

Financial Stability Report
2013

CENTRAL BANK OF BARBADOS

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Abbreviations

Abbreviation	*Meaning*
CAR	Capital Adequacy Ratio
CARICOM	Caribbean Community
CBB	Central Bank of Barbados
CIBC	Canadian Imperial Bank of Commerce
DTI	Deposit Taking Institution
FIA	Financial Institutions Act
FSAP	Financial Sector Assessment Programme
FSC	Financial Services Commission
FSI	Financial Stability Indicator
GDP	Gross Domestic Product
NPL	Non-performing Loan
ROA	Return on Assets
USA/US	United States of America

Preface

This is the third 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, to assess vulnerabilities and to initiate 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 that the assessment of risk exposures covers the activities of banks, insurance companies, non-bank financial institutions, credit unions, the activities of the Barbados Securities Exchange and issues and redemptions of government securities. This report analyses a range of financial stability indicators for banks and other financial institutions, as well as balance sheet and income and expenditure trends. For the banking system, financial forecasts are used to project expectations for capital adequacy and the quality of credit. Progressive stress tests are also used to test for possible contagion among banks, and from banks' exposures to financial institutions abroad.

Like most of the Central Bank's publications, the FSR is published exclusively online. In July of each year, Central Bank publishes an update on the annual FSR.

1. Introduction

Even before the global financial crisis of 2008, the financial system in Barbados had grown in size and complexity resulting in a number of regulatory innovations as regulators attempted to keep pace with the changing environment. This ongoing monitoring and legislative fine-tuning have been key pillars in supporting the financial architecture and the overall stability of the system in an adverse post-crisis economic environment. Since 2008, there have been several upgrades to the legislative framework and updated guidelines have been issued by both the Central Bank of Barbados and Financial Services Commission to ensure that the industry is operating in line with international best practices. In addition, continued exchanges between the regional and international supervisors have also contributed to the effective consolidated and cross-border monitoring of institutions. Moreover, significant progress has been made towards the development of a regional financial stability assessment report and work on a regional crisis management and resolution plan has already begun.

Notwithstanding these developments, some of the key financial stability indicators have worsened since the onset of the global financial crisis with credit risk being particularly noteworthy. While resilient areas such as personal mortgages exist, the persistently weak economic environment has contributed to the general decline in profitability through the deterioration in credit quality and the contraction of viable investment projects. Fortunately, the major indicators of credit risk have stabilised since the last FSR update with the resolution of one of the major non-performing hotel loans. However, the cutback in public sector employment in 2014 is expected to adversely affect the credit portfolios of financial institutions in the short term until the resumption of economic growth occurs. In addition, while the bulk of non-performing loans are captured in the substandard category of loans, the reported decline in asset values has raised concerns as to the ability of financial institutions to realise on the value of collateralized loans. Linkages in the financial system also have the potential to be a major source of systemic vulnerability, particularly through intercompany exposures and contagion effects. In addition to contagion risk, interest rate and liquidity risks were also carefully examined in the report.

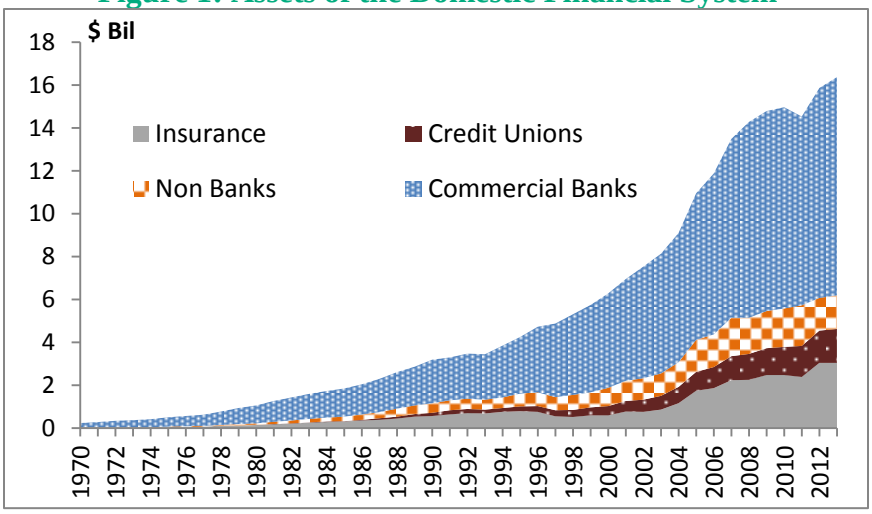
To assess the impact of the above vulnerabilities, a series of stress tests were conducted and the results suggest that the system as a whole remained resilient even in the case of significant shocks. Taking into account the simulation exercises and the latest data available, the financial system remained stable. This conclusion is supported by the sustained maintenance in the capital buffers well in excess of the prudential requirement, continued profitability and the reputation associated with strong parents.

2. Structure of the Financial System

While commercial banks remain the dominant subgroup in the financial space, new and innovative products have led to the sustained development of other financial entities. These entities provide support to all the key growth sectors in the economy, as well as mortgage and consumer financing to private individuals, and are active participants in the domestic capital market. Another phenomenon that defines the financial landscape is the degree of interconnectivity and cross-border linkages among the institutions. For example, all of the six banks operating in Barbados are affiliated with parents domiciled in other jurisdictions. The major insurance companies operate both regionally and internationally, and the trust and finance companies are subsidiaries either of other financial institutions or of other conglomerates.

Commercial banks currently account for approximately 62 percent of total financial assets. Insurance companies hold 18 percent of financial assets, while non-bank financial institutions (trust and finance companies) and credit unions each represent 10 percent of the market. Collectively, the asset base of these institutions amounted to $16 billion at September 2013, equivalent to 185 percent of GDP.[1]

Figure 1: Assets of the Domestic Financial System



Source: Central Bank of Barbados and Financial Services Commission

The financial system is highly concentrated with significant cross border interest, primarily through ownership structures. In the banking sector, each of the six banks is owned by a foreign parent – three based in Canada, two in Trinidad and Tobago and one in the United States of America. The three Canadian banks account for 75 percent of total bank assets. Loan exposure is concentrated in a few main sectors which drive the economy. Beyond personal loans, half of which are mortgages, significant portions of credit are directed to tourism, distribution and professional services (see Figure 2). Similarly, finance companies provide specialised financing mainly for mortgages and motor vehicle purchases. While some trust and finance companies are

[1] Other operations within the financial space include the securities market, mutual funds and pension funds but data for mutual funds and pension funds are not readily available.

owned by banks, others are associated with insurance companies, credit unions and other non-financial conglomerates. Credit unions also provide loans to members, most of which are consumer personal loans. Activity in this sector is heavily skewed, as 4 (out of 35 credit unions) account for more than 85 percent of total assets, membership, loans and deposits.

Table 2: Capital Adequacy and Rating of Parent

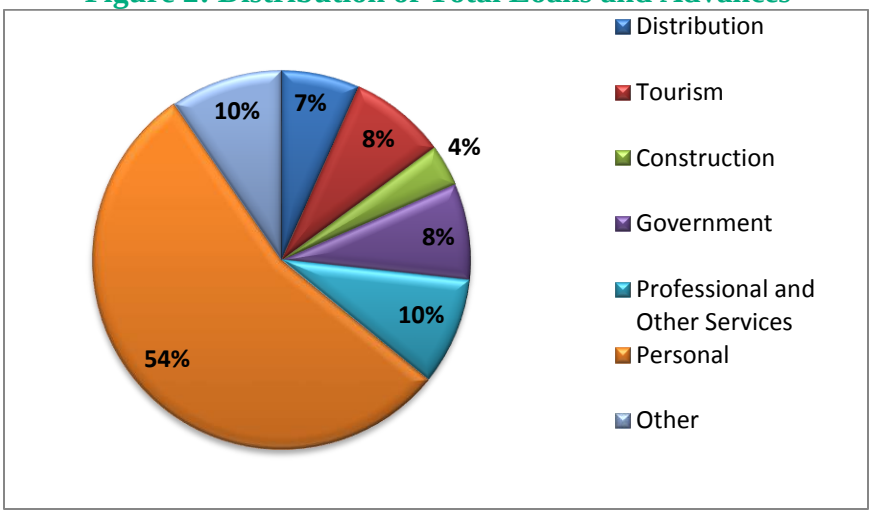
Domestic Bank	Majority Shareholder	Majority Shareholder Capital Adequacy (Tier 1-2013)	Majority Shareholder's Rating (Moody's)	Country Rating (Majority Shareholder) (Standard and Poor's)
Republic Bank Barbados Limited	Republic Bank Limited	27.6*	Baa1	A/Trinidad and Tobago
CIBC FirstCaribbean International Bank	CIBC	11.6**	Aa3	AAA/Canada
Bank of Nova Scotia	Bank of Nova Scotia	11.1**	Aa2	AAA/Canada
Royal Bank of Canada	Royal Bank of Canada	11.7**	Aa3	AAA/Canada
First Citizens	First Citizens Group	58.0#	Baa1	A/Trinidad and Tobago
Citibank Ltd	Citigroup Inc.	13.6	Baa2	AA+/USA

* Tier I & Tier II Capital Adequacy.
** Based on Basel III capital requirements and definitions
# Data from 2012 Annual Report.

The insurance sector can be classified into two business types: life insurance and non-life insurance providers.[2] As at year-end 2012, 16 general insurance and 5 life insurance companies operating in Barbados held combined assets of just over $3 billion. Life insurance companies account for 77 percent of the industry, most of which is driven by one entity (see Figure 3). The largest insurance group has both life and non-life operations and accounts for 60 percent of the industry. Moreover, its operations span several territories (including the US) and include companies providing mutual funds, asset management and financing.

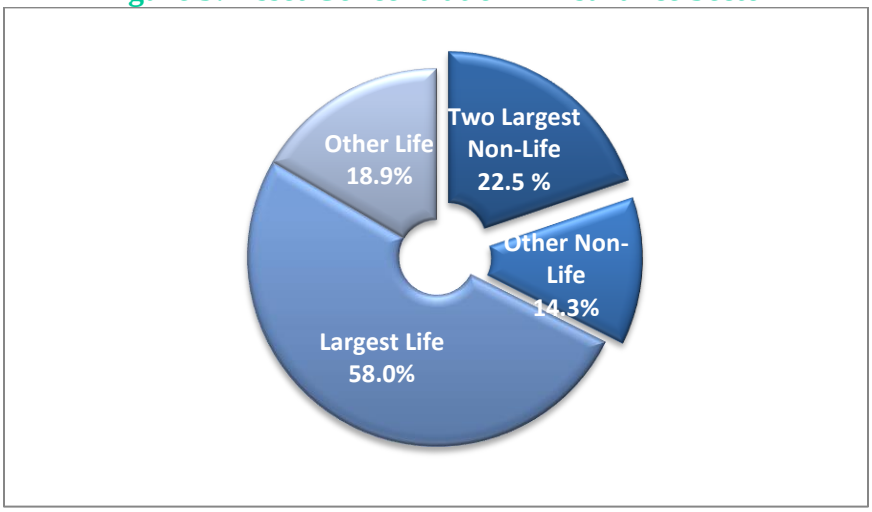
[2] The insurance sector analysis excludes CLICO, British American Insurance and American Life Insurance

Figure 2: Distribution of Total Loans and Advances



Source: Central Bank of Barbados

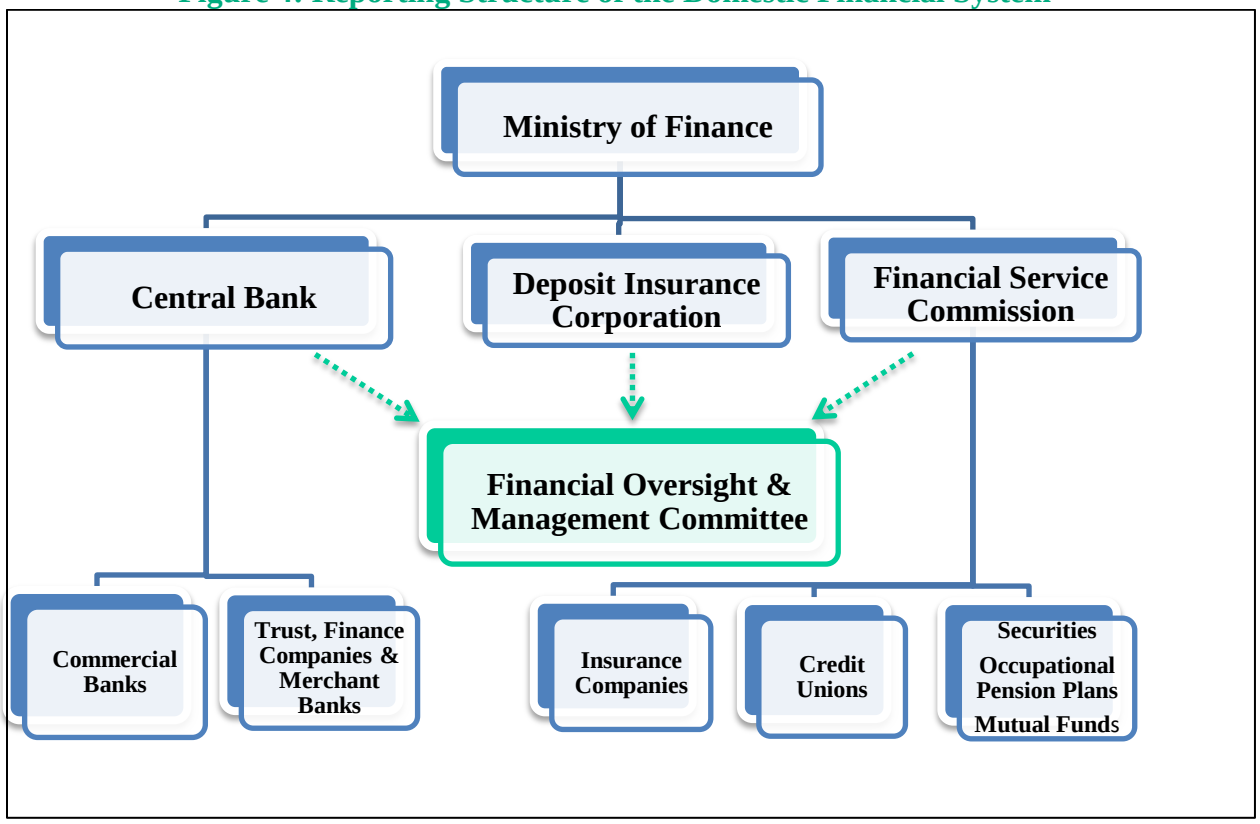
Figure 3: Asset Concentration – Insurance Sector



Source: Financial Services Commission

Oversight of the financial system is shared between the Central Bank of Barbados and the Financial Services Commission (FSC). Commercial banks, trust companies, finance companies and merchant banks fall under the aegis of the Central Bank, while credit unions, insurance companies, occupational pension plans, mutual funds and the securities market are regulated under the FSC Act. Collaboration between these two regulators is established by a Memorandum of Understanding and is formalised via the Financial Oversight and Management Committee (FOMC). The FOMC provides for mutual assistance, exchange of information, and monitoring of the financial and coordination of financial policies to preserve the stability of the system.

