



CENTRAL BANK OF
TRINIDAD & TOBAGO

Financial Stability Report 2017



Central Bank of Trinidad and Tobago
P.O. Box 1250
Port of Spain
Republic of Trinidad and Tobago
www.central-bank.org.tt

© Copyright 2017 Central Bank of Trinidad and Tobago

ISSN 2076-7781 (Print)
ISSN 276-7757 (Online)

Financial
STABILITY REPORT
2017

Central Bank of Trinidad and Tobago

Financial Stability Report

Table of Contents

| | |
|---|----|
| LIST OF ABBREVIATIONS | II |
| PREFACE | IV |
| OVERVIEW | 1 |
| CHAPTER 1: The Macro-Financial Environment | 5 |
| CHAPTER 2: Financial Sector Developments | 12 |
| Financial Soundness Indicators | 13 |
| Banking Sector | 16 |
| Life Insurance Sector | 20 |
| Non-Life Insurance Sector | 21 |
| Occupational Pension Plans | 23 |
| Payment Systems | 26 |
| CHAPTER 3: Vulnerabilities and Risks | 29 |
| CHAPTER 4: Promoting Financial Stability | 45 |
| CHAPTER 5: Regulatory and Supervisory Issues Associated with Cryptocurrencies | 52 |
| APPENDIX | 63 |
| LIST OF BOXES | |
| BOX 1: Capital Market Developments in Trinidad and Tobago | 24 |
| BOX 2: Digitization of Financial Services | 27 |
| BOX 3: Shadow Banking and Systemic Risk | 34 |
| BOX 4: Central Bank Digital Currency | 56 |
| BOX 5: Elements of a Regulatory Sandbox | 61 |

List of Abbreviations

| ABBREVIATION | NAME |
|--------------|--|
| ACH | Automated Clearing House |
| AEs | Advanced Economies |
| AML/CTF | Anti-Money Laundering and Combating the Financing of Terrorism |
| ATM | Automated Teller Machine |
| AUM | Assets Under Management |
| BCBS | Basel Committee on Banking Supervision |
| BCP | Business Continuity Planning |
| BIR | Board of Inland Revenue |
| BIS | Bank for International Settlements |
| BPSP | Bill Payment Service Provider |
| CAR | Capital Adequacy Ratio |
| CARICOM | Caribbean Community |
| CBA | Central Bank Act, Chap. 79:02 |
| CBDC | Central Bank Digital Currency |
| CBR | Correspondent Banking Relationship |
| CEMLA | Centre for Latin American Monetary Studies |
| CFWG | Caribbean Fintech Working Group |
| CGBS | Caribbean Group of Banking Supervisors |
| CIS | Collective Investment Scheme |
| CLICO | Colonial Life Insurance Company (Trinidad) Limited |
| COFAP | Council for Finance and Planning (CARICOM) |
| CRFP | Caribbean Regional Financial Interconnectedness Project |
| DLT | Distributed Ledger Technology |
| ECA | Exchange Control Act |
| ECCB | Eastern Caribbean Central Bank |
| ECL | Expected Credit Losses |
| EMDEs | Emerging Market and Developing Economies |
| FATF | Financial Action Task Force |
| FCA | Financial Conduct Authority |
| Fed | Federal Reserve |
| FIA | Financial Institutions Act, 2008 |
| Fintech | Financial Technology |
| FIU | Financial Intelligence Unit |
| FMI | Financial Market Infrastructure |
| FSB | Financial Stability Board |
| FSI | Financial Soundness Indicator |
| FSR | Financial Stability Report |
| GFC | Global Financial Crisis |
| GFSR | Global Financial Stability Report |
| GHG | Greenhouse Gas |
| GoRTT | Government of the Republic of Trinidad and Tobago |
| IA | Insurance Act, Chap 84:01 |

List of Abbreviations

| ABBREVIATION | NAME |
|--------------|--|
| ICOs | Initial Coin Offerings |
| ICRG | International Co-operation Review Group |
| IFRS | International Financial Reporting Standard |
| IMF | International Monetary Fund |
| INDC | Intended Nationally Determined Contribution |
| JSC | Joint Select Committee of Parliament |
| LAC | Latin America and the Caribbean |
| MER | Mutual Evaluation Report |
| MIN | Minimum |
| ML/TF | Money Laundering and Terrorist Financing |
| MOU | Memorandum of Understanding |
| NPL | Non-Performing Loan |
| NPL Ratio | Non-Performing Loans to Gross Loans |
| NRA | National Risk Assessment |
| PFMIs | Principles for Financial Market Infrastructures |
| QIS | Quantitative Impact Study |
| RFSCC | Regional Financial Stability Co-ordinating Council |
| ROE | Return on Equity |
| RTGS | Real Time Gross Settlement system |
| RWA | Risk Weighted Assets |
| S&P | Standard and Poor's Global Rating |
| SIPS | Systemically Important Payment System |
| SRPS | Significant Retail Payment System |
| TIEAA | Tax Information Exchange Agreements (United States of America) Act, 2017 |
| TTSEC | Trinidad and Tobago Securities and Exchange Commission |
| TWG | Technical Working Group |

PREFACE

The Central Bank of Trinidad and Tobago (the Central Bank) plays a vital role in maintaining financial stability and promoting confidence in the domestic financial system. Financial stability has been defined as the resilience of the financial system in the face of adverse shocks so as to enable the continued smooth functioning of financial intermediation and payments settlement. Effective financial intermediation, which involves the ability of households and businesses to channel savings into productive investments with confidence, is essential for sustained economic growth and the welfare of Trinidad and Tobago.

The Financial Stability Report (FSR) which is currently published annually, complements the biannual Central Bank Monetary Policy Report and other publications by providing an overview of developments in the financial sector and insights into vulnerabilities and risks to stability on the domestic, regional and international fronts. While financial system vulnerabilities increase susceptibility to shocks, effective governance and risk management, strong capital buffers and pro-active supervision and regulation help to enhance resilience. The FSR also highlights the on-going efforts of the Central Bank to strengthen these areas and aims to foster informed discussion on financial stability issues.

The FSR is available on the Central Bank's website at <https://www.central-bank.org.tt/core-functions/financial-stability/financial-stability-report>.

OVERVIEW

The External and Domestic Macro-Financial Setting

In 2017, global financial conditions remained broadly supportive of economic growth. Ongoing monetary accommodation in advanced economies (AEs) and regulatory advancements have helped shape risk sentiments. The International Monetary Fund's April 2018 *Global Financial Stability Report* signalled that short-term risks to financial stability are brewing on account of equity market volatility and concerns about possible growth-inhibiting trade protectionist measures by significant global players.

Monetary policy normalization has progressed in a few AEs.

In the United States (US), policy rate changes gathered momentum in 2017 as economic prospects firmed. Although it appears that financial markets have priced in interest rate hikes by the US Federal Reserve (the Fed), financial vulnerabilities built up over many years of monetary accommodation may be triggered if adjustment is more rapid than anticipated. Such accelerated adjustment by the Fed could be prompted by above-target inflation resulting from expansionary fiscal policy in the context of tax cuts. With economic growth still below historical trends and inflation seemingly anchored below central bank targets, asset purchase programmes persist in the Euro Area, Japan and the United Kingdom.

Emerging market economies rebounded against the backdrop of resurgent commodity prices.

However, monetary policy normalization in AEs risks potentially destabilizing capital flow reversals. Another vulnerability stems from high leverage, particularly for the non-financial sector, which utilized the era of easy financial conditions to raise debt financing. Debt servicing costs could spike in the face of rising interest rates, stoking credit and default risks.

In the Caribbean, tentative signs of macroeconomic recovery have not mitigated financial stability risks.

In this context, deep financial interconnections between sovereigns and financial institutions need to be closely monitored in the light of fragile fiscal positions. Moreover, the region faces greater scrutiny from the international community regarding anti-money laundering/combatting the financing of terrorism (AML/CFT) and tax compliance. This development has kept the threat of de-risking of correspondent banking

relationships at the forefront. Several jurisdictions have attempted to improve compliance by closing regulatory gaps, while others have turned to exploring financial technology (Fintech) solutions.

Domestically, a revival in the energy sector – if sustained and accompanied by gradual recovery of non-energy activities – is expected to reduce financial stability risks from the macroeconomic channel.

Energy output climbed in the second half of 2017 concomitant with capacity additions in the natural gas industry. A sustained economic recovery has not yet taken hold as positive spillovers to the non-energy sector were not fully evident. Despite remaining in deficit positions, the balance of payments and the fiscal accounts have demonstrated signs of improvement. With headline inflation averaging less than 2 per cent, inflationary pressures were muted but labour market conditions continued to weaken.

Buoyed by a pick-up in real estate mortgage lending, private sector credit growth quickened in 2017.

Liquidity conditions were tempered by central government domestic market financing activity. The Central Bank of Trinidad and Tobago held its key policy rate, the 'repo' rate, at 4.75 per cent throughout 2017. The country's neutral monetary policy stance was influenced by balancing the need to guard against the risks from rising US interest rates while allowing a more firm economic recovery to take hold. However, the differential between the TT and US 91-day Treasury rates turned negative in December 2017.

Performance of the Domestic Financial Services Industry

The financial sector in Trinidad and Tobago is sound and has demonstrated resilience to the softer economic conditions. Financial soundness indicators for 2017 illustrate a banking sector that remains highly capitalized, profitable and with relatively strong asset quality. The insurance sector was in a similar stable position despite having to contend with sizeable claims associated with a catastrophic 2017 Atlantic hurricane season. At the same time, the still low interest rate environment and sluggishness in the non-energy sectors continue to pose challenges for financial institutions' earnings on investments and credit quality.

In 2017, capital adequacy of the banking sector was above 20 per cent, while profitability (as measured by return on equity) was little changed from the previous year at 19 per cent. Growth in net interest margins (8.7 per cent) continued to be the main contributor to banking profits. Non-performing loans (NPLs) as a share of gross loans of the banking sector fell to 3 per cent in 2017 – the third consecutive year of decline. This was attributable to a fall in business sector NPLs, amidst a rise in consumer credit extended for the purpose of debt consolidation (16 per cent) and refinancing (10.4 per cent). Anecdotal evidence suggests a rise in credit intermediation activities outside the regulatory purview of the Central Bank (shadow banking). Closer monitoring, particularly from the perspective of the shadow banking sector's interconnections with the formal banking sector, is warranted.

The life insurance sector continued to experience consistent asset growth, increasing by 7.9 per cent to \$25.6 billion as at December 2017. The pursuit of cost efficiencies, evidenced by a reduction in the total expense ratio, helped sustain profitability. Return on equity was 13.8 per cent compared with 15.4 per cent in 2016. Investment yield held steady at 4.7 per cent. The capital base of non-life insurers was affected by significant claims linked to the extensive hurricane damage in the Caribbean during 2017, but adequate reinsurance coverage protected against any significant asset diminution. With forecasts of another active hurricane season for 2018, reinsurance contracts may be revisited to take into account the Caribbean region's shifting risk profile.

In 2017, the assets of occupational pension plans increased marginally to \$48.5 billion. Though financial stability risks from the pension sector are negligible, there are a few challenges. The funding levels of defined benefit plans continue to be affected by low interest rates. The prevailing macroeconomic environment increases the risk that sponsors will eventually be unable to meet the cost to provide promised benefits. As such, sponsors will be faced with various options, which include but are not limited to, increasing contribution rates of sponsors or employees, the winding up of current defined benefit pension arrangements and the conversion to defined contribution or hybrid arrangements.

On the payment system front, the commercial banks have embarked on a number of initiatives to improve electronic delivery channels, which has resulted in increased digitization of financial services. With respect to retail payments, debit card usage continued to dominate, accounting for 52.5 per cent of all non-cash retail payments. In 2017, large value payments processed by the Real Time Gross Settlement system rose both in volume (6 per cent) and value (1 per cent). The Central Bank and the commercial banks are working together to automate the cheque clearing process for improved efficiency. Meanwhile, a number of Fintechs seeking to launch various digital currency initiatives prompted the Central Bank to issue a public notice in September 2017 advising that any operator of a non-interbank payment system and/or a payment service provider involved in business of a financial nature are required to register with the Central Bank. More generally, the Central Bank is collaborating with international agencies and other central banks as it develops its position in respect of digital currencies in Trinidad and Tobago.

Domestic Financial System Vulnerabilities and Risks

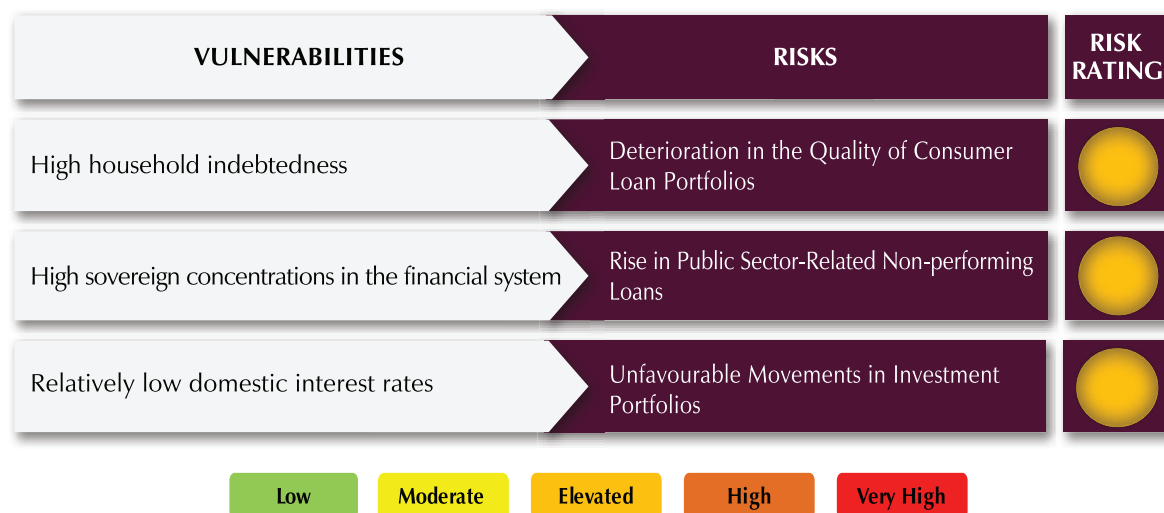
Financial sector vulnerabilities have not changed significantly from 2016. Apart from the overall macroeconomic situation, they include high household indebtedness, high sovereign concentrations and relatively low domestic interest rates. In light of recent catastrophes in the region and across the world, the Central Bank has also begun to consider the implications for the financial sector of natural disasters and broader environmental issues such as climate change.

The triggers that can activate the vulnerabilities highlighted have evolved and include inability of borrowers to service their loans due to falling disposable incomes; rising domestic interest rates on variable rate mortgages; and sovereign (domestic and regional) credit rating downgrades and delays in public sector debt servicing. Moreover, international developments, such as the speed of interest rate hikes by the Fed and the outcome of recent trade restricting measures, have the potential to spill over to the domestic economy and local financial institutions.

The Central Bank's views on some of these risks to financial stability are summarized in the Risk Assessment Map below:

Summary Heat Map

Key Vulnerabilities and Risks to Financial Stability in Trinidad and Tobago



Source: Central Bank of Trinidad and Tobago

Promoting Financial Stability

Addressing underlying financial system vulnerabilities is a long term endeavour. At the same time, combatting the build-up of systemic risks requires a combination of responsiveness, persistence and practicality. The Central Bank has been undertaking several initiatives to safeguard financial stability based on an on-going assessment of key vulnerabilities, risks and developments in the economic, regulatory and financial landscape both domestically and abroad. Some of the initiatives include:

Insurance Bill, 2016

The Insurance Bill, 2016 was passed in the House of Representatives on February 16, 2018 and in the Senate on May 18, 2018 and was assented to on June 4, 2018. When proclaimed, the new Insurance Act would replace the current legislation which has been in effect since 1980.

This represents a significant milestone towards strengthening supervision of the insurance sector and protecting the interests of policyholders. Legislative provisions in the new Act seek to inter alia promote good governance and risk management practices; introduce capital adequacy requirements and other prudential limits to stem excessive risk-taking; strengthen oversight of financial groups; and enhance market conduct practices.

Compliance with Tax Information Exchange Matters

Trinidad and Tobago's Tax Information Exchange Agreements (United States of America) Act, 2017 (TIEAA) to give effect to the Foreign Account Tax Compliance Act ("FATCA") was enacted on March 20, 2017 and proclaimed effective July 6, 2017.

As required by the TIEAA, the Central Bank issued a Guideline on the Implementation of the TIEAA on November 22, 2017. In brief, the Guideline required financial institutions to institute a robust framework to ensure compliance with reporting obligations under the TIEAA. Financial institutions were required to conduct a self-assessment against the Guideline, and submit the results to the Central Bank by end-December 2017.

Basel II/III Implementation

The Central Bank continued its implementation of Phase 1 of Basel II (Minimum Capital Requirements) during 2017. A second Quantitative Impact Study to test the impact of the new capital adequacy rules was conducted: the results do not show a significant impact on the overall capital adequacy ratios for the banking sector. Accordingly, the Central Bank has launched a parallel reporting period for licensees and financial holding companies commencing April 2018 for a period of six to nine months. During this time

institutions will be required to submit capital returns to the Central Bank under both the existing (Basel I) and proposed (Basel II/III) methodologies. The scheduled date for the full implementation of the new capital adequacy reporting rules is December 2018.

Consolidated Supervision

In October 2017, Trinidad and Tobago commenced a pilot project to test the feasibility of the reporting framework by requesting financial groups to complete a reporting template comprising of key financial performance metrics for their subsidiaries. Further, in March 2018 the template was circulated to the members of the Caribbean Group of Banking Supervisors to obtain their feedback on its design and content, prior to its official implementation.

Developments in Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT)

At the October 2017 Plenary of the Financial Action Task Force (FATF), the FATF International Co-Operation Review Group (ICRG) concluded that while Trinidad and Tobago has made

significant improvement in some areas of its AML/CFT regime since the 2015 mutual evaluation, further improvements were needed. Trinidad and Tobago was publicly identified on November 3, 2017 as a jurisdiction that has strategic AML/CFT deficiencies. An action plan has been agreed with the FATF and high-level political commitment has been given to address the identified deficiencies. At the February 2018 FATF Plenary, it was decided that the country will remain on the ICRG list, pending the passage of legislation and other measures to effect reform in the deficient areas. The Central Bank recently issued a revised AML/CFT Guideline which emphasizes a risk-based approach to compliance.

International Financial Reporting Standard 9 - Financial Instruments (IFRS 9)

The Central Bank continues to monitor closely licensees' implementation of IFRS 9 and meetings with licensees are planned for the second half of 2018 in order to gain a better understanding of banks' progress towards full implementation of the standard.

CHAPTER 1

THE MACRO-FINANCIAL ENVIRONMENT

CHAPTER 1

THE MACRO-FINANCIAL ENVIRONMENT

Favourable financial conditions have supported a cyclical upturn in global economic activity¹. According to the International Monetary Fund (IMF) April 2018 *World Economic Outlook*, global economic growth reached 3.8 per cent in 2017 compared with 3.2 per cent in 2016. This was driven by investment recovery in advanced economies (AEs), buoyant trade across most emerging market economies and a modest upswing in commodity exporters – following a recovery in commodity prices. This resurgence in global activity has helped dispel some of the legacy issues from the global financial crisis (GFC) such as extremely low interest rates occasioned by unconventional monetary policy in AEs. The April 2018 IMF *Global Financial Stability Report* (GFSR) cited the risk of tightened financial conditions associated with higher interest rates as a key reason for the rise in short-term risks to financial stability. However, uncertainty around the timing and pace of monetary policy normalization in AEs, coupled with a rise in trade protectionism and high global debt could weaken medium-term growth prospects.

The cyclical upswing may be put to the test by the adverse ramifications of increasingly divergent monetary policies across major AEs. More specifically, in the United States (US), monetary policy normalization gathered steam, but several other AEs held policy rates unchanged as financial stability concerns from housing market imbalances (Australia and Canada) and high non-performing loans (NPLs) (Euro Area) outweighed price stability objectives. Furthermore, the IMF's April 2018 *Fiscal Monitor* noted that one-third of AEs had public debt above 85 per cent of Gross Domestic Product (GDP). For some AEs, for example Japan, debt levels can retard monetary policy normalization as interest rates hikes could increase the debt burden, raising the likelihood of costly debt restructurings in the future. That said, uncertainty on the direction and pace of monetary policy adjustments can undermine the global recovery by prompting a disorderly unwinding of “search-for-yield” flows in financial markets. At the same time, geopolitical risks could trigger tensions in global financial markets as

was observed by portfolio shifts in equity markets, following concerns regarding the imposition of import restrictions on selected Chinese products by the US and the countervailing actions by China.

Policy uncertainty and trade protectionism risks from AEs could potentially spill over to emerging market and developing economies (EMDEs). Stronger external demand from the improved momentum in economic activity has generally lifted near-term growth prospects across EMDEs. However, countries which issued record volumes of long-dated debt to close revenue gaps attributable to the commodity price downswing are currently vulnerable to rising interest rates. Additionally, the rise in trade protectionism could decrease financial flows, elevating pressure on exchange rates. As a result, a potential disorderly tightening of global financial conditions may fuel capital outflows and lead to disruptive corrections in asset prices. This could trigger or amplify a systemic event in the more fiscally vulnerable EMDEs. Notably, financial fragilities appear most acute in India and China where high non-performing assets and the slow repair of corporate balance sheets are testing the resilience of the banking sector.

Economic growth in Latin America and the Caribbean (LAC) remained subdued despite the pickup in global activity and commodity prices. According to the IMF, real GDP growth for the LAC region grew by 1.3 per cent in 2017 following a contraction of 0.6 per cent in 2016. Despite this improvement, the IMF has warned against complacency as the medium-term risks to global financial stability remain elevated. The recovery was weaker than expected as political uncertainty undermined economic activity in Latin America, while natural disasters obstructed developments in several Caribbean countries². To overcome setbacks, several territories introduced new revenue enhancing measures or streamlined expenditures. However, financial stability continues to be challenged by financial institution interconnections with sovereigns that have high debt and

¹ Figures 1 and 2 identify the main financial stability concerns expressed by international bodies as well as some of the major risks highlighted in selected Financial Stability Reports (FSRs).

² Hurricanes Irma and Maria (in September 2017) triggered payments from the Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company totaling US\$29.6 million.

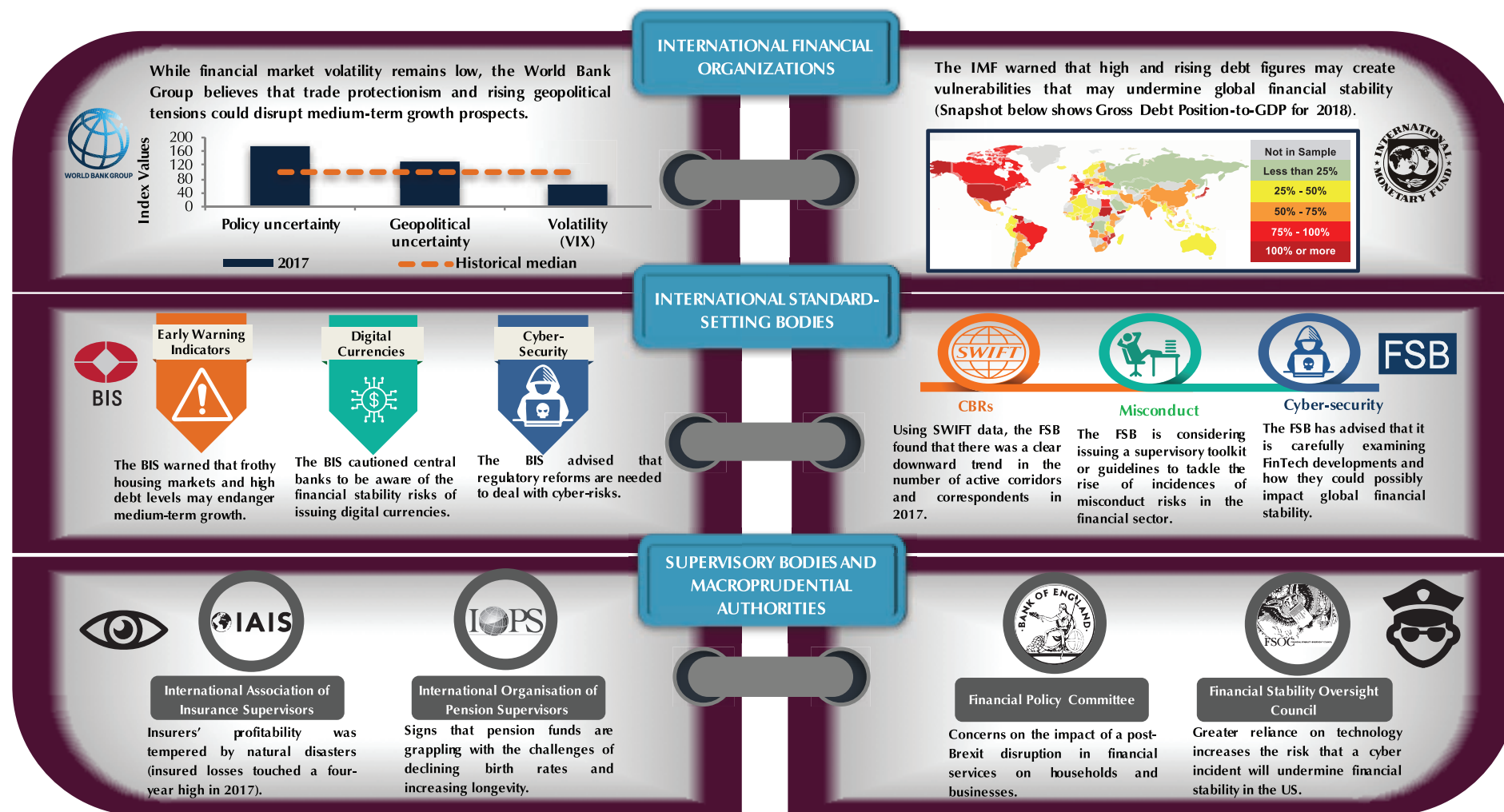
persistent deficits. Additionally, further obstacles arose in the form of greater scrutiny from the international community regarding anti-money laundering/combating the financing of terrorism (AML/CFT) compliance. This development has kept the threat of de-risking of correspondent banking relationships (CBRs) at the forefront of concerns, particularly in the Caribbean region. Several jurisdictions have attempted to improve compliance by closing regulatory gaps.

