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The maintenance of financial stability by the Bank of Jamaica (BOJ) primarily concerns the safeguard of conditions which ensure the proper and efficient functioning of the financial system and consequently, the promotion of real economic activity. The financial system consists directly of three basic financial components: institutions, markets and infrastructure. These components interact with each other as well as with other indirect participants in the system – such as households, nonfinancial corporations and the public sector – to allocate economic resources and redistribute financial risks.

Aside from the supervision of banks, the BOJ is charged with the responsibility of ensuring that the overall financial system is robust to shocks and that participants are assured of its robustness. This entails making sure that financial institutions, in particular banks, are sound. The maintenance of financial stability by the Bank also involves overseeing the efficient and smooth determination of asset prices, making certain that participants honour promises to settle market transactions and preventing the emergence of systemic settlement risk arising from various financial imbalances that may develop within individual institutions or the system.

The Financial Stability Report 2013 provides an assessment of the main financial developments, trends and vulnerabilities influencing the stability of Jamaica’s financial system during the year. The Report covers:

i) an overall assessment of financial stability;

ii) macro-financial risks;

iii) financial system developments;

iv) financial system sectoral exposures;

v) risk assessment of the financial system; and

vi) payment system developments

Comments and suggestions from readers are welcome. Please email your feedback on this report to library@boj.org.jm.
1. Financial Stability Overview

Macroeconomic environment
Consistent with the aim of maintaining financial stability, the Bank of Jamaica (BOJ) continued to monitor and assess potential risks and vulnerabilities within the financial system in 2013. There was an overall deterioration in financial stability conditions in the review year, despite the signing of an Extended Fund Facility (EFF) between the International Monetary Fund (IMF) and the Government of Jamaica (GOJ) in May, which reduced investor uncertainty regarding the medium-term macroeconomic path for the country. This deterioration was reflected in BOJ measures of financial stability such as the Composite Indicator of Systemic Stress and Macro-prudential Index. Nonetheless, stress test results confirmed the financial system remained broadly resilient to potential shocks to the major macroeconomic risk factors.

In 2013, financial sector performance was negatively affected by the implementation of the National Debt Exchange (NDX) in February 2013 and the subsequent illiquidity of GOJ debt instruments. Despite lower liquidity levels, however, financial institutions maintained adequate capital positions. Financial sector performance also reflected weak economic activity. While the economy grew in 2013, relative to a contraction in 2012, growth remained below rates recorded prior to the global financial crisis, which started in 2007. Notably, the lower interest rate environment, catalyzed by the NDX, contributed to a positive atmosphere for credit growth, which was the main driver of asset growth for the deposit-taking institution (DTI) sector in 2013.

Global environment
Global growth moderated in 2013, notwithstanding a pickup in the second half of the year, in a context of slower growth in advanced and emerging economies. Among advanced economies, financial conditions showed moderate improvement. In particular, banking sector resilience improved, as evidenced by an improvement in capital ratios, while credit conditions also showed improvement over the review year. In contrast, emerging market economies were negatively impacted by changing monetary policy expectations in the United States. Specifically, concerns surrounding the timing of the US Federal Reserve’s (Fed) tapering of its programme of bond purchases influenced a reduction in the demand for risky assets.

Domestic financial system developments
Despite the improvement in economic activity in 2013, there was deterioration in key profitability ratios of financial institutions, in a context of lower investment income following the implementation of the NDX (see Box 3.2). Further, the NDX highlighted the need to quicken the pace of reform of the securities dealers (SDs) sector towards limiting its shadow banking activities. In this context, the GOJ remains engaged in discussions regarding a move away from the SDs’ current business model towards one of collective investment schemes (CIS). This was supported by the initiation of steps to remove the cap on investments in foreign securities by end-2016 imposed under the BOJ Act as well as the removal of double taxation for the CIS. In contrast to other financial institutions, insurance companies recorded improved profitability ratios largely influenced by the performance of one life insurance company.

While DTIs’ capital adequacy ratios (CARs) were broadly unchanged at end-2013 relative to end-2012, there was a decline in CARs for SDs reflecting an increase in risk weighted assets.
These institutions however remain well capitalized, with ratios exceeding the minimum regulatory requirement. Risks to DTIs from the corporate and household sectors remained contained, despite low economic growth in 2013 in the context of improved loan quality ratios for both the household and corporate sectors. The improvement in credit quality indicators of the DTIs was evidenced by a decline in non-performing loans (NPLs) in 2013, both in nominal terms and as a proportion of total loans. Additionally, liquidity indicators for the DTIs suggest adequate levels of liquidity, and lower liquidity risk exposure for the sector relative to end-2012. In contrast, NBFIs recorded deterioration in loan quality relative to 2012, mainly reflecting the operations of one institution.

Despite increased growth in the asset base of the insurance sector, the sector remained relatively underdeveloped as evidenced by the low ratio of premium volume to GDP. In this regard, insurance sector penetration declined in 2013 led by the general insurance companies.

**Financial system exposures**

Notwithstanding weak domestic economic conditions, DTIs’ exposure to household sector debt increased during 2013. There was however a deceleration in the growth in household sector credit relative to 2012 primarily driven by slower growth in mortgage loans. Notably, growth in household sector debt was well below pre-crisis levels, consistent with the general weakness in the economy. Regarding corporate sector debt, DTIs’ exposure was unchanged relative to end-2012.

In a context of the successfully implementation of the NDX and the subsequent signing of a 48-month EFF with the IMF, sovereign default risk was relatively elevated in 2013. Lower interest rates and extended maturities on GOJ domestic debt instruments however, allowed the Government to reduce its presence in the debt market in 2013. This was reflected in reduced exposure to GOJ investments by financial institutions relative to the prior year.

**Risk Assessment of the Financial System**

Financial institutions remained generally resilient to hypothetical stress test scenarios involving liquidity, market, foreign exchange and credit shocks for the review period.

While DTIs’ post-shock CARs generally remained above the regulatory minimum, these institutions reflected increased vulnerability to interest rate shocks, in the context of the NDX, and greater susceptibility to exchange rate depreciation, given a decline in net open positions. However, in the context of improved loan quality, DTIs were less exposed to credit risk stress tests.

SDs continued to be broadly robust to a wide range of shocks during 2013, but showed increased exposure to foreign exchange, interest rate and liquidity funding risks for the review period. Insurance companies were also resilient to the contemplated shocks. Notably, life insurance companies showed reduced exposure to market risk in the context of reduced volatility of yields on domestic currency bonds maturing in 3 years relative to 2012.

**Payment system developments**

During 2013, there was strong growth in overall average monthly Automated Banking Machine (ABM) and Point-of-Sale (POS) values, notwithstanding higher levels of unemployment and lower real disposable income relative to 2012. There was notably, a decline in ABM and POS
intra-bank values and volumes as a share of overall values and volumes, suggesting deterioration in payment system safety. On the other hand, the average value and volume of transactions by cheque continued to decline in 2013, in the context of the phased reduction of the upper limit on transactions in the Automated Clearing House (ACH).

In the context of the Bank’s strategy to meet its liquidity objectives in 2013, Jamaica Dollar liquidity conditions were generally tight in the review year. During the year, there was a significant increase in the value of BOJ primary issues and repurchase transactions relative to 2012. On the other hand, there was a notable decline in Government primary issues in 2013, and in the context of the NDX, reduced trading of GOJ bonds. BOJ’s increased presence in the market, however, contributed to an increase in the value of activities in the JamClear-Real Time Gross Settlement (RTGS) and JamClear-Central Securities Depository (CSD) for 2013. The increase in values within the JamClear-RTGS, also reflected the Government’s new policy to settle its accounts via the Accountant General’s Department instead of through commercial banks.

**Outlook**

Stronger growth in the United States could aid domestic economic recovery auguring well for the profitability of financial institutions. This combined with a sustained low interest rate environment could provide the platform for further growth in credit and improvement in asset quality. The prevailing tight liquidity conditions could, however, continue to negatively impact financial institution performance.

Notably, while stronger growth in the United States could set the stage for monetary normalization and help to limit risks associated by a prolonged period of low interest rates, US monetary policy remains a concern. This is in the context where the Fed’s curtailment of its asset buying programme could negatively impact the demand for risky assets, particularly from emerging markets, resulting in a slowing or reversal of capital inflows and possibly sharp adjustments to interest rates, exchange rates and asset prices.
2. Macro-Financial Risks

2.1 Overview

The global financial environment during 2013 was characterised by a moderation in growth as well as increased investor uncertainty. In particular, growth in the USA for 2013 decelerated largely due to a reduction in government expenditure associated with the implementation of spending cuts at the start of the year as well as a government shutdown in October. Additionally, concerns surrounding future changes to US Federal Reserve policies introduced new risks to emerging market as investors reduce investment in risky assets. Notwithstanding, there was improved performance for several other advanced and developing countries some of which continued to engage in economic stimuli aimed at inducing further growth.

Domestic conditions were generally mixed over the review period. Of note was the return to economic growth following economic decline in the previous year. Additionally, the signing of an Extended Fund Facility (EFF) between the International Monetary Fund (IMF) and the Government of Jamaica (GOJ) in May 2013 reduced investor uncertainty regarding the medium-term macroeconomic path for the country. The exchange rate continued to adjust during the review period consistent with programme objectives in the context of an unsustainable currency account deficit.

The Bank’s measures of financial stability showed broadly positive movements during 2013. Particularly, there were improvements in the micro-prudential indices for all three banking sub-sectors in spite of a deterioration in the macro-financial index. Further, the exposure to GOJ sovereign debt default and risk of debt default for the publicly-listed companies as well as the Z-score index of insolvency improved for the review period.