Figure 4: Reporting Structure of the Domestic Financial System



Source: Central Bank of Barbados

Confidence in the financial system is further supported by the establishment of the Deposit Insurance Scheme, which guarantees each depositor up to $25,000 on domestic currency accounts. As at year-end 2012, 90 percent of qualified accounts in the Barbadian banking system are covered in the event of an institution's collapse. The fund showed steady growth since its inception in 2007 and is currently valued at $39 million.

Box 1: Regulatory and Supervisory Developments

During 2013, the Central Bank of Barbados (Bank) continued to enhance its regulatory framework in response to emerging international standards and best practices and to collaborate with other domestic regulators and stakeholders on various national issues, including the Global Forum on Transparency and Exchange of Information for Tax Purposes Peer Review and Financial Action Task Force initiatives. The Bank also maintained its close working relationships with other local, regional and international regulatory bodies, and continued to contribute to the regional financial stability project being undertaken by CARICOM.

The Bank continued its annual visits to Canada to attend meetings with Canadian banks, regulatory authorities and other stakeholders in Toronto and Ottawa. The Bank benefits from this dialogue through gaining valuable insights into future plans and strategies of the Canadian banks and engaging in vibrant discussion and collaboration on matters of common concern. Similarly, the Bank continued to attend regulatory colleges and engaged in quarterly conference calls with regional and international regulators and was represented on regional regulatory Working Groups to discuss matters such as regional crisis management and Basel II/III.

The Bank remains active in regional and international fora, (such as the Caribbean Group of Bank Supervisors, the Caribbean Financial Action Task Force, the Association of Supervisors of Banks of the Americas and the Group of International Finance Centre Supervisors (formerly Offshore Group of Bank Supervisors) where issues pertinent to global standards and international financial matters are discussed.

Policy Development

The Bank continued its efforts with the implementation of Basel II/III. Progress has been made with the implementation of the Market Risk Amendment with licensees participating in a reporting trial. Pillar 2 was also advanced with the development and update of the Corporate Governance Guideline in 2013, which was first issued in October 2006. The Guideline sets out the Bank's expectations in relation to the minimum standards for corporate governance practices by all licensees and forms an integral part in assessing the effectiveness of corporate governance practices. The Anti-Money Laundering/Combating Terrorist Financing Guideline was also updated in October 2013 to reflect a series of developments with the FATF Recommendations, Guidance and Best Practice papers.

In addition, the Department issued the draft Interest Rate Risk in the Banking Book Management Guideline to the industry for comments. The Guideline outlines the minimum policies and procedures required by each licensee in the management of interest rate risk in the banking book. The Framework for Licensing of Financial Institutions which sets out the Bank's criteria for licensing entities under the FIA and IFSA, the licensing process and the customary documentation to be provided by clients was also issued in 2013. The Bank's website was updated with comprehensive information on the application process.

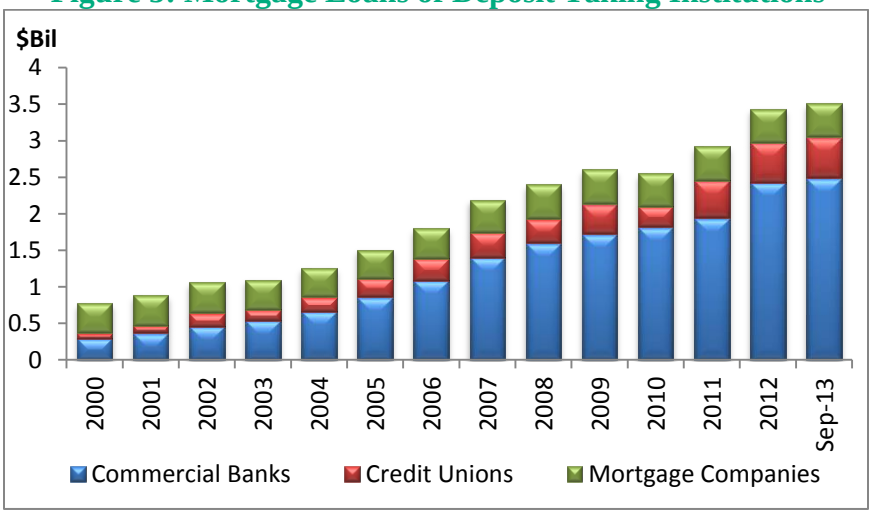
Financial Sector Assessment Programme (FSAP)

The 2013 FSAP assessment was conducted and covered the assessments of the banking, insurance and credit unions sectors. The FSAP focused on assessing regulatory compliance with international standards, gaining an understanding of systemic issues and assessing the resilience of the entire financial system to withstand internal and external factors. The Financial System Stability Assessment Report is scheduled to be published in February 2014.

3. Trends in the Financial System

Activity among deposit taking institutions (DTIs)[3] was concentrated in mortgages and other consumer purchases even though aggregate loans outstanding diminished. Mortgages, which are about 42 percent of GDP and account for half of total loans in the system, reached $3.5 billion as at September 2013. Despite the weak economic environment over the last five years, the mortgage sector accumulated growth of 46 percent (or $1.1 billion) which was mainly driven by private dwellings (95 percent). At the same time, DTIs have witnessed further deteriorations in their total credit portfolio, but have also set aside more capital to help buffer potential losses.

Figure 5: Mortgage Loans of Deposit Taking Institutions



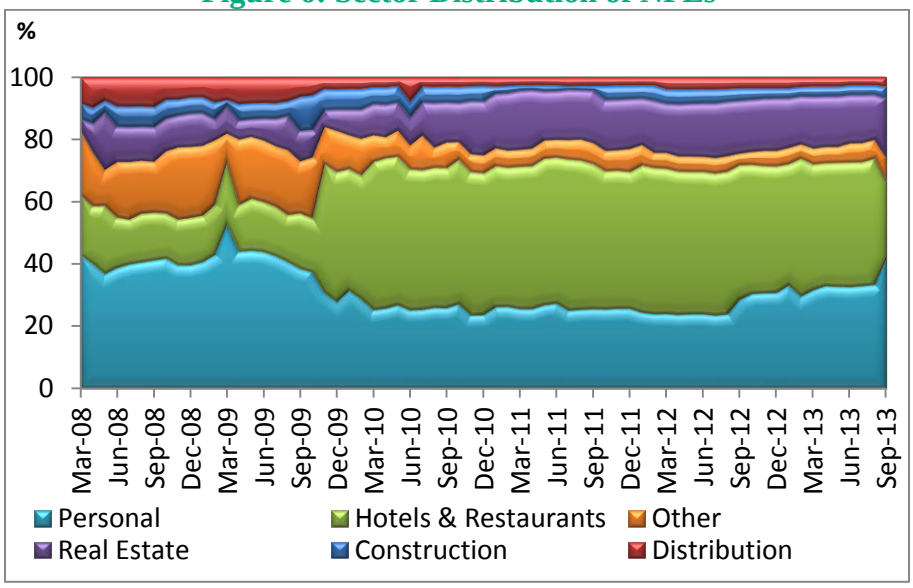
Source: Central Bank of Barbados and Financial Service Commission

3.1 Commercial Banks

After peaking in June 2013 at 13.9 percent, the aggregate non-performing loans (NPL) ratio declined following the resolution of a large corporate non-performing loan (to the hotel sector). The regularization of this loan shaved off about 2.3 percentage points from the total classified loans, resulting in the NPL ratio of 11.3 percent at the end of September 2013. Eighty-five percent of the total NPL falls in three large categories: hotels and restaurants now account for 24 percent of the NPL ratio (down from 43 percent in 2012), real estate 19 percent (a slight increase from 16 percent) and personal 42 percent (up from 29 percent in 2012), see Figure 6.

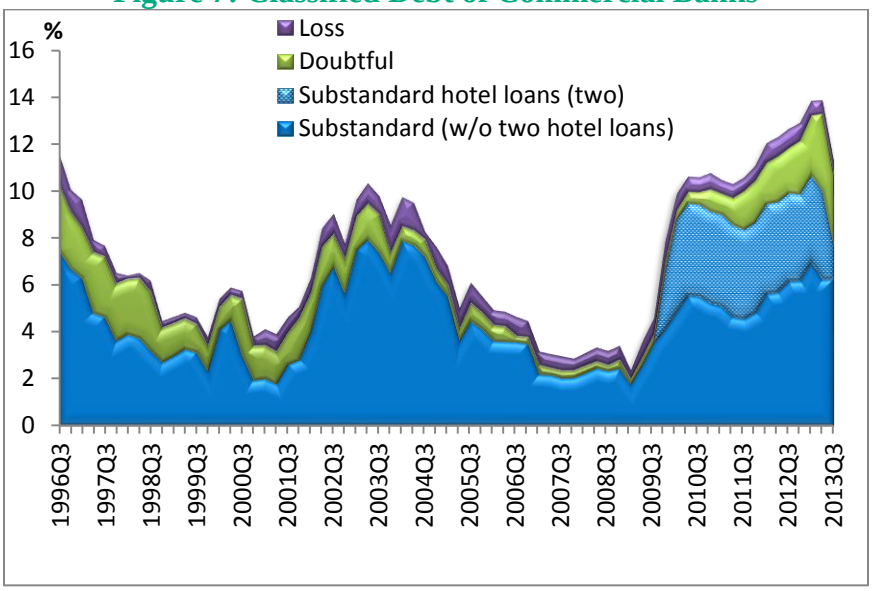
[3] Deposit Taking Institutions comprise commercial banks, credit unions, trust and finance companies.

Figure 6: Sector Distribution of NPLs



Source: Central Bank of Barbados

Figure 7: Classified Debt of Commercial Banks

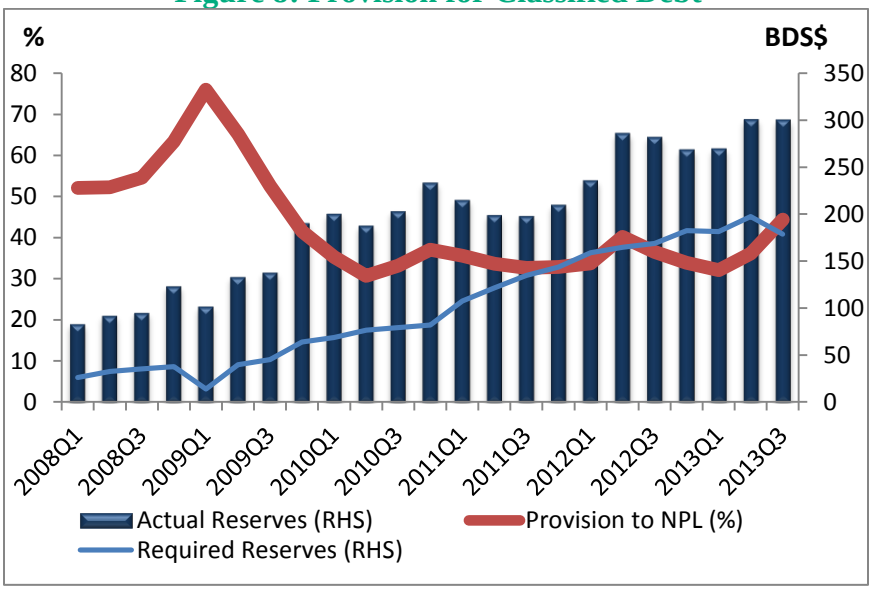


Source: Central Bank of Barbados

Loans classified as substandard now represent about 68 percent of total NPLs (compared to 78 percent in the comparable period in 2012) and require 10 percent provision. The doubtful and loss account for 26 percent and 5 percent, and require 50 percent and 100 percent provisioning, respectively. Banks, however, continued to assign provisions well above the statutory requirements to cover losses possibly arising from classified debt. During the year, a further $18 million was added to reserves that led to a further strengthening of capital buffers. Actual reserves reached over $300 million as at the end of the reporting period and are adequate to

cover over 44 percent of all problem loans (see Figure 8). Historically, net write-offs in relation to total loans have been extremely modest, and have averaged less than 1 percent per year over the last decade. The capital adequacy ratio (CAR) continues to be strong (22.4 percent) and has doubled since 2008.

