Caribbean
Regional Financial Stability Report
2018

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List of Abbreviations

ABBREVIATION	NAME
ACH	Automated Clearing House
AFSI	Aggregate Financial Stability Index
AML/CFT	Anti-Money Laundering/ Countering Financing of Terrorism
B-FXITT	Bank of Jamaica Foreign Exchange Intervention & Trading Tool
BoJ	Bank of Jamaica
BSA	Banking Services Act
BSI	Bank Stability Index
CAR	Capital Adequacy Ratio
CARICOM	Caribbean Community
CARTAC	Caribbean Regional Technical Assistance Centre
CBDC	Central Bank Digital Currency
CBR	Correspondent Banking Relationship
CBvS	Central Bank of Suriname
CDD	Customer Due Diligence
CFATF	Caribbean Financial Action Task Force
CGBS	Caribbean Group of Banking Supervisors
CLICO	Colonial Insurance Company
CRFSR	Caribbean Regional Financial Stability Report
CSD	Central Securities Depository
D-SIBS	Domestic Systemically Important Banks
ECCU	Eastern Caribbean Currency Union
ELA	Emergency Liquidity Assistance
ERPS	Electronic Retail Payment Services
EU	European Union
FATF	Financial Action Task Force
FDI	Financial Development Index
FIA	Financial Institutions Act
FINTECH	Financial Technology
FOMC	Financial Oversight Monitoring Committee
FSAC	Financial Stability Advisory Committee
FSI	Financial Soundness Index
FSD	Financial Stability Department
FSC	Financial Services Commission
FSR	Financial Stability Report
FSSA	Financial Sector Stability Assessments
FSSC	Financial System Stability Committee

List of Abbreviations

ABBREVIATION	NAME
FVI	Financial Vulnerability Index
FX	Foreign Exchange
GDP	Gross Domestic Product
IA	Insurance Act
ICT	Information and Communication Technologies
IFSA	International Financial Services Act
IMF	International Monetary Fund
JMMB	Jamaica Money Market Brokers
KYC	Know Your Customer
LAC	Latin American & Caribbean
LCR	Liquidity Coverage Requirement
ML/TF	Money Laundering/Terrorist Financing
MPIs	Macro Prudential Indicators
NOP	Net Open Position
NPL	Non – Performing Loan
NPSA	National Payments System Act
OECD	Organization for Economic Co-operation and Development
PSPs	Payment Service Providers
ROA	Return on Asset
ROE	Return on Equity
RoW	Rest of World
RTGS	Real Time Gross Settlement
SIBs	Systemically Important Banks
SIFIs	Systemically Important Financial Institutions
TA	Technical Assistance
TTSEC	Trinidad and Tobago Securities and Exchange Commission
USA	United States of America
WECI	World Economic Climate Index

PREFACE

The 2018 Regional Financial Stability Report (RFSR) is the second installment of this Report and comes three years after the publication of the first Report in 2015. This Report complements the annual national financial stability reports produced by individual Central Banks across the Region. It is anticipated that subsequent publications of the RFSR will be prepared on an annual basis.

The RFSR is designed to increase stakeholders' awareness of issues relevant to the stability of the financial system in the Caribbean, by reviewing the main sources of risk to regional financial stability and assessing the effectiveness of the policy framework in place to identify, manage and mitigate emerging risks. Furthermore, it seeks to identify reforms to the regional financial architecture, which would enhance regional financial risk assessment, with an emphasis on increased regional harmonization, coordination and cooperation.

Regional training organized by the financial stability work programme of the Caribbean Technical Assistance Centre (CARTAC) has been instrumental in building capacity, particularly as it relates to systemically important financial institutions (SIFIs) identification, stress testing, network analysis and systemic risk surveillance. This, in turn, has helped efforts by regional Central Banks and other regulatory agencies to improve the regional financial stability framework, which has facilitated the production of this year's Report.

The 2018 Report covers several areas that are required to comprehensively assess the stability of the financial system in the Caribbean. Chapter 1 provides an overview of the Caribbean financial system, including a summary of macroeconomic and macro-financial developments, financial system infrastructure and financial market developments. The performance of financial institutions within the Region is discussed in Chapter 2, with a focus on key financial soundness indicators for commercial banks and insurance companies. Chapter 3 provides an update on the stress testing frameworks employed within the region and assesses the Caribbean banking sector's potential credit, interest rate, foreign exchange and liquidity risks. Furthermore, a number of important issues pertaining to regional systemic risks, such as regional credit to GDP gaps, regional financial stability indices, regional systemic risks, systemically important financial institutions (SIFIs) and cross border banking system exposures are addressed in Chapter 4. Finally, in Chapter 5, policy initiatives for the support and maintenance of financial stability are discussed.

EXECUTIVE SUMMARY

The regional capacity in the Caribbean to identify and assess systemic risk has improved since 2014. In particular, Caribbean financial regulators have strengthened their defenses against threats to financial stability, such as cyber security, climate change-related risk and correspondent banking withdrawals and restrictions. Regulatory authorities have also been upgrading their toolkits to deepen their assessment of banking sector resilience against systemic risks. Country-level disclosures have revealed that the capital buffers in domestic banking sectors remained adequate in a number of scenarios, characterized by a variety of plausible shocks. Furthermore, a few jurisdictions have formalized their macroprudential framework by codifying it in legislation, while others are in the process of building-out their financial stability architecture.

Nevertheless, macroprudential surveillance of the cross-border dimension of systemic risk is less advanced. Recent data on country exposures from reporting countries suggested that Barbados, and to a lesser extent, Trinidad and Tobago, are the only countries that consistently recorded exposures with other Caribbean banking systems. However, the growing dominance of financial conglomerates in the Caribbean, along with recent major acquisitions, have led to the amplification of concentration risks. These developments have in turn spurred the development of the regulatory architecture for the identification and monitoring of SIFIs.

The Caribbean has also had to grapple with several key challenges, which have driven the reform agenda of regulatory bodies in the Region. At the international level, the Region remains disproportionately impacted by global "de-risking" trends as reflected in the continued reduction in the number of entities that provide correspondent banking services to regional financial institutions. As a result, all of the regional economies have made enhancements to their Anti-Money Laundering/ Countering Financing of Terrorism (AML/CFT) guidelines, as they have attempted to avoid being defined as a non-cooperative jurisdiction by international bodies, such as the OECD and FATF.

The development of frameworks to address the emergence of private digital currencies and other financial technology (FinTech) developments, as well as the studies and pilot projects on central bank digital currencies (CBDC) in the Region, are highlighted in the 2018 RFSR. Improvements to more traditional payments systems are also being pursued with a focus on the reduction of paper-based cheques and the promotion of electronic based settlement systems.

Overall, the level of financial stability in the Caribbean has continued to strengthen, with all Central Banks making significant progress on important financial sector reforms to protect and maintain stability in the Region. In the future, the RFSR intends to focus more on regional systemic risk exposures and to continue discussing the development of the regional architecture to monitor, report and implement policy measures to maintain and strengthen regional financial stability. In this context, there is need for more cooperation and coordination to more comprehensively address cross-border financial stability threats. In particular, there is need to implement a set of enabling protocols to strengthen policy analysis and enhance the contents of the RFSR. It is also important to develop harmonized analytical templates for computing core and non-core systemic risk indicators, macro stress test scenarios and heat maps to allow for useful cross-country comparisons of regional financial vulnerabilities in the RFSR.

Overview of the Regional Macro-Financial Environment

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Chapter 1:
Overview of the Regional Macro-Financial Environment

The small open nature of Caribbean economies means their economic performance is highly dependent on the international economic environment. They are particularly susceptible to negative external shocks. Over the review period, global economic growth was relatively strong but there was a tendency for reversal in some countries and regions driven by idiosyncratic factors in some countries as well as lingering structural weaknesses in many important countries. One of the main reasons hampering growth over this period has been the trade dispute between the US and China, growing pressures for protectionist policies and increased geopolitical tensions.

1.1 International Economic Developments

Global growth has stabilized in the last four years but it is still subject to reversals dependent on developments in important economies driven by emerging risks and longer term structural weaknesses (See Table 1.1). Global growth fell slightly from 3.6% in 2014 to 3.5% in 2015 driven in large part by a weaker performance by emerging and developing economies. This was due to slowing growth amongst oil producers as energy prices weakened (Table 1.2), reduced capital flows to emerging and developing economies, increased capital market volatility and economic re-alignment in China. Global growth weakened further to 3.4% in 2016 driven by weaker growth in the US, concerns about the development of protectionist sentiments, Brexit and uncertainty about the policy direction of the new US administration. Global growth improved to 3.9% in 2017 due to fiscal expansion in the US, accommodative financial market conditions, some recovery amongst commodity producers, a recovery of investment in advanced economies and a rebound in global trade (Table 1.3). In 2018, global growth weakened to 3.6% as trade tensions between the US and China increased. This was also due to concerns about the high levels of public and private debt in important economies, fallout in the UK and the Euro area from tensions related to the Brexit negotiations, natural disaster in Japan and the tightening in financial markets.

Table 1.1: Global Economic Growth (%)

Country/Region	2014	2015	2016	2017	2018	2019	2020	2021
World	**3.6**	**3.5**	**3.4**	**3.9**	**3.6**	**2.9**	**-3.0**	**5.8**
Advanced economies	**2.1**	**2.3**	**1.7**	**2.5**	**2.2**	**1.7**	**-6.1**	**4.5**
USA	2.5	2.9	1.6	2.4	2.9	2.3	-5.9	4.7
Japan	0.4	1.2	0.5	2.2	0.3	0.7	-5.2	3.0
Canada	2.9	0.7	1.0	3.2	2.0	1.6	-6.2	4.2
UK	2.6	2.4	1.9	1.9	1.3	1.4	-6.5	4.0
Germany	2.2	1.7	2.2	2.5	1.5	0.6	-7.0	5.2
Korea	3.2	2.8	2.9	3.2	2.7	2.0	-1.2	3.4
Singapore	3.9	3.0	3.2	4.3	3.4	0.7	-3.5	3.0
Euro area	**1.4**	**2.1**	**1.9**	**2.5**	**1.9**	**1.2**	**-7.5**	**4.7**
Emerging market and developing economies	**4.7**	**4.3**	**4.6**	**4.8**	**4.5**	**3.7**	**-1.0**	**6.6**
Russia	0.7	-2.0	0.3	1.8	2.5	1.3	-5.5	3.5
Emerging and developing Asia	**6.8**	**6.8**	**6.8**	**6.7**	**6.3**	**5.5**	**1.0**	**8.5**
China	7.3	6.9	6.8	6.9	6.7	6.1	1.2	9.2
India	7.4	8.0	8.3	7.0	6.1	4.2	1.9	7.4
Latin America and the Caribbean	**1.3**	**0.3**	**-0.6**	**1.3**	**1.1**	**0.1**	**-5.2**	**3.4**
Brazil	0.5	-3.6	-3.3	1.3	1.3	1.1	-5.3	2.9
Middle East and North Africa	**2.7**	**2.4**	**5.5**	**1.7**	**1.0**	**0.3**	**-3.3**	**4.2**

Source: International Monetary Fund, World Economic Outlook Database, April 2020.

Table 1.2: Selected Commodity Prices

Commodity	Actual						Latest April 2020	Forecast	
	2014	2015	2016	2017	2018	2019		2020	2021
Crude Oil – average $/bbl	96.25	50.79	42.84	52.81	68.33	61.39	32.20	35.61	37.87
Natural Gas US - $/mmbtu	4.37	2.61	2.49	2.96	3.16	2.57	1.79	1.98	2.44
Aluminium - 000$/mt	1.86	1.66	1.60	1.96	2.11	1.79	1.61	1.58	1.62
Rice Thai 5% - $/mt	426.48	380.05	388.27	399.08	403.08	396.51	467.40	435.22	402.59
Sugar (World) - $/kg	0.25	0.25	0.28	0.28	0.25	0.26	0.26	0.27	0.27
Bananas (US) - $/kg	0.93	0.96	1.00	1.08	1.15	1.14	1.20	1.19	1.19

Source: Commodity Price Pink Sheet, May 2020 and Commodity Price forecast April 2020, World Bank.

Table 1.3: World Trade Developments (% change)

Year	2014	2015	2016	2017	2018	2019	2020
World Trade Volume	3.9	2.8	2.3	5.7	3.6	1.1	3.2
World Trade in US$ Price Deflators	-1.8	-13.2	-4.1	4.2	5.5	-1.6	-0.3
Volume of Exports in AEs	4	3.5	1.8	4.7	3.1	0.9	2.5
Volume of Exports in EDEs	3.3	1.4	3	7.3	3.9	1.9	4.1
Source: World Economic Outlook Dataset, October 2019, IMF.							

In this environment, financial markets were prone to episodic volatility and tightening financing conditions for emerging and developing countries. Uncertainty about the timeline for the rollback of accommodative monetary policy measures also created uncertainty about the trajectory of international interest rates which has implications for macroprudential policies in developing countries.

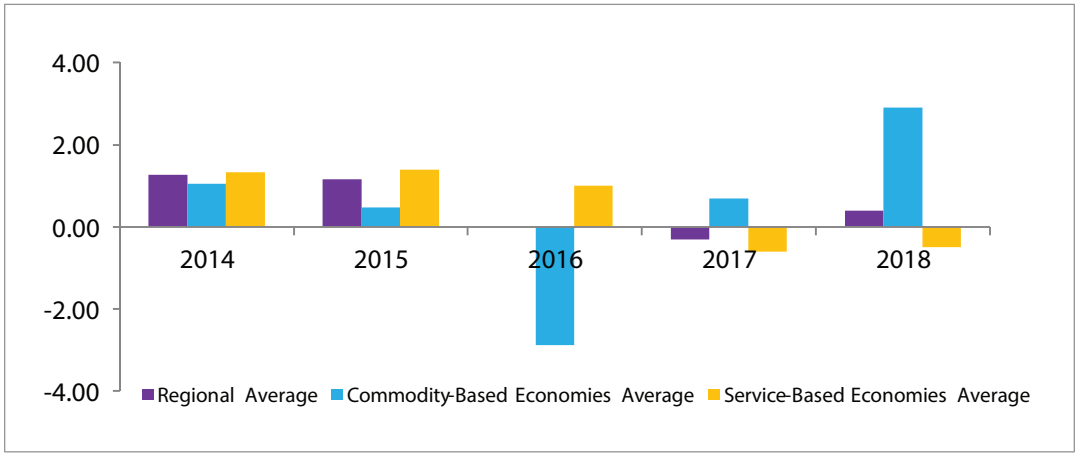
Additionally, weaker output and financial vulnerability in the aftermath of the international financial crisis appear to be persistent, irrespective of whether a country experienced a financial crisis during that period or in the immediate aftermath (IMF 2018)[1]. Relatively muted investment was a key channel through which these losses occurred. Countries with excessive credit to GDP gaps, as well as capital and total factor productivity shortfalls also recorded higher output losses. This underscores the importance of financial policy in general, as well as macroprudential policies and effective supervision in particular to better outcomes in terms of output.

1.2 Regional Macroeconomic Developments

1.2.1 Economic Growth

In this relatively challenging international economic environment, most Caribbean countries registered relatively low average growth. In particular, the average regional growth rate declined from 1.6% in 2015 to 0.4% in 2018. The growth performance in the region was not uniform, however, as commodity-based economies recorded higher average growth of 2.9% in 2018 compared to 0.5% in 2015. This was driven by a partial recovery of commodity prices in 2018. In contrast, service-based economies recorded a 0.5% contraction in economic growth in 2018 relative to average growth of 2.0% in 2015 (see Figure 1.1).

Figure 1.1: Real GDP of Caribbean Economies (Annual % Change)



Source: Central Banks for Caribbean Countries

[1] IMF. Chapter 2: The Global Economic Recovery 10 Years after the 2008 Financial Meltdown. World Economic Outlook, October 2018.

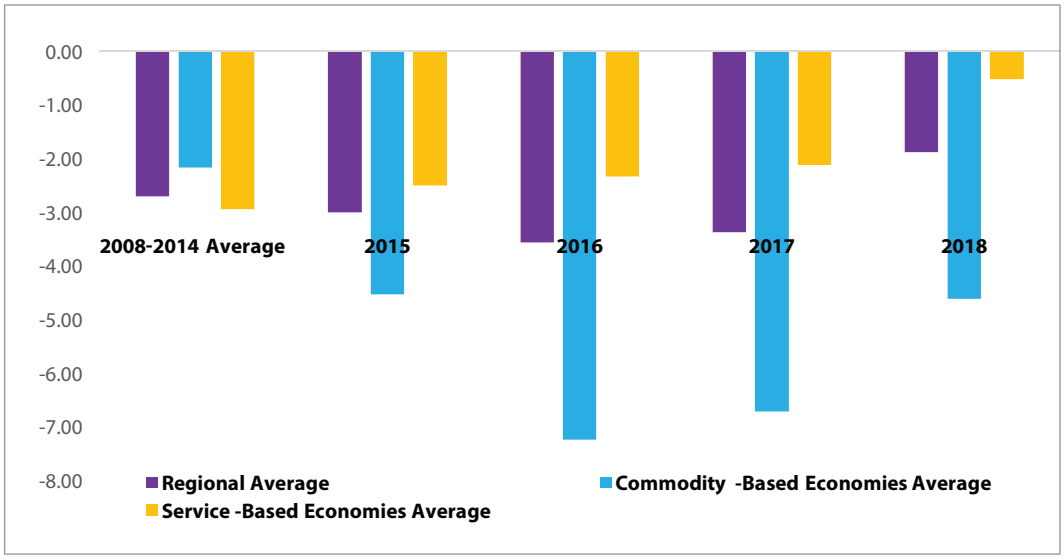
1.2.2 Fiscal Balance

The evolution of sovereign risks continues to be important to financial stability assessments, given the fiscal reliance on bank credit for deficit financing. The average fiscal deficit as a percentage of GDP narrowed to 1.9% in 2018 from 3.0% in 2015. The improvement over this period was due in large part to lower deficits in service-based economies. Commodity-based economies also registered improvements on their fiscal accounts relative to 2016 and 2017 (see Figure 1.2). These improvements has been driven largely by fiscal consolidation efforts, as well as by better economic growth outturns in commodity based economies.

1.2.3 Sovereign Debt

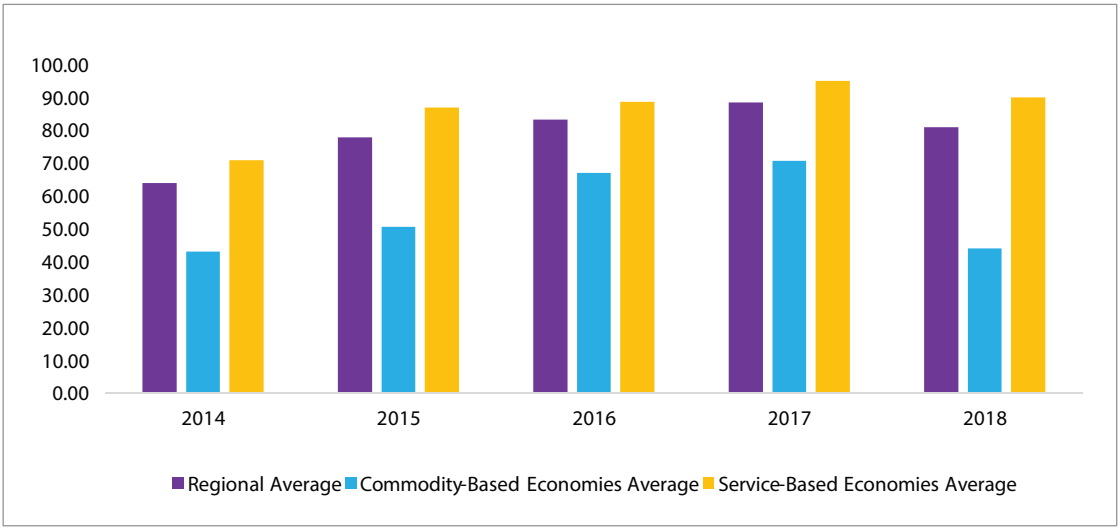
The Caribbean region's level of indebtedness remained relatively high with the total debt to GDP ratio averaging 80.7% in 2018 relative to 77.6% in 2015 (see Figure 1.3). The increase in the total debt burden reflected the rising level of external debt for the majority of countries in the region. The total debt of service based economies have been consistently higher than of commodity based economies over time, however, the external debt for commodity-based economies was higher (50.7%) relative to the service-based counterparts (43.5%) in 2018.

Figure 1.2: Fiscal Balance in Regional Economies (% of GDP)



Source: Central Banks for Caribbean Countries

Figure 1.3: Total Debt in Caribbean Economies (% of GDP)



Source: Central Banks for Caribbean Countries

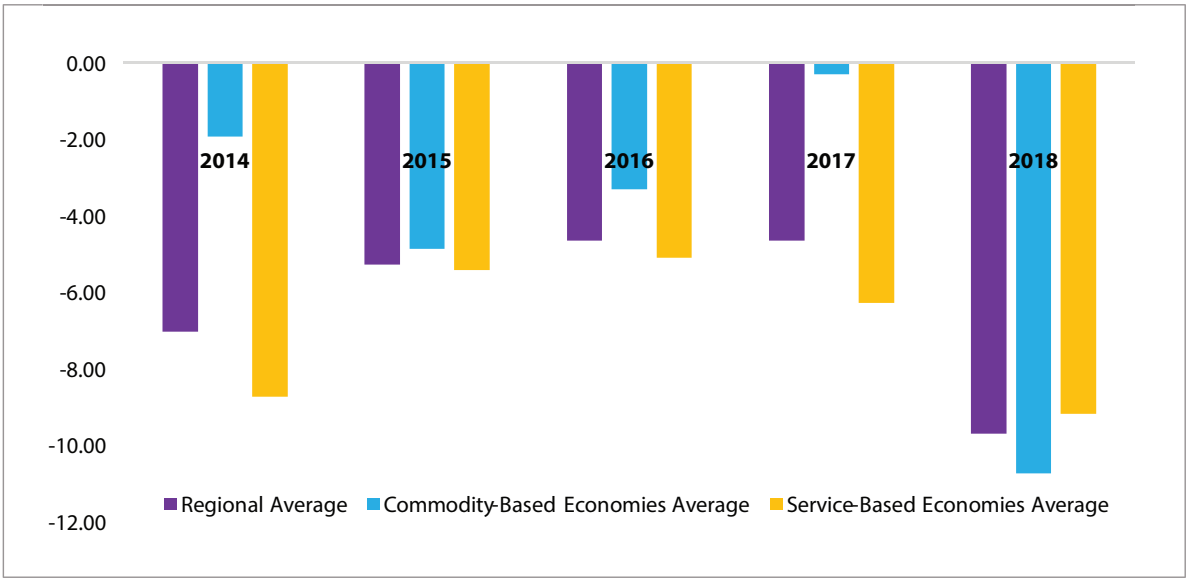
1.2.4 External Current Account

The external current account balance remains a major area of vulnerability for the region due in large part to it susceptibility to international economic shocks and natural disasters. These vulnerabilities have heightened with the increase frequency and intensity of natural disasters. The average current account of the balance of payments for the Region has been in a deficit since 2014. The ratio of the current account of the balance of payments to GDP did improve over the period 2014 to 2016 but have since worsened (see Figure 1.4). A weakening global economy contributed to this deterioration in the current account of the Region in 2018.