2.2 Macroeconomic risks in the domestic and global environment

There were mixed performances in a number of key macroeconomic indicators during the review period. Notably, there was return to growth during 2013, following six consecutive quarters of contraction, notwithstanding an uptick in the unemployment rate. The economy is estimated to have grown by 0.2 per cent for 2013 relative to a contraction of 0.5 per cent for the previous year. On the other hand, there was deterioration in foreign exchange market conditions and the net international reserves (NIR) (see Figure 2.1). In this regard, there was acceleration in the pace of depreciation of the Jamaica Dollar vis-à-vis the United States dollar for 2013 relative to the previous year. Of note, the first quarter of year reflected the sharpest quarterly depreciation for the year in the context of the uncertainty regarding the signing of an agreement with the IMF as well the possible impact of adjustment polices under the programme. The exchange rate continued to adjust throughout the year in line with one of the programme objectives for the correction of the unsustainable current account deficit. Regarding the NIR, there was a decline of US$0.12 billion to US $1.01 billion dollars at end-2013, representing 12.9 weeks of goods imports. This decline reflected GOJ debt payments and relatively low earner supply. Additionally, the unemployment rate increased to 15.3 per cent for 2013 relative to 13.9 per cent for 2012.

The BOJ’s broad measure of the financial environment, as captured by the “cobweb” diagram, indicated that risks to the financial system increased marginally for 2013 relative to 2012 (see Figure 2.2). Notably, there was deterioration in the ‘domestic environment’ and ‘capital and profitability’ dimensions of the cobweb while the ‘funding and liquidity’ dimension improved for the review year. Concurrently, risks to the global economic environment and financial markets were unchanged at elevated levels.

Figure 2.1 Selected domestic macroeconomic indicators
The global economy is estimated to have recorded moderate growth of 3.0 per cent for 2013 relative to a rate of 3.1 per cent for 2012 (see Figure 2.3). This occurred in the context of a deceleration in growth for the USA which was partly offset by improved performance in Japan, the Euro area and the Latin American region. In particular, the slower pace of growth for the USA relative to the prior year mainly reflected reduced government expenditure in a context of the implementation of spending cuts at the start of the year as well as a government shutdown in October. Concurrently, Japan implemented a programme of monetary easing coupled with government fiscal stimulus which helped to bolster growth rates. For the review year, the Euro area recorded a smaller contraction relative to the previous year signaling recovery from a deep recession. Regarding Latin America, the region as a whole recorded improvements in spite of the mixed performance of individual countries. For emerging markets, the risks presented by lower global growth, were exacerbated by uncertainty regarding future changes to the US Federal Reserve policies. Specifically, there was increased risk of capital flight in a context where the USA announced the planned phasing out of its quantitative easing (QE3) policy spurred by improved growth prospects for that country.

Global financial markets during 2013 generally reflected lower uncertainty despite the slight uptick which was concentrated in the middle of the year. This uptick was evidenced by the performance of the Bank of America-Merrill Lynch Global Financial Stress Index (BAML-GFSI) mainly reflecting the announcement to the phasing of QE3 (see Figure 2.4). The BAML-GFSI declined on average to negative 0.18 for 2013 relative to an average of 0.12 for 2012 indicating the generally better conditions relative to the previous year. Additionally, with the exception of Mexico, Brazil and China, there was a general decline in the Credit Default Swap (CDS) prices and spreads for selected countries relative to end-2012 (see Figure 2.5 and Figure 2.6). However, the increases in CDS prices and CDS spreads for Mexico, Brazil and China indicated increases in default.

Figure 2.2 Financial stability cobweb

Note: The orange band represents a normal level of risk. Movements away from the centre of the diagram represent an increase in financial stability risks. Movements towards the centre of the diagram represent a reduction in financial stability risks.

Figure 2.3 Growth rates of selected countries

Source: Bloomberg, Bank of Jamaica, Central Bank of Barbados, Central Bank of Trinidad and Tobago, WEO

Figure 2.4 Bank of America-Merrill Lynch global financial stress index (BAML-GFSI)

The BAML-GFSI is a calculated, cross market measure of risk, hedging demand and investor flows in the global financial system. Values greater than 0 indicate more financial market stress than normal while values less than 0 indicate less financial stress than normal.
2.3 Indicators of domestic financial market conditions

In 2013, domestic financial market conditions were generally influenced by the discussions surrounding and the subsequent signing of a four-year EFF with the IMF. In the context of the EFF, prior actions on the part of the GOJ included the implementation of the NDX in February 2013. The NDX was characterised by a reduction in the interest rates on GOJ domestic bonds of between 1.0 percentage point (pp) and 5.0 percentage points as well as an extension of the maturity profile. This influenced a moderate increase in the Bank’s Composite Indicator of Systemic Stress (CISS). The CISS increased on average to 0.32 for 2013 relative to 0.30 for 2012 (see Figure 2.7). This represented deterioration in the money market, foreign exchange market and equity market, partly offset by reduced yields in the bond market.

The reduced bond yields for 2013 were influenced by a decline in BOJ’s signal rate on the 30-day Certificate of Deposit (CD) by 50 basis points (bps) to 5.75 per cent in the March 2013 quarter. This action was consistent with the programmed fiscal consolidation as well as the weak domestic demand conditions (see Figure 2.8). Investor confidence was bolstered by the future prospects for Jamaica based on the medium-term economic programme. These developments also contributed to lower yields on GOJ global bonds and resulted in a narrowing of the spread.

1 Mexico faced challenges related to the shift in market expectations with regards to the changes to US Federal Reserve policies. On the other hand, Brazil encountered a weaker fiscal outlook and negative credit quality as a result of increased state intervention in the banking sector. Further, China’s performance occurred due to the need for the authorities to reign in unregulated lending within the financial system.

2 Immediately following the announcement of the NDX, international ratings agencies Standard & Poor’s (S&P) and Fitch downgraded Jamaica’s sovereign credit ratings. However, these ratings were subsequently upgraded based on the improved fiscal profile garnered from the completion of the NDX. Further, there was an additional upgrade of Jamaica’s short-term and long-term foreign and local currency sovereign ratings by S&P’s in September 2013. This occurred against the background of the country’s stabilization of the economy.
Figure 2.8 Spreads of daily GOJ domestic bond yields & 180-day Treasury bills

Source: Bloomberg and Bank of Jamaica

Figure 2.9 Jamaica EMBI+ global bond spread

Source: Bloomberg

Figure 2.10 TRE spread

Note: The TRE spread measures the premium priced in the repo rate for default risk and is computed as the difference between the 30-day repo rate and the 30-day T-bill rate.

Figure 2.11 Jamaica money market risk appetite index.

Note: The money market risk appetite index is estimated based on the annual relationship between daily overnight (o/n) money market interest rates and the corresponding volatility (estimated as the standard deviation of o/n interest rates over a one year period).


between the Jamaica Global Bond Index (GOJGB) and the Emerging Markets Bond Index (EMBI+) in 2013 (see Figure 2.9). This occurred in spite of the general increase in the yields on emerging market bonds mainly due to a shift in investor interest to more risky assets such as stocks in the context of an anticipated improvement in the pace of global growth.

Regarding the money market, the Risk Appetite Index (RAI) declined in 2013 relative to 2012 (see Figure 2.11). The index declined to 3.6 points at end-2013 relative to 4.3 points at end-2012 reflecting a lower risk appetite consequent on a reduction in market activity. The BOJ’s offerings of special open market operation (OMO) instruments to the market beyond one year partly influenced the reduction in the funds available for participation in the private money market. Further, the Bank offered thirty-six (36) variable rate (VR) CDs and four US Dollar (USD) Indexed Notes to the market for 2013. This was done in an attempt to augment the Bank’s liquidity management operations and boost accumulation of the Bank’s net international reserves. Further, tightening liquidity conditions were reflected in the TRE spread which recorded a trend increase over the review period relative to 2012 (see Figure 2.10). This indicates an increase in counterparty risk, particularly during the second half of the year, as investors required higher premiums.3

Concurrently, the foreign exchange market exhibited significant volatility as evidenced by several indicators during 2013. The Amihud Index increased for 2013 indicating that the relative instability and tight liquidity constraints in the domestic foreign exchange market in 2012 continued into 2013 (see Figure 2.13). Additionally, the monthly bid-ask spread increased for 2013 to an average of

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3 In an effort to alleviate periods of domestic liquidity challenges, the BOJ provided funds to DTIs through special repurchase agreements. These included a series of overnight repos, a series of two-week facilities as well as a Standing Liquidity Facility (SLF). The SLF was introduced on 16 December 2013 under which DTIs would be provided with automatic access to overnight liquidity via repurchase operations.
0.7 percentage point relative to 0.5 percentage point for 2012. This reflected a higher cost of executing transactions in the foreign exchange market and the generally tight US dollar liquidity conditions (see Figure 2.14). However, although remaining at elevated levels, the RAI for the foreign exchange market declined for 2013 relative to 2012 indicating a lower risk appetite consequent on a decline in activity in the market (see Figure 2.12). This occurred in the context of the BOJ’s liquidity management strategy throughout the review period.

The stock market continued to exhibit weak performance over the review period. Specifically, the Jamaica Stock Exchange (JSE) Main Index declined by 12.5 per cent for 2013 relative to a decline of 3.4 per cent recorded for the prior year. This outturn continued to reflect the impact of a weak domestic economy as well as the substantial depreciation in the value of domestic currency and relatively favourable money market rates which provided attractive alternative investments. The overall decline in the Main Index resulted in a marginal deterioration of the Amihud Index of stock market depth which increased to 0.3 at end-2013 when compared to 0.2 at end-2012 (see Figure 2.15).

Of note, a significant transaction during the last quarter of the year resulted in a sharp movement during the period. Additionally, the JSE RAI fell to negative 0.21 for 2013 from negative 0.08 in 2012 indicating the loss of investor interest in the stock market supported by the outturn for the JSE Index (see Figure 2.14).
2.4 Indicators of financial sector conditions

2.4.1 Banking Stability Index

During 2013, the Banking Stability Index (BSI) measured by the BOJ suggested an improvement in the stability of the banking system (see Figure 2.17). This was driven primarily by a reduction in foreign exchange risk, measured by net open position to capital, as well as improvements in profitability and asset quality indicators (see Figure 2.18). In addition, the stock of bank lending continued to increase during 2013. Of note, the total credit-to-GDP, private sector-to-GDP and total credit and investment-to-GDP gaps increased during the period as measured by the deviation of from long-term trend through the HP filter (see Figure 2.19). DTI lending activity increased during the period and peaked during the second quarter of 2013. Despite these developments, there was a sharp decline in the leverage ratio for DTIs. This was primarily driven by capital injections which occurred mainly during the third quarter of the year.

