

**13. MMA has “hard powers” to safeguard financial stability.** There are primarily four broad categories of macroprudential powers (IMF 2013): (i) powers to make rules applicable to market

participants; (ii) powers to collect information from market participants; (iii) powers to supervise market participants; and (iv) powers to enforce compliance with the rules. MMA legally has these four listed powers, which gives it direct control of macroprudential policy. However, its current organization and low enforcement of information sharing restrain its *ability to act*.

**14. The banks and OFI division of MMA has limited ability to prepare macroprudential decisions and lacks access to data for systemic risk monitoring.** The banks and OFI division lacks clear macroprudential objectives and appears understaffed in the light of its important role (currently, two staff in charge of financial stability). It is also mandated with non-financial stability-related activities (e.g., licensing of banks). Despite the existence of the CIB within MMA, the banks and OFI division does not have and has never requested access to its database. There is also no database for corporate sector data, and only the nine publicly listed companies are required to publish financial statements. Although at the project stage, there is currently no compilation of house price data, which inhibits monitoring of the sector.

### C. Effective Coordination and Cooperation

**15. There is no inter-agency coordination committee on financial stability.** An intra-agency committee exists, but only to discuss macroeconomic developments (it is composed of the Ministry of Finance, Ministry of Tourism, National Bureau of Statistics, Maldives Inland Revenue Authority as well as MMA, and meets at least twice a year, with more frequent meeting as needed.) There is no forum for discussion of financial stability issues among agencies and with banks, although MMA holds bankers' meetings to discuss the macroeconomic outlook. Similarly, there is no official communication channel with insurances companies, non-bank financial institutions (NBFIs—HDFC, SDFC, MFLC), and other institutions (notably, HDC, the public pension fund—regulated by CMDA—and three leasing companies).

**16. Cooperation between MMA and CMDA appears to be limited.** A potential downside of establishing the securities regulators outside of the central bank is the inadequate engagement and support of the regulator in systemic risk identification and mitigation. Despite the existence of a Memorandum of Understanding (MoU) between the two agencies to provide mutual assistance and corporation, including exchange of information, there is little cooperation in practice. Besides, the communication channel appears to be unidirectional as MMA sits on the board of CMDA, but not vice versa.

**17. MMA has established satisfactory cooperation with the regional foreign regulators.** There are four foreign bank branches and one subsidiary of a foreign bank in the Maldives. MMA has signed MoUs with three out of the five foreign regulators (Bank of Mauritius, Reserve Bank of India (RBI), and Central Bank of Sri Lanka) for general information sharing and cooperation. MoUs with the two other foreign regulators (The State Bank of Pakistan and the UK's FCA) are also envisaged. In addition, MMA participates in RBI's and Bank of Mauritius's supervisory colleges.

## D. Accountability and Communication

**18. Absent an adequate framework, there is no accountability of macroprudential policy.** Accountability is a desirable feature of a macroprudential framework to buttress the *willingness to act*. It should rest on the legal and institutional framework and ensure that (i) the public at large and, in particular, market participants have a sufficient understanding of the authorities' policies; (ii) the government and legislature can exercise broad oversight over the authorities' actions; and (iii) parties who are affected by the authorities' actions may have legal recourse to the courts in circumstances where the authorities, in taking action, have exceeded their legal authority (IMF, 2013).

**19. Communication with the public on financial stability issues is sparse.** Communication can promote the public's understanding of the need for macroprudential measures, counter biases in favor of inaction and enhance legitimacy and accountability of macroprudential policy. Yet, MMA does not publish any financial stability report, but only a brief financial stability section within its annual report. This section does not discuss the systemic risks as informed by early warning indicators. MMA does also not communicate about financial stability in its regular press conferences or in the social media.

## E. Recommendations

**20. The FSAP team recommends the creation of a macroprudential committee housed in MMA.** Following Model 2 for macroprudential decision making bodies (see Table 2), the committee would be given a clear macroprudential mandate, including well-defined objectives and decision-making powers. The macroprudential mandate should be explicitly added to the functions of the authority specified in the MMA Act (¶21). For instance, the functions could include "*the development and implementation of macroprudential policy*". Besides, housing the committee in the central bank as it is the case of Barbados, Jamaica, Malaysia, Sri Lanka, and Tonga, among others, has a dual benefit. For one thing, this balanced model preserves the strong role of the central bank in systemic risk mitigation, access to relevant prudential data, and strong control over prudential tools. For another, this allows for a better accountability of macroprudential policy with limited reputational risks for the board of MMA. Compared to Model 1 assigning powers exclusively to the central bank, this model can also allow for a better coordination with the Ministry of Finance (MoF), CMDA, and other stakeholders, without undermining the independence of monetary policy. Nevertheless, the distribution of voting rights within the macroprudential committee should be carefully designed to provide a balance between the independence of the monetary authority and the desired involvement of other official entities. For instance, MMA could have the same number of votes as other stakeholders (e.g., CMDA and MoF) combined and retain the tiebreaker vote in case of a draw.

**21. A definition of financial stability and well-defined macroprudential objectives should be enshrined in the law.** The FSAP team recommends that a definition of financial stability be included in the MMA Act. This could be the definition of financial stability currently used by MMA, or a more general definition such as "*to promote the safety and soundness of banks and the financial*

system". In addition, the MMA Act should contain explicit intermediate objectives in support of the specified macroprudential mandate. Explicit objectives help guide the decision-making process. They play an important role in defining the scope of the authority's powers and enhance accountability (IMF, 2013). For instance, as described in IMF Staff Guidance Note (2014a), the intermediate objectives could be to (i) maintain the overall resilience of the system; (ii) contain risks from unsustainable increases in credit and leverage; and (iii) contain structural risks from interlinkages within the financial system.

