FINANCIAL STABILITY REPORT 2015

CENTRAL BANK OF BARBADOS

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Preface

This is the fifth issue of the Central Bank of Barbados' Financial Stability Report, produced in collaboration with the Financial Services Commission (FSC). The Central Bank and the FSC are jointly responsible for the continuous oversight of the financial system, the assessment of vulnerabilities and the initiation of policies to increase the resilience of the system in the face of possible adverse events. The Central Bank's Financial Stability Unit works with the FSC's staff to ensure a thorough assessment of the risk exposures of banks, insurance companies, credit unions and other depository financial institutions. This report analyses a range of financial stability indicators for financial institutions, as well as balance sheet and income and expenditure trends. For the banking system, macroeconomic forecasts are also used to project expectations for the quality of credit. Progressively intensified stress tests are used to evaluate a range of possible financial risks for both depository financial institutions and the insurance sector.

In July of each year, the Central Bank publishes an update on the annual FSR.

Abbreviations

Abbreviation	*Meaning*
AML	Anti-Money Laundering
CAR	Capital Adequacy Ratio
CARICOM	Caribbean Community
CFT	Countering Financing of Terrorism
CBB	Central Bank of Barbados
DTI	Deposit Taking Institution
ECCU	Eastern Caribbean Currency Union
FATF	Financial Action Task Force
FIA	Financial Institutions Act
FOMC	Financial Oversight Management Committee
FSC	Financial Services Commission
FSR	Financial Stability Report
GDP	Gross Domestic Product
GPW	Gross Premiums Written
IBC	International Business Companies
IMF	International Monetary Fund
KYCC	Know Your Customer's Customer
NPL	Non-performing Loan
ROA	Return on Assets

1. Overview

The Barbadian financial system continued to demonstrate its resilience in 2015 despite the challenging economic environment. Commercial banks remained central to the financial system and with all banks foreign-owned, the health of their parent entities continued to be critical to domestic stability. Additionally, given that most interbank exposures take the form of cross-border exposures to their parent entities, the financial soundness of parents decreases the likelihood of reputational risk generating spill-overs into the domestic banking sector. During 2015, all parent banks continued to be assessed as “investment grade” by global rating agencies and banking systems were all deemed “financially sound” based on results reported in their national financial stability reports.

The performance of the local banking sector improved over the twelve months to September 2015. Write-offs of bad loans fell sharply from their peak in 2013 and the non-performing loan (NPL) overhang displayed significant signs of recovery for commercial banks in particular. There was also a substantial recovery in profitability due not only to improvements in the quality of the credit portfolio, but also to a wider gap between interest paid out to depositors and interest received on loans. However, loan growth remained weak.

With the local economic recovery still tentative, the performance of the various sectors of the financial system was uneven. For trust and finance houses, credit portfolios contracted to levels below twelve months ago and NPLs increased modestly over the period. While these institutions did not benefit as much from reduced interest expense on deposits, trust and finance companies also experienced increased profitability due mainly to lower provisioning and higher fee income. Unlike banks, and similar to trust and finance entities, the level of non-performing loans held by the credit unions continued to climb, although the majority of the increase was captured in the least severe category. However, credit unions registered significantly higher lending to their membership, resulting in a marginally lower NPL ratio. Capital adequacy remained above regulatory requirements despite falling below the levels of the previous year.

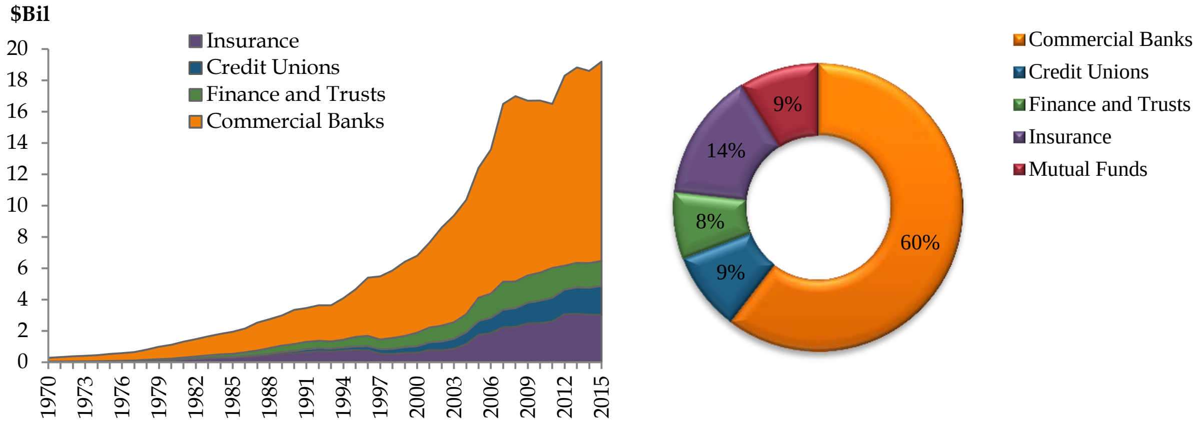
A similar mixed performance was recorded by the insurance sector for the latest year in which data was available (2014): insurance firms recorded a decline in overall assets, but strong growth in premiums for both the life and general insurance sub-sectors. However, the general insurance industry made underwriting losses for the second successive year which, along with significant declines in investment income, led to lower net income levels.

Financial soundness indicators and stress tests on the deposit-taking institutions did not differ markedly from those in the financial stability reports of prior years. The range of stress tests for commercial banks included liquidity risk, contagion exposures (intercompany), the ability to absorb credit shocks, foreign exchange exposures and interbank exposures. Overall, these results indicated that the system is stable and would be able to overcome an adverse range of shocks. Stress testing for the insurance sector included the impact of recessionary, pandemic and natural catastrophe shocks. Also considered was the industry’s sensitivity to increased claims, revaluation of technical provisions and re-insurance default. As was the case for the banks, the industry appeared to be reasonably resilient to the possible shocks identified.

2. Structure of the Financial System

The overall structure of the domestic financial system remained virtually unchanged from one year ago. Commercial banks continue to hold the majority of the financial sector's assets (60 percent), with insurance companies accounting for 14 percent, and trust and finance companies, credit unions and mutual funds each holding less than 10 percent.

Figure 1: Assets of the Financial System by Institutional Type[1]



Source: Central Bank of Barbados and Financial Services Commission

Key characteristics of the Barbadian financial landscape include concentration, interconnectivity, and cross-border linkages among the institutions. Concentration is a structural feature across both the deposit-taking and non-deposit taking institutions. For example, all five banks operating in Barbados are affiliated with parents domiciled in other jurisdictions – three based in Canada and two in Trinidad and Tobago. The three Canadian banks account for 75 percent of total bank assets. Similarly, the credit union sector is heavily skewed, as just four of the thirty-five credit unions account for more than 83 percent of total assets, membership, loans and deposits. Life insurance companies account for 77 percent of total industry assets. However, most of the assets in the life insurance industry are held by one entity, while the non–life market is more competitive. The largest insurance group has both life and non-life operations however, and accounts for 60 percent of the total industry. Moreover, its operations span several territories (including the US) and include companies providing mutual funds, asset management and financing. The major insurance companies operate both regionally and internationally (although several smaller insurers operate solely in the domestic market), and have finance and trust subsidiaries, mutual funds and pension investment businesses. While some trust and finance companies are owned by banks, others are associated with credit unions or other non-financial conglomerates.

Commercial banks remain the heart of the financial system, not only due to asset size, but also in terms of their role in facilitating savings and transaction services to other financial entities. Table 1 indicates that most financial entities hold significant balances with commercial banks. Trust and finance companies, credit unions and insurance companies in particular have large gross exposures to banks, representing approximately 23, 44 and 21 percent of their capital,

[1] Mutual fund data is not available for the entire historical period.

respectively. On the other hand, commercial banks' exposures to all other financial institutions combined only represents 12 percent of their capital, with more than half being held with affiliated trust and finance companies.

Table 1: Financial Institutions Gross and Net Exposures to Commercial Banks

($Millions)	Gross Exposures	Net Exposures
Finance, Trust & Mortgage	165	79
Credit Unions	98	98
Other Depository Corporations	27	10
Insurance Companies	197	188
Pension Funds	11	11
Non Deposit Finance Companies	11	11
Investment Pools & Unit Trusts	32	27
Securities Underwriters & Dealers	39	35
Public Financial Institutions	180	180
Other Resident Financial Corporations	404	373
Total	$1,162	$1,011

Source: Central Bank of Barbados

Loans continue to be the mainstay of the banking business, accounting for 60 percent of assets of deposit taking institutions (DTIs), with mortgage debt being almost half of all credit extended (See Box 1-An Analysis of Mortgage Trends in Barbados). Financial institutions are also significantly invested in local government paper, which contributes another 17 percent to their asset base.

Collectively, the total liabilities of the financial system grew three percent over the last year to reach $21 billion at September 2015, equivalent to 239 percent of GDP.[2] The majority of this growth was driven by a $440 million increase in commercial bank deposits during the past 12 months. Of this sum, $367 million were deposited with the Central Bank and $33 million placed in other investments. Trust and finance companies' contributed to this increase with a $36 million increase in deposits which were placed with other financial institutions. Credit unions saw an increase of $120 million in members' shares and deposits; and expanded their loan portfolio by $93 million, while increasing their investments by $15 million. On the assets side, while banks' growth stemmed from their holdings of short term government securities and cash, the credit unions' resulted from increased lending to members.

[2] Other operations within the financial space include the securities market and pension funds; however, data on the latter two are not available.

Table 2: Structure of Financial Services Sector to GDP

($Millions)	Total Liabilities	% of GDP
Commercial Banks	12,733	145
Insurance Sector	3,020	34
Trust & Finance Companies	1,590	18
Credit Union Sector	1,850	21
Mutual Funds	1,877	21
Total	**21,071**	**239**

Source: Central Bank of Barbados and Financial Services Commission

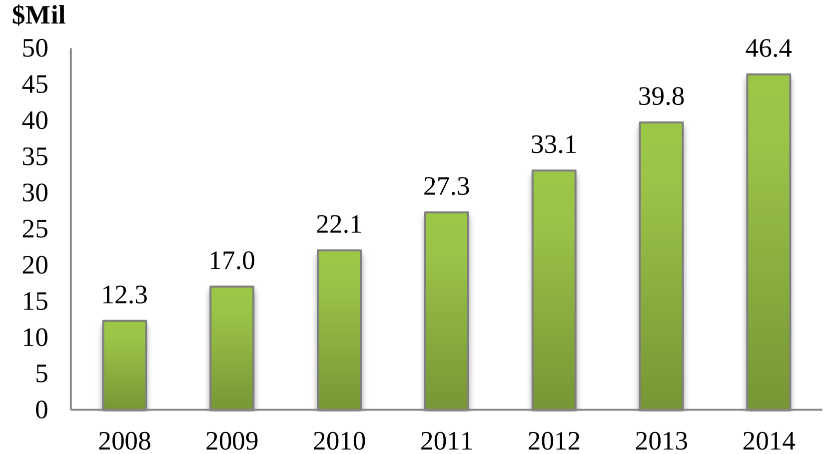
Even though commercial banks continue to dominate the domestic financial space, there has been a slight erosion of their share of total assets over the last decade (Figure 1). While maintaining lending to individuals, banks have recorded a contraction in lending to business over the previous three years. In contrast, the credit unions' focus on personal/consumer credit allowed their share of total assets to rise to 9 percent, compared to 6 percent in 2005.

The second largest component of the financial system, insurance companies, has assets valued at $3.02 billion or 34 percent of GDP. There were six licensed life insurers and fifteen general insurers at the end of 2014. The majority of investments are held in Barbados by statutory stipulation and most are in the form of Barbados government debt securities. Life insurers hold a higher proportion of long-term Government bonds than general insurers, and hence the potential risk arising from any investment portfolio declines is greater for these firms. General insurers annually cede a significant proportion of premiums written to re-insurers. Though a risk-diversifying tool, this requires careful scrutiny of re-insurance relationships and restricts the build-up of capital within the sector.

Oversight of the financial system is shared between the Central Bank of Barbados, the Financial Services Commission (FSC) and the Deposit Insurance Corporation in the form of a Financial Oversight Management Committee (FOMC). The FOMC continued to meet in 2015 in an effort to review potential threats to the stability of the financial system and ensure the efficient interchange of information between these regulatory bodies.

Confidence in the financial system is supported by the existence of the Deposit Insurance Corporation, which guarantees each depositor up to $25,000 on domestic currency accounts. As at year-end 2014, over 90 percent of qualified accounts in the Barbadian banking system were fully covered in the event of an institution's collapse. The deposit insurance fund has shown steady growth since its inception in 2007 and was last valued at $46 million.

Figure 2: Deposit Insurance Fund

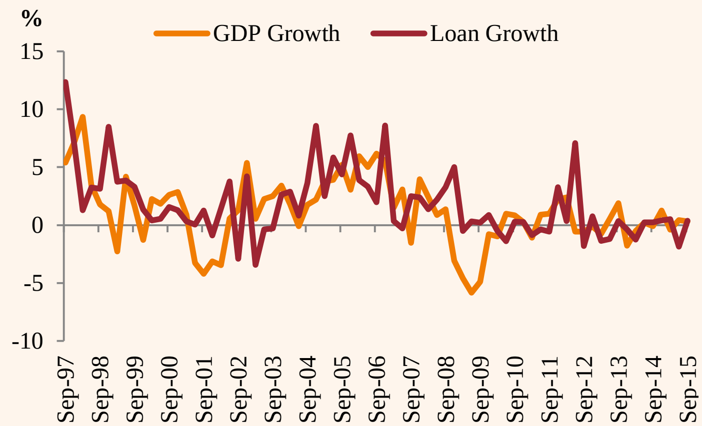


Source: Barbados Deposit Insurance

Box 1: An Analysis of Mortgage Trends in Barbados

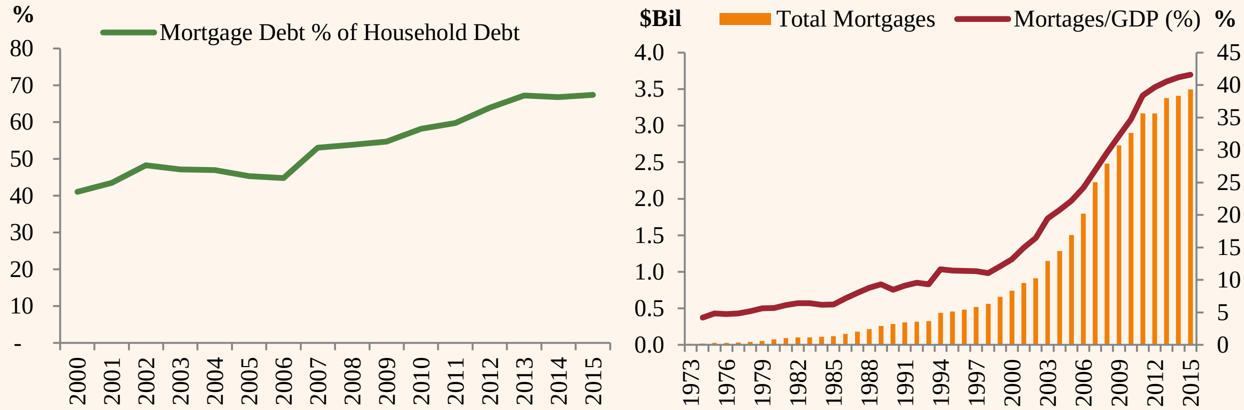
Loan growth is a useful indicator of economic activity and is therefore of key interest to policy makers. Figure A illustrates the relationship between quarterly loan growth and GDP growth for Barbados, and suggests an overall positive association over the period shown. Indeed, credit availability promotes business activity which in turn spurs additional lending, creating multiple second-round effects within the economy.