2.4.2 Aggregate Financial Stability Index

Consistent with the performance of the BSI, the BOJ’s Aggregate Financial Stability Index (AFSI) for DTIs continued to improve for 2013. Notably, the index recorded a marginal quarterly average increase to 0.64 for 2013 relative to 0.60 for 2012 indicating general stability (see Figure 2.20). The higher index value mainly reflected improvements in the balance sheets for DTIs, world economic climate and z-score indicators relative to the prior period. Of note, the loan quality for DTIs continued to improve following portfolio restructuring. However, for the last quarter of the review period there was a slight decline in the AFSI indicating a marginal deterioration in stability.

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4 The banking stability index is an aggregate indicator of the soundness of the DTI sector. It is constructed as a weighted average of indicators of capital adequacy, profitability, asset quality, balance sheet liquidity, foreign exchange risk and interest rate risk. An increase in the index value shows greater stability.

5 The leverage ratio is calculated as total assets divided by capital.

6 During the third quarter of the year there was a significant capital injection from an overseas parent company following the merger of two DTIs.

7 This was largely due to the FIA licensees sub-sector as a result of the acquisition of a DTI during the prior year.
2.4.3 Macro-financial and Micro-prudential Indices

The Bank’s Macro-financial Index (MaFI) for DTIs deteriorated at end-2013 relative to end-2012. Specifically, the index recorded a value of 17.0 points at end-2013, 8.0 points above the value of the index recorded at the end of the previous year (see Figure 2.21). In particular, there was an increase in signals from the 12-month growth in the stock market index and volatility in exchange rate indicator. The signals from these indicators increased to 5.0 points each relative to respective signals of 0.0 point and 2.0 points at end-2012. This deterioration was partly offset by an improvement in the REER, which declined to 0.0 points at end-2013 relative to 2.0 points at end-2012.

All micro-prudential indices (MiPIs) continued to improve over the review period relative to end-2012. The MiPI for the commercial banks declined to 11.0 points at end-2013 relative to 29.0 points at end-2012. The improvement in the MiPI for commercial banks reflected significant improvements in asset quality and profitability indicators. Of note, there were declines in the signals from the ratios of non-performing loans to total loans, non-performing loans to assets, reserves for loan losses to assets, interest income to total assets and net income to total assets (see Figure 2.22). These improvements were partially offset by deterioration in some balance sheet indicators as the signal from deposits to loans increased by 2.0 points to 5.0 points at end-2013.

The MiPI for the building society sector declined to 9.0 points at end-2013 relative to 32.0 points recorded at end-2012 reflecting an improvement of balance sheet indicators. In particular, there were improvements in the deposits to loans, liquid assets to total assets, deposits to total assets, ...
deposits and repos to total assets and investments to assets ratios (see Figure 2.23).

For the FIA licensees, the MiPI declined to 3.0 points at end-2013 relative to 44.0 points at end-2012. This improvement mainly reflected improved signals from asset quality and balance sheet indicators. Of note, there was a reduction in signals from the ratio of non-performing loans to total loans, non-performing loans to total assets, interest income to assets, net income to assets and employee salaries to assets (see Figure 2.24).

### 2.4.4 Insolvency risk and distance-to-default

The vulnerability of the financial system to insolvency risk was mixed for the review period. In particular, the Z-score index for the DTI sector reflected an increase of 3.4 points to total 12.4 points at end-2013 relative to end-2012 (see Figure 2.25).\(^9\)\(^10\) This performance in the index was mainly influenced by a reduction in the volatility of assets.

Conversely, the median distance-to-default for DTIs declined to 8.2 at end-2013 from 14.2 at end-2012, reflecting increased vulnerability to default risk (see Figure 2.26).\(^11\) The deterioration mainly reflected an increase in the implied volatility as well as an increase in the default barrier. However, the median distance-to-default for the NBFIs increased to 9.7 at end-2013 from 7.7 at end-2012. This improvement was primarily influenced by an increase in the market value of assets (see Figure 2.27).

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\(^9\) The Z-score (insolvency risk) index is used as a measure of a bank’s financial soundness. The ratio is calculated as: \[ z = \frac{\text{RORAC} + \frac{C/A}{\text{STD DEV}(\text{RORAC})}}{1} \]

where RORAC is the bank’s return on risk adjusted capital, C/A is its regulatory capital to asset ratio and \(\sigma\text{RORAC}\) is its standard deviation of return on assets computed over the sampling period. The Z-score is used to capture the likelihood of a bank’s earnings in a given year becoming low enough to eliminate the bank’s capital base and thus, the likelihood of the bank becoming insolvent. A higher Z-score implies a lower probability.

\(^10\) The Z-Scores are weighted based on the relative total assets of the sectors.

\(^11\) Default barrier = short-term + ½\(\sigma\)(long-term liabilities)
2.4.5 Exposure to sovereign debt default risk

Sovereign debt default risk of the financial system declined over the review period. Specifically, the ratio of holdings of GOJ total debt to capital was approximately 121.3 per cent, 73.2 per cent and 107.1 per cent for commercial banks, FIA licensees and building societies, respectively, at end-2013. These exposures represent declines of 24.1 percentage points, 117.1 percentage points and 1.6 percentage points for the commercial banks, FIA licensees and building societies, respectively, relative to end-2012 (see Figure 2.28). This reflected lower holdings of GOJ debt as well as a steady increase in capital.

Consistent with the movement in the ratio of holdings of GOJ total debt to capital, the exposure of the financial system to sovereign credit risk, as measured by credit risk exposure (CRE), also declined for 2013. The CRE for commercial banks, FIA licensees, building societies and securities dealers declined as a per cent of capital to 6.6 per cent, 4.5 per cent, 5.4 per cent and 25.3 per cent, respectively, for the review period. This compares to 12.6 per cent, 16.5 per cent, 9.4 per cent and 42.1 per cent for commercial banks, FIA licensees, building societies and securities dealers, respectively, at end-2012 (see Figure 2.29). Similarly, BOJ’s estimate of the probability of sovereign debt default declined over the review period to 7.5 per cent at end-2013 relative to 12.4 per cent end-2012.

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12 The credit risk exposure (CRE) is a product of the holding of GOJ total debt by banks, the probability of default (PD) and the loss given default (LGD).

13 The probability of default is estimated using a logit-model with data from 36 countries over the period 1986 to 2005. It evaluates the likelihood of a debt-rescheduling event contingent on developments in the macro-economic environment.
2.4.6 Co-VaR Assessment of DTIs

The VaR of the financial system, comprising the four publicly listed DTIs, increased on average, over the review period. This was mainly driven by a general deterioration in JSE stock market returns and associated increase in volatility as well as deterioration in key macroeconomic variables. As it relates to systemic risk as measured by delta CoVaRs, for the review period on average bank 2 contributed the most to the risk in the system for the seven year sample period, followed by bank 1 and bank 3 (see Figure 2.30 and Figure 2.31). In contrast, bank 4 contributed the least to systemic risk. Further as the tail risk for individual bank 1 and bank 2 increased in 2013 relative to 2012, the contribution to the level of systemic risk also increased (see Figure 2.32).

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14 The Conditional Value-at-Risk (CoVaR) is a measure of the degree of risk externalities that a single institution can place on the financial system. It measures the VaR of the system when institution i is at its VaR or stressed level. When Bank i contributes to systemic risk, its CoVaR would be very low (a large negative number). The CoVaR for institution i is derived from the one (1) per cent quantile regressions of weekly system returns on the VaR of institution i and other financial and macroeconomic variables.

15 Delta CoVaR is an estimate of how much the system’s large loss increases because of institution i’s stress. It is the CoVaR of the system conditional on institution i being at its VaR (stress) level minus the CoVaR of the system conditional on institution i being at its median (normal) level,

$$\Delta \text{CoVaR}_{i}^{\text{Stress}} = \text{CoVaR}_{i}^{\text{Stress}} - \text{CoVaR}_{i}^{\text{Normal}}$$

16 The average relates to the seven year period 2007 to 2013.
3. Financial System Developments

3.1 Overview

During 2013, institutions within the financial sector remained broadly profitable and adequately capitalized despite the impact of a sovereign debt exchange, weak domestic economic conditions and slower global growth. Nonetheless, for 2013, financial soundness indicators signaled a deterioration in conditions within the deposit-taking institutions (DTI) sector, particularly as it relates to the performance of key profitability indicators. This decline in profitability reflected a reduction in investment income primarily due to lower interest rates related to the National Debt Exchange (NDX). Within the non-bank financial institutions (NBFI) sector, there was a decline in the profitability indicators of securities dealers and general insurance companies. However, there was an improvement in profitability in the life insurance sub-sector. At the same time, there was acceleration in growth in total assets of the financial sector, relative to 2012.

3.2 The financial system

There was marginal improvement in the depth of financial intermediation in Jamaica for 2013, as measured by total financial institutions assets as a share of GDP (see Figure 3.1). The ratio increased marginally to 157.4 per cent at end-2013 relative to 157.1 per cent at end-2012. This improvement in the ratio was primarily due to a faster growth in the system’s asset base relative to the growth in nominal GDP. Regionally, the depth of financial intermediation in Trinidad and Tobago decreased marginally to 168.4 per cent at end-2013 relative to 174.3 per cent at end-2012. In contrast, this indicator increased for Barbados.

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1 Total Financial Institutions assets includes the assets of commercial banks, building societies and FIA licensees, securities dealers and insurance companies.