1.2.5 External Reserves

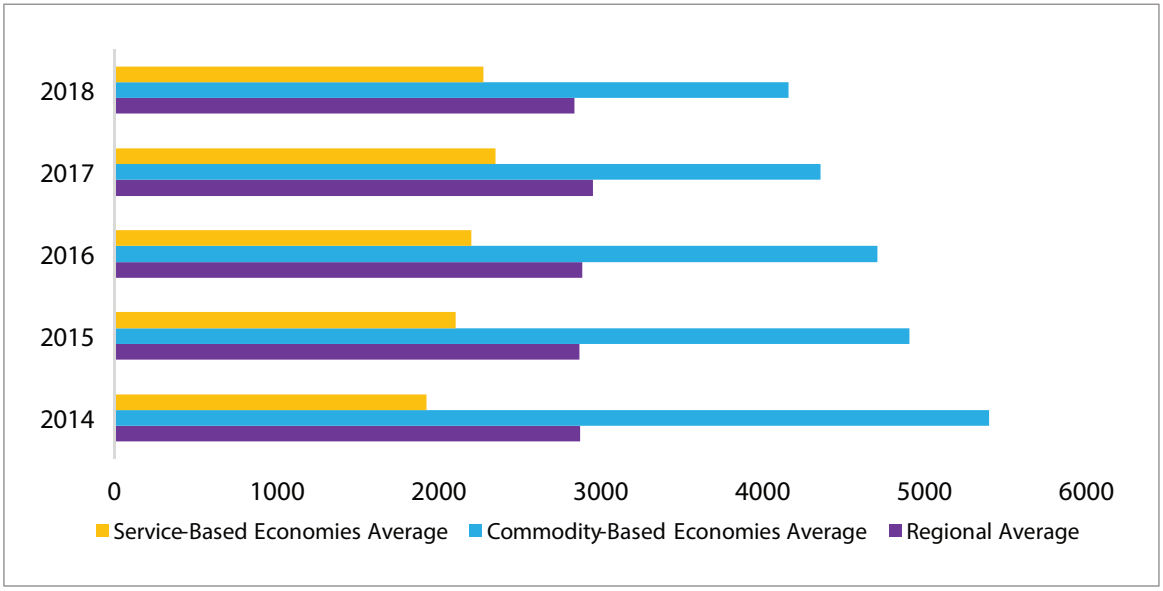
In spite of these challenges on the external current account, the region continued to maintain robust external reserves, as it continued to attract significant foreign direct investment inflows. This has helped to facilitate a strong buildup of buffers against international shocks as the region has managed to keep its import cover over five months of import cover for the period 2015-2018. The pace of external reserves accumulation has, however, slowed slightly in 2018 driven primarily by slowing reserve accumulation in commodity-based producers (Figure 1.5).

Figure 1.4: Caribbean Economies External Current Account (% of GDP)



Source: Central Banks for Caribbean Countries

Figure 1.5: Regional Economies Gross International Reserves (US$M)



Source: Central Banks for Caribbean Countries

1.3 Financial System Structure

Financial sectors within the region are predominantly bank-centric (Table 1.4). Other important financial sub-sectors include insurance companies, credit unions and pension funds. Financial markets such as foreign exchange, bond and stock markets are also still relatively under-developed reinforcing the dominance of financial institutions, especially commercial banks. However, important to note is that, Jamaica has exhibited significant development as it relates to their stock market, receiving many international accolades for their stock market performance. The regulatory and supervisory systems in the region are also relatively diverse, especially in the context of the systems in place for the supervision of banks and non-bank financial institutions. Over time, however, there has been increasing harmonization, especially in terms of developing common prudential regulatory standards and developing their payments and settlement systems.

The banking sectors within the region include a balance of local and foreign owned entities. Foreign-owned banks are usually subsidiaries or extensions of Canadian parents. Regional financial conglomerates with extensive cross-border operations are headquartered in Barbados, Jamaica and Trinidad and Tobago.

The insurance market remains a vital component of the financial structures within the region, as the deterioration of this sector can adversely affect these economies. However, the regulatory frameworks for the sector vary amongst Caribbean countries. There also exists significant common exposure to Caribbean sovereigns which can amplify regional contagion risk.

Table 1.4: Structure of CARICOM Financial Systems 2018 (Total Assets as % of GDP)

	The Bahamas	Barbados	Belize	ECCU	Guyana	Jamaica	Suriname	Trinidad and Tobago	Caribbean Average
Banks	119.4	125.5	89.5	152.9	63.1	36.0	85.4	87.1	93.7
Credit Unions	3.4	23.8	27.9	19.4	0.8	5.8	0.18	10.0	11.4
Insurance Companies	15.3	41.5	7.9	15.6	9.4	19.5	12.4	29.4	22.3
Other	22.2	53.9	19.0	19.9	17.7	154.2	16.2	112.9	52.8
of which : Pension Funds	*n.a.*	*22.9*	*n.a.*	*n.a.*	*8.0*	*29.9*	*15.5*	*n.a.*	20.3
Total	160.4	243.8	144.3	207.8	91.0	215.5	138.4	239.4	180.1

Source: National Central Banks for Caribbean Countries as at March 2020, World Council of Credit Union Statistical Report ,2018 ;ECCU Country Report, IMF (March 2020); The Bahamas Financial Sector Stability Assessment, IMF (July 2019); Bank of Guyana Annual Report 2018.

Notes: The Bahamas Total Assets of the Financial System is data as at June 2018.

1.4 Financial Infrastructure

Financial market infrastructures are at varying levels of development across the region (Table 1.5). Credit Bureau establishment within the region has been slow, with only four countries having legislated credit bureaus. Although a credit bureau has not been established in The Bahamas, the process is at an advanced stage, with the Credit Reporting Act having been passed in Parliament in 2018 and CRIF S.p.A. being selected as the credit bureau operator. Further, Suriname has forwarded a draft Credit Bureau Act to Parliament for approval.

With regard to Real Time Gross Settlement Systems (RTGS), the ECCU, Belize, Guyana and Haiti joined the list of nations that have commenced the process to modernize and expand their respective payments systems infrastructure. As for centralized securities depositories, Guyana is making strong headway for implementation.

1.5 Financial Market Developments

The financial markets of regional economies are still relatively under-developed. The equity, bond and foreign exchange markets in the region are also still relatively small, with a limited number of agents involved in trading, underdeveloped mechanisms for price discovery and gaps in the market infrastructure. In this environment, price and liquidity dynamics are significantly affected by individual trades but ongoing efforts to develop the financial market infrastructure across the Region is making progress in this regard.

In Jamaica, the process of modernizing the foreign exchange (FX) market infrastructure is ongoing with the BoJ's introduction of the B-FXITT auction platform in 2017 as the latest major development. This platform was developed to aid in price discovery and increase transparency in the FX market. In addition, the BoJ will introduce in 2020 a FX market trading platform that will be integrated with the existing payment and settlement system and the supporting regulations.

In relation to payment system infrastructure, the Bank of Jamaica is at an advanced stage as it relates to the drafting of Fintech Regulatory Sandbox Guidelines. These guidelines are expected to facilitate Fintech related innovations and provide a platform to encourage innovations in financial services, promote competition and financial inclusion. Furthermore, the Retail Payments

Table 1.5: Financial Market Infrastructure

	Deposit Insurance	Credit Bureau	RTGS	Central Securities Depository	Stock Exchange
Bahamas	Yes	No	Yes	Yes	Yes
Barbados	Yes	No	Yes	Yes	Yes
Belize		No	Yes*	Yes*	No
ECCU		No	Yes*	Yes	Yes*
Guyana	Yes*	Yes	No	No	Yes
Haiti		Yes	Yes*	No	No
Jamaica	Yes	Yes	Yes	Yes	Yes
Suriname		No	Yes	No	Yes
Trinidad & Tobago	Yes	Yes	Yes	Yes	Yes

Sources: Central Banks for Caribbean Countries, Regional Financial Stability Reports

* Recently implemented systems.

and Financial Infrastructure Working Group was successful in operationalizing the agent banking regulations by authorizing the first commercial bank to engage in agent banking activities in 2018.

The ECCU and The Bahamas are also in the early stages of implementing digital fiat currencies, both underscoring financial inclusion and related challenges in an archipelagic setting. The authorities also identify significant potential gains in the effectiveness of their AML/CFT frameworks, including through a reduction in the share of cash transactions in the respective economies.

In order to spur the development of the money and capital market in Suriname, the CBvS has taken an initial step by issuing Gold Certificates and Certificates of Deposit in 2019. Nevertheless, capital market development requires institutional strengthening and basic financial infrastructure for securities trading. This includes drafting circulars with regard to the operational requirements for financial intermediaries on the capital market; reporting requirements and proper market conduct; enhancing the supervisory capacity of the Bank and setting up a securities trading platform with an appropriate clearing and settlement system.

Bond markets within the various economies are dominated by sovereign debt. Table 1.6 summarizes the sovereign indebtedness over a three-year period, where it depicts most countries, with the exception of The Bahamas, Belize, and Trinidad & Tobago, reducing their respective debt to GDP ratios. Nevertheless, it is important to note that the combined debt ratios exceeded 100 percent of GDP for Barbados (220.3%).

Table1.6: Sovereign Debt Ratios of Caribbean Economies (% of GDP), 2016 -2018

	Domestic Debt			External Debt			Total Debt		
	2016	**2017**	**2018**	**2016**	**2017**	**2018**	**2016**	**2017**	**2018**
Bahamas	38.3	37.6	39.5	14.6	21.5	20.9	52.9	59.1	60.4
Barbados	118.5	117.5	93.7	32.2	30.9	32.4	151.2	148.4	126.3
Belize	20.5	27.5	28.0	66.2	67.5	68.7	86.7	95.0	96.7
ECCU	33.2	33.5	32.8	39.6	37.2	35.9	72.8	70.7	68.6
Guyana	12.5	12.1	10.0	33.2	34.9	34.2	45.7	47.0	44.2
Jamaica	47.4	40.1	37.1	74.7	66.7	62.7	119.6	103.1	96.4
Suriname	22.8	25.7	25.3	34.5	61.2	56.1	57.3	86.9	81.4
Trinidad & Tobago	24.0	26.9	26.5	14.4	15.0	16.1	58.8	60.3	60.8

Sources: Central Banks for Caribbean Countries and Caribbean Economic Research Team

Performance of the Financial Institutions in the Region

2

Chapter 2:
Performance of the Financial Institutions in the Region

2.1 Broad State of Financial Sector Performance in the Region

The financial sector in the Caribbean remains stable and continues to strengthen in the post-crisis period with the sector maintaining relatively robust capital levels in 2018. Further, there was a general improvement in asset quality due in large part to improvements in the service-based economies. In addition, the earnings and profitability indicators strengthened, while bank liquidity remained relatively stable. In terms of the insurance sector, the industry maintained stability despite a decline in profitability.

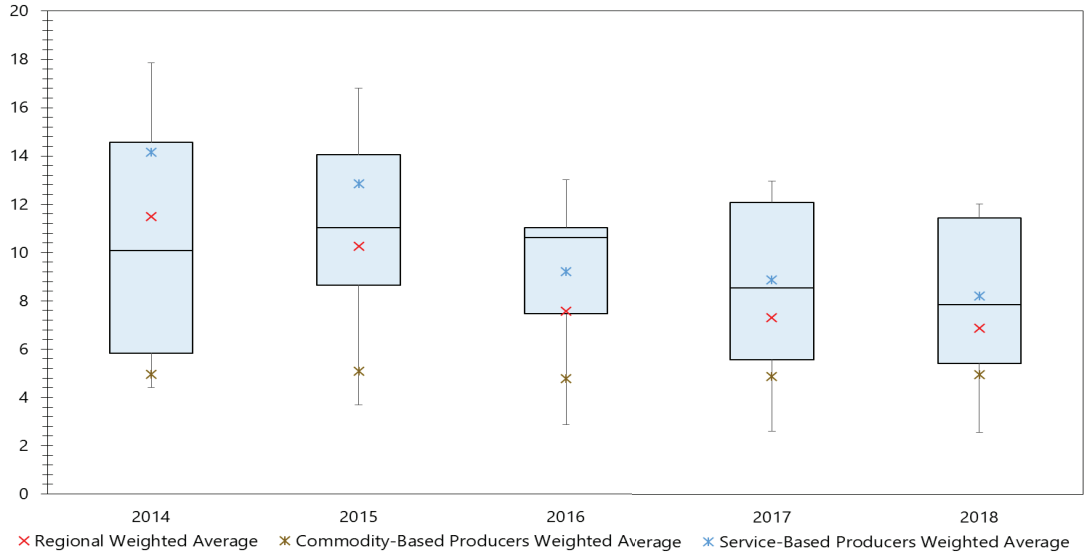
2.2 Banking Sector Soundness Indicators

2.2.1 Asset Quality

Non-performing loans in the region have experienced a steady decline since 2014, after increasing sharply following the 2008 global financial crisis. At the end of 2018, the regional weighted average of non-performing loans to total loans was 6.9 percent, down from 10.3 percent in 2015 (see Figure 2.1).

This improvement in asset quality was, however, unevenly distributed across the region with service based economies posting more significant

Figure 2.1: Non-Performing Loans to Total Gross loans (%)



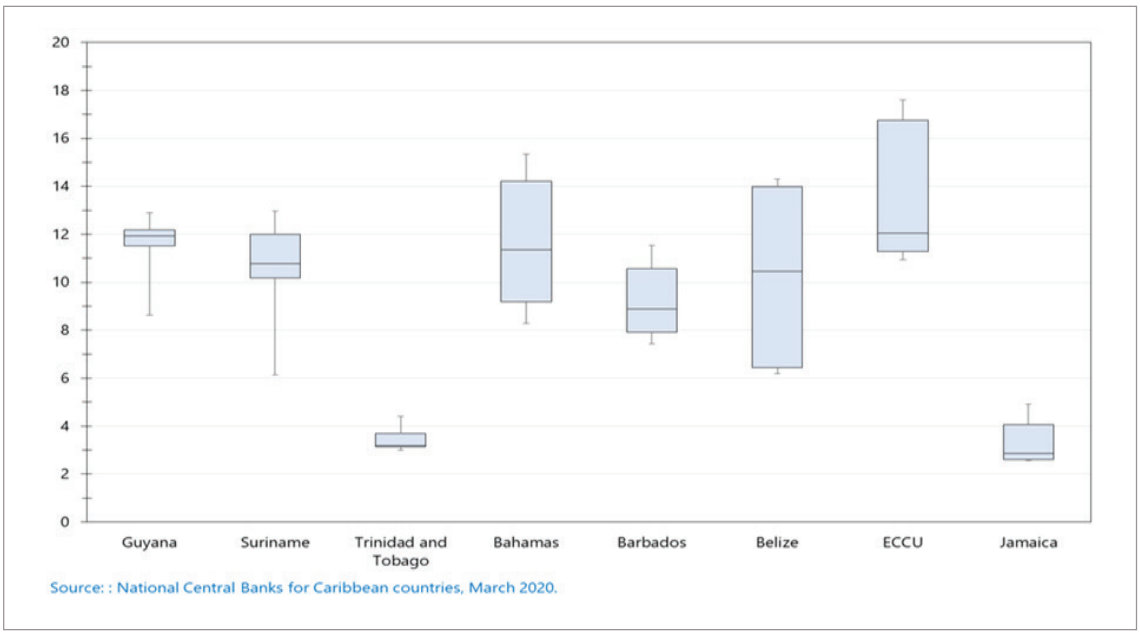
Source: : National Central Banks for Caribbean countries, March 2020
Notes : Haiti data not available ; Weighted Averages weighted by Banking systems assets.

improvements in the NPL ratio due mainly to a sustained reduction in delinquencies. The average NPL ratio for service-based economies declined from 12.8 percent in 2015 to 8.2 percent in 2018 while the average for the commodity-based economies edged down from 5.1 to 5.0 percent in the same period.

This differential performance is also due in part to the sectoral distribution of loans in individual countries. Nevertheless, the various stress test results indicated that regional financial systems continued to remain sound as capital remained above the international benchmark in the face of numerous hypothetically plausible shocks.

The countries with the lowest NPL ratios included Jamaica and Trinidad &Tobago which recorded rates of 2.6 and 3.1 percent in 2018 compared to rates of 4.1 and 3.7 percent in 2015 respectively. In terms of the other countries in the region, The Bahamas experienced an improvement in the NPL ratio which declined from a high of 14.2 percent in 2015 to 8.3 percent in 2018. This partly reflected the sale of several tranches of institutions' delinquent mortgage portfolios to both public and private sector entities. Similar improvements were observed in the ECCU, Barbados and Belize where the NPL ratio declined by 32.7, 30.2 and 55.8 percent respectively between 2015 and 2018. In contrast, Guyana and Suriname experienced some deterioration in asset quality with their NPL ratios increasing from 10.8 to 11.9 percent and from 8.4 to 12.0 percent, respectively, over the same period (see Figure 2.2).

Figure 2.2: Non-Performing Loans by Country



Source: : National Central Banks for Caribbean countries, March 2020.

2.2.2 Earnings and Profitability

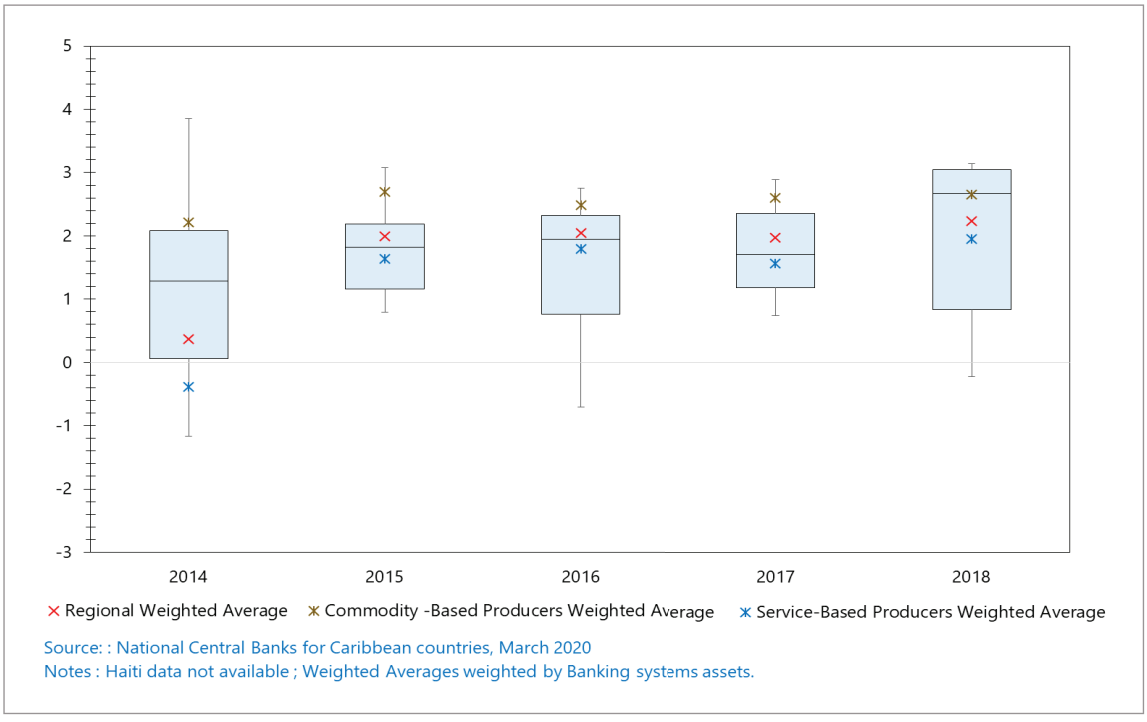
Bank profitability in the region have generally benefitted from relatively high interest rate spreads. Factors that contributed to banks' profitability included highly concentrated banking sectors, shallow or non-existent corporate debt markets and low levels of credit bureau penetration in most jurisdictions.

The average profitability of regional commercial banks as measured by the regional weighted average return on assets (ROA) improved from 2.0 to 2.4 percent over the period 2015 to 2018 (see Figure 2.3). Profitability improved more significantly in service-based relative to commodity-based economies in line with the decrease in non-performing loans and the related decline in provisioning. In particular, the service-based economies' average ROA increased from 1.6 to 2.0 percent over the review period while the average ROA in the commodity-based countries decreased marginally from 2.7 percent in 2015 to 2.6 percent in 2018.

Over the period 2015-2018, Jamaica, Trinidad & Tobago and Guyana achieved returns in excess of two percent. In addition, The Bahamas and Belize were able to increase profitability significantly with their ROAs moving from 1.9 and 1.0 percent to 3.1 and 3.0 percent, respectively. Barbados was the only country that recorded a small negative return of 0.2 percent in 2018 following a positive return of 1.8 percent in 2015.

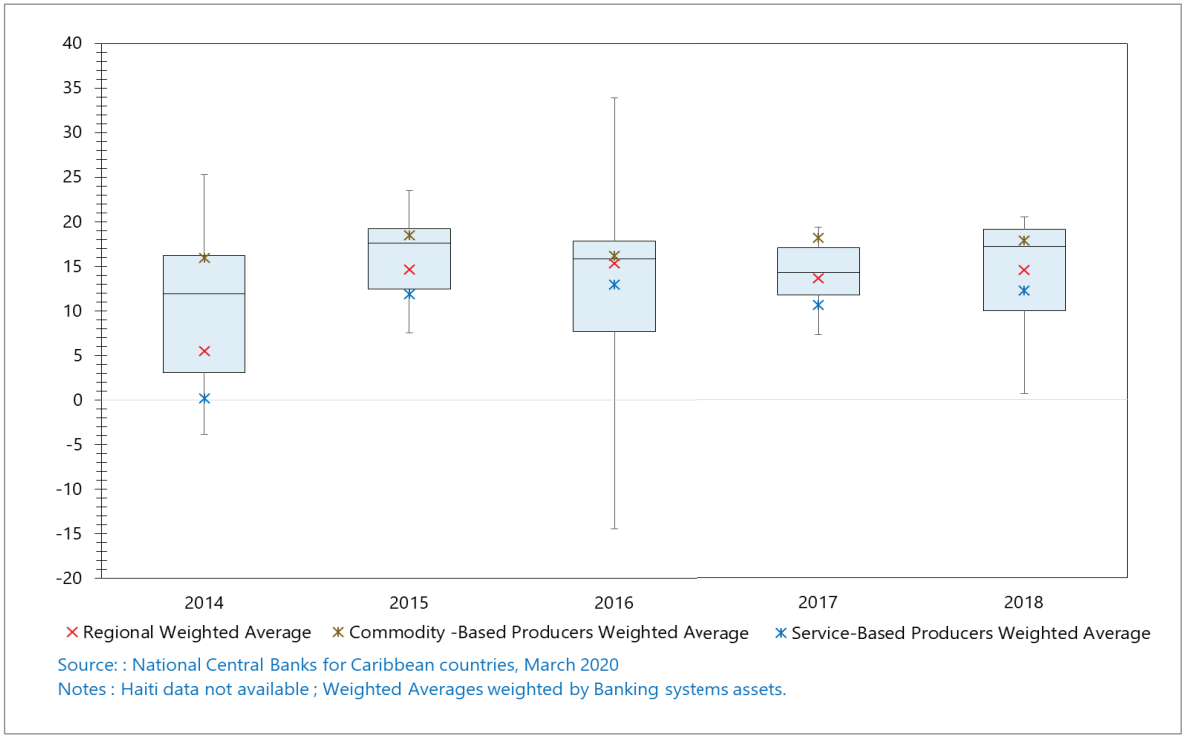
The performance of the Caribbean commercial banks when profitability was measured by return on equity (ROE) mirrored that of the ROA. Specifically, the average ROE increased from 14.0 percent in 2015 to 14.6 percent in 2018 (see Figure 2.4).