Post-crisis financial reforms are a key contributor to reducing global financial stability risks, but the unwinding of financial legislation in the US could undermine recent regulatory gains. In December 2017 the Basel Committee on Banking Supervision (BCBS) completed revisions to Basel III, while the new International Financial Reporting Standards (IFRS) related to financial instruments (IFRS 9) came into effect on January 1, 2018. Meanwhile, the Financial Stability Board (FSB) recommendations to improve the resiliency of shadow bank financing are being translated into operational guidance. These reforms are expected to enhance the resilience of the global financial system by strengthening macro-prudential surveillance. However, other developments can weaken it. Regulatory rollbacks have been initiated: for example, the 2017 Financial CHOICE Act repealed significant elements of post-crisis financial reforms in the US. Relaxing financial regulation and supervision at a time when financial markets are becoming more complex could potentially undermine hard-won gains for global financial stability.

Rapid technological innovations present transformative opportunities for the financial services industry but with associated risks. Fintech has become commonly associated with cryptocurrencies and mobile money solutions. More broadly, the technologies underlying this new “asset class” are swiftly evolving as the future of payment systems, as they can deepen financial market participation. However, Fintech is not just about digitizing money, it also involves monetizing data. Big data is increasingly being used to improve markets and systems by designing more personalized financial products and services. The debate about Fintech and cryptocurrencies in particular continues to rage into 2018. Policymakers have introduced regulatory sandboxes to

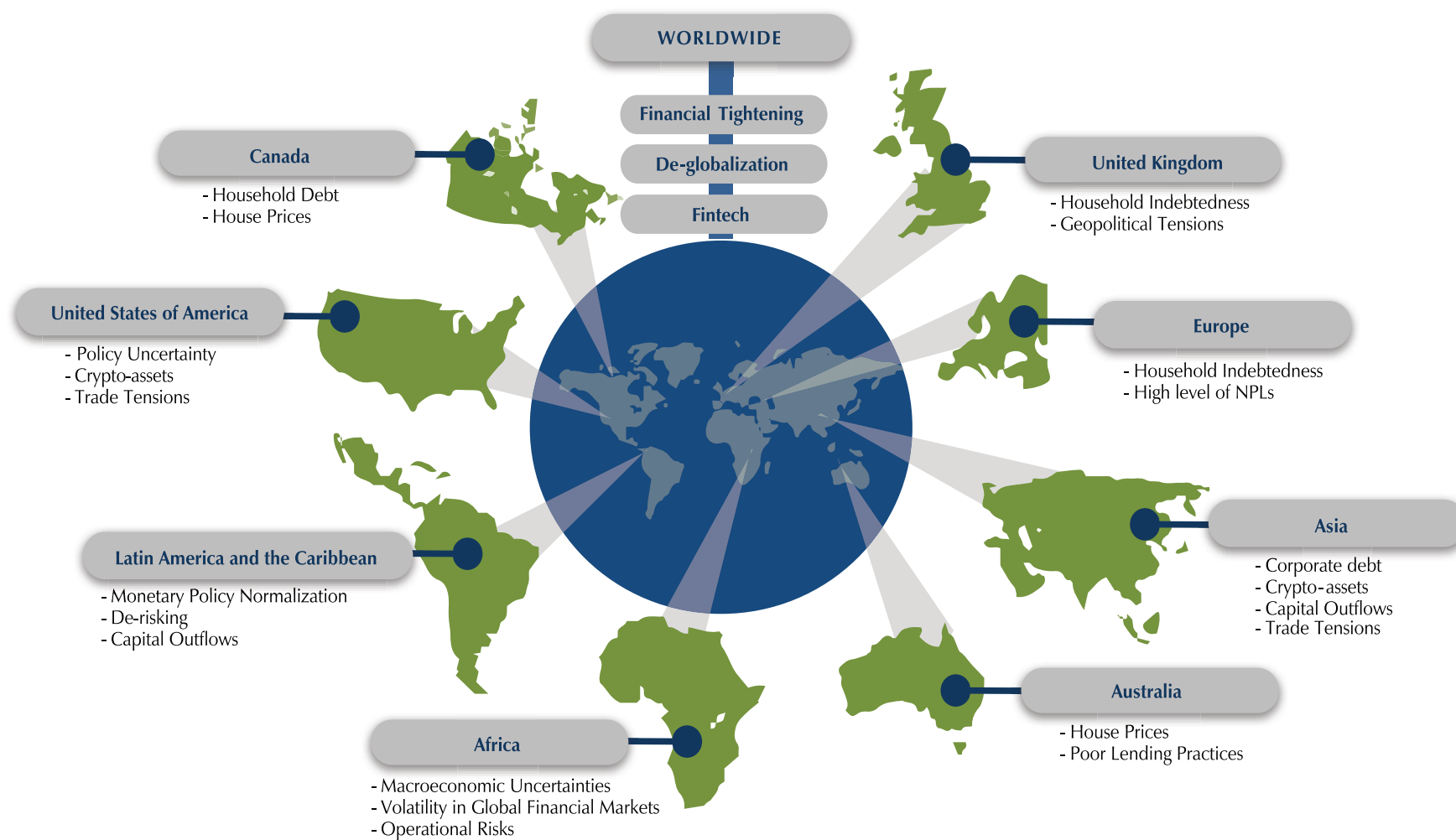
more carefully study the potential impacts of these new innovations on the formal financial system and a few central banks have also investigated digitizing their fiat currencies. While there is an emerging consensus among policymakers that cryptocurrencies are not yet sufficiently traded or used to pose systemic risks, some regulators have banned the activity altogether in their national space.

Figure 1
Key International Financial Regulatory and Supervisory Developments



Source: Various international regulatory and supervisory bodies' reports

Figure 2
Summary of Global Financial Stability Risks



Source: Various countries' FSRs

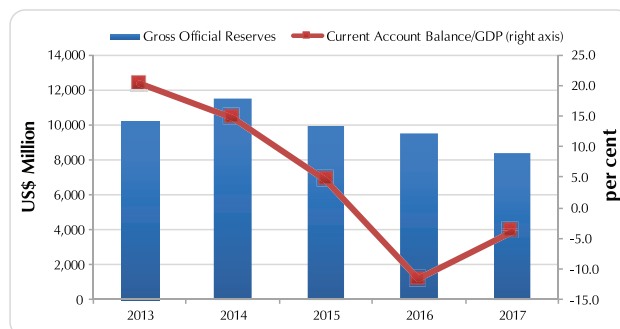
The Domestic Setting

An upswing in the energy sector served to ease financial stability risks from the macroeconomic channel. Higher energy sector output in the second half of the year improved growth prospects, although subdued non-energy activity persisted in 2017. The energy sector, which accounts for around 80 per cent of total exports, was buoyed by the stabilization of energy prices, alongside a boost in natural gas production from several new projects - including EOG Resources' Sercan field and BPTT's Trinidad Onshore Compression Project and the Juniper field. The expansion has benefited downstream energy producers, but positive spillovers to the non-energy sector are not yet apparent. Headline inflation trended lower and unemployment inched up during the year.

Buoyant energy exports led to a significant improvement in Trinidad and Tobago's external current account. The current account deficit narrowed from 11.7 per cent of GDP in 2016 to 3.8 per cent of GDP in 2017 (**Figure 3**). Nonetheless, current account imbalances can exacerbate pressures in the foreign exchange market if not accompanied by counterbalancing capital inflows. The domestic market for foreign exchange remained relatively tight in 2017 and the Central Bank of Trinidad and Tobago (the Central Bank) intervened by selling US\$1.8 billion to authorized dealers. This support was partly responsible for the fall in gross official reserves.

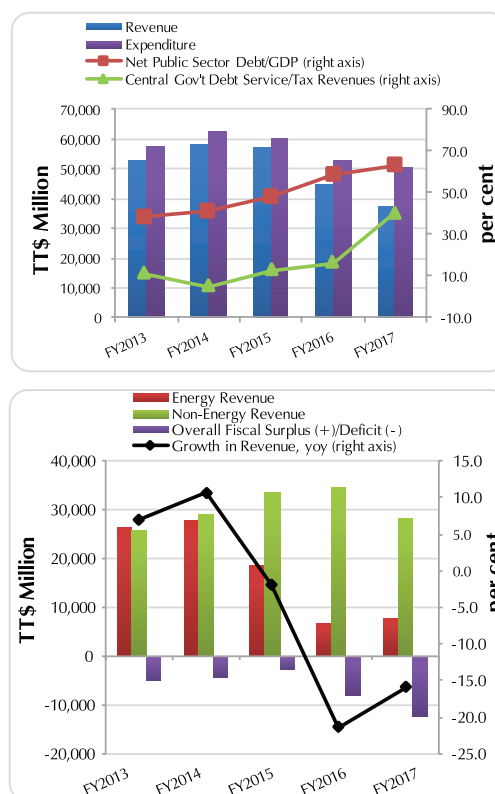
Despite tax policy changes and higher energy revenue, the fiscal balance weakened in fiscal year (FY) 2017³. Higher petroleum prices and natural gas output resulted in a 17.3 per cent increase in government energy receipts for 2017. Furthermore, expenditure was reduced by 4.7 per cent through lower capital spending and cuts to goods and services and transfers and subsidies. However, non-energy revenue and capital receipts fell, resulting in a widening of the fiscal deficit from 5.4 per cent of GDP in FY 2016 to 8.5 per cent of GDP in FY 2017 (**Figure 4**). A number of fiscal measures were introduced in an attempt to close the financing gap. On the revenue side, the corporation tax rate was harmonized at 30 per cent and raised to 35 per cent for commercial banks effective January 2018.

Figure 3
External Sector Dynamics,
2013 – 2017



Source: Central Bank of Trinidad and Tobago

Figure 4
Fiscal Operations
FY 2013 – FY 2017



Source: Central Bank of Trinidad and Tobago
Note: yoy – year-on-year.

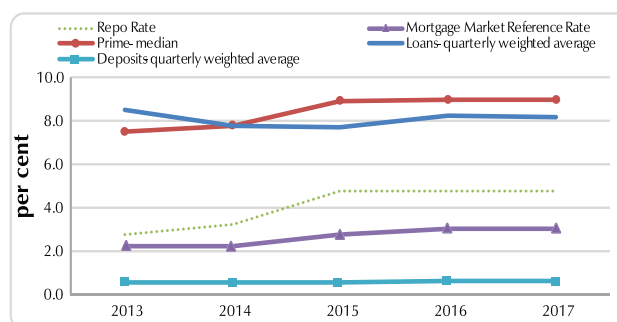
³ Fiscal years run from October to September.

The fiscal deficit was financed primarily by borrowing on the domestic market. As a consequence, net public sector debt (excludes open market operations) rose from 58.7 per cent of GDP in 2016 to 62.8 per cent of GDP in 2017. A substantial proportion of public debt issuances has been absorbed by domestic financial institutions (commercial banks, insurance companies and pension funds).

Private sector lending picked up in 2017 alongside a moderation in liquidity conditions. Commercial banks' holdings of reserves at the Central Bank in excess of the statutory requirement (a proxy measure for financial system liquidity) averaged \$3.1 billion (daily) in 2017 compared with a daily average of \$4.0 billion in 2016. Meanwhile, net domestic fiscal injections – the main driver of liquidity – fell by approximately 34 per cent. That said, liquidity was sufficient to support credit transmission to borrowers as private sector credit from the consolidated financial system grew by 4.6 per cent in 2017 (end-of-period) compared with growth of 3.3 per cent in 2016. In particular, credit growth for real estate mortgage lending accelerated to 8.0 per cent.

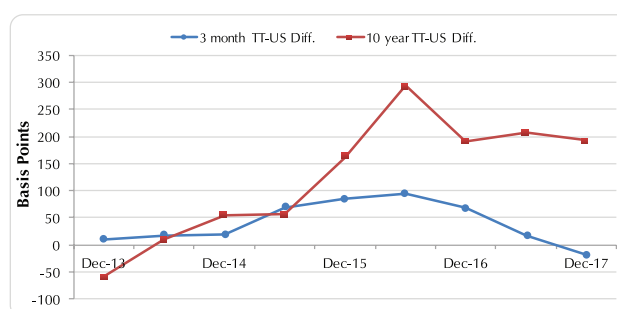
The Central Bank held its key policy rate, the 'repo' rate, at 4.75 per cent throughout 2017. The neutral monetary policy stance was influenced by balancing the need to guard against the risks from rising US interest rates while allowing a more firm economic recovery to take hold. This action helped to maintain market rates as the average prime lending rate was anchored at 9.0 per cent and the 91-day Treasury bill rate remained at 1.2 per cent (**Figure 5**). However, following three interest rate hikes by the US Federal Reserve (the Fed), the differential between the TT and US 91-day Treasury moved from 14 basis points in July to negative 18 basis points in December 2017 (**Figure 6**). Persistent negative differentials could lead to a search for yield as domestic investors seek to diversify their portfolio holdings with more foreign-currency denominated financial instruments which can exacerbate pressures in the domestic foreign exchange market. The Fed is expected to continue raising interest rates in 2018.

Figure 5
Selected Interest Rates, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Figure 6
TT-US Differential, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

CHAPTER 2

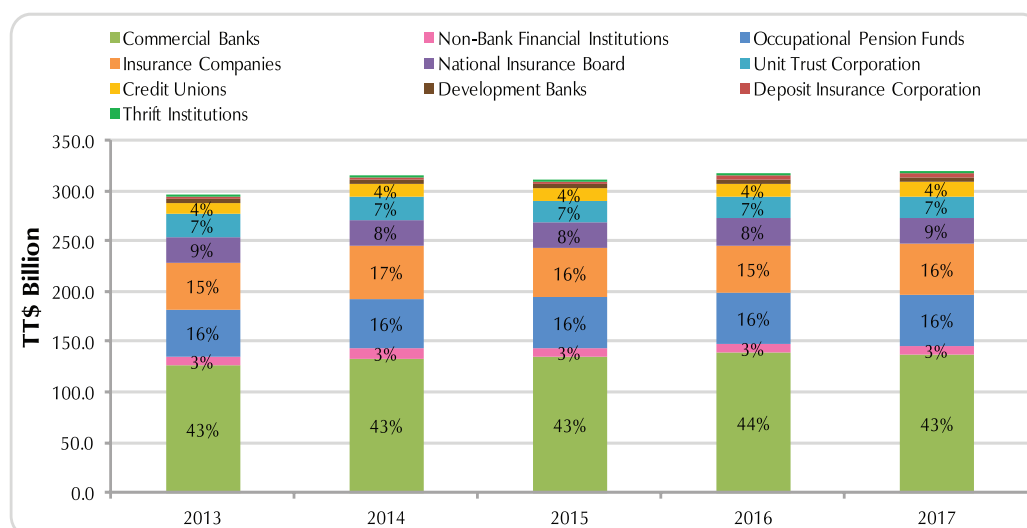
FINANCIAL SECTOR DEVELOPMENTS

CHAPTER 2

FINANCIAL SECTOR DEVELOPMENTS

The financial sector remained healthy in 2017 as softer macroeconomic conditions did not appear to overly affect financial sector performance. As at December 2017, the banking, insurance and pension sectors accounted for approximately 80 per cent of total domestic financial sector assets (**Figure 7**)⁴. Assets of commercial banks represent the largest share of assets and collectively, Trinidad and Tobago's "financial and insurance activities" account for approximately 10 per cent of GDP⁵.

Figure 7
Composition of Assets in the Financial Sector,
2013 – 2017



Source: Central Bank of Trinidad and Tobago

Note: The sub-sector's share of financial system assets are not indicated on the chart if the amount is less than 3 per cent.

FINANCIAL SOUNDNESS INDICATORS (FSIs)⁶

Banking Sector⁷ Financial Soundness

Table 1 shows a banking sector that is relatively stable, with high capital buffers and improved credit quality of loan portfolios. Profitability as measured by return on equity (ROE) remains robust, ending 2017 at 19.0 per cent.

⁴ While the Trinidad and Tobago Securities and Exchange Commission (TTSEC) has capital market oversight, the sector's financial stability trends over 2017 are discussed in Box 1.

⁵ The Central Statistical Office revised the GDP classifications in 2016 resulting in the "finance, insurance and real estate" category being separated into two categories, namely "finance and insurance activities" and "real estate activities".

⁶ Trinidad and Tobago is an FSI Reporting Country to the IMF's Statistical Department: <https://www.imf.org/external/np/sta/fsi/eng/fsi.htm>.

⁷ The banking sector includes the licensed commercial banks and non-bank financial institutions (non-banks) in Trinidad and Tobago.

Table 1
Banking Sector: Financial Soundness Indicators, 2013 – 2017
 /Per cent/

| | Dec-13 | Dec-14 | Dec-15 | Dec-16 | Dec-17 |
|--|--------|--------|--------|--------|--------|
| Capital Adequacy | | | | | |
| Regulatory capital-to-risk-weighted assets | 25.0 | 24.6 | 24.1 | 23.8 | 23.4 |
| Regulatory tier I capital-to-risk-weighted assets | 23.7 | 24.3 | 25.0 | 23.0 | 23.1 |
| Regulatory capital-to-total assets | 13.3 | 12.5 | 12.6 | 12.5 | 12.9 |
| Net open position in foreign exchange-to-capital | 13.9 | 6.6 | 9.7 | 13.8 | 16.9 |
| Asset Composition | | | | | |
| Sectoral distribution of loans-to-total loans | | | | | |
| Households | 45.0 | 44.2 | 44.0 | 45.7 | 46.7 |
| Public sector | 11.0 | 14.0 | 16.8 | 14.9 | 13.5 |
| Financial sector | 13.5 | 15.1 | 13.1 | 15.1 | 16.0 |
| Oil and gas sector | 2.9 | 2.8 | 2.6 | 3.5 | 3.1 |
| Construction | 8.0 | 9.8 | 9.5 | 6.1 | 4.5 |
| Transport and communication | 4.1 | 2.9 | 3.2 | 2.7 | 2.8 |
| Non-residents | 4.4 | 4.0 | 2.6 | 2.9 | 3.4 |
| Foreign currency loans-to-total loans | 16.9 | 16.6 | 15.2 | 15.5 | 16.0 |
| Asset Quality | | | | | |
| Nonperforming loans-to-gross loans | 4.3 | 4.4 | 3.7 | 3.2 | 3.0 |
| Nonperforming loans (net of provisions)-to-capital | 7.0 | 7.3 | 6.3 | 6.3 | 5.9 |
| Total provisions-to-impaired loans* | 49.9 | 53.0 | 54.3 | 60.3 | 65.6 |
| Specific provisions-to-impaired loans | 37.4 | 42.3 | 42.1 | 37.4 | 37.8 |
| General provisions-to-gross loans* | 0.5 | 0.5 | 0.4 | 0.7 | 0.8 |
| Specific provisions-to-gross loans | 1.6 | 1.9 | 1.6 | 1.2 | 1.1 |
| Earnings And Profitability | | | | | |
| Return on assets | 2.5 | 2.0 | 2.9 | 2.9 | 2.9 |
| Return on equity | 15.8 | 12.9 | 18.2 | 19.9 | 19.0 |
| Interest margin-to-gross income | 58.9 | 55.7 | 57.8 | 62.0 | 64.8 |
| Non-interest income-to-gross income | 41.1 | 44.3 | 42.2 | 38.0 | 35.2 |
| Non-interest expenses-to-gross income | 62.3 | 67.6 | 61.8 | 60.0 | 58.2 |
| Liquidity | | | | | |
| Liquid assets-to-total assets | 26.8 | 25.0 | 23.1 | 21.8 | 19.7 |
| Liquid assets-to-total short-term liabilities | 35.7 | 32.5 | 30.6 | 27.8 | 25.3 |
| Customer deposits-to-total (non-interbank) loans | 178.3 | 174.3 | 159.8 | 164.6 | 154.7 |
| Foreign currency liabilities-to-total liabilities | 26.0 | 23.8 | 25.4 | 26.0 | 26.4 |

Source: Central Bank of Trinidad and Tobago

Note: * These ratios are not the typically used measures of financial soundness, but they are included here for comparison purposes.

Life Insurance Sector Financial Soundness

The life insurance sector sustained its positive trend in 2017 as indicated by strong capital and asset ratios (**Table 2**). Efficiency ratios reflected profitability gains as expenses were controlled⁸. Meanwhile, there was a tightening of liquidity over the years as working capital was trimmed. The investment yield on the portfolios, which are structured to match the long-term nature of liabilities, continued to recover.

Non-Life Insurance Sector Financial Soundness

The FSIs reflected a resilient non-life insurance sector for 2017 (**Table 3**). While the catastrophic hurricanes in the Caribbean region caused the loss ratio to slide to 55 per cent, the sector's reinsurance provided adequate protection against further decline. Equally impacted was the ROE, which sank to 3.6 per cent. Despite the substantial claims, liquidity in the sector remained solid. Additionally, the modest decline in net technical reserves as a share of the average of net claims paid further indicated the sector's financial efficiency at expediting the catastrophe-related claims.

Table 2
Life Insurance Sector: Financial Soundness Indicators⁹, 2013 – 2017
/Per cent/

| | Dec-13 | Dec-14 | Dec-15 | Dec-16 | Dec-17 |
|---|--------|--------|--------|--------|--------|
| Capital Adequacy | | | | | |
| Capital-to-total assets | 21.2 | 21.3 | 20.7 | 20.3 | 21.5 |
| Capital-to-technical reserves | 28.6 | 29.5 | 28.6 | 27.7 | 29.8 |
| Asset Quality | | | | | |
| (Real estate + unquoted equities + debtors)-to-total assets | 10.5 | 7.4 | 7.8 | 8.0 | 8.6 |
| Earnings and Profitability | | | | | |
| Expense ratio = expense (incl. commissions)-to-net premium | 35.1 | 33.6 | 33.1 | 28.9 | 31.0 |
| Investment yield = investment income-to- investment assets | 5.1 | 4.8 | 4.5 | 4.7 | 4.7 |
| Return on equity = pre-tax profits to shareholders funds | 15.1 | 10.6 | 11.3 | 15.4 | 13.8 |
| Liquidity | | | | | |
| Liquid assets-to-current liabilities | 32.6 | 34.2 | 37.7 | 27.4 | 25.0 |

Source: Central Bank of Trinidad and Tobago

⁸ The higher expense ratio in 2017 is attributable to a large one-off premium acquisition during 2016 and not an increase in expense.

⁹ Figures exclude data from Colonial Life Insurance Company (Trinidad) Limited (CLICO) and British American Insurance Company (Trinidad) Limited.

Table 3
Non-Life Insurance Sector: Financial Soundness Indicators, 2013 – 2017
 /Per cent/

| | Dec-13 | Dec-14 | Dec-15 | Dec-16 | Dec-17 |
|--|--------|--------|--------|--------|--------|
| Asset Quality | | | | | |
| (Real estate + unquoted equities + accounts receivables)-to-total assets | 13.5 | 13.8 | 16.4 | 17.9 | 18.5 |
| Debtors-to-(gross premiums + reinsurance recoveries) | 11.2 | 11.0 | 14.1 | 16.0 | 11.4 |
| Reinsurance and Actuarial Issues | | | | | |
| Risk retention ratio = net premiums written-to- total gross premiums | 43.0 | 42.5 | 43.0 | 45.8 | 45.2 |
| Net technical reserves-to-average of net claims paid in the last three years | 168.3 | 171.1 | 176.1 | 168.2 | 161.2 |
| Earnings and Profitability | | | | | |
| Combined Ratio | 96.4 | 95.7 | 100.8 | 102.8 | 112.7 |
| Expense ratio = expense (incl. commissions)-to-net premiums | 51.1 | 51.4 | 52.2 | 55.5 | 57.6 |
| Loss ratio = net claims-to-net earned premiums | 45.3 | 44.3 | 48.6 | 47.2 | 55.1 |
| Investment income-to-net premium | 10.3 | 5.8 | 5.8 | 6.1 | 6.7 |
| Return on equity = pre-tax profits-to-shareholders funds | 20.0 | 14.2 | 10.1 | 12.7 | 3.6 |
| Return on assets | 8.9 | 6.4 | 4.8 | 5.8 | 1.6 |
| Liquidity | | | | | |
| Liquid assets-to-current liabilities | 60.5 | 61.2 | 58.9 | 49.3 | 48.8 |

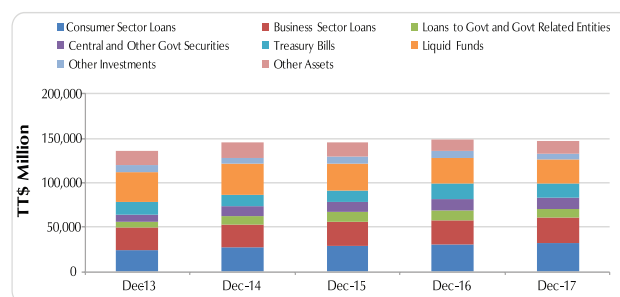
Source: Central Bank of Trinidad and Tobago

BANKING SECTOR (COMMERCIAL BANKS AND NON-BANKS)

Assets

Gross assets of the banking sector declined marginally by 1.5 per cent for 2017, ending the year at \$147.1 billion (**Figure 8**). During 2017, banks used cash and drew down from special deposits and secondary reserves held at the Central Bank to meet large withdrawals, primarily from government-related entities and private sector businesses. This may have been a consequence of government's fiscal consolidation efforts which resulted in lower subventions to certain public bodies. Notwithstanding this, liquid funds remained at healthy levels with the ratio of liquid assets¹⁰ to total assets at 19.7 per cent at the end of 2017. Further, the asset composition of the banking sector remained relatively unchanged over the last year, with loans and investments accounting for 48 per cent and 24 per cent of total banking sector assets, respectively.