2 Deposit taking institutions include commercial banks, building societies and FIA licensees.
3.3 Deposit-taking institutions (DTIs) and credit unions

Market share of commercial banks and FIA licensees increased during 2013 at the expense of building societies and credit unions (see Figure 3.2). Commercial banks remained the dominant sub-sector as the share of sector assets increased to 70.5 per cent at end-2013 from 69.0 per cent at end-2012. FIA licensees’ asset base increased by 18.8 per cent for 2013, to 2.5 per cent. However, the asset base of the credit union sector declined marginally by 0.4 per cent to 6.6 per cent.

3.3.1 DTIs balance sheet position

All DTI sub-sectors recorded growth in asset base during 2013. DTIs’ total assets grew by 9.9 per cent to $1 031.3 billion relative to 8.1 per cent growth the previous year. This outturn compared to an average expansion of 6.0 per cent for the previous five years. This acceleration in asset growth for the review year mainly reflected an increase in institutions’ holdings of Loans, Advances and Discounts (12.8 per cent) which reflected growth in domestic currency loans and foreign currency loans of 18.1 per cent and 9.6 per cent, respectively (see Figure 3.4). The growth in foreign currency loans was due entirely to the depreciation in the value of the Jamaica Dollar. Loans, Advances and Discounts comprised the majority of DTIs’ asset base, totaling 49.9 per cent at end-2013 relative to 48.6 per cent at end-2012 (Figure 3.5). The impact of this increase was partially offset by a decline in Domestic Investments (3.9 per cent). This decrease reflected a

\[ \text{Liabilities at end-2013} \]

3 Data on mutual funds and pension funds in Barbados is not readily available.

4 Assets are defined as total balance sheet assets.
reduction in the holdings of GOJ domestic bonds as well as a partial substitution towards foreign currency holdings.

Lending to the domestic household sector represented the DTIs’ largest exposure to the private sector during 2013. The share of household sector loans, as a proportion of total loans increased marginally by 0.6 percentage point to 51.1 per cent of total loans at end-2013 (see Table 1.0). Moreover, the Herfindahl-Hirschman Index (HHI), which measures concentration in private sector lending, increased by 1.8 per cent to 2851.4 at end-2013 (see Figure 3.6). In addition, the DTIs’ other significant exposures in the lending market were to Distribution (9.6 per cent), Public sector (6.1 per cent), Tourism (6.0 per cent), and Construction (5.6 per cent) at end-2013 (see Table 1.0).

Regarding loan quality, NPLs declined by 10.5 per cent for 2013 relative to a decline of 13.2 per cent the previous year (see Figure 3.7). Subsequently, loan loss provisions as a percentage of total loans decreased to 5.2 per cent at end-2013, relative to 6.5 per cent at end-2012 (see Figure 3.8). In addition, the NPL coverage ratio improved to 95.6 per cent at end-2013 from 92.8 per cent at end-2012 and remained well above the requirement under the international accounting standards. This increase was characteristic of the performance of all sub-sectors and the distribution of the ratio for the DTIs revealed an increase in the median aggregate ratio relative to end-2012 (see Figure 3.8 and Figure 3.9).

DTIs maintained adequate levels of liquidity for 2013 in regards to the statutory requirements. However, liquid asset reserves in excess of the minimum statutory requirements decreased by 17.7 per cent for 2013, this compares to a decline of 36.3 per cent for the previous year. Notwithstanding, the ratio of liquid assets to total assets increased marginally to 23.6 per cent at end-2013.

Table 1.0 Concentration of DTIs loan portfolio

<table>
<thead>
<tr>
<th>Per cent</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<tr>
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</tr>
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<td></td>
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<td></td>
</tr>
<tr>
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<tr>
<td>MINING, QUARRYING &amp; PROC.</td>
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<td>PROFESSIONAL &amp; OTHER SERVICES</td>
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<td>PUBLIC SECTOR</td>
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<td></td>
</tr>
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</table>

Figure 3.7 NPLs in DTI sector

Figure 3.8 Provisions and coverage of NPLs of DTIs by provisions

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5 NPL coverage ratio measures a bank’s ability to absorb potential losses from its non-performing loans. It is calculated as provision for impairment under the IFRS plus prudential provisions for expected losses based on regulatory criteria as a ratio to NPLs.

6 DTIs are required to hold reserves amounting to 26.0 per cent of their average prescribed liabilities in the form of Liquid Assets at the Bank of Jamaica.
The increase in the ratio was due mainly to a faster pace of growth in DTIs’ liquid assets relative to asset base, particularly within the building societies’ sub-sector (see Figure 3.10). In addition, DTIs’ total liabilities increased during 2013. Funding from deposits continued to represent DTIs’ main source of asset financing. Total deposits increased by 9.2 per cent to $639.9 billion, representing 73.0 per cent of total liabilities at end-2013 relative to 73.7 per cent at end-2012 (see Figure 3.11).

Also, total deposits as a share of loans decreased to 124.5 per cent at end-2013 from 128.5 per cent at end-2012. This suggests a moderate deterioration in funding risk over the review period as deposits represent a relatively cheap and stable source of financing compared to other categories of liabilities (see Figures 3.11 and 3.12).

The capital adequacy ratio (CAR) for DTIs remained constant at end-2013 relative to end-2012. Of note, the median CAR remained at 15.5 per cent at end-2013 relative to end-2012 (see Figure 3.13). The quality of regulatory capital, as measured by the ratio of Tier 1 capital to total regulatory capital, deteriorated marginally to 102.4 per cent at end-2013 relative to 103.5 per cent at end-2012. Non-distributable retained earnings remained the largest component of Tier 1 capital at end-2013 accounting for 45.4 per cent relative to 47.5 per cent in 2012. Statutory reserves accounted for 21.6 per cent relative to 24.0 per cent at end-2012.

3.3.2 DTIs’ earnings and profitability

DTIs recorded a decline in profits for 2013 reflecting the impact of the NDX inclusive of the subsequent low interest rate environment (see Figure 3.14). At end-2013, the DTIs recorded net profits of $20.2 billion reflecting a decline of 3.7 per cent relative to that which obtained at end-2012. This corresponded with a 0.7
percentage point decline in the sector’s return on equity (ROE) to 11.1 per cent at end-2013 (see Figure 3.15 and Table 3.2). The reduction in the ROE was mainly due to a decline in the operating profit margin during the review period (see Figures 3.15 and 3.17).

Similarly, DTIs’ return on assets (ROA) decreased to 2.0 per cent at end-2013 from 2.2 per cent at end-2012 (see Figure 3.17). There was a marginal decline in DTIs’ net interest margin despite higher net interest income for 2013.\textsuperscript{7} Net interest margin for DTIs was 8.9 per cent for 2013 relative to 9.0 for 2012. Interest income increased by 5.9 per cent for 2013, largely reflecting growth in \textit{Loans, Advances & Discounts}. Meanwhile, interest expenses increased by 3.5 per cent throughout 2013 primarily as a result of an increase in borrowing expenses (see Figures 3.18 to 3.20). In general, net interest income for DTIs increased to $62.5 billion at end-2013 relative to $58.6 billion at end-2012.

3.3.3 Interbank market

The standard measure of connectivity in the interbank market, shown by the interrelationship matrix, continued to reflect relatively sparse interconnection, which may be due to a concentration of liquidity. The end-quarter average number of relationships between DTIs and SDS in Jamaica decreased to 3 for 2013 relative to 5 the prior year (minimum 0, maximum 25).\textsuperscript{8} Similarly, the end-quarter average connectivity in the banking system decreased to 1.1 per cent during 2013 from 2.2 per cent the previous year for the 25 financial institutions assessed (see Figure 3.23).\textsuperscript{9} In addition, there was a decrease in the average end-quarter value of

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure3.12.png}
\caption{Domestic household saving ratios}
\end{figure}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure3.13.png}
\caption{Distribution and weighted average of capital adequacy ratio}
\end{figure}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure3.14.png}
\caption{Operating profit and impairment losses for DTIs}
\end{figure}

\textsuperscript{7} Net interest margin is calculated net interest income divided by average earning assets.

\textsuperscript{8} The number of relationships refers to the number of financial institutions with which DTIs and the 12 largest securities dealer conduct interbank transactions.

\textsuperscript{9} The connectivity for each institution is calculated as the number of relationships with the other institutions relative to the maximum number of relationships (24 in this case). It thus ranges between 0 and 100.0 per cent. The average connectivity is the average for all institutions.
exposures among DTIs and SDs (see Figure 3.24). For 2013, average net exposure was $445.7 million relative to $810.5 million for 2012.\(^\text{10}\) Despite the low connectivity within the interbank market, some institutions remained extremely vulnerable to their subsidiaries. These institutions recorded an average net exposure of $1.0 billion to their subsidiaries for 2013 or 232.0 per cent of DTIs and SDs average net exposure.

3.4 Non-bank financial institutions

NBFI s experienced acceleration in asset growth despite challenging economic conditions during 2013. The sector’s asset base expanded by 6.9 per cent for 2013, relative to 4.0 per cent growth for 2012. The expansion in the sector’s total assets was largely influenced by increases in total assets of life insurance companies and securities dealers (see Figure 3.3 and Figure 3.25). At end-2013, life insurance and securities dealers accounted for 29.4 per cent and 63.6 per cent, respectively, of NBFI s market share. However, the growth of general insurance companies’ asset base decelerated to 6.3 per cent for 2013 relative to growth of 7.9 per cent for 2012. Total assets of general insurance companies accounted for 7.0 per cent of NBFI market share at end-2013.

3.4.1 Securities dealers

Securities dealers’ asset base recorded growth of 2.2 per cent to $522.8 billion at end-2013 relative to growth of 2.1 per cent the prior year. The growth in the asset base largely reflected an expansion in Investments, in particular foreign currency denoted investments (11.4 per cent). In addition, there was an increase of 11.7 per cent in Liquid Funds, which largely reflected an increase in foreign currency holdings. Of note, Investments and Liquid Funds constituted 86.8 per cent and 4.5 per cent of securities dealers’ asset base, respectively, at end-2013.