Figure 2.3: Return on Assets (%)



Source: : National Central Banks for Caribbean countries, March 2020
Notes : Haiti data not available ; Weighted Averages weighted by Banking systems assets.

Figure 2.4: Return on Equity (%)



Source: : National Central Banks for Caribbean countries, March 2020
Notes : Haiti data not available ; Weighted Averages weighted by Banking systems assets.

2.2.3 Bank Capital Adequacy

The banking sectors in the Caribbean countries under review continued to maintain capital adequacy ratios (CAR) that in most cases far exceeded the Basel I minimum requirement of 8.0 percent (see Figure 2.5). The average regional capital adequacy ratio moved from 24.1 to 22.8 percent between 2015 and 2018. The average for commodity based and service based economies moved from 22.6 and 24.8 percent in 2015 to 22.2 and 23.2 percent in 2018 respectively.

The lowest ratios in 2018 were recorded for Suriname (9.6 percent), Barbados (13.9 percent) and Jamaica (14.9 percent). Over the four-year period, capital ratios for the ECCU, The Bahamas, Guyana, Belize and Trinidad & Tobago also remained robust with end-2018 values ranging between 19.1 and 32.3 percent.

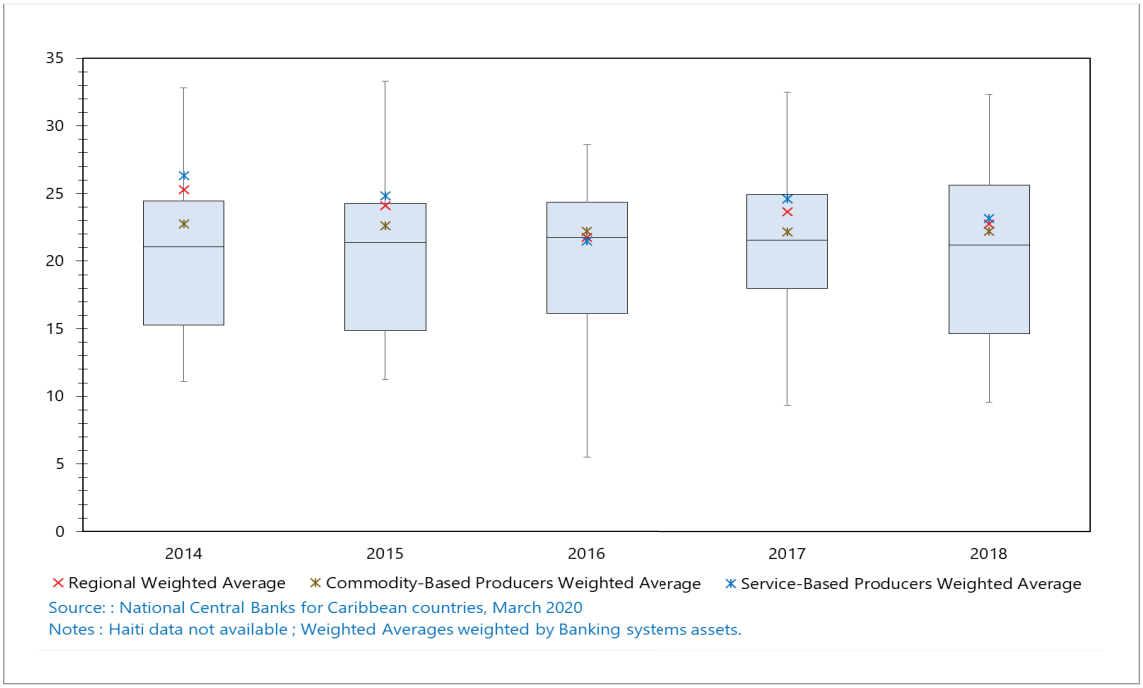
2.2.4 Bank Liquidity

For the Caribbean, the average liquid assets to total assets ratio was relatively stable at 25.3 percent in 2018 vis-à-vis 25.7 percent in 2015 (see Figure 2.6). Most countries recorded relatively high levels of liquidity over the period with only Trinidad & Tobago reporting consistent reductions in its level of liquid asset to total assets over the past four years. This was largely due to an increase in banks' holdings of longer term assets. There were also only marginal changes over the period in commodity and service based economies with the former group of countries moving from 24.2 to 22.5 percent while the latter group moved from 26.5 to 27.3 percent over the period.

The average ratio of liquid assets to short-term liabilities was also relatively stable over the review period, falling moderately from 36.6 percent in 2015 to 35.0 percent in 2018. This was mainly attributable to commodity-based economies where the average

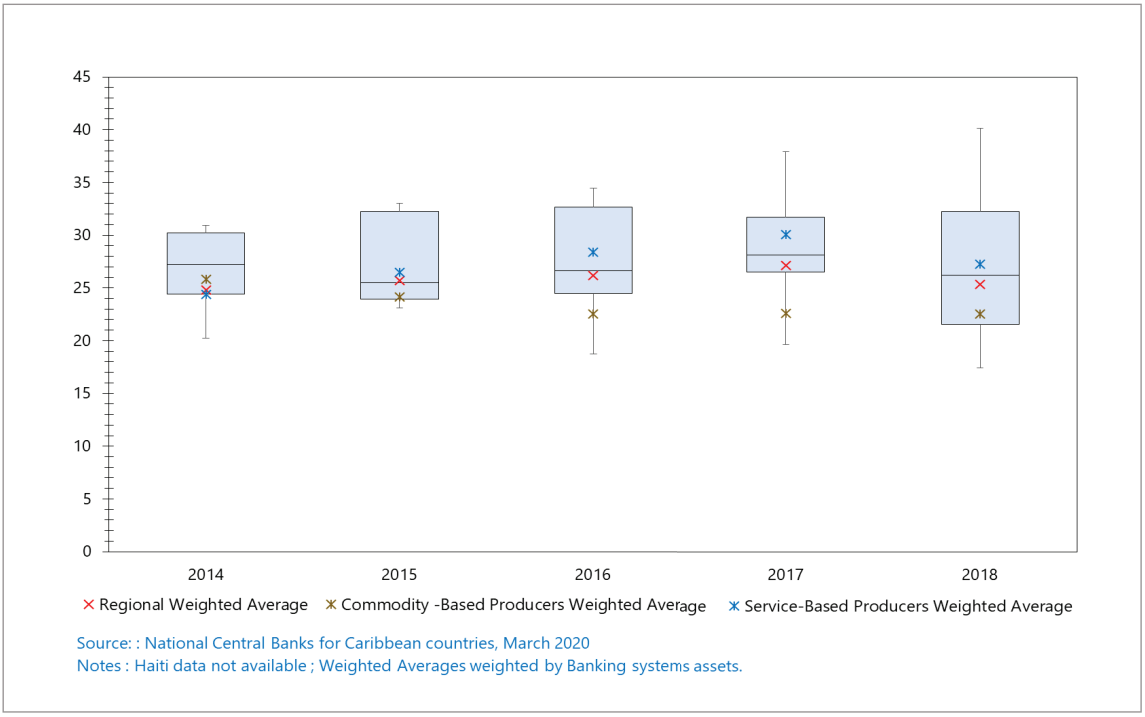
moved from 34.7 to 32.0 percent over the review period while service-based economies registered a very slight decline. This was largely driven by a decline in the ratios for Trinidad & Tobago, Barbados, Belize and Jamaica (see Figure 2.7).

Figure 2.5: Regulatory Capital to Risk Weighted Assets (%)



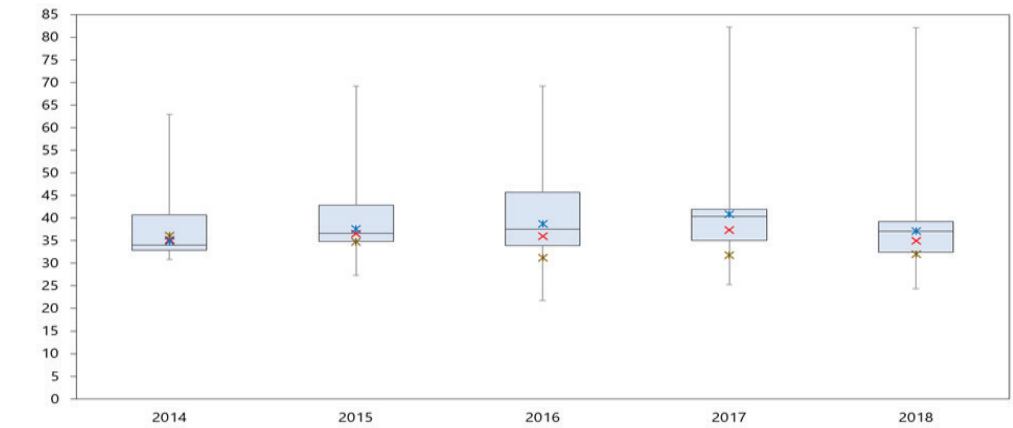
Source: : National Central Banks for Caribbean countries, March 2020
Notes : Haiti data not available ; Weighted Averages weighted by Banking systems assets.

Figure 2.6: Liquid Assets to Total Assets (%)



Source: : National Central Banks for Caribbean countries, March 2020
Notes : Haiti data not available ; Weighted Averages weighted by Banking systems assets.

Figure 2.7: Liquid Assets to Short-Term Liabilities (%)



Source: : National Central Banks for Caribbean countries, March 2020.
Notes : Haiti data not available ; Weighted Averages weighted by Banking systems assets.

2.3 Insurance Sector Soundness Indicators

2.3.1 Life Insurance

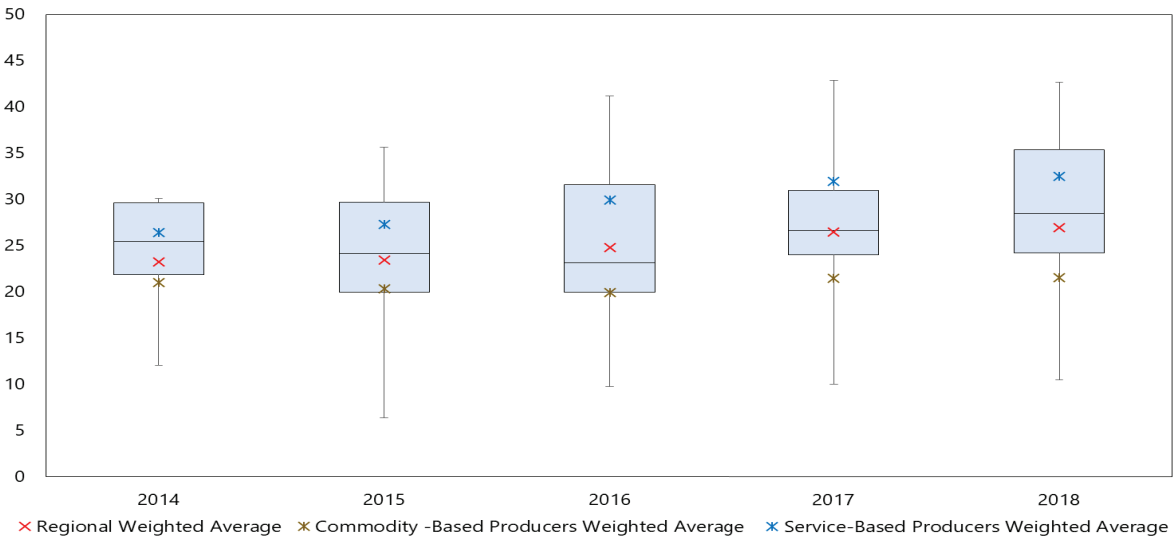
2.3.1.1 Capital Adequacy

Insurance companies across the region are typically highly-capitalized relative to total assets. The average regional capital to asset ratio for life insurance companies increased from 23.4 percent to 27.0 percent in 2018. The increase in this ratio for service-based economies was more significant moving from 27.3 to 32.4 percent over the review period while commodity-based economies increased more moderately from 20.3 to 21.6 percent between 2015 and 2018 (see Figure 2.8).

The majority of countries in the region recorded capital to assets ratios in excess of 20 percent. In particular, capital levels in Guyana and Jamaica have risen over the past four years from 19.2 and 24.1 percent to 42.6 and 28.5 percent respectively over the period 2015 to 2018. In addition, the ratio for Suriname rose from6.3 to 10.5 percent over the same period. The other countries in the region only recorded minor variations in their ratios. The life insurance sector continued to dominate the insurance industry's asset base across the region. In particular, the life industry assets accounted for over 70 percent of total industry assets in Jamaica and The Bahamas[3] .

[3] See Central Bank of Jamaica and Central Bank of The Bahamas Financial Stability Reports for 2018.

Figure 2.8: Capital to Total Assets for Life Insurers



Source: : National Central Banks for Caribbean countries, March 2020
Notes : ECCU and Haiti data not available ; Weighted Averages are weighted by Insurance systems assets ; The Bahamas and Guyana 2018 Insurance system assets not available - 2017 data used as a proxy.

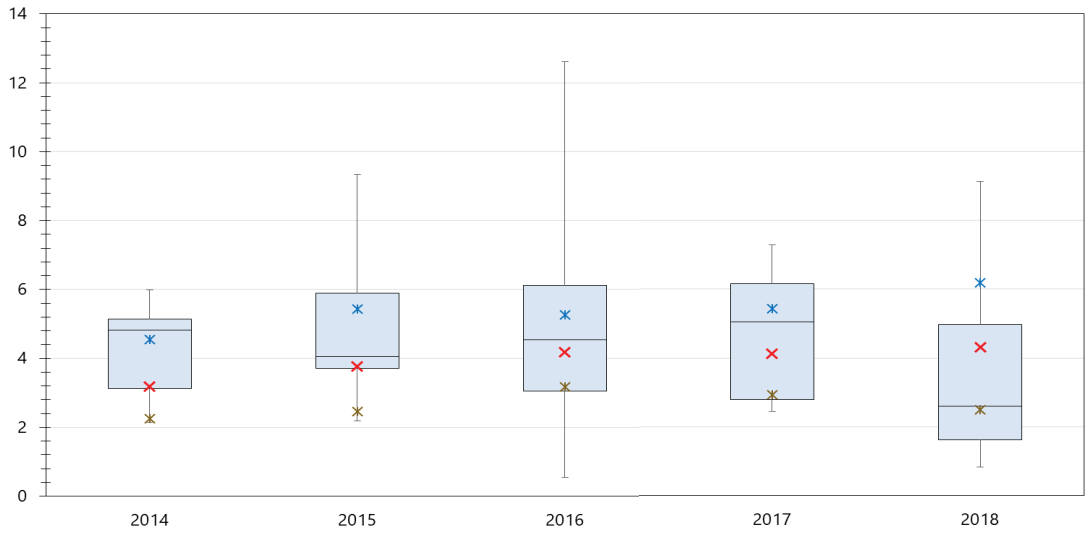
2.3.1.2 Profitability

The average profitability for life insurance companies whether defined as return on assets (ROA) or return on equity (ROE) improved over the review period in the Region (see Figures 2.9 and 2.10). The average ROA for life insurance companies in the Region increased from 3.8 percent in 2015 to 4.3 percent in 2018. This was due in large part to the average ROA for service-based economies which increased from 5.4 to 6.2 percent over the review period while the ROA of commodity producers was static at 2.5 percent.

The same pattern emerges when you look at ROE where the regional average increased from 16.7 percent in 2015 to 23.0 percent in 2018. This metric also indicated that the performance was largely driven by the service-based economies as the average ROE for that group of countries increased from 20.8 to 33.6 percent over the review period while the average ROE for commodity-based economies declined slightly.

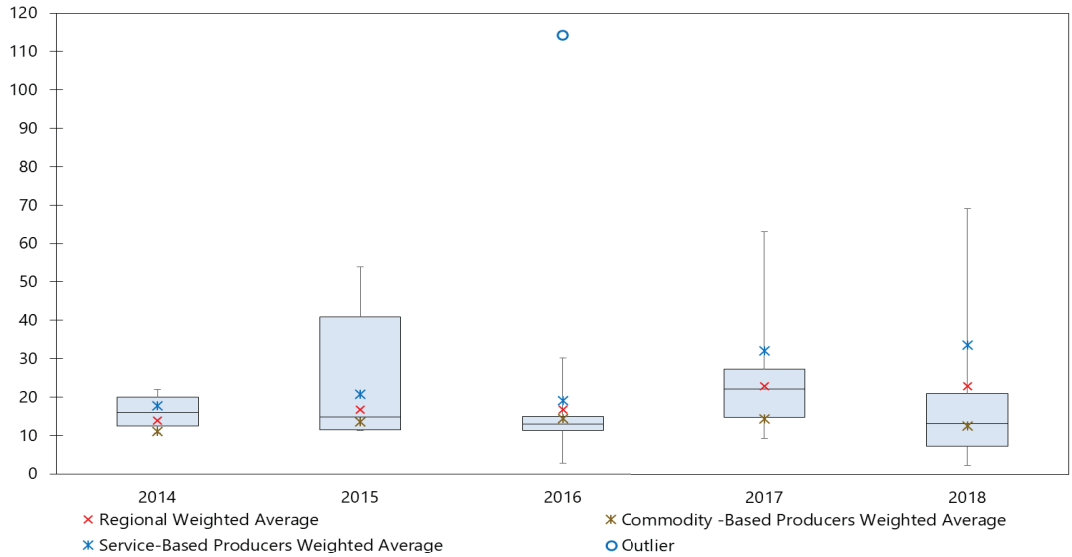
These average performances, however, mask significant variance in the performance of the life insurance sector in individual countries. In particular, the ROE for Guyana and Suriname stood at 51.3 and 50.5 percent in 2015 but contracted markedly to 2.2 and 7.0 percent respectively in 2018. The same pattern emerges when the ROA is considered.

Figure 2.9: Return on Assets for Life Insurers



Source: : National Central Banks for Caribbean countries, March 2020
Notes : ECCU and Haiti data not available ; Weighted Averages are weighted by Insurance systems assets ; The Bahamas and Guyana 2018 Insurance system assets not available - 2017 data used as a proxy.

Figure 2.10: Return on Equity for Life Insurers



Source: : National Central Banks for Caribbean countries, March 2020
Notes : ECCU and Haiti data not available ; Weighted Averages are weighted by Insurance systems assets ; The Bahamas and Guyana 2018 Insurance system assets not available - 2017 data used as a proxy.

2.3.2 Non-Life Insurance

2.3.2.1 Capital Adequacy

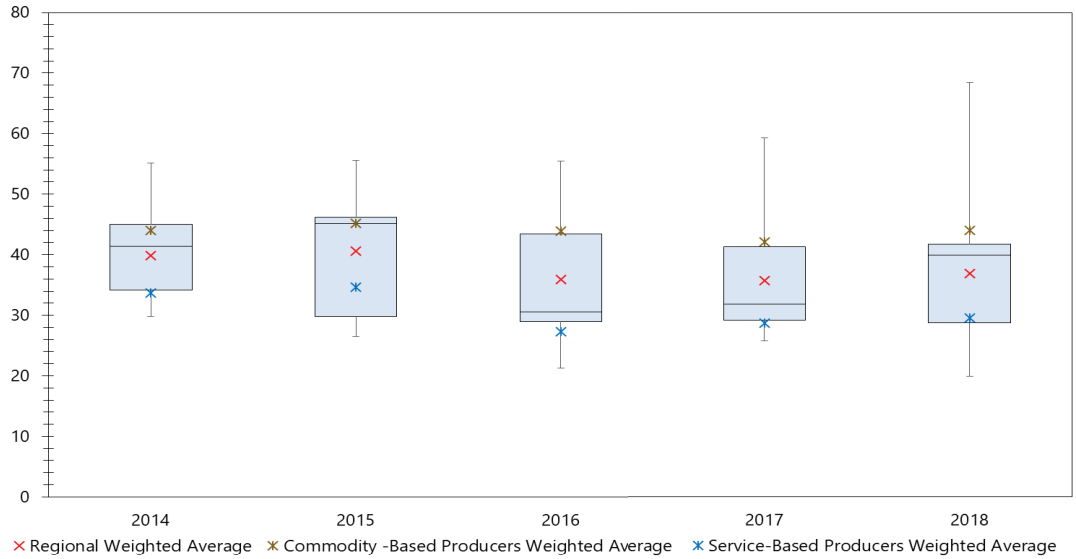
Non-life insurers across the region generally kept high stocks of capital relative to their assets, notwithstanding significant payouts from claims associated with the passage of major weather-related events over the review period (see Figure 2.11). The regional average of the capital to total assets ratio for non-life insurance in the region fell from 40.5 percent in 2015 to 36.9 percent in 2018. The commodity-based producers in the region had relatively higher ratios with this group recording an average capital to total asset ratio of 45.2 percent in 2015 and 44.0 percent in 2018 while the average ratio of the service based producers declined from 34.7 percent in 2015 to 29.6 percent in 2018.

The ratios for most countries were stable over the four year period except in Guyana where the ratio increased from 55.6 percent in 2015 to 68.5 percent in 2018, as well as in Barbados where the ratio fell from 28.5 to 19.9 percent over the review period.

2.3.2.2 Profitability

Non-life insurers across the region generally kept high stocks of capital relative to their assets, notwithstanding significant payouts from claims associated with the passage of major weather-related events over the review period (see Figure 2.11). The regional average of the capital to total assets ratio for non-life insurance in the region fell from 40.5 percent in 2015 to 36.9 percent in 2018. The commodity-based producers in the region had relatively higher ratios with this group recording an average capital to total asset ratio of 45.2 percent in 2015 and 44.0 percent in 2018 while the average ratio of the service based producers declined from 34.7 percent in 2015 to 29.6 percent in 2018.

Figure 2.11: Capital to Total Assets for Non-Life Insurers

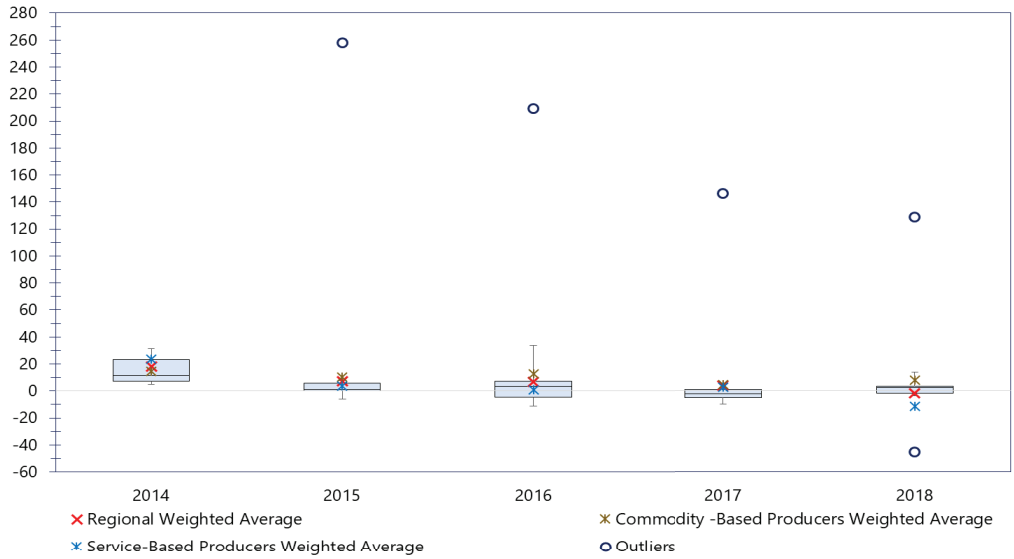


Source: : National Central Banks for Caribbean countries, March 2020
Notes : ECCU and Haiti data not available ; Weighted Averages are weighted by Insurance systems assets ; The Bahamas and Guyana 2018 Insurance system assets not available - 2017 data used as a proxy.