Figure A: Loan Growth vs. GDP Growth



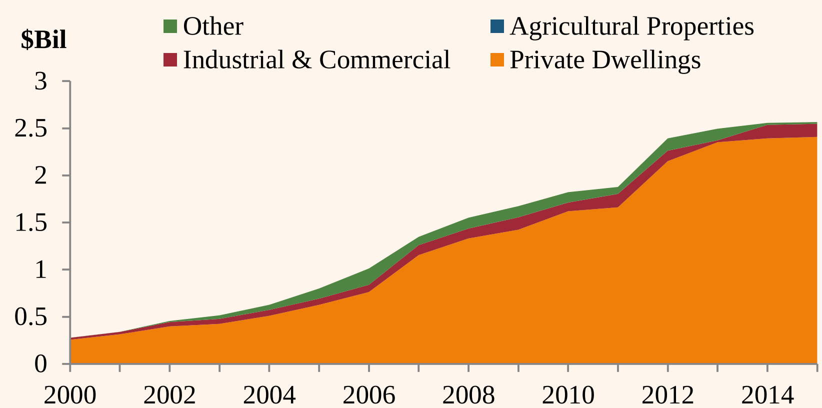
Credit in the Barbadian financial system is dominated by the mortgage market, accounting for 43 percent of total loans for commercial banks, 48 percent for credit unions, and 85 percent of loans for trust and finance houses at September 2015. In addition, mortgages are generally the largest and longest liabilities incurred by most households accounting for approximately 66 percent of total household debt (Figure B). Mortgage lending also has a significant impact on construction employment, and the structure component of gross capital formation.

Figure B: Mortgage Debt of the Financial System



A reflection of the boom in housing and villa construction from 2003 to 2007, mortgages held by the financial system more than doubled as a percentage of GDP moving from 16.4 percent in 2003 to 42 percent of GDP by 2015. While villa purchases have been largely funded externally, most of the growth in mortgages was in fact driven by the demand for locally based private residential dwellings (Figure C). Figure B also illustrates that while the mortgage market has grown strongly since 2003, this growth has tailed off over the last five years, in line with dampened economic activity.

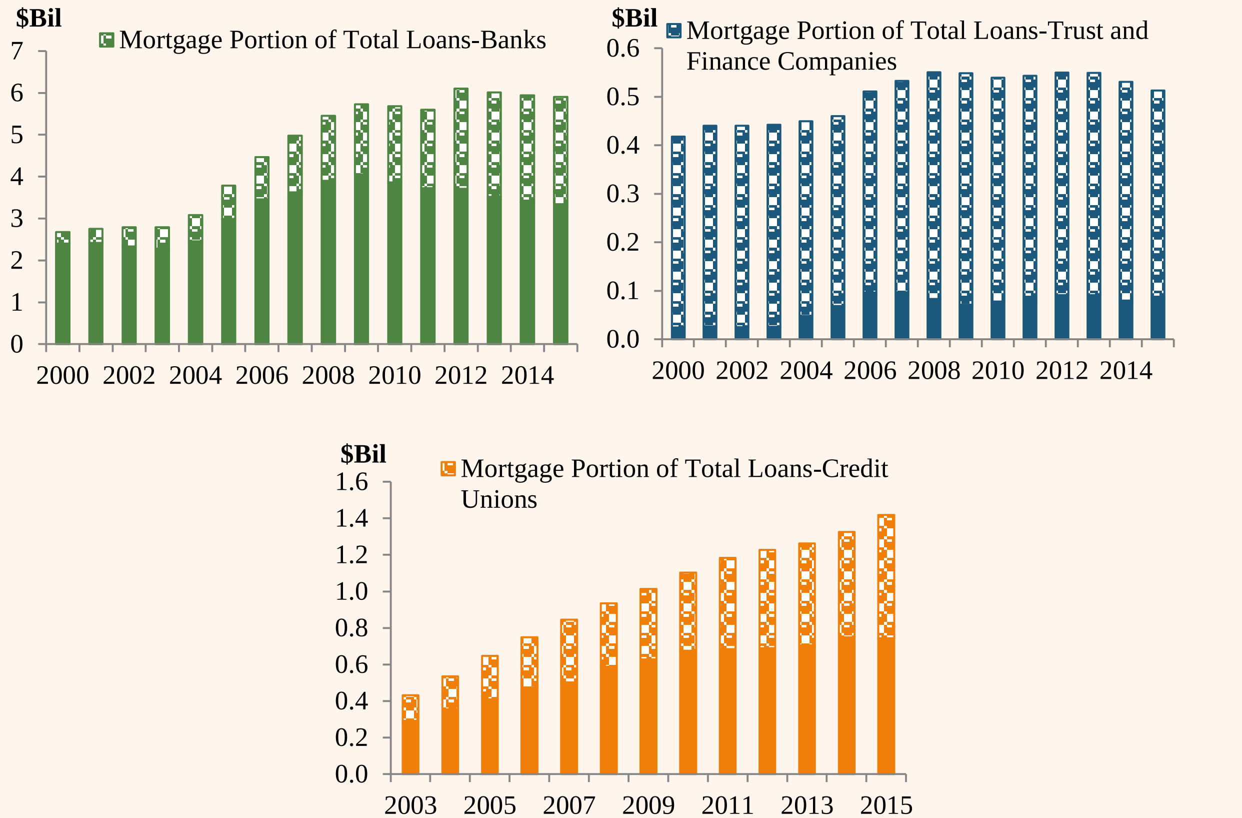
Figure C: Mortgage Loans (2000-2015)



Unlike some jurisdictions which securitize mortgage holdings, financial institutions in Barbados hold originated mortgages on their balance sheet. Mortgages are considered secured, as the debt incurred by the borrower is mitigated by the potential ability of the lender to sell the property in the event of a default.

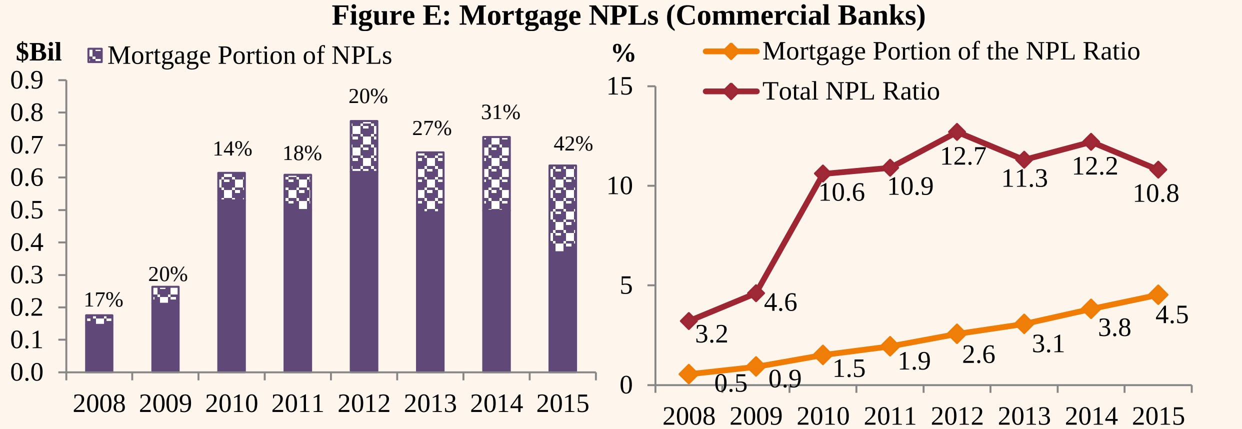
In absolute terms, the bulk of mortgages are held by the commercial banks, but in percentage terms, the highest exposures are by finance and trust entities which specialise in mortgage services (Figure D). Past attempts by the Central Bank to control mortgage demand led to the development of the trust and mortgage finance sectors in an effort to bypass regulatory controls. These entities are currently regulated under Part III of the Financial Institutions Act (FIA) and remain a significant part of the financial landscape although several have been reabsorbed into their parent entities over time. However, even considering the combined bank and finance and trust entities as one body, the growth in bank exposure to mortgages has been extraordinary with the combined category more than doubling its share of holdings in just over a decade.

Figure D: Mortgages to Total Loans (2000-2015)



Given its size, the default experience of the mortgage category becomes a relevant consideration for financial stability, especially for the banks. Figure E indicates that the increase in the proportion of banks' mortgages in NPLs outpaced the growth of mortgages as a proportion of total loans. Banks' mortgages in NPLs rose substantially from 17 percent to 42 percent between 2008 and 2015 compared to the growth of mortgages as a proportion of total loans, from 27 percent to 43 percent. Given the NPL ratio of 10.8 percent at September 2015, just under half (4.5 percent) relates to mortgage loans, at September 2015.

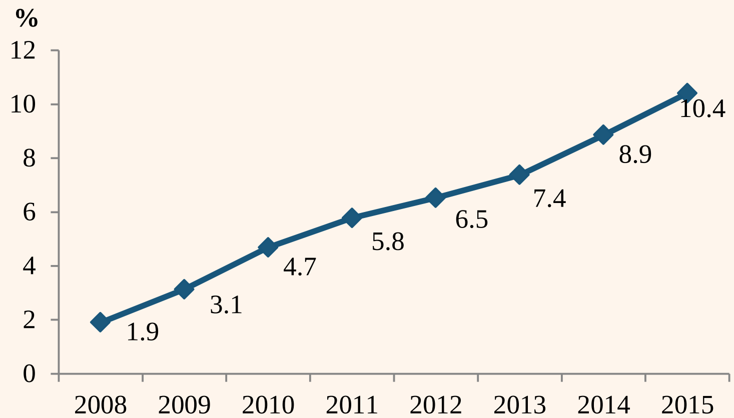
Figure E: Mortgage NPLs (Commercial Banks)



At the same time, the default rate on mortgages, the mortgage NPL ratio, rose from 1.9 percent in 2008 to around 10.4 percent at September 2015. While commercial loans boosted the overall NPL ratio from

2009, the mortgage portfolio has become increasingly important with the resolution of several of the larger commercial loans. Despite this increase, the worst of the commercial banks' mortgage portfolio problems appears to be behind them as many of these mortgages are relatively old, and banks have already taken substantial write-offs over the last five years. Their retention in the NPL ratio largely reflects the slow rate of legal resolution of many of these defaulting mortgages.

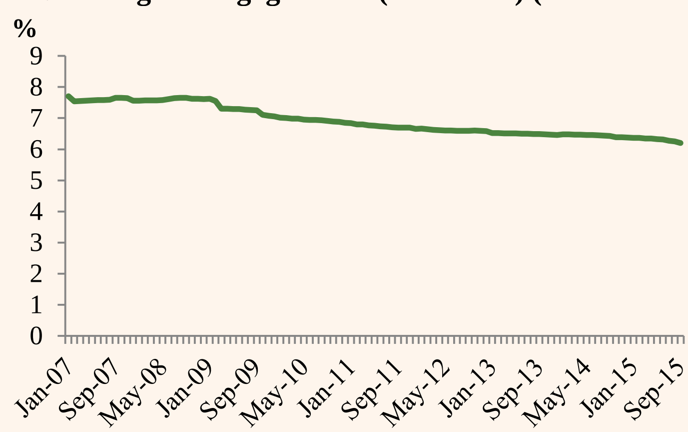
Figure F: Default Rate on Mortgages (% of Total Mortgages) (Commercial Banks)



Under Central Bank's classification scheme, the availability of collateral results in mortgages remaining in the least severe classification for non-performing debt, despite the aging of these loans. However, progressive stress tests conducted to account for potential under-provisioning in the "substandard" portfolio, indicated that banks remained adequately capitalized. Thus, while the impact of non-performing mortgages remains higher than desired, their elevated levels do not directly threaten the financial stability of the commercial banking system.

In addition to the rising demand for higher quality housing, part of the growing supply of housing has been realised by the greater affordability of mortgages for households. Since 2007, the average mortgage interest rates have exhibited a gradual reduction, falling from 7.5 percent in 2007 to 6.2 percent in 2015. This is in line with the generally declining interest rate environment.

Figure G: Average Mortgage Rates (2007-2015) (Commercial Banks)



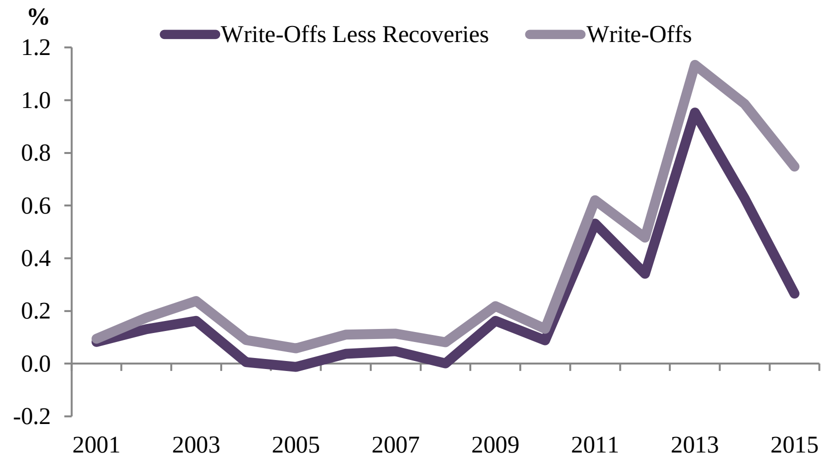
Source: Central Bank of Barbados and the Financial Services Commission

3. Analysis of the Financial System

3.1 Commercial Banks[3]

Credit risk within banks' overall portfolio declined moderately over the 12 months to September 2015. Loans written-off fell to 0.75 percent of total loans, or by about one-third of its peak in September 2013. The improvement was even more notable, when recoveries were taken into account, with net write-offs averaging 0.3 percent of total loans, reverting closer to pre-crisis levels.