Figure 8
Asset Composition, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Credit growth was broad-based during 2017 as lending increased to all the major sectors, namely the government, business and consumer sectors. Advances to consumers were the major area of loan growth. Notably, 27.4 per cent of total loans and investments was to the Government of the Republic of Trinidad and Tobago (GoRTT) and state-owned entities. With respect to total sovereign exposure, 74.9 per cent was to GoRTT.

¹⁰ "Liquid Assets" refers to cash; deposits at central bank (primary deposits and special deposits); due from banks; cash items in process of collection; deposits by banks in other institutions; inter-bank funds sold; and time deposits.

Table 4
Growth in Consumer Loans by Purpose¹³, 2013 – 2017

| CATEGORIES (per cent) | Dec-13 | Dec-14 | Dec-15 | Dec-16 | Dec-17 |
|--|------------|----------|------------|------------|------------|
| Real Estate including mortgages | 8.9 | 10.2 | 7.5 | 4.1 | 5.5 |
| Vehicles | 11.8 | 18.7 | 21.8 | 7.5 | 3.0 |
| Credit Cards | 8.0 | 7.8 | 3.9 | 13.7 | 6.1 |
| Refinancing | 8.1 | 5.7 | 5.3 | 5.2 | 10.4 |
| Consolidation of debt | 16.2 | 2.0 | 4.5 | 10.1 | 16.0 |
| Other Purposes | 8.2 | 0.6 | 2.5 | 2.7 | 3.0 |
| TOTAL GROWTH IN CONSUMER LOANS, yoy | 9.5 | 9 | 8.3 | 5.7 | 5.8 |

Source: Central Bank of Trinidad and Tobago

Note: yoy – year-on-year.

Consumer Sector Loans

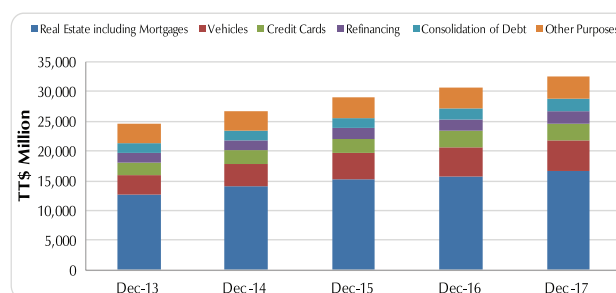
In December 2017, consumer loans stood at \$32.4 billion, an increase of \$1.8 billion from one year earlier (**Figure 9**)¹¹ and continued to be concentrated in real estate-related¹² and motor vehicle lending, although growth in the latter was slower compared to previous years. Credit card lending remained robust in 2017.

Additionally, the lacklustre economic climate and uncertain short-term outlook seemingly caused borrowers to rationalize their loan obligations as evidenced by significant (double-digit) increases in debt consolidation and refinancing¹⁴ by consumers (**Table 4**).

Business Sector Loans

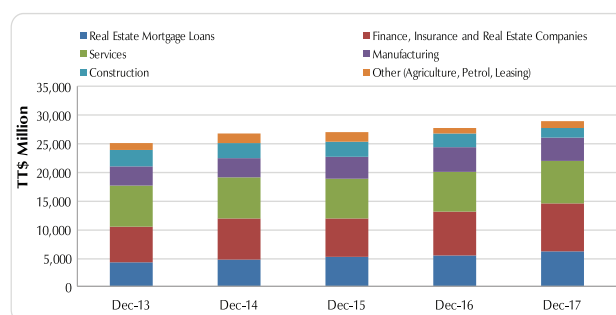
Lending to businesses increased by 4.6 per cent in December 2017 (year-on-year) and stood at \$29.1 billion (**Figure 10**). Real estate mortgage loans as well as loans to firms in the combined ‘finance and insurance activities’ and ‘real estate activities’ sectors were relatively robust, while there was some fall-off in net advances to the manufacturing sector. The ratio of foreign loans to total loans remained unchanged at 16 per cent as at December 2017 - the same average ratio since 2015.

Figure 9
Consumer Loans by Purpose, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Figure 10
Business Loans by Activity, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

¹¹ Consumers also access credit outside of banks. Box 3 discusses potential systemic risk from shadow banking activity.

¹² “Real estate-related loans” of the consumer sector refers to real estate mortgages, bridging finance, land and real estate loans and home improvement or renovation loans.

¹³ Absolute values are available in Appendix A.

¹⁴ Refinancing is the replacement of an existing debt obligation with another debt obligation under different terms.

Sovereign Exposure

Sovereign exposure, which includes loans to and investments in government and government-related entities and Treasury bills, totalled \$38.0 billion or 25.8 per cent of banking sector assets (**Figure 8**). Exposure to the GoRTT and state-owned entities¹⁵ stood at \$28.4 billion (74.9 per cent of total sovereign exposure) while \$7.3 billion (19.2 per cent) represented exposure to the US Government (mostly US treasuries) and \$179.9 million (0.5 per cent) to the Government of Barbados.

Equity in Subsidiaries and Affiliates

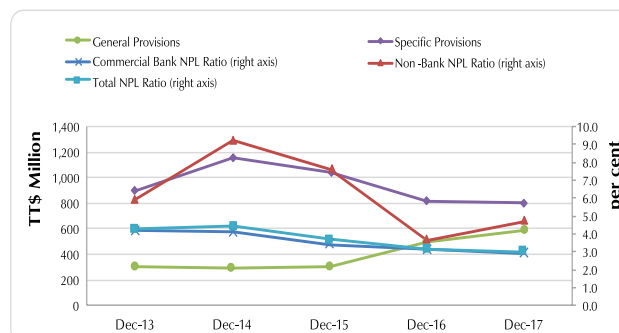
The banking sector's equity in subsidiaries and affiliates totalled \$2.7 billion, of which 56.4 per cent was in respect of entities domiciled in Trinidad and Tobago, 30.8 per cent in St. Lucia and 11.0 per cent in Barbados.

Performance of the Loan Portfolio

The overall banking sector continued to effectively manage loan delinquency as the overall NPL ratio remained relatively low at 3.0 per cent in December 2017 (**Figure 11**). Commercial banking sector NPLs, which account for 95 per cent of overall banking sector NPLs, fell by \$69 million during 2017. The decline was mainly attributed to the fall in business sector NPLs on account of the repayment of one large, commercial bridging loan facility in the amount of \$194.2 million. Notwithstanding this, a gradual uptick in consumer sector NPLs was observed in 2017. Business Real Estate Loans and Real Estate Mortgages continue to have the highest NPL ratio in the commercial banking sector (**Figure 12**).

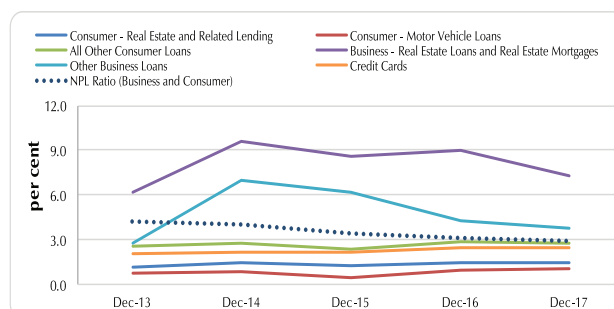
Figure 13 shows a discernible increase in the overall level of loans past due over 30 days to 89 days in December 2017. These increases were mainly in the real estate and transport and communication activities segments of the public sector.

Figure 11
Banking Sector NPLs, 2013 – 2017



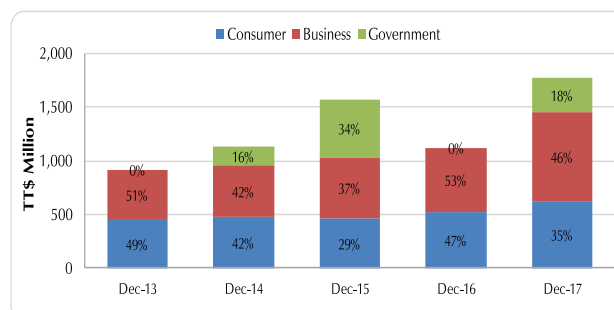
Source: Central Bank of Trinidad and Tobago

Figure 12
Sector Specific NPL Ratios in the Commercial Banking Sector, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Figure 13
Commercial Bank Loans Past Due Over 30 days - 89 days, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

¹⁵ The financial stability risks posed by high sovereign exposures are discussed in Chapter 3.

¹⁶ The recent introduction of the IFRS 9 accounting standard with effect from January 1, 2018 will likely impact loan provisioning for the banking sector. The standard requires financial institutions to consider, inter alia, lifetime expected credit loss (ECL) and will necessitate revision of loan provisioning methodologies.

Liability Profile and Funding

Total banking sector deposits stood at \$107 billion at the end of December 2017 (**Figure 14**), which was a contraction of 2.6 per cent (\$2.9 billion) over the year resulting in a higher loan to deposit ratio of 66 per cent in 2017. Savings and demand deposits continued to be the major sources of funding. The largest net withdrawal was on account of the government sector. While there is evidence of tightening, liquidity in the banking sector was still comfortable, as commercial banks' daily excess reserves at the Central Bank averaged around \$3.1 billion over 2017.

Sources of Earnings and Profitability

Banks have been able to sustain profitability levels. The banking sector generated \$4.2 billion in profit before tax in 2017, a marginal increase of 0.1 per cent from the previous year. Net interest margin was the main contributor to profitability, increasing by 8.7 per cent (\$466 million) in 2017. Banks have also taken steps to contain non-interest expenses which rose by just 0.9 per cent (\$46 million) year-on-year, as focus was placed on implementing digitization strategies to deliver services more cost-effectively.

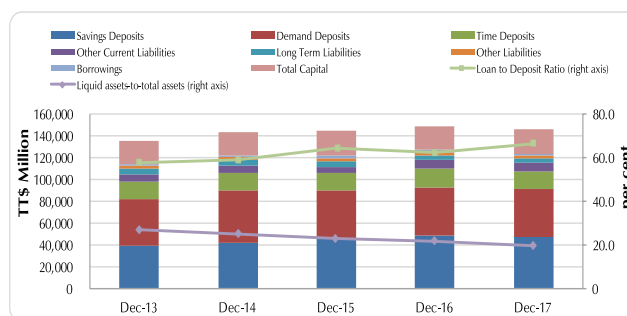
While the commercial banking sector's profitability (**Figure 15**) is primarily driven by interest margins, the non-bank sector engages in trustee business, asset management and merchant banking and hence derives a larger share of profits from fees rather than interest income (**Figure 16**).

Capital Adequacy

Capital adequacy as measured by regulatory capital-to-risk-weighted assets (CAR) under Basel I requirements has exceeded 20 per cent over the past five years, although there is dispersion in CARs across institutions. The sector's level of capital supports an ability to absorb potential asset losses or write-offs. Currently, the Central Bank has been working to implement the Basel II standard to improve the risk sensitivity of the capital requirements. In this regard the Central Bank conducted a second Quantitative Impact Study (QIS) to determine the impact of the new rules

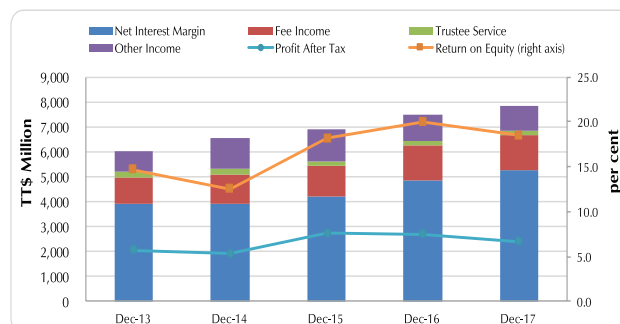
on individual licensees and the banking system. The QIS showed that the banking system as a whole will remain well capitalized under the more risk sensitive rules (**Table 5**).

Figure 14
Deposits, Other Liabilities and Capital, 2013 – 2017



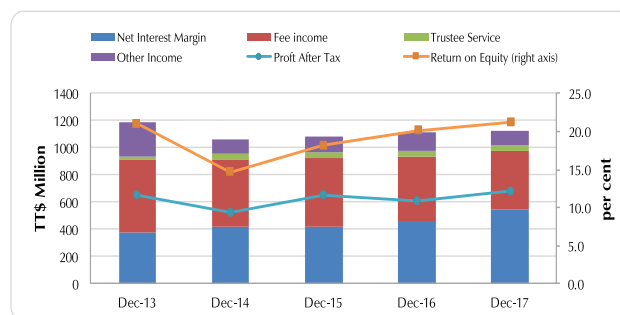
Source: Central Bank of Trinidad and Tobago

Figure 15
Commercial Banks' Contribution to Profit by Source, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Figure 16
Non-Banks' Contribution to Profit by Source, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Table 5
Banking System Quantitative Impact Study Results, 2017
 /Per cent/

| Metric | Proposed MIN Ratios | QIS1 | | | QIS2 | | |
|----------------------------|---------------------|---------|--------------|--------|---------|--------------|--------|
| | | Basel I | Basel II/III | Change | Basel I | Basel II/III | Change |
| Common Equity Tier 1 Ratio | 4.5 | NA | 20.2 | - | NA | 20.6 | - |
| Tier 1 Capital Ratio | 7.0 | 25.1 | 22.2 | -2.9 | 23 | 20.8 | -2.2 |
| CAR | 10.0 | 24.1 | 21.3 | -2.8 | 23.8 | 22.8 | -1.1 |

Source: Central Bank of Trinidad and Tobago

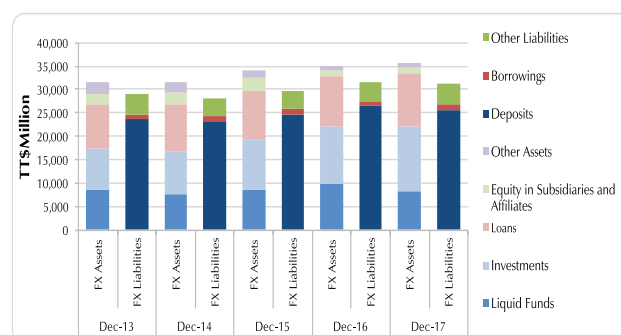
Note: MIN - Minimum and NA - Not Applicable.

The results of stress tests (Appendix B) to assess the adequacy of capital and resilience of the sector to credit and other risks are discussed in Chapter 3.

Foreign Currency Balance Sheet

Figure 17 shows trends in the foreign currency balance sheet of the banking sector. Total foreign currency assets stood at \$36.9 billion, while foreign currency liabilities stood at \$32.5 billion (of which foreign currency deposits totalled \$25.6 billion (US\$3.8 billion) or 23.9 per cent of total deposits). Gross foreign assets accounted for 25.1 per cent of gross assets. The growth in foreign currency loans during the year was due to an increase mainly in business sector loans.

Figure 17
Foreign Currency Assets and Liabilities, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Note: FX - Foreign Exchange.

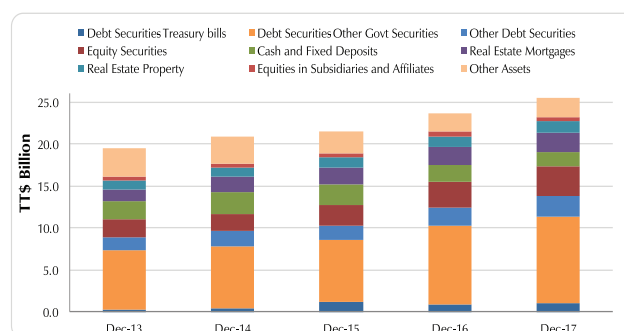
LIFE INSURANCE SECTOR

Asset Base

The life insurance sector continued to experience consistent asset growth, increasing by 7.9 per cent over the year to \$25.6 billion as at December 2017 (**Figure 18**). There are two regional market players that collectively represent 60.7 per cent of the sector's assets and 64.9 per cent of annual premium income.

The asset mix has been stable over the past five years. Investments in debt securities continue to dominate the sector's assets and represented 54 per cent of the assets in 2017, up from 45 per cent in 2013; this category has been concentrated (81.6 per cent) in government and

Figure 18
Assets - Life Insurance Sector, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

government-guaranteed securities. The equity portfolio, which has grown from 11 per cent of the asset mix in 2013 to 14 per cent at the end of 2017, is the second largest asset category.

Lines of Business

The sector is driven by three major business lines: individual life insurance (ordinary, universal and unit-linked types), annuity (interest sensitive, unit-linked and payout types) and group insurance (health and life) (**Figure 19**). Gross annual premium income has been growing steadily over the years, moving from \$3.5 billion at the end of 2013 to \$4.5 billion in 2017. The 2016 premium income figure was inflated by a one-off increase of \$0.8 billion due to the acquisition of the ArcelorMittal pension fund plan annuity business.

Reported Profits

Over the years, the life insurance sector has reported healthy profits, notwithstanding volatility in some periods on account of foreign exchange and unrealized fair value fluctuations and changes in actuarial assumptions. Profit before taxes was \$715 million in 2017, up from \$517 million in 2013 (**Figure 20**). Investment yield, compared with 2016, held steady at 4.7 per cent.

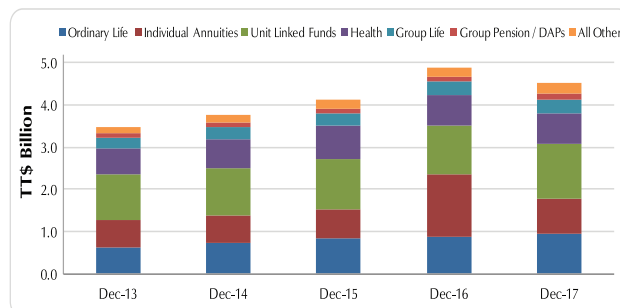
Expenses

The total expense ratio¹⁷ (management expenses plus commission and other acquisition expenses as a percentage of premium income) declined in 2017, a reflection of improved cost efficiencies on business operations (**Figure 21**).

NON-LIFE INSURANCE SECTOR

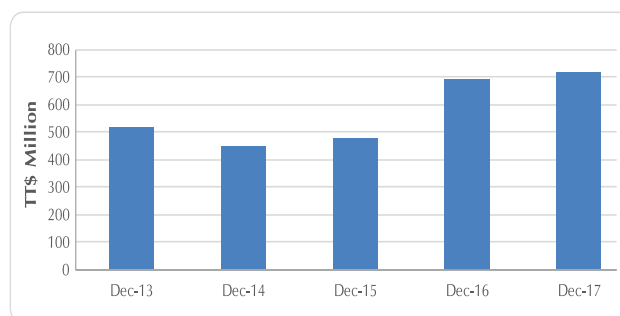
The non-life insurance sector reported a total asset base of \$6.2 billion in 2017, an increase of 6.8 per cent over 2016. However, the increase is transient as the assets were temporarily inflated by funds advanced from reinsurers for payments of claims arising out of the major hurricanes in the Caribbean in the third quarter of 2017. The capital base of the insurers affected by the adverse claims was protected by

Figure 19
Gross Premium Income – Life Insurers, 2013 – 2017



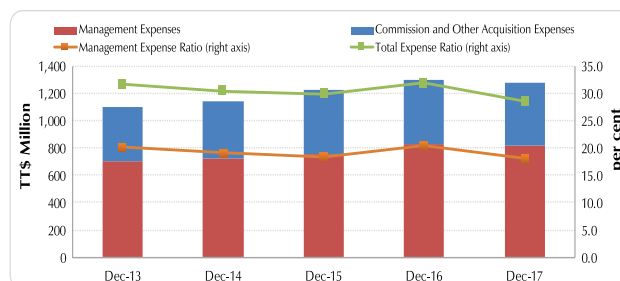
Source: Central Bank of Trinidad and Tobago

Figure 20
Profits Before Taxes – Life Insurers, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Figure 21
Expenses and Expense Ratios – Life Insurers, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

¹⁷ The one-time premium in 2016 for the acquisition of the ArcelorMittal annuity business has been excluded in computing the ratios.

adequate reinsurance coverage. There is some concentration in the sector with one-third of the market share (based on annualized gross premiums) controlled by one institution which operates regionally.

Annualized gross premium income declined over the last two years, moving from \$3.9 billion in 2015 to \$3.5 billion in 2017. This is a fallout from the softer rates faced by the sector combined with reduced demand for insurance services from the energy sector. However, due to the recent catastrophes in the Caribbean, as well as internationally, reinsurance contracts may be revisited to take into account the Caribbean region's shifting risk profile.

Lines of Business

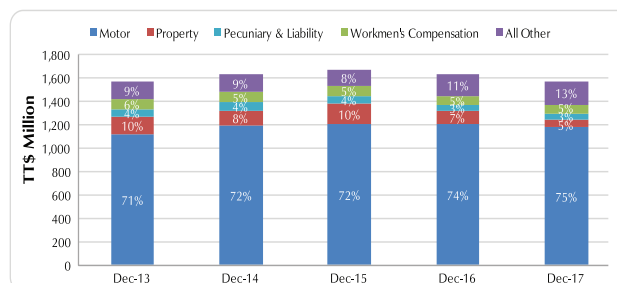
The motor and property lines accounted for 39.5 per cent and 43.1 per cent of gross premiums written, respectively. However, after deduction of reinsurance premiums on property, the share of motor business was around 75 per cent of total net premiums, with property business accounting for just 4.7 per cent in 2017 (**Figure 22**).

Loss Ratios and Profitability

Underwriting profits¹⁸ declined considerably in 2017, to its lowest point in five years, on account of the contraction in premium business, further exacerbated by the significant claims incurred from the catastrophic hurricanes in the region (**Figure 23**). This impacted the overall net loss ratio¹⁹ which deteriorated from 47.2 per cent in 2016 to 55.0 per cent in 2017.

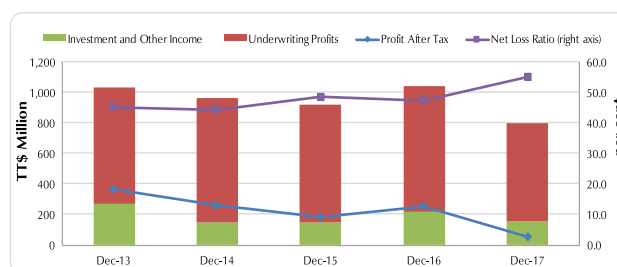
The investment portfolio, consisting largely of short term assets, was aligned with the liability structure of the sector. There was a small decline in investment income but this was on account of insurers' dividends from subsidiaries and affiliates; barring this, the investment yield on the portfolio was unchanged from the prior year.

Figure 22
Net Retained Annual Premiums Income – General Insurers, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Figure 23
Contribution to Profit and Expenses – General Insurers, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

¹⁸ Underwriting profits equates to earned premiums after adjusting for claim benefits, reinsurance ceded, increase in reserves and commission expenses.

¹⁹ Net Loss Ratio = Net Incurred Claims/Net Earned Premium.

OCCUPATIONAL PENSION PLANS

As at December 2017, there were 186 active registered occupational pension plans with a total membership of approximately 96 thousand persons. In addition, 100 pension plans were in the process of being wound up. Total occupational pension plan assets marginally increased over the year to \$48.5 billion. Corporate trustees licensed to do trust business under the Financial Institutions Act, 2008 (FIA), managed approximately 82 per cent of all pension plan assets (\$39.8 billion).

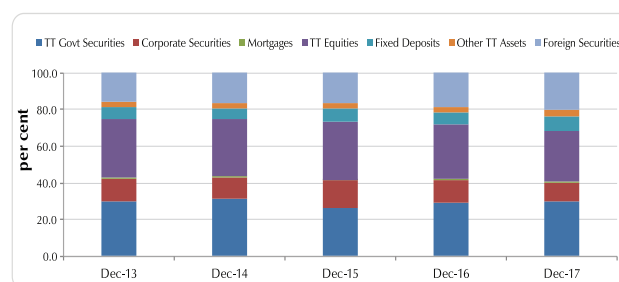
Of the 186 plans (**Table 6**), 44 are sponsored by government-related entities and account for 60 per cent of the total assets in the pensions sector and 48 per cent of total membership.

The funding levels of defined benefit plans continue to be challenged by low interest rates. The actuaries' interest rate assumption has steadily declined from, on average, 7.4 per cent per annum during 2008-2010 to 5.4 per cent per annum during 2014-2016²⁰. This has impacted the contribution rates which actuaries recommend that plan sponsors pay to fund the Plans: the recommended rates have increased from, on average, 10 per cent of pensionable earnings in the period 2008-2010 to 14 per cent during 2014-2016.