**22. There should be a dedicated financial stability unit within MMA that should carry out analytical work and act as a secretariat to the macroprudential committee.** This unit should be separate from the banks and OFI division and its remit should consist of (i) the analysis of systemic risks; (ii) the assessment of the need to apply or adjust the macroprudential instruments; and (iii) the preparation of a financial stability report. Since it would also act as a secretariat to the committee and provide dedicated analyses, its head count and analytical expertise should be increased significantly.

**23. Communication and transparency could be improved through the publication of a financial stability report.** Published ideally in between annual reports, the financial stability report would provide an update of financial sector developments and assessment of systemic risks. To that aim, the report should contain both backward and forward-looking assessment of risks to financial stability and of the impact of macroprudential instruments. It should be based on the development of core indicators and make full use of the granular data available at MMA (e.g., through direct access to the CIB). To enhance accountability, the report could be submitted routinely to the main stakeholders (e.g., MoF, Parliament) and the governor of MMA could further address the Parliament on the fulfillment of the macroprudential mandate.

**24. The FSAP team advocates a substantial investment in data infrastructure.** The *ability to act* of MMA as well as the capacity of analysis of a financial stability unit rely on accessing and using the relevant data. Given the existence of a CIB housed in MMA, the FSAP team recommends leveraging its potential by: (i) granting ready access to the database to the relevant MMA divisions (banks and OFI division, future financial stability unit), and (ii) addressing the various data gaps in the registry (e.g., non-reporting of payment obligations under 'lease-and-hire' purchase schemes for consumer durables, particularly by non-regulated institutions). For instance, the scope of the CIB should be expanded to include all recurrent payment obligations of households,<sup>3</sup> and the systematic reporting of all debtors' information should be enforced.<sup>4</sup> MMA should also require banks to report clients' disposable income (net of taxes)<sup>5</sup> to be able to compute and monitor a debt-service-to-income ratio. In addition, MMA could start building its own corporate sector database during on-

<sup>3</sup> Currently, HDC, energy and telecom providers, vehicle leasing companies as well as stores providing consumer credit are outside the scope of CIB.

<sup>4</sup> Some banks mentioned to the FSAP team incomplete reporting by other banks to the CIB that is not always penalized or rectified after the fact.

<sup>5</sup> This could be done by simply issuing a circular to banks.

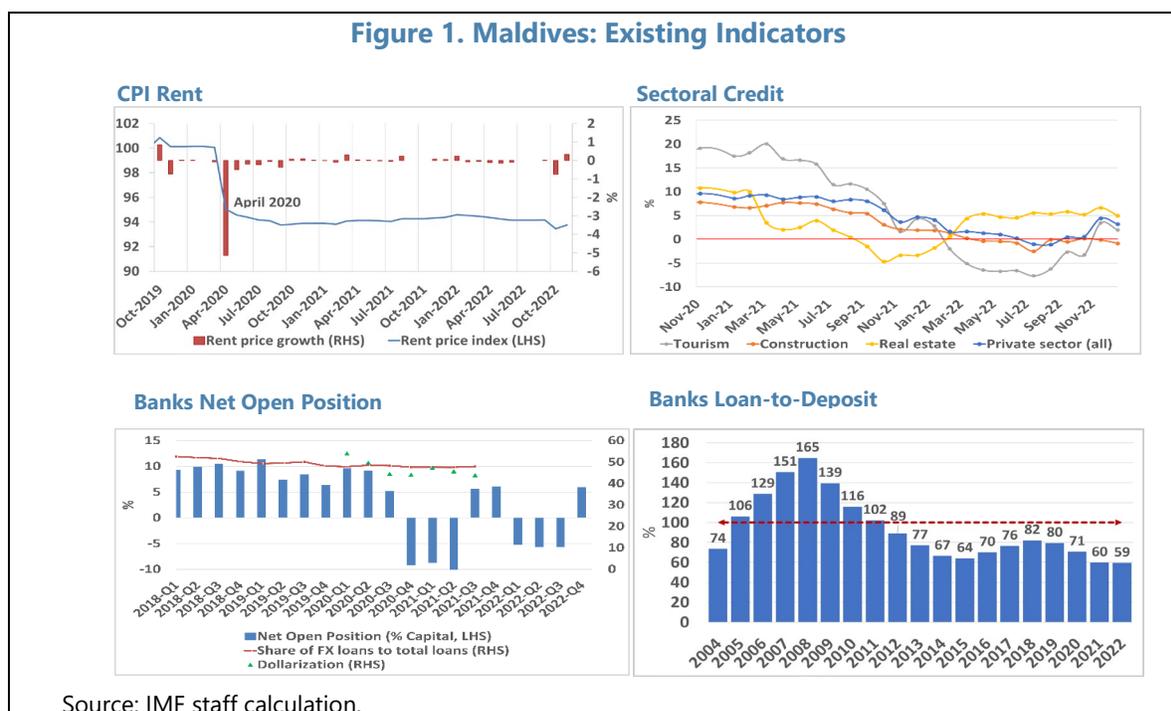
site inspections of banks by collecting firms' financial statements in order to facilitate the future development of early warning indicators of corporate performance. Lastly, given the importance of the housing market in the Maldives, the mission team strongly recommends that a property price index be developed by, preferably, the statistics office (see ¶29).