Figure 3: Write-Offs to Total Loans (%)



Source: Central Bank of Barbados

This recovery was reflected in an $88 million reduction in gross classified debt, which along with a decline in total loans of $35 million, caused the NPL ratio to fall to 10.8 percent at September 2015, from 12.2 percent one year ago. This improvement was broad-based across each institution and across most sectors, with notable declines in the tourism ($50 million), personal ($19 million) and real estate ($7 million) loans.

Figure 4: Classification of Total Loans

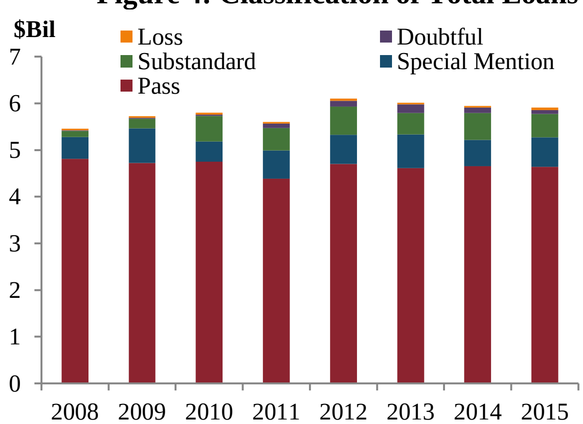
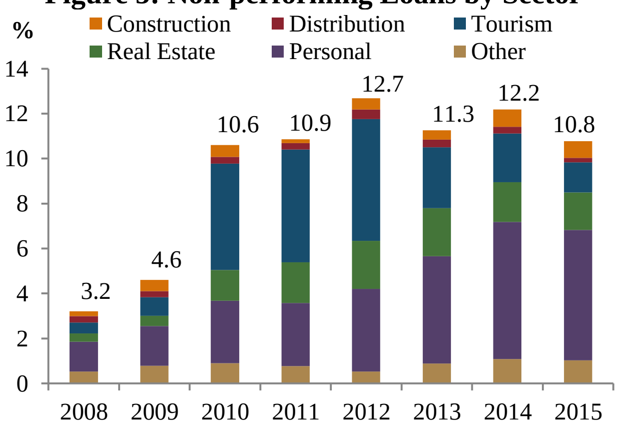


Figure 5: Non-performing Loans by Sector

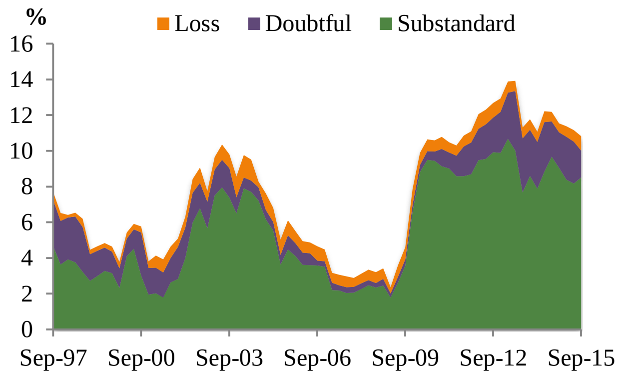


Source: Central Bank of Barbados

[3] All data as at September 2015.

The majority of NPLs are associated with personal loans (54 percent), 85 percent of which are mortgage-related, followed by real estate (16 percent) and tourism (13 percent). Mortgages, because of the inherent presence of collateral, are only placed in the substandard category of NPLs if the underlying loan has been non-performing for greater than six months (see Box 1). As a result, NPLs continue to be mainly concentrated in the substandard category which accounted for 79 percent of gross classified debt, and which only required at most 10 percent provisioning. The doubtful and loss categories represented the remaining 13 percent and 8 percent of NPLs respectively.

Figure 6: Non-performing Loans by Classification



Source: Central Bank of Barbados

Provisions for losses are significantly in excess of the statutory requirement, with excess holdings more than 100 percent of the required amount, and enough to cover 55 percent of total gross classified debt. Though the required level of provisions declined marginally over the last year in-line with a lower NPL ratio, total provisioning continued to increase, continuing a trend experienced over the last three years. The capital adequacy ratio (CAR) also remained well over prescribed levels, ending the period at 20.6 percent.

Figure 7: Provisions for NPLs

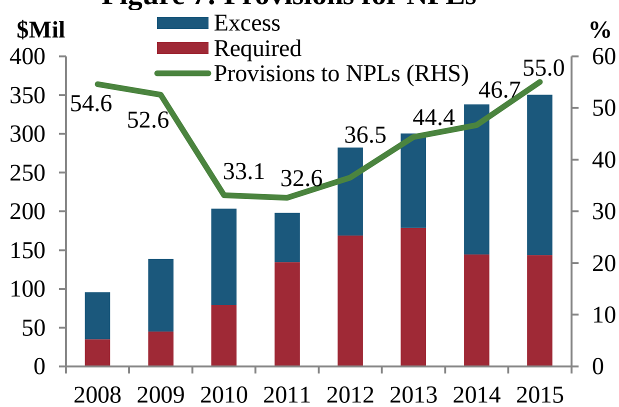
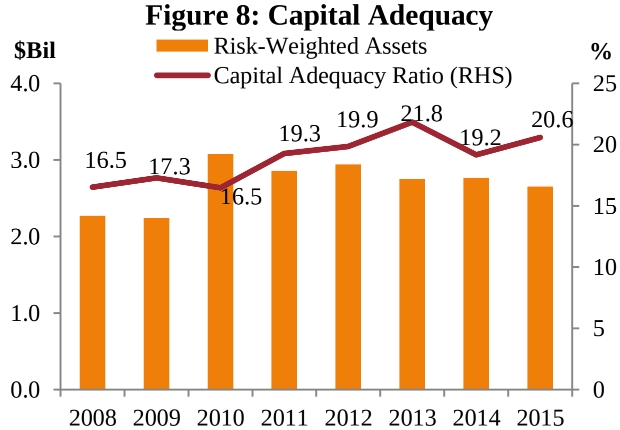


Figure 8: Capital Adequacy



Source: Central Bank of Barbados

Overall assets grew 4.9 percent ($497 million) mainly because of higher balances at the Central Bank to the tune of $367 million, and a $33 million increase in investments. Banks continued to re-allocate their investment portfolio from long-term to short-term, with treasury-bill holdings growing $151 million, and debentures and treasury notes declining $116 million. While loans continued to be the mainstay of the banking business, accounting for 56 percent of total assets, lending contracted over the period, falling by $35 million or 0.6 percent.

Figure 9: Asset Distribution

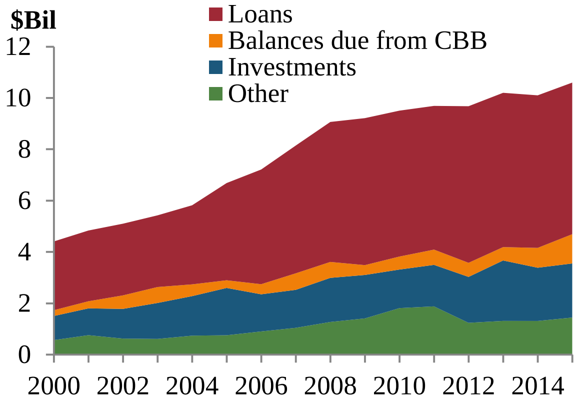


Figure 10: Asset Growth (2015)

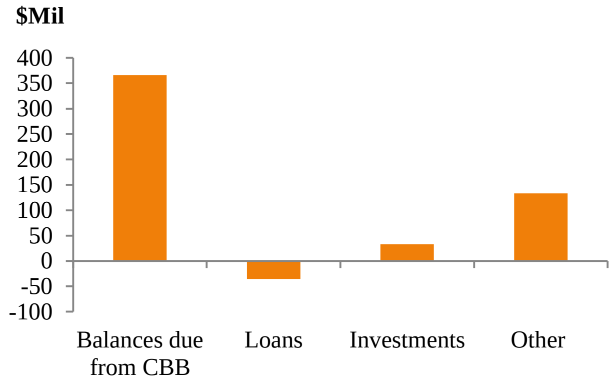
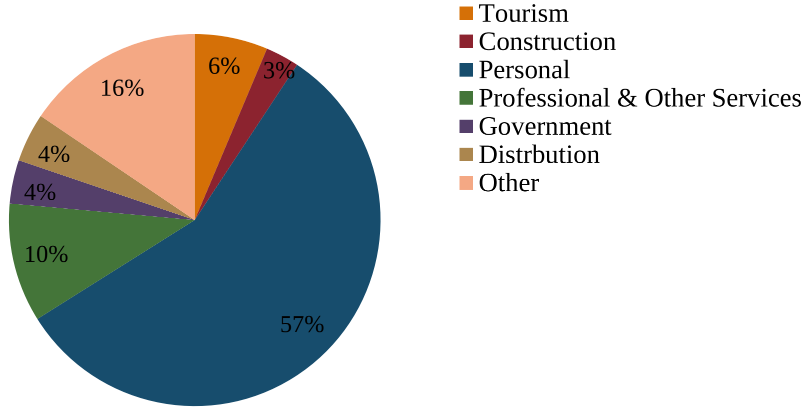


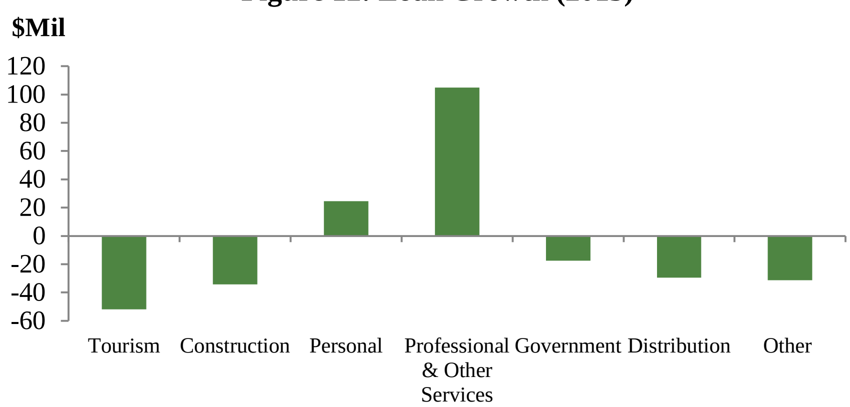
Figure 11: Loan Distribution



Source: Central Bank of Barbados

Declines were recorded in all major sectors with the exception of the professional and other services' sectors ($105 million), and personal loans ($24 million). Residential mortgages, which represented approximately 71 percent of personal lending, grew by $15 million.

Figure 12: Loan Growth (2015)



Source: Central Bank of Barbados

As loans constitute the largest part of the banks' portfolio, examining potential declines in the quality of their loan book provides useful insights on possible vulnerabilities among institutions. To this end, the NPL ratio is forecasted over 18 months and cross-sectional simulations of downside risks are assessed to give an indication of the adequacy of the provisioning framework and the extent to which capital buffers can absorb various shocks.

The expected medium term trajectory for the banks' NPL ratio is trending downward as depicted in the baseline estimates of Figure 13. The forecast, which was established in March 2015, considered among other things the expectations for GDP growth, the demand for new credit and some judgement as to how banks could respond to their elevated levels of classified debt. The forecast at that time suggested that NPLs would decline to around 10 percent at the end of 2015 and 9 percent in 2016. The outturn as at June and September 2015 was very much in line with that predicted trajectory. As a result, the September 2015 projections are not significantly different from the projections made in March 2015.

Figure 13: NPL Projections (as at March)

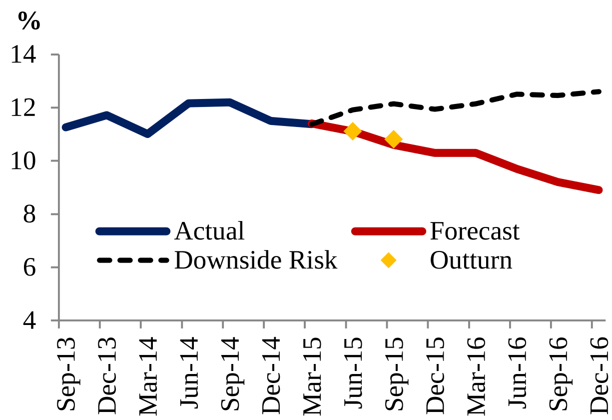
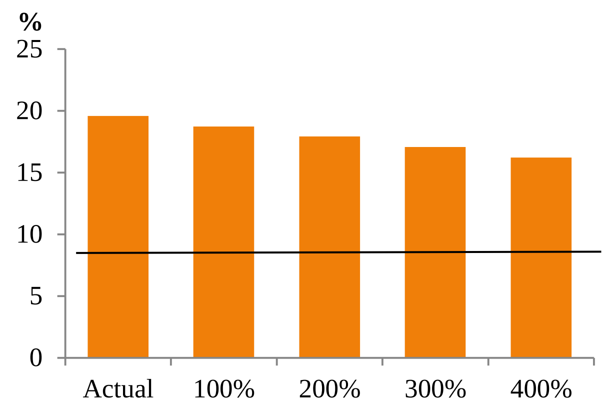


Figure 14: CAR Impact (NPL Shock)



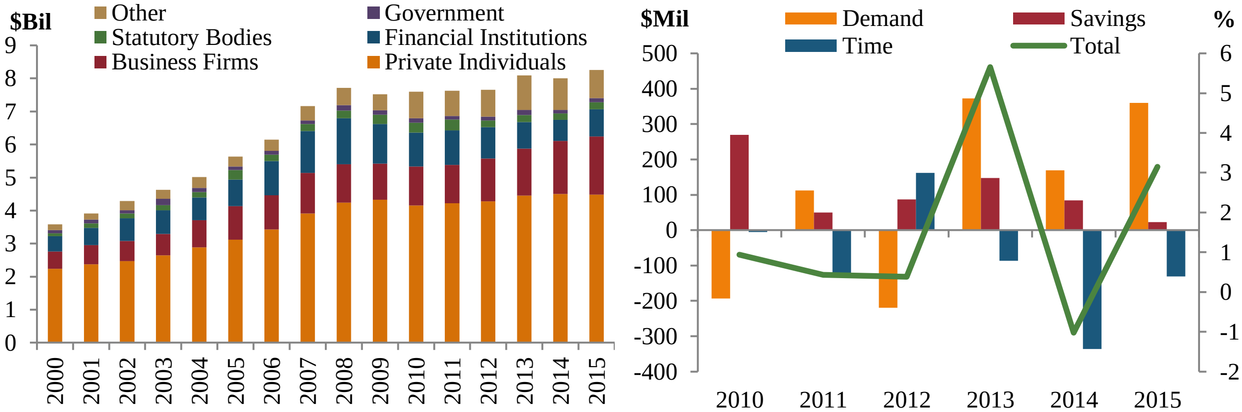
Source: Central Bank of Barbados

While the NPL forecasting model allows for significant downside risks, it is not expected that the system NPL ratio will go beyond 14 percent over the medium term. Notwithstanding, simulations were conducted to assess the impact on banks' capital if NPLs grew at rates beyond the current expectations. In this case, direct shocks to the NPL ratio were assumed and a full pass-through of any losses generated was made to capital.