Figure 2.12. Return on Assets for Non-Life Insurers

Source: : National Central Banks for Caribbean countries, March 2020
Notes : ECCU and Haiti data not available ; Weighted Averages are weighted by Insurance systems assets ; The Bahamas and Guyana 2018 Insurance system assets not available - 2017 data used as a proxy.

Figure 2.13. Return on Equity for Non-Life Insurers



Source: : National Central Banks for Caribbean countries, March 2020
Notes : ECCU and Haiti data not available ; Weighted Averages are weighted by Insurance systems assets ; The Bahamas and Guyana 2018 Insurance system assets not available - 2017 data used as a proxy.

Assessment of Banking Sector Financial Risks in the Caribbean

3

Chapter 3:
Assessment of Banking Sector Financial Risks in the Caribbean

3.1 Overview

Regulatory authorities in the Region have been upgrading their toolkits to enhance their capacity to evaluate banking sector resilience against systemic risk. Balance sheets were subjected to various hypothetical shocks such as volatility in interest rates, deteriorating credit conditions, deposit runs and adverse changes in domestic, regional and international macroeconomic conditions. These stress tests showed that capital buffers of the individual domestic banking sectors remained adequate under varying levels and types of shocks.

Most jurisdictions also reported improved stress test results but a lack of harmonization in stress testing methodologies made it difficult for cross country comparisons. For example, although all countries conduct stress tests that involve different types of shocks to credit, the credit shocks differed in details such as sector exposed, magnitude of shocks, whether it was general or more specific and if related parties were impacted. Also, shocks to foreign currency were mainly administered by jurisdictions with floating exchange rate regimes.

3.2 Updates to Regional Stress Testing Frameworks

With a view to strengthening their stress testing capabilities, authorities in The Bahamas, Trinidad and Tobago, Jamaica, Guyana, Belize and Suriname have introduced a number of improvements to their stress testing regimes since the last Regional Financial Stability Report was published in 2015 (Appendix I). In The Bahamas, the credit risk stress test model was tweaked to reduce the severity of the shocks applied to non-performing loans to 100 percent, 150 percent and 200 percent from 100 percent, 200 percent and 300 percent, respectively. The Central Bank also periodically conducted credit, interest rate and liquidity risks stress tests on a consolidated and individual (entity specific) basis for each D-SIBs. In the case of Barbados, the stress testing regime has been updated to incorporate shocks that are specific to the insurance industry.

The Central Bank of Trinidad and Tobago's stress testing regime was improved with the assistance of CARTAC in 2015 and 2017. Consequently, the Central Bank has been transitioning towards more scenario-based tests as reflected in its financial stability reports for 2017 and 2018. Rudimentary single factor stress tests for credit, interest rates and liquidity were also reviewed and compared with standard tests under the IMF Stress Tester 3.0. As a result, proposed updates of the parameters for these tests are under consideration for implementation. There have also been initial forays into stress testing for payment systems and insurance companies.

The Bank of Jamaica has also made key improvements to its stress testing regime such as the incorporation of frameworks for the assessment of the yield curve and a macro-financial forecast model. For financial stability purposes, hypothetical changes to the yield curve were applied to portfolio holdings of securities by financial institutions in order to determine the potential impact on net earnings and capital adequacy. The macro-financial forecast model utilizes an accounting framework to assess the consistency between Jamaica's medium-term macroeconomic programme framework and the solvency of the banking sector.

The Bank of Guyana has also strengthened its stress testing regime by expanding its stress test coverage to include its two deposit-taking non-banks. Additionally, the stress scenarios applied to investment, large exposure credit and liquidity stress test models were enhanced by adding three levels of shock, increasing in intensity from level 1 to level 3. For the investment stress test, the three

shock levels included: Level 1 – institutions' capital were adjusted to reflect write-downs (provisions) for the current credit ratings of institutions' investment (based on Standard and Poor's and Moody's rating); Level 2 – institutions' investment portfolio were downgraded one level under three scenarios: sovereign securities only, corporate securities only and the entire foreign investment portfolio; and Level 3 - institutions were required to make an additional provision of 20 percent for all investments with speculative rating (BB+ and below). Under the large exposure credit stress test, the three levels of shocks for which borrowers completely defaulted without consideration of collateral include: Level 1 - default of the largest borrower; Level 2 - default of the top three borrowers and Level 3 - default of the top five borrowers. Finally, the three shock levels for the liquidity stress test reflect shocks of 5/5; 3/7; and 0/10 which correspond to run-off rates and percentages of liquidity drawn from 'other assets' respectively.

The Central Bank of Belize enhanced its stress testing regime in 2017 with the assistance of CARTAC through the implementation of a forward looking stress test model. The model assesses the banking system's resiliency in the event of a decline in economic activity. In the model, economic shocks are transmitted via reductions in return on assets and growth in non-performing loans. The model assumes that the level of non-performing loans is related to export performance and changes in the cash reserve ratio. Additionally, since 2015, the stress testing framework has been expanded to include shocks to the credit union sector.

In the case of Suriname, the development included adjustments to the assumptions and provisions for credit risk shocks, the addition of the Euro along with US-dollar for foreign exchange risk shocks and separate tests for local and foreign currencies when conducting liquidity stress tests.

3.3 Regional Stress Test Results

3.3.1 Credit Risk Shocks

In the case of The Bahamas, shocks to the levels of non-performing loans in the range of 100 to 200 percent have not generated any significant post-shock deterioration in capital adequacy ratios. Consolidated credit risk stress tests conducted in 2018 for the domestic systemically important banks (D-SIBS) also revealed that there would be no need for new capital injection at all shock levels. Furthermore, capital levels would be sustained above the Central Bank's regulatory prescribed target (17.0) and trigger (14.0) ratios, as well as the international benchmark of 8.0 percent.

In the case of Barbados, the impact of NPL shocks were examined within the context of a 100 percent provisioning for the five domestic commercial banks that operate in the country. The results showed that the commercial banking sector was able to withstand a 100 percent increase in NPLs before the CAR fell below the regulatory requirement of 8 percent at December 2018. This suggests a weakening of the capital buffers in the domestic banking industry in 2018 relative to 2017 when the industry could have absorbed a 150 percent negative NPL shock without sinking below the required CAR. At the individual bank level, one bank breached the CAR level when a 50 percent NPL increase shock was applied while another breached the capital standard when a 100 percent NPL increase shock was applied. Both banks failed the stress test at the 200 percent NPL increase level.

In Trinidad and Tobago, some of the credit shocks applied to the banking sector had a material impact on the post-shock CAR which suggested some level of vulnerability. Credit shocks based on a decline in GDP revealed a marginal CAR decline of 3 percentage points. Stress testing to the breaking point - the point where CAR reaches the regulatory

minimum - showed that institutions were generally well placed to withstand large and in some cases complete write-downs in their main consumer loan portfolios. On the other hand, when a shock of a 50 percent impairment of banks' domestic sovereign holdings was applied the industry's CAR fell by roughly 15 percentage points and breached the minimum threshold of 8 percent.

Stress test results for Jamaica in 2018 showed the banking sector was adequately capitalized to absorb a hypothetical increase of 30.0 percent in NPLs. Reverse stress testing exercises were also used to assess the magnitude of increases in NPLs that would cause the most vulnerable institution to fall below the 10.0 percent benchmark. Results showed that the sector would remain generally robust when hypothetical shocks ranging between 200.0 percent and 450.0 percent were applied to NPLs for the review year. Shocks to the personal loan category contributed to substantial declines in capital adequacy. However, the sector continues to be resilient to a shock involving all "past due" loans less than three months becoming non-performing.

In Guyana the high level of NPLs remained the most significant risk to banks' credit portfolio in 2018. In terms of the sectoral credit stress tests, two shocks were applied (10 percent and 20 percent deteriorations or downward migrations in loan classifications) to the various economic sectors which indicated that the banking sector was resilient to these shocks. Indeed, it required an extreme deterioration of 86.5 percent in asset quality to reduce the industry's CAR to the prudential 8 percent minimum requirement. The large exposure stress tests assessed potential defaults of the largest borrowers under three default levels: (1) the top borrower of each institution; (2) the top 3 borrowers of each institution; and, (3) the top 5 borrowers of each institution. While the financial industry as a whole passed the large exposure stress tests in 2018 under all three levels with the post-stress CAR well above the regulatory minimum of 8 percent, the banking sector failed at the level three shock level due to failure by three deposit taking institutions (two banks and one non-bank).

The domestic banking sector in Belize displayed improved resilience in 2018 to several credit shock scenarios. Compared to 2017, the domestic banking sector reported improved resilience for the generic, sectoral and related-party shocks. Under the high stress scenario (25 percent generic shock), only one bank fell below the 9.0 percent requirement in 2018 compared to three banks in the previous year. Similarly, stress tests involving sectoral credit shocks showed greater resilience when compared to previous years. This improvement was largely underpinned by a reduction in loans to the agriculture and marine sectors. In terms of the related party shocks, post-shock CAR also improved in 2018 relative to 2017.

3.3.2 Interest Rate Risk Shocks

The commercial banking sector in Trinidad and Tobago in 2018 appeared vulnerable to significant upward interest rate movements (700 basis points) as this magnitude of shock caused the CAR to fall close to the minimum.

The results of the 2018 interest rate risk stress tests in Jamaica showed that the sector's resilience to hypothetical shocks were mostly unchanged due to their strong capital positions. Following large but plausible hypothetical increases and decreases in interest rates, the post- shock CAR for the sector remained above the prudential minimum.

The stress test results for Barbados showed that although the industry CAR for banks could still withstand a deposit interest rate increase of up to

10 percentage points in 2018 but the industry was more susceptible to interest rate shocks relative to 2017. For The Bahamas, the 2018 stress test results showed that commercial banks are less susceptible to interest rate risk in their banking books. This is attributed to continued robust levels of eligible capital.

3.3.3 Foreign Exchange Risk Shocks

The banking sector is Trinidad and Tobago appears to be resilient to significant exchange rate shocks as 2018 stress tests revealed that the CAR for Trinidad and Tobago remained above 20 percent when a 40 percent depreciation shock was applied to the exchange rate.

Jamaica's banking sector remained generally resilient to hypothetical depreciation of the Jamaica Dollar vis-à-vis the U.S. dollar during 2018. Similar to the performance in 2017, the result occurred as a number of institutions had long net foreign currency positions and were adequately capitalized during 2018. In addition, the foreign exchange stress test included an increase in foreign currency NPLs and the associated 100.0 percent provisioning for foreign currency loans to non-FX earners. This analysis showed that all institutions were able to withstand these shocks.

Foreign currency stress tests conducted by Bank of Guyana estimated the impact on the banks' capital of a depreciation or appreciation of the Guyana dollar (G$) against the four major trading currencies (US$, EURO, GBP & CAN), as well as all other foreign currencies in which the banks have assets and liabilities. The 2018 reverse stress test results revealed that it would require an appreciation of over 90 percent to drive the CAR below the prudential requirement.

3.3.4 Liquidity Risk Shocks

On the liquidity front, the banking sector in Trinidad and Tobago appears comfortable with all banks performing above the 30-day deposit run benchmark. Specifically, assuming a 1 percent daily run-off rate, commercial banks could sustain a run on deposits for 64 days as at end-2018.

Retail deposits continued to dominate the funding base for banks in Jamaica, therefore, liquidity stress tests examined the impact on liquidity of a hypothetical declines in deposits. The stress test results in 2018 indicated that a reduction of 10.0 percent in average deposits would not push the sector below the regulatory minimum.

The Bank of Guyana's 2018 liquidity stress test results indicated that the industry would endure for seven days before depleting its total liquid assets given a five percent daily run on deposits and an additional five percent of liquidity drawn from non-liquid assets. Furthermore, in an extreme scenario of a 10.0 percent daily run off of deposits, the industry would go illiquid in three days compared to two days at end-December 2017.

The Central Bank of Barbados liquidity stress tests indicate that commercial banks were more vulnerable to liquidity runs at the end of 2018 compared to end of 2017. This was due mainly to the restructuring of the Government of Barbados debt that led to the reclassification of treasury bills from liquid to illiquid assets.

The domestic banking sector in Belize displayed an increased vulnerability to liquidity shocks as a result of credit expansion in 2018. The sector's resilience to a liquidity shock deteriorated slightly as the number of days to illiquidity fell from 17 to 16 days between 2017 and 2018.

Banks' risk to near-term depletion of liquidity was negligible in The Bahamas due to the elevated level of liquid assets across the banking system. This was bolstered by banks continued conservative stance to lending. Overall, banks have the capacity to withstand sudden shifts in their deposit base without encountering liquidity challenges.

Regional Systemic Risk 4

Chapter 4:
Regional Systemic Risk

4.1 Overview

The capacity of Caribbean financial regulators to identify and assess systemic risk has improved significantly since 2015. Evidence from published national financial stability reports (FSRs) suggests strengthened technical and analytical capabilities on the macroprudential front. The enhanced capacity to conduct systemic risk surveillance was facilitated by CARTAC technical assistance (TA) and improving inter-agency cooperation and collaboration, especially with respect to the monitoring of the increasing levels of domestic and regional financial interconnectedness. Most Caribbean financial sectors have been building defenses against emerging existential threats to financial stability including cyber security, climate change-related risk and correspondent banking relationships restrictions.

A few jurisdictions have formalized their macroprudential frameworks while others are in the process of building out their financial stability architecture. Slower progress have often been driven by challenges surrounding the legal codification of the macroprudential mandate. Indeed, only Jamaica has managed to amend legislation (the BOJ Act) to create the inter-agency Financial System Stability Committee (FSSC) which has responsibility for macroprudential oversight, as well as the necessary legal powers to execute its mandate. Similar committees are in place in Barbados, Guyana and Suriname, facilitated in the former by a Memorandum of Understanding between regulatory agencies.

There have also been progress in the development of macroprudential indicators (MPIs) but the emphasis has been mostly on the time-varying dimension. In this regard, this chapter highlights recent trends with credit cycle, leverage and liquidity indicators examining measures such as; the credit-to-GDP gap, the loan-to-deposit ratio and loan concentration. While national authorities report a suite of indicators, common MPIs for cross-country comparison purposes include; the Banking Stability Index (BSI) and the Aggregate Financial Stability Index (AFSI). Furthermore, stress testing appears firmly entrenched as a systemic risk assessment tool, with the analyses slowly expanding beyond the banking system to include insurance companies, security dealers and credit unions as these sectors become systemically important. Moreover, regional policymakers are also updating stress testing frameworks to incorporate shocks from cyber events in the context of increasing digitalization of financial services.

Macroprudential surveillance of the cross-sectional dimension of systemic risk is less advanced across the Region. Barbados, the ECCU, Suriname and Jamaica routinely conduct interconnectedness analyses of their financial systems, including the payments infrastructure. Jamaica also conducts network analysis on its interbank exposures, as well as contagion risk assessment through stress testing. In this context, preparatory work to resume the assessment of cross-border contagion risk as was included in the 2015 Caribbean Regional Financial Stability Report (CRFSR) commenced in April 2019 with a regional workshop on network analysis organized by CARTAC and hosted by the Central Bank of The Bahamas. In 2015, the CRFSR reported a greater clustering of bilateral exposures between Barbados, Jamaica and Trinidad & Tobago compared to the rest of the Region. Recent data on country exposures from reporting countries suggest that these three countries remain at the core. This dynamic has deepened due to acquisition and restructuring activities in the financial sectors of these three jurisdictions over the past four years. Additionally, the growing dominance of financial conglomerates in the Caribbean and recent major acquisitions have led to the amplification

of concentration risks. These developments have spurred regulatory progress in the identification and monitoring of SIFIs. In this regard, CARTAC provided technical assistance to the Region in December 2018 to develop a harmonized framework for SIFI identification, monitoring and macroprudential regulation.

4.2 Systemic Risk Assessment in the Caribbean

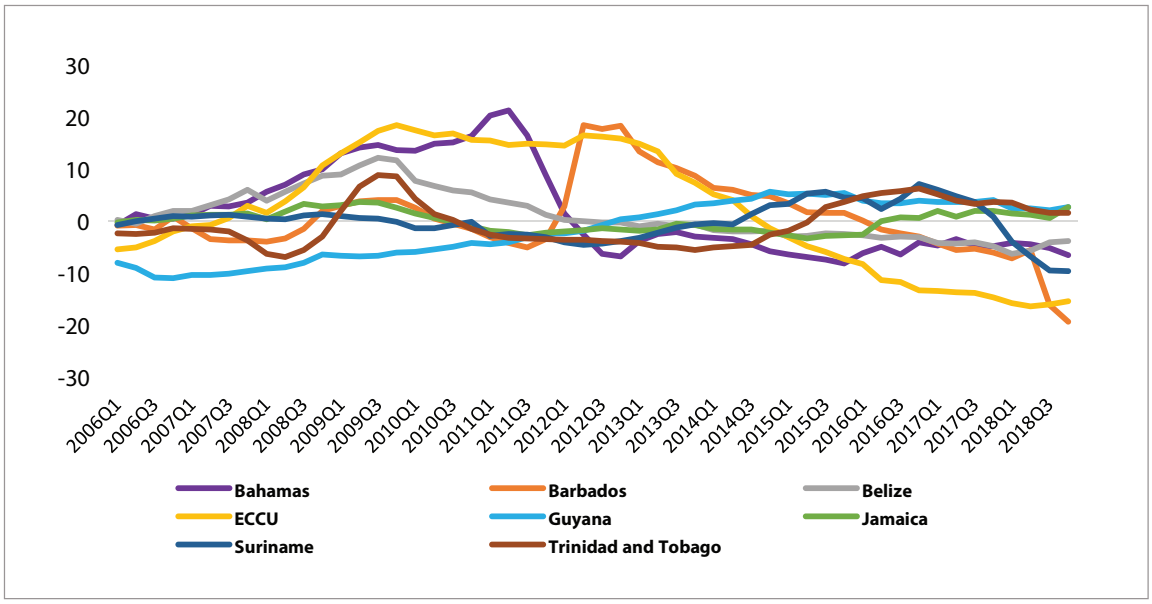
4.2.1 Regional Credit-to-GDP Gaps

The credit-to-GDP gap metric captures the build-up of credit-to-GDP relative to its long-term trend which provides some indication of whether credit risks are elevated. The data suggest that financial stability risks from the credit channel are broadly subdued in the Caribbean with more than half of the reporting countries recording negative credit-to GDP gaps in 2018 (Figure 4.1). Notable turning points in the credit-to-GDP gap occurred for Suriname while credit-to-GDP in Barbados continues to fall further below its long run trend reflecting persistent weakening in credit conditions (Figure 4.1).

The Region also seems to be experiencing increasing divergence in this area as reflected in the widening dispersion in the distribution of credit-to-GDP gaps beginning in the last quarter of 2014 (see Figure 4.2). In particular, the service-based producers (except Jamaica from 2016) were increasingly characterised by negative gaps while the commodity-based producers (except Suriname in 2018) recorded positive gaps. This was due in large part to the differential growth performances of these sub-regional grouping over the review period.

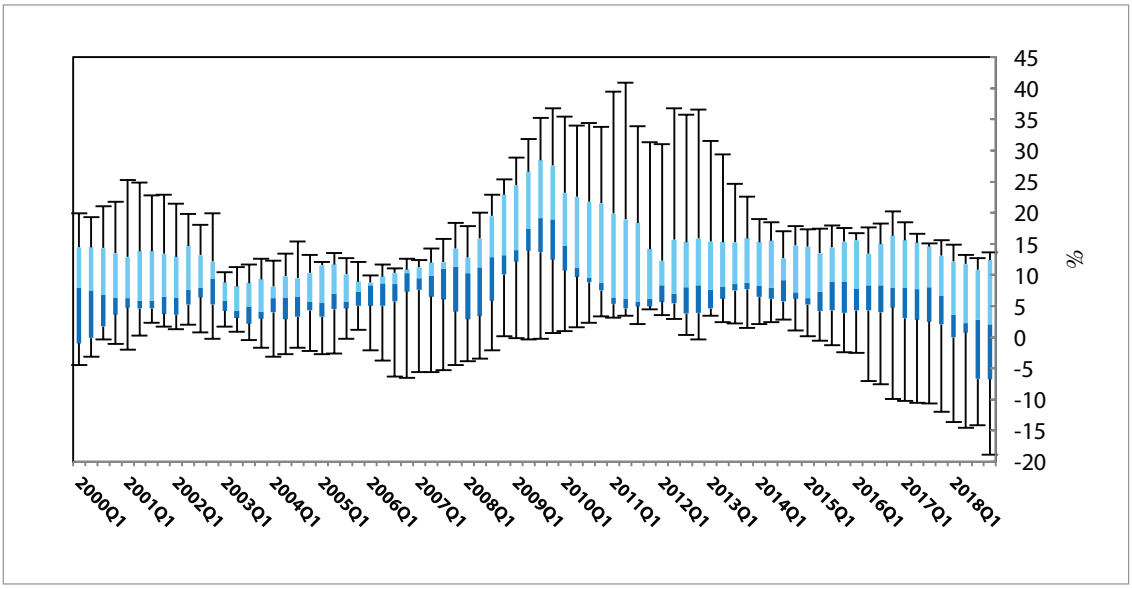
In 2018, the credit-to-GDP gap declined and became negative for Suriname due to a sharp fall of the demand for foreign currency credit, largely prompted by the guideline of the CBvS issued in April 2017, which limits banks' supply of foreign currency credit to foreign currency earners. In the case of Barbados, macroeconomic challenges further entrenched the negative credit-to-GDP gap trend in 2018. In contrast, Jamaica experienced an increasing positive credit-to-GDP gap over the review period due to a deep fiscal consolidation which spurred a crowding-in of private sector credit.

Figure 4.1: Credit-to-GDP Gaps in the Caribbean



Source: Central Banks for Caribbean Countries

Figure 4.2: Box-plots of Credit-to-GDP Gaps in the Caribbean



Source: Central Banks for Caribbean Countries

4.2.2 Other Credit Cycle Indicators

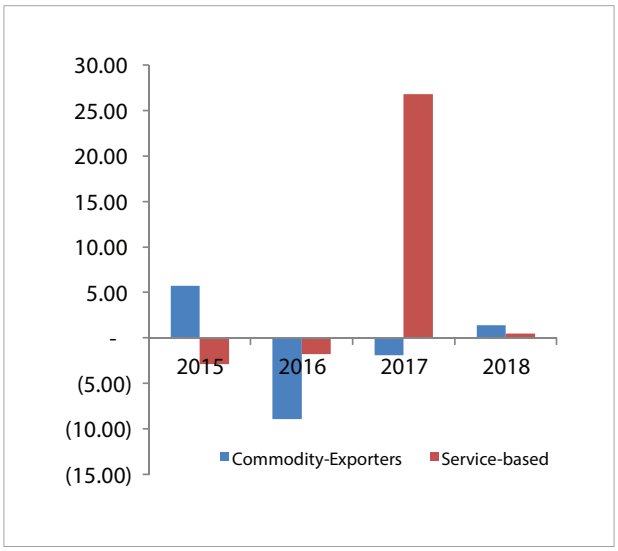
To complement the analysis of credit-to-GDP gaps, it is important to assess growth rates for consumer, business and real estate loans, as well as loan concentration ratios in the banking sector. Based on quarterly data from 2015 to 2018, the growth in business credit has been generally weak across both commodity-exporting and service-based economies in the Caribbean[4] (Figure 4.3). Business credit has fallen consistently since 2015 in the ECCU and The Bahamas and, since 2016 for Suriname. The exception has been Jamaica, which has outperformed other countries in terms of both business and consumer credit growth – a testament to the effectiveness of the reforms which have been occurring in that country.