## SYSTEMIC RISK MONITORING

### A. Existing Indicators

**25. Macroprudential policy must be based on a continuous assessment of evolving risks.** In order to extract appropriate signals where policy action may be appropriate, key indicators must be used as inputs. This requires access to appropriate data and qualitative information as well as analytical capacity to assess systemic risks and effectively map risk assessment into policy recommendations.

**26. MMA could leverage existing indicators to process them into a dashboard of early warning indicators.** MMA collects banks' balance sheet data for its banking supervision activities, while the National Bureau of Statistics (NBS) compiles the main macroeconomic statistics. The FSAP team therefore recommends the use of such available data as the foundation for systemic risk monitoring. For instance, has access to a CPI rent price index (from the NBS), sectoral credit growth data (and the corresponding average lending rates), banks' NOP, and banks' LTD ratios (see Figure 1). These are useful indicators of the housing market, corporate credit, and banks' liquidity situation that could easily be processed and monitored on a regular basis.



## B. Recommended Additional Indicators

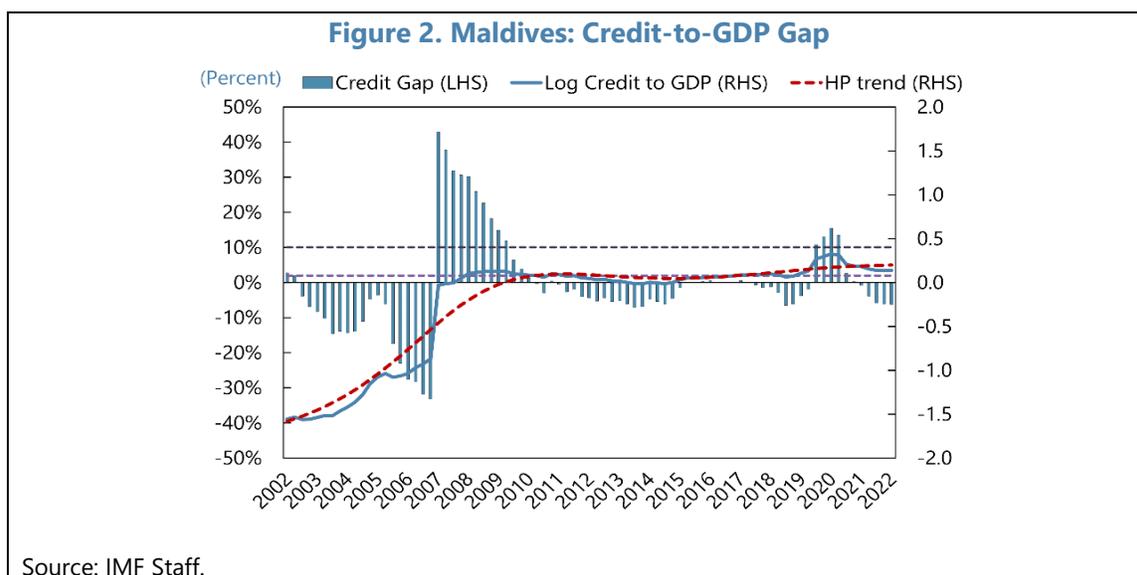
**27. In addition to the existing indicators, MMA should further develop a wide range of broad-based, corporate, and household indicators to be gathered in a dashboard.** A comprehensive dashboard providing a heatmap should be built to indicate the level of macrofinancial risk and inform the relaxation or tightening of macroprudential instruments. The FSAP team recommends the monitoring of the following core indicators: (i) credit-to-GDP gap; (ii) housing market indicators; (iii) corporate performance indicators; and (iv) household indebtedness indicators. A summary of these indicators with the related data need and recommended timing of implementation is presented in Table 3.

Scope	Indicator	Data need	Timing <sup>1</sup>
Broad-based	Credit-to-GDP gap	No additional data need	ST
	d-SRI	Credit-to-GDP ratio, real total credit, debt service ratio, residential real estate price-to-income ratio, real equity prices, and current account-to-GDP ratio	MT
	Real estate indicators	Property & rental prices (Greater Male vs. Atolls)	ST
	Loan transition matrix	Borrower-level loan data (amount and classification)	MT
	Matrix of cross-sectoral exposures	Balance sheet data of the government, MMA, banks, insurances, and NBFIs	MT
Corporate	Sectoral credit growth	No additional data need	ST
	Average sectoral lending rates	<i>Loan data</i>	MT
	Debt-to-EBITDA ratio	Firms' 'financial statements	MT
	Current ratio	Firms' 'financial statements	MT
	Interest coverage ratio	Firms' 'financial statements	MT
Households	Mortgage loan growth	Specific mortgage loan data (Greater Male vs. Atolls)	MT
	Average mortgage lending rates	Specific mortgage loan data (Greater Male vs. Atolls)	MT
	Growth of specific consumer loans	Specific consumer loan data, including NBFIs	MT

Source: IMF

<sup>1</sup> ST: Short term (up to 1 year); MT: Medium Term (within 1–5 years).