\(^{10}\) This includes the exposure of institutions to their subsidiaries.
The funds under management (FUM) of the major securities dealers increased to $797.6 billion at end-2013 relative to $685.8 billion at end-2012 (see Figure 3.26). The sector’s growth in asset base during 2013 was driven by increases in GOJ securities as well as holdings of assets categorized as Other Assets but was marked by reductions in loans to the public sector.

Risk-weighted assets of the major securities dealers grew by 7.2 per cent to $296.3 billion at end-2013 (see Figure 3.22). Consequently, the sector’s CAR declined to 21.7 per cent at end-2013 relative to 23.4 per cent at end-2012 (see Figure 3.27). Similarly, the sector’s primary ratio, measured as a ratio of regulatory capital to total assets, decreased by 0.7 percentage point to 13.0 per cent at end-2013 relative to end-2012. This was largely due to growth in the total asset base of the major securities dealers of 5.0 per cent to $494.2 million. Regulatory capital declined by 0.5 per cent to $64.4 billion.

Securities dealers’ sensitivity to foreign exchange risk increased throughout most of 2013 as the sector’s foreign currency net open position to capital (NOP) ratio increased to 9.6 per cent at end-2013, relative to 6.1 per cent at end-2012. This largely reflected the sector’s increased holdings of foreign currency-denoted assets as institutions repositioned their foreign currency-denoted portfolios in a context of the accelerated pace in depreciation of the exchange rate of the Jamaica Dollar against the US dollar for the year (see Figure 3.28 and Table 3.3A).

For 2013, there was a decline in securities dealers’ profitability indicators. The sector’s ROA and ROE declined by 1.1 percentage points and 6.5 percentage points, respectively, to 1.4 per cent and 10.1 per cent (see Figure 3.29 and Table 3.3A).
The decline in profitability occurred in the context of a marginal increase in the leverage ratio to 86.7 per cent relative to 84.8 per cent the prior year. This decrease was largely due to increases in total liabilities during the review period. However, the ratio of the sector’s holdings of liquid assets to current liabilities remained stable at 5.8 per cent at end-2013, relative to the close of the previous year.

3.4.2 Insurance companies

The insurance sector continued to be dominated by life insurance companies, which accounted for 79.8 per cent of the sector’s assets at end-2013. The life insurance sub-sector comprised five companies with the two largest institutions, accounting for 64.7 per cent of the sub-sector’s assets. The general insurance sub-sector consisted of nine companies with the two largest companies accounting for 35.4 per cent of the sub-sector’s assets at the close of the review period.

Similar to DTIs, there was growth in the insurance sector’s asset base despite weak economic conditions. Total assets of the insurance sector recorded faster growth of 16.2 per cent for 2013 compared to 8.0 per cent growth for 2012. This compares to average annual growth in total assets for the insurance sector of 21.1 per cent for the period 2010 to 2012 (see Figure 3.30).

In particular, there were respective increases in the asset base for life and general insurance companies of 18.9 per cent and 6.3 per cent. For life insurance companies, this growth was driven predominantly by increases in Total Fixed Term Investments and Investments in Subsidiaries of 18.8 per cent and 37.2 per cent, respectively. The increase in the asset base of general insurance companies was influenced by growth of 4.4 per cent in Total Investments. Investments in government securities accounted for 61.5 per cent of the total assets of insurance companies. Government

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11 Leverage is measured as the proportion of total liabilities to total assets.
securities accounted for 64.4 per cent and 32.1 per cent of life insurance assets and general insurance assets, respectively, at end-2013 (see Figures 3.31 and 3.32).

Despite increased growth in the sector’s asset base, insurance penetration continued to be low in 2013 (see Figure 3.33 and Table 3.4). Insurance penetration for life insurance companies increased marginally by 0.5 percentage point to 2.9 per cent of GDP at end-2013. In contrast, insurance penetration for general insurance companies decreased by 0.3 percentage point to 2.0 per cent of GDP at end-2013 relative to end-2012. These developments suggest that the market continues to be relatively underdeveloped as indicated by an insurance density which remained flat at 0.001 per cent at end-2013 relative to end-2012.13

The total gross written premium (GWP) income of insurance companies increased by 11.3 per cent to $67.7 billion at end-2013, relative to an increase of 4.7 per cent for 2012 (see Figure 3.34). The life insurance sector recorded stronger performance in the GWP for 2013, when compared to the general insurance sub-sector. For life insurance companies, the GWP increased by 31.9 per cent to $40.9 billion at end-2013, compared to an increase of 0.4 per cent to $29.9 billion for the general insurance sub-sector.

Claims incurred by the life insurance subsector increased by 17.7 per cent for 2013, relative to growth of 7.1 per cent for 2012. For general insurance companies, claims incurred increased by 11.2 per cent for 2013, relative to an increase of 5.7 per cent for the previous year. The ratio of claims to earned premium for general insurance companies increased to 30.4 per cent in 2013 from 27.2 per cent in 2012, largely

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12 Insurance penetration is defined as ratio of premium volume to GDP. It measures the importance of insurance activity relative to the size of the economy.

13 Insurance density is the ratio of total gross premiums to total population.
Net investment income of the insurance sector increased marginally by 1.3 per cent to $18.1 billion at end-2013, relative to a decline of 9.2 per cent for 2012 (see Figure 3.36). The growth in investment income reflected increased coupon payments and realized gains.

Aggregate profit before tax for the insurance sector increased by 67.5 per cent for 2013, relative to a decline of 17.4 per cent for 2012. This increase reflected growth of 93.5 per cent in profit before tax of the life insurance sub-sector, which was largely attributable to gains on the disposal of subsidiaries by the largest life insurance company (see Figure 3.37).

For 2013, the insurance sector’s profitability indicators exhibited mixed results relative to the previous year. The ROA and the ROE of the life insurance sector increased to respective values of 9.2 per cent and 35.2 per cent at end-2013 relative to values of 5.4 per cent and 20.0 per cent at end-2012. In addition, the sector’s leverage ratio increased to 74.2 per cent at end-2013 from 73.2 per cent the previous year. The life insurance sub-sector’s profitability was largely due to an increase in Other Revenues. The general insurance sector realized a decrease in both ROA and ROE to 5.5 per cent and 16.1 per cent, respectively, at end-2013 relative to 6.3 per cent and 17.5 per cent, respectively, at end-2012. This was in context of a leverage ratio of 58.9 per cent at end-2013 relative to 58.2 per cent at end-2012. The decline in profitability in the general insurance sector resulted from an increase in underwriting expenses which was partially offset by an increase of 2.4 per cent in net premium earned. Concurrently, the combined operating ratio for general insurance increased to 57.5 per cent for 2013 from 54.0

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14 Earned premium is GWP adjusted by the unearned premium provisions at the beginning and end of the accounting period.
15 The breakdown of data required for the calculation of this ratio is not available for life insurance companies.
per cent for 2012, reflecting the increase in underwriting expenses.16

The capital adequacy of the insurance companies remained at adequate levels during 2013. In particular, the sector’s median solvency ratio, as measured by available capital to total liabilities, increased to 150.9 per cent at end-2013 relative to 147.8 per cent the prior year (see Figure 3.38). The sector was adequately capitalized as the ratio of capital to total assets increased marginally to 20.2 per cent at end-2013 from 19.9 per cent at end-2012 (see Figure 3.39). All life insurance companies surpassed the minimum regulatory capital requirements with respect to the Minimum Continuing Capital and Surplus Requirements (MCCSR) ratio. The MCCSR ratio for the life insurance sub-sector was 252.8 per cent relative to the minimum requirement of 150.0 per cent. Similarly, all general insurance companies exceeded their minimum capital regulatory requirement of a Minimum Capital Test (MCT) ratio of 250.0 per cent. The MCT ratio for the general insurance sub-sector was 298.1 per cent.

The re-insurance retention ratio exhibited mixed results for the review period.17 At end-2013, the retention ratio for life insurance companies increased to 98.3 per cent relative to 97.8 per cent at end-2012. In contrast, general insurance companies’ retention ratio increased to 58.6 per cent at end-2013 from 57.5 per cent the prior year (see Figures 3.40 and 3.41).

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16 The combined operating ratio is a financial measure of insurance underwriting (core) profitability and is expressed as the total of claims costs, commissions and management expenses as a percentage of premiums.

17 The reinsurance retention ratio measures the amount of risk being absorbed by an insurer rather than passing it on to a reinsurer. Measured as the ratio of net premiums to gross premiums, this ratio captures the net amount of risk which the reinsurer keeps for its own account. The lower the ratio, the more the company is able to avoid financial distress following a large claim.
Figure 3.39  Capitalization of the insurance sector (JMD billions; %)

Figure 3.40  Life insurance retention ratio; %

Figure 3.41  General insurance retention ratio; %
**Table 3.2 Financial Soundness Indicators for Deposit-Taking Institutions**

<table>
<thead>
<tr>
<th>Indicator (%)</th>
<th>Categories</th>
<th>Dec-12</th>
<th>Mar-13</th>
<th>Jun-13</th>
<th>Sep-13</th>
<th>Dec-13</th>
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<td>54.5</td>
<td>53.8</td>
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<td>25.6</td>
<td>24.1</td>
<td>24.5</td>
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<td>Sensitivity to Market Risk</td>
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<td>1.7</td>
<td>1.6</td>
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<td>Sensitivity to Market Risk</td>
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<td>Capital to assets</td>
<td>Capital adequacy</td>
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<td>14.7</td>
<td>14.7</td>
<td>15.3</td>
<td>14.9</td>
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<td>40.8</td>
<td>40.1</td>
<td>40.1</td>
<td>40.6</td>
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<td>Earnings &amp; Profitability</td>
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<td>25.7</td>
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<td>36.5</td>
<td>38.9</td>
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<td>Net open position in equities to capital</td>
<td>Foreign Exchange risk</td>
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<td>0.2</td>
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**Notes:**