Under the current portioning framework of 10 percent for substandard loans, an instantaneous spike in the NPL ratio would not translate into any significant erosion of bank capital. If NPLs were to increase by 400 percent, the immediate impact on the banks' capital ratio is trivial (Figure 14). The implication of the result is that banks' actual provisioning framework is significantly above that which is required and is consistent with the outturn presented in Figure 14. Higher provisioning requirements will increase the drawdown on capital due to shocks, but it will require extreme provisioning of 100 percent combined with NPL growth of 100 percent for the first bank to require a capital injection, that is, for its CAR to fall below 8 percent.

Banks' funding through domestic deposits expanded 3.1 percent ($252 million) mainly due to higher balances of financial institutions ($187 million) and business firms ($150 million).The majority of these domestic deposits were held in the form of demand deposits. The accumulation of savings deposits remained slow ($23 million). However, the shift away from time deposits continued for the third consecutive year, as these deposits fell by $130 million at September 2015, a situation that can be attributed to declining interest rates.

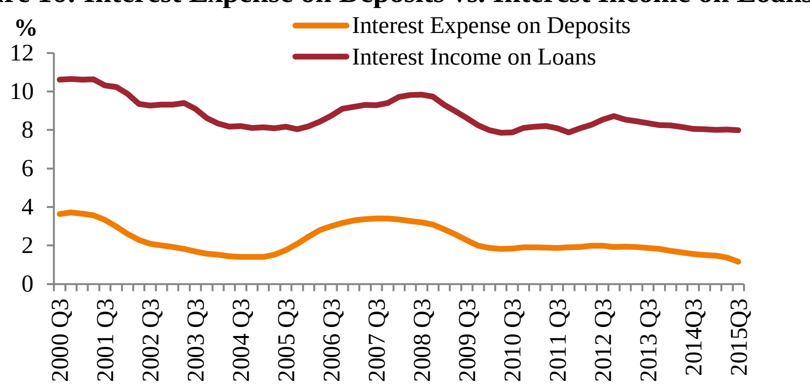
Figure 15: Domestic Deposits



Source: Central Bank of Barbados

In April 2015, the Central Bank (CBB) announced its decision to no longer set a minimum savings deposit rate (on individuals and non-profit organisations), but to allow all rates to be market determined. This policy stance saw broad-based reductions in deposit rates, particularly on savings deposits, which led to a higher net interest income outturn, even in the face of increasing deposits.

Figure 16: Interest Expense on Deposits vs. Interest Income on Loans



Source: Central Bank of Barbados

The banking system continued to hold a significant excess of funds as the reserves of commercial banks at the Central Bank expanded by $367 million over the year, to reach $1.1 billion at September 2015. These higher reserves, along with the on-going switch from longer-term government paper to short-term treasury-bills, has caused the banks' liquid asset ratio to climb from 20.1 percent to 24.4 percent over the period. Consequently, banks' excess cash holdings were more than double the required[4] amount, producing an excess cash ratio of 10.5 percent of domestic deposits, compared to 5.6 percent at September 2014.

Figure 17: Reserves Held with Central Bank

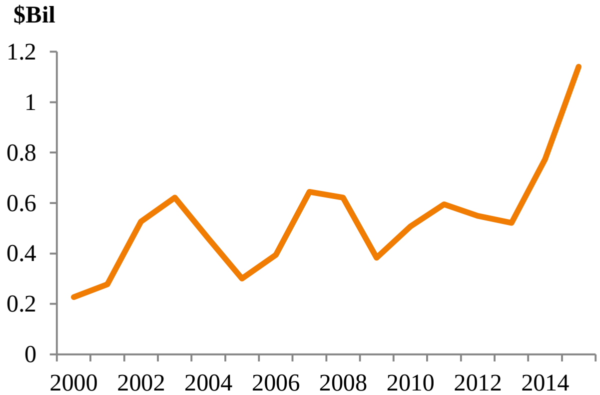


Figure 18: Liquidity Indicators

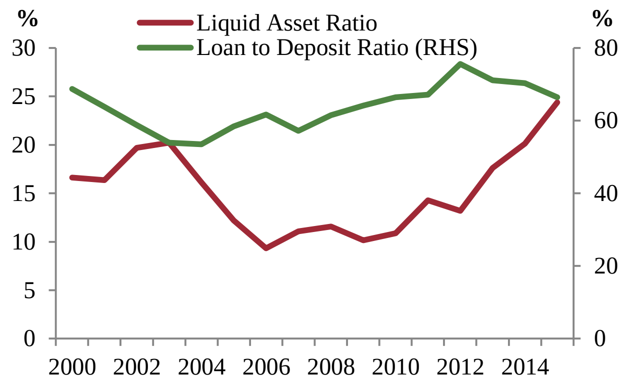
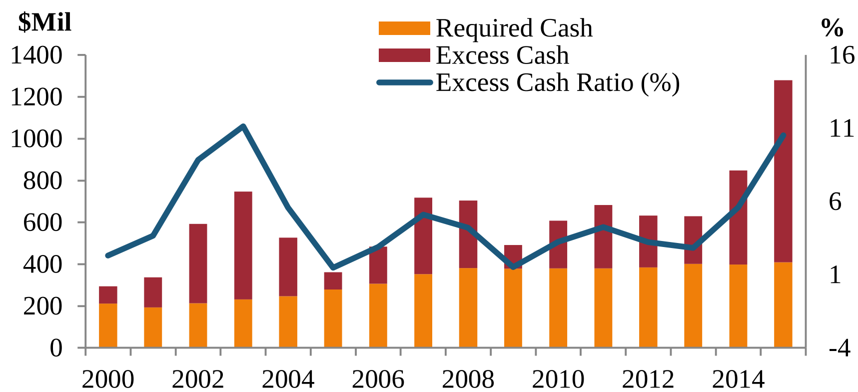


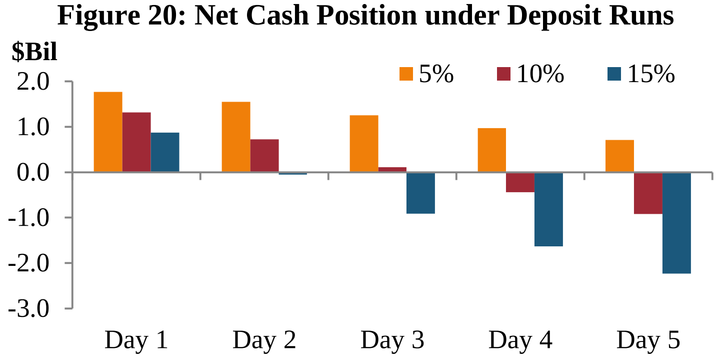
Figure 19: Required and Excess Cash



Source: Central Bank of Barbados

Given that banks' funding model is exclusively through deposits, maintaining appropriate liquidity levels is a major component in securing confidence with the banking system. Although the current liquidity ratios are relatively high it is useful to examine the extent to which excessive demand or deposit runs may impact the stability of banks. In this context, a simple assumption of bank runs over five consecutive days was imposed on the banking system, and on each day 95 percent of all liquid assets were fully convertible to cash.

Figure 20: Net Cash Position under Deposit Runs

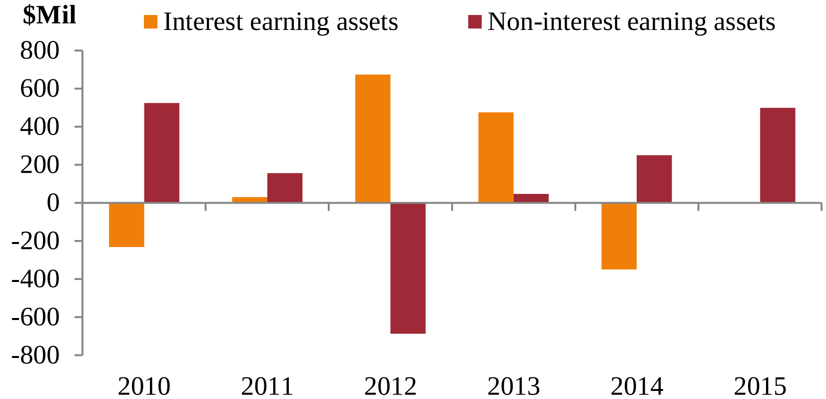


[4] Commercial banks are required to hold 5 percent of domestic deposits in reserves at the Central Bank.

Source: Central Bank of Barbados

Figure 20 presents the results of the scenarios, which show banks' net cash flows for each of the five days under a 5 percent, 10 percent and 15 percent deposit run per day. The results suggest that banks' liquid assets are sufficient to support deposit runs of five percent for five consecutive days. However, banks would require liquidity support after day three in the 10 percent assumption and after day one in the more extreme 15 percent case.

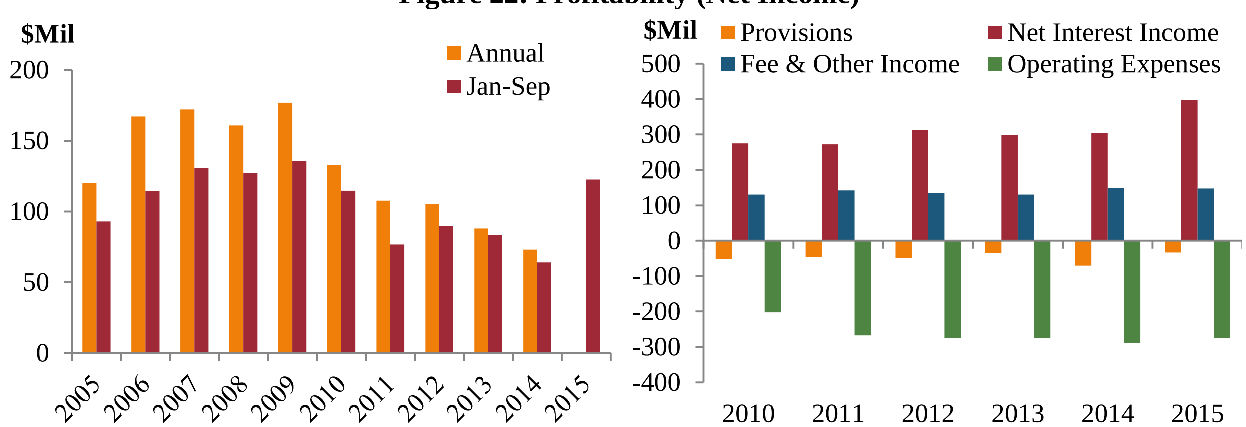
Figure 21: Interest Earning[5] vs. Non-interest Earning Assets (Changes)



Source: Central Bank of Barbados

Although banks continued to build their non-interest earning assets (mostly excess cash reserves at CBB), relative to those which are interest earning, these financial institutions have experienced increased profitability. Net income over the January to September 2015 period almost doubled that of 2014 to reach $122 million. Provisions set aside during the period to cover losses were $36 million less than the prior year, and net interest income climbed by $24 million primarily because of a $27 million reduction in interest paid on deposits, in particular savings deposits.

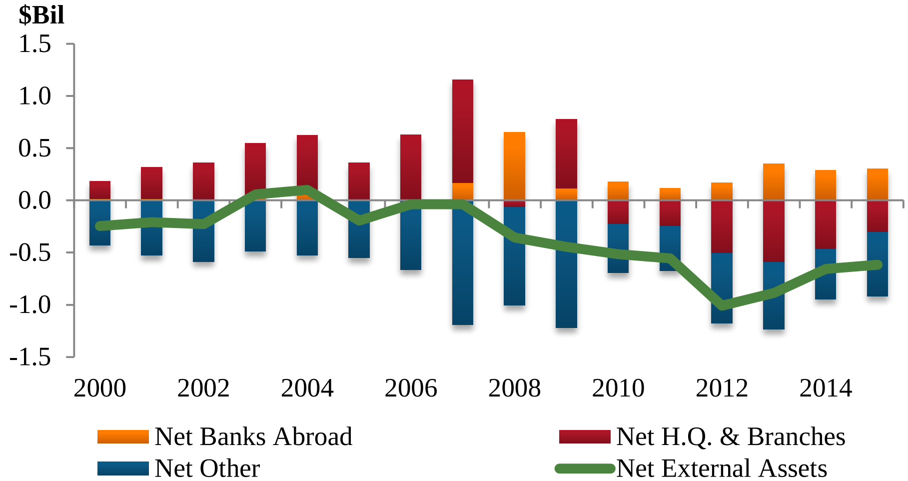
Figure 22: Profitability (Net Income)



Source: Central Bank of Barbados

[5] Interest earning assets were identified as loans and investments.

Figure 23: Net External Assets



Source: Central Bank of Barbados

Banks' net external position improved by $43 million: net claims on headquarters "net headquarters and branches" and other external banks "net banks abroad" grew $160 million and $14 million, respectively, while the residual "net other" category declined $132 million. Total external assets grew by $53 million, as higher balances due from headquarters and branches of $81 million, were partially offset by declines in foreign reserves at the Central Bank and foreign investments by $12 million and $19 million, respectively. Total external liabilities grew $10 million, as balances due to headquarters and branches fell $79 million, offsetting an increase in other external liabilities of $90 million. Deposits of non-residents also expanded $12 million over the period.