**28. The credit-to-GDP gap can be a useful indicator of overheating, subject to some caveats.** By plotting credit-to-GDP as deviation from its trend<sup>6</sup> (see Figure 2)<sup>7</sup>, the ratio indicates an overheating or a cooling of credit with respect to the current level of activity and may be a predictor of a financial crisis.<sup>8</sup> This broad-based indicator is also a good input to setting the Countercyclical Capital Buffer (CCyB) level (see below). However, the credit-to-GDP gap is subject to large revisions in the data rendering its real time use difficult.<sup>9</sup> The trend is also merely a rough statistical approximation of the equilibrium level. For these reasons, it is useful to complement the credit-to-GDP gap with other indicators, such as for instance, the domestic cyclical systemic risk indicator (d-SRI) of Lang, Izzo, Fahr and Ruzicka, (2019). In addition, it can be informative to look at loan rates (mortgages and sectoral loans) compared to their historical average and to the policy rate.



**29. Housing market indicators are particularly relevant for the Maldives.** The limited supply of land due to the country's geography, and the large size of the government-sponsored 'rent-to-own' leasing scheme provided by HDC (see Box 1)—that spurs demand by facilitating access to property for low-income households—have driven construction prices up, according to information collected by HDfC. This has likely also driven up property prices. Therefore, the FSAP team recommends that MMA cooperate with the NBS to build a property price index, e.g., for typical homes in urban areas (e.g., two bedrooms, two baths), and track its evolution. The property index could be based on web-scraping online house sales advertising,<sup>10</sup> collecting registered sales prices

<sup>6</sup> The BIS recommends the use of an HP-filter to extract the trend component of the credit-to-GDP series. The smoothing parameters should be set to 1,600 for quarterly data.

<sup>7</sup> GDP was interpolated to obtain quarterly estimates from the annual data provided by the NBS.

<sup>8</sup> For instance, Drehmann and others (2010) show that a credit-to-GDP gap of ten percentage points or more issues the strongest signal of an impending crisis.

<sup>9</sup> See Edge and Meisenzahl (2011).

<sup>10</sup> Such as a planned project of MMA's research department.

from the land registry, and leveraging existing data (e.g., from HDC, HDFC<sup>11</sup>) that could also be split geographically (Greater Malé vs. other atolls). In addition, rent prices should be monitored closely and any disconnect to property values be detected through calculating a price-to-rent ratio. Finally, computing a property-price-to-disposable-income ratio may help detect impaired affordability of housing. While MMA could provide operational assistance, the national statistics bureau should calculate and publish the property price index.

### Box 1. Maldives: Lease and Hire Purchase Programs and Household Indebtedness

Leasing operations that imply the obligor's ownership of the good financed at the end of the contract ('lease-and-hire' purchase for consumer durables) are widespread in the Maldives. This is due to affordability as much as to cultural preference for instruments aligning with Islamic financing principles. Products financed under such schemes include vehicles, vessels, and consumer durables like mobile phones. The lease and hire market has flourished over the years; the FSAP team estimates that outstanding leases provided by four main finance/leasing companies and the bank most active in this segment amount to about MVR 1 billion, based on anecdotal information. This number compares to bank loans to households excluding mortgage loans of MVR 4.5 million at end-2022. However, given the relatively small amounts financed, it is fair to assume that the leasing companies serve a share of the population in consumer finance that is comparable to that of banks.

Under most plans, the leasing company retains ownership of the product until full payment at the end of the lease, except for one company that transfers the ownership and has experienced a relatively high delinquency rate. The exposures are "debt-like" in the sense that obligors are typically held accountable for full payment even if they decide to abandon the lease. If the amount from selling the repossessed good is insufficient to cover the outstanding obligation, lessees are often sued in court, although firms weigh the merits of this step given lengthy and costly court proceedings with uncertain outcomes.

Only one of the four finance/leasing companies with about a 30 percent share in the leasing market as per outstanding leases is licensed and regulated by MMA and reports to the CIB. According to MMA, it was decided not to regulate the other three companies because they finance primarily products offered by the same group (e.g., vehicles imported by the parent or a related company). The leasing companies generally welcomed the FSAP team's proposal for reporting of exposures to the CIB. Given the widespread use of 'lease-and-hire' purchase schemes, inclusion of these leasing companies in the reporting to CIB would allow for a comprehensive record of recurring payment obligations beyond loan service. Consequently, both banks and non-banks would enjoy objective information about client leverage instead of having to rely mostly on voluntary disclosures, which should contribute to lowering delinquency rates.

Once the existing information gap is closed, MMA should proceed to calibrate the envisaged limit to the DSTI ratio based on comprehensive systemwide payment obligations and not just on bank debt service which does not paint a truthful picture of total household leverage.

**30. A loan transition matrix could be constructed to measure emerging credit risk.** This matrix is a tool illustrating the movement of loans across loan classification categories over time

<sup>11</sup> HDFC collects data on construction prices that indicate a near-doubling of new house prices within the last 5 years.

(e.g., on a monthly basis). It can be used as an early warning indicator, for example signaling increased transitions from normal to the special mention category which precedes the recognition of an NPL. It can also be used to estimate the probably of default (PD) and expected credit loss.