Figure 8: Provision for Classified Debt

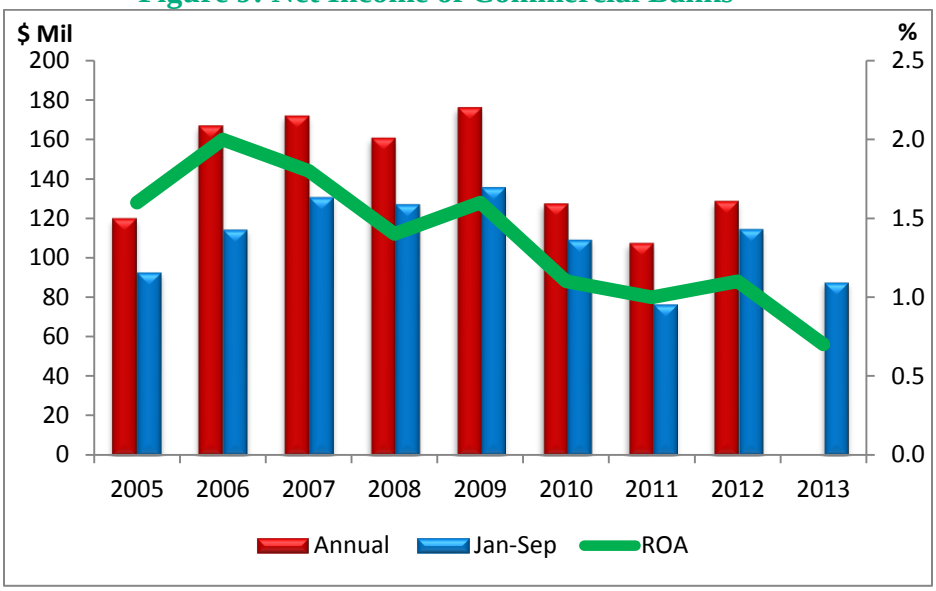


Source: Central Bank of Barbados

In addition to the significant portions of non-performing assets, weak loan demand and the absence of viable projects have constrained the overall profitability of banks. Nevertheless, they have demonstrated some resilience by the fact that they continue to generate a level of profitability. Banks have made significant investments in Barbados treasury securities, which have provided a steady stream of income. Total holdings in government securities moved from $1.3 billion in 2008 to $2.2 billion as at September 2013, representing a 70 percent increase in government securities.

The return on assets (ROA) has declined since 2008, and has averaged 1.2 percent per annum over the period (See Figure 9). Net interest income contributed about 70 percent of total revenue and the remainder was provided by fees and other income.

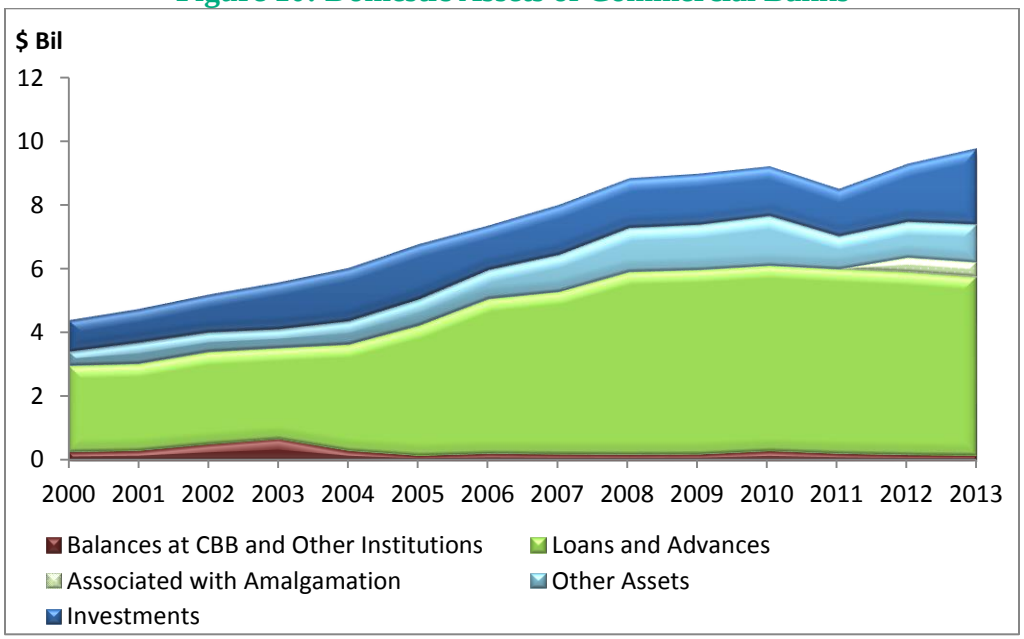
Figure 9: Net Income of Commercial Banks



Source: Central Bank of Barbados

Domestic assets of commercial banks grew 3.8 percent for the year to September 2013, driven by increased holdings of government Treasury Bills (55 percent). Total investments grew 31 percent, currently accounting for 23 percent of total assets. While loans and advances continue to be the primary component accounting for about half of the total assets, balances outstanding declined 2.4 percent as at September 2013.

Figure 10: Domestic Assets of Commercial Banks

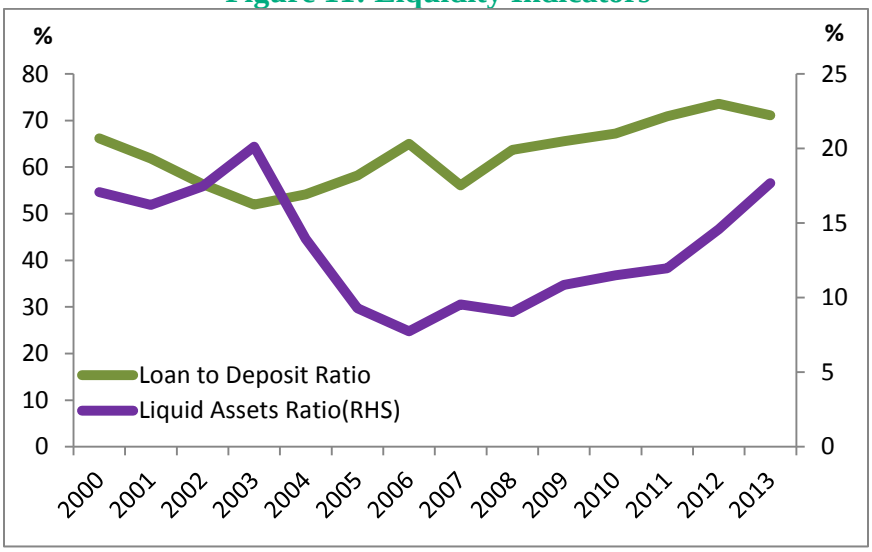


Source: Central Bank of Barbados

Despite the overall fall-off of credit, loans to the personal sector grew 3 percent for the year to September; however, this growth was overshadowed by declines of 15 percent and 17 percent in credit related to construction and professional services, respectively. Personal loans continue to be the major component, accounting for 54 percent of total credit, followed by professional and other services (10 percent). Domestic deposits on the other hand, ticked up 2.3 percent on the strength of the savings of private individuals.

The build-up of liquidity is as a result of the outstripping of deposit growth over credit. The banks' loan-to-deposit ratio declined from 74 percent at the end of 2012, to 71 percent at September 2013, but the liquid assets ratio grew sharply over the last two years from 12 percent at the end of 2011 to 18 percent at end of the review period. Most of the liquid assets are held in Barbados T-bills (approximately 80 percent). The interest rate spread among banks continued to trend downwards reaching 5.6 percent at September 2013, compared to the last peak of 7 percent in 2009.

Figure 11: Liquidity Indicators



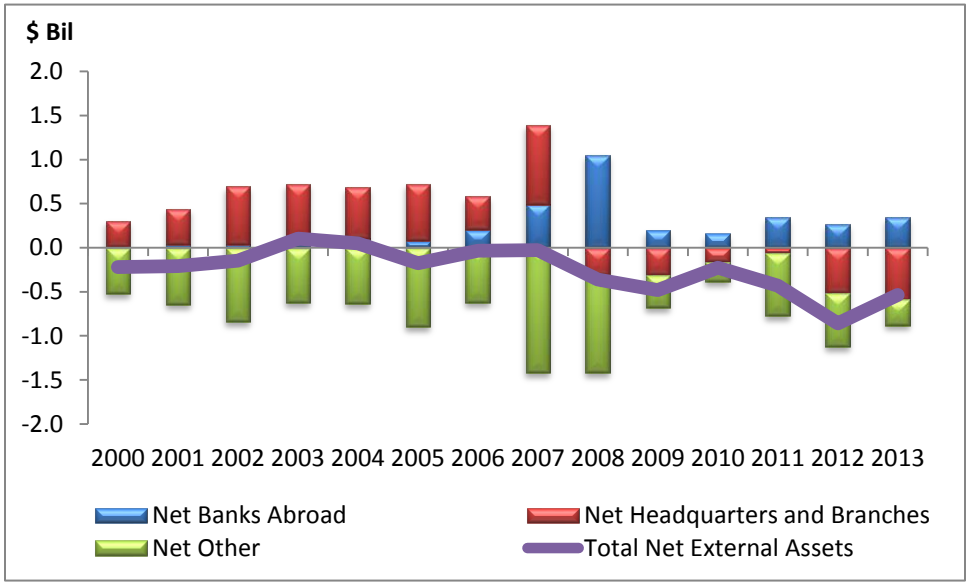
Source: Central Bank of Barbados

The net external balance of commercial banks improved by $320.5 million during 2013, primarily due to substantial investments in foreign securities (see figure 12).[4] Holdings of foreign securities jumped $208.9 million, up from $12.9 million at the beginning of the year (see Figure 13). These securities are primarily concentrated in Caribbean sovereign and American

[4] Due to a reclassification of a loan facility, balances due from Headquarters and Branches was adjusted downwards from 2011 onwards.

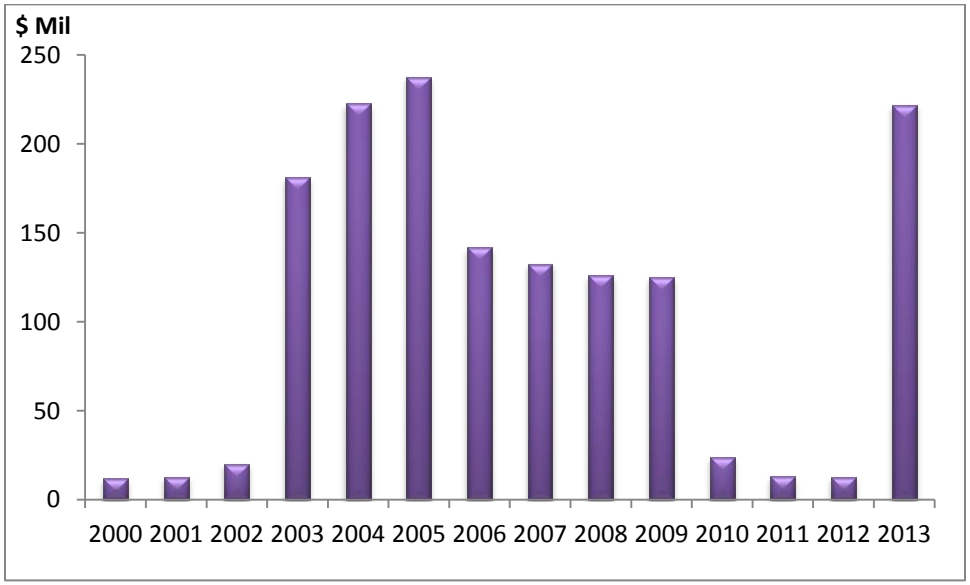
corporate bonds. In addition, balances due from banks abroad (+$62.1 million) and headquarters and branches (-$105.5 million) were the other major asset categories to register significant movements for the year-to-date.

Figure 12: Net External Assets



Source: Central Bank of Barbados

Figure 13: Foreign Investments (other than T-bills)

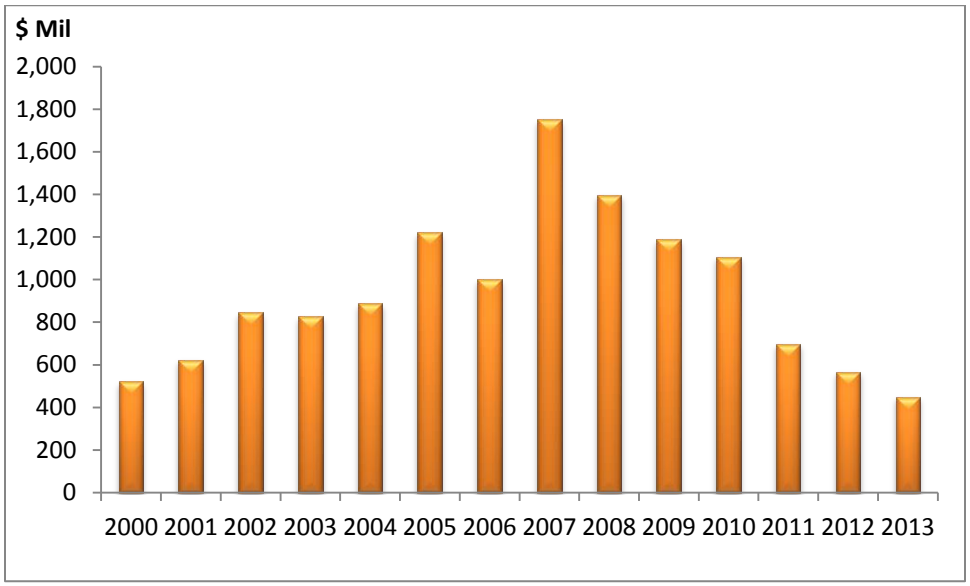


Source: Central Bank of Barbados

The corresponding drop in liabilities was attributed to a $118.2 million fall-off in deposits of non-residents, a category which has continued to fall annually since 2007, when it peaked at $1.8 billion (see Figure 14.) Although much of this decline in recent years has been attributed to the

transfer of funds from one domestic bank to its licensed affiliate in the international financial centre, the fall-off during 2013 was spread across the banking system.