Credit growth has also been weak in the consumer and real estate components of the credit market (Figures 4.4 and 4.5). Regarding consumer credit, the sharp declines in 2016 and 2017 for commodity exporters were reversed in 2018 with consumer credit growing within the range of 3.5 to 8.5 percent (Figure 4.4). The strong growth in consumer credit for service-based economies in 2018 was heavily influenced by the exceptional growth rate recorded in Jamaica. Barbados and Trinidad and Tobago were the only two countries exhibiting consistent growth in consumer credit throughout the period. In the case of the latter, increased competition among the commercial banks lead to lower lending rates which resulted in increased demand to refinance and consolidate existing debt. Real estate credit growth recovered slightly in 2018 across both commodity and service-based economies driven by lower lending rates (Figure 4.5).

In terms of loan concentrations, business credit accounted for roughly 50 percent of the loan portfolio in commodity-exporters over the period 2015-2018 with Suriname at the top of the distribution with business credit comprising approximately 70 percent of total loans. On the other hand, service-based economies generally had a larger share of their loan portfolios concentrated in consumer loans (45 percent). Consumer credit concentrations were highest in The Bahamas, Barbados and the ECCU.

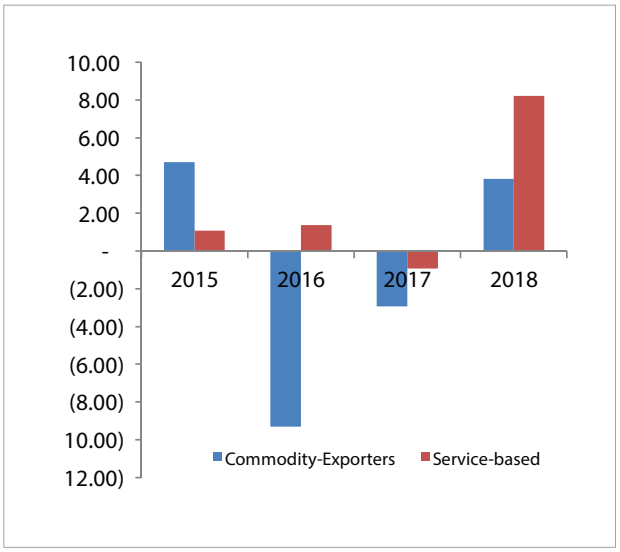
[4] Commodity-exporters are Guyana, Suriname and Trinidad and Tobago. Service-based economies are The Bahamas, Barbados, Belize, ECCU and Jamaica.

Figure 4.3: Business Credit Growth Rates in the Caribbean



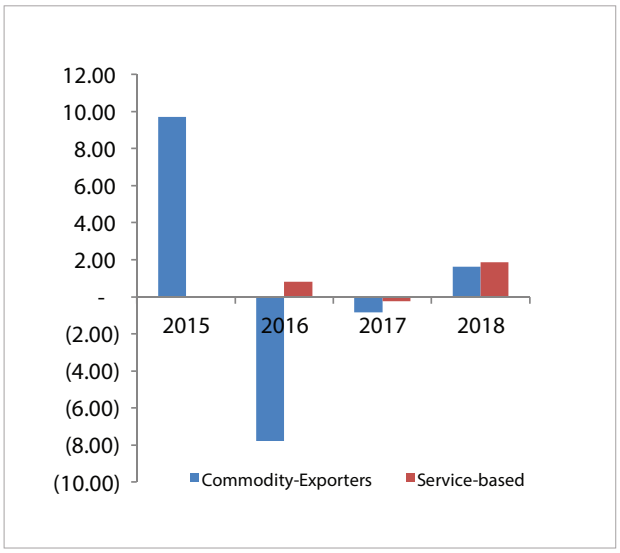
Source: Caribbean Economic Research

Figure 4.4: Consumer Credit Growth Rates in the Caribbean



Source: Caribbean Economic Research

Figure 4.5: Real Estate Credit Growth Rate in the Caribbean



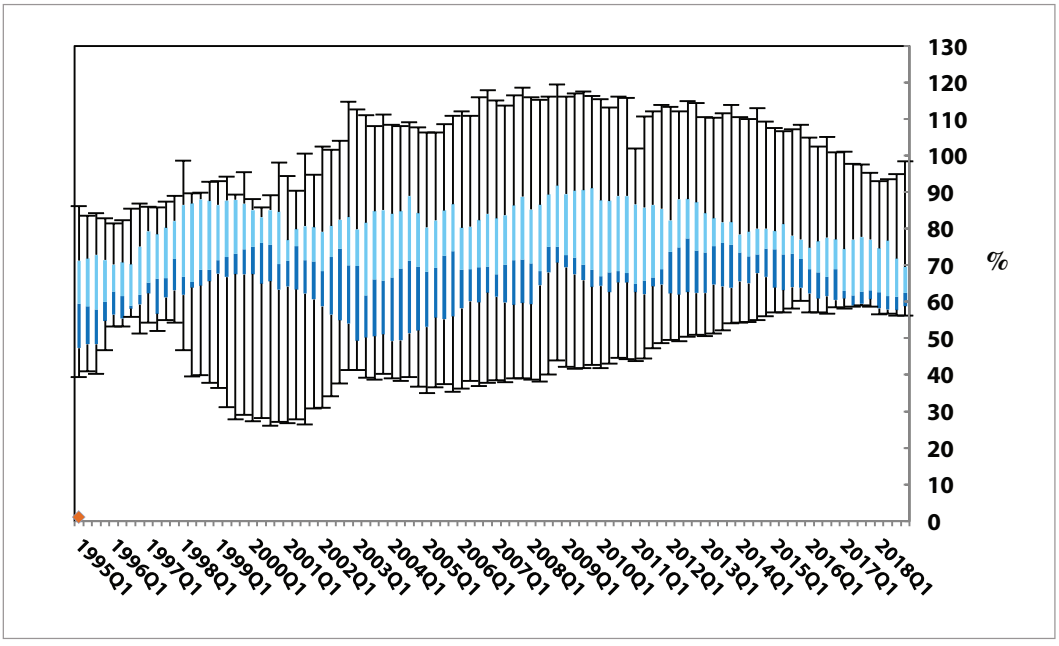
Source: Caribbean Economic Research

4.2.3 Bank Liquidity in the Caribbean

The Caribbean financial sector remains heavily bank-based with deposits serving as the core funding vehicle for the banking system. As a consequence, loan-to-deposit ratios that rise significantly above the underlying trend may signal rising financial imbalances from the funding channel. Figures 4.6 and 4.7 show that loan-to-deposit ratios remained under 100 percent for most jurisdictions except for The Bahamas. With the exception of Belize and Trinidad and Tobago, loan-to-deposit ratios have generally fallen since the end of 2014. A combination of modest credit growth and tame monetary conditions suggest that funding pressures are limited.

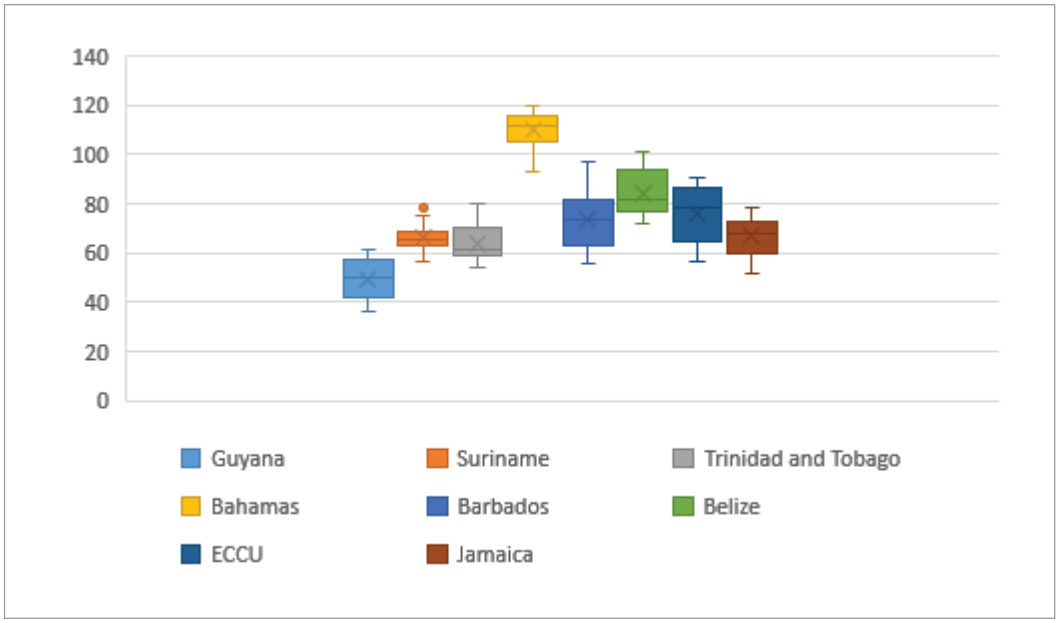
Another indication of possible liquidity stress is through the over-reliance on the interbank market for funding. Available data suggests that interbank lending assumes varying degrees of importance in bank funding in the Caribbean. Over the period 2015-2018, interbank lending as a share of current liabilities ranged from a low of around 1 percent in Trinidad and Tobago to almost 100 percent in The Bahamas. While an active interbank market supports liquidity shock absorption, over-reliance on this market can trigger shock amplification in the event of significant liquidity shortages of key participants.

Figure 4.6: Loan-to-Deposit Ratios in the Caribbean



Source: Central Banks for Caribbean countries and Authors' computations

Figure 4.7: Loan-to-Deposit Ratios per Country: 2006Q1 to 2018Q4



Source: Central Banks for Caribbean countries

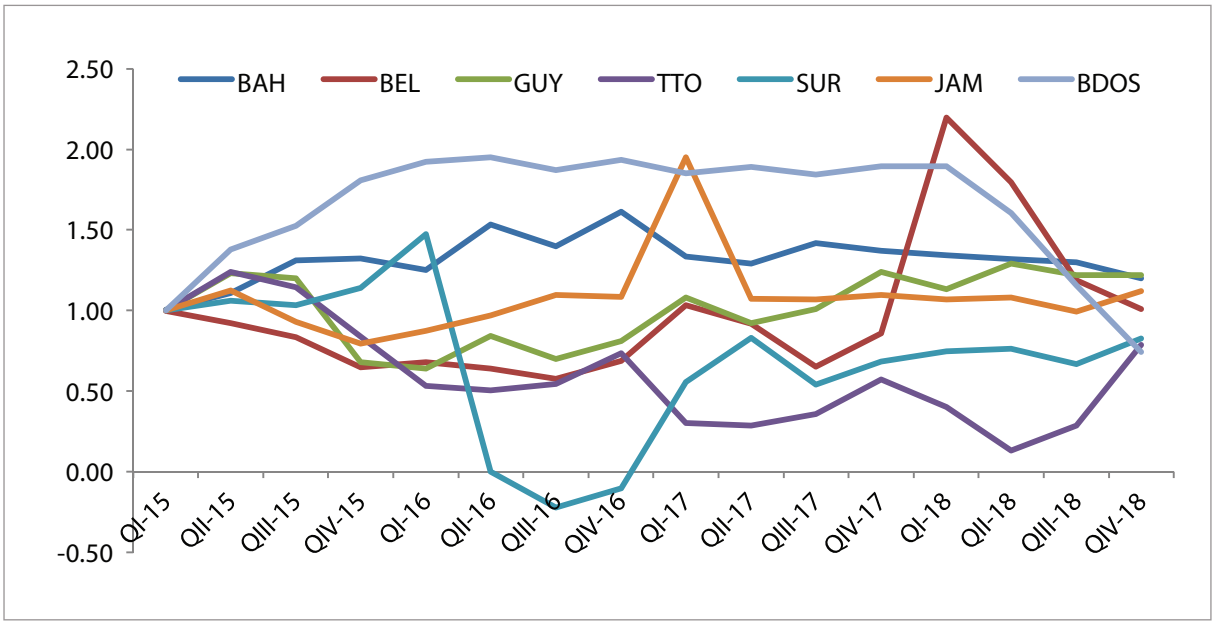
4.2.4 Key Macroprudential Indicators

4.2.4.1 Banking Stability Index

Over the two-year period 2017 to 2018, banking conditions have been broadly stable in The Bahamas, Guyana and Jamaica (Figure 4.8). Though conditions in the Bahamas banking sector have been generally stable, there was a downshift in the Banking Stability Index (BSI) for 2018 due to marginal declines in capital adequacy and liquidity which was partially offset by firming profitability. In the case of Guyana, the marginal decline was due to minor decline in capital adequacy which outweighed slight improvements in asset quality and profitability.

In 2018, the BSI for Jamaica was driven by improved profitability, notwithstanding a notable decline in liquidity. Meanwhile, higher capital adequacy and liquidity drove improvements in the BSI in the ECCU. Following some pockets of pressure, banking conditions have stabilized in Belize and Suriname. For the first quarter of 2018, the banking sector in Belize experienced a significant increase in its BSI as result of the recognition of a large account receivable following a legal matter related to a specific bank which boosted profitability in the sector. The BSI for Barbados has decreased since March 2018 due primarily to declines in profitability and capital adequacy arising from the sovereign debt restructuring process. In Trinidad and Tobago, the BSI improved steadily in the second half of 2018 after dipping in second quarter of 2018 following a notable decline in the management soundness sub-index, which uses gross loan growth as its primary indicator.

Figure 4.8: Banking Stability Indices in Select Caribbean Countries



Source: Central Banks for Caribbean countries

4.2.4.2 Aggregate Financial Stability Index

According to the Aggregate Financial Stability Index (AFSI)[5] , Guyana, Jamaica and Trinidad & Tobago have displayed consistent levels of resilience to a range of financial stability risks over the period 2017 to 2018 (Figure 4.9). The marginal fluctuations in Guyana's AFSI were primarily due to seasonal changes in the macroeconomic environment. In particular, there is a slowdown in business activity in the first quarter of the year, followed by a rise in activity in the second quarter, slowdown in the third quarter and finally a rise in activity in the last quarter.

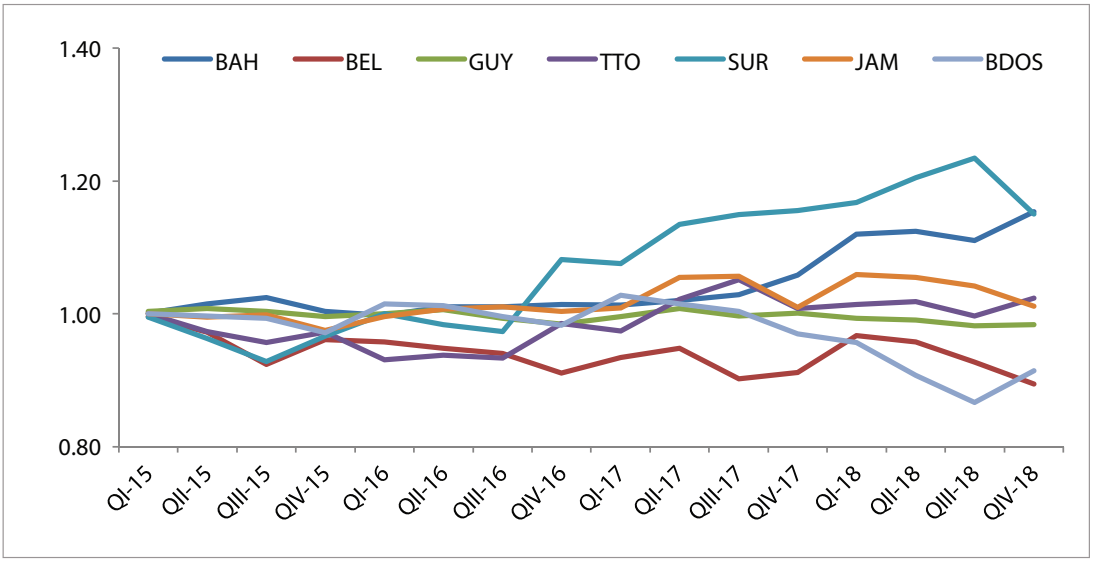
In Jamaica, a fall in the financial vulnerability (FVI) and financial development (FDI) sub-indices were the main cause of the deterioration in the AFSI in December 2017. This performance was in turn due to a decline in the liquidity ratio and increases in inflation and the real effective exchange rate (REER). The deterioration in the second half of 2018 was driven by a decline in the world economic climate (WECI) and FVI sub-indices following decreases in system deposits, assets and a substantial increase in the REER.

In Trinidad & Tobago, the AFSI was driven by solid performances of the FDI and WECI sub-indices. Financial stability conditions in the ECCU also remained favorable up to 2017 following successful bank resolutions in Anguilla and Antigua and Barbuda which led to a rise in the FSI sub-index. Suriname's AFSI also improved gradually during the period reflecting declining inflation and increasing net exports.

In The Bahamas the AFSI strengthened as the financial soundness index improved driven by a rise in the liquid assets ratio and an increase in the WECI which outweighed a decline in FDI caused by a decline in total credit and stock market capitalization.

[5] The AFSI consists of four sub-indices: (i) the Financial Vulnerability Index (FVI); (ii) the Financial Development Index (FDI); (iii) the Financial Soundness Index (FSI) and; (iv) the World Economic Climate Index (WECI). The FVI focuses largely on macroeconomic indicators while the FDI captures aspects of soundness based on the financial markets, credit markets and competitiveness indicators. The FSI gauges the health of the financial sector of a country while the WECI aggregates a measure of international conditions which can impact a financial system. The AFSI ranges from 0 to 1, where increases indicate improvements in financial stability.

Figure 4.9: Aggregate Financial Stability Indices in Selected Caribbean Countries



Source: Central Banks for Caribbean countries

4.3 Regional Systemic Risks

A few countries in the Caribbean have undertaken IMF Financial Sector Stability Assessments (FSSA) in recent years. In the case of Jamaica's 2018 FSSA, the interconnectedness analysis pointed to a high risk of contagion, while the 2019 FSSA for The Bahamas noted that high and persistent levels of non-performing loans significantly increased uncertainty and fragility in the banking system. In the IMF's discussion on the ECCU common policies, the operations of credit unions and non-bank financial institutions were identified as sources of concern for the financial system. Without recent FSSAs for several countries in the region, a survey of national FSRs was undertaken to unearth common financial sector risks and vulnerabilities which ultimately could have systemic implications for the Caribbean. The major sources of systemic risk identified for the Caribbean included the following:

- The potential loss of correspondent banking relationships;
- Operational disruptions due to cyber-attacks;
- Large sovereign exposures on financial sector balance sheets; and
- The impact of persistently low international interest rates on the insurance sector and pension funds

4.3.1 Loss of Correspondent Banking Relationships

Correspondent banking relationships (CBRs) in the Region remains a source of concern for the stability and viability of banks' business models, as well as general conditions of access to and the cost of financial services. According to a 2017 IMF Report on Caribbean countries, the number of CBRs and value of CBR transactions has fallen. Services affected include; international wire transfers, offshore financial services and gaming. Barbados, Curacao and St Maarten appear to be particularly affected by the loss of CBRs. However, although the pressure of this loss to the region has subsided, the concentration in CBRs still remains a risk. Also, despite improvements in compliance with AML/CFT requirements and international advocacy at the political level, the risk of losing CBRs still looms over the region.

4.3.2 Operational disruptions due to cyber attack

The Caribbean financial sector is on the cusp of a transformative period driven by advances in the realm of financial technology (Fintech). Prospects for greater financial inclusion and operational efficiency are counterbalanced by the emergence of new triggers, which could amplify systemic risk and accelerate regional contagion. In 2018, the World Economic Forum ranked cyber risk as one of the top five risks to the global economy. Cyber risk, a form of operational risk, has eclipsed traditional sources of risks, (credit, interest rate, etc.) as a major conduit for potential disruptions to the financial system. With a cyber-attack deemed the most likely source of the next international financial crisis by market analysts, entities such as the Financial Stability Board and the Bank for International Settlements have intensified focus on researching and advocating resilience mechanisms to deal with a cyber-shock. Thus far, the Caribbean region has not suffered any major cyber event of the proportions experienced in recent cases such as the Bank of Bangladesh heist or the scare incited by the ransomware WannaCry in May 2017. In 2016, the CARICOM Central Bank Governors commissioned a Cyber Information Sharing Group to share threat intelligence and best practices. The Caribbean Group of Banking Supervisors (CGBS) also has a Cyber Risk/Cyber Security Supervision Technical Working Group to develop regulatory guidance to support robust cyber security and cyber incident response programmes, which aim to protect regional financial sectors from cyber threats.

4.3.3 Large Sovereign Exposures

A key channel for the propagation of systemic risks has been from the sovereign to commercial banks as commercial banks in the Region are heavily exposed to sovereign debt. As a share of banking SIFI assets, sovereign exposure accounted for on average, 12 percent in The Bahamas and 30 percent in Trinidad and Tobago. Recent debt restructuring exercises in Barbados, Jamaica and in the ECCU provide insights into the depth of the sovereign/bank nexus. The large exposures to the sovereign are a manifestation of regulatory and structural factors. Financial regulations across the region offer preferential treatment for sovereign debt holdings – with zero risk rating and exemptions from exposure limits commonplace. At the same time, commercial banks play an important role in intermediating government fiscal injections. On the structural side, underdeveloped capital markets corral investment opportunities to the public sector. Adverse shocks, which affect the fiscal dynamics against a backdrop of already high sovereign indebtedness pose significant financial stability risks. Haircuts and fire sales can undermine the capital position of banks and insurance companies.

4.3.4 Low international interest rates

Already challenged by low yields for much of the current decade, the move towards monetary policy normalization in advanced economies in 2018 had initially offered some respite for the insurance and pension industries. However, the sustainability of pension and life insurance plans remain vulnerable to a prevailing low interest rate environment. Low interest rates also have implications for asset prices. As investors search for yield, asset prices (especially for real estate in the Caribbean context) may accelerate.

[6] Alleyne, T., J. Bouhga-Hagbe, T. Dowling, D. Kovtun, A. Myrvoda, J. Okwuokei and J. Turunen. "Loss of Correspondent Banking Relationships in the Caribbean: Trends, Impact, and Policy Options". IMF Working Paper No. 209, 2017.