The Central Bank continues to actively engage trustees and plan sponsors to promote effective and timely implementation of the actuaries' recommendations. Failing this, sponsors will be faced with various options, which include but are not limited to the winding up of current defined benefit pension arrangements and the conversion to defined contribution or hybrid arrangements.

Pension funds' overall asset mix remained steady in 2017 with TT equities and TT Government securities dominating at approximately 28 per cent and at 30 per cent, respectively. The third major asset class was foreign equities (16 per cent) (**Figure 24**).

Figure 24
Assets as a Proportion of Funds –
Pension Plans Asset Mix, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Table 6
Pension Plan by Type, 2017

| | Sponsored by Government or Government Related Entities | | Private Company Sponsored | |
|------------------------------------|--|--------------------------------|---------------------------|--------------------------------|
| | Defined Benefit | Defined Contribution or Hybrid | Defined Benefit | Defined Contribution or Hybrid |
| Number of Plans | 36 | 8 | 77 | 65 |
| Total Assets (TT\$ Billion) | 29.1 | 0.3 | 12.2 | 7.0 |

Source: Central Bank of Trinidad and Tobago

²⁰ Section 185 of the Insurance Act requires an actuarial investigation of a plan to be carried out at least once every three years.

BOX 1: CAPITAL MARKET DEVELOPMENTS IN TRINIDAD AND TOBAGO

Global standard setters for the securities industry have recognized the need for collaboration to strengthen capital market resilience. During 2017, the International Organization of Securities Commissions and the FSB published securities regulations principles which underscored the protection of investors; fair, efficient and transparent financial markets; and the reduction of systemic risk. This box reports on capital market developments in Trinidad and Tobago against the backdrop of the aforementioned principles espoused.

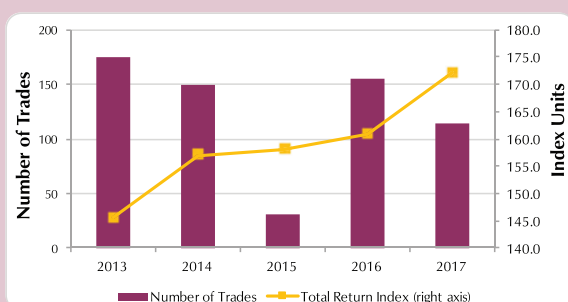
Fixed Income and Equity Markets

Overall, stock and bond markets can be described as very thin with low liquidity levels which have adverse implications for market efficiency. Equity market turnover ratios averaged 1 per cent²¹ during 2013-2017 with only two new stock listings posted during the period. Despite advances in some performance indicators in 2017, evidence of sustained financial market deepening remains elusive. In fact, takeovers and de-listings during 2013-2017 would have contributed to reduced market depth and liquidity.

The Central Government bond index exhibited positive total return²² growth over the five-year period, but this was tempered by volatile trading volumes (**Figure 1**). With regards to stock market performance, the Composite Price Index market capitalization grew by 4.7 per cent in the twelve months to December 2017 (**Figure 2**). However, this growth appears to be primarily driven by regional equity market performance since the All TT Index declined by 5.7 per cent.

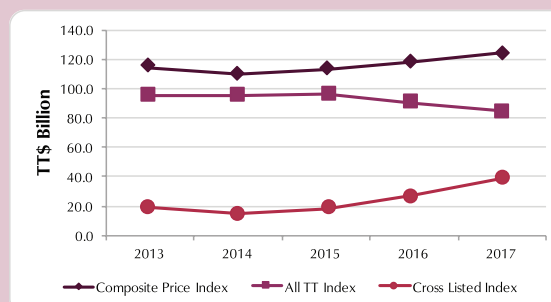
Fixed Income and Equity Markets Developments, 2013 – 2017

Figure 1: Government Bond Trading



Source: Trinidad and Tobago Stock Exchange

Figure 2: Equity Indices Market Capitalization



Source: Trinidad and Tobago Stock Exchange

Collective Investments Schemes (CISs)

A CIS²³ is operated by a financial institution and pools investments to develop a larger, diversified portfolio at a lower cost to the investor. CIS participants often prefer these investments to the traditional banking deposits since returns are higher. However, CISs are considerably different from deposits since they have a higher risk profile and do not have recourse to deposit insurance protection.

²¹ US equity markets, in contrast, boast a stock turnover ratio of approximately 90 per cent based on World Bank 2016 data.

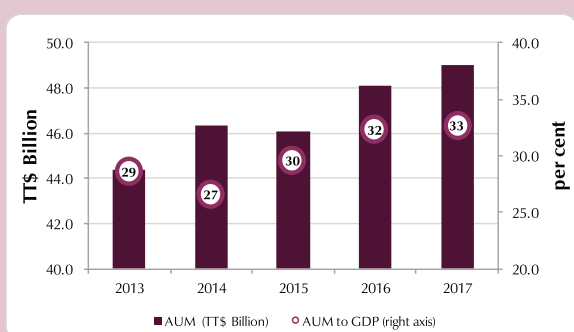
²² Total return consists of capital gains and interest.

²³ CISs are also referred to as Collective Investment Funds or mutual funds.

BOX 1: Continued

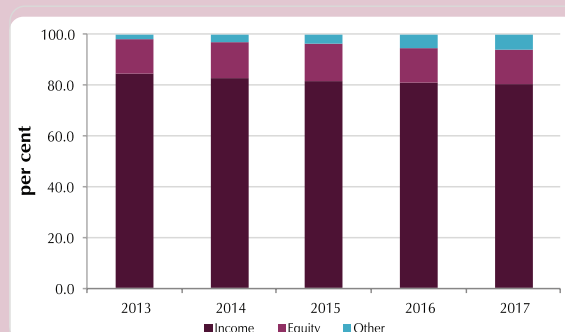
In 2017 the domestic CIS industry expanded by 2 per cent, somewhat slower than in earlier years (**Figure 3**). Income funds are by far the most popular type of CIS (**Figure 4**). This can be attributable to the capital preservation features in some of the income funds. There are no immediate signs of distress within the CIS sector, but its underlying characteristics are an avenue for potential vulnerabilities to arise. For example, static redemption prices can exacerbate risk since this constitutes a fixed liability which managers are obligated to meet despite changes in portfolio values.

Figure 3: CIS Industry Assets Under Management (AUM), 2013 – 2017



Source: Trinidad and Tobago Securities and Exchange Commission

Figure 4: CIS Portfolio Investment Structure, 2013 – 2017



Source: Central Bank of Trinidad and Tobago
Note: CIS fund data type covers 89 per cent of the sector.

Global financial stability trends have indicated that many countries are transitioning away from traditional CIS structures to improve financial market resilience while preserving the investor benefits of CISs. Proposals to limit CIS liquidity and operational risks have included the option to leave fixed redemption prices in place but with stabilizing provisions. These include, inter alia, investment restrictions for portfolios, liquidity requirements and redemption limits²⁴. Similar reforms for US money market funds went into effect during 2016 after being proposed by the US Securities and Exchange Commission (SEC)²⁵ in 2014. These developments suggest that investors should be firmly acquainted with the features of CIS funds and their associated risk profiles.

Capital market development is critical to economic advancement. Capital markets remain under-developed in Trinidad and Tobago with activity dominated by the public sector. Despite limited evidence of systemic threats to the industry in 2017, there are areas in which capital market resilience can be improved. Supportive policies and risk mitigation practices can address existing vulnerabilities in a manner consistent with international best practice.

²⁴ "The Asset Management Industry and Financial Stability," IMF Global Financial Stability Report, April 2015.

²⁵ "Rules Provide Structural and Operational Reform to Address Run Risks in Money Market Funds," US SEC, July 23, 2014.

PAYMENT SYSTEMS

Payment System Activity (Local currency payments)

Following several years of consecutive growth, the value of transactions processed via the Real Time Gross Settlement system (RTGS), declined by 11 per cent in 2016 but in 2017 rose by less than 1 per cent to \$529.5 billion. Meanwhile, the volume of transactions processed via the RTGS grew by 6 per cent in 2017 (**Figure 25**).

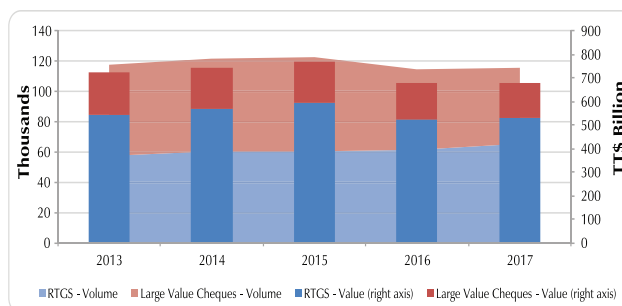
With respect to market share in the retail payment system²⁶, debit card usage continued to dominate in 2017 accounting for 52.5 per cent of the total volume of non-cash retail payments. This was followed by credit cards (23.9 per cent), cheques (17.6 per cent) and Automated Clearing House (ACH) at 6.1 per cent (**Figure 26**). Despite a decline of 5 per cent in the value of retail cheque payments in 2017, cheques continued to contribute a significant portion of the value of retail payments (74.1 per cent) followed by the ACH (14.2 per cent). Overall in 2017 there was an increase in the value of electronic payments made via the ACH, debit card and credit card.

The commercial banks have embarked on a number of initiatives to enhance their payment products and services offerings such as upgrades to online banking platforms, credit card chip and pin technologies and mobile app facilities²⁷ (**Box 2**). Between 2016 and 2017, 13 additional automated teller machines (ATMs) were put into service, while the number of point of sale machines increased by 2.1 thousand to 22.1 thousand.

Bill Payment Service Providers (BPSPs)

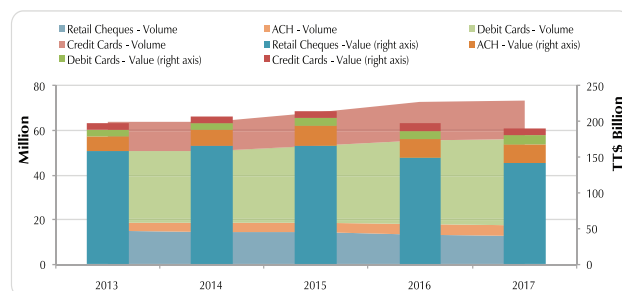
Currently there are three BPSPs registered with the Central Bank. In 2017, the BPSPs processed a total of 2.3 million transactions valued at \$832.4 million, compared with an equal number of transactions valued at \$811.1 million in 2016. Cash remains the most popular means of payment at BPSPs (**Figure 27**).

Figure 25
Share of Wholesale Payments –
Volumes and Values, 2013 – 2017



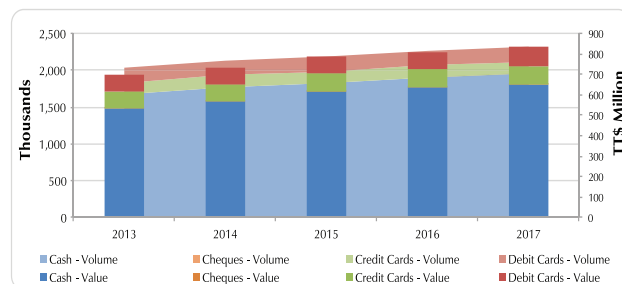
Source: Central Bank of Trinidad and Tobago

Figure 26
Share of Retail Payments - Volumes and
Values, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

Figure 27
Trends in Domestic Retail Payments – Bill
Payments, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

²⁶ A retail payment system is a funds transfer system that typically handles a large volume of relatively low-value payments, whereas wholesale systems typically process payments over a certain minimum threshold, however, can be used to settle high-priority payments of any value.

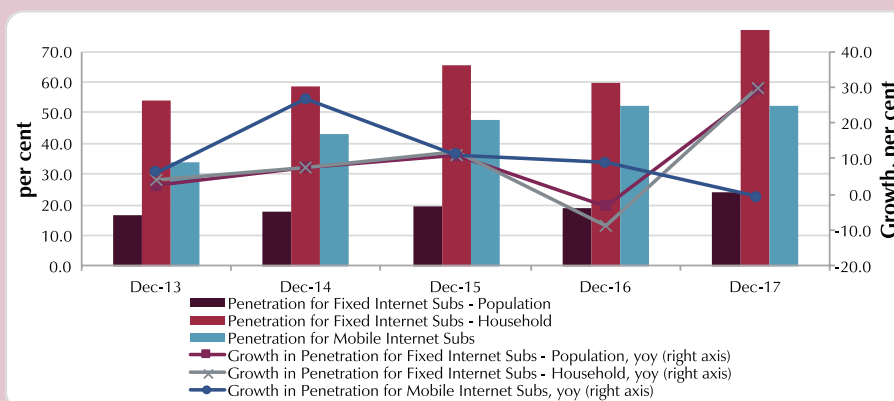
²⁷ Bankers Association of Trinidad and Tobago, 19th Annual General Meeting – Annual Report 2017. Trinidad and Tobago, August 10, 2017.

BOX 2: DIGITIZATION OF FINANCIAL SERVICES

The global financial system has been undergoing a technological revolution which has introduced innovations such as mobile access, cryptography, cloud computing and artificial intelligence to core business activity. These developments have facilitated the accelerated digitization and automation of new and traditional products and services that have transformed the way customers interact with financial service providers including banks, insurers, asset managers and mortgage lenders. This is in keeping with changing consumer expectations in an increasingly digital world, compelling traditional institutions to embrace the rapidly evolving technological landscape and modify their business models in order to remain relevant and competitive.

The push for modernized, digitized financial services locally is not a new phenomenon and has been characterized by, inter alia, the introduction of automated teller machines, chip and wireless-enabled banking cards and the availability of selected financial services through online platforms. More recently, mobile banking using smartphones and other personal computing devices have permeated the consumer market, reinforced by improvements in technological literacy. At the end of December 2017, the mobile internet penetration rate in Trinidad and Tobago was 52.0 per cent²⁸. This represents cumulative growth of approximately 53 per cent over the period from December 2013 to December 2017 (Figure 1). The trend reflects newer digital solutions offered locally, such as mobile applications and online payments.

Figure 1: Internet Subscriptions (Subs) Penetration Rates in Trinidad and Tobago, 2013 – 2017



Source: Telecommunications Authority of Trinidad and Tobago

Note: yoy – year-on-year.

The continued digitization of financial services creates opportunities for financial institutions and consumers alike. These include, but are not limited to:

- Improved overall efficiency – institutions can harness the technologies' underlying digital services to streamline operations, reduce redundancies and enhance productivity;
- Cost efficiency – the cost of transactions through online platforms is typically lower than an equivalent in-branch transaction, with some services free of charge;

²⁸ Calculated as the total number of prepaid and postpaid mobile internet users divided by the total population.

BOX 2: Continued

- Convenience – transactions or enquiries made over digital platforms can be fulfilled in real time, reducing the need to go in-branch for all services;
- Speed and accuracy – automated services produce results quicker and reduce human error in the processing of requests and transactions;
- Enhanced security – hinging off of advancements in cryptography, online platforms have the potential to put measures in place to reduce the likelihood of threats such as cyber-attacks;
- Fraud detection – technologies such as data mining can be leveraged to improve the identification of fraudulent (insurance) claims; and
- Financial inclusion – supports convenient and secure services that can be accessed in rural locations with sufficient connectivity to the internet.

While perceived benefits are plentiful, such advancements can introduce new avenues for risk. These include issues related to data security and privacy, cyber-attacks, and money laundering and terrorist financing. Further, opportunities are created for non-supervised providers of electronic payments and other financial services to expand operations. Regulators are tasked with keeping abreast of the constantly evolving financial environment as it relates to supervision, in an effort to close regulatory gaps that facilitate arbitrage and maintain financial system stability.

CHAPTER 3

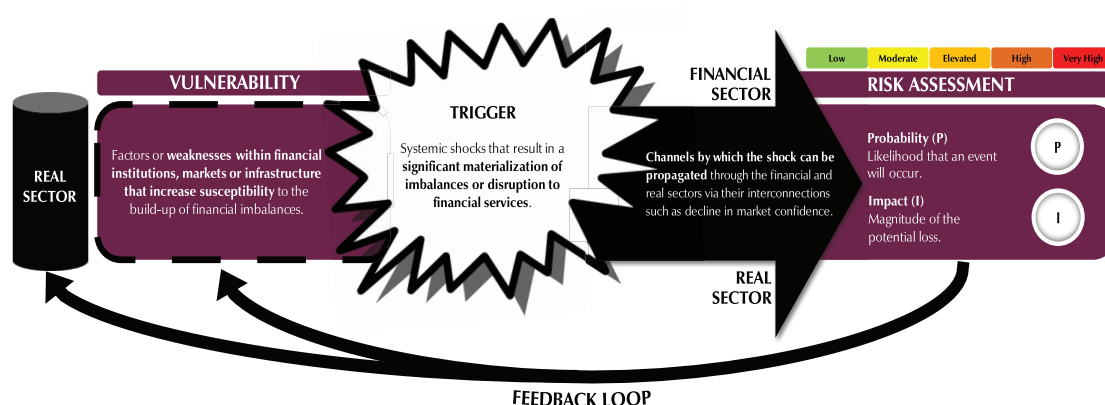
VULNERABILITIES AND RISKS

CHAPTER 3

VULNERABILITIES AND RISKS

The analytical method²⁹ adopted for this chapter remains broadly unchanged from the 2016 FSR where an integrated approach was introduced to discuss the transition of vulnerabilities to risks in the macro-financial system (**Figure 28**). The risk assessment continues to be based, mostly, on expert judgement as opposed to an explicit quantification of risk probability and impact. However, the judgements have also been informed by a suite of macro-prudential indicators (**Appendix C**).

Figure 28
Vulnerabilities and Risks Assessment Framework



Source: Central Bank of Trinidad and Tobago

In this FSR the risk rating categories are fleshed out in greater detail to facilitate greater coherence and comprehension (**Table 7**).

Table 7
Overall Risk Rating Framework Scale

| | |
|------------------|--|
| Low | implies generally stable macro-financial conditions with little threat to financial stability |
| Moderate | refers to building macro-financial imbalances with minimal levels of systemic risk build-up that do not yet pose a threat to financial stability |
| Elevated | refers to macro-financial conditions which signal high levels of systemic risk build-up that suggest the need for closer monitoring but not an immediate policy response |
| High | indicates potentially disruptive levels of systemic risk to the point where policy intervention should be seriously contemplated |
| Very High | denotes that materialization of systemic risk is imminent with a significant threat to the real economy which requires immediate policy intervention |

Source: Central Bank of Trinidad and Tobago

²⁹ The framework was adapted from the approach used by the Bank of Canada and is based on work undertaken by Adrian, T, D Covitz, and N Liang. "Financial Stability Monitoring." Federal Reserve Board Finance and Economics Discussion Paper, 2013 and the 2013 Annual Reports of the US Department of the Treasury and the Office of Financial Research.

The 2016 FSR highlighted the following key risks to financial stability:

1. An increase in Consumer Non-performing Loans;
2. Sovereign Debt Impairment; and
3. Investment Portfolio Losses due to Increased US Financial Market Uncertainty.

In 2017 the underlying financial system vulnerabilities remain relevant, but the nature of these risks has evolved in some instances. The risks identified are:

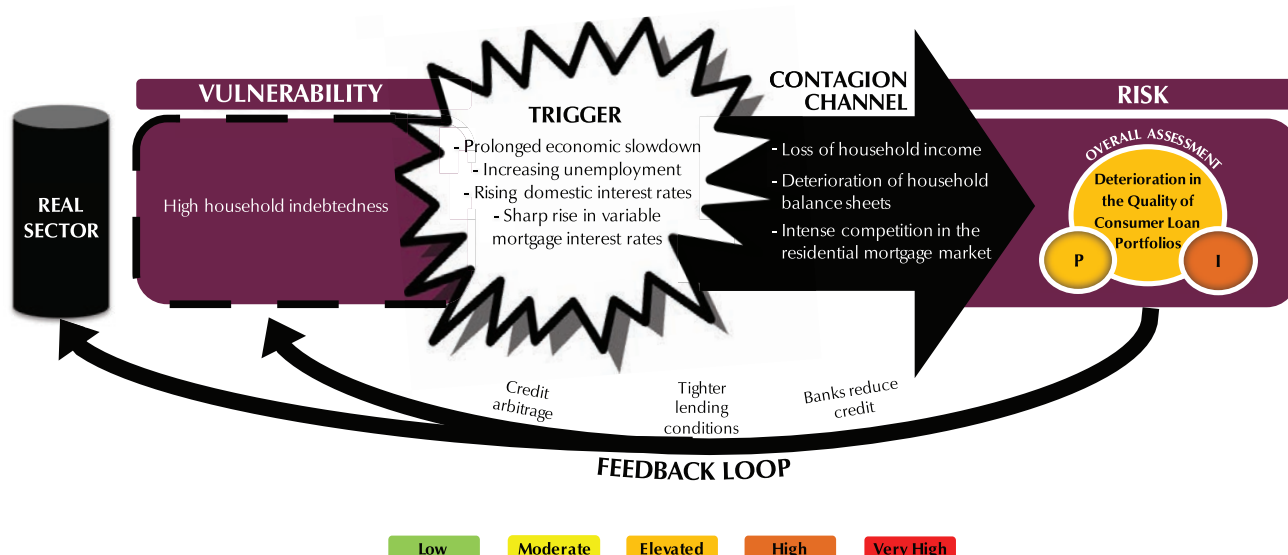
1. Deterioration in the Quality of Consumer Loan Portfolios;
2. Rise in Public Sector-related Non-performing Loans; and
3. Unfavourable Movements in Investment Portfolios.

A broader array of risks is assessed by complementing the existing stress testing regime with hypothetical scenarios.

DETERIORATION IN QUALITY OF CONSUMER LOAN PORTFOLIOS

The rapid build-up of household debt in previous years has resulted in a substantial accumulated debt load on household balance sheets. High repayment commitments and vulnerability to macro-financial shocks could mar debt-repayment capacity. In the 2016 FSR, the risk of a rise in consumer NPLs was highlighted as a threat to financial stability. This concern has spilled over into 2017, as the credit risk posed by households to the financial system remains elevated (Figure 29).

Figure 29
Vulnerabilities and Risk Assessment Framework – Household Credit Risk, 2017

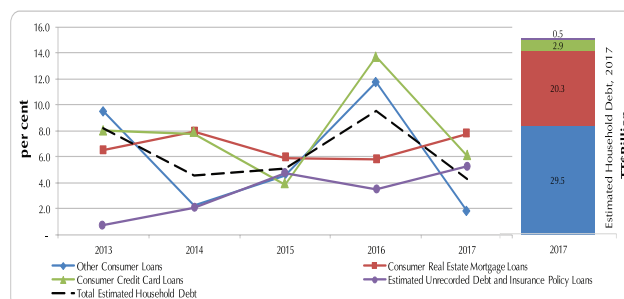


Source: Central Bank of Trinidad and Tobago

The estimated household debt burden³⁰ continued to expand in 2017, albeit at the slowest rate since 2009 due to a reduced appetite for credit card and other consumer loans (**Figure 30**). Total estimated household debt stood at \$53.2 billion (35.5 per cent of GDP³¹), of which just over 60 per cent (\$32.4 billion) was attributed to consumer loans granted by the banking system. Further, anecdotal evidence suggests rising credit intermediation by entities on the periphery of the formal banking sector (shadow banking) which may cause some measure of underestimation of household debt (**Box 3**). Nonetheless, the banking sector remained heavily exposed to the household sector, whose loans accounted for 22.3 per cent of assets and 145.5 per cent of capital at the end of 2017. The importance of the household sector to the banking sector's loan portfolio warrants greater focus on household debt in general and the avenues through which credit risks can materialize in the financial system.

The distribution of consumer loans granted by the banking sector remained relatively consistent with previous periods, with the largest share attributable to real estate mortgages (41 per cent), followed by motor vehicles and other durables (16 per cent) and refinancing and consolidation (13 per cent). Consistent with previous years, over 90 per cent of residential mortgages outstanding are variable-rate and thus susceptible to interest rate risk. The robust growth witnessed in the motor vehicle segment continued to fade due to a slowdown in loans for new private cars. This mirrored the 13 per cent contraction in new private cars registered in 2017, following a 10 per cent contraction in 2016. Despite the slowdown in credit card loan growth for 2017, the stock of credit card loans remains high. The usage reflected consumers' increasing exposure to debt through online shopping and the propensity to purchase higher-valued items with credit rather than debit cards. There has been rapid growth in refinancing and consolidation loans since 2014 suggesting that households are trying to make adjustments which would safeguard resilience. Of all loan classifications, the refinancing and consolidation loan segment typically has the highest NPL ratio at around 3 per cent. Higher loan balances for these purposes may therefore signal weakening resilience of the household sector. **Figure 31** highlights the growth in selected loan categories over a five-year period, with corresponding NPL ratios.