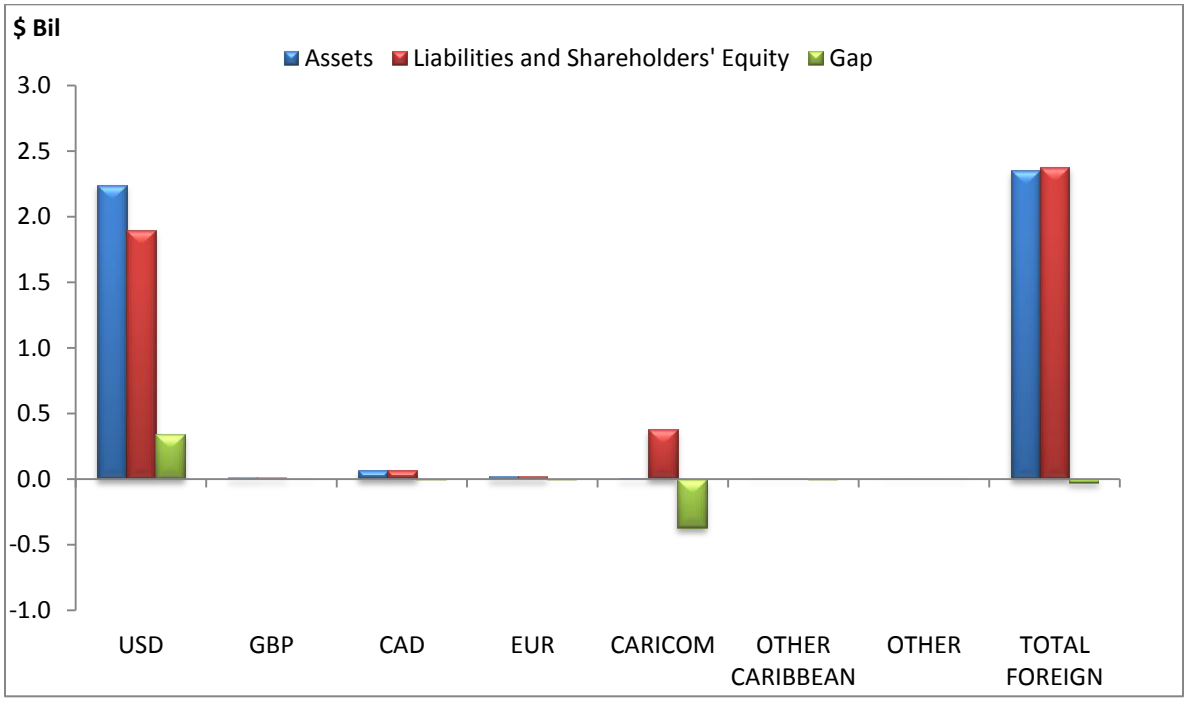
Figure 14: Deposits from Non-residents



Source: Central Bank of Barbados

Despite owing significantly more to overseas residents than they have claims on, commercial banks' net foreign currency position for all assets totalled only -$28.0 million at month-end September 2013 (see Figure 15). The majority of FX-denominated assets and liabilities are in US dollars, with a positive US dollar balance of $343.6 million, offset by a negative balance of $372.9 million in CARICOM currencies.

Figure 15: Assets and Liabilities denominated by Foreign Currency

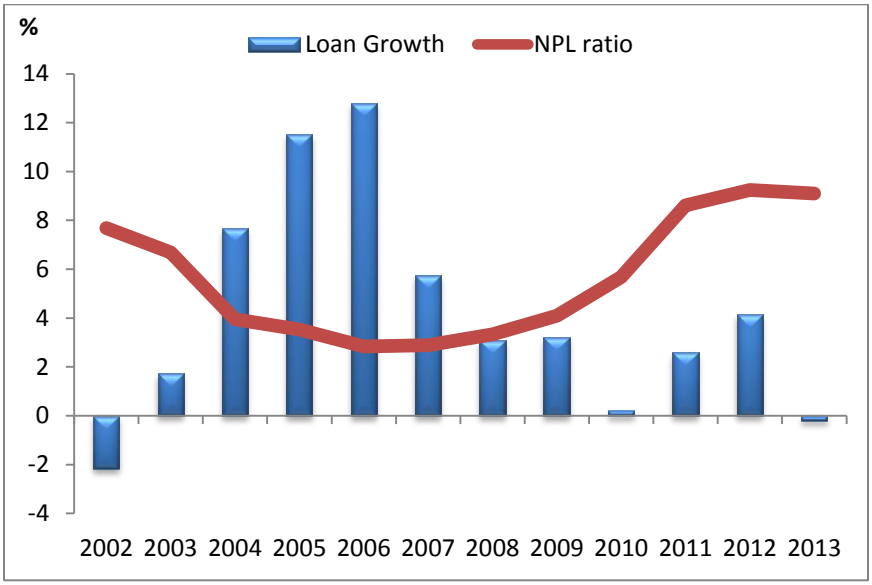


Source: Central Bank of Barbados

3.2 Non-bank Financial Institutions

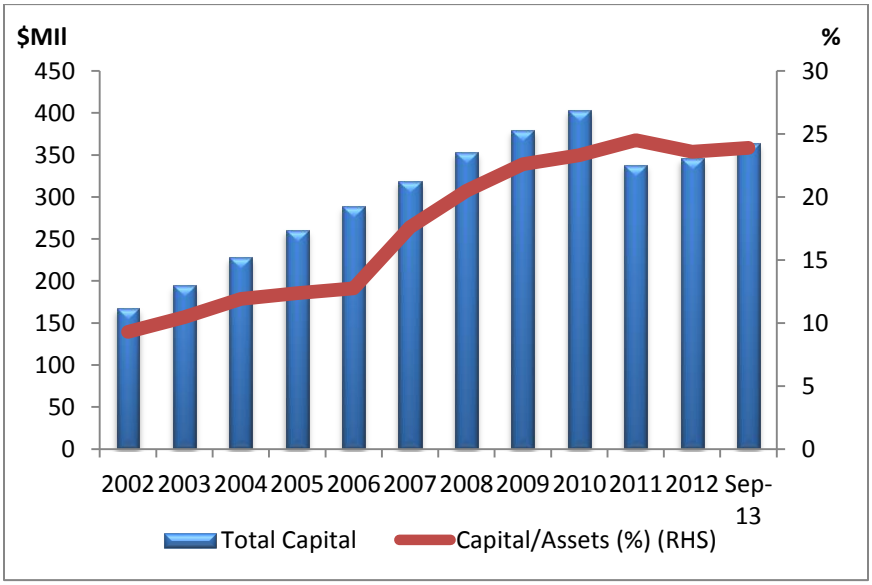
Non-bank financial institutions have also seen a general rise in their NPLs since 2008, but at a less severe rate than commercial banks. NPLs rose from 3.3 percent in 2008 to 8.6 percent in 2011, and since then the ratio has moved marginally to close at 9.1 percent at the end of September 2013. As with banks, impaired loans are heavily weighted in the substandard classification and the institutions have made adequate levels of loan-loss provisions to cover these weaknesses in their portfolios. At the end of the reporting period total capital covered about 25 percent of assets. Total loans grew for the second consecutive year.

Figure 16: Non-Bank Institutions' Loan Growth and NPLs Trends



Source: Central Bank of Barbados

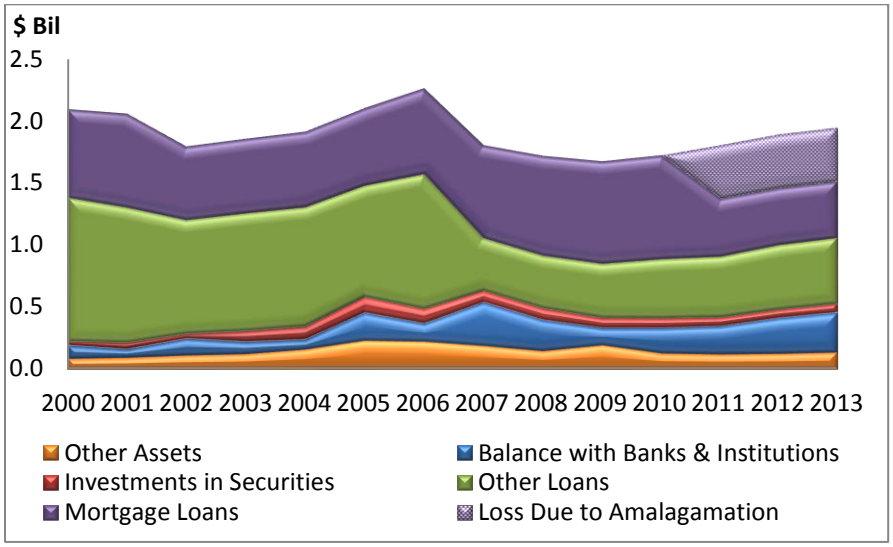
Figure 17: Non-Bank Institutions' Capitalisation



Source: Central Bank of Barbados

Non-bank financial institutions comprise trust and mortgage finance companies and finance companies and merchant banks. During 2013, the asset base of non-bank financial institutions continued to expand, recording growth of 3.8 percent primarily from increased loans other than mortgages and a higher build-up of balances with banks and other institutions.

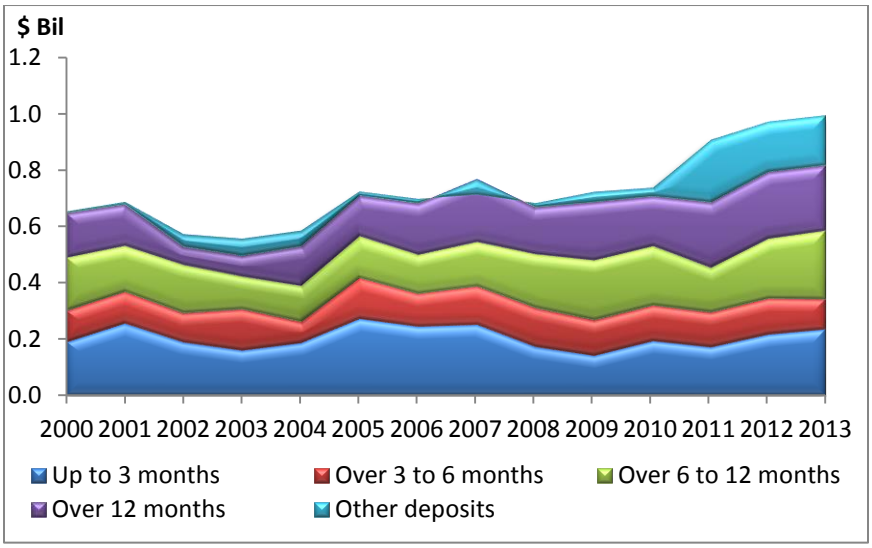
Figure 18: Total Assets of Non-Bank Financial Institutions by Category



Source: Central Bank of Barbados

Time deposits continue to contribute majority funding for the operation of non-banks, almost evenly distributed across maturities. Total deposits grew 2.3 percent to September 2013. Liquidity measured by the loan to deposit ratio has continued its downward slide over the past five years and stood at 98.5 percent at September 2013.

Figure 19: Distribution of Time and Other Deposits

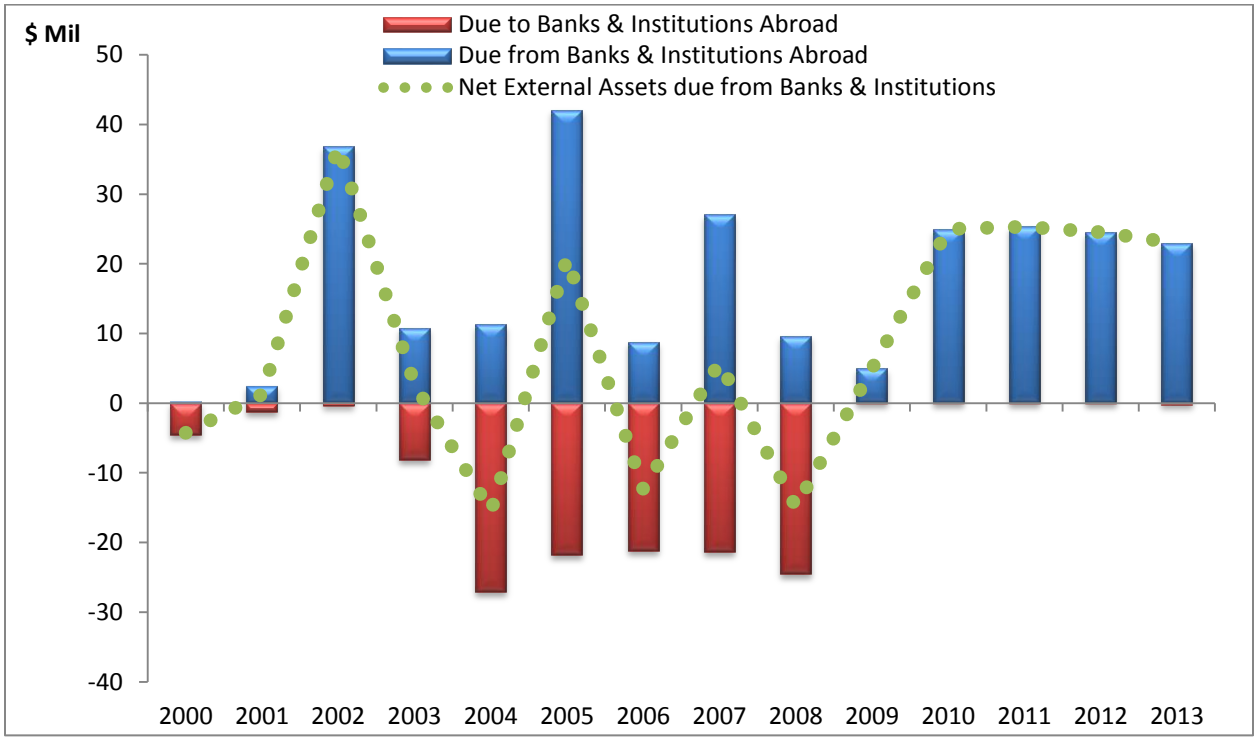


Source: Central Bank of Barbados

Claims on non-banks by non-resident financial institutions are negligible, while funds due to non-banks have hovered around $25 million since 2010, most of which is associated with parents (see Figure 20). Since 2010, the net position on external assets due from banks and financial

institutions has remained relatively stable, and at September 2013, stood at $22.9 million. Foreign securities held by Part III companies have also been constant, and are even smaller, at $3.2 million at the end of the reporting period.