Contagion and Reputational Considerations

The commercial banking system in Barbados is 100 percent foreign owned and hence the health of the parent institutions and general macro prudential environment of the jurisdictions in which they operate, are key factors in Barbados' domestic stability. Table 3 presents a summary of the ratings agencies' perspectives on the parent banks as well as the economic health of the sovereigns in which they are headquartered. The table suggests that parent entities are well capitalised and, in the event of a crisis, the sovereigns have the capacity to support these entities.

Table 3: Capital Adequacy and Rating of Parent

Domestic Bank	Majority Shareholder	Majority Shareholder Capital Adequacy (Tier 1-2015)	Majority Shareholder's Rating (Moody's)	Country Rating (Majority Shareholder) (Standard and Poor's)
Republic Bank Barbados Limited	Republic Bank Limited	24.7*	BBB+#	A/Trinidad and Tobago
CIBC First Caribbean International Bank	CIBC	10.8**	Aa3	AAA/Canada
Bank of Nova Scotia	Bank of Nova Scotia	10.4**	Aa2	AAA/Canada
Royal Bank of Canada	Royal Bank of Canada	10.1**	Aa3	AAA/Canada
First Citizens	First Citizens Group	54.7***	Baa2	A/Trinidad and Tobago

* Tier I & Tier II Capital Adequacy (Annual Report 2015); ** Based on Basel III Tier 1 capital requirements and definitions (Q3 2015); ***Only 2014 data available; #Rating provided by Standard and Poor's;

Despite the intrinsic health of a domestic branch or subsidiary, individual depositors could precipitate a run on an entity due to adverse news from its parent jurisdiction. The key risks as identified by the respective parent jurisdictions are therefore summarised below:

The June 2014 Canadian Financial Stability Report identified four key risks: household financial stress and a sharp correction in housing prices; a sharp increase in long term interest rates, stress emanating from China and other emerging market economies and financial stress in the euro area. In addition to considering cyclical vulnerabilities (leverage, funding and liquidity, and risk pricing opacity), the report also examines structural vulnerabilities (domestic interconnectedness, external exposure, and complexity). The report attempted to provide a qualitative assessment of the probability of these risks, for example, the probability of a house price correction is deemed "low". Ultimately it notes that the balance sheet of Canadian banks remained in good health and that major banks reported strong earnings in the quarter ending April 2015, despite the impact of low oil prices and more volatile interest rates (page 10). Additionally, the Canadian banks maintained higher than required regulatory capital and leverage ratios.

The 2014 Trinidad and Tobago Financial Stability Report also identified the key risks associated with their financial system. This economy is more dependent on international energy prices than the more diversified Canadian economy and hence the key risk identified is a sharp and persistent fall in energy prices. Additional risks highlighted in the report are household financial stress and a correction in house prices, a potential spike in long-term US interest rates and sovereign debt restructuring in the Caribbean. Stress tests associated with each of these risks all support the view of a robust commercial banking system. Even with an oil price decline of 50 percent, the banking system's capital adequacy remained above the international benchmark at 11.5 percent.

Within the Barbadian banking system, interbank exposures remain very small and are generally insufficient to generate any systemic problems. However, banks' cross-border exposures as at September 2015 amount to over 140 percent of total bank capital and this has the potential to trigger financial vulnerabilities. These exposures are concentrated in the US (80 percent), CARICOM (11 percent) and Canada (4 percent) and is largely associated with headquarter and affiliate entities. Another growing and significant threat to the link between domestic entities and the wider international financial markets is the phenomenon of "de-risking" (see Box 2: 'Correspondent Banking and De-risking').

Box 2: Correspondent Banking and De-risking

Financial institutions in the Caribbean are able to facilitate cross-border transactions through correspondent banking relationships with global financial institutions. The Financial Action Task Force (FATF) defines correspondent banking as the provision of banking services by one bank (correspondent bank) to another bank (respondent bank). Respondent banks receive services including liquidity management (e.g. interest-bearing accounts in a variety of currencies), international wire transfers, cheque clearing, third party payments, money transfer operations and foreign exchange services. Correspondent banks can also be used to acquire short-term borrowing or meet investment needs. As these relationships rely heavily on the due diligence of both parties, correspondent banking has been increasingly scrutinised by regulators under the risk-based approach required by FATF.

International regulators have been imposing more stringent anti-money laundering/countering financing of terrorism (AML/CFT) compliance requirements on correspondent banks, such as know your customers' customer (KYCC), and stiffer AML/CFT related fines. In 2012, HSBC and Standard Chartered were fined US$1.9 billion and US$340 million respectively for AML failures. More recently, Standard Chartered was fined an additional US$300 million for sanction violations, while Wells Fargo was fined US$1.5 million for AML breaches. These increased costs and reputational risks have led to a growing number of global banks terminating their correspondent banking relationships with some customers, business lines, and jurisdictions in an effort to better balance economic benefits relative to their potential risk exposure. This practice is referred to as "de-risking".

A recent World Bank report[a] on the issue noted that large international banks (predominantly US/European/Canadian based) are terminating or severely limiting their correspondent banking relationships with smaller local/regional banks from jurisdictions around the world where they consider the risks unacceptable. Based on the report, the Caribbean appears to be the region that is most affected by this decline in foreign correspondent banking relationships. If persistent, this can lead to financial exclusion for the banks in the region affecting trade, investment and remittances. Some Western Union operations in the Cayman Islands, Bahamas and the Turks and Caicos were closed, as well as other money transfer services in Jamaica and ECCU due to the perceived high risk related to such business lines. Belize, Guyana, and Trinidad and Tobago also experienced some loss of correspondent banking relationships to varying degrees. In Barbados, the IBCs have been most affected by the termination of correspondent bank relationships, and in some cases have been faced with restrictions on wire transfers with domestic banks.

Box 2: Correspondent Banking Cont'd

The Case of Barbados

Barbados' financial system is governed by the Money Laundering and Financing of Terrorism (Prevention and Control) Act, 2011-23 which outlines the duties and expectations of financial institutions as it relates to customer due diligence, reporting procedures, employee training and compliance. Moreover, the Financial Services Commission and the Central Bank of Barbados, in conjunction with the Anti-Money Laundering Authority, issued their revised Anti-Money Laundering/ Combating Terrorist Financing Guidelines to the financial industry in 2013. Barbados, along with 26 other Caribbean states, is also a member of the Caribbean Financial Action Task Force (CFATF) and has submitted thirteen follow-up reports to CFATF detailing its progress and compliance with FATF recommendations. Barbados is committed to the certification process of the Financial Sector Assessment Programme (FSAP) and continues to make stride under the Foreign Account Tax Compliance Act (FATCA). All of these efforts have strengthened the financial practices and regulatory oversight within Barbados' financial system.

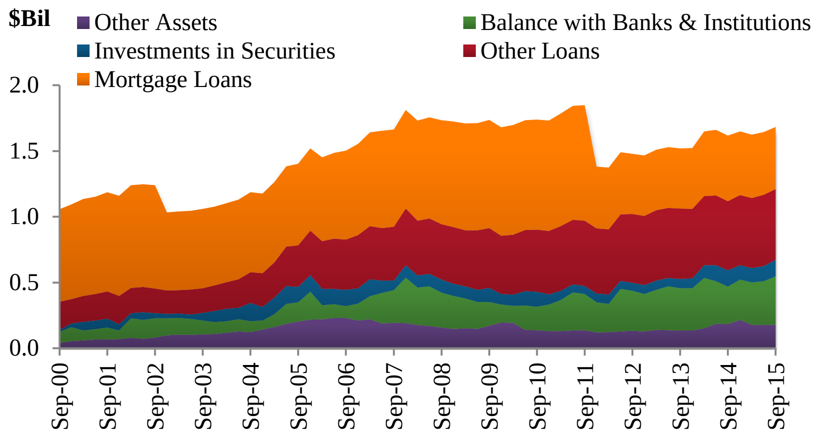
Given the growing trend, international standard-setters and national regulators have recognised the adverse effects of de-risking and have been engaged in various technical assessments to determine the main drivers for the practice, which seem to stem beyond AML/CFT concerns. Additionally, the World Bank issued a survey to measure the impact of de-risking. This survey was completed by 61 countries including the CARICOM nations. In December 2015, the Central Bank of Barbados hosted a meeting of the Financial Stability Board (FSB) Regional Consultative Group (RCG) for the Americas to discuss financial stability reforms and reductions in correspondent banking, where the FSB's four-point action plan was supported by the RCG. The plan first intends to further examine the implications of the issue, then seek clarity on regulatory expectations, engage in domestic capacity building in AML and financial crimes detection, and lastly, strengthen the compliance tools of correspondent banks. Regional authorities and regulators remain committed to alleviating the threat of de-risking and efforts to understand and address risk concerns of global banks and regulators remain ongoing.

[a] *Withdrawal from Correspondent Banking, Where, Why and What to do about it*, World Bank, November 2015

3.2 Deposit-taking Trust and Finance Companies

During the year to September 2015, total assets of this sector increased by 5 percent ($79 million), due primarily to increased deposits at commercial banks. Mortgages and other loans continue to make up 60 percent of total assets but the mortgage portfolio actually contracted by $27 million (5 percent), while other loans grew $12 million (2.3 percent) to generate a net decline of 1.4 percent in total loans for the year.

Figure 24: Total Assets of Non-Bank Financial Institutions by Category



Source: Central Bank of Barbados

Total impaired loans increased to reach $95 million, which led to an increase in the NPL ratio of finance and trusts from 8.4 percent to 9.4 percent at September 2015. The distribution of NPLs showed little change over the year and continued to be heavily concentrated in the substandard category.

Figure 25: Loan Growth & NPL Trends

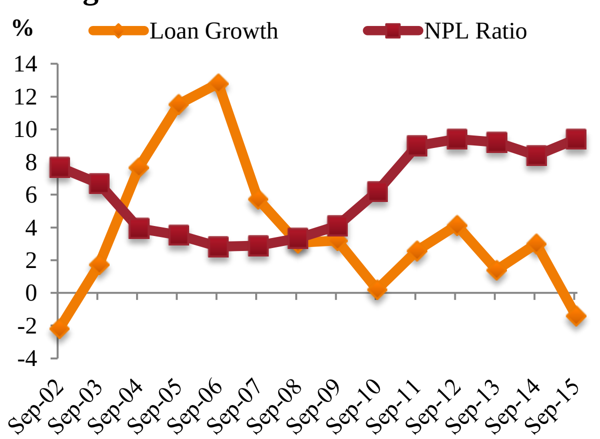
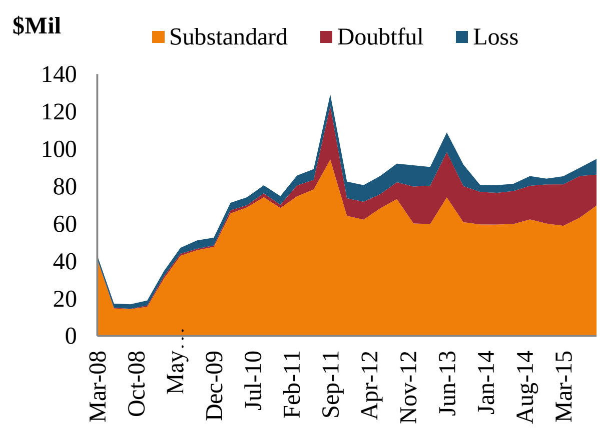


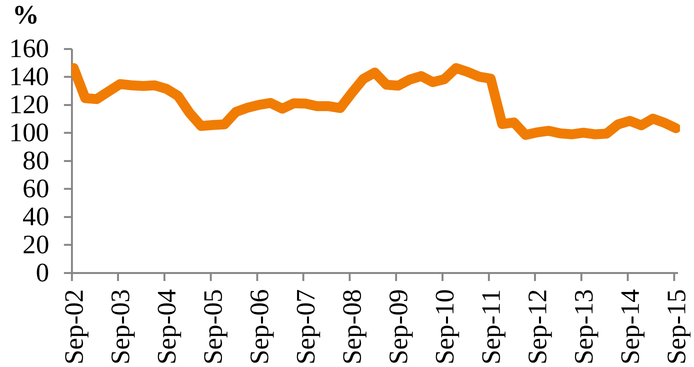
Figure 26: NPL Classifications



Source: Central Bank of Barbados

Total deposits in the non-bank financial sector increased by $42 million (4.4 percent), a significant portion of which were placed with banks and other local financial institutions. As a result, liquidity among these institutions increased over the period, as the loan-to-deposit ratio fell to 103.3 percent in September 2015 from 108.7 percent one year earlier.

Figure 27 : Loan to Deposit Ratio



Source: Central Bank of Barbados

The capitalisation of finance and trusts also showed little change over the last 12 months, with marginal capital growth covering approximately 23 percent of their total assets at September 2015.

Figure 28: Capitalisation

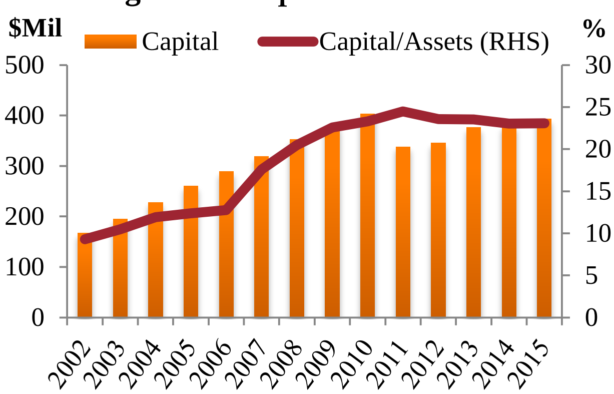
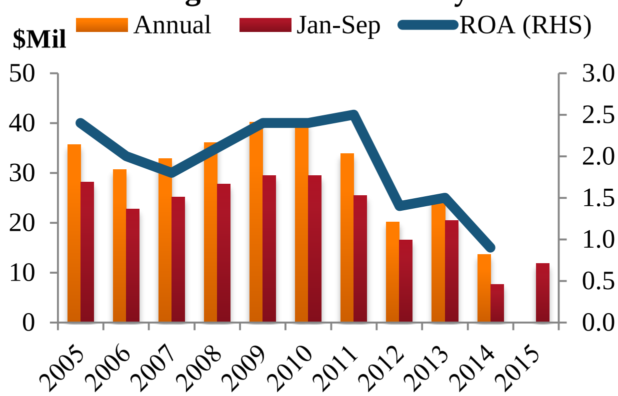


Figure 29: Profitability Trend



Source: Central Bank of Barbados

Given the weakness in the loan portfolios, there has been an overall decline in the profitability since 2010. However, there was an improved performance for the first nine months of 2015, (by $4.4 million) due to slightly higher net interest income, higher fee income, and lower provision expense, which was partially offset by higher non-interest expenses.