**31. The interconnectedness of the different actors of the financial system can be monitored through a matrix of cross-sectional exposures.**<sup>12</sup> A matrix of all cross-sectoral exposures, also known as an inter-sectoral matrix, is a tool used to map out the interconnectedness of different sectors of an economy. The matrix typically shows the assets and liabilities in percentage of GDP between the different sectors, such as the corporate sector, government, the central bank, the banking sector, the non-bank financial sector, the key SOEs, and the household sector. It can help identify the build-up of large net claims between sectors and thus macrofinancial disequilibria, such as the sovereign-bank nexus or the government's exposure to large SOEs like HDC.

**32. Corporate performance should be monitored using specific financial ratios.** As risks can materialize outside the banking system, it is also important to monitor the financial soundness of the corporate sector. Therefore, the FSAP team recommends the use of at least three core indicators: (i) the debt-to-EBITDA ratio;<sup>13</sup> (ii) the interest coverage ratio;<sup>14</sup> and (iii) the current ratio.<sup>15</sup> While the debt-to-EBITDA ratio is a stock measure indicating the leverage of the corporate sector, the interest coverage ratio is a debt service measure, and the current ratio evaluates the liquidity position of firms. As it is not mandatory for unlisted companies to publish their financial statements, the FSAP team recommends MMA to obtain such data through its on-site inspections of banks.

**33. Household indebtedness can lead to the emergence of risks and should be watched.** The FSAP team recommends monitoring mortgage loans growth (potentially with a geographical distinction of Greater Malé vs. other atolls), credit card loan growth, personal loan growth (for vehicles, vessels etc.) and the corresponding average lending rates, to assess household indebtedness. Due to the prominence of the 'lease-and-hire' purchase schemes for vessels and consumer goods in the Maldives, it would be important to include these recurrent, non-discretionary payment obligations in a wider measure of debt service of households (see also ¶37). The required data to build these core indicators should be made available primarily through the CIB.

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<sup>12</sup> The IMF's Statistics Department has developed a tool called Balance Sheet Approach (BSA) Matrix to conveniently build the matrix of cross-sectional exposures.

<sup>13</sup> EBITDA stands for Earnings Before Interest, Taxes, Depreciation and Amortization and is typically considered a proxy for cash flow.

<sup>14</sup> The interest coverage ratio can be computed as EBIT/interest expenses over a defined period (a year or a quarter).

<sup>15</sup> The current ratio is equal to current assets divided by current liabilities, where current assets include cash, accounts receivables, inventory, and other current assets that are expected to be liquidated or turned into cash in less than one year, and current liabilities include accounts payable, wages, taxes payable, short-term debts, and the current portion of long-term debt.

## MACROPRUDENTIAL INSTRUMENTS

### A. Existing Instruments

**34. MMA currently has a single macroprudential instrument.** Calibrated at 5 percent of a bank's capital base, the required level of the leverage ratio is above the Basel III requirement of 3 percent but in line with the implementation levels in peer countries (see Table 4).<sup>16</sup> To address concerns about the FX exposure of banks, MMA has also set a limit to the NOP at 25 percent of a bank's capital base for a long position in a single currency, at 15 percent for a short position in a single currency, and at 40 percent for the overall FX exposure (short and long). While this is loose in overall international comparison, it is broadly in line with practice in other tourism-dependent island economies (Table 4).

**Table 4. Maldives: Macroprudential Instruments: Comparison with Peer Countries**

Country	LTV	DSTI	LTD	LCR	NOP	Leverage	CCyB
Bahamas	85%	40%-45% <sup>1</sup>			>-5%		
Dominican Republic					-40%<NOP<50%		
Fiji					-25%<NOP<25% <sup>2</sup>		
Jamaica				100%	-20%<NOP<20% <sup>3</sup>	6%	
Mauritius	80%-100% <sup>4</sup>	50% <sup>5</sup>		100%	<15%		
Seychelles					-30%<NOP<30% <sup>6</sup>		
Solomon Islands		40%			<15% for any FC <25% for overall FX		
Sri Lanka	25%-90% <sup>7</sup>			100%		3%	Yes
Tonga			80%<LTD<90%		<12.5% for any CY <25% overall FX		
Tuvalu	75%-90% <sup>8</sup>	40% <sup>9</sup>	75%				

Source: IMF Global Macroprudential Policy Instruments database.

<sup>1</sup> 40%-45% of ordinary monthly income (sum of wages and gratuities, guaranteed rental and investment income).

<sup>2</sup> Limit on single foreign currency net open position, irrespective of short or long position, may not exceed 12.5% of total capital in Fiji or FJ\$15.0m, whichever is less. Limit on overall foreign currency net open positions may not exceed 25% of total capital in Fiji or FJ\$15.0m, whichever is less.

<sup>3</sup> 20% of regulatory capital denominated in Jamaica dollars or JMD 8.0 billion, whichever is smaller.

<sup>4</sup> Maximum LTV ratio for residential property loans is set at 80% of the value thereof for self-employed individuals and contractual employees, and at 100% for other individuals.

<sup>5</sup> The DSTI ratio is calculated as the percentage of borrowers' monthly gross income that goes toward paying their monthly total debt obligations.

<sup>6</sup> Following the advent of the global COVID-19 pandemic in 2020Q1, the total short position was adjusted downward from 30% short to 50% for all banks.

<sup>7</sup> 90% on electric vehicles, light trucks, and commercial vehicles, 50% on motor cars, SUVs, vans, and hybrid vehicles, 25% on three wheelers, and 70% on locally assembled motor cars, SUVs, vans, and any other vehicles.

<sup>8</sup> 90% for house loans and 75% for motor vehicles.

<sup>9</sup> 40% of customers' net salary.