Figure 20: External Assets and Liabilities due from/to Financial Institutions Abroad

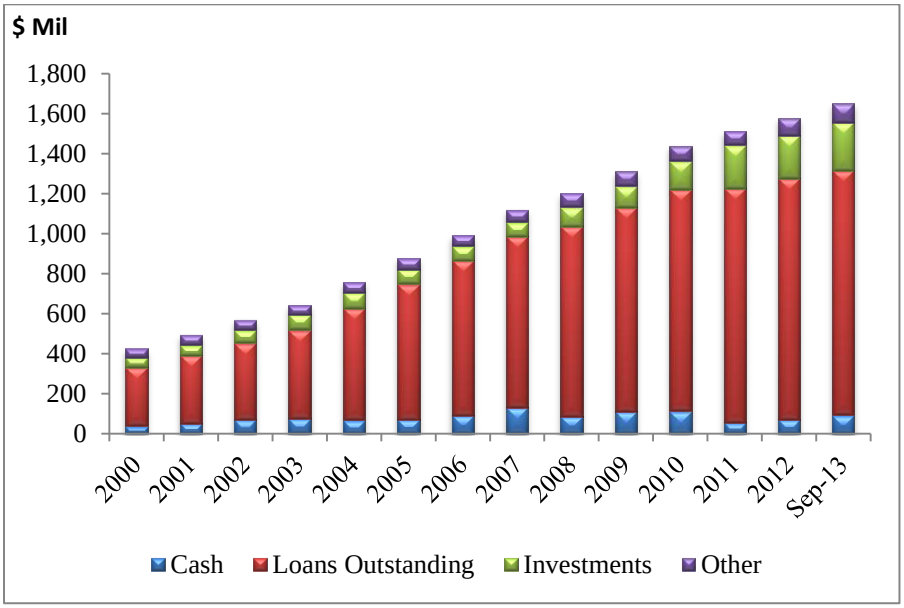


Source: Central Bank of Barbados

3.3 Credit Unions

At the end of September of 2013, there were 35 registered credit unions operating in Barbados. The sector reported membership of approximately 159,000, representing an increase of 7.5 percent over the comparable period of the previous year. For the same period, the consolidated assets of the sector were $1.65 billion.

Figure 21: Total Assets of Credit Unions by Category

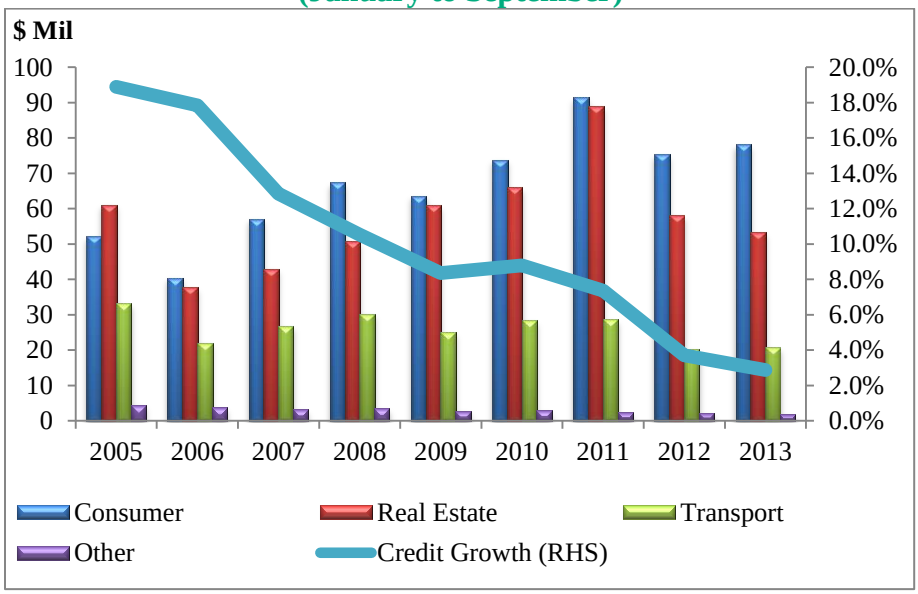


Source: Financial Services Commission

Assets grew by approximately 5.7 percent between September 2012 and September 2013 to reach approximately $1,650.5 million (refer to Figure 21). This increase was primarily due to an increase in loans to members ($35.3 million or 2.9 percent), investments ($34.9 million or 16.3percent) and cash ($16.7 million or 21.9 percent).

As at September 2013, gross loans to members represented the largest asset on the combined balance sheet for the credit union movement, accounting for approximately 76 percent of total assets, slightly down from 79 percent of total assets for the same period of the prior year. This illustrates a slowdown in the rate of expansion of credit, a reflection of the weak loan demand in the wider economy.

Figure 22: New Credit Issued and Total Credit Growth (January to September)

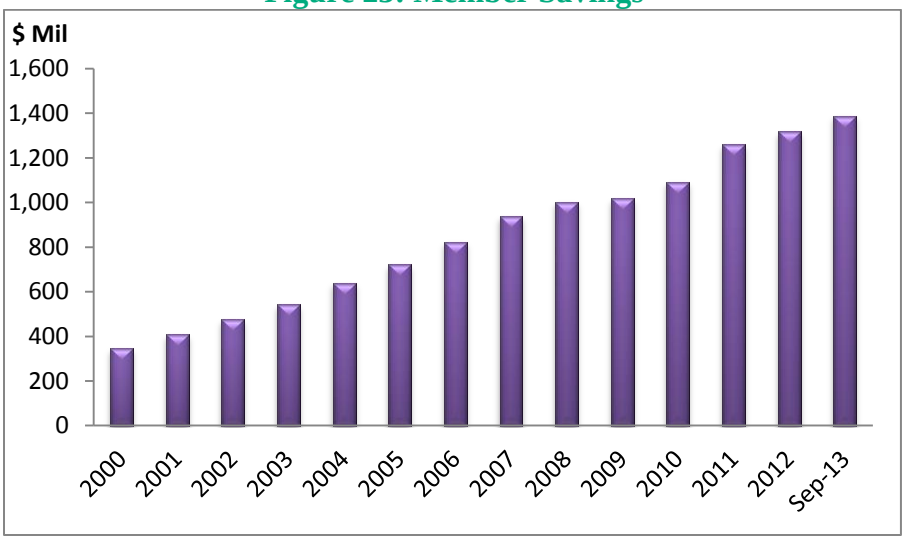


Source: Financial Services Commission

Between September 2012 and September 2013, gross loans to members increased by 2.9 percent to reach $1,262.3 million. Consumer loans accounted for the majority of loans to members (51 percent) followed by real estate loans (35 percent) and transport (13 percent). During the period under review, consumer credit increased marginally by 3.8 percent, in contrast, real estate loans fell by 8.1 percent during the same period.

Members' savings which comprise both members' deposits and members' shares increased by 6.1 percent growing from $1,309.1 million in September 2012 to $1,388.9 million at the end of September 2013. The increase in members' savings was primarily as a result of an increase in members' term deposits which increased by 18.3 percent or $67.8 million during the period under review. This increase in members' term deposits resulted from the more attractive interest rates offered on, and increased visibility of these products.

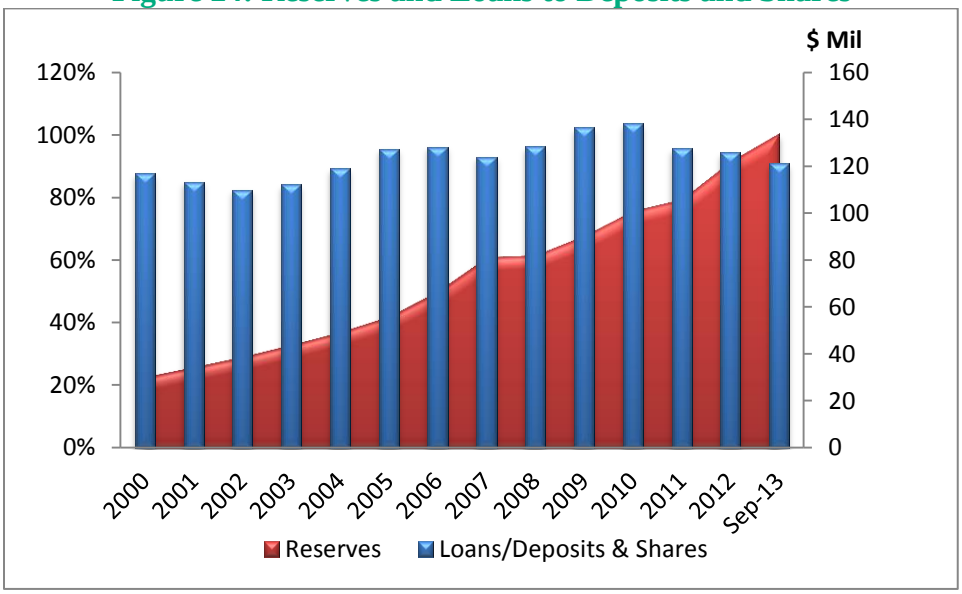
Figure 23: Member Savings



Source: Financial Services Commission

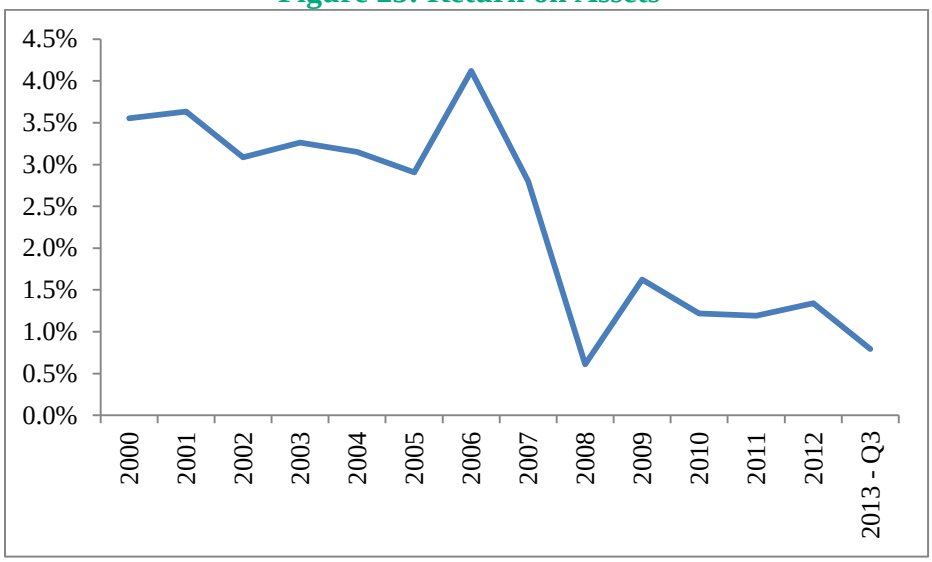
The loans-to-deposits and shares ratio declined marginally to 91 percent over the twelve month period ended September 2013. This was as a result of a faster rate in growth on deposits and shares (members' savings) coupled with a reduction in the growth rate in credit.

Figure 24: Reserves and Loans to Deposits and Shares



Source: Financial Services Commission

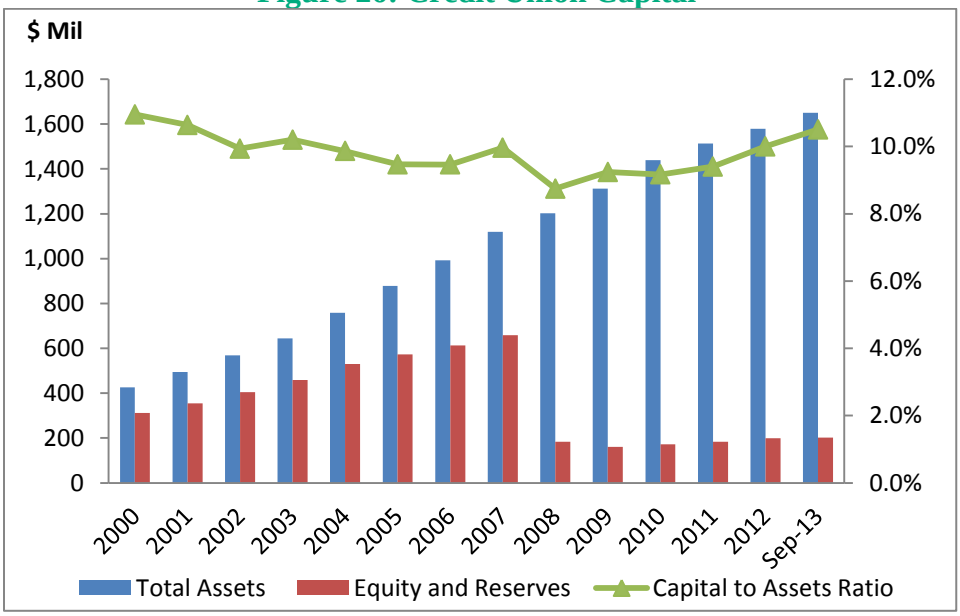
Figure 25: Return on Assets



Source: Financial Services Commission

The slowdown in credit growth was also reflected in decreased profitability in the sector, with the combined annualised return on assets (ROA) declining by 0.5 of a percentage point to 0.8 percent at September 2013.

Figure 26: Credit Union Capital[5]

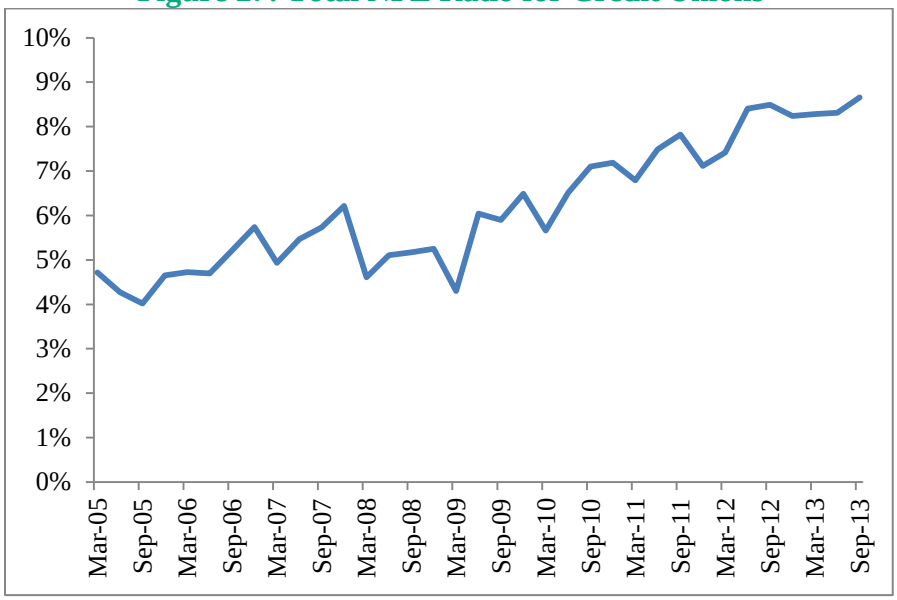


Source: Financial Services Commission

[5] Amendments to the legislation for co-operative societies took effect in 2008 resulting in the decline reported for equity and reserves.