3.3 Credit Unions

The key areas of risk within the credit union sector relate to concentration and credit quality. Due to the inherent nature of the credit union business model, loans have specific target markets and are concentrated in real estate and consumer loans. In particular, the growth in mortgages for private individuals has grown significantly over the past couple years. In terms of credit quality, the level of non-performing loans also remains high at 8.9 percent, compared to the FSC's benchmark of 5 percent. An additional source of concern for the credit union movement is the overall level of liquidity. The FSC's Credit Union Guideline 5 states that the standard for liquidity is 8 percent, while the industry's ratio currently stands at 5.7 percent.

The FSC has enhanced its monitoring of the credit unions and encouraged changes to some of their business models, in order ensure that risks are mitigated in these areas. Regardless of whether a credit union is a "closed bond" (member must have a common bond, for example, members must work or live in defined area) or "open bond (members have no common bond), the risk each faces will be similar. However, closed bond institutions will be more susceptible to any adverse effects in their respective "communities", given the greater degree of commonality between members.

At the end of September 2015, there were 34 registered credit unions operating in Barbados with reported membership of approximately 174,000. This was an increase in membership of 4.0 percent over the comparable period in the prior year.

Figure 30: Total Assets

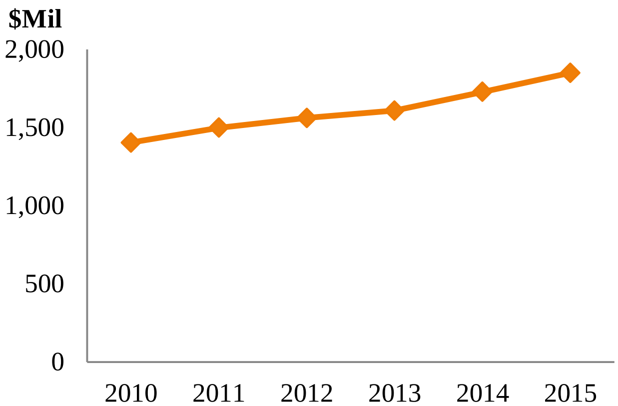
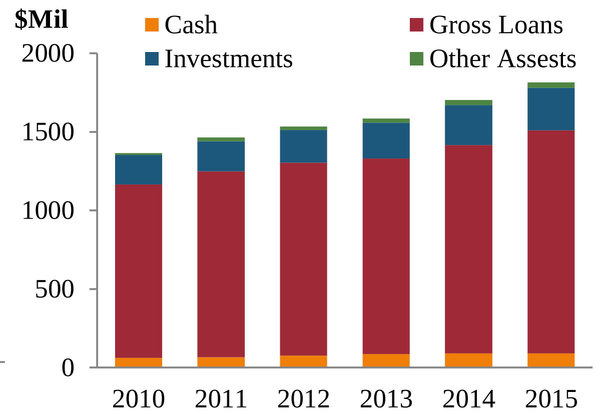


Figure 31: Asset distribution

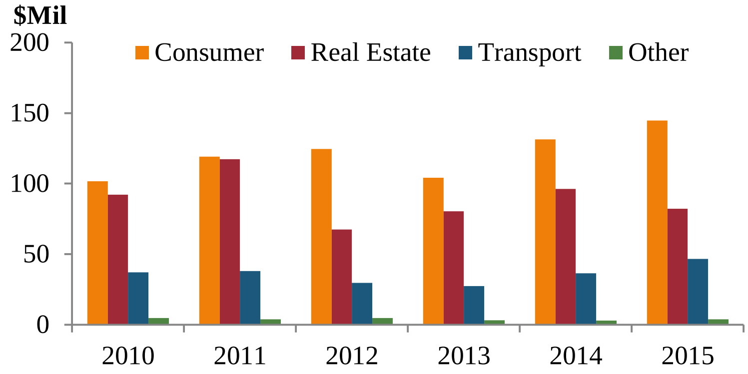


Source: Financial Services Commission

Despite the economic climate, total assets of the sector continued to grow, reaching $1.9 billion and representing a 7 percent increase compared to the similar period in 2014. Loans to members continued to be the largest contributor to growth, increasing by 7 percent, followed by investments (6 percent). As at September 2015, loans were recorded at approximately $1.38 billion, accounting for approximately 77.8 percent of total assets and slightly up from 77.2 percent of total assets in 2014.

Over the January to September period, total new credit issued (not including repayments) was approximately $208 million, driven mainly by consumer credit ($106 million), real estate ($62 million) and lending for transport ($36 million).

Figure 32: New Credit Issued (Year to September)



Source: Financial Services Commission

The capital to assets ratio[6] for the credit union movement was 11.5 percent, lower than the 11.9 percent reported at the end of September 2014, due to the modest growth in equity and reserves, relative to a greater expansion in assets. Liquidity remained stable over the period, even though it continues to be below the 8 percent benchmark as stipulated in the FSC's credit union guidelines.

Figure 33: Capital to Asset Ratio

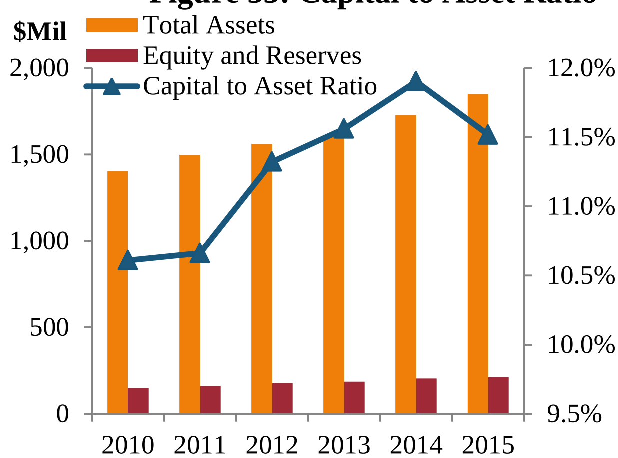
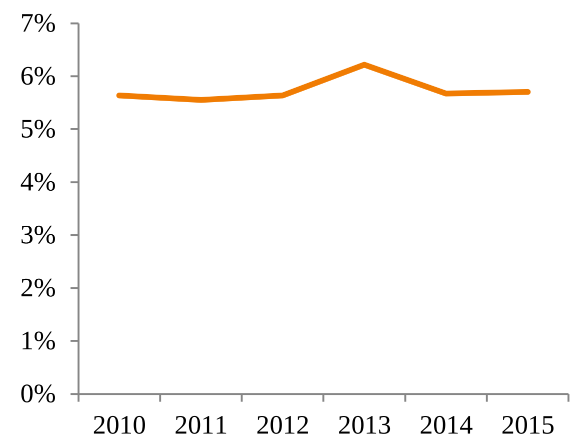


Figure 34: Liquidity[7]



Source: Financial Services Commission

The level of non-performing loans increased by $5.5 million, but given the build-up in total loans, the NPL ratio declined marginally from 9.1 percent to 8.9 percent at September 2015. The growth in impaired loans was mainly reflected in the three-to-six month category as depicted in Figure 35. However, NPLs continued to be concentrated in the category of arrears in excess of twelve months (57 percent), and even though credit unions began to write-off some of their non-performing loans, this category recorded marginal growth over the period. The quality of the loan portfolio varied significantly across the sector, with NPL ratios among the smaller credit unions substantially higher than among the larger entities.

[6] The capital used in the capital-to-assets ratio includes statutory reserves, liquidity reserves and undivided surplus.
[7] Liquidity here is defined as cash divided by the sum of deposits, loans payable and member shares.

Figure 35: NPLs by Category

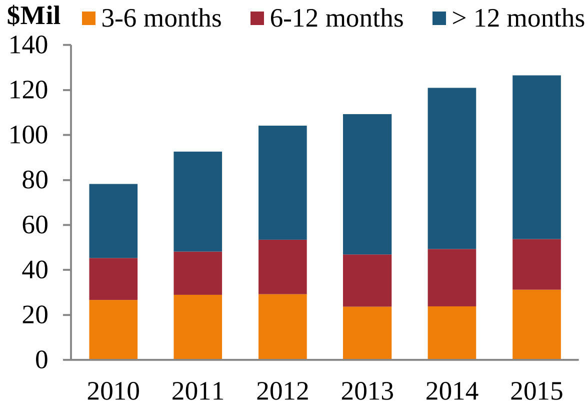
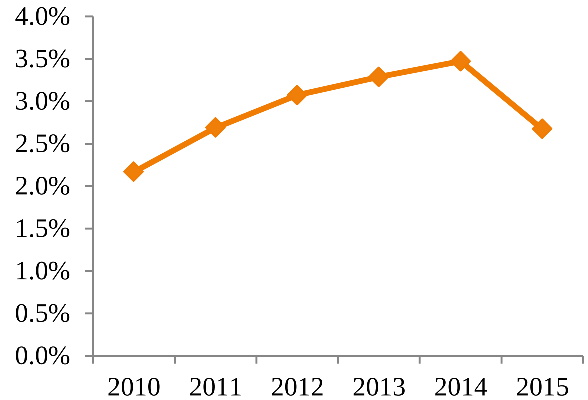


Figure 36: Provisions to Total Loans



Source: Financial Services Commission

The ratio of the loan-loss provisions to total loans decreased from 3.5 percent to 2.7 percent in September 2015, partly reflecting the write-off of these NPLs. The FSC has drafted a guideline which speaks specifically to loan-loss provisioning, and this is intended to provide direction on the methodology for establishing reserves and determining the required provision for impaired loans.

3.4 Insurance Companies[8]

Overview & Sector Risk Profile

Based on the quarterly financial statements received up to September 2015, it appears that the trend of stability in total assets without significant growth has continued for the insurance industry. The gross industry premiums for both general and life insurance are also expected to finish the year at similar levels to 2014. With no major catastrophes recorded in 2015 and given the continued heavy use of reinsurance, net income in 2015 is expected to be at a comparable level to that recorded in 2014.

The main challenges for the insurance industry in 2014 arose from the general insurance sub-sector. Concerns about widespread underwriting losses, significant declines in investment income and the overall low levels of profitability on the general insurance side were the main areas of concern. Investment income declined sharply in 2014 from the prior year and this significantly impacted profitability for many of the medium and smaller general insurers. The industry had already been facing low returns from its core underwriting business and it relies heavily on investment income to supplement its overall profitability.

The medium and small general insurers were also under pressure from aggressive underwriting by larger general insurers and from life insurers writing general insurance business and offering non-life insurance products. Many of these smaller insurers have faced losses for at least the past

[8] Limited data is available for 2015, and hence the majority of the analysis is based on 2014, for which the full data package is available.

three years. Claims provisioning in the general insurance sub-sector appeared to be adequate in 2014, with the exception of one insurer which the FSC continues to monitor.

Many insurers also have capital and reserves to buffer losses. There is however at present no regulatory capital standard beyond the minimum established by legislation. The existing insurance act minimum capital standard utilises a flat amount plus a solvency buffer based on prior year premiums. In order to align the capital requirements with the inherent risk of each entity, the FSC will move towards instituting a risk-based capital framework in the coming fiscal year. Risk-based capital is now considered the best practice in this regard and allows both insurance companies and regulators to make the most efficient use of capital to support the protection of policyholders. Industry consultation will soon begin on its implementation in Barbados. The FSC will however continue to specifically monitor the performance and capital structure of general insurers, as well as work towards establishing industry capital regimes and benchmarks.

Industry Structure

In Barbados insurers are classified into the broad categories of life and non-life (general) insurance segments of the market. However, many insurers also engage in both types of insurance and have created subsidiaries or affiliated companies to address non-core segments. Some life insurers write a significant amount of general insurance business through their life insurance companies despite having general insurance affiliates. The reverse also occurs though it is not as noteworthy, while one insurer also fully engages in both life and general insurance lines of business.

Many insurance companies also operate in Barbados as a branch of a foreign parent company and are thus not required to hold share capital within their Barbadian subsidiaries. Such firms usually depend on the strength and financial capital of their expatriate parents for injections of additional funds, should any shortfalls arise. Consequently, the FSC monitors the health of these parent entities. As of December 31, 2014 there were six branch insurance companies operating in Barbados writing general insurance business.

The FSC for reporting purposes in the general insurance segment of the market records:

1) 15 general insurers (firms who mainly write non-life business)
2) 3 life insurers who write significant general insurance business

The life insurance industry in Barbados is a small concentrated market with only six life insurers operating in 2014. The main components of general insurance business remain property and motor insurance but life insurers are not in the business of selling these types of policies. However, the general insurance business written by the life insurers is concentrated in accident and sickness insurance, which is typically a one-year contract and therefore not categorised as long-term insurance. Some insurers prefer to specialise in specific lines of insurance business which have their own inherent risks and preferred performance metrics. The type of policies written for the life and general insurance industries are presented in Table 4.