1/ Deposit-taking Institutions (DTIs) include commercial banks, FIA licensees, and building societies.
2/ Weighted by assets size.
3/ Household debt does not include NHT mortgage loans.
4/ Represents data for building societies only.
### Table 3.3 Financial Soundness Indicators for Securities Dealers and Insurance Companies

<table>
<thead>
<tr>
<th>Indicator (%)</th>
<th>Categories</th>
<th>Dec-12</th>
<th>Mar-13</th>
<th>Jun-13</th>
<th>Sep-13</th>
<th>Dec-13</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Securities Dealers</strong> 1/</td>
<td>Regulatory capital to risk-weighted assets</td>
<td>Capital adequacy</td>
<td>23.4</td>
<td>20.2</td>
<td>20.8</td>
<td>21.8</td>
</tr>
<tr>
<td></td>
<td>Tier1 capital to risk-weighted assets</td>
<td>Capital adequacy</td>
<td>18.8</td>
<td>17.4</td>
<td>17.6</td>
<td>17.6</td>
</tr>
<tr>
<td></td>
<td>Non-performing loans (net) to capital</td>
<td>Capital adequacy</td>
<td>0.3</td>
<td>-0.5</td>
<td>-1.5</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>Non-performing loans to total loans</td>
<td>Assets quality</td>
<td>10.1</td>
<td>10.1</td>
<td>10.1</td>
<td>10.1</td>
</tr>
<tr>
<td></td>
<td>Return on assets</td>
<td>Earnings &amp; Profitability</td>
<td>0.6</td>
<td>0.1</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>Return on equity</td>
<td>Earnings &amp; Profitability</td>
<td>4.6</td>
<td>0.5</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>Interest margin to income</td>
<td>Earnings &amp; Profitability</td>
<td>38.3</td>
<td>45.7</td>
<td>34.9</td>
<td>38.3</td>
</tr>
<tr>
<td></td>
<td>Non-performing loans to total loans</td>
<td>Assets quality</td>
<td>0.3</td>
<td>-0.5</td>
<td>-1.5</td>
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</tr>
<tr>
<td></td>
<td>Duration on assets - Domestic Bonds</td>
<td>Sensitivity to Market Risk</td>
<td>2.4</td>
<td>4.5</td>
<td>1.9</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td>Duration on assets- Global Bonds</td>
<td>Sensitivity to Market Risk</td>
<td>2.5</td>
<td>3.7</td>
<td>3.6</td>
<td>3.4</td>
</tr>
<tr>
<td><strong>B. General Insurance</strong></td>
<td>Net premium to Capital</td>
<td>Capital adequacy</td>
<td>23.0</td>
<td>24.2</td>
<td>25.4</td>
<td>18.8</td>
</tr>
<tr>
<td></td>
<td>Capital to Assets</td>
<td>Capital adequacy</td>
<td>29.8</td>
<td>29.0</td>
<td>26.7</td>
<td>26.4</td>
</tr>
<tr>
<td></td>
<td>(Real estate + unquoted equities + debtors) to total assets</td>
<td>Assets quality</td>
<td>34.3</td>
<td>39.4</td>
<td>34.8</td>
<td>36.7</td>
</tr>
<tr>
<td></td>
<td>Receivables to gross premiums</td>
<td>Assets quality</td>
<td>37.6</td>
<td>50.4</td>
<td>53.9</td>
<td>59.6</td>
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<tr>
<td></td>
<td>Equities to total assets</td>
<td>Assets quality</td>
<td>2.3</td>
<td>1.7</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td></td>
<td>Net technical reserves to net claims paid in last 3 years</td>
<td>Reinsurance &amp; actuarial issues</td>
<td>554.7</td>
<td>380.5</td>
<td>471.9</td>
<td>386.8</td>
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<tr>
<td></td>
<td>Risk retention ratio (net premium to gross premium)</td>
<td>Reinsurance &amp; actuarial issues</td>
<td>54.0</td>
<td>52.1</td>
<td>38.5</td>
<td>56.7</td>
</tr>
<tr>
<td></td>
<td>Gross premium to number of employees J$ (000)</td>
<td>Management Soundness</td>
<td>6.1</td>
<td>6.4</td>
<td>9.4</td>
<td>4.4</td>
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<tr>
<td></td>
<td>Assets per employee J$ (000)</td>
<td>Management Soundness</td>
<td>47.8</td>
<td>47.2</td>
<td>53.3</td>
<td>50.1</td>
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<tr>
<td></td>
<td>Net Claims to net premium (loss ratio)</td>
<td>Earnings &amp; Profitability</td>
<td>57.2</td>
<td>59.8</td>
<td>65.4</td>
<td>82.0</td>
</tr>
<tr>
<td></td>
<td>Total expenses to net premium (expense ratio)</td>
<td>Earnings &amp; Profitability</td>
<td>156.1</td>
<td>160.8</td>
<td>158.8</td>
<td>209.8</td>
</tr>
<tr>
<td></td>
<td>Gross premium to number of employees J$ (000)</td>
<td>Management Soundness</td>
<td>6.1</td>
<td>6.4</td>
<td>9.4</td>
<td>4.4</td>
</tr>
<tr>
<td></td>
<td>Assets per employee J$ (000)</td>
<td>Management Soundness</td>
<td>47.8</td>
<td>47.2</td>
<td>53.3</td>
<td>50.1</td>
</tr>
<tr>
<td></td>
<td>Net Claims to net premium (loss ratio)</td>
<td>Earnings &amp; Profitability</td>
<td>57.2</td>
<td>59.8</td>
<td>65.4</td>
<td>82.0</td>
</tr>
<tr>
<td></td>
<td>Total expenses to net premium (expense ratio)</td>
<td>Earnings &amp; Profitability</td>
<td>156.1</td>
<td>160.8</td>
<td>158.8</td>
<td>209.8</td>
</tr>
<tr>
<td></td>
<td>Investment Income to net premium</td>
<td>Earnings &amp; Profitability</td>
<td>17.3</td>
<td>13.7</td>
<td>14.6</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td>Return on Equity</td>
<td>Earnings &amp; Profitability</td>
<td>4.5</td>
<td>4.4</td>
<td>5.1</td>
<td>1.5</td>
</tr>
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<td>Liquid assets to total assets</td>
<td>Assets quality</td>
<td>9.0</td>
<td>69.3</td>
<td>69.8</td>
<td>71.8</td>
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<tr>
<td><strong>C. Life Insurance</strong></td>
<td>Capital to technical reserves</td>
<td>Capital adequacy</td>
<td>119.1</td>
<td>122.5</td>
<td>123.2</td>
<td>80.9</td>
</tr>
<tr>
<td></td>
<td>(Real estate + unquoted equities + debtors) to total assets</td>
<td>Assets quality</td>
<td>78.5</td>
<td>78.9</td>
<td>78.5</td>
<td>79.0</td>
</tr>
<tr>
<td></td>
<td>Receivables to gross premiums</td>
<td>Assets quality</td>
<td>56.0</td>
<td>53.2</td>
<td>56.8</td>
<td>32.4</td>
</tr>
<tr>
<td></td>
<td>Equities to total assets</td>
<td>Assets quality</td>
<td>0.9</td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>Net technical reserves to net premium paid in last 3 years</td>
<td>Reinsurance &amp; actuarial issues</td>
<td>681.1</td>
<td>628.9</td>
<td>657.6</td>
<td>991.5</td>
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<tr>
<td></td>
<td>Risk retention ratio (net premium to gross premium)</td>
<td>Reinsurance &amp; actuarial issues</td>
<td>97.8</td>
<td>98.0</td>
<td>97.9</td>
<td>98.7</td>
</tr>
<tr>
<td></td>
<td>Gross premium to number of employees J$ (000)</td>
<td>Management Soundness</td>
<td>4.4</td>
<td>4.2</td>
<td>4.3</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>Expenses to net premium (expense ratio)</td>
<td>Earnings &amp; Profitability</td>
<td>58.8</td>
<td>56.6</td>
<td>58.2</td>
<td>37.8</td>
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<tr>
<td></td>
<td>Investment Income to investment assets</td>
<td>Earnings &amp; Profitability</td>
<td>2.7</td>
<td>1.7</td>
<td>2.0</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Return on Equity</td>
<td>Earnings &amp; Profitability</td>
<td>1.4</td>
<td>1.1</td>
<td>1.1</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>Liquid assets to total liabilities</td>
<td>Liquidity</td>
<td>17.4</td>
<td>13.3</td>
<td>15.3</td>
<td>14.8</td>
</tr>
<tr>
<td></td>
<td>Duration on assets - Domestic Bonds</td>
<td>Sensitivity to market risk</td>
<td>1.6</td>
<td>1.6</td>
<td>5.6</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>Duration on assets- Global Bonds</td>
<td>Sensitivity to market risk</td>
<td>5.4</td>
<td>4.9</td>
<td>5.0</td>
<td>5.9</td>
</tr>
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</table>

Notes:
1/ Includes the top-12 securities dealers.
### Bank of Jamaica Financial Stability Report 2013