As at September 2013, the capital to asset ratio[6] for the credit union movement was 10.5 percent, marginally higher than the 10 percent reported at the end of September 2012. The sector's capitalisation has trended upward slightly since 2010 due to modest growth in equity and reserves (see Figure 26).

Figure 27: Total NPL Ratio for Credit Unions



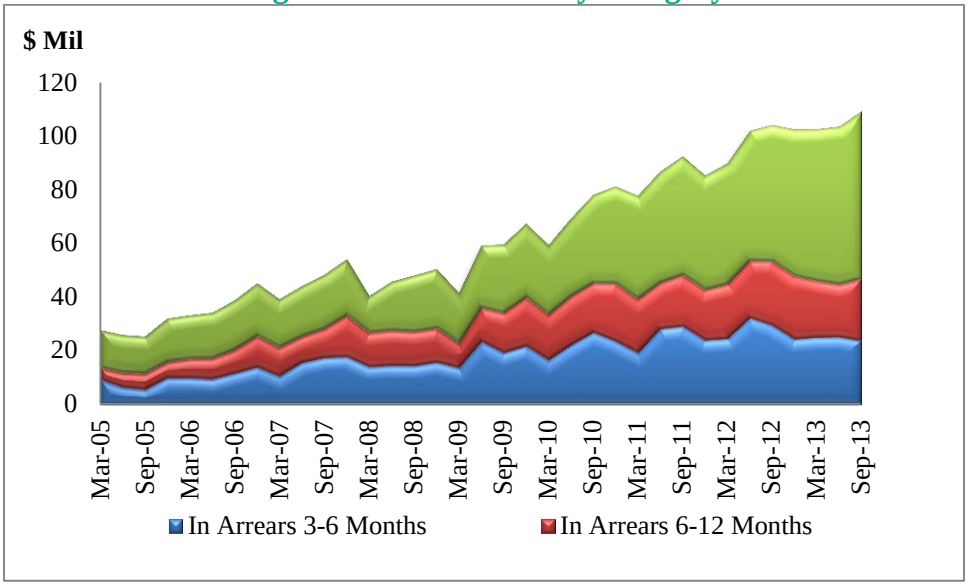
Source: Financial Services Commission

The quality of the loan portfolio for the credit union movement declined as the gross classified debt ratio increased from 8.2 percent at the end of December 2012 to 8.7 percent at the end of September 2013. There is also significant variation on the quality of the loan portfolio across the sector with the non-performing loans (NPLs) among the smaller credit unions (in terms of asset size) being substantially higher than among the larger entities. The ratio of the loan loss provision to gross classified loans increased from 36 percent in September 2012 to 38 percent in September 2013.

Figure 28 shows a more detailed breakdown of the NPLs by sub-categories. The majority of NPLs in the credit union sector has been in arrears in excess of twelve months (approximately 57 percent). During the first nine months of 2013, NPLs in the three-to-six months and the six-to-twelve months category declined, while the NPLs in arrears over twelve months increased, suggesting a downward transition in the classifications.

[6] The capital used in the capital to assets ratio includes statutory reserves, liquidity reserves and undivided surplus.

Figure 28: Total NPLs by Category



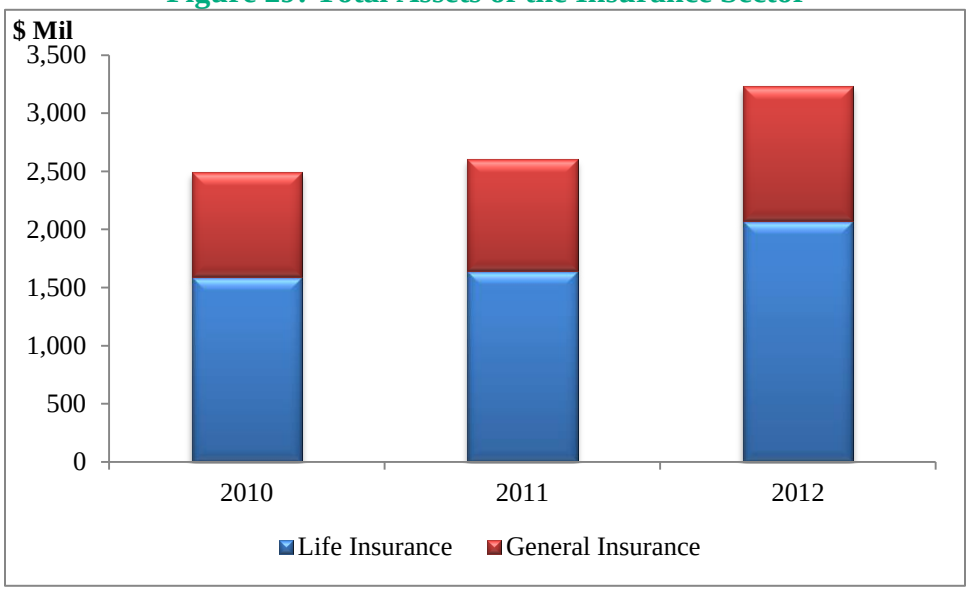
Source: Financial Services Commission

3.4 Insurance Companies[7]

The domestic insurance sector is a major component of the financial sector in Barbados. In recent years, there have been a number of challenges facing the insurance industry, including a slowdown in economic activity, low interest rates and high debt levels among Caribbean governments. As a result, there has been increased demand for insurance products and increased risk in the investment portfolios of the insurance companies.

[7] The data used in this section of the report is up to December 2012.

Figure 29: Total Assets of the Insurance Sector



Source: Financial Services Commission

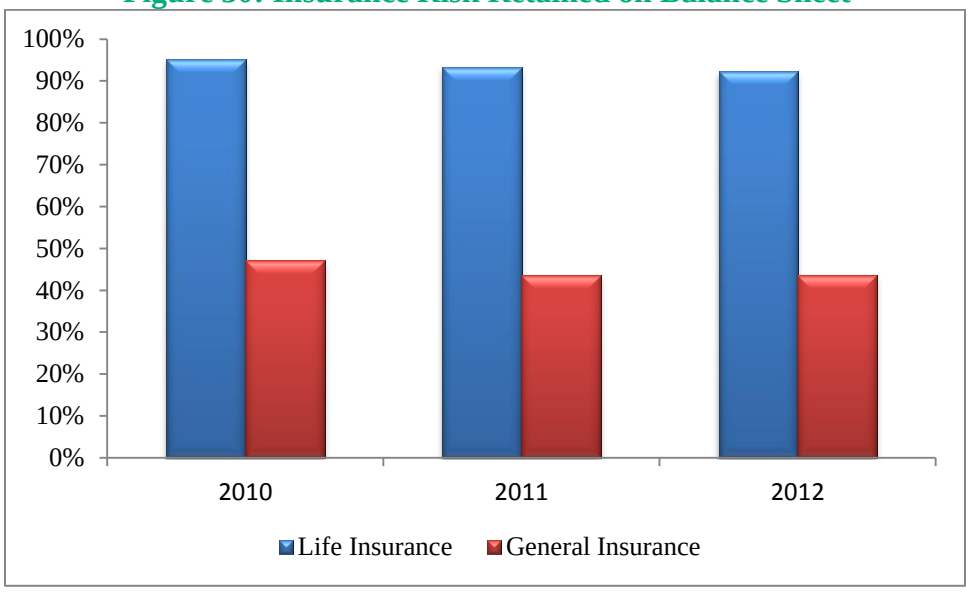
At December, 2012, total assets for the sector stood at approximately $3.2 billion, representing an increase of approximately 24 percent[8] when compared to the same period one year earlier. This increase in assets is attributed to new entrants into the domestic market and acquisitions made by existing companies. There has been a steady decline in the combined industry's (life and general insurance) gross premiums written over the three year period ending 2012. At the end of December 2012, combined gross premiums were approximately $647.7 million, down from $663.2 million and $685.6 million in 2011 and 2010, respectively.

Life Insurance

While major regional and local life insurance companies remained stable and well capitalised during 2012, gross premiums written declined by 6.8 percent, compared to the previous year. Additionally, in 2012 there was a marginal decline in the life insurance risk retained by the industry, as these companies retained approximately 92.9 percent of the value of premiums written on their balance sheet compared to 93.3 percent in 2011. The ratio of gross claims paid to gross premiums written for the life insurance industry improved in 2011 and this trend continued into 2012.

[8] This asset growth mainly reflects the acquisition of a non-domestic entity by an insurance company during the period.

Figure 30: Insurance Risk Retained on Balance Sheet

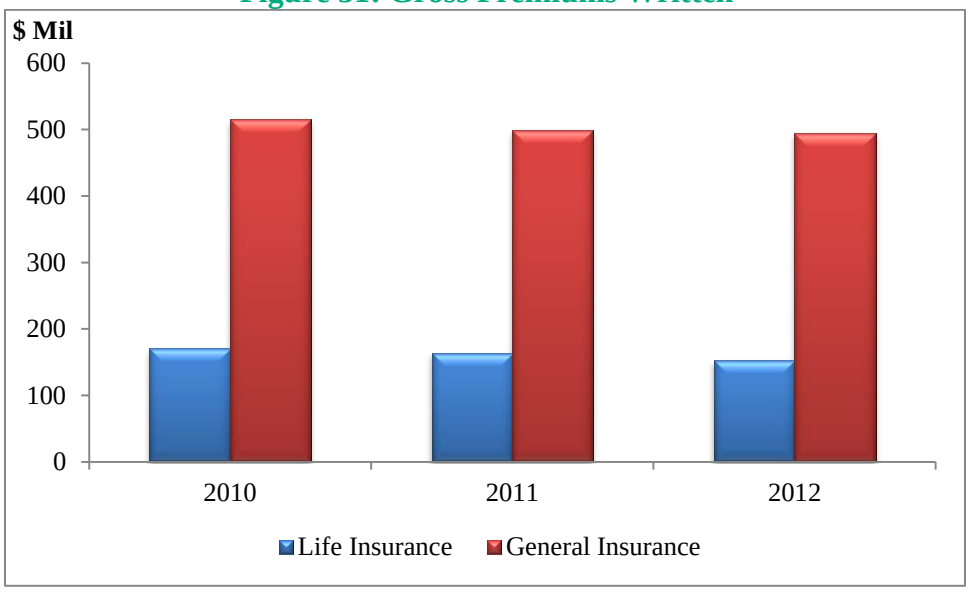


Source: Financial Services Commission

General Insurance

Gross premiums written by the general insurance industry fell marginally by 0.9 percent in 2012, compared to a decline of 3.0 percent in 2011. This contraction was largely because of declines in the premiums collected in the motor and marine, aviation and transit insurance categories, which offset increases in the premiums written for property, liability and accident and sickness insurance categories. General insurers retained approximately the same percentage of insurance risk resulting from their various business lines as the reinsurance premium ceded to gross premiums written ratio remained virtually unchanged at 56.3 percent (56.5 percent in 2011). Gross claims paid were approximately $155.6 million and this represented a decrease of 6.8 percent when compared to the previous year.

Figure 31: Gross Premiums Written

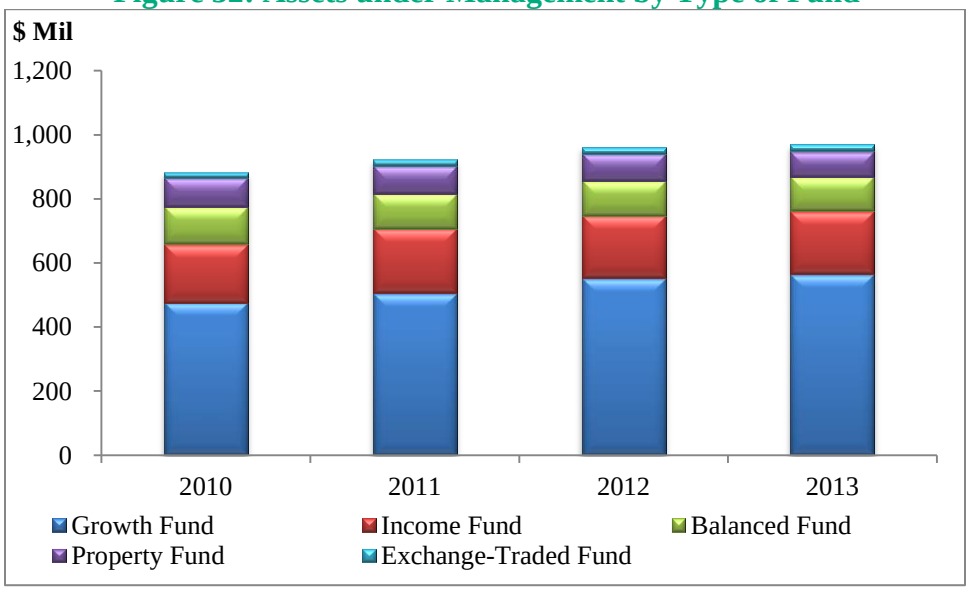


Source: Financial Services Commission

3.5 Mutual Funds

Total assets under management for the domestic mutual fund sector in Barbados stood at $971.1 million at the end of September 2013. This represents an increase of 1 percent when compared to the same period of 2012. The rate of growth in assets under management for 2013 was below the average for the previous two years of 4.4 percent.

Figure 32: Assets under Management by Type of Fund



Source: Financial Services Commission

Table 2: Types of Mutual Funds

Type of Mutual Fund	Number	Assets Under Management (Millions)	
		2013	2012
Growth Funds	5	$565.4	$553.8
Income Funds	4	$196.8	$193.8
Balanced Funds	3	$106.9	$110.2
Property Funds	2	$ 81.0	$ 84.7
Exchange-Traded Funds	4	$ 21.0	$ 19.4
Total	**18**	**$971.1**	**$961.9**

Source: Financial Services Commission

As at September 2013, there were eighteen domestic mutual funds registered. Table 2 shows the classification of mutual funds by type. The increase in assets under management for 2013 was mainly the result of increases in the growth fund and income fund categories which offset declines in the balanced fund and property funds categories. The growth fund category accounted for the largest proportion of assets under management at the end of September 2013 (58 percent), followed by the income fund category (20 percent) and the balanced fund category (18 percent).