4.4 Systemically Important Financial Institutions in the Caribbean

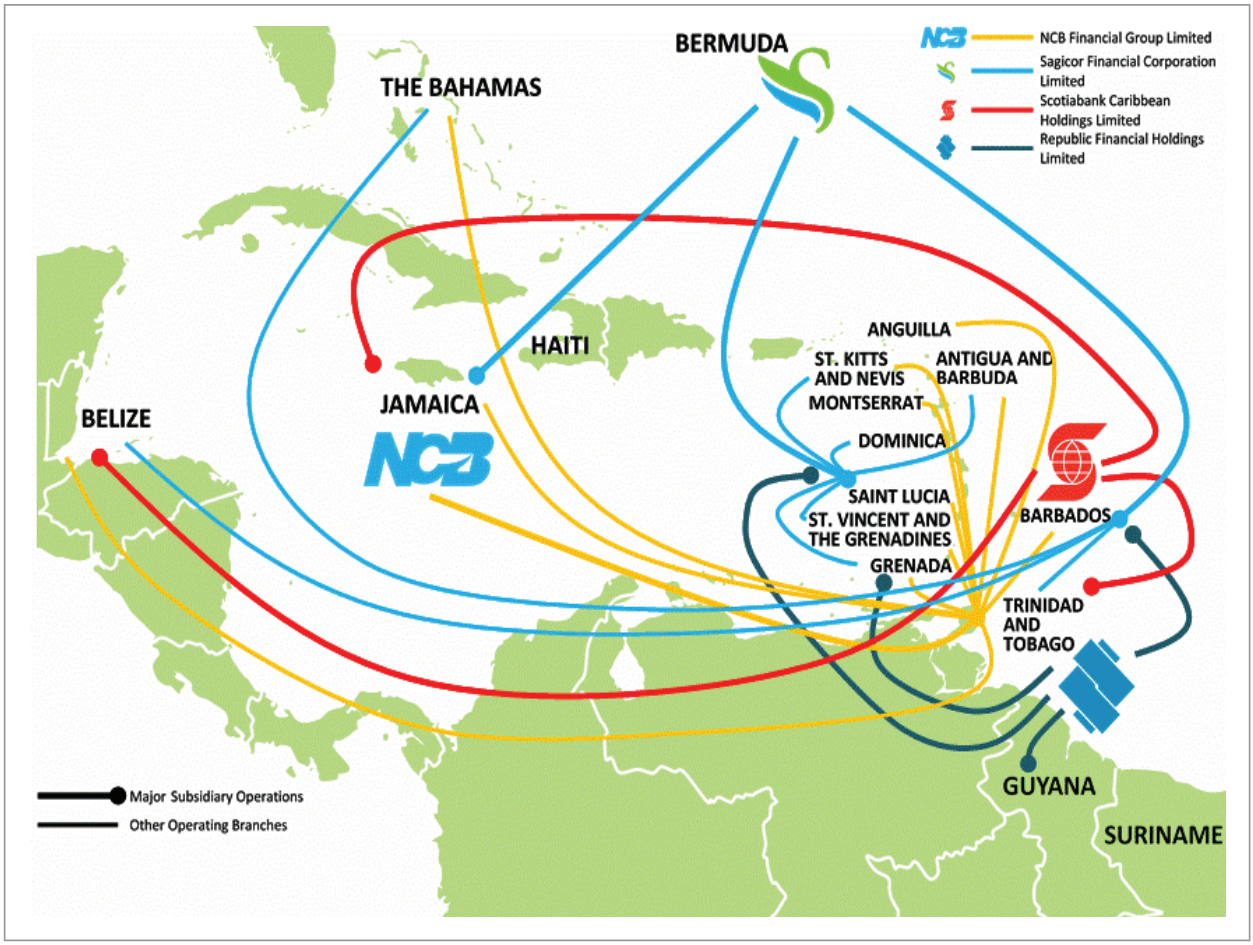
SIFIs are financial institutions whose failure could trigger material disruptions to the entire financial system and ultimately to the real economy due to their size, lack of substitutability, complexity and interconnectedness. These institutions are not only considered "too big to fail" but "too interconnected to fail", which highlights the risks posed to financial stability and the importance of establishing proper resolution regimes within and across various jurisdictions.

SIFI designation and contemplated policy responses have been focused mostly on commercial banks. The number of designated SIFIs in Caribbean countries have remained constant since 2015, with the exception of Jamaica. On the basis of asset size, the top five banks in the Region in 2015 comprised three Canadian entities and two Trinidad and Tobago institutions. Since then, the landscape has changed with the rise of financial conglomerates (Figures 4.10 and 4.11). The footprint of regional SIFIs is expanding and morphing. These complex group structures have led to the blurring of the lines where, for example an entity has a mixture of banking, non-bank and insurance business under one roof which can increase the risk of the transmission of financial stress from one sub-sector to others. The 2019 acquisition of Guardian Holdings Limited (Trinidad and Tobago) by the National Commercial Bank (Jamaica) Limited; the purchase of CLICO's (Trinidad and Tobago) traditional life portfolio by Sagicor (Bermuda/Barbados); JMMB Group's purchase of a 20.0 percent shareholding in Sagicor Group; Republic Group's (Trinidad and Tobago) acquisition of several Scotiabank branches in the ECCU; and Sagicor's purchase of General Accident Insurance (Jamaica) are just a few examples of recent ownership changes. Further regulatory and supervisory strengthening is required on the consolidated supervision front to address these structural changes.

In December 2018, the Bank of Jamaica in collaboration with CARTAC conducted a regional workshop entitled, "Macroprudential Regulation of Systemically Important Financial Institutions in the Caribbean", to support national authorities in the identification of domestic SIFIs. A Basel recommended approach, which encompasses assessment criteria such as, size, substitutability, interconnectedness and complexity was used. Based on available information, the number of D-SIBs in the region is outlined in Table 4.1

In total, thirty-seven entities have been identified as SIFIs within the Region at the end of 2018. More specifically, The Bahamas had seven banks designated as SIFIs, which was the highest total number of SIBs for any country within the Region. Jamaica was the only country where the number of SIFIs fluctuated throughout the review period. This was largely attributable to the changing number of systemically important insurance companies. However, there has consistently been three SIFIs in Jamaica over the past four years. Since 2015, all the countries reviewed had more than two designated SIFIs.

Figure 4.10: Regional Cross-border Operations of Major Caribbean Financial Holding Companies, (as at September 2019)



Source: Central Banks for Caribbean countries

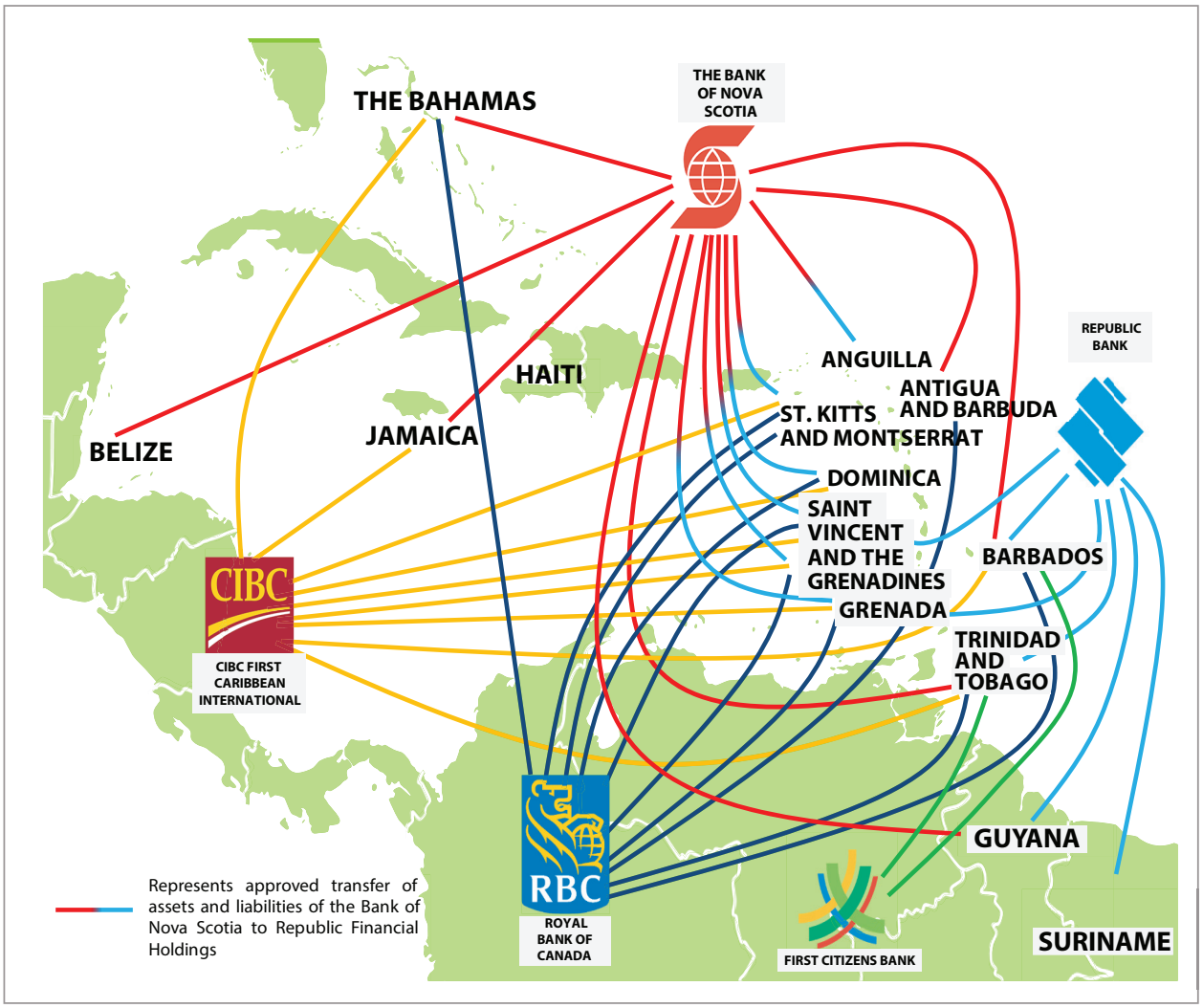
Total SIFI assets for the Region were US$48.5 billion at end-2018, which represented a marginal decline of 1.1 percent relative to the previous year. Furthermore, approximately 90.0 percent of all SIFIs assets belong to SIBs. Specifically, Jamaica, Trinidad & Tobago, Bahamas and Suriname had banking SIFIs assets to total SIFI assets ratios ranging from 81.3 percent to 100.0 percent (see Figure 4.12).

There was a downward trend in SIFI total assets in The Bahamas which was mainly due to the downsizing of one SIB. Notably, Trinidad and Tobago had the largest amount of total SIFI assets in the Region at US$ 18.9 billion at the end of 2018, though having only six SIFIs (see Figure 4.11). All the countries that were reviewed in the Region had SIFI total assets valued above US$2.0 billion at the end of 2018, except for Belize, which had total SIFI assets of US$1.4 billion.

Potential sources of contagion in the Caribbean via regional SIFIs include:

- Inadequate group supervision across borders despite material and complex intragroup transactions
- Significant market-based activities by non-deposit taking institutions that are members of financial groups

Figure 4.11: Regional Cross-border Operations of Major Caribbean Banking SIFIS, (as at September 2019)



Source: Central Banks for Caribbean countries

- Excess liquidity giving rise to significant funding linkages between regional non-deposit taking institutions and banks
- Common asset market exposures across regional FIs including sovereign instruments, corporate bonds, equities and foreign currencies;
- Inadequate cross-border regulatory cooperation and capacity to effectively control network risk between groups

4.5 Cross-Border Banking System Exposures

An analysis of the cross-border exposures of five Caribbean countries (The Bahamas, Trinidad and Tobago, Belize, Guyana and Jamaica) was conducted based on data availability over the period 2015 to 2018. In this framework, a cross-border banking exposure is a claim on, or a liability to a counterparty bank located in another Caribbean country. As expected, most of the countries assessed had significant banking exposures with the United

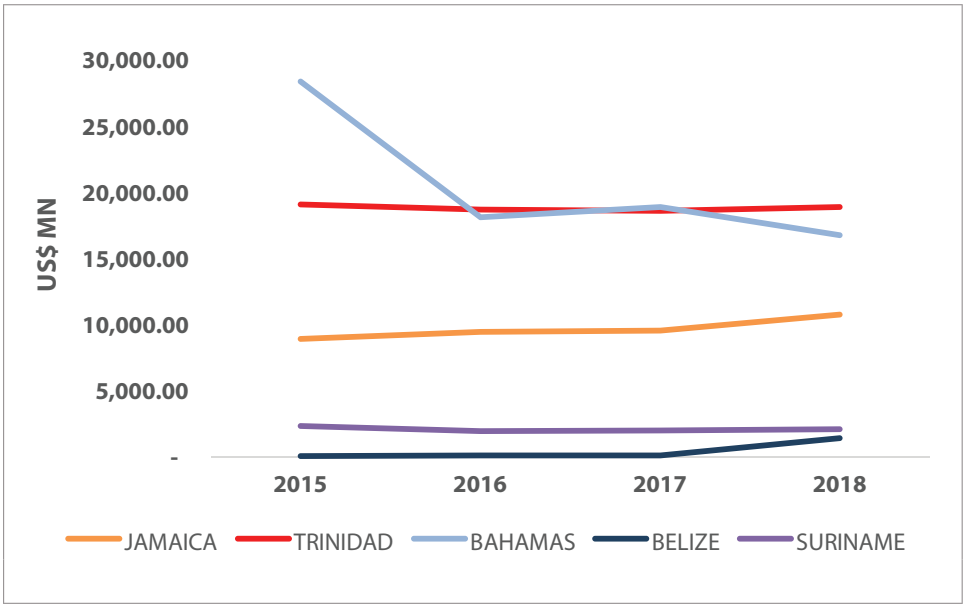
States of America (USA). In addition, there were also notable exposures to Europe and other countries outside the Western Hemisphere which are referred to here as the Rest of World (RoW). As it relates to the Caribbean region, Barbados and to a lesser extent Trinidad and Tobago are the only Caribbean countries that consistently recorded exposures with the other Caribbean banking systems that were assessed. Of note, the investment component accounted for the majority of the total banking system exposures reported, with three out of the five countries reviewed having only investment exposures. In other words, these countries recorded no equity and loan exposures throughout the sample.

Table 4.1: SIBs in the Caribbean 2018

Country	No. of D-SIBS
The Bahamas	7
Belize	2
Barbados	n/a
ECCU	n/a
Guyana	3
Jamaica	3
Suriname	3
Trinidad and Tobago	4

Source: Central Banks for Caribbean countries

Figure 4.12: Total Assets of Systemically Important



Source: Central Banks for Caribbean countries

4.5.1 The Bahamas

Due to the widespread existence of offshore banking in The Bahamas, this jurisdiction reported the highest nominal dollar value exposures relative to the other countries within the region that were examined. The largest banking system exposure for The Bahamas during the period 2015-2018 was with the RoW which was significantly higher than its second highest exposure, the USA. Canada, Barbados and Trinidad & Tobago were also a part of The Bahamas' top five exposures. In addition, The Bahamas showed significant non-investment banking exposures, contrary to the other countries within the region (Figure 4.13). Eighty-four percent of its exposure to Canada took the form of equity in subsidiaries and affiliates, followed by investments which made up the remaining 16.0 percent. Furthermore, their exposure to Barbados was almost equally composed of equity and investments, which totaled 42.0 percent and 58.0 percent respectively.

4.5.2 Trinidad & Tobago

Trinidad & Tobago is the only country that recorded banking exposure to the ECCU within its top five exposures. Of the top five, the USA was the largest exposure followed by RoW, Europe and Barbados (Figure 4.13). Trinidad & Tobago also had significant non-investment exposure, as 37.0 percent of Trinidad & Tobago's total exposure to Barbados was from equities in subsidiaries and affiliates, followed by 42.0 percent and 21.0 percent composition in loans and investments, respectively. Similarly, Trinidad & Tobago's exposures to ECCU was comprised of loans at 21.0 percent, with a 72.0 percent exposure to their equities and 7.0 percent exposure to investments. Notably with the exception of Trinidad & Tobago, all islands recorded little or no exposure to loans from external economies and regions.

4.5.3 Belize

All of Belize's significant exposures were to the USA and the Latin American & Caribbean (LAC) region, with its two most dominant exposures being with the USA and Trinidad & Tobago. Of importance, cross-border exposures to Belize's banking system were only composed of the investment component (Figure 4.13).

4.5.4. Guyana

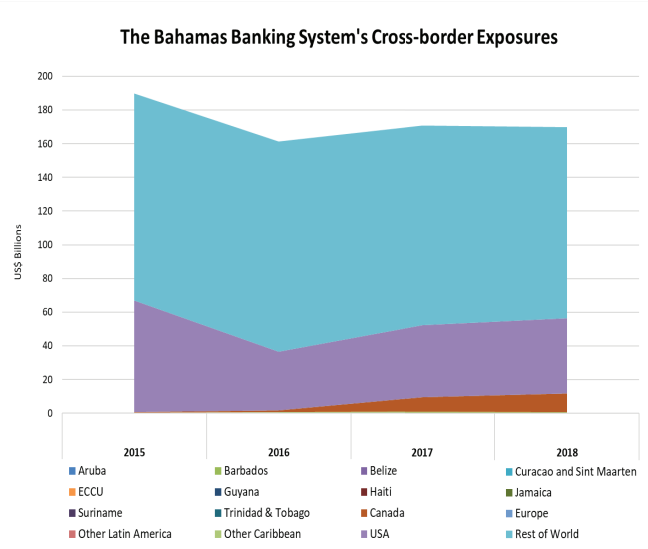
Guyana reported a significant exposure to Europe. Similar to Belize, the banking sector also had a strong exposure with the LAC region. However, their strongest exposure was with Trinidad & Tobago, which is notable given their close geographical proximity. Barbados was also included in Guyana's top five exposures. As with Belize, cross-border banking system exposures comprised only investments (Figure 4.13).

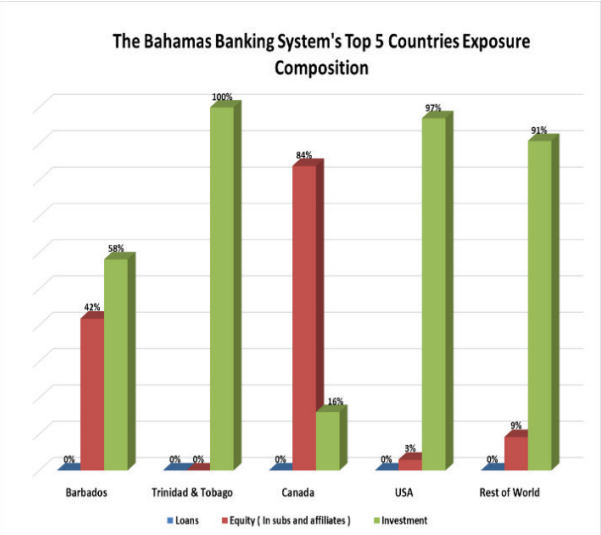
4.5.5 Jamaica

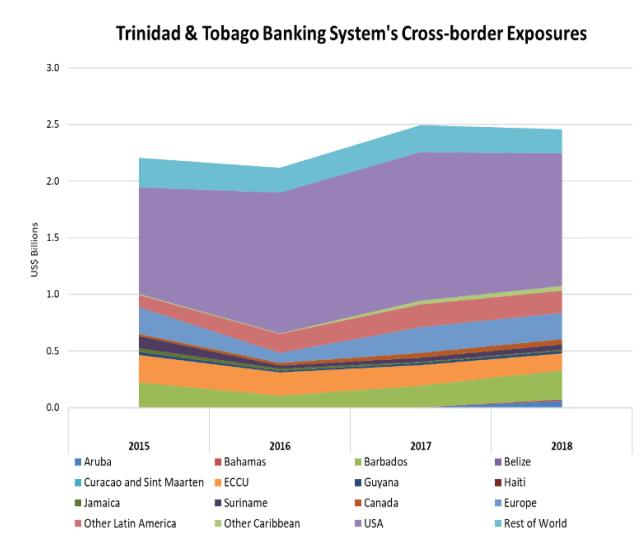
Jamaica recorded significant exposure to other Caribbean countries, with The Bahamas, Barbados and Trinidad & Tobago making up part of its top five banking system exposures (Figure 4.13). Jamaica's largest exposure was to the USA, with Europe also a part of the top five.

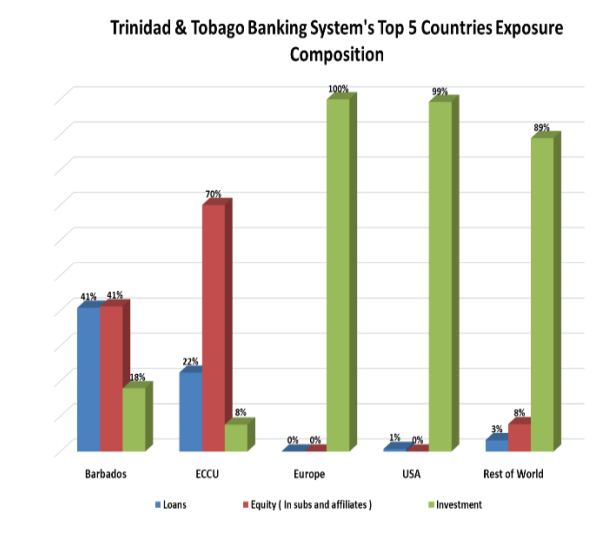
In total, thirty-seven entities have been identified as SIFIs within the Region at the end of 2018.