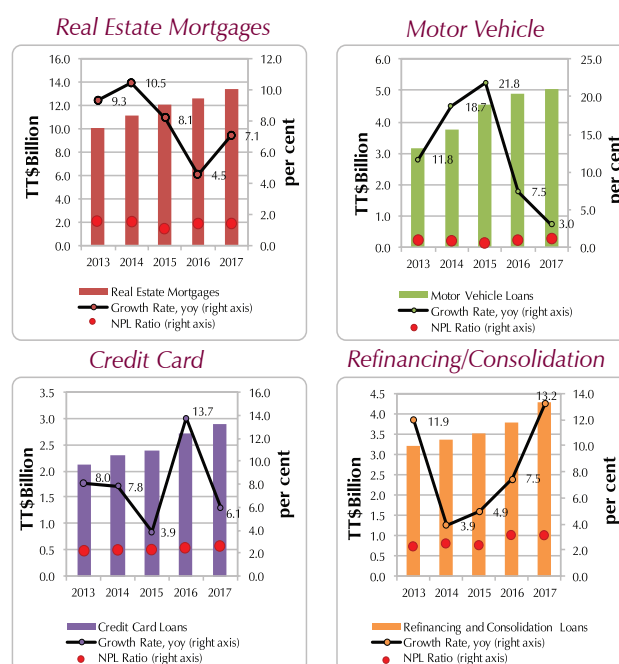
Figure 30
Estimated Household Debt Growth,
2013 – 2017



Source: Central Bank of Trinidad and Tobago

Note: "Estimated Unrecorded Debt" refers to an estimate of hidden or unrecorded debt, for example money lenders, pawn brokers, credit concessions, etc.

Figure 31
Selected Loan Categories and NPL Ratios,
2013 – 2017



Source: Central Bank of Trinidad and Tobago

Note: yoy – year-on-year.

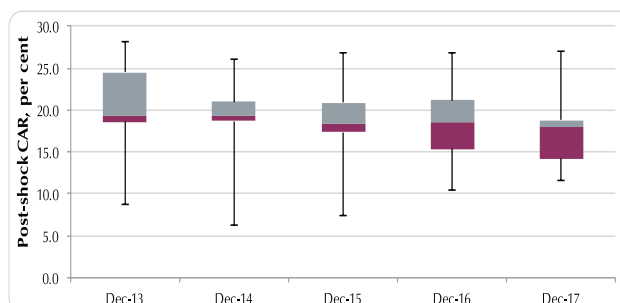
³⁰ Household debt comprises credit extended to households including open accounts, personal loans, credit card facilities, mortgage advances, instalment sales transactions and lease agreements.

³¹ According to the October 2017 GFSR, the median household debt-to-GDP ratio among emerging market economies was 21 per cent in 2016.

The magnitude of a credit shock to the banking sector is not only dependent on the level of debt, but also on consumers' resilience in the face of triggers which can affect their debt-servicing capacity. Direct triggers can stem from the real or financial environment, including prolonged economic slowdown and increased unemployment, leading to loss of household disposable income. Additionally, a potential rise in domestic interest rates to keep pace with higher US interest rates could precipitate a sharp rise in variable mortgage interest rates which can result in higher payments on variable-rate loans and strains on the household balance sheet.

Pressures faced by households can translate into mounting banking sector NPLs, and increasing susceptibility to negative shocks, thereby threatening financial system stability. If challenged with falling profits and capital buffers amidst rising NPLs, institutions may choose to reduce lending in order to fund the necessary provisions. This tightening of credit could prolong or exacerbate a slowdown in the local economy and intensify the direct shocks to the financial system resulting in further losses through the feedback channel. This underscores the importance of risk management tools such as stress testing in assessing the resilience of the banking sector to shocks. A credit risk stress was applied to the commercial banking sector under the Central Bank's Stress Testing Framework³² to gauge the impact of reduced debt-servicing capacity of households. In December 2017, there was a marginal deterioration of 0.6 per cent of the CAR suggesting the commercial banking sector is well placed to withstand extreme shocks to the aggregate consumer loan portfolio. **Figure 32** summarizes the dispersion of credit risk stress test results for individual commercial banks and the sector.

Figure 32
Box Plot of Credit Risk Stress Test Results,
2013 – 2017



Source: Central Bank of Trinidad and Tobago

Note: The box plot depicts the distribution of observed CARs over a five-year period according to the minimum value observed over each period, the first and third quartiles (shown as the purple and grey regions, respectively), the median derived from the series and the maximum value.

³² As highlighted in the 2016 FSR, the Central Bank's stress tests currently assess the impact of direct triggers only. Interpretation of results is therefore supplemented by a qualitative assessment of the impact of indirect triggers and the possible feedback effects which can also stem from a prolonged economic slowdown.

BOX 3: SHADOW BANKING AND SYSTEMIC RISK

Unregulated activities in the financial system can increase systemic risk. The FSB has defined shadow banking as ***“a system of financial intermediation which involves activities outside the regular banking system that raises i) systemic risk concerns and/or ii) regulatory arbitrage concerns”***³³. The term ‘shadow banking’ is not intended to be pejorative as these activities can provide valuable investment and financing alternatives as well as support economic growth and diversification³⁴. However, innovations in financial intermediation can lead to rapid expansion in financial activity and regulation must balance protecting public interests with promoting financial development. As the boundaries between regulated and unregulated (or lightly regulated) financial activity become increasingly ambiguous, regulators and the general public should be cognizant of the associated risks.

In 2010, after the improvements to banking capital standards (Basel III), the G20 acknowledged that gaps in building financial system resilience remained in areas such as shadow banking. The FSB, IMF and Bank for International Settlements (BIS) were asked to develop recommendations for monitoring the risks of shadow banking to the global financial system. Subsequently the FSB’s objectives have been, inter alia, the clarification of the term “shadow banking”; development of measures to monitor these activities; and to limit systemic risk concerns. The diversity of financial systems worldwide implies that scope, surveillance and risks of shadow banking activity to financial stability are likely to vary across countries. In the case of India, regulators declared that the country already regulated shadow banks and there was no threat³⁵. Conversely, other jurisdictions such as the United States and the European Union prefer to focus on risks originating from less regulated activities (as opposed to institutions) and assess the corresponding impact on financial system stability³⁶.

Generally, few jurisdictions attempt comprehensive oversight of financial activity as this can be onerous. Instead, regulators monitor the financial intermediation process and attempt to increase awareness or implement policies which can limit the impact on the financial system³⁷. Activities which can increase systemic risk are conditional on their size and include maturity and liquidity mismatches; flawed credit risk transfer as well as excessive leverage levels. Traditional bank intermediation is less complex than shadow banking activities (**Figure 1**). Additionally, there are risk mitigation features in place such as standard capital requirements, limits on large exposures and maturity/liquidity mismatches, deposit insurance and a lender of last resort (often the central bank or government).

³³ Financial Stability Board, *Shadow Banking: Scoping the Issues; A Background Note of the Financial Stability Board*. Basel, Switzerland: Financial Stability Board, April 12, 2011.

³⁴ Many countries have opted for terms such as ‘market-based financing’ or ‘non-banking financing’. Nevertheless, this analysis will adhere to the internationally standardized term of ‘shadow banking’ which is used by the IMF, BIS, FSB and in G20 communications. The G20 (Group of 20) is the main international forum for economic, financial and political cooperation, headed by finance ministers and central bank governors of member countries.

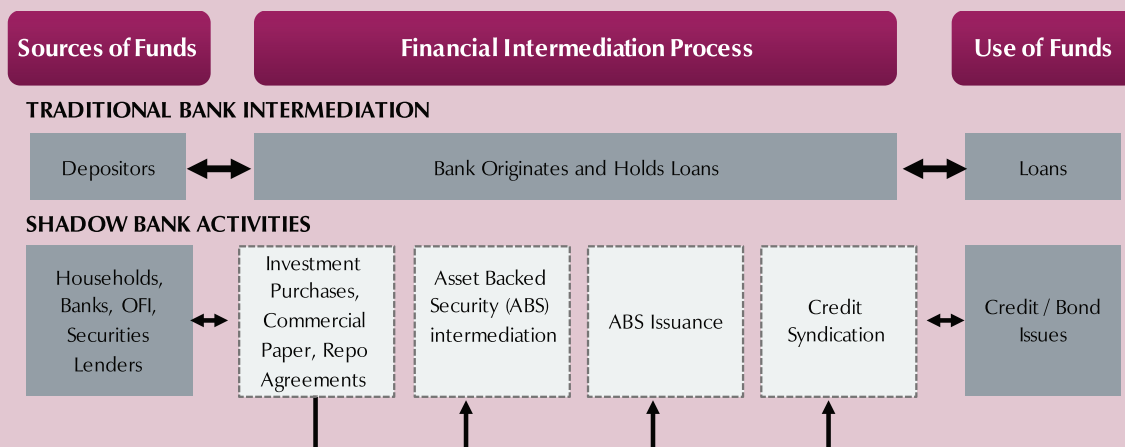
³⁵ India’s regulators interpreted the term ‘shadow banks’ literally and applied it to Non-bank Financial Companies, which are commonly regulated along with commercial banks. Shri R. Gandhi, “Danger Posed by Shadow Banking Systems to the Global Financial System - The Indian Case,” (ICRIER’s International Conference - Governance and Development: Views from G20 Countries, August 21, 2014)

³⁶ David Luttrell, Harvey Rosenblum and Jackson Thies, *Understanding the Risks Inherent in Shadow Banking: A Primer and Practical Lessons Learned*. Texas, United States: Dallas Federal Reserve, November 2012.

³⁷ Tobias Adrian and Adam B. Ashcraft, *Shadow Banking Regulation*, United States: Federal Reserve Bank of New York, April 2012.

BOX 3: Continued

Figure 1: Stylized Comparison of Traditional Banking and Shadow Banking



Source: Adapted from Luttrell, Rosenblum and Thies 2012

Note: OFI – Other Financial Institutions. With respect to shadow banking activity, the process highlights the types of activities and multiple intermediaries, not necessarily the chronological process.

In contrast to the traditional banking sector, shadow bank activities have the potential to become very large and complex and increase cumulative risk to the economy. With respect to the lending aspect of shadow banking activity, credit intermediation is generally not subject to rigorously supervised borrowing standards. This can result in higher debt levels for vulnerable households and poorer credit quality. Additionally, the use of alternative sources of funding such as commercial paper, receivables factoring or loans with other intermediaries to support these activities can subtly increase credit risk and lower asset quality throughout the system. On the investment side, institutions which offer or guarantee above-average returns have greater incentives to load up on high risk assets to meet these obligations.

Regulators should be aware of these risks which may otherwise contribute to larger than expected financial system losses during a downturn which can stymie economic recovery. In order to monitor these risks, the FSB has suggested a combination of quantitative and qualitative surveillance using macro (system wide) and micro (entity or activity) methods. Macro data sources include Flow of Funds accounts (FFA)³⁸, while micro data sources can involve surveys or market data. Traditional surveillance and regulatory approaches may not be applicable due to the rapidly evolving nature of shadow banking.

In keeping with the Central Bank of Trinidad and Tobago's mandate of promoting financial stability, shadow banking activity should be monitored, especially as it relates to the interaction with supervised financial activities. Surveillance efforts, which are currently based on examining publicly available information, have begun in this regard. Small, developing financial systems, such as Trinidad and Tobago, are particularly at risk due to limited investment opportunities and credit sources. Regulatory responses ideally should accommodate this differentiation. It is important that both regulators and the public are aware of risks accompanying this activity.

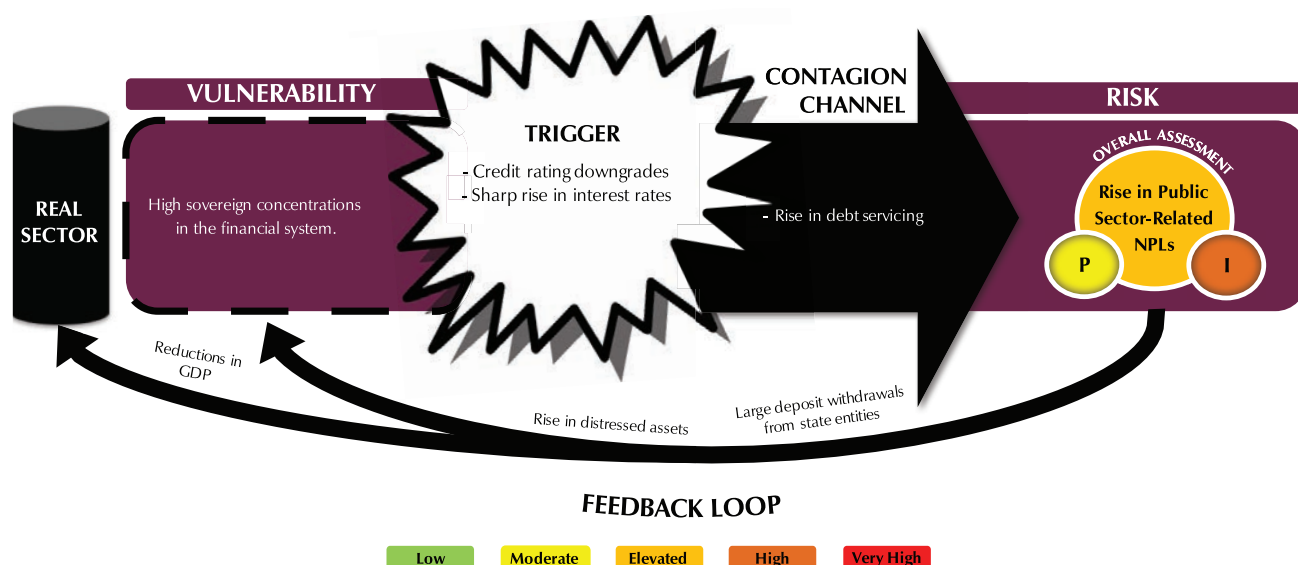
³⁸ A country's FFA is a statistical record of both financial transactions and the outstanding amount of the financial assets and liabilities in the economy. International Monetary Fund, "Enhancing Household Data on the Flow of Funds Accounts in Japan" (presentation, Conference on Strengthening Sectoral Position and Flow Data in the Macroeconomic Accounts, Washington, D.C., February 28–March 2, 2011).

RISE IN PUBLIC SECTOR-RELATED NON-PERFORMING LOANS

High domestic sovereign concentrations on the balance sheets of local financial institutions continue to be a potential vulnerability (Figure 33). Consequently, credit and liquidity risks can emerge if debt servicing difficulties, particularly of non-Government guaranteed loans of state agencies, emerge on a sustained basis.³⁹

Figure 33

Vulnerabilities and Risk Assessment Framework – Rise in Public Sector-Related NPLs, 2017



Source: Central Bank of Trinidad and Tobago

As at December 2017, the financial sector continues to be dominated by the banking, insurance and pension sectors.⁴⁰ These sub-sectors continue to show high concentrations of exposure to the public sector, namely the Central Government, state-owned enterprises and statutory bodies. Moreover, macro-financial linkages between these

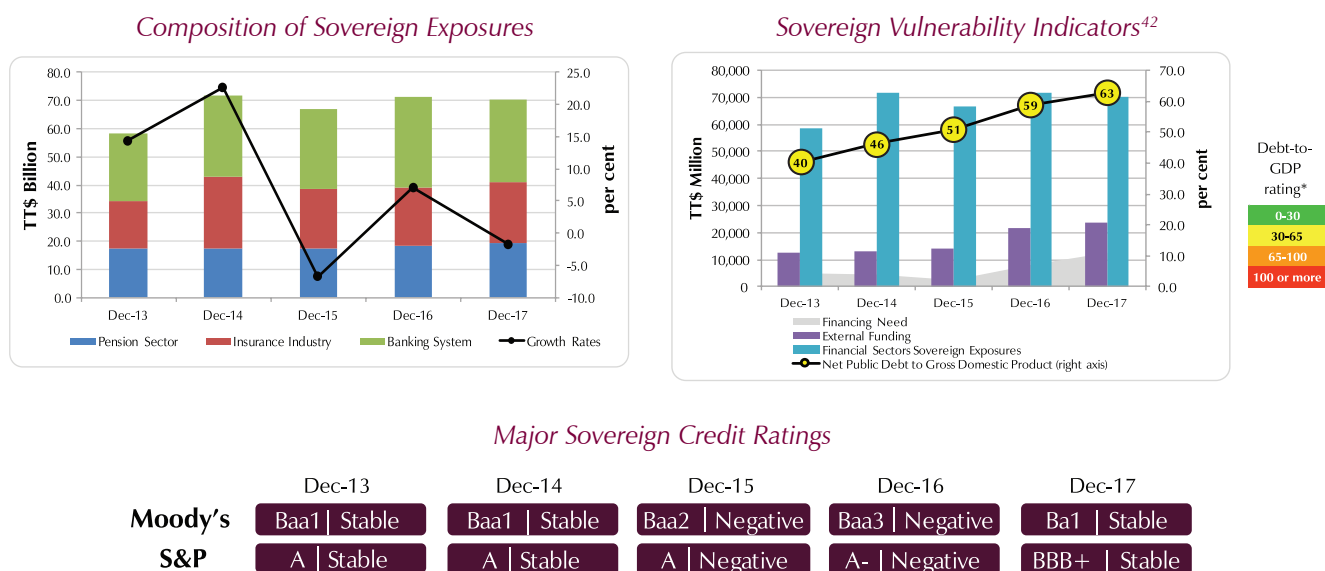
sectors increase the likelihood of feedback effects to the real sector. In comparison to December 2016, the domestic financial sector's sovereign exposures fell by less than 2 per cent. This decline was on account of a 9.1 per cent reduction in the banking sector's exposure⁴¹ (the industry with the largest exposure) to the sovereign (Figure 34).

³⁹ Moody's Investors Services (Moody's) downgraded Trinidad and Tobago's sovereign credit rating to Ba1 from Baa3 in April 2017. This was followed by a change in the outlook from stable to negative by Standard and Poor's Global Ratings (S&P) in April 2018.

⁴⁰ The banking, insurance and pensions sector account for close to 80 per cent of total financial system assets, as at December 2017 (refer to Chapter 2 Figure 7).

⁴¹ Sovereign exposures for the banking sector account for more than 20 per cent of total banking sector assets, with exposures to the domestic sovereign accounting for more than 70 per cent.

Figure 34
Domestic Sovereign Exposure Profile, 2013 – 2017



Source: Central Bank of Trinidad and Tobago

*According to the IMF Staff Guidance Note for Public Debt Sustainability Analysis in Market-Access Countries, the indicative benchmark for EMDE's gross debt-to-GDP ratio is 60 per cent. The coloured key represents varying degrees of sovereign debt distress – low, moderate and high.

High sovereign exposures may impact financial institutions' asset quality if public sector cash flows are impaired. Stress test results for December 2017 revealed that a shock to commercial banks' exposure to the GoRTT remains the most impactful event that can undermine bank capitalization. The commercial banking sector will reach the regulatory minimum capital level of 8.0 per cent, if 42.0 per cent (one per cent lower compared to December 2016)

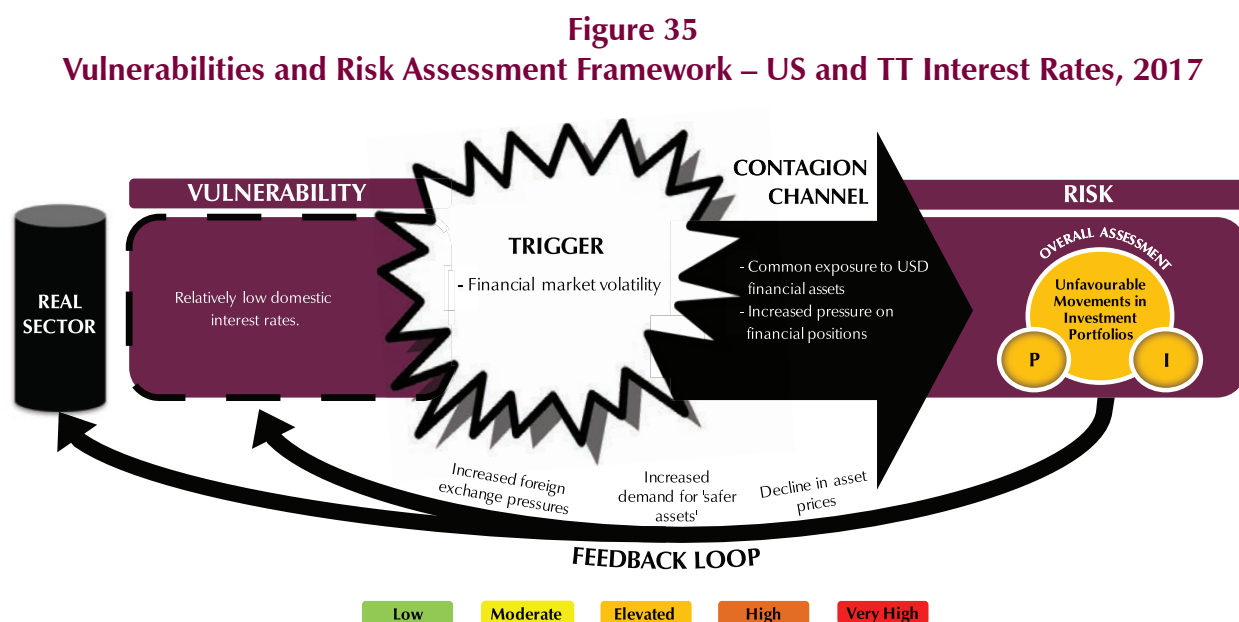
of domestic sovereign exposures are written off (Appendix B). That said, the probability of rising public sector-related NPLs remains **'moderate'**, while the associated impact on the financial system and real economy remained **'high'**. Overall this risk is assessed as **'elevated'** and the likelihood of its realization depends on the trajectory of the public finances over the medium term.

⁴² 'Financing needs' refer to the summation of the central government debt maturing and the overall fiscal balance.

UNFAVOURABLE MOVEMENTS IN INVESTMENT PORTFOLIOS

In the 2016 FSR, increased linkages with the US and the potential for portfolio losses due to asset value fluctuations in these markets were highlighted as a main risk for the financial system. In 2017, the risk has evolved due to tightening US interest rate conditions and relatively stable domestic interest rates. As a consequence, interest rate differentials were compressed (Figure 36). The differential, which turned negative towards the end of 2017, has the potential to encourage portfolio outflows.

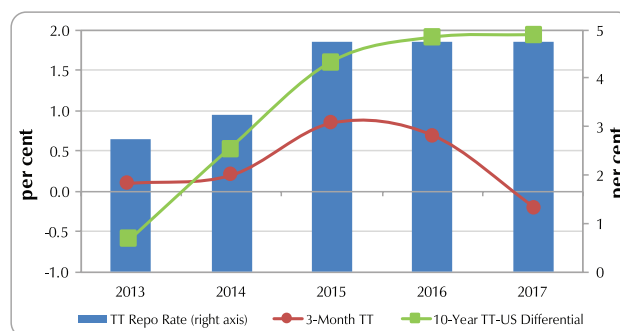
Figure 35 shows the mechanism by which a shock to US interest rates can interact with the domestic interest rate vulnerability, translate into rising capital flows or portfolio valuation risks and how risk materialization could impact the real economy.



Source: Central Bank of Trinidad and Tobago

Initially the Fed adopted a cautious stance with respect to policy rate tightening after the 2015 rate increase due to the negative impact on financial markets, referred to as the 'Taper Tantrum'. Emerging markets were particularly affected by market declines and capital outflows as investors opted for higher US Treasury Bill yields. More recently, however, the Fed has increased the policy rate steadily and a further three rate hikes are expected in 2018 in the context of an improved economic outlook. The Fed has noted that the medium-term outlook could warrant further 'firming' of monetary policy. This could trigger financial stability risks as institutions attempt to adjust to higher US interest rates.

Figure 36
TT Policy Rate and Interest Rate differentials, 2013 – 2017



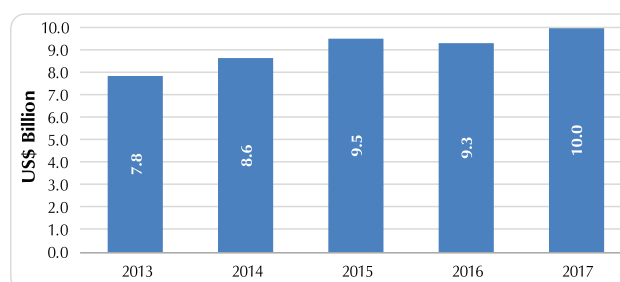
Sources: Bloomberg, Central Bank of Trinidad and Tobago

The financial system and economy can be affected, inter alia, in two main ways. As the expected return on US investments increase, there is a greater likelihood of portfolio outflows. **Figure 37** highlights acceleration in foreign investment from Trinidad and Tobago when US rates were first increased in 2015 and again in 2017. Secondly, financial intermediaries are subject to increased interest rate risk depending on their particular asset allocation. Long duration portfolio values can decline if there is a sell-off as institutional investors opt for more liquid positions in expectation of higher rates. Life insurers and pension funds are at a particular disadvantage if they are nearing investment caps which can prevent them from diversifying into better yielding foreign securities after prolonged low interest rates. Financial indicators for the commercial banks, insurance industry, pension funds and mutual funds all exhibited varied signs of expansion in US dollar denominated asset allocation during 2017.

There have been minor increases in the proportion of US dollar liquidity and investment in the commercial banking sector balance sheets and a significant reduction in the proportion of US dollar long-term liabilities which can buffer the impact of an interest rate shock. However, despite increased US dollar investment allocations over the period December 2015 to 2017, interest income from US dollar investments has declined by 455 basis points. This trend suggests that there have been adverse effects attributable to US interest rate increases.