#### Table 3.4 Sectoral Indicators of Financial Development

<table>
<thead>
<tr>
<th>Sub-sector</th>
<th>Indicator</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<tr>
<td><strong>Banking</strong></td>
<td>Total number of DTIs</td>
<td>14</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Number of branches and outlets</td>
<td>178.0</td>
<td>173.0</td>
<td>173.0</td>
<td>173.0</td>
<td>166.0</td>
</tr>
<tr>
<td></td>
<td>Number of branches/thousands population</td>
<td>0.07</td>
<td>0.06</td>
<td>0.06</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>Bank deposits/GDP (%)</td>
<td>44.5</td>
<td>42.9</td>
<td>41.7</td>
<td>44.5</td>
<td>44.7</td>
</tr>
<tr>
<td></td>
<td>Bank assets/total financial assets (%)²</td>
<td>43.2</td>
<td>42.6</td>
<td>42.7</td>
<td>43.5</td>
<td>45.0</td>
</tr>
<tr>
<td></td>
<td>Bank assets/GDP (%)</td>
<td>70.2</td>
<td>65.8</td>
<td>63.8</td>
<td>66.2</td>
<td>67.2</td>
</tr>
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<td><strong>Insurance</strong></td>
<td>Number of insurance companies</td>
<td>16</td>
<td>14</td>
<td>14</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Gross premiums/GDP (%)</td>
<td>4.5</td>
<td>4.4</td>
<td>4.5</td>
<td>4.6</td>
<td>4.9</td>
</tr>
<tr>
<td></td>
<td>Gross life premiums/GDP (%)</td>
<td>2.2</td>
<td>2.1</td>
<td>2.3</td>
<td>2.4</td>
<td>2.9</td>
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<td>Gross non-life premiums/GDP (%)</td>
<td>2.3</td>
<td>2.2</td>
<td>2.2</td>
<td>2.3</td>
<td>2.1</td>
</tr>
<tr>
<td></td>
<td>Insurance assets/GDP (%)</td>
<td>18.3</td>
<td>18.9</td>
<td>18.8</td>
<td>19.6</td>
<td>21.0</td>
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<tr>
<td></td>
<td>Insurance assets/total financial assets (%)</td>
<td>10.6</td>
<td>11.3</td>
<td>12.2</td>
<td>12.6</td>
<td>12.9</td>
</tr>
<tr>
<td><strong>Pensions</strong></td>
<td>Types of pension plans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td># Defined Benefit plan</td>
<td>129</td>
<td>120</td>
<td>116</td>
<td>116</td>
<td>111</td>
</tr>
<tr>
<td></td>
<td># Defined Contribution plan</td>
<td>363</td>
<td>366</td>
<td>347</td>
<td>347</td>
<td>333</td>
</tr>
<tr>
<td></td>
<td>Pension fund assets/total financial assets (%)</td>
<td>13.0</td>
<td>14.3</td>
<td>15.0</td>
<td>14.7</td>
<td>14.1</td>
</tr>
<tr>
<td></td>
<td>Pension fund assets/GDP (%)</td>
<td>21.2</td>
<td>22.1</td>
<td>22.3</td>
<td>22.4</td>
<td>21.2</td>
</tr>
<tr>
<td><strong>Mortgage</strong></td>
<td>Mortgage assets/total financial assets (%) ²/</td>
<td>5.5</td>
<td>5.7</td>
<td>5.8</td>
<td>5.8</td>
<td>5.6</td>
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<td>Mortgage assets/GDP (%)</td>
<td>9.0</td>
<td>8.8</td>
<td>8.7</td>
<td>8.9</td>
<td>8.3</td>
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<tr>
<td><strong>Securities Dealers</strong></td>
<td>Total number of securities dealers</td>
<td>29</td>
<td>29</td>
<td>31</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Securities dealer’s/total financial assets (%)</td>
<td>29.2</td>
<td>27.5</td>
<td>26.5</td>
<td>25.6</td>
<td>24.4</td>
</tr>
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<td></td>
<td>Securities dealer’s assets/GDP (%)</td>
<td>47.4</td>
<td>42.4</td>
<td>39.6</td>
<td>39.0</td>
<td>36.5</td>
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<td><strong>Credit Union</strong></td>
<td>Total number of credit unions</td>
<td>45</td>
<td>46</td>
<td>43</td>
<td>43</td>
<td>38</td>
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<tr>
<td></td>
<td>Credit union’s/total financial assets (%)</td>
<td>3.2</td>
<td>3.4</td>
<td>3.2</td>
<td>3.4</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>Credit union’s assets/GDP (%)</td>
<td>5.2</td>
<td>5.2</td>
<td>4.8</td>
<td>5.2</td>
<td>4.8</td>
</tr>
<tr>
<td><strong>Foreign exchange markets</strong></td>
<td>Adequacy of foreign exchange (reserves in months of imports)</td>
<td>3.6</td>
<td>5.7</td>
<td>4.7</td>
<td>3.2</td>
<td>3.2</td>
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<tr>
<td></td>
<td>Foreign exchange reserves as ratio to short-term external debt (%)</td>
<td>188.5</td>
<td>217.2</td>
<td>196.8</td>
<td>203.9</td>
<td>123.1</td>
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<td><strong>Capital markets</strong></td>
<td>Number of listed securities (equities)³</td>
<td>44</td>
<td>51</td>
<td>55</td>
<td>50</td>
<td>55</td>
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<td>Number of new issues (equities)⁴</td>
<td>1</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Number of new issues (bonds) ³/</td>
<td>55</td>
<td>22</td>
<td>19</td>
<td>24</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Value of new issues (equities) J$Bn</td>
<td>0.1</td>
<td>1.3</td>
<td>3.0</td>
<td>0.4</td>
<td>45.0</td>
</tr>
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<td>Value of new issues (bonds) J$Bn</td>
<td>222.8</td>
<td>151.6</td>
<td>105.1</td>
<td>77.8</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>Market capitalization/GDP (%)</td>
<td>50.4</td>
<td>48.1</td>
<td>48.9</td>
<td>44.7</td>
<td>34.3</td>
</tr>
<tr>
<td></td>
<td>Value traded/market capitalization (%)</td>
<td>2.2</td>
<td>3.7</td>
<td>3.4</td>
<td>3.1</td>
<td>2.9</td>
</tr>
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<td><strong>Collective investment funds</strong></td>
<td>Unit trust funds under management (J$Bn)³/</td>
<td>14.2</td>
<td>21.5</td>
<td>32.4</td>
<td>49.7</td>
<td>58.0</td>
</tr>
<tr>
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<td>Number of unit trusts</td>
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<td>4</td>
<td>4</td>
<td>9</td>
<td>10</td>
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<tr>
<td></td>
<td>Mutual funds (value of units held by Jamaicans)US$MN</td>
<td>-</td>
<td>151.1</td>
<td>164.5</td>
<td>122.0</td>
<td>165.0</td>
</tr>
</tbody>
</table>

Notes:

1. Financial system assets includes assets for banks, insurance companies, credit unions, securities dealers and pension funds.
2. Includes data for building societies, commercial banks & National Housing Trust
3. Includes Junior market listings
4. Includes preference shares
5. Government of Jamaica bonds
6. Unit trust portfolios are composed mainly of fixed income securities, equities and real estate investments
7. Data availability
Box 3.1 The Shadow Banking System in Jamaica, its Key Developments and Risks

Jamaica has a relatively large financial system which is highly interconnected. The total asset base of the system was 182.6 per cent of GDP at end-2013 with deposit-taking institutions (DTIs) having the largest market share of 37.1 per cent (67.8 per cent of GDP). The “Other Financial Intermediaries” play a substantial role in the financial system and is dominated by securities dealers (SDs) which account for 20.2 per cent of the financial system (36.8 per cent of GDP). DTI and SD sectors are closely interconnected within a handful of conglomerates, with 89.0 per cent of SDs forming part of DTI group structures. Securities dealers in Jamaica undertake relatively minor roles as brokers and asset managers. Instead, like most of the financial system, this sector is actively engaged in intermediating the large public debt, which exceeds 136.4 per cent of GDP.

The size of the SD sector was influenced by a few key developments over the past two decades. In 1994 the Bank of Jamaica (BOJ) introduced a primary dealer system in order to underwrite primary issues of Government of Jamaica (GOJ) and BOJ securities and develop the secondary market which amplified liquidity of these instruments. Then the enormous fiscal cost to recapitalize the financial sector after a financial crisis in the mid-1990s led to significant expansion in GOJ debt of approximately 40 per cent of GDP. Another catalyst for growth of the sector was the enactment of legislation in 2002 for the separation of bank and non-bank activities which led to a large-scale transfer of assets under management from DTIs to SDs.

Securities dealers have profited from regulatory arbitrage at the expense of significant exposure to various sources of risk. Dealers fund the purchase of securities through repurchase agreements (“repos”), mostly with retail clients. That is, these shadow banks offer deposit-like products to retail investors at more attractive rates compared to traditional deposits in the tightly regulated DTI sector. At end-2013, repos accounted for 88.9 per cent of the balance sheet liabilities of the 12 largest dealers, of which repos with retail clients (“Retail repos”) and institutional investors comprise about 47.8 per cent and 52.2 per cent of repo liabilities, respectively.

Retail repos are used by SDs to pool short-maturity, small-size investments of predominantly unsophisticated investors to fund a portfolio of primarily long-term, large-denomination government securities owned by the dealers. However, unlike a traditional repo, the retail repo does not formally encumber the underlying security as the title is not transferred to the client. Instead, SDs retain legal ownership of the underlying security for retail repos as well as the associated market, credit and liquidity risks on their balance sheets. Furthermore, although all GOJ and BOJ securities are required to be held in an electronic central securities depository (CSD), pledged collateral for retail repos are registered to a segregated omnibus client holding account under the control of the dealer rather than held in custody in the CSD registered against individual client interest. So if the SD were to default it is unclear whether the repo client would have a legally valid claim on the underlying asset to the disadvantage of unsecured creditors.

1 This background note on shadow banking activities in Jamaica was adopted from a presentation.
2 Financial system assets include assets for the public financial institutions (including the Central Bank), DTIs, insurance companies, pension funds, credit unions, securities dealers (including AUM) and unit trusts.
3 Note that the credit union sector is the second largest category of OFIs accounting for 3 per cent of the financial system. Current legislation governing the credit union sector will be amended in the near term to bring credit unions under the regulatory domain of the Central Bank.
4 GOJ securities account for the bulk of these institutions’ asset base, totalling 65.0 per cent at end-2012.
operational, settlement and legal risks. In addition, the retention of legal ownership of these bonds has compounded the sector’s exposure to market and leverage risks particularly in instances where GOJ global bonds have been held on margin accounts with U.S.-based broker-dealers. For example, to preserve financial stability as a direct consequence of the drying up of US dollar liquidity in the context of the global financial turmoil in 2008, the Central Bank offered a temporary lending facility to SDs for significant overseas margin and repo payments on GOJ global bonds. Finally, DTIs’ strong inter-linkages with SDs, primarily as owners, present a critical source of systemic risk. Another source of contagion is underpinned by the fact that retail repos are principally held by large numbers of small unsophisticated investors. In this context, a failure of a SD could quickly escalate to a general loss in confidence in the system if these small investors faced a loss in their investment given the imperfections of the retail repo.