Table 4: Type of Policies

General Insurance	Life Insurance
Liability[9]	Ordinary Life
Marine, Aviation and Transport	Industrial Life and Group Life
Motor Vehicle	Annuities
Pecuniary Loss	Group Pension
Accident and Sickness Insurance	Other (Group Life, Personal Accident, Creditor Life and Health)
Bond Investment	Group Health % Accident
Property	
Other	

Source: Financial Services Commission

Financial Performance & Risks

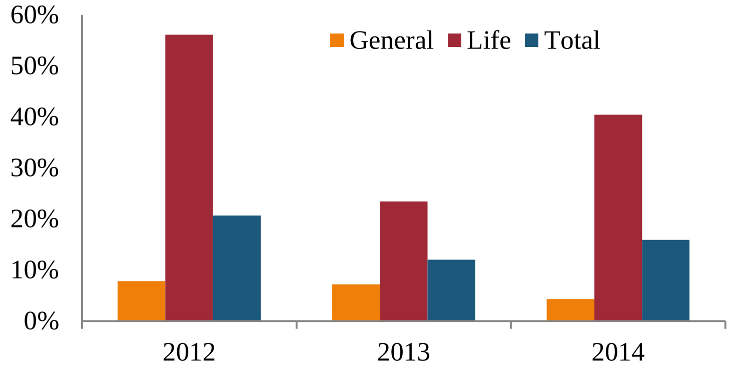
Income & Expenses

The profitability in the insurance industry in 2014 presented a mixed picture. The net income of the life insurance industry appeared to have recovered in 2014 and was almost twice as high as in 2013, though it was just below its 2012 performance. The significant drop in industry profits in 2013 for the life insurance sub-sector, rather than being due to an overall decline in the industry, was more a reflection on the performance of a few of the larger insurers in the industry. The performance of these larger insurers improved in 2014 and this was reflected in the profitability of the entire sub-sector. Given that only six life insurers operate in the market, the performance of dominant firms on industry performance can be significant. Only one of these companies made a small loss in 2014 while all were profitable in 2013 and two made losses in 2012.

The general insurance industry remained profitable in 2014 but experienced a significant drop in profits from 2013 income levels. Net income from licensed general insurers in 2014 was down more than 40.7 percent compared to 2013. When the entire general insurance industry is considered (which includes the segment of general insurance net income generated from life insurers), the industry's profitability fell by 37.5 percent from 2013.

[9] Liability insurance is defined as an insurance policy that protects an individual or business from the risk that they may be sued and held legally liable for something such as malpractice, injury or negligence resulting from an action they take or a property they own. Liability insurance policies cover both legal costs and any legal pay-outs awarded by the court for which the insured would be responsible if found legally liable. In Barbados the main types of liability insurance policies being sold are public liability and professional liability.

Figure 37: Net Income/Gross Premiums



Source: Financial Services Commission

Table 5: Net Income and Gross Premiums

	Net Income ($Millions)			Gross Premiums ($Millions)			Net Income/Gross Premiums		
	General	**Life**	**Total**	**General**	**Life**	**Total**	**General**	**Life**	**Total**
2012	37.2	96.5	133.7	475.2	170.5	645.7	7.8%	56.1%	20.7%
2013	33.9	46.3	80.2	470.3	198.1	668.4	7.2%	23.4%	12.0%
2014	21.2	93.8	115.0	492.2	231.9	724.1	4.3%	40.4%	15.9%

Source: Financial Services Commission

Investment Income

Income from investments has been especially critical for general insurers during the period 2012 to 2014. Profitability of the general insurance sub-sector, rather than being derived from writing new business and underwriting performance, was primarily dependent on income generated from investments. The main reason for the overall decline in profitability in 2014 was mainly because of the 27.6 percent decline in investment income during that year. Investment yield for the 15 general insurers declined from an average of 8.2 percent for the prior two years to 6.4 percent in 2014. Rates of return on investments were important for general insurers' profitability over the past 3 years. Sharp declines in this variable, due for example to falling interest rates on government securities, could adversely affect the industry.

Underwriting Income/Losses

The overall general insurance industry made a $2.1 million underwriting loss in 2014. This is the third consecutive year the industry has made underwriting losses. In 2013, underwriting losses rose to $4.6 million, and there was a small loss of $0.4 million in 2012. The value of most underwriting losses arose partially from the general insurance business of life insurers. This was demonstrated by reviewing licensed general insurers separately from general insurance underwriting performance of life insurers. The former has been profitable for each of the past three years, while the latter has consistently made losses.

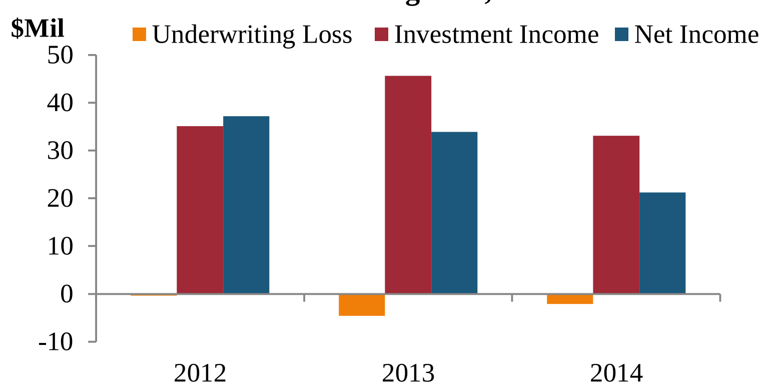
The life insurance industry (including two of the three life insurers who engaged in significant general insurance business) have been very profitable over the three-year period from 2012-2014 and are thus able to withstand underwriting losses sustained on their general insurance business. It is also unlikely that those insurers will stop writing general insurance business as it is a complementary service to the more profitable life insurance business and offers their clients a "one-stop shop" approach. Life insurers engaging in general insurance lines of business could also serve the role of risk mitigation by diversifying income streams beyond life insurance.

Reviewing the underwriting performance of only the 15 licensed general insurers[10] it was noted that they collectively made a $1.7 million underwriting profit. This underwriting profitability is however under threat as underwriting income declined by 66.4 percent in 2014 compared to the prior year. In addition, the majority of the underwriting profits of licensed general insurers in 2014 were generated by the top two general insurers. These two larger firms accounted for 75 percent of total underwriting income in 2014, after having captured 52 percent of total income profitability in 2012.

A review of the general insurance industry over the three-year period ending 2014 suggested two main trends. Firstly, there is likely to be increasing concentration of underwriting profits amongst the largest two general insurers, to the detriment of most other general insurers. Secondly, it also suggests that for the remainder of the general insurance industry, where profits have been declining, the viability of the medium and small general insurers that have sustained losses over at least the past three years will continue to concern regulators. These medium to small general insurers are experiencing intensified competition from the two largest general insurers and the more profitable life insurers who write general insurance business.

The global insurance industry is currently experiencing one of the longest soft market cycles in the past two decades. There is excess capacity in the reinsurance sector which is assisting in depressing insurance premiums. Competitive forces in Barbados are also holding insurance premiums low which appears to be impacting the ability of insurance companies to generate underwriting profits. The sector has been able to buffer underwriting losses with investment income for the past three years but a combination of sustained underwriting losses and reduced investment income can eventually generate losses leading to a reduction in the reserves particularly in the general insurance sector. The reserves of the sector have been able to absorb the losses of the past three years, but given the shrinking reserves, the industry will need to focus on underwriting profitability.

Figure 38: General Insurance: Underwriting Loss, Investment Income & Net Income



Source: Financial Services Commission

[10] Excluding general insurance business written by the three life insurers

Table 6: General Insurance: Underwriting, Investments & Net Income[11]

	Underwriting Loss ($Millions)	Investment Income ($Millions)	Net Income ($Millions)	Underwriting Loss / Net Income	Investment Income / Net Income
2012	-0.4	35.1	37.2	-1.1%	94.4%
2013	-4.6	45.6	33.9	-13.6%	134.5%
2014	-2.1	33.1	21.2	-9.9%	156.1%

Source: Financial Services Commission

Gross Premiums

The life insurance sector has gradually been increasing its share of total gross premiums written (GPW) for the industry since 2012, growing from 26.8 percent of total GPW to 32 percent in 2014. This segment continued to register strong growth in premiums written with a 17.1 percent improvement in 2014 following a 16.2 percent increase in 2013. However, there was a recovery in general insurance premiums to the tune of 4.7 percent in 2014 compared to 2013 when it fell 1 percent.

This growth was not evenly spread throughout the industry. The top three general insurers experienced growth of GPW of 13.4 percent during 2014 over the prior year, more than three times the industry average. In comparison, the remaining 12 general insurers collectively experienced declines in GPW of 3.7 percent. However, general insurance business written by life insurers experienced a marginal 2.9 percent increase in GPW in 2014.

Net Premiums & Reinsurance Ceded

Despite accounting for only a third of gross premiums written in 2014, the life insurance segment accounted for about half of total net premiums written. Similar to GPW, there was an increasing share of total net premiums written by life insurers as compared to their general insurance counterparts. The main reasons for this trend were two-fold. Firstly, there had been significant growth in life insurance gross premiums written as compared to general insurance. Secondly, general insurers tend to cede a much greater portion of premiums written to reinsurers (more than 50 percent in 2014). Gross reinsurance ceded by insurance companies in 2014 was $297.8 million with general insurers having accounted for 93.7 percent of the industry total.

Reinsurance is a risk-mitigant and serves the purpose of transferring the risk of higher than expected claim payments from the insurer to the reinsurer. However, the potential exists that the reinsurer may be unable to absorb claims as this would depend on its financial strength. In addition, the general insurer may be unable to access sufficient funds from the reinsurer in a timely manner. Thus, though reinsurance may be beneficial to the domestic general insurance industry it still creates its own liquidity and credit risk.

Though the FSC monitors reinsurance exposure at the individual insurer level, it is improving its capability to monitor exposure and concentration to reinsurers at the aggregated industry level.

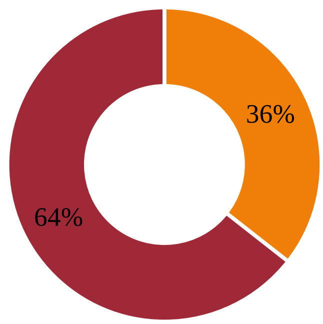
[11] Inclusive of 15 licensed general insurers and 3 life insurers writing general insurance business.

This is especially pertinent for Barbadian general insurers, which tend to use much higher levels of reinsurance than most other jurisdictions.

Total Assets

The domestic insurance industry had total assets of $3.02 billion, representing a 1 percent increase from the prior year end. About two thirds of total insurance industry assets were held by the life insurance sector while the remainder was held by the general insurance sub-sector.

Figure 39: Life & General Insurance Assets as at December 2014



Source: Financial Services Commission

The two largest asset classes in the life insurance sub-sector were government securities and investments in related parties, each of which accounted for 28 percent of total investments. The life insurance industry had a low cash-to-assets ratio of 5 percent at the end of 2014, when compared to their general insurance counterparts which held 16 percent of their assets in cash. However, the nature of general insurance business is fundamentally different to that of life insurance as it has a much shorter time horizon for pay-outs and claims, and thus requires greater cash holdings. The two most significant asset categories for general insurance were claims on reinsurers and government securities, accounting for 20 percent and 18 percent, respectively.

4. Stress Tests, Scenario Analysis & Early Warning – Insurance Industry

Risk Overview for the Insurance Industry

Barbados' macroeconomic environment remains challenging for the insurance industry, and hence the performance of the sector requires careful monitoring. It has already been noted that the general insurance industry has made underwriting losses, but managed to generate enough investment income to make an overall profit, which along with capital balances provide a buffer against possible losses. Other potential risks to the domestic insurance industry include natural catastrophes and pandemics.

Barbados is geographically located in an area prone to storms as well as seismic activity and the risks from natural catastrophes are likely to arise from the aforementioned. Pandemic scenarios were considered mainly because as a tourism dependent jurisdiction, the island is well connected by air to most major population centres and regularly experiences an influx of visitors from around the world. Transmission of disease under pandemic type conditions and the resulting shock was thus a scenario considered. Stress tests were thus developed to model the four scenarios.

Life insurance business models are long tail, with long settlement periods of liabilities for claims. The assumption observed during the stress test was that the normal mortality and morbidity rates would apply. Thus for life insurance, the issue of whether the long-term performance of the portfolio will match that of the assumptions is a critical one. For general insurance companies, there has to be an adequate management of claims (outflows) versus premiums (inflows), i.e. liquidity must be considered. A set of four macroeconomic scenarios were therefore considered, two of which will apply to both life and general, one specific to life only and one specific to general insurance only.

Methodology

The scenarios attempted to quantify the impact of four highly improbable (but not impossible) scenarios and identify the entities that were more likely to be vulnerable from the point of the shock up to a period of three years after. This was done by aggregating the results from the selected insurers to the entire industry.

In the absence of a large enough data warehouse to properly explore macroeconomic dependencies and relationships, statistical information contained within the IMF paper 14/133 ("*Macroprudential Solvency Stress Testing of the Insurance Sector*" by Andreas Jobst, Nobuyasu Sugimoto and Timo Broszeit) was used to support assumptions contained within the scenarios. These assumptions were used to determine the appropriate levels of each of the relevant criteria considered as "shocks".

Other assumptions were that the impacts of shocks in each scenario were immediate (occurring within the span of one financial year) and that all other factors remained constant. The scenarios also did not presume any actions on the part of the company's management to either improve or worsen the situation of any of the companies being tested. It was assumed that the shocks were reflected in changes in balance sheet and income variables that are likely to be impacted under each scenario. These resulting assumptions are tabulated below.

Scenario 1: Recession

While the larger economies were able to pull out of the global recession, Barbados continued to experience lingering effects. The following scenario thus explored the potential from worsened macroeconomic conditions. The expectation was that current capital and asset levels as well as premiums and income would be affected.

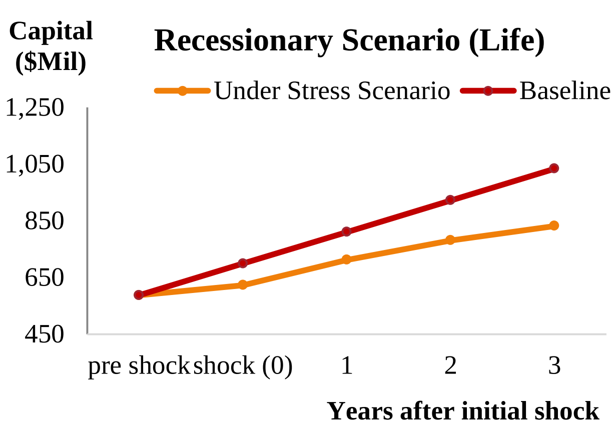
Under this scenario, most of the life companies were at least able to absorb the initial shock at the start and recover before the end of the three-year observation period. One company was found to be particularly vulnerable to the assumptions of this scenario and this resulted in the loss of all its projected capital by the end of year two. For the general insurance companies, the top six companies (by premiums) managed to stay solvent but three companies had significantly less capital at the end of the three-year period.