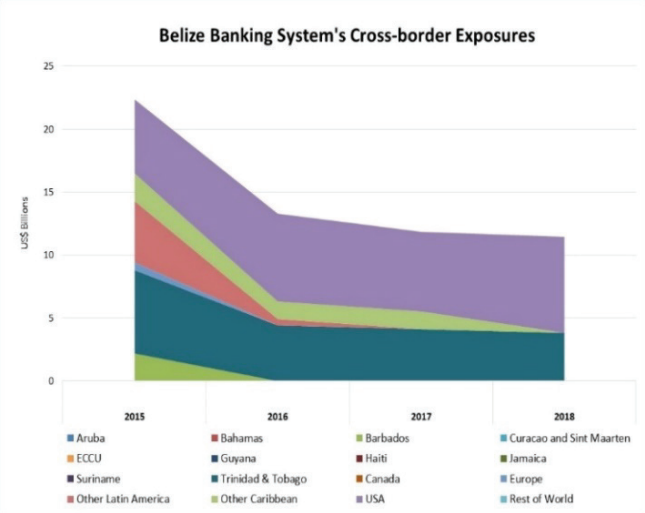
Figure 4.13: Cross-border Claims by Country and Composition

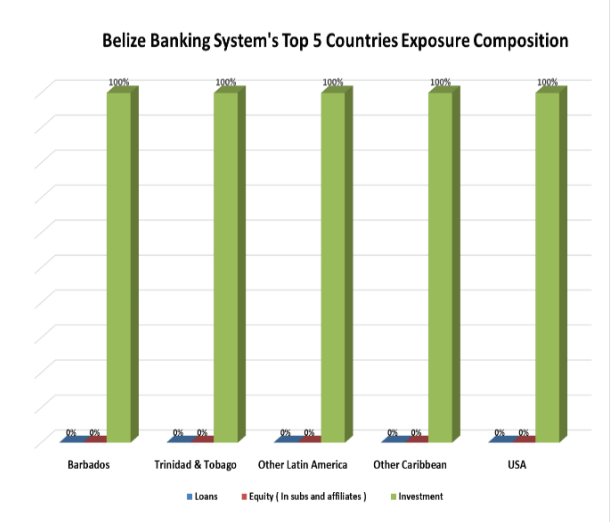


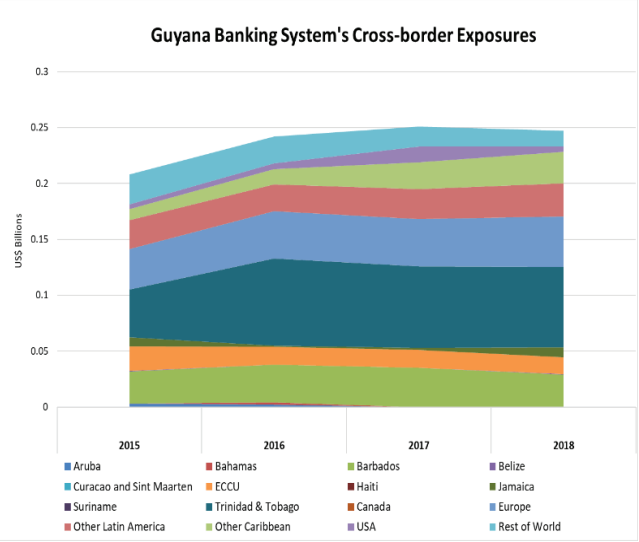


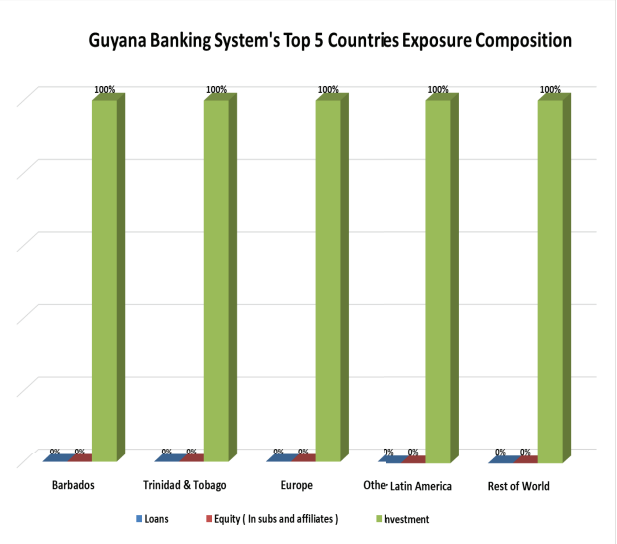


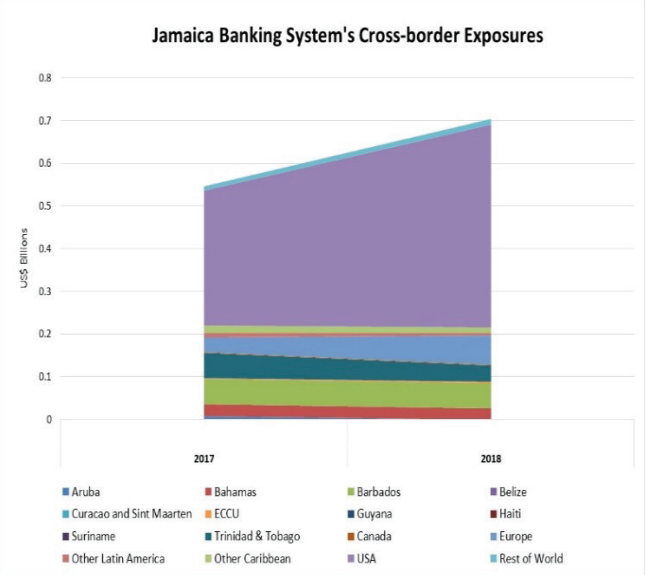


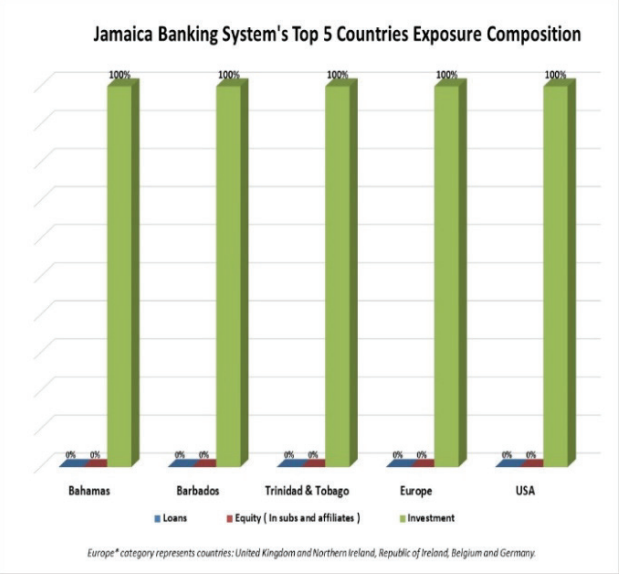

Belize Banking System's Cross-border Exposures
US$ Billions
25
20
15
10
5
0
2015
2016
2017
2018
Aruba
Bahamas
Barbados
Curacao and Sint Maarten
ECCU
Guyana
Haiti
Jamaica
Suriname
Trinidad & Tobago
Canada
Europe
Other Latin America
Other Caribbean
USA
Rest of World

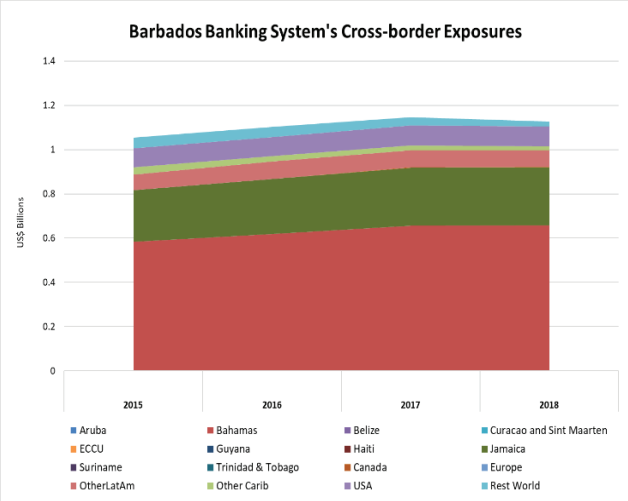

Belize Banking System's Top 5 Countries Exposure Composition
100%
0%
Barbados
Trinidad & Tobago
Other Latin America
Other Caribbean
USA
Loans
Equity (In subs and affiliates)
Investment

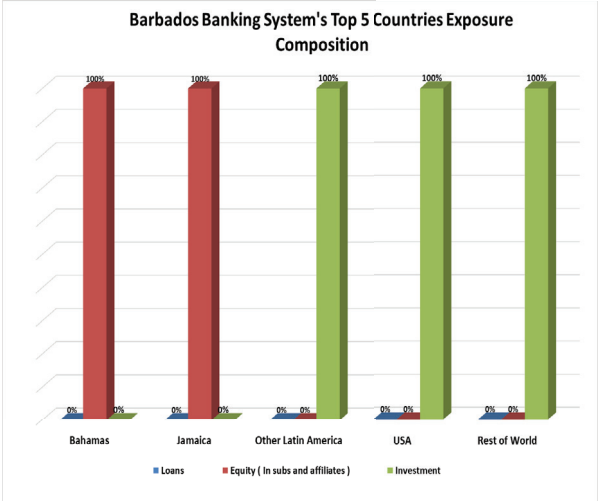

Guyana Banking System's Cross-border Exposures
US$ Billions
0.3
0.25
0.2
0.15
0.1
0.05
0
2015
2016
2017
2018
Aruba
Bahamas
Barbados
Belize
Curacao and Sint Maarten
ECCU
Haiti
Jamaica
Suriname
Trinidad & Tobago
Canada
Europe
Other Latin America
Other Caribbean
USA
Rest of World


Guyana Banking System's Top 5 Countries Exposure Composition
100%
0%
7%
Barbados
Trinidad & Tobago
Europe
Other Latin America
Rest of World
Loans
Equity (In subs and affiliates)
Investment


Jamaica Banking System's Cross-border Exposures
US$ Billions
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2017
2018
Aruba
Bahamas
Barbados
Belize
Curacao and Sint Maarten
ECCU
Guyana
Haiti
Suriname
Trinidad & Tobago
Canada
Europe
Other Latin America
Other Caribbean
USA
Rest of World


Jamaica Banking System's Top 5 Countries Exposure Composition
100%
0%
Bahamas
Barbados
Trinidad & Tobago
Europe
USA
Loans
Equity (In subs and affiliates)
Investment
Europe* category represents countries: United Kingdom and Northern Ireland, Republic of Ireland, Belgium and Germany.





Source: Central Banks for Caribbean countries

4.6 Caribbean Region Financial Exposures[7]

When exposures for the five Caribbean countries assessed for 2018 were aggregated, their total banking system exposure relative to their total assets was 10.0 percent. The largest exposure or vulnerability for that year was with the North American region accounting for 56.9 percent of exposures which emphasizes its importance to the Region's banking system (Figure 4.14). The RoW, which represented countries outside of the western hemisphere and Europe, had total exposure to the select Caribbean countries' banking system of 25.9 percent for 2018. All other regions recorded exposures of less than 11.0 percent for 2018. Notably, the 'Other' Caribbean region only accounted for 1.6 percent of the selected Caribbean countries' banking exposure.[8]

4.7 The Caribbean Cross-border Banking System Network

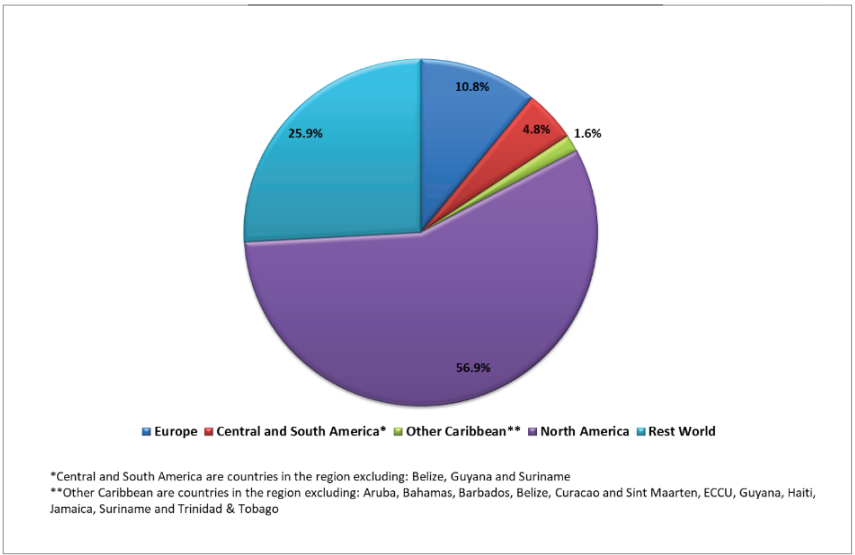
The interconnectedness of the region was further assessed using the aforementioned five Caribbean countries using network analysis. This analysis was performed on gross cross-border banking exposures. The results support the central role Trinidad & Tobago plays in the regional banking system (Figure 4.15). The network analysis also indicated that Jamaica, Barbados and Guyana played important roles. The analysis showed that there was a high level of reciprocity at 57.1 percent. A network which captures cross-border investment exposures only demonstrated similar results. In both networks, Belize and Suriname were the least connected. Reciprocation in the investment network was lower at 42.1 percent reflecting marginally less reliance in regional cross-border investments among the countries assessed.

[7] Caribbean region here refers to the select Caribbean countries: Aruba, Bahamas, Barbados, Belize Curacao and Saint Maarten, ECCU, Guyana, Haiti, Jamaica, Suriname and Trinidad & Tobago.

[8] *Other Caribbean* refers to countries in the Caribbean region excluding: Aruba, The Bahamas, Barbados, Belize, Curacao and Saint Maarten, ECCU, Guyana, Haiti, Jamaica, Suriname and Trinidad & Tobago.

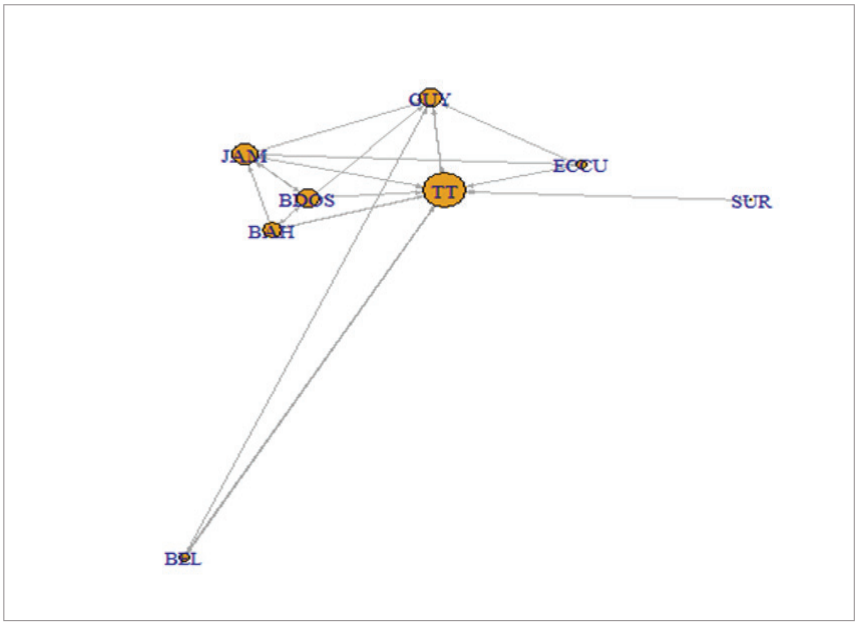
When external exposures were incorporated into the network, Trinidad & Tobago, Jamaica and Barbados continued to be the most central Caribbean participants (Figure 4.16). However, reciprocity decreased substantially to 23.1 percent due to the increase in counterparties.

Figure 4.14: Caribbean Regional Exposures



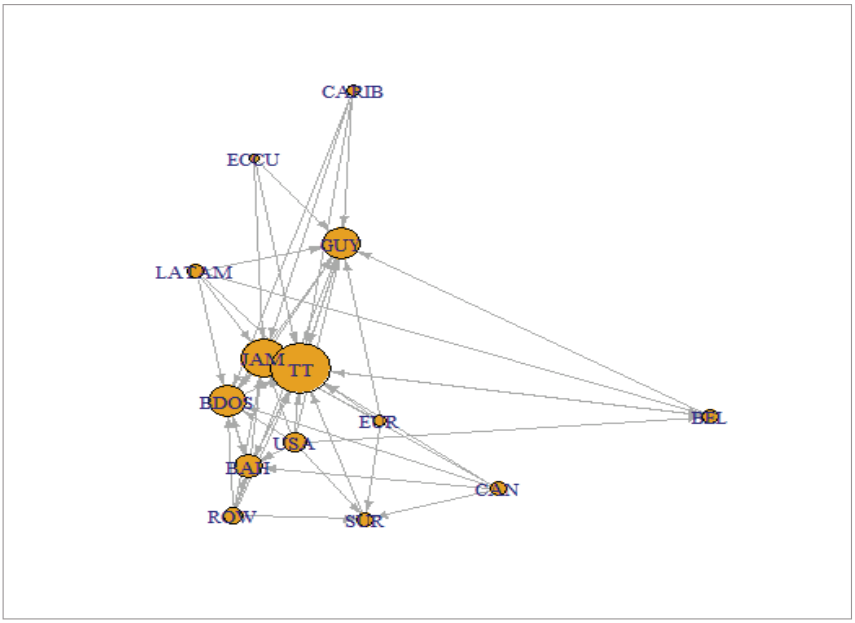
Source: Central Banks for Caribbean countries

Figure 4.15: Gross Cross-border Exposure Network for the Caribbean Countries Assessed



Source: Central Banks for Caribbean Countries

Figure 4.16: Global Gross Cross-border Exposure Network



Source: Central Banks for Caribbean Countries

Conclusions and Policy Recommendations

5

Chapter 5:
Conclusions and Policy Recommendations

5.1 Conclusions

The Caribbean has faced several challenges since the publication of the 2015 RFSR, which have driven the reform of the architecture for financial stability in the Region. The Caribbean remains disproportionately impacted by global "de-risking" trends, which has concentrated the Region's dependence on a few key correspondent banks for the vast majority of regional transactions with the rest of the world. The Region also had to address issues such as Fintech developments and related cyber security issues, large sovereign exposures on financial institutions' balance sheets, a challenging international economic environment, natural disasters and persistently low interest rates, which created problems for institutional investors in the Region.

In this context, Caribbean financial regulators have strengthened their defenses against threats to financial stability, such as cyber security, climate change-related risk and correspondent banking withdrawals and restrictions. Regulatory authorities have also been upgrading their toolkits to deepen their assessment of financial system resilience against systemic risks. In addition, a few jurisdictions have formalized their macroprudential framework by codifying it in legislation, while others are in the process of building-out their financial stability architecture.

The financial sector in the Caribbean remains stable and continues to strengthen in the post-crisis period, with the sector maintaining relatively robust capital levels in 2018. Asset quality also improved due in large part to improvements in the service-based economies, where earnings and profitability indicators strengthened and bank liquidity remained relatively stable. In terms of the insurance sector, the industry maintained stability, despite a decline in profitability. Country-level disclosures have also revealed that the capital buffers in domestic banking sectors remained adequate in a number of scenarios, characterized by a variety of plausible shocks.

In terms of regional exposures, the largest exposure for 2018 was with the North American region, which accounted for 56.9 percent of exposures, emphasizing its importance to the Region's banking system. Mergers and acquisitions have also increased concentration risks in the Region. In particular, Jamaica, Trinidad & Tobago, Bahamas and Suriname had banking SIFIs assets to total SIFI assets ratios ranging from 81.3 percent to 100.0 percent. The complex group structures of these SIFIs have led to the blurring of the lines between financial sub-sectors, which can increase the risk of the transmission of financial stress from one sub-sector to others. Therefore, regulatory and supervisory strengthening are required on the consolidated supervision front to address these structural changes.

The results from the interconnectedness analysis also indicate that Trinidad & Tobago, Jamaica and Barbados continue to play central roles in the regional banking system. This suggests that the stability of the regional financial system would benefit proportionally more from the improvement of the financial architecture in place to contain systemic risks in these jurisdictions.

5.2 Policy Enhancements and Recommendations to Improve the Regional Financial Stability Architecture

5.2.1 Financial Stability Policy Enhancements

Recognizing the significance of developments in financial technology and the potential impact on the Region, most jurisdictions have been developing their systems to address the emergence of private digital currencies, other Fintech based experiments, and the studies and pilot projects on central bank digital currencies. In this context, the CARICOM Central Bank Governors established the CARICOM Fintech Working Group in November 2016. The Working Group prepared a proposal document for treating digital currencies in the Caribbean, which is currently under review.

Moreover, individual central banks have undertaken various Fintech and virtual currency initiatives. Specifically, the Central Bank of Trinidad and Tobago completed a draft E-money Policy which was issued for public consultation in November 2018. It has also completed its Fintech Policy that entails the formalization of its Innovation Hub, as well as the establishment of a regulatory sandbox. The Bahamas also launched the "Project Sand Dollar" initiative in 2018, with the aim of implementing a digital version of the Bahamian dollar. In Suriname, Fintech developments in the private sector are predominantly focused on payments apps and wallets. These innovations are targeted both at the unbanked and citizens who are already technology and financial adept, but are desirous of easier and more efficient financial services. Other initiatives include a digital securities trading platform, the drafting of regulatory sandbox guidelines, the development of a "regtech/suptech" framework, the enactment of an Electronics Payments Act and the introduction of public education programmes on Fintech.

In the case of the Bank of Jamaica, drafting of the Fintech Regulatory Sandbox Guidelines was at an advanced stage by end-2018. These Guidelines are aimed at facilitating Fintech related innovations and providing a platform to encourage innovations in financial services, as well as to promote competition and financial inclusion.

With regard to cyber-risks, attacks that are targeted against the information technology infrastructure of financial institutions can lead to disruptions in financial services, identity and financial theft and fraud, resulting in settlement, liquidity, ML/TF and reputational risks. In this context, countries in the Region recognized that they were vulnerable to such attacks and are focused on establishing proper safeguards and controls to increase their resilience to these attacks as the digitalization drive progresses.

Regional SIFI identification and monitoring frameworks are also an issue that is on the radar of most regional central banks. Additionally, Caribbean countries are also advancing proposals to establish and strengthen banking resolution regimes. The key purpose of these regimes are to enable an orderly resolution of a failing bank in a manner that protects the public interest. In particular, these resolutions can help to maintain financial stability, by preserving confidence in the banking sector and protecting both depositors and taxpayers from unnecessary losses or costs when financial institutions get into difficulties. In terms of the development of macroprudential frameworks and indicators, countries in the Region are at varying stages with the implementation of enhancement of their frameworks and systems.

The majority of countries in the Caribbean have started the process to introduce the new Basel II/III framework. In particular, Jamaica has established the leading macroprudential policy framework.

A high-level inter-agency Financial System Stability Committee (FSSC) has also been established by way of an amendment to the BoJ Act. The Central Bank of Suriname (CBvS) has also taken steps to develop its macroprudential surveillance framework with the establishment of a Financial Stability Department (FSD). Focus is also being placed on non-bank regulations, with revisions to various Central Bank Acts being pursued, in an effort to facilitate a more risk-based approach to the supervision of institutions, such as credit unions and insurance companies.

Improvements to traditional payments systems are also being pursued with jurisdictions focusing on the reduction of paper-based cheques and the promotion of electronic settlement systems. Countries in the Region have also been enacting or amending their national payments system legislation to incorporate a comprehensive set of provisions on important aspects of the payments system.

5.2.2 Recommendations to Improve the Regional Financial Stability Architecture

The 2018 RFSR highlighted several evolving risks to financial stability, which suggest that there is a need to improve the analytical dimension of the Report. In this context, value could be added through a harmonized approach to regulatory collaboration on region-wide financial interconnectedness analysis. This would involve the use of entity-level data for regional financial interconnectedness monitoring and analysis. More comprehensive interconnectedness data could be collected, and analysed on an updated basis every 2-3 years. It would be a much more tractable approach because of the costs associated with the collection of the data and the fact that the structural features of the regional financial system, as reflected in the interconnectedness data, are unlikely to change much in the space of a year.

The regional framework can also be strengthened through more granular level data to facilitate analysis of emerging risks to the household and corporate sectors, including borrower-based measures, such as loan-to-value, loan-to-income and debt service-to-income ratios. Against this background, Central Banks will need to adopt harmonised data template and analytical frameworks to identify and monitor macroprudential risks. Further, consensus will be required on a common set of macro stress test scenarios to improve cross-country comparative assessments of vulnerabilities.

With regard to the regulatory systems in place for non-bank financial institutions, jurisdictions should, where none exist, also consider establishing national financial stability committees to collect comprehensive and harmonized information on sectoral systemic risk indicators. National regulators would further be encouraged to develop coordinated stress test and macroprudential scenario analyses for incorporation in the RFSR.[9]

Collaborative efforts to develop the regional financial architecture should also focus on the fact that Trinidad and Tobago, Jamaica and Barbados seem to be central nodes in the regional financial system. Efforts to build regional initiatives and systems to jointly regulate and supervise financial institutions, in general and SIFIs in particular, should be informed by this structural feature.

[9] In this context, there is also a need for a Memorandum of Understanding and Terms of Reference Agreement for the Regional Financial Stability Coordination Committee (RFSCC) on cooperation and coordination for addressing cross-border financial stability threats among Caribbean central banks (see Appendix III).

The formalization of the macroprudential framework in all jurisdictions, through codification in national legislation, would also help to strengthen the regional financial stability architecture. A key component of this formalized macroprudential framework should include the authority of central banks to corporate and share information on regional financial stability challenges.