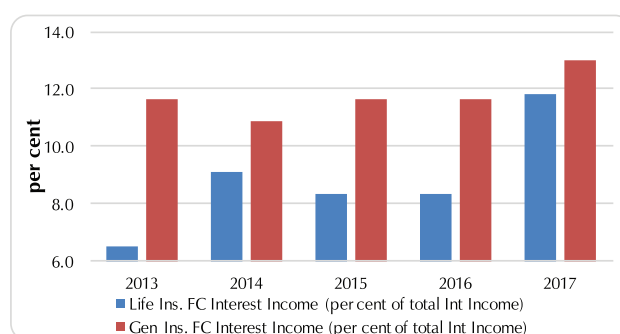
Other financial intermediaries have also experienced changes in respective US dollar portfolios. Insurance sector US dollar interest income increased over the year ended December 2017, with the impact felt more strongly in the life insurance sector (**Figure 38**). Aggregate fund values for US dollar denominated mutual funds grew at a rate of 9.6 per cent from December 2015 to December 2017 - three times the growth of TT dollar denominated mutual funds⁴³. With reference to pension funds, US dollar liquidity has increased significantly, with 35.6 per cent of liquid funds held in US deposits as at December 2017. High liquidity levels can partially mitigate interest rate risk when compared to longer duration portfolios.

Figure 37
Portfolio Investment Assets,
2013 – 2017



Source: Central Bank of Trinidad and Tobago

Figure 38
Insurance Sector US dollar Interest Income,
2013 – 2017



Source: Central Bank of Trinidad and Tobago

Note: FC – foreign currency; Int – interest.

⁴³ This data refers to only the top four mutual fund institutions which account for almost 90 per cent of the industry.

Even if domestic rates increase, interest rate risk may still be significant. Stress tests of the commercial banking sector support this likelihood, evidenced by a deterioration of 70 basis points in post-shock CARs over the twelve months to December 2017⁴⁴ (Table 8). Furthermore, 2017 stress tests indicated that capital adequacy levels for four institutions fell below regulatory minimum (8 per cent) in response to an interest rate shock, compared to three in the previous year. In consideration of these developments, the overall risk to the financial system was upgraded to **elevated**.

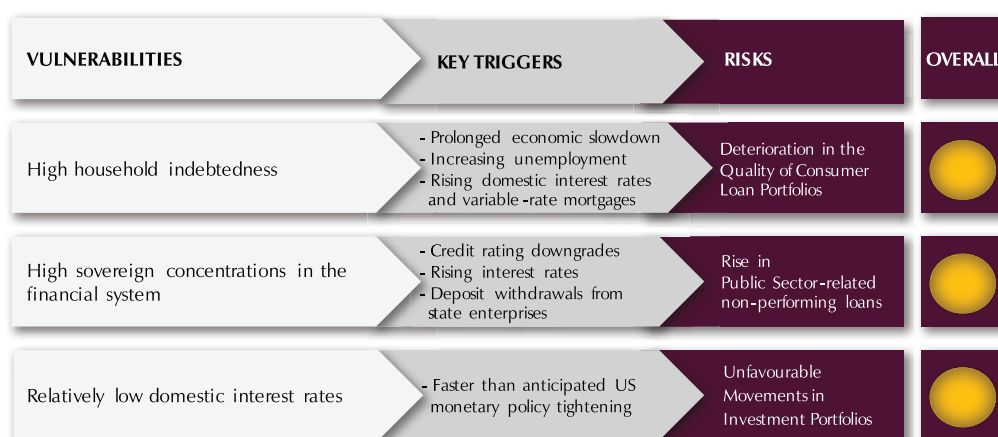
Table 8
Commercial Banking Sector Post-Shock CAR and Institutional Range,
2016 – 2017

| Interest Rate Risk: Post-Shock CAR (per cent) | | | |
|--|---------------------------|------------------------------------|------------------------------------|
| | Commercial Banking Sector | Maximum Individual Commercial Bank | Minimum Individual Commercial Bank |
| Dec-16 | 10.5 | 34.3 | -4.1 |
| Dec-17 | 9.8 | 49.7 | -5.7 |

Source: Central Bank of Trinidad and Tobago

The heat map below (Figure 39) summarizes the key vulnerabilities and associated risks along with an overall risk assessment.

Figure 39
Summary Heat Map – Key Vulnerabilities and Risks to Financial Stability in Trinidad and Tobago



Source: Central Bank of Trinidad and Tobago

STRESS TESTING SCENARIOS

In keeping with advancements in the stress testing arena, more dynamic stress testing scenarios are introduced in the 2017 FSR. Traditionally, the stress testing framework of the Central Bank has emphasized single factor shocks which have remained unchanged since their introduction in 2010. The scenarios currently conducted under this framework are not true scenarios but an aggregation of a number of single factor shocks. To inject flexibility and to reflect the fluidity of

risks to financial stability, additional scenarios were designed. These scenarios are more descriptive in nature, departing from the existing quantitative framework. In this regard, two stress test scenarios are considered in this report – (i) the impact of a climate change related environmental event on the financial system and; (ii) an operational disruption to a systemically important payment system (SIPS).

⁴⁴ The stress test assumes a parallel shock in the domestic yield curve as opposed to spread risk. However, the results do indicate that institutions have increased holdings of interest rate sensitive assets, which can increase financial stability risks from the declining interest rate differentials.

SCENARIO I: ENVIRONMENTAL SHOCK ON THE LOCAL FINANCIAL SECTOR

Globally, issues of extreme weather conditions and risks related to changes in the environment have become a major concern⁴⁵. In the Caribbean, the natural disaster events of 2017 were some of the most destructive on record where Hurricane Irma and Maria resulted in economic losses of US\$95 billion and insured losses of US\$35 billion⁴⁶. Financial costs reverberated to the local non-life insurance sector as the decline in earnings and profitability was reflected in the FSIs for the sector⁴⁷.

Although Trinidad and Tobago was not directly impacted by a major natural disaster event in 2017 the domestic economy experienced severe flooding due to excessive rainfall⁴⁸ which resulted in property damages and loss of livelihood. Rapidly shifting environmental conditions precipitated by climate change could exacerbate the likelihood and impact of natural disaster events in the medium to long term. Consequently, the rising susceptibility to potentially adverse environmental events is emerging as a vulnerability in Trinidad and Tobago that can weaken the resilience of financial institutions, especially financial groups with non-life insurance lines of business.

The contagion channels for natural disasters can take many forms but ultimately infrastructural damages or loss of life may result in a curtailment of productive capacity in crucial sectors⁴⁹ of the economy. More indirectly, job losses can arise resulting in increased credit or lapse risk for financial institutions. Additionally, the ensuing policy response to support economic activity such as lowering interest rates could inadvertently reduce investment returns for financial

institutions in general. Public debt levels may also accelerate as natural disasters can place a greater reliance on public funding to support recovery efforts. This may result in a feedback effect whereby financial institutions reduce exposure to the sovereign to guard against possible sovereign impairment. Via the financial channel, there may be an erosion of the value of financial investments which could set off widespread portfolio rebalancing.

While the relationship between greenhouse gas (GHG) emissions, climate change and the frequency of extreme weather events (including natural disasters) has been widely debated, climate-related policies are being introduced by governments worldwide⁵⁰. Despite marginal contribution to global GHG emissions (less than 1 per cent), Trinidad and Tobago has committed to climate change mitigation and adaptation efforts designed to reduce its carbon footprint in the local industrial, power generation and transportation sectors⁵¹. Policies designed to restructure core business activities or create additional financial burdens on these sectors in the form of taxes can have a direct impact on the profitability of these organizations. As an energy-based economy with deep connectivity between these sectors and economic agents, organization distress can have implications of systemic proportions on macro-financial stability.

Considering the on-going evolution of financial stability mandates to reflect the increasing relevance of climate change concerns, the local natural disaster stress test scenario was augmented to consider the transmission mechanism of an environmental-related shock on both the banking sector and the insurance industry which can occur on account of the implementation of climate-related policies at a national level (**Figure 40**).

⁴⁵ The 2018 Global Risks Report placed environmental-related risks, namely extreme weather events, natural disasters and failure of climate change mitigation and adaptation, among the top five global risks by likelihood and impact, respectively (World Economic Forum 2018).

⁴⁶ Aon Benfield, "2017 Annual Report - Weather, Climate and Catastrophe Insight". January 24, 2018.

⁴⁷ It should be noted however, that the non-life insurance sector is largely reinsured and in 2017, 95.6 per cent of property premiums were ceded.

⁴⁸ The Caribbean Catastrophe Risk Insurance Facility offered assistance to Trinidad and Tobago, making payments of approximately US\$7.0 million for excessive rainfall activity in 2017. Government of the Republic of Trinidad and Tobago, Press Release: GoRTT to receive funding from Caribbean Catastrophe Risk Insurance Facility. Trinidad and Tobago, November 2, 2017.

⁴⁹ The mining and quarrying, manufacturing and trade and repairs sectors' contribution to GDP was estimated at 53 per cent in 2017. Government of the Republic of Trinidad and Tobago, Ministry of Finance - Review of the Economy 2017. Trinidad and Tobago, 2017.

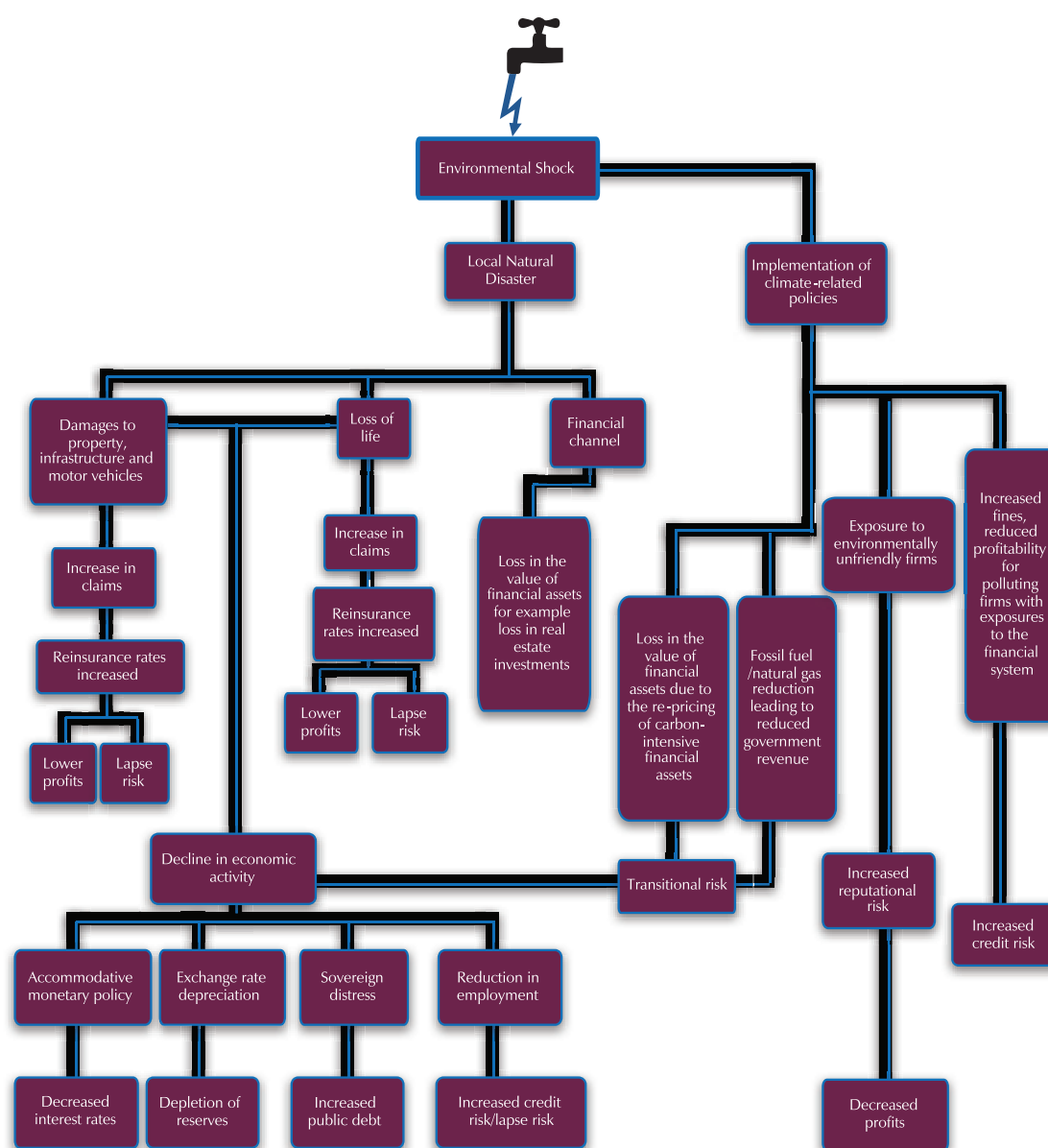
⁵⁰ Following the 2015 Paris Agreement, the international community pledged to proactively respond to the threat of global climate change by implementing risk reduction and mitigation measures.

⁵¹ Government of the Republic of Trinidad and Tobago, "Intended Nationally Determined Contribution under the United Nations Framework Convention on Climate Change" 2015.

Trinidad and Tobago's local natural disaster stress test under the traditional framework revealed that the commercial banking sector remained well capitalized⁵². However, transitional risks from the implementation of climate change policies could consume additional capital resources as

exposures to 'brown' sectors (fossil fuel dependent) are reduced. Continued monitoring to assess the impact of direct and indirect environmental events on the financial system would be conducted in order to capture additional dimensions of this evolving risk.

Figure 40
Environmental Shock on the Banking and Insurance Sectors



Source: Central Bank of Trinidad and Tobago

⁵² On average for 2017, the post shock CAR for the commercial banking sector was 18.9 per cent.

SCENARIO II: OPERATIONAL SHOCK TO THE SYSTEMATICALLY IMPORTANT PAYMENT SYSTEM

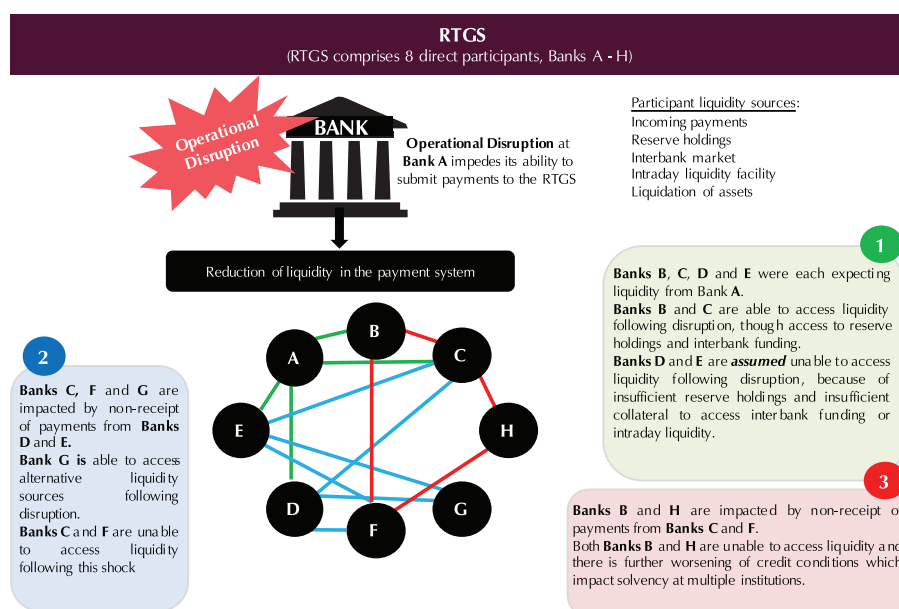
The payment system can be considered the thread which keeps economic actors connected by facilitating the clearance and settlement of monetary and other financial transactions. This makes the payment system an essential element in the conduct of trade, the interaction of financial markets and the implementation of monetary policy⁵³. Some payment systems, due to the high value of payments settled or their significant interaction with other payment systems, can pose a greater systemic threat if risks are not properly managed. A system with these characteristics is referred to as a Systemically Important Payment System (SIPS)⁵⁴. Locally, the RTGS, SafeTT, has been classified as a SIPS since, in addition to settling all large-value payments (transactions valued at \$500 thousand or above), it acts as the settlement agent for transactions conducted via all other payment systems in the national landscape.⁵⁵

A disruption may stem from one or more risks faced by payment systems including operational, legal, liquidity, and

credit risk. Operational risk may result from internal factors (for example, human errors or failure of processing systems) or external factors (such as natural disasters, cyber-attacks or terrorist attacks). Legal risk, which is sometimes classified as a subset of operational risk, relates to the potential for incurring losses following the introduction of new legislation or regulation. Liquidity risk may result from a lack of incoming payments, increased liquidity needs of participants or decreases in the value of collateral.⁵⁶ On the other hand, credit risk is spurred by insolvency of one or more participants.

For 2017, the total value passing through the RTGS amounted to \$138.07 billion. A disruption to the operations of SafeTT could therefore have negative consequences for the wider financial system, and ultimately for financial stability, by obstructing its ability to function and further, be a source of contagion risks to connected parties. A hypothetical illustration of a disruption to the operations of a key element of the payment systems infrastructure in Trinidad and Tobago is described in **Figure 41**.

Figure 41
Potential Impact on the RTGS of an Operational Disruption at a Major Participant



Source: Central Bank of Trinidad and Tobago

⁵³ European Central Bank, The Payment System: Payments, Securities and Derivatives and the Role of the Eurosystem. European Central Bank, 2010.

⁵⁴ Committee on Payment and Settlement Systems, Core Principles for Systemically Important Payment Systems. Basel: Bank for International Settlements, January 19, 2001.

⁵⁵ The national payment system comprises the RTGS, an ACH system, card payment schemes, a cheques clearing house and a government securities settlement system.

⁵⁶ European Central Bank, Stress-Testing of Liquidity Risk in TARGET2. Occasional Paper Series. European Central Bank, February 2017.

For illustration purposes, it is assumed that banks are not able to access *sufficient assistance from the Central Bank*⁵⁷. Bank A, considered a ‘major’ participant⁵⁸, suffers an assumed disruption which inhibits its ability to submit payments to the RTGS system. First, second, and third round effects are illustrated by green, blue and red lines, respectively. As described, the spin off effects of a disruption at one participant depends on the relationships among participants as well as other participants’ ability to access alternative sources of liquidity. The systemic impact of the disruption is manifested via the spreading of risks to multiple payment system participants.

A large scale disruption to the RTGS therefore could negatively affect the broader financial system by prompting financial losses at one or more participants which could negatively impact the value of financial system assets through ‘fire sales’ to raise liquidity. Prolonged interruption could hamper the efficient functioning of financial markets as well as financial institutions’ role in reallocating financial resources within the economy. This is done both directly via the interbank market and indirectly by acting as the settlement agent for all other payment systems. Further, the RTGS supports the conduct of monetary and fiscal policy operations, for example, by facilitating open market operations and government financing through the sale of government securities.

Strengthening Payment System Resilience

In 2014, the Central Bank adopted the Principles for Financial Market Infrastructures (PFMIs)⁵⁹ in the execution of its Payments System Oversight Function. Principle 17 of

the PFMIs deals specifically with operational risk⁶⁰ and notes that financial market infrastructures (FMIs) should identify plausible sources of risk, ensure security and reliability, and take appropriate measures to ensure timely recovery of operations in the event of a disruption. The Committee on Payments and Market Infrastructures and Board of the International Organization of Securities Commissions (2016) guidance on cyber-resilience for FMIs provides supplemental guidelines to the PFMIs, with a particular focus on boosting cyber resilience. The guidelines emphasized, inter alia, the need to have appropriate governance systems in place as well as the ability to identify, protect, detect and respond appropriately to potential disruptions from cyber-attacks.

The Central Bank therefore, in its capacity as regulator as well as operator of the local SIPS, has sought to comply with these guidelines. A number of measures have been taken to increase the Central Bank’s resilience to cyber-attacks through the strengthening of information security and data protection. Further, as an additional line of defence, the Central Bank has in place business continuity procedures which are triggered in the event of an emergency. These procedures include the secure back-up of data and appropriately trained staff that are able to perform tasks from one or more remote locations. To ensure functionality, routine off-site tests are conducted to verify whether operations would be able to continue smoothly (within two hours of the disruption)⁶¹ following an operational shock at the main site. In addition to these measures at the operator level, commercial bank participants also have well documented business continuity plans which are meant to provide similar operation alternatives if required.

⁵⁷ Under normal conditions, banks would be able to initiate business continuity procedures and Central Bank lending facilities would be available to stressed institutions. In a case where banks cannot access financing from the Central Bank, the possibility of banks becoming insolvent exists. Extreme case presented for illustrative purposes.

⁵⁸ Based on its share in the value of payments settled over the system as well as the number of other participants with which it is connected.

⁵⁹ Committee on Payment and Settlement Systems and Technical Committee of the International Organization of Securities Commissions, Principles for Financial Market Infrastructures. Bank for International Settlements, April 2012.

⁶⁰ Principles 1, 4, 7, deal with legal, credit and liquidity risk, respectively.

⁶¹ As prescribed by the PFMIs.

CHAPTER 4

PROMOTING FINANCIAL STABILITY

CHAPTER 4

PROMOTING FINANCIAL STABILITY

The Central Bank has established certain strategic objectives⁶² toward the promotion of financial stability. This chapter provides an overview of some of the strides made in 2017 toward meeting these objectives.

ADVANCE THE LEGISLATION FOR SUPERVISION

Insurance Bill, 2016⁶³

The Insurance Bill, 2016 was passed in the Lower House on February 16, 2018 and in the Senate on May 18, 2018, and was assented to on June 4, 2018. Provisions in the Act are intended to equip the Central Bank with the powers required to more effectively supervise and regulate the sector and protect the interests of policyholders.

Compared to the Insurance Act, 1980, the new legislation includes provisions to:

1. Promote good governance and risk and capital management practices, as well as stem excessive risk taking;
2. Promote financial soundness, including requirements for adequate capital buffers to cater for unanticipated losses. Current regulation only requires \$3 million in capital irrespective of business size;
3. Enhance insurers' market conduct practices and strengthen the Central Bank's power to revoke an insurer's registration for unfair claims practices or unreasonable delays in settlement;
4. Expand the range of tools for preventative and prompt corrective action and triggers for intervention by the Central Bank, including issuance of administrative fines; and
5. Address the risks that are posed by financial or mixed conglomerates and harmonize with the FIA such as the following:

- (i) Requirement to approve both direct and indirect (beneficial) controllers on 'fit and proper' grounds;
- (ii) Requirement that mixed or complex groups establish a financial holding company in order to separate the financial from the non-financial entities in the conglomerate structure and to protect licensees from group risk and contagion;
- (iii) Placing of limits on related party transactions;
- (iv) Requiring that mergers and acquisitions be first approved by the Central Bank;
- (v) Oversight over external subsidiaries; and
- (vi) Providing for minimum capital at the level of the holding company in addition to that of the insurance subsidiary.

The Bill has incorporated international principles, standards and guidance of the Insurance Core Principles developed by the International Association of Insurance Supervisors and will come into force when the accompanying Regulations are finalized in a few months.

Transparency and Exchange of Information for Tax Purposes

The Tax Information Exchange Agreements (United States of America) Act, 2017 (TIEAA) was enacted on March 20, 2017 and proclaimed effective July 6, 2017. The TIEAA provides for the automatic reporting and exchange of information on an annual basis (by September 30 each year) in relation to US Reportable Accounts held in Reporting Financial Institutions in Trinidad and Tobago by US persons for the purpose of taxation. Under the provisions of the TIEAA, Reporting Financial Institutions must provide the Trinidad and Tobago competent authority, namely the Board of Inland Revenue (BIR), with

⁶² Central Bank of Trinidad and Tobago, Strategic Plan 2016/17 - 2020/21. Trinidad and Tobago, September 30, 2016. (<https://www.central-bank.org.tt/about/strategic-plan/> ; <https://www.central-bank.org.tt/about/strategic-plan/project-implementation-update-year-1>) .

⁶³ The Act can be accessed on the Trinidad and Tobago Parliament's website using the following link: <http://www.ttparliament.org/legislations/a2018-04g.pdf>.

the required information. The BIR will in turn forward the information to the Competent Authority in the US, namely the Internal Revenue Service.

The TIEAA amended Section 36(dd) of the Central Bank Act (CBA), Chap. 79:02, to make the Central Bank responsible for the supervision of financial institutions and insurance companies on the implementation of a Declared Agreement. Likewise, Section 10(1)(e) of the FIA and Section 215 of the Insurance Act (IA) were amended to enable the Central Bank to issue guidelines to give effect to a Declared Agreement. Given that similar amendments were made to the Securities Act, Chap. 83:02, the Central Bank collaborated with the TTSEC and the BIR to develop a Guideline on the Implementation of the TIEAA (the Guideline) and issued that Guideline to its regulated entities on November 22, 2017. Financial institutions were requested to conduct a self-assessment, in accordance with the Guideline, and submit the results to the Central Bank by December 29, 2017. The self-assessments would be used as the basis for prioritizing on-site compliance reviews.

IMPROVING RISK-BASED SUPERVISION AND GOVERNANCE IN FINANCIAL INSTITUTIONS

Basel II/III Implementation

The implementation of Basel II/III continues to be a key strategic priority for the Central Bank as we seek to enhance the robustness of the capital framework for licensees and financial holding companies. Data challenges and inconsistencies uncovered during the first QIS necessitated the conduct of a second QIS (QIS2) to test the impact of the Basel II/III capital rules during the period May to July, 2017. In addition, an important objective of QIS2 was to test the area of national discretion under Basel II which permits licensees to recognize the preferential risk weight assigned by foreign supervisors to sovereign exposures which are funded and denominated in the domestic currency.

The results of the QIS2 showed that all licensees were able to meet the proposed minimum capital requirements with banking sector CARs exceeding 20 per cent on average. It was also noted that the application of national discretion in the treatment of sovereign exposures had only a very

nominal impact on banking sector capital and therefore having regard to other pertinent issues such as regional harmonization, the Central Bank elected to adopt the area of national discretion.