<sup>16</sup> The comparison, however, needs to be put in perspective, as the MMA does not follow the Basel III definition of the leverage ratio exactly. MMA's definition of the leverage ratio is Tier 1 capital divided by net assets, where net assets exclude off-balance sheet items (defined as gross assets less goodwill and other intangible assets, loan loss provisions and all other asset revaluation reserves, future income tax benefits, losses carried forward, and encumbered assets). For most banks, off-balance sheet items represent less than one percent of total assets, so the two leverage ratio definitions lead to similar results (17% for Basel III vs. 18% for MMA's definition, at end-2022).

## B. Envisaged Instruments

**35. MMA has been contemplating introducing DSTI<sup>17</sup> and LTV<sup>18</sup> limits to mitigate the build-up of systemic risks stemming from household borrowing.**<sup>19</sup> Studies have shown that implementing DSTI and LTV ratios enables regulators to limit excessive credit to the household sector (e.g., Lim and others 2011). However, the calibration, tightening or loosening, and the assessment of potential leakages of such macroprudential instruments need to be addressed thoroughly. In addition, the enforcement of the instruments requires access and to the relevant data without material gaps. Hence, building a database of sufficient quality at the CIB and granting access to relevant MMA departments needs to remain a top priority for MMA.

**36. Limits on DSTI ratios can help dampen the cyclicity of mortgage and consumer loan demand.** In mortgage lending, caps on DSTI ratios enable to set a limit on the admissible debt-related monthly disbursements and help ensure affordability of the mortgage. As opposed to LTV ratios, DSTI ratios also restrict the use of unsecured loans to attain the minimum down payment needed to obtain a mortgage loan.<sup>20</sup> In addition, caps on DSTI ratios enable to curb demand for all types of consumer loans by targeting the overall debt service. Indeed, although the ratio of residential and commercial real estate loans to total gross loans has been stable at roughly 5½ percent since 2019 in the Maldives, the share of household loans to commercial bank loans has doubled between 2011 and 2021, rising from 18 percent to 38 percent. This strong increase, which reflects financial deepening due to an improving access of households to credit, advocates for the use of limits on the DSTI ratio to include payment obligations under ‘lease-and-hire’ purchase schemes for consumer goods (e.g., motorbike and vessels). The fact that several banks have implemented such a limit internally (Table 5) only further calls for an introduction of the DSTI regulation.

**37. The numerator of the DSTI ratio should include recurrent payments under ‘lease-and-hire’ purchase schemes for consumer goods.** While not being defined as debt strictly speaking, such financial products are considered debt-like since clients are incentivized to continue paying the installments in order not to lose the entitlement to the item purchased (see Box 1). Including such recurrent payments would therefore require accounting for “debt service” to NBFIs offering such financial products. While bringing the two currently unregulated finance companies into the

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<sup>17</sup> MMA defines a loan-to-income (LTI) ratio as total monthly debt payment obligations divided by monthly disposable income from all sources. In IMF terminology, this is referred to as the debt-service-to-income ratio (DSTI). In this Technical Note, the two terms are therefore employed interchangeably.

<sup>18</sup> MMA defines the loan-to-value (LTV) ratio as the outstanding amount of the loan divided by the appraised value of the property being purchased/constructed.

<sup>19</sup> MMA has also shared with the FSAP team the draft of a regulation for a corporate debt-to-equity ratio, which is not discussed in this note as work on this envisaged regulation is thought to have been put on hold indefinitely.

<sup>20</sup> Moreover, while caps on LTV ratios may become less binding with the increase of house prices, potentially requiring successive tightening, limits on DSTI ratios become more binding when house prices (and mortgage loans) grow faster than households’ disposable income (Kuttner and Shim, 2013). As a result of this built-in automatic stabilizer feature, DSTI caps can smooth credit booms even without any time-varying calibration.

regulatory perimeter ultimately remains a policy question, reporting leasing companies clients' debt service under all 'lease-and-hire' purchase schemes to the CIB and including them in the calculation of debt service should be made mandatory in order to properly account for all recurrent payment obligations of households. Examples of countries including all recurring debt payments in the calculation of the DSTI are Hong Kong SAR and the UAE. Payments under HDC's 'rent-to-own' lease programs should, however, be exempted from this requirement to avoid unequal treatment of beneficiary households compared to those that pay regular rent on dwellings without accumulating an ownership entitlement and whose rent payments would not be included in the DSTI calculation. Indeed, unlike the 'lease-and-hire' purchase schemes for consumer goods, clients of HDC's 'rent-to-own' scheme can walk away from their installments without the lender having a full recourse on them. Similarly, utilities and other recurrent payment obligations not tied to the purchase of goods (e.g., phone and internet subscriptions), should be left outside of the scope of the DSTI.

<b>Bank</b>	<b>DSTI</b>	<b>LTV</b>
A	50% <sup>1</sup>	60%
B	None <sup>2</sup>	60%
C	40%	67%
D	None <sup>3</sup>	50%
E	None <sup>4</sup>	70%
F	40%-60% <sup>5</sup>	80%
G	None <sup>6</sup>	75%
H	Case to case basis	Not communicated

Source: MMA/banks

<sup>1</sup>Calculated as monthly installment to net monthly income.

<sup>2</sup>Instead evaluates the debt service coverage ratio (>2).

<sup>3</sup>Instead evaluates the gearing (<1.5) and leverage (<2.5) ratios.