Appendix 5

APPENDIX I:

Banking Stress Test Regimes in Selected Caribbean Countries

Jurisdiction	Comments
The Bahamas	Since 2015, only the credit risk stress test model has changed, in that, the shocks to the levels of non-performing loans were lowered to 100 per cent, 150 per cent and 200 per cent from 100 per cent, 200 per cent and 300 per cent, respectively. The Central Bank of Bahamas continues to periodically conduct credit, interest rate, and liquidity risks stress tests on a consolidated and individual (entity specific) basis for each D-SIBs.
Barbados	Since 2015, the authorities have included shocks specific to the insurance industry in the stress testing framework. The basic framework for deposit-taking institutions commercial banks has remained unchanged since 2014 with a focus on credit, liquidity, interest rate and large exposure tests.
Belize	In early 2017, CARTAC provided technical assistance to the Central Bank of Belize which helped to enhance the stress testing capabilities of the Central Bank. With CARTAC's assistance, the Bank of Belize implemented a forward looking stress test model that is utilized to gauge the banking system's strength and resiliency in the event of a decline in economic activity. In the model, economic shocks are transmitted via reductions in return on assets and growth in non-performing loans. The model assumes that the level of non-performing loans is related to export performance and changes in the cash reserve ratio. Additionally, commencing in 2014, the results of stress tests conducted on banks and credit unions in the Belizean financial system are included in the annual financial stability reports prepared by the Central Bank's Financial Stability Unit.
Guyana	The Bank of Guyana applied hypothetical shocks under various scenarios to all deposit-taking financial institutions in the areas of investments, large exposure credit and liquidity. However, only commercial banks undergo the sectoral credit stress test and the foreign currency exposure test. The results indicated that both at the system and individual institution levels, shock absorptive capacities remained broadly adequate under the various scenarios, except for pockets of vulnerability in the investment and credit portfolios.
Jamaica	Since 2015, the Bank of Jamaica has made key updates to its stress testing regime via the incorporation of frameworks for the assessment of the Yield Curve and a Macro-Financial Forecast Model. For financial stability purposes, hypothetical changes to the yield curve were applied to portfolio holdings of securities by financial institutions in order to determine the potential impact on net earnings and capital adequacy. Specifically, five scenarios were considered for this analysis: (i) An upward parallel shift of the yield curve; (ii) A bull flattening of the curve at the 5 year point; (iii) A bear steepening of the curve at the 5 year point; (iv) Curve less hump about 2 year, 5 year and 10 year points; and (v) Curve more hump about 2 year, 5 year and 10 year points. The Macro-Financial Forecast Model utilizes an accounting framework to assess the consistency between Jamaica's medium-term macroeconomic programme framework and the solvency of the banking sector. Specifically, medium-term projections of the commercial banking sector's profit and loss account and capital adequacy ratios are obtained based on changes in the projections of the real, fiscal, external and monetary sectors. These medium-term projections are then examined (in particular solvency ratios) in relation to large changes in interest rates, GDP growth, inflation and exchange rate. Five stress scenarios are applied in the model, namely: (i) Inflation shock scenario; (ii) Recession scenario; (iii) Foreign exchange shock scenario; (iv) Interest rate shock scenario; and (v) Aggregate shock scenario.

Jurisdiction	Comments
Suriname	Since 2015, the following developments have taken place in the stress test model: for the credit risk, the assumptions and provisions have been adjusted. For the foreign exchange risk, shocks for the euro are now included, next to the shocks for the US-dollar. The liquidity stress test now includes separate tests for the local - and foreign currencies.
Trinidad and Tobago	Technical assistance from CARTAC in 2015 and 2017 has helped advance the central bank's update of the stress testing regime. The emphasis has been on transitioning towards more scenario-based tests, as reflected in the FSRs for 2017 and 2018. Meanwhile, rudimentary single factor stress tests for credit, interest rates and liquidity have been reviewed and compared with standard tests under IMF Stress Tester 3.0. Proposed updates of the parameters are under consideration for implementation. There have also been initial forays into stress testing payment systems and insurance companies.

APPENDIX II:
RESULTS FROM D-SIB IDENTIFICATION EXERCISE AND COUNTRY SURVEYS

Country	Broad Results	Recovery and Resolution Planning	Infrastructure
Aruba	Information on the decomposition of GDP per sector was not available for the exercise. Number of accounts (deposits and loans) were also not available for the exercise. Two of four banks have been identified as high level SIFIs (as expected). A third bank at medium level. The fourth bank is very small in size. These four banks are domestic banks. A recently incorporated bank functions as a branch is very small in size and not included in the exercise. The banks are not complex in nature, but some have international parent companies that are large, with operations in the rest of the Caribbean. Currently, there are two credit unions under supervision. These credit unions are very insignificant in terms of size, even in comparison to the smallest bank.	Aruba does not have in place a bank resolution scheme or recovery planning. The Central Bank of Aruba has a "zero tolerance" supervision. Supervised institution must strictly adhere to applicable laws and regulations. In case of non-compliance, a menu of enforcement measures may be imposed. The process of incorporating a financial stability department with mandate regarding macroprudential supervision is ongoing.	The implementation of a RTGS is ongoing. A deposit insurance scheme is drafted and proposed by the Central Bank and is currently under review by the Department of Legislation and Legal Affairs of Aruba. The latest draft of the proposal was submitted in May 2017 for review.

APPENDIX II:
RESULTS FROM D-SIB IDENTIFICATION EXERCISE AND COUNTRY SURVEYS

Country	Broad Results	Recovery and Resolution Planning	Infrastructure
Barbados	Barbados' five commercial banks were ranked using the SIFI Index accounting for size, substitutability, and inter-connectedness. Results confirmed the a significantly important bank as well as three additional banks of potential medium significance. Of these three medium importance banks, the most significant is a branch and therefore only required to hold assigned capital. This branch also has the largest exposure to the tourism sector which is one of larger contributors to economic activity. The second institution is highly exposed to the personal and government segments, while the third is exposed to other important economic sectors. All of these are also large lenders of personal mortgages. For this reason, these three entities should be closely monitored and kept in the medium importance category. Intra firm exposures domestically are not well captured with the current suite of forms. There is also an issue regarding the consistency of the information submitted by the banks in terms of the exposures. However, we are confident that interfirm linkages are limited due to excess market liquidity. Additionally, insurance companies which are the second largest financial sector in terms of assets has to be considered, as our largest insurer is part of a large conglomerate structure with cross border relationships, and its parent is currently being sold to an international investment firm. The credit unions are also becoming a significant part of the financial system with large exposures to the personal segment, while being less capitalized than the commercial banks. There is also an emergence of shadow banking activity which is not captured in the current analysis.	Barbados does not have in place a special resolution regime (SRR) or recovery planning. The Central Bank of Barbados has broad powers to intervene in all domestic financial institutions licensed under the Financial Institutions Act (FIA). Further to the powers of the Central Bank under FIA, there is an Intervention Policy Framework. A Depositor Insurance Scheme (DIS) is established. The Central Bank of Barbados is currently working on (a) banking and national financial crisis plans (b) engaging banks in the developing of industry guidance and (c) coordinating with CGBS and OSFI on recovery and resolution for cross-border banks. A Financial Oversight Management Committee (FOMC) is in place which consist of all regulators and the DIS and is tasked with monitoring financial stability.	There are three main payment and settlement systems in operation. RTGS is managed by the Central Bank and users include the commercial banks, Barbados Securities Exchange (BSE) and the Treasury. The ACH is 'owned' by the coalition of banks (BACHI), including the Central Bank. It is however operated by an external service provider. The CSD is mainly managed and operated by the BSE. There are no automated links between the systems, however SWIFT is used to facilitate RTGS operations. There is no specific legislation covering the payment and settlement systems. However, there is the Electronic Transactions Act which provides a broad framework facilitating such transactions and contractual arrangements with respect to RTGS

Country	Broad Results	Recovery and Resolution Planning	Infrastructure
Belize	Prudential and real sector data are readily available for domestic banks, international (offshore) banks and credit unions. The Central Bank does not regulate insurance companies, however, information on insurance companies could be obtained from the insurance supervisor. Credit unions play a sizable role in the financial sector with one credit union being larger than two domestic banks. Also, credit unions have large sums deposited at domestic banks. Therefore, credit unions should be considered part of the analysis. International (offshore) banks provide loans (tourism, construction and agriculture) to the public sector and real economy, therefore should be considered in the analysis. Some types of data may not have the desired frequency, i.e., they may only be available on quarterly or annual basis, an example would be nominal GDP which is published annually. Data on sectoral breakdown of GDP published by the statistical institute is not currently aligned with the sectoral breakdown of loans data published by the Central Bank.	Belize has implemented a resolution framework with specific plans and guidelines for resolving a bank or credit union. The existing resolution framework does not address the issue of international cooperative arrangements for resolution of subsidiaries of international and regional banks. With regards to recovery planning, all licensed banks and credit unions are only required to have in place business continuity plans that are mainly designed to address operational risks. A specific mandate for financial stability has not yet been legislated.	The Automated Transfer System is an integrated system owned and operated by the Central Bank of Belize, consisting of three components; namely the RTGS, ACH and the CSD for Government securities. The National Payment System ACT enacted on 3 February 2017 provides strong powers for payment system oversight by the Central Bank.
Cayman Islands	Granular bilateral data and the loans to key sectors of the economy are available from the domestic banking surveys. The sectoral decomposition of the GDP is in line with granular data from the key sectors of the economy. On structural indicators, more detailed data will need to be requested from the entities in order to refine the size component. On solvency and liquidity indicators, work will be done on liquidity coverage ratios. The credit union has significand real sector linkages. Most retail banks are members of conglomerates. Hence more information is needed to properly quantify their size and significance in the financial and non-financial landscapes. There are data gaps concerning granular information on the non-bank financial sector. There are significant shadow banking activities in Other Financial Corporations.	Cayman Islands does not have in place a SRR or recovery planning. Supervisory colleges and bilateral agreements are in place.	There is no deposit insurance scheme, nor Lender of Last Resort (LOLR) (given the absence of a central bank function). The payment system includes an ACH; but no RTGS and no central settlement structure for securities and derivatives.

APPENDIX II:

RESULTS FROM D-SIB IDENTIFICATION EXERCISE AND COUNTRY SURVEYS

Country	Broad Results	Recovery and Resolution Planning	Infrastructure
ECCU	Except for ensuring that the sectoral breakdown of loans on the prudential returns are consistent with GDP by economic activity, there are no data gaps for constructing the indicators for D-SIBs designation. Currently, ECCB staff are working on enhancing our prudential forms to address any deficiencies. Credit unions play a major role in the economies of a few member countries. However, ECCB staff have been able to collect the necessary data to identify the D-SICUs. They recognize the need to address the timely submission of data. As regards the SIFI framework for insurance companies, there are data gaps which needs to be addressed.	ECCU has a resolution framework in place as informed by the Banking Act. The Eastern Caribbean Central Bank (ECCB) is the resolution authority. There are guiding principles for resolution. A priority of claims is clearly outlined and use of resolution tools such as the P&A and the bridge bank is authorized. There is an MoU with the Office of the Superintendent of Financial Institutions (OSFI) and ECCB is a participant in regional regulatory colleges.	The ECCB oversees the operations of an ACH, a RTGS and a CSD.

Country	Broad Results	Recovery and Resolution Planning	Infrastructure
Guyana	Data Gaps in Guyana • Interconnectedness data • Sectoral loan data for non-bank deposit taking institutions • Number of depositors and Loans for Non-banks • Ownership structure for the non-banks and insurance companies Institutions which can be included in the SIFI regulation framework are: • Deposit taking non-banks • Insurance & pensions companies • The National Insurance Scheme which has its funds in banks • Credit unions – the size and significance of credit unions are unknown and based evidence in other jurisdictions, it is a major sector Policies which can move the SIFI "bright" line up are: • Failed bank resolution legislation is in place • Emergency Liquidity Assistance Regime exist	Guyana has a resolution framework in place via amendment to the Financial Institutions Act of 1995 (Part VIII). However, a Resolution plan for SIFIs has not been drawn up. A committee is working on finalizing the associated regulations and guidelines. In April of 2019, the commencement order to formally establish Guyana's Deposit Insurance Regime was signed by the Minister of Finance following the passage of the Deposit Insurance Act in 2018. The Bank of Guyana (BOG) has an Intervention Policy (Guideline No. 11). The BOG has drafted a Financial Crisis Management Plan (FCMP) primarily focused on the management of a financial crisis on the national level. A sample resolution plan has been drafted and a planning has commenced for a SRR.	Cheque images are cleared through the National Clearing House (NCH); which is operated by Bank of Guyana. The Commercial Banks are members. There is RTGS, ACH or CSD. Cheque images are cleared and settlement is done manually. Upgrade of the payment system to allow for RTGS is currently in progress. A deposit insurance scheme is being established. The Bill has been passed in parliament and awaits the commencement order. Commencement order was given in April 2019 to establish the deposit insurance corporation and Fund.

APPENDIX II:
RESULTS FROM D-SIB IDENTIFICATION EXERCISE AND COUNTRY SURVEYS

Country	Broad Results	Recovery and Resolution Planning	Infrastructure
Jamaica	Assessments based on the previous D-SIB identification framework showed that three large systemically important banking groups exist. The assessment conducted in this workshop identified the systemic importance of deposit taking institutions only. The results showed that the two commercial banks related to these banking groups were highly systemically important. Meanwhile, the third commercial bank viewed as modestly systemically important was transferred to the high category given that this bank is a part of a large banking group. Information gaps: • No centralized information sharing database • Insufficient data on financial groups Strengths: • Currently have network analysis information that can be used for interconnectivity • Have a SIFI identification framework for identifying systemically important financial groups (based on size, interconnectedness, complexity, and substitutability). • Have an Emergency Liquidity Facility in place. • Have a statutory committee and working group for dealing with financial system stability issues Challenges: • No formalized service level agreement among the FSSN players in particular the BOJ, FSC, JDIC) • No cross-border aggregate indicator for SIFI • No separate assessment criteria for various FI groups (aside from banks) Country specific circumstances: • Credit unions a group could have systemic impact based on the size and customer base (approx. 1million vs 2.7 million population). • In the process of developing a macro-prudential policy toolkit • DSIBs have common market exposures/risks • Large exposure to Canadian financial institutions/system. Issues to deal with the policy response that could change the SIFI "bright" line: • Policy issue – lack of access of some FI sectors to the payments system i.e. correspondent banks • No formal policy for SIFI monitoring and supervision	Jamaica legislative framework is limited with regards to establishment of frameworks for recovery and resolution planning. Under the Banking Services Act, powers on resolution are largely reserved for the Minister of Finance (via powers of vesting). In the case of non-bank financial institutions (NBFIs), the Financial Services Commission has the powers of resolution; but there is no provision for the override of shareholder rights under the legislative framework for NBFIs. Plans are in place to establish an all embracing SRR during 2019 for financial institutions with requisite powers and tools to facilitate effective resolution.	A deposit insurance scheme is in place. The ACH is owned by the commercial banks. The Jamaica Clearing Bankers Association was established as the oversight body to implement the rules and By-laws and ensure adherence to the rules governing the operations of the clearing house. ACH settlement takes place on the books of the Bank of Jamaica (BOJ). The ACH net settles in the JamClear®-RTGS. JamClear®-CSD was implemented in May 2009, replacing the paper-based issue of Government of Jamaica and Bank of Jamaica fixed income securities. With the introduction of JamClear®-CSD, all issues of BOJ and GOJ securities were dematerialized to eliminate the need for paper certificates, with the exception of treasury bills. The electronic system provides the authentic record of ownership of BOJ and GOJ securities under the Public Debt Management Act (PDMA).JamClear®-CSD is seamlessly integrated with JamClear®-RTGS to allow for Delivery versus Payment (DVP) settlement. The JamClear®-RTGS is Jamaica's main interbank and large value fund transfer system owned and operated by the BOJ. It is seamlessly integrated with JamClear®-CSD and other related linkages, altogether SWIFT-based platforms. MultiLink™ is a retail payment system for payment cards. Its establishment constituted a major achievement in the Jamaican financial services industry due to the introduction of a service platform for debit card payment instruments that delivered non-cash retail banking services to/ between financial institutions within the domestic market. MultiLink™ transactions net settles in JamClear®-RTGS.

Country	Broad Results	Recovery and Resolution Planning	Infrastructure
Suriname	During this workshop three banks were identified as 'High Systemically Important' and one (1) as medium important, which was as expected. Central Bank of Suriname (CBvS) staff are identifying SIFI's (D-SIBs) for over a year in where we use two additional categories to identify this: • Size (similar to workshop) • Interconnectedness (similar to workshop) • Substitutability (similar to workshop) • Complexity • Domestic sentiment • CBvS used to only identify the High SIFI's; but by participation in this workshop staff will also consider the D-SIBs classified as medium important.	Suriname is working on the strengthening of the national FCMP and has drafted legislation for establishing deposit insurance and SRR. The Bank Supervision Act provides for strict guidelines for treating with weak or problem institutions. CBvS is finalizing a draft Bank Resolution Act, including developing special legal options for faster bank intervention, as well as establishing an emergency liquidity assistance (ELA) facility. Suriname has a technical working group on financial stability issues where the director of Supervision, the Head of Banking Supervision and the Head of Financial Stability are a part. Suriname is missing a High Level Financial Stability Committee and formal coordination arrangements between Supervision and Financial Stability.	A modern payment system is in place. A draft Deposit Insurance Act is being prepared. is in place.

APPENDIX II:

RESULTS FROM D-SIB IDENTIFICATION EXERCISE AND COUNTRY SURVEYS

Country	Broad Results	Recovery and Resolution Planning	Infrastructure
Trinidad & Tobago	Of the three SIFI indicators i.e. size, substitutability and interconnectedness, the indicators that were applicable (given our data constraints at this time) for Trinidad & Tobago were size and substitutability. The demarcation between the systemic vs non-systemic commercial banks was very clear. Using the size and substitutability indicators, the SIFI index revealed that there are four systemic commercial banks in our jurisdiction. This substantiated preliminary conclusion drawn in the 2014 FSR where these four banking institutions were identified as SIFIs. Further, the other four commercial banks were deemed non-systemic based on the sensitivity analysis conducted on the commercial banking sector. In the calculation of the size indicator, the contribution of each bank to economic activity was needed. The loan portfolio breakdown reflected a similar classification as that adopted by the Central Statistical Office in the calculation of the Gross Domestic Product (GDP). This allowed for ease of calculation and the result was consistent with what was expected. The analysis revealed the sectors to which our SIFIs were vulnerable if potential externalities were to materialize. Drawbacks include inability to use the interconnectedness indicator in the calculation of the SIFI index as such granular data are not captured on regulatory returns. Presently, the balance sheet captures total liabilities and claims on other banks in aggregate. This needs to be further broken down to determine bi-lateral transactions per institution. The quality of the data also needs some improvement to ensure that validation checks are robust. Also, the calculation of the SIFI index focused on commercial banking institutions only and this needs to be expanded to include the other sectors in the financial system, including insurance (16% of total financial system assets (TFSA)), credit unions (4% of TFSA), our deemed SIFIs (approximately 18% of TFSA). Conglomerate structures in Trinidad & Tobago not only have a domestic presence but also have strong linkages to regional territories. This creates issues with the capture of important granular data for interconnectedness and contagion analysis. Credit unions – These intermediaries are not regulated by the Central Bank and they are governed by a separate Act. This creates a challenge in regulation and supervision of these entities which provide a secondary source of credit.	Plans are in place to establish an all embracing SRR during 2019 for financial institutions with requisite powers and tools to facilitate effective resolution.	The ACH is owned by the commercial banks. The Jamaica Clearing Bankers Association was established as the oversight body to implement the rules and By-laws and ensure adherence to the rules governing the operations of the clearing house.

Country	Broad Results	Recovery and Resolution Planning	Infrastructure
Turks & Caicos Islands	Indicators that go into D-SIB designation in the TCI are 'size' --resident deposits, loans and advances and contribution to key sectors – and 'substitutability' --loans to deposits, loans to total loans and structural factors including number of branches, number of ATMs, number of deposit accounts. Subjective issues that determine D-SIBs vis-à-vis drawing the 'bright line' include: • wide footprint in the local economy through related non-financial companies • lack of critical structural safety nets such as a LOLR to provide ELA and deposit insurance. • absence of resolution or crisis management frameworks in place • absence of payment system infrastructure • the fact that the financial system is largely foreign-owned. Information gaps that would improve the ability to designate: • interbank exposures • sector-specific data, especially for the asset management sector. • timing of GDP data and the comparability of GDP components with line items currently captured on regulatory returns Other structural / country specific issues: • Confidence issues/ risk of contagion: Even though no non-banks have been designated as systemically important, the financial system may be especially vulnerable to contagion arising from non-bank entities, as a result of a past bank failure event and need for enhanced financial literacy. As such, news of distress within any entity may create systemic disruption. • Cross-border issues: There is need to exchange more and more frequent information with home regulators • Heavy reliance on expatriate labor: There is a large expatriate workforce with uncertain tenure in the jurisdiction, which: (i) contribute a significant share of 'resident deposits' and (ii) provide senior and middle management expertise in the financial sector • Real sector concentrations and susceptibility to external shocks emanating from strong reliance on tourism and related sectors (especially North American and to a lesser degree, European source markets).	Turks & Caicos Islands has not yet drafted a national FCMP; though plans are in place to draft one. A proposal has been submitted to policymakers for approval to commence drafting of a Financial Institutions Resolution Bill which would codify a SRR. The single regulatory authority has drafted a SIFI methodology for banks is based on 'size', 'substitutability', 'interconnectedness', and 'complexity'.	There is no deposit insurance scheme, nor LOLR (given the absence of a central bank function).

APPENDIX II:

KEY RECOMMENDATIONS TO IMPROVE THE ANALYTICAL DIMENSION OF THE REGIONAL FINANCIAL STABILITY REPORT (RFSR)

		Priority	Time frame 1
1	Agree on a Memorandum of Understanding and Terms of Reference for the Regional Financial Stability Coordination Committee (RFSCC) on cooperation and coordination on addressing cross-border financial stability threats among Caribbean central banks, including a set of enabling protocols to strengthen policy analysis and overall content in the RFSR.	High	ST
2	Strengthen cooperation with non-bank regulators and establish, where absent, national financial stability committees for collection of comprehensive and harmonized information on sectoral systemic risk indicators, stress test and macro scenario analyses for incorporation in the RFSR.	High	ST
3	Establish harmonized reporting requirements and mechanisms for the timely receipt of data from financial regulators in the region and build in data quality checks early and often in the process.	High	ST
4	Develop a harmonized approach for regulatory collaboration on region-wide network analysis using entity-level data to advance financial interconnectedness regional surveillance, especially in view of significant inter-linkages within the regional financial system. CARTAC to provide regional TA.	High	MT
5	Develop harmonized analytical templates for computing an enhanced set of core and non-core systemic risk indicators and heat maps to allow for useful cross-country comparison of vulnerabilities in the RFSR.	High	ST
6	Examine the list of macroprudential indicators recommended by international institutions such as the IMF and BIS to identify which important indicators are missing from the regional indicator database.	High	ST
7	Collect granular loan level data from banks or credit bureaus to support in-depth systemic risk analysis of the vulnerabilities pertaining to household and corporate sectors and to allow for introduction of borrower-based measures such as loan-to-value, loan-to-income and debt service-to-income ratios in the RFSR. CARTAC to provide regional TA.	High	MT
8	Develop a harmonized data template and regional approach for the identification and monitoring of SIFIs to address macroprudential risks in line with recommendations of the CARTAC regional workshop on Developing a Harmonized Framework for the Macroprudential Regulation of SIFIs in the Caribbean undertaken during December 10–14, 2018.	High	ST
9	Collect data and establish a regional technical working group to produce household and commercial real estate price indices and incorporate cross-country comparative analysis in the RFSR. CARTAC to provide regional TA.	High	MT
10	Develop macro scenario-based stress testing models and frameworks in each country to support national macroprudential policy actions and regional cooperation. CARTAC to provide regional TA.	High	MT
11	Agree on a common set of macro stress test scenarios to improve cross-country comparative assessment of vulnerabilities in the RFSR.	High	MT

1/ "ST" indicates short-term (within one year) and "MT" indicates medium-term (within 1-3 years).

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