Parallel reporting by licensees and financial holding companies on the new Basel II rules alongside the existing Basel I rules commenced in April 2018 and will continue for a period of six to nine months to facilitate testing of the new reporting standard before phase out of the existing returns by end December 2018. Drafting of the capital adequacy regulations to give effect to the new Basel II rules is also in progress.

Phase 2 of the Basel II implementation plan will commence in early 2019 and will treat with some of the more qualitative requirements of the Basel II framework including enhanced risk management, internal capital adequacy planning, supervisory review and public disclosure by licensed financial institutions. More information can be found at the following link https://www.central-bank.org.tt/core-functions/supervision/basel-ii_iii-implementation.

Update on Anti-Money Laundering Initiatives

At the October 2017 Plenary of the Financial Action Task Force (FATF), the FATF International Co-Operation Review Group (ICRG) concluded that while the country has made significant improvement in some areas of its AML/CFT regime since the 2015 mutual evaluation, further improvements are needed in respect of:

1. Implementing measures to enhance international cooperation;
2. Addressing measures for transparency and beneficial ownership;
3. Completing the legislative efforts to enhance the processing of money laundering charges before the courts;
4. Taking measures to enhance tracing and confiscation of criminal assets;
5. Enforcing anti-terrorist financing measures and adopting appropriate measures for non-profit organizations;
6. Enacting the necessary amendments related to targeted financial sanctions; and
7. Developing and implementing the necessary framework to counter proliferation financing.

As a result, the country was publicly identified on November 3, 2017 as a jurisdiction that has strategic AML/CFT deficiencies for which an action plan has been agreed with the FATF and has given a high-level political commitment to address the identified deficiencies. At the February 2018 FATF Plenary, it was decided that the country will remain on the ICRG list, pending the passage of legislation and other measures to effect reform in the deficient areas.

Notwithstanding the October 2017 outcome, the measures taken by the Supervisory Authorities to address the findings of both the Mutual Evaluation Report (MER) and the National Risk Assessment (NRA) were acknowledged.

- **Revisions to the AML/CFT Guideline**

In July 2017, the Central Bank issued a revised draft AML/CFT Guideline to its licensees and other relevant stakeholders for review. Commensurate with the findings of this country's fourth round MER, the revised Guideline provided enhanced guidance around implementing a risk based AML/CFT approach and included a risk assessment tool and sector specific guidance. The Guideline was finalized in April 2018.

Code of Practice for Central Bank's Engagement with External Auditors of Financial Institutions

In March 2014, the BCBS issued guidance internationally on the external audits of banks. This advocated the improvement in the quality of banks' audit processes to enhance the effectiveness of prudential supervision and consequently financial stability.

In line with aspects of the BCBS' guidance, a Code of Practice for Central Bank's Engagement with External Auditors of Financial Institutions (Code of Practice) was finalized and issued to the industry in March 2018. The Code of Practice complements the legislative provisions in the FIA relating to the duties of external auditors. It is based on the principle that regulators and external auditors have a mutual interest in building and maintaining an effective relationship, which fosters regular exchange of useful information. Enhanced communication is expected to enrich supervisory assessments of financial institutions' soundness and also contribute to high quality external

audits. The Code of Practice can be accessed using the following link: <http://www.central-bank.org.tt/publications/legislations-and-guidelines/banking-sector-legislation-and-guidelines>.

CO-ORDINATION WITH OTHER SUPERVISORY AGENCIES

The 2007/2008 GFC and the CLICO/CL financial crisis highlighted the importance of understanding group-wide risks particularly within large financial conglomerates and the need for effective coordination among home and host supervisors and regulators. There is a growing presence of complex financial groups with operations throughout the region controlled by holding companies. Some of these institutions have extended their footprint beyond the region. Accordingly, in recent years, the Central Bank has been intensifying its focus on consolidated supervision and on areas of collaboration with other supervisory agencies. The efforts in this regard are noted in the following paragraphs:

(i) Consolidated Supervision

The Central Bank of Trinidad and Tobago and the Central Bank of Barbados collaborated to develop a reporting framework for the submission of key financial soundness data as well as qualitative information on governance and risks by regional financial groups. The parent of the financial group would be required to submit the requested information for each significant subsidiary in the group on a semi-annual basis. The Central Bank in October 2017, commenced a pilot project to test the feasibility of the reporting framework and in March 2018, the template was circulated to the Caribbean Group of Banking Supervisors (CGBS) members to obtain their feedback on its design and content, prior to its official implementation.

In addition, the Central Bank continues to conduct semi-annual teleconferences with regional host regulators to discuss the performance of subsidiaries within the financial groups in the respective jurisdictions. The discussions focus on inter alia, financial performance, key supervisory and regulatory risks, as well as governance and strategic issues. In October 2017, the Central Bank also attended the Office of the Superintendent of

Financial Institutions' Supervisory Colleges for the three Canadian-owned regional commercial banking groups.

(ii) Harmonization of Minimum Standards for Loan Classification and Provisioning

In July 2017, the CGBS deferred adoption of the Regional Loan Loss Provisioning and Classification Harmonization Policy ('Policy') submitted in November 2016 by the Loan Loss Provisioning and Classification Technical Working Group. The Policy dealt with regulatory provisioning but did not consider the impact of the new accounting standard IFRS 9 which became effective January 1, 2018. CGBS members agreed it was prudent for the Technical Working Group (TWG) to revisit the Policy to consider the approach and impact of IFRS 9. Since then, the TWG has convened to consider amendments to the Policy to incorporate provisions regarding ECL under IFRS 9. Recommendations for changes to the Policy were presented at the May 2018 CGBS meeting.

(iii) Caribbean Regional Financial Interconnectedness Project

The Caribbean Regional Financial Interconnectedness Project (CRFP) aims to assess financial interconnectedness and the potential for financial contagion in the region, with particular focus on regional systemically important financial institutions. This Project is being led by the Regional Financial Stability Co-ordinating Council⁶⁴. During 2015-2016, through a series of network simulation exercises, data was collected and used to assess the region's financial interconnectedness and vulnerabilities to common shocks. During 2017, it was agreed that the technical and analytical work to conduct a second interconnectedness study should be handled by a team drawn from regional central banks. There have been some setbacks related to the redesign of the data template and the adoption of information sharing arrangements among regional regulators. These matters should be resolved by mid-2018.

(iv) Development of a Legal and Regulatory Framework to facilitate Credit Information Sharing among CARICOM Member States

The Central Bank participates in a TWG chaired by the CARICOM Secretariat established in August 2016 to

progress development of the legal framework to facilitate Credit Information Sharing among CARICOM Member States. The TWG prepared the CARICOM Draft Model Law and the Policy Document for Credit Reporting, for presentation to the CARICOM Council for Finance and Planning in 2017. The Secretariat subsequently presented an update on the work of the TWG and the rationale for the Draft Credit Reporting Policy at the 18th Meeting of Officials of the Council for Finance and Planning on October 3, 2017. The Meeting was invited to consider the Draft Policy and to submit comments to the Secretariat by December 20, 2017. The Secretariat also presented an update on the initiative to introduce a regional policy on Credit Reporting at the meeting of the Council for Trade and Economic Development, which was held during November 6 – 10, 2017.

STRENGTHEN TECHNICAL AND ANALYTICAL CAPABILITY IN SUPERVISION AND RESOLUTION

Macro-Prudential View

The Central Bank formalized a series of regular internal strategic discussions on all supervised entities, including those which were deemed as SIFIs. The discussions focused on institutions' business models and strategy, key risks, vulnerabilities and interconnectedness. This will form the basis for development of multi-year supervisory plans. Moreover an enhanced supervisory planning process was launched to focus supervisory attention. This was based on judgements derived from inter alia:

1. Collaboration among micro- and macro-prudential teams to identify sources of financial sector vulnerabilities and risk;
2. On-going assessment of business models, sources of profitability, the key risks faced by supervised entities, risk mitigants and the robustness of the control environment and corporate governance;
3. Regular discussions with the fiscal authorities, as well as interactions with other regional and domestic regulatory authorities. This included bodies such as the CGBS and the Caribbean Association of Insurance Regulators; and

⁶⁴ This Council was created to buttress the work of the Committee of CARICOM Central Bank Governors, as well as oversee the preparation of the Caribbean Regional FSR and is responsible for overseeing the compilation of data and the preparation of future reports. This Council is comprised of Deputy Governors and senior Central Bank officials throughout the region.

4. Engagement with key stakeholders and decision makers in the sector.

Current supervisory plans emphasize credit and concentration risk, risk governance, fitness and propriety assessments, capital adequacy and actuarial reserving.

Section 5(2) of the FIA, provides the Central Bank with the remit for financial stability in respect of its licensees. However, further legislative amendments are required to support the policy mandate and tools which can improve macro-prudential oversight.

Stress Testing

Stress testing results continue to be incorporated in supervisory assessments of our eight banks. A stress testing team has been established to examine the current methodology and assumptions and provide proposals for enhancement of the Stress Test Framework during FY 2017/2018. Going forward, it is being proposed that meetings will be held with the banks to discuss bottom-up stress testing approaches which will also inform the redesign of top-down stress testing.

REVIEW OF RECENT DEVELOPMENTS IN PAYMENT SYSTEMS

During 2017 the Central Bank received a number of requests and enquiries regarding digital currency initiatives. Presently, under the current legislation, only licensed organizations that fall under the FIA can issue electronic money (e-money). In this regard, a policy for treating with digital currency was drafted; however the Central Bank continues to monitor and research regulatory developments internationally towards determining an appropriate regulatory framework for Trinidad and Tobago before finalizing its policy position. Research is also on-going at the level of the Caribbean Fintech Working Group, of which the Central Bank is a participant, towards developing as much as possible a common regulatory approach to treating with digital currencies.

Additionally, the Central Bank has drafted an e-money policy that will allow persons other than licensed financial

institutions to issue e-money in an effort to allow for greater access to financial services for consumers. The policy is being finalized and requires final approval by the Minister of Finance.

The Central Bank also became aware that there are a number of entities operating in the domestic payment space that may need to be registered or approved by the Central Bank. As such a public notice was issued in September 2017 advising that all entities desiring to operate non-interbank payment systems or offer payment services including bill payment services in Trinidad and Tobago must be registered with the Central Bank in accordance with the Payments System Guidelines 2 and 3, respectively.

The Central Bank and the commercial banks are working together to automate the cheque clearing process for improved efficiency. The commercial banks have introduced technology to counteract the threat of cyber risks due to continued skimming and phishing on their ATMs and have adopted the 'chip and pin' technology on payment cards.

Implementation of the Principles for Financial Market Infrastructures

Since the Central Bank adopted the PFMI in October 2014, the Payments System Division (the Overseer) has conducted baseline assessments on the RTGS, as well as the Significant Retail Payment System, which includes the Cheque Clearings Arrangement, the debit card switch system (LINX) and the ACH. The findings were discussed with the relevant parties and the assessment reports are being finalized for submission to the operators. The following main areas for strengthening were identified:

1. *Comprehensive Risk Management* – payment systems operators are required to have a sound and comprehensive risk management framework for effectively managing credit, liquidity, operational and other risks. It also allows the operators to identify, measure, monitor and manage risks in line with the PFMI requirements. This includes:
 - o having collateral funds in place for its participants in the event of default (including developing default management procedures);

- o conducting stress testing to better understand and manage the potential liquidity risks in the domestic payment system;
- o ensuring mechanisms are in place to reduce operational risks such as cyber risk, operational mishaps etc.

2. *Clearly defined rules and procedures to manage a participant default.* These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations and:

- o should be well prepared to implement its default rules and procedures including any discretionary procedures provided for in its rules;
- o publicly disclose key aspects of its default rules and procedures;
- o involve participants and stakeholders in testing and review of its procedures which should be conducted at least annually. This would assist in determining whether material changes to its rules and procedures are practical and effective.

3. *Business Continuity Planning (BCP)* – This is critical for an FMI and should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption. The BCP should:

- o address events that pose a significant risk and could lead to the disruption of operations whilst ensuring that critical IT systems can resume operations within two hours following a disruptive event. These arrangements should be regularly tested.
- o identify roles and responsibilities of assigned officers and sources of operational risk.

CHAPTER 5

REGULATORY AND SUPERVISORY ISSUES ASSOCIATED WITH CRYPTOCURRENCIES

CHAPTER 5

REGULATORY AND SUPERVISORY ISSUES ASSOCIATED WITH CRYPTOCURRENCIES

Driven by technological innovation, the emergence of cryptocurrencies within the last decade has presented challenges for regulators globally. Internationally, there continues to be discussion around their appropriate classification and regulatory treatment, however, no consensus has yet been reached. Their description has also evolved since inception, when terms such as ‘virtual’ and ‘digital’ currency were more popularly used to describe cryptocurrency. However, it is now widely recognized that the term digital currency can refer to all forms of e-money and is distinct from cryptocurrency. In that regard, digital currency may be seen as encompassing both traditional forms of electronic money (fiat currency held in electronic form), and virtual currencies, defined as a digital representation of value that can be digitally traded and functions as a medium of exchange; and/or a unit of account; and/or a store of value, but does not have legal tender status⁶⁵. Cryptocurrencies are further classified by the FATF as a type of virtual currency which can be bilaterally traded with fiat (for example Bitcoin) and is distinguished from ‘non-convertible’ virtual currencies, which cannot be exchanged for traditional money once obtained (for example, the Linden dollar, used in the online game ‘Second Life’). The BIS refers to digital currencies as *“assets with their value determined by supply and demand, that have zero intrinsic value and are not a liability of any individual or institution, nor are they backed by any authority”*. More recently the term crypto-assets appear to be growing in acceptance internationally.

Cryptocurrencies were made possible through the use of distributed ledger technology (DLT), also popularly referred to as blockchain technology. As the name implies, DLT does not rely on a central authority but instead, uses a consensus mechanism for agreement among multiple parties in order to verify and record transactions. This structure significantly contributed to the anxiety held by central banks globally,

whose ability to achieve monetary and financial stability could be potentially threatened by the widespread adoption of cryptocurrencies. In addition, while cryptocurrencies have been promoted as an alternative medium of exchange, it appears that they have been used mostly for speculative purposes and their partly anonymous nature has raised concern over their potential use for illegal activity.

Therefore, international organizations such as the FSB, the FATF, the Bank for International Settlements (BIS) and the IMF, all agree that the risks arising from developments in cryptocurrencies relate to money laundering and terrorist financing (ML/TF) concerns, cybersecurity, tax evasion, consumer protection and the potential impact on financial stability. While authorities continue to analyse and interpret cryptocurrencies and related innovations from a variety of perspectives, the regulatory responses have differed across regions and countries. Some regulators have adopted an accommodative stance, some a ‘wait and see’ approach and others are regulating in some form or restricting altogether. China appears to be the most restrictive in its approach while Japan and Singapore have taken more accommodative stances. The approaches adopted by standard setting bodies and selected countries are described in greater detail below.

INTERNATIONAL REGULATORY TREATMENT

Many countries are still determining their approach to cryptocurrencies. Some have issued public warnings against buying, holding and transacting in them, while others have implemented targeted regulations. Others are still undecided in the approach and are allowing it to operate in their space without any regulations. Further a number of countries such as Bahrain, United Kingdom, Canada, Singapore and Hong Kong have adopted ‘regulatory sandbox’ programs⁶⁶.

⁶⁵ Financial Action Task Force. (2014). Virtual Currencies. Key Definitions and Potential AML/CFT Risks.

⁶⁶ Box 6 provides details of the elements of a regulatory sandbox.

Meanwhile, various international organizations have expressed their views about the appropriate regulatory approach. For example, the IMF noted that significant consideration should be given to market conduct, financial soundness of cryptocurrency intermediaries and the linkages with the traditional financial system. Further, both the BIS and FATF suggested that central banks and financial authorities pay special attention to the points of exchange between fiat and cryptocurrency. Finally, following discussion at their most recent G20 meeting, the FSB has called on international standard setters for cryptocurrency regulation recommendations by July 2018.

Table 9 highlights the regulatory approaches observed in selected countries in various regions.

In addition, many central banks are researching and investigating the potential for issuing a central bank digital

currency (CBDC). The BIS Committee for Payments and Market Infrastructures issued a paper in March 2018 which looked at the implications of this on payment systems, monetary policy implementation and financial stability. According to the BIS, the issuance of the CBDC requires careful and thorough consideration and as such central banks should ensure that they undertake comprehensive research if contemplating this course of action. Some central banks have been exploring the use of a CBDC for wholesale payments only as in the case of the Bank of Canada or retail payments in the case of the E-Krona. The BIS has indicated that it would be important for central banks to compare the benefits to be derived from introducing CBDCs with existing or enhanced payments solutions to ascertain its true added value (**Box 5**).

Table 9
International Regulatory Status of Cryptocurrency and Related Innovations⁶⁷

| Country | Regulatory Status of Cryptocurrency and Initial Coin Offerings (ICOs) |
|--------------------------|---|
| Canada | <ul style="list-style-type: none"> • Cryptocurrencies are not banned and are classified as commodities by the Canadian Revenue Authority. • ICOs are allowed and coins/tokens may be subject to securities laws. |
| China | <ul style="list-style-type: none"> • China, one of the more restrictive authorities, has placed bans on cryptocurrency payments and exchanges. • Regulatory sandbox under research and the central bank is exploring the idea of a central-bank issued digital currency. • While ICOs have also been banned, reports suggest that this stance may be softened in the future. |
| European Union | <ul style="list-style-type: none"> • Cryptocurrency payments have not been banned but are not regulated. The European Central Bank has stated that virtual currencies cannot be directly regulated in the absence of a centralized governance and legal framework. • ICOs are allowed and are required to comply with relevant legislation regarding engagement in investment-type activities as mandated by the European Securities and Markets Authority. |
| Japan | <ul style="list-style-type: none"> • Only country to classify cryptocurrency as legal tender. • Japan's financial services regulator, the Financial Services Agency (FSA), introduced regulation for cryptocurrency exchanges and guidelines for allowing ICOs. • The FSA also established a regulatory sandbox. |
| Mexico | <ul style="list-style-type: none"> • The Mexican government approved a bill for the regulation of Fintech, including cryptocurrencies and cryptocurrency exchanges. Cryptocurrencies are classified as commodities. • ICOs could violate Mexican financial laws. |
| Philippines | <ul style="list-style-type: none"> • The Bangko Sentral NG Philipinas regulates virtual currency activities where payments and remittances related to exchanges are subject to AML regulations. • ICOs are allowed and depending on the nature of tokens, may be required to adhere to securities registration regulation. |
| Russia | <ul style="list-style-type: none"> • The Ministry of Finance drafted legislation to regulate cryptocurrency and exchanges, however, plans are not yet enacted. • Developing plans to regulate ICOs. • In 2018, the Russian Central Bank launched a regulatory sandbox to facilitate testing of innovative financial services. |
| Singapore | <ul style="list-style-type: none"> • Cryptocurrency payments are not banned, however exchanges are subject to AML regulations. • Regulatory sandbox established and the Monetary Authority of Singapore has invited participants to its sandbox, following issued guidelines. |
| United Kingdom | <ul style="list-style-type: none"> • Cryptocurrency payments are allowed. The Financial Conduct Authority announced plans to prepare a Discussion Paper on cryptocurrency later this year. • ICOs are allowed. Regulated status determined on a case-by-case basis. |
| United States of America | <ul style="list-style-type: none"> • Cryptocurrencies and ICOs have not been banned however, their treatment varies across states. • The US SEC recently called for the registration of cryptocurrency exchanges while, the New York Department of Financial Services in 2014 mandated any entity engaging in virtual currency exchange to obtain a BitLicense. |
| Venezuela | <ul style="list-style-type: none"> • Private cryptocurrency payments have not been banned however, the Government has launched its own version of cryptocurrency. |

Sources: Various international central banks and news agencies

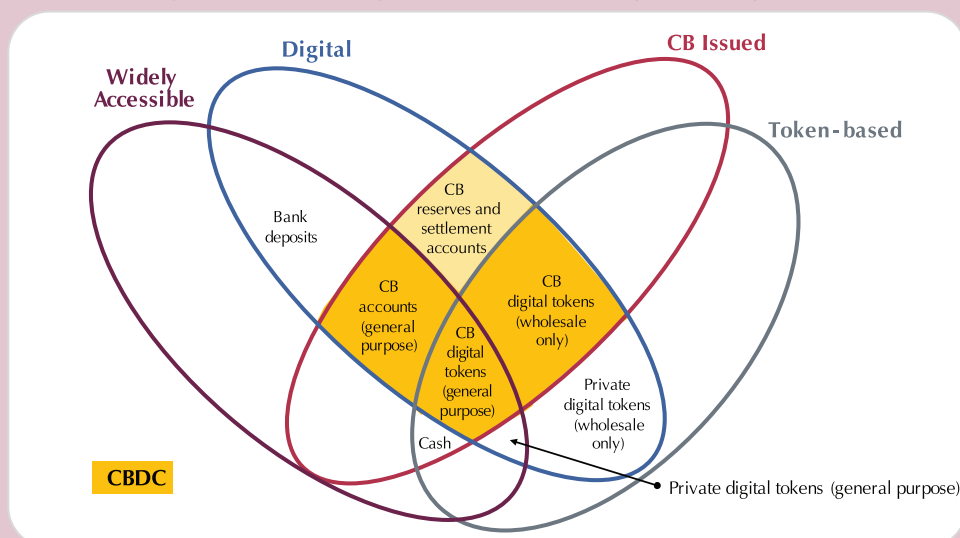
⁶⁷ Updates are as at April 2018.

BOX 4: CENTRAL BANK DIGITAL CURRENCY

Following their debut in 2008 with the introduction of Bitcoin, the number and popularity of crypto-assets has grown and has sparked debate around whether central banks should employ advanced technology to introduce their own versions of these instruments. The idea of central bank-issued digital currencies (CBDCs) has also been propelled by the declining use of cash in some jurisdictions (for example Sweden) as well as the potential for private alternatives to impact the intermediary role of traditional financial system players.

A CBDC may be defined as an additional form of digital central bank money, distinguished from reserves or settlement balances of commercial banks held at the central bank. In practice, the design of this potential instrument may be influenced by a number of factors including access, level of anonymity, availability, and potential to earn interest. The Committee on Payments and Market Infrastructures (CPMI)⁶⁸ classifies CBDCs within the context of the present characteristics of money using a modified version of the money flower developed by (Bech and Garatt 2017) (**Figure 1**).

Figure 1: The Money Flower – A Taxonomy of Money



Source: (Committee on Payments and Market Infrastructures and Markets Committee 2018)

Notes: According to the CPMI, the venn-diagram illustrates the four key properties of money: issuer (central bank or not); form (digital or physical); accessibility (widely or restricted) and technology (account-based or token-based). CB refers to central bank and CBDC excludes digital central bank money already available to monetary counterparties and some non-monetary counterparties. Private digital tokens (general purpose) include crypto-assets and currencies, such as Bitcoin or Ethereum. Bank deposits are not widely accessible in all jurisdictions.

The money flower illustrates the position of CBDC in the context of existing forms of money, which combines two or more of four features including widely accessible, digital, central bank issued and account or token based. A CBDC would encompass each of the four features if it is designed as a general purpose (retail) payment instrument, however, its access would be limited to pre-identified parties if it is designed as a wholesale payment method (used only by commercial banks and selected financial institutions).

⁶⁸ Bank for International Settlements (BIS).

BOX 4: Continued

Advocates of CBDCs argue that it could potentially enhance payment systems. Further, depending on its design, it could increase financial inclusion and facilitate enhanced records based on real-time data which may further contribute to AML/CFT efforts. Additionally, CBDC could theoretically aid in monetary policy if an interest bearing version is adopted. As central banks explore uncharted territory, the potential negative effects of a CBDC are not yet fully known. However, it is noted that possible complications, depending on the design, include its potential to compete with commercial banks and/or facilitate bank runs in periods of stress, as well as place strain on central banks which may be required to fulfil 'Know Your Customer' requirements.

The aforementioned shortcomings have prompted the BIS to caution central banks considering venturing into this area. In particular, it was noted that further research on the purported benefits are warranted, given that current payment systems are fairly advanced and technological advancements applied to existing systems may result in the realization of a number of the purported advantages of a CBDC. Further, the potential impact on interest rates, financial intermediation, financial stability and supervision should be examined in greater detail before any decision is made to introduce a new form of central bank asset.

REGIONAL DEVELOPMENTS

Within the Caribbean region, cryptocurrency and other Fintech initiatives are gaining momentum as governments and businesses are attempting to take advantage of rapid advances in technology being applied to the financial sector. Generally, however private entities have been at the forefront of these initiatives either in partnership with governments, commercial banks or the regulator in certain jurisdictions. It should be noted that in some cases the threat of de-risking by correspondent banks has been a key factor for the openness of regional governments to

digital currency, as well as a means for advancing financial inclusion. Some governments in the region have been exploring ways in which cryptocurrency and the blockchain technology can assist in driving economic development whilst others have already entered into partnership with private entities. In terms of the legislative and regulatory framework, some are investigating their frameworks toward amending or developing new legislation including the development of regulatory sandboxes. **Table 10** highlights key regional digital currency initiatives.