<sup>4</sup>Instead evaluates the debt service coverage ratio (>1.5).

<sup>5</sup>40% for income<10k MVR, 45% for income<20k MVR, 55% for income<100k MVR, 60% for income>100k MVR.

<sup>6</sup>Instead evaluates the debt service coverage ratio (>1) and at the interest coverage ratio (>2).

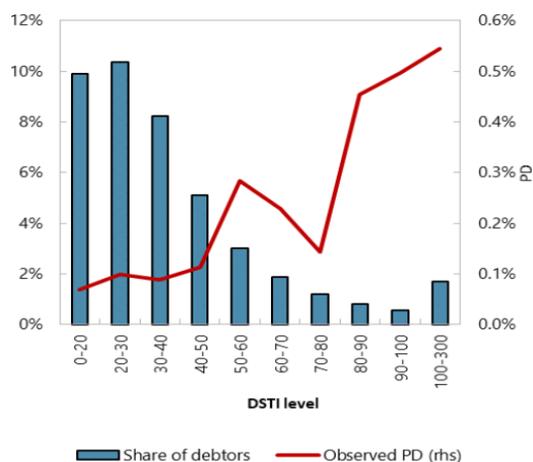
**38. DSTI ratios can be calibrated empirically in order to reduce the probability of borrower defaults.**<sup>21</sup> MMA is contemplating setting a cap on DSTI at 50 percent for monthly disposable income below MVR 50,000, 60 percent for income between MVR 50,000 and 100,000, and 70 percent for income above MVR 100,000.<sup>22</sup> DSTI ratios can be optimally calibrated based on empirical analysis. Indeed, Nier and others (2019) show by plotting the share of NPLs with the associated

<sup>21</sup> In addition, the scope of disposable income taken in the calculation of the DSTI ratios needs to be defined. Some countries use income net of taxes, while others also subtract certain recurring payments.

<sup>22</sup> For joint loans application (two or more borrowers other than husband and wife), the cap is set at 50%.

debtors' DSTI levels for the case of Romania that the relationship between DSTI and the PD is non-linear, with the PD responding to increases in DSTI only after a certain threshold (see Figure 3). The FSAP team recommends implementing the same methodology to find the adequate DSTI thresholds for the Maldives and so limit the build-up of NPLs.

**Figure 3. Maldives: DSTI Level and Probability of Default of Mortgage Loans in Romania**



Source: Nier and Others (2019)

**39. In addition to the DSTI regulation, limits on LTV ratios can be useful to contain risks in mortgage lending.** While most banks have put their own internal limits of LTV ratios in place (see Table 5), MMA is considering implementing a maximum LTV ratio for residential properties of 90 percent for loans under MVR 5.0 million and of 80 percent for loans above MVR 5.0 million.<sup>23</sup> Such levels are currently not binding for any of the banks in the Maldives and can therefore be considered neutral-to-loose. They are also at the upper end of what is implemented in peer countries (see Table 4). The maximum permissible ratio may be tightened (or relaxed) along the financial cycle, considering the development of the relevant housing market and mortgage indicators. Although the low and stable share of real estate loans in overall credit does not necessarily require the imposition of LTV limits, the large volume of HDC's 'rent-to-own' lease program has driven property prices up and may, in the future, constitute a major source of systemic risk. Should that risk materialize, the LTV, in combination with the DSTI, could then be relaxed. If necessary, other tools could also be applied, such as a cap on loan maturity or a lower LTV limit on second mortgages.<sup>24</sup>

<sup>23</sup> In case of a joint application consisting of two or more borrowers (who are not husband and wife) for the purchase/construction of a property, the maximum LTV is 70 percent of the value of the property.

<sup>24</sup> Dirma and Karmelavičius (2023) show in the case of Lithuania that a higher down payment of at least 30 percent can compensate for the higher probability of default of secondary mortgages.

## C. Recommended Additional Instruments

**40. The FSAP team recommends implementing additional macroprudential instruments to reduce the currency and maturity mismatches.** The high dependence of the Maldivian economy to foreign tourist influx, the high dollarization of the economy, and the limited opportunities to hedge currency risks have led banks to have substantial exposures to FX. The overall Net Open Position (NOP) is at 11.8% of CAR<sup>25</sup> as of December 2022. The maturity mismatch in banks' balance sheets is also sensible. The gap reaches 5.6% of banks' total assets for maturities shorter than 5 years and 15.5% for maturities longer than 5 years, all currencies considered.<sup>26</sup> Therefore, in addition to the FX NOP limits the mission team recommends implementation of the Liquidity Coverage Ratio (LCR), the Net Stable Funding Ratio (NSFR) and loan-to-deposit (LTD) ratio in both local and foreign currency to address these concerns.<sup>27</sup>

**41. The LCR helps ensure that banks have sufficient liquidity in each currency to meet their obligations, while the NSFR seeks to safeguard stable funding.** The LCR requires banks to hold a sufficiently amount of high-quality liquid assets (HQLA) denominated in a certain currency to cover their projected net cash outflows in that currency over a 30-day stress period. This ensures a minimum short-term liquidity in the event of financial stress. The HQLA must also be readily available and marketable in that currency. Usually, LCRs are set at a minimum of 100 percent both in local and major foreign currencies. As illustrated in Table 4, several peer countries have implemented this tool. Another Basel III recommended instrument, the NSFR,<sup>28</sup> aims to promote resilience by creating incentives for banks to fund their activities with more stable sources of longer-term funding.