With regard to the geographical distribution of investments for the domestic mutual fund sector, there is a significant difference between the various types of funds. Mutual funds classified as growth funds hold a larger percentage of their assets in international investments, followed by local and regional investment, while the portfolio of income funds consists primarily of local fixed income securities. Balanced funds, however, are focused on both long-term capital growth and income through local and international investments.

4. Stress Test Analysis

The stress tests reported in this section assess the resilience of the financial system to imposed macroeconomic and other negative exogenous shocks. The impact of the shocks is directly transmitted to the institutions' capital, and is assessed both individually and as a system. The analysis therefore examined whether existing capital buffers are sufficient to absorb potential losses and is focused particularly on credit, large exposure, interest rate, liquidity risk and contagion risk. At September 2013, the capital adequacy ratios (CARs) for the major lending sectors in the financial system ranged between 16 and 34 percent.[9] Overall, the results of the stress tests suggest that while most domestic banks are able to withstand a range of shocks, specific vulnerabilities could emerge under severe stress.

4.1 Credit Risk

This simulation examined the extent to which the current provisions of each institution can be undermined given their current loan classification. The existing standard for provisions for institutions licensed under the Financial Institutions Act (FIA) in Barbados, is 10 percent for 'substandard loans', 50 percent for 'doubtful loans' and 100 percent for the lowest category, 'loss loans'. Pass and special mention loans have no provision requirements.

By adjusting provisioning rates across the loan classifications, the urgency with which an institution may require additional capital to maintain prudential standards would indicate the adequacy of provisions held. The provisioning rates under each scenario examined are given in Table below:

Table 3: Provisioning Rates for Scenarios

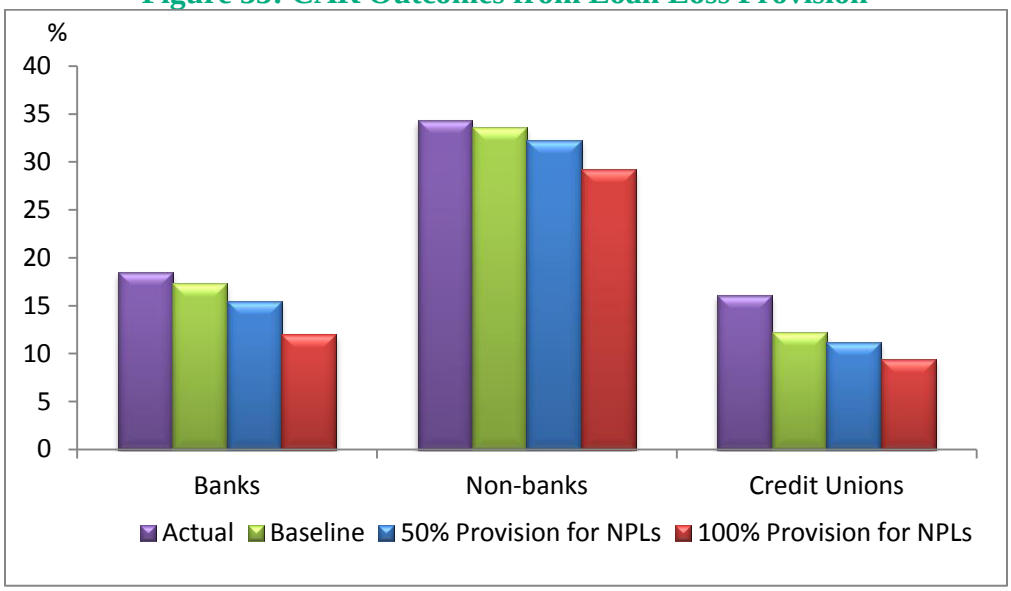
	Pass	Special Mention	Substandard	Doubtful	Loss
Actual	0	0	10	50	100
Baseline	1	5	20	50	100
Scenario A	1	10	50	50	100
Scenario B	1	10	100	100	100

Figure 33 presents the current capital adequacy ratios of the DTIs as well as the outcome of the CARs under the adjusted provisioning requirements. The actual CAR is the position as at September 2013, while the baseline CAR assumes that institutions make allocations for 1 percent of their pass loans, 5 percent of their 'special mention' loans and 20 percent of 'substandard

[9] Regulatory capital was derived from the balance sheet of branch institutions since they do not report capital positions. This facilitated the calculation of capital adequacy ratios for the banking system. Furthermore, capital ratios for credit unions were obtained using the bank methodology.

loans', in addition to the 50 percent and 100 percent requirements on 'doubtful' and 'loss' categories, respectively.

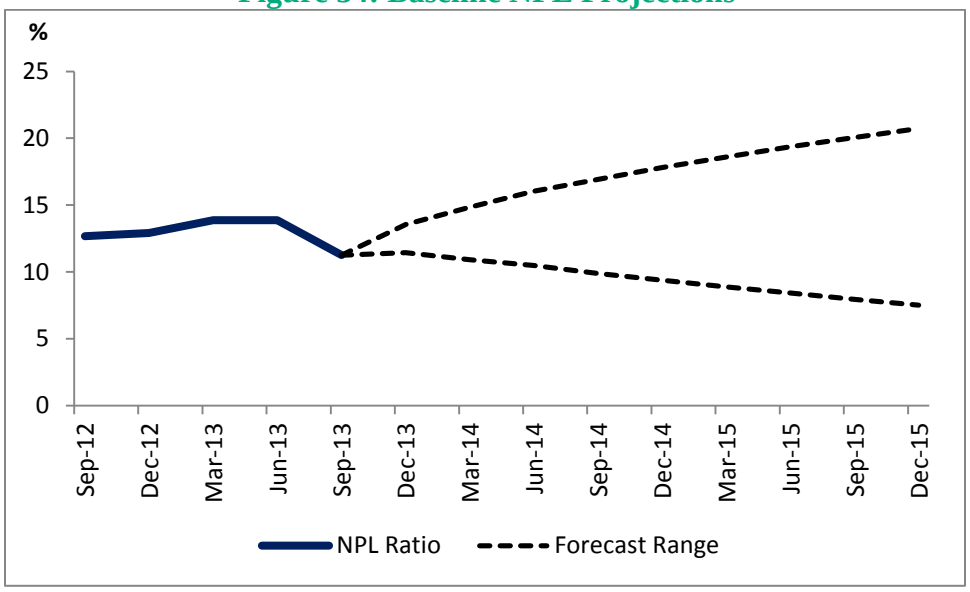
Figure 33: CAR Outcomes from Loan Loss Provision



The results indicate that the system as a whole remained resilient to substantial shocks to the provisioning rates. Under the baseline assumption, the impact on CAR for both banks and non-banks is around 1 percent, while for credit unions it was close to 4 percent. In scenario A (10 percent for the 'special mention' category and 50 percent for the substandard category), the sectors as a whole remained well capitalised, with no institution requiring additional capital. However, in the extreme case, one commercial bank and one non-bank had capital under the 8 percent prudential limit under this more severe assumption.

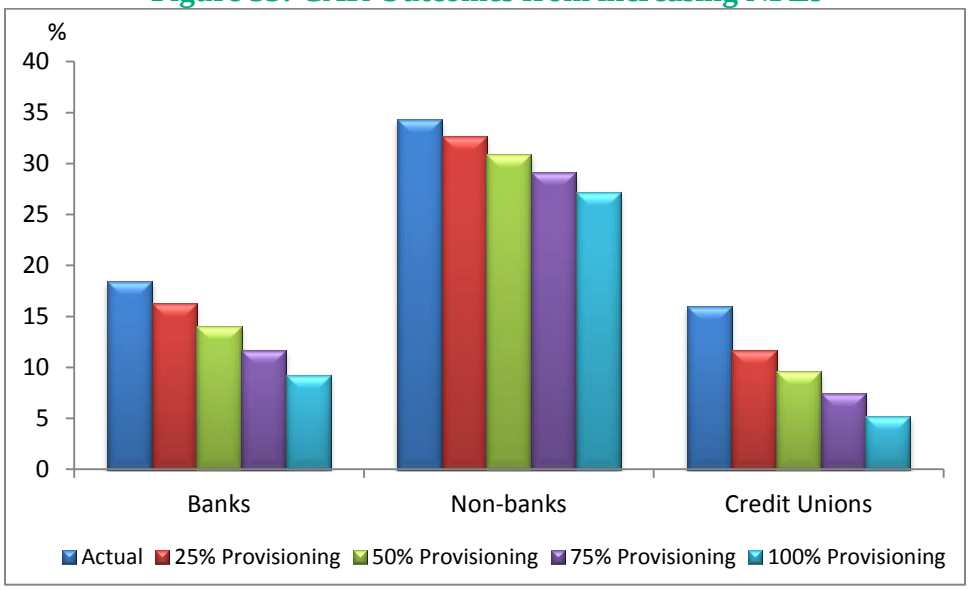
Further threats to systemic stability through prolonged deterioration in NPLs could arise if difficult macroeconomic conditions persist. The medium term path of banks' macro NPLs ratio was projected based on the current economic environment (Figure 34). Simulations from the macro-prudential framework suggest that NPLs are likely to rise over the next four quarters, a reflection of slow GDP growth over the next 12 – 15 months.

Figure 34: Baseline NPL Projections



As a complement to the credit risk assessment, the following scenario assessed the impact of a severe shock to non-performing loans on institutions' CAR. The impact of a 100 percent increase in NPLs combined with sequential increases in the provisioning requirements was simulated.

Figure 35: CAR Outcomes from increasing NPLs



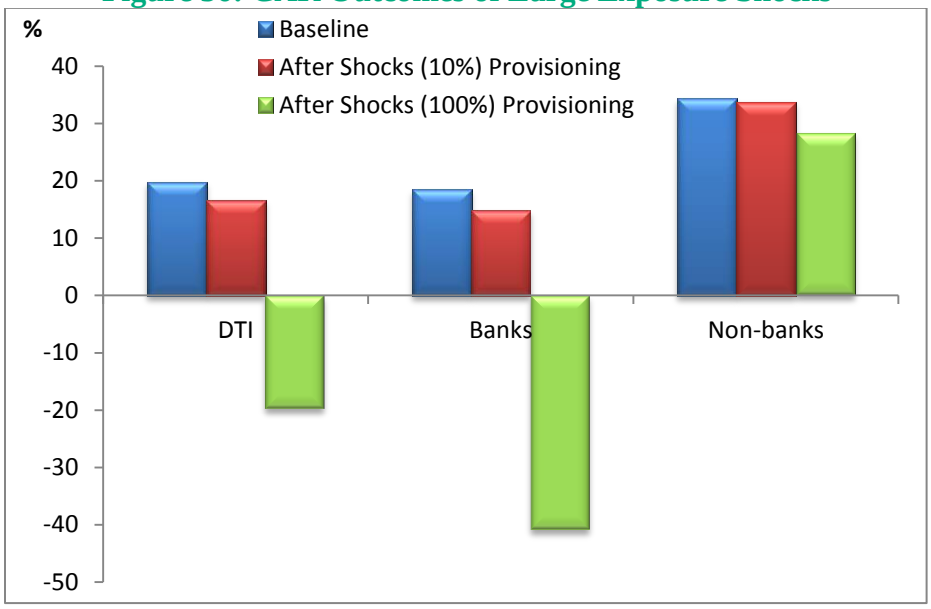
The results presented in Figure 35 indicate that the banks and non-banks maintained their CAR above 8 percent when the provisioning requirements were increased sequentially up to 75 percent. When the requirement on additional NPLs increased to 100 percent, the aggregate CAR of DTIs remain adequate; however, one bank and two non-banks would be in breach of the statutory requirement. On the other hand, the credit union sector fell below the requirement when

provisioning of 75 percent is applied.

4.2 Large Exposure Risk

This simulation assumes that adverse shocks affect the five largest borrowers of each institution and examines the impact on institutions' capital. Given that the corresponding loans become non-performing, these shocks were applied sequentially up to five rounds and assessed under the requirement of 10 percent, 50 percent and 100 percent provisioning. All institutions maintained significantly high CAR levels with 10 percent provisioning. Under the 50 percent provisioning assumption, aggregate bank capital fell below 8 percent after the four largest borrowers defaulted; however, this break was concentrated in two banks. With 100 percent provisioning, two banks would contribute to the breaking point of the banking system after a shock to the two largest loans.

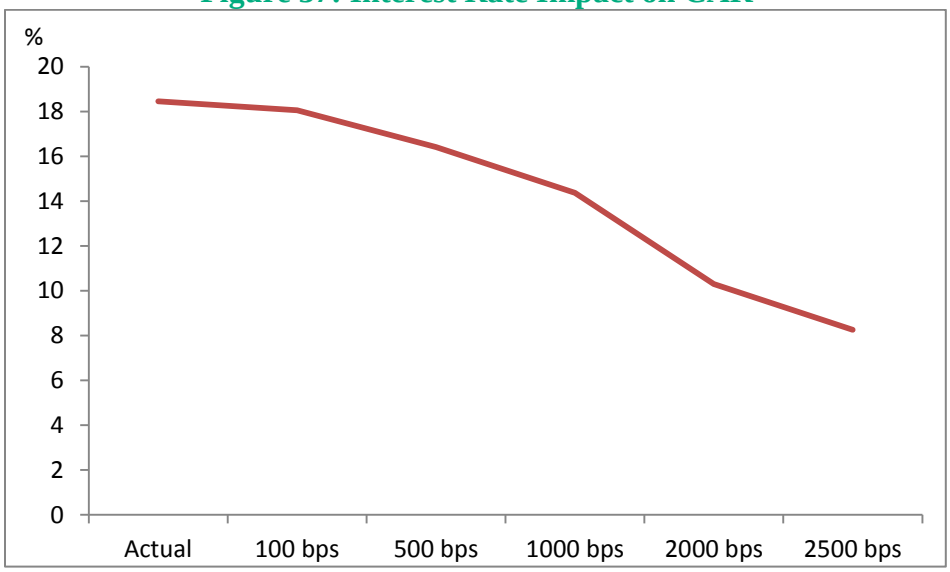
Figure 36: CAR Outcomes of Large Exposure Shocks



4.3 Interest Rate Risk

This scenario assesses banks' ability to absorb losses that might be associated with significant increases in interest rates.