Table 10
Regional Initiatives in Digital Currency⁶⁹

| Country | Developments |
|---------------------------------------|---|
| Anguilla | <ul style="list-style-type: none"> The Anguillan Government is in the process of establishing the Anguilla Utility Token Offering Act which aims to provide a regulatory framework for ICOs. |
| Antigua and Barbuda | <ul style="list-style-type: none"> The Antigua and Barbuda Government is moving to set up a cryptocurrency exchange as a means of generating additional revenue for the state. The Government has also granted permission to a private company to use its Ethereum-based ICO platform for raising funds for developmental projects. |
| Bahamas | <ul style="list-style-type: none"> The Central Bank of The Bahamas announced that it was considering the creation of a digital version of the Bahamian currency in order to enhance the payment system. |
| Barbados | <ul style="list-style-type: none"> Barbados-based company, Bitt Inc., launched a digitized Barbados dollar on the Bitcoin blockchain in February 2016. Bitt Inc. has signed a Memorandum of Understanding (MOU) with the Barbados headquartered Caribbean Tourism Organization, aimed at facilitating the implementation of more efficient payment processes for tourism-related products and services. The Central Bank of Barbados is also monitoring the developments in cryptocurrency and is investigating the use of the regulatory sandbox. |
| Dominica | <ul style="list-style-type: none"> Dominican digital-only bank, DigiBank, partnered with Hong Kong online cryptocurrency exchange to develop a cryptocurrency called DGCoin. |
| Eastern Caribbean Central Bank (ECCB) | <ul style="list-style-type: none"> The ECCB has signed a MOU with Bitt Inc. to conduct a Fintech pilot on blockchain technology in the ECCB member countries. The objective of the pilot is to determine whether blockchain technology could be used to boost economic growth and competitiveness in the region. |
| Jamaica | <ul style="list-style-type: none"> The Bank of Jamaica has legislation in place that makes provisions for digital currency initiatives. It is currently developing guidelines for operationalizing a regulatory sandbox. |
| Montserrat | <ul style="list-style-type: none"> The Government of Montserrat has signed an MOU with Bitt Inc. to create a Digital Payments Ecosystem in Montserrat. The MOU includes a feasibility study designed to test the viability and functionality of Digital Eastern Caribbean dollars in the financial ecosystem of Montserrat. |

Sources: Various regional central banks and news agencies

⁶⁹ Updates are as at April 2018.

CENTRAL BANK OF TRINIDAD AND TOBAGO'S EXPERIENCE

Over the past year, the Central Bank has received numerous expressions of interest and enquiries from persons desirous of inter alia: establishing a digital exchange or digital wallet; digital ATMs; using DLT to enhance 'Know Your Customer' and conduct digital trading; launching ICOs; and collaborating with the Central Bank to issue a CBDC. Accordingly, the Central Bank has been keeping abreast of developments in the area in collaboration with other domestic and regional regulators and has been considering the potential monetary and financial stability implications associated with cryptocurrencies as well as how the existing legislative framework can be adapted to facilitate regulation of cryptocurrencies.

The Regulatory Framework

Currently, the Central Bank has the sole right to issue notes and coins in Trinidad and Tobago and such notes and coins are legal tender in Trinidad and Tobago. The Central Bank has not issued any digital currencies and as such, virtual currencies as defined are not legal tender in Trinidad and Tobago. Virtual currencies also have no intrinsic value of their own and derive their value from fiat currencies. They can also be very volatile. Consequently, purchasers of cryptocurrencies should take great care as they risk losing their investment.

The Central Bank's 2016 – 2020 Strategic Plan recognized its role as a catalyst in transforming the national payment system and included strategic objectives such as the development of an e-money policy, a virtual currency policy as well as development of a Payment System Act. It should be noted that the international conversation/debate on how to classify or regulate virtual currencies is ongoing. Further, the Central Bank is collaborating closely with other domestic and regional regulators to arrive at a policy stance.

In view of the foregoing, the Central Bank has determined that although dedicated legislation for the regulation of digital currencies is desirable, there is some scope for their oversight under section 36(cc) of the CBA when used as a payment system or for remittances. This is consistent with

the regulatory approach being proffered by the IMF, which advises that regulation should be activity-based. Similarly, in the Philippines the guidelines on virtual currency are based on the activity for which the virtual currency is being used, for example, payments and remittances.

Initial Coin Offerings

As highlighted above, consideration should be given to regulate the activities underlying the virtual currency such as exchange trading, raising of capital by public offerings and making payments and remittances and as such any of these activities using virtual currencies should likewise be regulated. Following the advertisement of an ICO in which persons were encouraged to participate, the TTSEC on February 23, 2018 issued a cautionary statement on ICOs which highlighted a number of risks associated with these ventures. The TTSEC at that time announced that it *"has not as of this date approved any initial coin offering. The on-going offerings are unregulated and speculative investments, with considerable risk to the investor"*. This was also followed by a similar announcement from the Ministry of Finance which supported the TTSEC's statement and further advised *"members of the public to exercise caution when engaging in any form of investment and when in doubt, seek the advice of the Regulated bodies – The Securities and Exchange Commission and/or the Central Bank of Trinidad and Tobago"*.

Issuance of Digital Currency Products/Services

Financial institutions regulated by the Central Bank are required to seek approval before launching any new or materially different products or services. Criteria for approval include evidence of having a sound risk management framework that addresses financial risks, operational and IT related risks inclusive of cyber risks.

Further, the Central Bank recognizes that licensees may opt to engage Fintechs to more efficiently deliver certain digital products and services. In this regard, the Central Bank advises that licensees are required to exercise robust due diligence over such relationships in order to protect customer information, ensure adequate cybersecurity and mitigate ML/TF risks. Thus the Central Bank intends to develop and issue outsourcing guidelines to its licensees.

Regulatory Collaboration

The Central Bank is actively participating on a number of regional committees/fora in order to progress its work on regulation of digital currencies. These include:

- **Caribbean Fintech Working Group (CFWG)**

The CFWG was established by the CARICOM central bank governors and will function as an advisory group to the Central Bank Governors on Fintech-related matters. The working group is currently undertaking research towards developing a common framework as far as possible for treating with digital currencies and have undertaken a survey across the various Caribbean countries to ascertain the status of cryptocurrencies in the region.

- **Centre for Latin American Monetary Studies (CEMLA) Fintech Forum**

The Central Bank is also a member in the recently established Fintech Forum by CEMLA which seeks “to address strategic challenges that financial innovation entails for monetary and financial stability and for the proper functioning of central banks of Latin America and the Caribbean”. The Central Bank will participate in the working group that is focused on developing a regulatory framework for the new and emerging Fintech solutions.

To date the Central Bank has adopted an accommodative stance on digital currencies and apart from its advice at the last FSR launch to persons seeking to invest in cryptocurrencies to get all relevant facts, it has not prohibited cryptocurrencies. On the contrary, the Central Bank has been engaging Fintechs and regulators alike in order to understand the phenomenon and implement an appropriate regulatory framework that would allow innovation and mitigate risks.

Accordingly, the Central Bank remains vigilant concerning the ongoing Fintech developments and the balancing of its public policy objectives. As such, the Central Bank is studying the issues with its regional and international counterparts to safeguard financial stability while at the same time encouraging innovation and new technologies.

CONCLUDING REMARKS

In the IMF June 2018 edition of Finance & Development, Christine Lagarde, IMF Managing Director, stated that regulators should respond to Fintech as follows:

“...on the one hand they must protect consumers and investors against fraud and combat tax evasion, money laundering and the financing of terrorism, ensuring that risks are thoroughly understood and managed. They must protect the integrity and stability of the financial system. On the other hand, they must be aware of stifling innovation that responsibly and sustainably benefits the public...”

BOX 5: ELEMENTS OF A REGULATORY SANDBOX

A new trend in financial services regulation has emerged, **the sandbox**, which allows regulators to provide a controlled and secure space in which Fintechs and licensed financial institutions can pilot test their innovative financial services and products before full scale launch to the public.

The Financial Conduct Authority in the United Kingdom is one of the first authorities to introduce this means of regulating Fintech companies that permit them to test their innovations prior to allowing them into the space. Since then a number of jurisdictions such as Australia, Abu Dhabi, Bahrain, Canada, Singapore, Switzerland, Malaysia and Hong Kong have implemented '**regulatory sandbox**' programs. This entails implementation of a set of rules that facilitate testing of products and business models in a live environment with minimal legal requirements. These programs usually have certain predefined experimentation criteria such as limitations on clients, time limit testing, predetermined exceptions and testing under regulator supervisions.

Regulatory and supervisory sandboxes vary across the jurisdictions but they do share some common features. Below highlights what the key elements of a sandbox for Trinidad and Tobago may entail.

Purpose of the Sandbox: To understand the new innovative financial services and products being developed by Fintechs, to observe if there are potential benefits and risks and to determine if the existing legislation/regulation can accommodate the (activity/entities) or whether new regulations have to be developed.

Targeted Entities: The entities that are allowed to participate in the sandbox will be in the first instance, Fintechs/start-ups, that are not licensed or registered under Financial Institutions Act, Central Bank Act, Exchange Control Act or Proceeds of Crime Act, that have developed novel payments related products/services that include digital currency solution which spans e-money and virtual currency and the application of blockchain or distributed ledger technology in financial services.

Operation of the Sandbox: To operate the sandbox the following are some of the key elements:

- Firms must register with the Central Bank to be able to participate in the sandbox. There will be pre-determined criteria that must be met for a firm to be able to participate in the sandbox. For instance, the firm must have developed its business model and have a finished product for testing, it must have designed its procedures and internal controls, have a risk management framework that addresses cyber risks, operational risks, financial risks and AML/CFT, fit and proper requirements.
- The product must be innovative and present benefits to the public such as addressing financial inclusion issues. It should be able to demonstrate efficiencies in cost and time.
- The firms in the sandbox could have up to one year to test their product with a minimum of six months to graduate from the sandbox once the regulator is satisfied with performance.
- The Central Bank will have to determine once a firm graduates which legislation it will be regulated under. For example:
 - o If there is no existing legislation. Will a letter of no objection be given based on the performance in the sandbox?
 - o If it is allowed to operate and/ or issued a 'no objection', does the Central Bank continue to monitor the firm? **This may be a good strategy for those that are engaged in e-money solutions.**

BOX 5: Continued

Safeguards: The safeguards for operating in the sandbox may include limits on the number of customers (perhaps a maximum of 25 but minimum 10), the value (a cap to be determined) and the duration (up to 1 year), reporting obligations (weekly), close monitoring, consumer protection, any regulations that cannot be waived in the sandbox example AML/CFT, fit and proper etc.

Resources: The Central Bank will require resources (both financial and specialist technical IT resources) to operate the sandbox. In most cases a **dedicated unit would have been set up to operate and monitor the sandbox.**

The above are some key considerations for a sandbox for Trinidad and Tobago and are not exhaustive. As indicated above, the sandbox is designed to create a secure environment where firms can, once they have qualified, enter the space to experiment with new ideas with a degree of regulatory oversight and support. Regulatory sandboxes may also be useful for those financial institutions that are looking to launch innovative new products that do not fit easily within the mold of existing financial services regulation.

BIBLIOGRAPHY

- Bech, Morton, and Rodney Garatt. "Central Bank Cryptocurrencies." *BIS Quarterly Review*, September 2017: 55 - 70.
- Carstens, Agustín. "Money in the digital age: what role for central banks?" *Bank for International Settlements*. 6 February 2018. <https://www.bis.org/speeches/sp180206.pdf>.
- Committee on Payments and Market Infrastructures and Board of the International Organization of Securities Commissions. *Guidance on cyber resilience for financial market infrastructures*. Bank for International Settlements and International Organization of Securities Commissions, 2016.
- Committee on Payments and Market Infrastructures and Markets Committee. *Central Bank Digital Currencies*. Bank for International Settlements, 2018.
- Committee on Payments and Market Infrastructures. *Digital Currencies*. Bank for International Settlements, 2015.
- Financial Action Task Force. *Virtual Currencies. Key Definitions and Potential AML/CFT Risks*. Financial Action Task Force, 2014.
- Lagarde, Christine. *Addressing the Dark Side of the Crypto World*. 13 March 2018. <https://blogs.imf.org/2018/03/13/addressing-the-dark-side-of-the-crypto-world/>.

APPENDIX

APPENDIX A






Banking Sector Loans by Sector, 2012 – 2017

| | TT\$ Million (Absolute values) | | | | | | TT\$ Million (Change) | | | | | Percentage Change (per cent) | | | | |
|--|--------------------------------|--------|--------|--------|--------|--------|-----------------------|------------------|------------------|------------------|------------------|------------------------------|------------------|------------------|------------------|------------------|
| PUBLIC SECTOR LOANS BY ACTIVITY SECTORS | Dec-12 | Dec-13 | Dec-14 | Dec-15 | Dec-16 | Dec-17 | Dec-12 Dec-13 | Dec-13 Dec-14 | Dec-14 Dec-15 | Dec-15 Dec-16 | Dec-16 Dec-17 | Dec-12 Dec-13 | Dec-13 Dec-14 | Dec-14 Dec-15 | Dec-15 Dec-16 | Dec-16 Dec-17 |
| | | | | | | | | | | | | | | | | |
| Petroleum | 541 | 723 | 790 | 660 | 1,545 | 1,553 | 182 | 67 | (130) | 885 | 8 | 33.6 | 9.2 | -16.4 | 134.1 | 0.5 |
| Construction | 1,940 | 1,463 | 3,130 | 3,630 | 1,593 | 1,418 | (477) | 1,667 | 501 | (2,037) | (175) | -24.6 | 113.9 | 16.0 | -56.1 | -11.0 |
| Transport, Storage and Communication | 538 | 999 | 738 | 1,223 | 1,120 | 1,178 | 461 | (261) | 485 | (103) | 57 | 85.8 | -26.1 | 65.7 | -8.4 | 5.1 |
| Finance, Insurance and Real Estate | 1,337 | 1,105 | 1,872 | 2,026 | 2,555 | 2,585 | (232) | 767 | 153 | 530 | 30 | -17.3 | 69.4 | 8.2 | 26.1 | 1.2 |
| Electricity and Water | 693 | 1,059 | 1,128 | 3,069 | 2,555 | 2,639 | 366 | 69 | 1,941 | (514) | 83 | 52.8 | 6.5 | 172.0 | -16.7 | 3.3 |
| Other | 484 | 628 | 829 | 456 | 616 | 25 | 144 | 201 | (373) | 160 | (591) | 29.7 | 32.1 | -45.0 | 35.0 | -95.9 |
| TOTAL | 5,534 | 5,977 | 8,488 | 11,065 | 9,985 | 9,398 | 443 | 2,510 | 2,577 | (1,079) | (587) | 8.0 | 42.0 | 30.4 | -9.8 | -5.9 |
| BUSINESS CREDIT ACTIVITIES | TT\$ Million (Absolute values) | | | | | | TT\$ Million (Change) | | | | | Percentage Change (per cent) | | | | |
| | Dec-12 | Dec-13 | Dec-14 | Dec-15 | Dec-16 | Dec-17 | Dec-12 Dec-13 | Dec-13 Dec-14 | Dec-14 Dec-15 | Dec-15 Dec-16 | Dec-16 Dec-17 | Dec-12 Dec-13 | Dec-13 Dec-14 | Dec-14 Dec-15 | Dec-15 Dec-16 | Dec-16 Dec-17 |
| Real Estate Mortgage Loans | 3,989 | 4,206 | 4,748 | 5,290 | 5,552 | 6,161 | 217 | 542 | 542 | 262 | 610 | 5.5 | 12.9 | 11.4 | 4.9 | 11.0 |
| Finance, Insurance and Real Estate Companies | 7,057 | 6,249 | 7,243 | 6,622 | 7,580 | 8,515 | (808) | 994 | (621) | 958 | 935 | -11.4 | 15.9 | -8.6 | 14.5 | 12.3 |
| Services | 6,489 | 7,260 | 7,268 | 6,982 | 6,936 | 7,447 | 771 | 8 | (287) | (45) | 511 | 11.9 | 0.1 | -3.9 | -0.6 | 7.4 |
| Manufacturing | 3,648 | 3,416 | 3,150 | 3,869 | 4,328 | 4,044 | (232) | (266) | 719 | 460 | (284) | -6.4 | -7.8 | 22.8 | 11.9 | -6.6 |
| Construction | 2,817 | 2,915 | 2,796 | 2,605 | 2,475 | 1,715 | 98 | (120) | (191) | (130) | (760) | 3.5 | -4.1 | -6.8 | -5.0 | -30.7 |
| Other (Agri, Petrol, Lease) | 1,600 | 1,160 | 1,540 | 1,763 | 913 | 1,186 | (440) | 380 | 223 | (850) | 273 | -27.5 | 32.8 | 14.5 | -48.2 | 29.9 |
| TOTAL | 25,599 | 25,206 | 26,745 | 27,130 | 27,785 | 29,069 | (393) | 1,539 | 385 | 655 | 1,284 | -1.5 | 6.1 | 1.4 | 2.4 | 4.6 |
| CONSUMER LOAN BY PURPOSE | TT\$ Million (Absolute values) | | | | | | TT\$ Million (Change) | | | | | Percentage Change (per cent) | | | | |
| | Dec-12 | Dec-13 | Dec-14 | Dec-15 | Dec-16 | Dec-17 | Dec-12 Dec-13 | Dec-13 Dec-14 | Dec-14 Dec-15 | Dec-15 Dec-16 | Dec-16 Dec-17 | Dec-12 Dec-13 | Dec-13 Dec-14 | Dec-14 Dec-15 | Dec-15 Dec-16 | Dec-16 Dec-17 |
| Real Estate including Mortgages | 11,746 | 12,790 | 14,091 | 15,151 | 15,775 | 16,645 | 1,045 | 1,301 | 1,060 | 624 | 870 | 8.9 | 10.2 | 7.5 | 4.1 | 5.5 |
| Vehicles | 2,829 | 3,162 | 3,754 | 4,573 | 4,914 | 5,063 | 333 | 591 | 819 | 341 | 148 | 11.8 | 18.7 | 21.8 | 7.5 | 3.0 |
| Credit Cards | 1,978 | 2,137 | 2,303 | 2,392 | 2,720 | 2,886 | 158 | 166 | 90 | 328 | 166 | 8.0 | 7.8 | 3.9 | 13.7 | 6.1 |
| Refinancing | 1,530 | 1,653 | 1,748 | 1,842 | 1,938 | 2,140 | 124 | 95 | 93 | 96 | 202 | 8.1 | 5.7 | 5.3 | 5.2 | 10.4 |
| Consolidation of debt | 1,353 | 1,572 | 1,603 | 1,675 | 1,844 | 2,139 | 219 | 31 | 72 | 169 | 295 | 16.2 | 2.0 | 4.5 | 10.1 | 16.0 |
| Other Purposes | 3,008 | 3,255 | 3,274 | 3,357 | 3,446 | 3,549 | 247 | 19 | 83 | 90 | 103 | 8.2 | 0.6 | 2.5 | 2.7 | 3.0 |
| TOTAL | 22,444 | 24,570 | 26,772 | 28,990 | 30,638 | 32,422 | 2,126 | 2,203 | 2,218 | 1,648 | 1,784 | 9.5 | 9.0 | 8.3 | 5.7 | 5.8 |

Source: Central Bank of Trinidad and Tobago

APPENDIX B

Commercial Banking Sector Stress Testing Results, 2016 – 2017

| | | Dec-16 | Mar-17 | Jun-17 | Sep-17 | Dec-17 | |
|---------------------------------------|--|--------|--------|--------|--------|----------------|------------------------------------|
| Pre-Shock CAR | | 21.9 | 21.8 | 21.4 | 21.8 | 21.0 | |
| Pre-Shock CAR Adjusted for Provisions | | 20.5 | 20.6 | 20.1 | 20.7 | 20.0 | |
| SINGLE FACTOR TESTS | | | | | | | |
| | | | | | | Post-Shock CAR | Change from Pre-Shock Adjusted CAR |
| Interest Rate Risk | Interest Rate  700 basis points | 10.5 | 10.0 | 10.6 | 10.0 | 9.8 | -10.1 |
| | Interest Rate  100 basis points | 21.9 | 22.0 | 21.4 | 22.2 | 21.3 | 1.4 |
| Foreign Exchange Risk | TT Dollar depreciates 40 per cent | 22.0 | 22.2 | 21.6 | 22.3 | 21.6 | 1.6 |
| Credit Risk | Credit Portfolio worsens on account of 20 per cent decline in GDP | 18.5 | 18.6 | 18.2 | 18.7 | 17.9 | -2.0 |
| Credit Risk - Property Prices | Property Prices  30 per cent | 18.5 | 18.5 | 18.1 | 18.6 | 17.8 | -2.1 |
| SCENARIO TESTS | | | | | | | |
| | | | | | | Post-Shock CAR | Change from Pre-Shock Adjusted CAR |
| Energy Price Shock | Price  50 per cent - No Policy Response | 12.2 | 11.9 | 12.3 | 11.9 | 11.7 | -8.3 |
| | Price  50 per cent - Policy Response | 21.5 | 21.6 | 21.0 | 21.7 | 21.0 | 1.0 |
| Regional Disaster Scenario | Regional Natural Disaster | 19.7 | 19.7 | 19.2 | 19.8 | 19.0 | -1.0 |
| DAYS UNTIL ILLIQUID | | | | | | | |
| Liquidity Risk | Bank Run | 72 | 71 | 68 | 68 | 64 | |

Source: Central Bank of Trinidad and Tobago

APPENDIX C

Macro-prudential Surveillance Indicators

Regulators have developed an array of quantitative and qualitative measures for identifying financial stability risks. The 2007-08 global financial crisis revealed that, due to the complexity and interlinkages of financial systems, these indicators may not provide enough guidance on systemic risks. Systemic risks can instead be more efficiently assessed from several dimensions when data is consolidated and structured to factor in key features of financial stability. Consequently, macro-prudential authorities have been developing more dynamic, composite measures of financial stability or macro-prudential surveillance indicators (MSIs).

The financial stability objective of the Central Bank of Trinidad and Tobago (the Central Bank) is to maintain confidence in, and promote the safety and soundness of, the domestic financial system. Macro-prudential surveillance focuses on the identification of systemic risk, that is, risk from the financial system in aggregate as opposed to imbalances in individual financial institutions. The Central Bank has been using Financial Soundness Indicators for the banking sector and insurance sector for more than a decade but has only recently expanded the surveillance toolkit to incorporate MSIs.

MSIs are used to signal financial tensions which enable policymakers to properly assess systemic risks. If these risks materialize, MSIs can aid systemic risk mitigation by guiding policy calibration. The MSIs developed by the Central Bank thus far include; the Credit-to-GDP gap^{TT}, the Systemic Risk Accumulation Index, the Aggregate Financial Stability Index, the Financial Conditions Index and the Banking Stability Index (**Table 1**).

The latest data suggests that the domestic financial system is fairly stable with low to moderate risk levels as at the end of December 2017 (**Table 2**). While these MSIs currently serve as a complementary set of early warning indicators, it is envisaged that the macro-prudential surveillance framework will evolve over time as new data sources become available, new risks are identified and thresholds appropriately calibrated.

Table 1
Summary of Macro-prudential Surveillance Indicators

| INDEX | DESCRIPTION | DATA AND METHODOLOGY | INTERPRETATION |
|--|---|---|--|
| Credit-to-GDP gap^{IT} | The Credit-to-GDP gap is the difference between the total private sector Credit-to-GDP ratio and its long term trend. | A quasi-real time estimate for excessive credit growth was derived by applying a two-sided HP filter with a 130,000 smoothing parameter to an ARFIMA forecast augmented Credit-to-GDP ratio. The Credit-to-GDP ratio is comprised of consolidated banking sector private sector credit and the three year moving average of GDP. | When the current value of the Credit-to-GDP ratio exceeds the indicator's long-term trend, it implies consumption credit is growing faster than the country's productive capacity (GDP). |
| Systemic Risk Accumulation Index | Determines the magnitude and source of systemic risk build-up across the financial system and the real sector. | The Systemic Risk Accumulation Index was constructed by applying principal component analysis (PCA) assumptions to a list of indicators (more specifically ten variables) that based on theoretical considerations best captures the accumulation of imbalances which may inhibit the resilience of the financial system to systemic risks. | Negative values denote systemic risk build-up and positive values accelerated systemic-risk build-up. Policymakers typically consider some form of policy response at values above 0.5 (this can suggest elevated levels of accelerated systemic risk accumulation). |
| Aggregate Financial Stability Index | The index uses a combination of macroeconomic and financial variables to capture domestic and external shocks to stability. | Eighteen variables are aggregated into sub-indices of vulnerability, financial soundness, development and world economic performance. Data is then empirically normalized and equally weighted. | Satisfactory financial stability values are around 0.5, while movements towards 0 highlight financial stability deteriorations and movements towards 1 are improvements. |
| Financial Conditions Index | The Financial Conditions Index estimates stress in domestic funding conditions which can precede a crisis. | Twelve variables were selected which describe monetary and financial conditions. | Values which exceed ± 1 highlight vulnerable funding conditions. Values near zero are considered 'low risk' conditions. |
| Banking Stability Index | The Banking Stability Index examines the aggregate resilience of the banking sector separately due to the sector's significance to the domestic financial system. | Ten variables were scaled using standard normalization. The data was then summarized using the CAMELS approach and aggregated based on the equal weighting method. | Index values fall within a range of ± 1 . Average financial stability values are close to zero, with values close to ± 0.5 indicating overheating or financial distress. |

Source: Central Bank of Trinidad and Tobago

Table 2
Macro-prudential Surveillance Indicators Heat Map



Source: Central Bank of Trinidad and Tobago

Note: Risk summaries for each index are based on end of period values. A negative Credit-to-GDP gap does not suggest evidence of systemic risks. Instead, it implies that there is room for additional borrowing.



CENTRAL BANK OF
TRINIDAD & TOBAGO

FINANCIAL STABILITY REPORT 2017