**42. The LTD ratio helps ensure that banks are not overly reliant on volatile wholesale funding for their lending activities.** LTD ratios are measures of banks' lending activities relative to their deposit bases. A higher (lower) LTD ratio indicates that the bank relies more on wholesale (deposit) funding. Banks in middle income countries usually have overall LTD ratios of 80 percent, while advanced economies often find their LTD ratios exceeding 100 percent (IMF, 2014b). Therefore, the FSAP team recommends implementing a maximum LTD ratio of less than 80 percent in FX to ensure resilience in the case of a sudden stop in FX inflows. In addition, setting a maximum LTD ratio in LC at 80 percent would help strengthen the resilience of the banks. Noteworthy, these levels are currently not binding as the LTD in LC was 65.8 percent and the LTD in FX 53.2 percent as

<sup>25</sup> The Capital Adequacy Ratio (CAR) is defined as Tier 1 Capital plus Tier 2 Capital divided by the risk-weighted assets.

<sup>26</sup> The average maturity mismatch in percentage of total assets (all currencies) is: -32.3 percent for maturities less than 7 days, 2.1 percent for maturities between 7 and 30 days, 4.8 percent for maturities between 1 and 3 months, 8.2 percent for maturities between 3 and 6 months, 7.5 percent for maturities between 6 and 12 months, 3.4 percent for maturities between 1 and 3 years, 7.7 percent for maturities between 3 and 5 years, 15.5 percent for maturities over 5 years, and 6 percent for unclassified maturities.

<sup>27</sup> Even though the banking sector is under Basel I regulation and there is no obligation to introduce Basel III instruments, voluntary adoption is recommended.

<sup>28</sup> The Net Stable Funding Ratio (NSFR) is defined as: available amount of stable funding divided by required amount of stable funding.

of December 2022. Furthermore, caps on new lending in FX could be envisaged for borrowers that earn revenue in local currency in order to limit currency mismatches, notably traders that import goods in FX but sell to clients in local currency.

**43. A D-SIB framework with specific buffers would help reduce the potential impact of a failure of systemic banks on the financial system.** D-SIBs are banks considered to be systemically important to the domestic financial system of a country. These banks are often large and complex and have significant interconnectedness with other financial institutions and markets, making them riskier to the overall stability of the financial system. Generally, D-SIBs are subject to higher regulatory and supervisory standards than other banks, with the aim of reducing their potential impact on the financial system in the event of a crisis. Due to the high banking sector concentration in the Maldives and the presence of a major state-owned bank dominating the sector, the FSAP team recommends the implementation of a D-SIB framework using the BCBS methodology to identify such banks and with a specific buffer to be determined subsequently.

**44. The FSAP team also recommends the implementation of the Basel III countercyclical capital buffer (CCyB).** The CCyB requires banks to hold a percentage of their Risk-Weighted Assets (RWA, usually between 0 percent and 2.5 percent) as additional capital during times of strong credit growth relative to economic growth that can be released during an economic downturn. The buffer is designed to be a flexible tool that can be adjusted by regulators to respond to changing financial and economic conditions. It is a countercyclical measure intended to help prevent banks from exacerbating the effects of economic cycles. In a forthcoming IMF policy note, Miettinen and Nier (2023) show that countries that entered the pandemic with a positive CCyB were able to smooth the impact of the shock through a release of the buffer, while other countries had an insufficient buffer entering the crisis. The FSAP team recommends that MMA adopt a CCyB with a positive rate (e.g., at least 0.5 percent) as a first step, and potentially raise it in the future after a thorough calibration. As an alternative, MMA may also consider introducing a systemic risk buffer (SyRB). A summary of the envisaged and recommended additional macroprudential instrument is presented in Table 6, together with the related data need.

**45. An additional capital requirement would help mitigate the sovereign-bank nexus.** By discouraging banks to be excessively exposed to the sovereign, this additional capital buffer is a flexible instrument to penalize high exposure concentration. The calibration of this additional capital should be nonlinear, with the requirement increasing gradually beyond a minimum concentration threshold based on the level of a bank's exposure relative to its risk-weighted assets. The additional capital requirement should be based on Basel Pillar 2 or, alternatively, on Pillar 1 with an accompanying macroprudential rule (WAEMU FSSA, 2022).

**Table 6. Maldives: Recommended Macroprudential Instruments**

<b>Scope</b>	<b>Instrument</b>	<b>Data need</b>	<b>Timing<sup>1</sup></b>
Banks	(FX) Liquidity Coverage ratio (LCR)	No additional data need	MT
	(FX) Loan-to-Deposit ratio (LTD)	No additional data need	MT
	Domestic Systemically Important Bank (D-SIB) Buffer	Data for Identification of D-SIBs	MT
	Countercyclical Capital Buffer (CCyB)	Additional data needed if indicators beyond Credit-to-GDP gap to be used	MT
	Systemic Risk Buffer (SyRB)	No additional data need	MT
	Basel Pillar 1/2 capital surcharge	Banks' sovereign exposure	MT
Corporate & Households	Debt-Service-to-Income Ratio (DSTI)	Debtors' disposable income Data for calculation of debt service	MT
	Loan-to-Value (LTV)	Property values	MT
Source: IMF Staff			
<sup>1</sup> MT: Medium Term (within 1–5 years).			

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