Figure 37: Interest Rate Impact on CAR



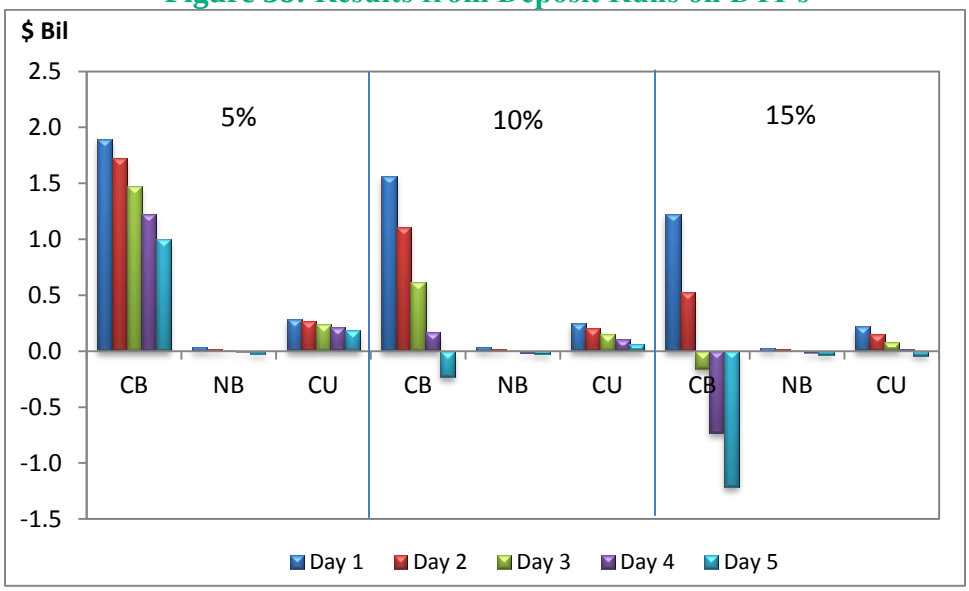
Only under the most severe assumption of an increase of 2500 basis points in the banks' deposit rates, would two banks become insolvent. However, in this instance, the CAR for the system stood at 8.3percent, slightly above the industry benchmark.

4.4 Liquidity Risk

This exercise examined the strength of liquidity positions held by DTIs by assuming simple deposit runs over a five-day period. To set the context, 95 percent of all liquid assets were assumed to be available in a given day, while one percent was assumed for all other assets. In addition, withdrawals on time deposits were fixed at three percent and one percent per day on domestic and foreign accounts, respectively, and drawdowns on foreign currency demand deposits were also fixed at five percent per day. The simulation therefore investigated the impact of five percent, 10 percent and 15 percent runs per day on domestic demand accounts, given the previous assumptions.

The results in Figure 38 suggest that DTIs are generally able to withstand 5 percent runs on deposits over the five-day period. However, three non-banks were unable to meet all of its obligations after the runs on day two and a total of five non-banks needed more liquidity after day three. Under the 10 percent shock, one commercial bank encountered liquidity problems after day three, and three after day five. By day five a total of eight institutions would require some form of liquidity support: three banks and 5 non-banks. Credit unions remained somewhat resilient on an aggregate level. With a 15 percent run per day, all banks, all but one non-bank and the credit union group became vulnerable after day 4.

Figure 38: Results from Deposit Runs on DTI's



4.5 Contagion Risk

On the domestic market, only a few institutions had any level of exposure, indicating little scope for contagion through domestic interbank linkages. However, an investigation of cross border exposures has revealed that related company activities pose a more significant threat.

Assuming that the foreign investments and balances of commercial banks are lost in their entirety, and trigger deposit runs on domestic bank branches and subsidiaries, the impact on capital adequacy was determined. The impact on each domestic bank was examined to determine vulnerabilities that may arise from second and third round effects. Table 4 presents the results based on cross-border exposures and shows the resulting range of the capital adequacy for each region of exposure.

Overall the results suggest significant exposures to the US and to Caribbean and Global Affiliates with one bank (the same bank) failing in each case. Losses to all other geographic regions were insufficient to erode capital levels below the 8 percent threshold. Nevertheless, given the current exposures and level of reserves held, the banking system has been proven to be resilient to the simulated shocks from these sources.

Table 4: Results of Default of Individual Banking Sectors and Groups

Shocks*	After Shock CAR Range (%)	Banks with CAR < 8%
Baseline*	15.8 – 22.6	0
Europe	15.8 – 22.2	0
Canada	14.3 – 22.1	0
USA	0.0 – 18.4	1
Local Affiliates	0.0 – 22.6	1
Caribbean Affiliates	13.7 – 22.6	0
Global Affiliates	0.0 – 22.0	1

5. Appendices

Table 1: Selected Financial Indicators – Commercial Banks

	2008	2009	2010	2011	2012	2012Q3	2013Q3
Solvency Indicators							
Capital Adequacy Ratio (CAR)	16.1	17.5	17.1	19.3	21.0	*19.6*	21.8
Liquidity Indicators[#]							
Loan to deposit ratio (%)	63.7	65.5	67.2	70.9	73.6	*75.6*	71.1
Demand deposits to total deposits (%)	34.8	36.6	35.2	32.1	29.3	*27.3*	30.5
Domestic demand deposits to total domestic deposits	32.1	27.9	27.1	27.6	26.8	*24.4*	27.9
Liquid assets, % of total assets	9.0	10.8	11.5	12.0	14.6	*13.2*	17.7
Credit Risk Indicators							
Total assets (growth rate, %)	4.2	-5.6	-1.5	-4.7	11.5[*]	*9.0*[*]	3.5
Domestic assets (growth rate, %)	9.2	2.3	0.6	-6.1	6.1[*]	*4.8*[*]	5.1
Loans and advances (growth rate, %)	12.4	0.9	0.6	-0.5	-1.1[*]	*-1.9*[*]	-1.5
Non-performing loans ratio (%)	3.4	7.9	10.8	11.1	12.9	*12.7*	11.3
Substandard loans/ Total loans (%)	2.5	6.7	9.1	8.7	9.9	*9.9*	7.7
Doubtful loans/ Total loans (%)	0.4	0.4	1.0	1.8	2.3	*1.9*	3.0
Loss Loans / Total loans	0.6	0.9	0.7	0.6	0.8	*0.8*	0.6
Provisions to non-performing loans (%)	63.4	41.5	37.4	32.9	33.9	*36.5*	44.4
Foreign Exchange Risk Indicators							
Deposits in Foreign Exchange (% of total deposits)	14.8	13.3	12.9	6.6	4.9	4.0	3.8
Profitability Indicators							
Return on Assets (ROA)	1.4	1.6	1.1	1.0	1.1	1.0	1.0

Source: Central Bank of Barbados

[*] Reflects removal of financial consolidation; [#] Includes foreign components unless otherwise stated

Table 2: Selected Financial Indicators – Non-bank Financial Institutions

	2008	2009	2010	2011	2012	2012Q3	2013Q3
Solvency indicator							
Capital/ Assets (%)	19.5	21.6	22.3	23.2	22.3	22.2	22.6
Liquidity indicators							
Loan to deposit ratio (%)	180.0	175.5	178.8	106.3	101.5	100.3	90.2
Liquid assets, % of total assets	13.3	8.9	10.8	15.0	17.8	19.0	8.6
Credit risk indicators							
Asset Growth	-5.0	-2.4	2.8	5.3	6.2*	3.8*	2.6
Nonperforming loans ratio (%)	3.4	5.3	5.7	8.6	9.3	9.4	9.1
Substandard loans/Total loans (%)	3.1	4.9	5.2	6.7	6.1	7.5	6.0
Doubtful loans/Total loans (%)	0.1	0.1	0.1	1.0	2.0	0.9	1.9
Loss loans/Total loans (%)	0.2	0.3	0.3	0.9	1.2	1.0	1.2
Reserves to nonperforming loans (%)	21.2	16.2	11.6	24.8	36.8	31.4	29.0
Profitability indicators							
Net Income/Capital (%)	10.9	11.2	10.6	10.8	6.3	6.9	8.7
Return on Assets (ROA)	2.1	2.4	2.4	2.5	1.4	1.5	2.0

Source: Central Bank of Barbados

* *Reflects the underlying growth in assets.*

DTIs only

Table 3: Selected Financial Indicators – Credit Unions

	2008	2009	2010	2011	2012	2012Q3	2013Q3
Solvency Indicator							
Reserves to Total Liabilities (%)	10.3	10.5	10.4	10.7	11.4	12.9	13.3
Liquidity Indicators							
Loan to deposit ratio (%)	96.4	102.6	114.8	113.6	117.1	116.5	111.5
Credit risk Indicators							
Total assets, annual growth rate (%)	7.4	9.1	9.7	5.1	4.4	4.2	5.8
Loans, annual growth rate (%)	10.4	8.0	8.6	6.5	3.2	3.7	2.9
Nonperforming loans ratio (%)	5.3	6.5	7.2	6.9	8.2	8.5	8.7
Arrears 3-6 months/ Total Loans	1.6	2.1	2.1	2.0	1.9	2.4	1.9
Arrears 6 – 12 months/Total Loans (%)	1.3	1.8	1.9	1.6	1.9	2.0	1.8
Arrears over 12 months/Total Loans (%)	2.3	2.7	3.2	3.5	4.4	4.1	4.9
Provisions to Total loans (%)	1.8	1.9	2.2	2.8	3.2	3.1	3.3
Profitability Indicator							
Return on Assets (ROA)	2.0	1.6	1.2	1.2	1.3	1.4	0.6

Source: Financial Services Commission

Technical Note 1: Forecasting Commercial Banks' Credit Risk

(Based on Guy and Lowe (2011))

The Central Bank's credit risk model for forecasting commercial banks' NPL ratios incorporates the approaches of earlier studies, including recommendations from an IMF technical assistance team. It expresses the NPL ratio as a function of both macroeconomic and bank-specific variables within a panel framework and includes each of the variables used by Greenidge and Grosvenor (2010), but embraces measures of liquidity (loan-to-deposit ratio (LDR)) and profitability (Return on assets (ROA)) as additional bank-specific determinants. The former is expected to have a positive impact on NPLs, as this ratio also gives us an indication of banks' risk appetite, while the latter variable's impact is undetermined. We see this expressed in functional form as:

$$NPL_{it} = f(\underset{+}{r_{it}}, \underset{+}{\dot{p}_t}, \underset{-}{\dot{y}_t}, \underset{+}{LDR_{it}}, \underset{+}{NPL_{it-1}}, \underset{+}{\Delta Loans_{it}}, \underset{+/-}{SIZE_{it}}, \underset{+/-}{ROA_{it}})$$

This specification was estimated using both linear homogeneous and heterogeneous fixed effects approaches, which accounted for the idiosyncratic relationships between banks' credit risk and the macro- and micro-economic drivers of loan delinquency. While it is well established that the inclusion of lagged dependent variables in a fixed effect panel framework can produce biased estimates, this bias is significantly reduced in the case of panels with large time dimensions.

The results generally suggest that macroeconomic indicators are key in determining changes in asset quality, with real gross domestic product having both contemporaneous and lagged negative effects on loan delinquency, while inflationary pressures and changes in banks' lending rates also play a role in overall asset quality. Of the microeconomic variables selected, only profitability, specifically in the case of two banks, has any impact on the NPL ratio.

The model's forecasts provide adequate results over a two year period, particularly when compared with the IMF's macroeconomic panel model and Greenidge & Grosvenor's (2010) time series approach. In addition, the in-sample fit over the period 1996Q1 – 2008Q4 proves satisfactory, with an adjusted R-squared statistic of 82% for that period.

Table A1: Out-of-Sample Forecast Evaluation Statistics for the Sector's NPL ratio (2009Q1 – 2010Q4)

Forecast	RMSE	Theil
Guy & Lowe (2011)	2.336	0.148
IMF (2008)	2.813	0.181
Greenidge & Grosvenor (2010)	3.260	0.196

Technical Note 2: Stress Test of Commercial Banks' Interconnectivity

(Based on Guy and Lowe (2012))

The model is built on a network of banks operating within Barbados' domestic banking system, each of which is connected to the others and external counterparties via interbank deposits and loans. The framework used assumes that a shock to one bank is fed through as losses to the regulatory tier 1 capital and risk-weighted assets of that institution and a check is made to ascertain whether that bank has breached its 8% prudential capital adequacy ratio limit or been able to fully absorb the shock. In the event that the former has occurred and the size of the shock is sufficient to eliminate the affected bank's entire tier 1 capital, all other banks which would have held deposits with that institution will lose these deposits in proportion to the size of the residual shock. This translates into losses to these institutions, generating a second round effect where these banks may or may not be able to absorb these losses within their capital. The process continues until the shocks are fully absorbed by the remaining banks, or all banks in the domestic space have failed.

The model also has with it a number of additional parameters which may be adjusted to alter the severity of a shock and provide alternative stress scenarios. The percentage loss experienced by a bank, given that a loan has defaulted (LGD) on any shock is initially set at 100%. Several assumptions which are detailed later are also made about additional contagion effects through investor panic. After a bank fails, depositors may run to withdraw deposits from the remaining institutions, at a rate specified within the model. Initially it is assumed that banks lose 30%, 10% and 6%, respectively of demand, savings and time deposits after the first round of failures, and 20%, 8% and 4%, respectively in each subsequent round. To combat this run on deposits, banks pay depositors out of available liquid assets and initially 35% of their funds held at head office. However, in the event that this is insufficient to meet the demand, they must begin to sell off non-liquid assets, presumably at a discount in a stressed environment with limited liquidity, and this discount is initially assumed to be 50% of book value. The discount feeds through as an additional loss to capital and may further intensify the problems faced by banks.

One main scenario is used to stress the banking system, namely shocks leading to the failure of European, Canadian, American, Caribbean and local and global affiliated banks with which domestic commercial banks hold deposits. This scenario assumes that all deposits or investments held in these jurisdictions are completely lost and is particularly relevant given the current uncertainty surrounding a number of banks operating with the USA and Europe in particular, as well as the presence of mostly Canadian banks in the domestic sector. This scenario allows us to evaluate the potential impact of failures arising in these countries, as well as problems which may arise similarly to those initiated by the failure of CL Financial Holdings in Trinidad & Tobago in 2009.

6. References

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