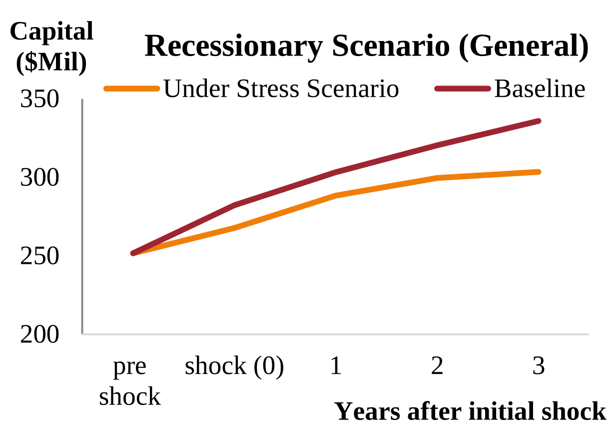
Life Insurance Industry Assumptions for Recession

Asset Class	**Balance Sheet Impact**
Equity	-18%
Real Estate	-10%
Corporate Bond Values	-8%
Sovereign Bond Foreign	0%
Mortgages	-5%
Policy Loans (unsecured)	-8%
Cash & Deposits	0%
Investment in Related Parties	-5%
Premium decline (year 1)	-10%
Premium decline (year 2)	-10%
Premium decline (year 3)	-10%

General Insurance Industry Assumptions for Recession

Asset Class	**Balance Sheet Impact**
Equity	-18%
Real Estate	-10%
Corporate Bond Values	-8%
Sovereign Bond Foreign	0%
Mortgages	-5%
Policy Loans (unsecured)	-8%
Cash & Deposits	0%
Investment in Related Parties	-5%
Premium decline (year 1)	-10%
Premium decline (year 2)	-10%
Premium decline (year 3)	-10%
Loss ratio increase (year 1)	2%
Loss ratio increase (year 2)	3%
Loss ratio increase (year 3)	5%





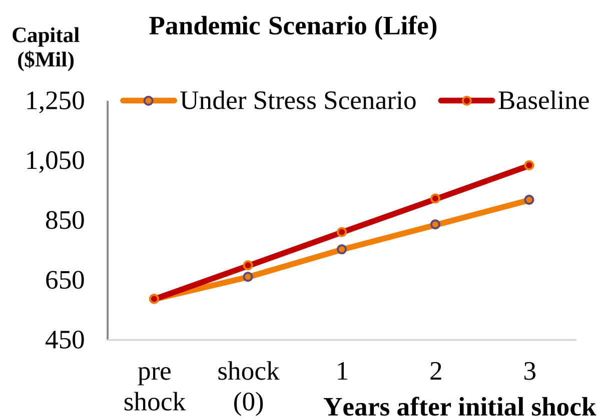
Scenario 2: Pandemic

In light of the emergence of communicable diseases such as Ebola, SARS, etc., a pandemic scenario was also considered. With travel more accessible, there is an increased probability of visitors bringing highly contagious diseases to the island. One of the most infectious and deadly epidemics of the 20th Century was the 1918 outbreak of Spanish Flu (H1N1 Influenza Virus). This pandemic infected 500 million people worldwide and killed between 50 to 100 million (about 3 to 5 percent of the world's population at the time). While the factors which are suspected to have been responsible for the H1N1's rapid spread are not present in Barbados (e.g. war, malnourishment, weakened resistance from chemical warfare), we have used this as our worst case scenario for the pandemic.

From the results of Scenario 2 which utilised an excess mortality shock of 0.15 percent to the baseline, the industry largely weathered the initial shock with the exception of one life insurer. This company faced a significant reduction in its capital at the end of the three-year period, following a steadily declining trend exacerbated by not having enough projected income to negate the effect of the shock.

Life Insurance Industry Assumptions for Pandemic

Asset Class	**Balance Sheet Impact**
Excess Mortality	0.15%
Equity	-10%
Real Estate	-8%
Corporate Bond Values	-5%



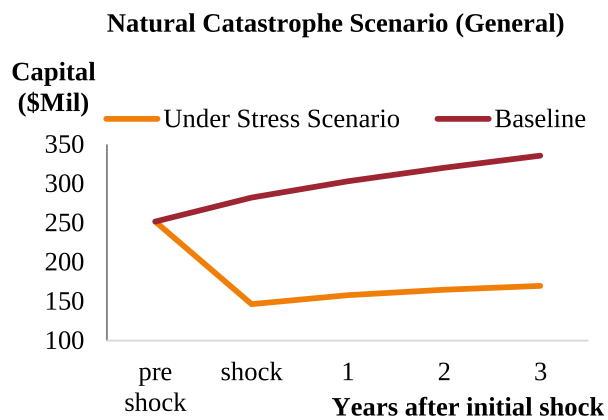
Scenario 3: Natural Catastrophe

Barbados has not been directly impacted by a hurricane (Category 1 and upwards) since 1955, though it is in the hurricane belt. Scenarios estimating the potential impact of such phenomena should thus be duly considered. Experts from Swiss Re conducted an exercise with the FSC earlier this year to assist in modelling for such as scenario. A potential loss ratio estimate was thus crafted for the FSC's use. This estimate was based on the damage sustained in 1955 from Hurricane Janet in Barbados and was estimated at about 8 percent of liabilities.

This scenario was found to adversely affect most of the top six general insurance companies. These companies were not able to return to pre-shock levels by the end of the three-year period. If the testing period was extended past the three-year period under similar assumptions, capital growth would have plateaued.

General Insurance Industry Assumptions for Hurricane

	Hurricane
Stress Loss	8%
Commission decline (year 1)	-20%
Commission decline (year 2)	0%
Commission decline (year 3)	0%
Premium decline (year 1)	-10%
Premium decline (year 2)	-5%
Premium decline (year 3)	-3%



Sensitivity Testing

In addition to the three scenarios, we have focused on three sensitivities, which we believe were crucial to the industry. These were claims increases, technical provisions revaluation and reinsurance defaults. Reinsurance default is of particular interest to the general insurance industry, which relies on a significant amount of reinsurance in order to write a higher volume of business. One life insurance company lost all its capital under moderate stress in the natural catastrophe scenario. As expected, the reinsurance default tests had a minimal impact on the life insurance companies. For most of the general insurance companies tested, the reinsurance default had a significant impact on capital, as well as on the solvency-margin cover ratio. While this change was significant, the effect was not as pronounced as a natural catastrophe.

Future Developments

In the preceding scenarios, the assumption was made that all other factors are held constant. Future efforts will encompass other factors that may affect both underwriting and investment income levels, contagion risk and interconnectedness considerations.

Appendix A

Table 1: Selected Financial Indicators – Commercial Banks

	2010	2011	2012	2013	2014	2014Q3	2015Q3
Solvency Indicators							
Capital Adequacy Ratio (CAR)	17.1	19.3	21.0	19.7	20.5	19.2	20.6
Liquidity Indicators#							
Loan to deposit ratio (%)	67.2	70.9	73.6	70	70.3	70.3	66.4
Demand deposits to total deposits (%)	35.2	32.1	29.3	32.3	33.9	33.7	38.2
Domestic demand deposits to total domestic deposits	27.1	27.6	26.8	29.3	30.9	30.4	33.9
Liquid assets, % of total assets	11.5	12.0	14.6	18	20.3	20.1	24.4
Credit Risk Indicators (%)							
Total assets (growth rate)	-1.5	-4.7	11.5*	2.8	-1.3	-0.6	3.7
Domestic assets (growth rate)	0.6	-6.1	6.1*	6.5	-0.6	-1.0	5.0
Loans and advances (growth rate)	0.6	-0.5	-1.1*	-2.6	-0.4	-1.1	-0.6
Non-performing loans ratio	10.8	11.1	12.9	11.7	11.5	12.2	10.8
Substandard loans/ Total loans	9.1	8.7	9.9	8.6	9.0	9.7	8.5
Doubtful loans/ Total loans	1.0	1.8	2.3	2.5	2.0	2.0	1.4
Loss loans/ Total loans	0.7	0.6	0.8	0.6	0.5	0.5	0.9
Provisions to non-performing loans	37.4	32.9	33.9	44.9	47.7	48.1	55.0
Foreign Exchange Risk Indicators							
Deposits in foreign exchange (% of total deposits)	12.9	6.6	4.9	4.4	4.8	5.2	7.1
Profitability Indicators							
Return on Assets (ROA)	1.1	1.0	1.1	0.8	0.7	0.7	0.8

Source: Central Bank of Barbados

** Reflects removal of financial consolidation;*

 # Includes foreign components unless otherwise stated

Table 2: Selected Financial Indicators – Deposit-taking Finance and Trust Companies

	2010	2011	2012	2013	2014	2014Q3	2015Q3
Solvency indicator							
Capital/Assets (percent)	23.5	23.8	23.6	24.3	22.9	23.2	23.0
Liquidity indicators							
Loan to deposit ratio (percent)	146.3	106.3	101.5	99.0	105.6	99.1	103.3
Liquid assets, percent of total assets	12.2	16.8	19.4	21.1	16.0	16.9	20.0
Credit risk indicators							
Asset growth	2.8	4.7*	6.2	3.8	2.9	0.7	4.9
Nonperforming loans ratio (percent)	5.7	8.6	9.3	8.2	8.3	8.4	9.4
Substandard loans/Total loans (percent)	5.2	6.7	6.1	6.0	5.0	6.1	6.9
Doubtful loans/Total loans (percent)	0.1	1.0	2.0	1.8	2.0	1.8	1.6
Loss loans/Total loans (percent)	0.3	0.9	1.2	0.4	0.3	0.5	0.8
Reserves to nonperforming loans (percent)	11.6	24.8	36.8	34.9	23.6	22.9	22.4
Profitability indicators							
Net Income/Capital (percent)	10.6	10.8	6.3	6.6	3.9	3.3	3.5
Return on Assets (ROA)	2.5	1.9	1.2	1.5	0.9	0.8	1.3

Source: Central Bank of Barbados

* *Reflects the underlying growth in assets.*

DTIs only

Table 3: Selected Financial Indicators – Credit Unions

(percent)	2010	2011	2012	2013	2014Q3	2015Q3
Solvency Indicator						
Reserves to total liabilities	10.4	10.7	11.4	12.9	11.9	12.0
Liquidity Indicators						
Loan to deposit ratio	114.8	113.6	117.1	116.5	91.8	90.9
Credit risk Indicators						
Total assets, annual growth rate	9.7	5.1	4.4	4.2	7.4	7.1
Loans, annual growth rate	8.6	6.5	3.2	3.7	6.6	7.0
Nonperforming loans ratio	7.2	6.9	8.2	8.5	9.1	8.9
Arrears 3-6 months/ total loans	2.1	2.0	1.9	2.4	1.8	2.2
Arrears 6-12 months/total loans	1.9	1.6	1.9	2.0	1.9	1.6
Arrears over 12 months/total loans	3.2	3.5	4.4	4.1	5.4	5.1
Provisions to total loans	2.2	2.8	3.2	3.1	3.4	2.7
Profitability Indicator						
Return on Assets (ROA)	1.2	1.2	1.3	1.4	0.4	0.4

Source: Financial Services Commission

Appendix B

Pension Funds

The Financial Services Commission has employed the use of a risk-based supervision tools to further enhance its regulatory framework for the pensions industry. This tool focuses on the identification of potential risks faced by pension plans in Barbados and the assessment of the financial and operational measures to manage and mitigate these risks.

The FSC is currently assessing the levels of risk these pension plans are exposed to by generating risk profiles using a modified assessment tool to suit the intricacies of the pension sector in Barbados. This tool, though effective for some types of pension plans, still needs to be refined to cover all types.

As stated in the legislation, the administrators of pension plans are required to provide annual statutory returns along with financial statements. Administrators with pension plans with assets that exceed $3 million are required by law to have financial statements prepared by an auditor as per International Financial Reporting Standards.

The submitted annual returns and financial statements are examined by FSC and used along with the most recent actuarial valuation to input the necessary information into the risk assessment tool to determine a risk profile for the pension plan. The risk assessment tool considers two occurrences in relation to risk: the probability of a negative event and the impact of a negative event.

The risks associated with pension plans lie in the areas of funding, solvency, investments, administration and compliance and governance risks. The current risk-based supervision process focuses heavily on off-site surveillance. It is, therefore, extremely data intensive and has depended significantly on the administrators being able to provide data in a seamless and automated manner to the FSC.

Occupational Pension Plans Highlights

- As at September 2015, the total number of applications submitted for the registration of occupational pension plans was three hundred and five (305). Of these, two hundred and twenty-five (225) pension plans have since been fully registered with the Financial Services Commission.
- Defined contribution pension plans accounted for approximately 64 percent of the occupational pension plans, defined benefit plans represented 30 percent and hybrid benefit type plans 6 percent.
- The distribution of pension plan membership is fairly skewed with 235 pension plans or approximately 76 percent of the total having membership of less than one hundred persons.
- The sponsors of occupational pension plans originate from various sectors in the economy, with the financial/insurance sector accounting for the largest percentage followed by the sales/distribution sector.

Table 1: Number of Occupational Pension Plans in Barbados by Type as at September 30

Type of Pension Plan	2014				2015			
	Not Registered	Registered	Wound Up	Total	Not Registered	Registered	Wound Up	Total
Defined Contribution (DC)	67	123	0	190	50	135	2	187
Defined Benefit (DB)	47	54	0	101	34	65	0	99
DB and DC Combination	4	8	0	12	2	10	0	12
DB and DC Multi-Unit	0	1	0	1	0	6	0	6
Multi-Employer DC	0	1	0	1	0	1	0	1
Total	118	187	0	305	86	217	2	305

Source: Financial Services Commission

Table 2: Membership Range of Occupational Pension Plans in Barbados as at September

Membership Range	
<100	235
101 - 200	29
201 - 300	17
301 - 400	6
401 - 500	2
> 500	14
Total	303

Source: Financial Services Commission

Table 3: Occupational Pension Plans Asset Range in Barbados as at September

Assets Range	
<500,000	148
500,001.00 - 1,000,000.00	46
1,000,001.00 - 5,000,000.00	64
5,000,001.00 -10,000,000.00	27
10,000,001.00 -20,000,000.00	8
> 20,000,000.00	10
Total	303

Source: Financial Services Commission

Table 4: Occupational Pension Plans by Sector in Barbados as at September

Pension Plans by Sector		
Agriculture/Energy/Manufacturing	30	10%
Construction	11	4%
Education	10	3%
Financial/Insurance	71	23%
Other	42	14%
Sales/ Distribution	51	17%
Services	50	17%
Communications/Media	8	3%
Tourism Sector	30	10%

Source: Financial Services Commission