The GOJ has committed to reform the securities dealers industry to include phasing out the retail repo business model. Legislation will be tabled by the end of 2014 to allow for the establishment of collective investment schemes (CIS) which would facilitate the transfer of market and liquidity risks to retail investors from the balance sheet of the SD. In addition, the capital regime for SDs will be strengthened to mitigate liquidity, legal, operational and settlement risks through more risk-sensitive capital requirements and margin requirements for wholesale repos. Additionally, punitive capital charges will be placed on SDs that continue to offer retail repos in order to phase out these products in the medium term which will mitigate the substantial legal and operational risks associated with the retail repo model.

5 Notably, the CSD does not allow for registration of client interest that is not fully matched with the authorized denomination of the underlying security.
Box 3.2 The Impact of the National Debt Exchange (NDX) on the Profitability of the Financial System in Jamaica

Introduction

On 12 February 2013, the Government of Jamaica (GOJ) implemented a voluntary National Debt Exchange (NDX) programme in an attempt to improve its debt sustainability. The programme closed on 22 February 2013 and formed part of GOJ’s prior actions to the signing of a 48-month Extended Fund Facility (EFF) with the International Monetary Fund (IMF). The NDX was characterized by a reduction in the interest rates on GOJ domestic bonds of between 1.0 percentage point (pp) and 5.0 pps as well as an extension of the maturity profile and lower re-fixed margins on variable rate instruments. It was anticipated that the GOJ would realise fiscal savings of 8.5 per cent of GDP ($17.0 billion per year) which is expected to constitute a decline in the debt-to-GDP ratio to 95.0 per cent by 2020. Further, a 100.0 per cent participation rate was required on the part of institutional and non-institutional investors.

In a context where Jamaica’s financial system held approximately 45.0 per cent of the domestic debt stock at end-2012, a post-NDX assessment is conducted in this box to determine the impact of the exchange on the system’s profitability (see Figure 1.0). Given the significant impact of the NDX on the securities dealers in particular, some policy initiatives currently being undertaken by the regulatory authorities to foster greater portfolio diversification are highlighted.

Impact of the NDX on Financial Institutions’ Profitability in Jamaica

Reduced interest rates on GOJ domestic securities consequent on the NDX in the March 2013 quarter was reflected in a decline in interest income across the financial sector. In particular, interest income on investments held by DTIs and SDs declined by 4.6 per cent for the March 2013 quarter relative to an increase of 3.6 per cent for the December 2012 quarter. The reduction in investment income deepened in the June 2013 quarter with a decline of 10.2 per cent relative to the previous quarter. Similarly, net investment income for insurance companies declined by 32.9 per cent for the March 2013 quarter relative to an increase of 25.5 per cent for the previous quarter (see Figure 2.0). However, subsequent to the fall-off in investment income, it was noted that all the sectors under review rebounded, posting respective average increases of 4.2 per cent for DTIs and SDs, and 28.0 per cent for insurance companies for the second half of 2013.

Figure 1.0. System holdings of domestic GOJ debt to total debt and total investments

Figure 2.0. Earnings performance of DTIs, SDs, and Insurance Companies

Additionally, as a consequence of the NDX, GOJ’s debt securities became relatively illiquid. This resulted in large losses in income earned on trading securities primarily during the March 2013 quarter (see Figure 2). Income losses incurred by DTIs and SDs totaled $4.0 billion for the March quarter relative to gains of $0.7 billion in the preceding quarter. The combined decline in these components of earnings contributed to a fall-off in the return on assets (ROA) for the DTIs, SDs and insurance companies for the March 2013 quarter (see Figure 3.0). Of note, SDs recorded the largest decline in ROA which fell to 0.1 per cent for the March 2013 quarter relative to 0.6 per cent at end-2012.

2 This includes deposit-taking institutions (DTIs), securities dealers (SDs) and insurance companies.
3 In particular, the rebound for the insurance companies was due to a sharp increase in dividends and net realized gains on equity investments.
Additionally, DTIs and insurance companies recorded respective declines in ROA to 0.3 per cent and 1.2 per cent for the March 2013 quarter. This compares to respective ratios of 0.4 per cent and 1.4 per cent for DTIs and insurance companies in the previous quarter.

Figure 3.0. Return on Assets for DTIs, SDs and Insurance Companies

Loss Mitigating Strategies

Notwithstanding the one-off decline in profits recorded for the March 2013 quarter, financial institutions remained profitable throughout 2013. Of note, these institutions sought to offset losses by increasing operational efficiency and fee-based income. Specifically, the ratio of operating expenses to gross revenues declined to 42.2 per cent for the December 2013 quarter relative to a ratio of 56.3 per cent for the first quarter of 2013 (see Figure 4.0). The most notable improvement in the efficiency ratio was reflected among the SDs and insurance companies that recorded respective declines of 10.1 pps and 17.8 pps for the December 2013 quarter relative to the March 2013 quarter. As it relates to fees and other income, this category of income grew by a quarterly average of 1.3 per cent for 2013, relative to 5.3 per cent for 2012. In particular, the SDs sector recorded the largest increase in fee income for 2013, recording quarterly average growth of 15.9 per cent relative to an average quarterly decline of 2.6 per cent for 2012. This increase was largely reflected in fees on repurchase agreements which showed the most significant growth recorded for the SDs sector.

Figure 4.0. Efficiency Ratio and Growth in Fee Income for the Financial System

Related Policy Initiatives

The GOJ has engaged in discussions with the industry regarding strategies geared towards reducing risks associated with the business model of the SDs sector. This includes the orderly phase-out of the retail repo business model in the medium term and a move towards alternative investment options such as collective investment schemes (CIS). Further, among other things, the authorities have agreed to remove the cap on investments in foreign securities by end-2016 as well as remove double taxation for the CIS. This would facilitate the emergence and growth of CIS as a more diversified investment alternative.

Conclusion

The NDX significantly reduced financial institutions’ profitability and highlighted the need for greater portfolio diversification especially for the SDs sector. The current policy discussions surrounding strategies geared towards reducing risks associated with the business model of the SDs sector should augur well for the sector, reducing the vulnerability of these institutions to sovereign risk.

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4 Subsequent to the NDX in the March 2013 quarter, foreign exchange gains for DTIs and SDs declined by a quarterly average of 3.6 per cent for 2013. This decline was mainly reflected in the DTIs sector as the SDs recorded an average quarterly increase of 11.5 per cent for the last three quarters of 2013. Specifically, this increase was attributed to margins from cambio and remittance transactions, partly reflecting the continued depreciation in the Jamaica Dollar.


7 Currently, the limit on investments in foreign securities is 5.0 per cent of total assets. The authorities have proposed a series of incremental increases to at least 25.0 per cent by end-2015 and will be removed by end-2016, unless extraordinary circumstances require a reassessment.
4. Financial System Sectoral Exposures

4.1 Overview

DTIs’ exposure to household debt (as measured by debt to DTI assets) increased marginally for 2013, while exposure to the corporate sector remained unchanged. As it relates to NBFI s, exposure to these debt categories grew slightly in comparison to 2012. This performance occurred within the context of weak domestic economic conditions. Despite the prevailing economic conditions in 2013, loan quality ratios for the household and corporate sectors showed an improvement for DTIs reflecting loan-write offs and increased loan growth. NBFI s, on the other hand recorded a deterioration in loan quality relative to 2012, mainly reflecting the operations of one institution.

Sovereign default was a major risk factor throughout the year. This occurred in a context where the GOJ implemented and successfully completed a debt exchange programme. This programme was one of the pre-conditions to the signing of a 48-month EFF with the IMF and resulted in lower coupons, re-fixed margins and extended maturities on GOJ domestic bonds. Additionally, subsequent to NDX and the signing of the EFF, the GOJ reduced its presence substantially in the market during 2013. Consequently, DTIs and NBFI s exposures to public sector debt declined in 2013 relative to the prior year.

4.2 Household debt and DTIs’ exposure

Growth in household sector debt incurred with DTIs decelerated for 2013. This deceleration occurred against the background of weak domestic macroeconomic conditions including, sluggish economic growth, increased unemployment levels and lower real disposable income. For 2013, growth in household sector debt decelerated by 9.3 percentage points to 13.6 per cent, relative to 22.9 per cent growth for the previous year. Additionally, growth in household sector debt was notably below the pre-crisis level reflecting continued low demand conditions, consistent with

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1 Household debt incurred with DTIs is proxied by the sum of residential mortgage loans and consumer loans (which includes credit card receivables).

2 Real GDP grew by 0.3 per cent for 2013 relative to a contraction growth of 0.5 per cent for 2012. The unemployment rate increased to 15.3 per cent, up from 13.9 per cent in 2012. Regarding disposable income, it is estimated that real disposable income declined by 1.1 per cent for 2013.
the general weakness in the economy (see Figure 4.1).³

The slower growth in household sector credit for 2013 was largely due to a decline in the rate of growth for consumer loans, as mortgage credit remained relatively flat. Growth in consumer loans slowed to 13.9 per cent for 2013, relative to growth of 30.0 per cent the previous year. This was primarily reflected in installment credit, term and demand loans which decelerated to 22.3 per cent, 17.7 per cent and 1.0 per cent, relative to respective growth of 29.3 per cent 25.4 per cent and 35.9 per cent for 2012. Growth in mortgage debt remained relative flat at 13.3 per cent relative to 13.7 per cent the prior year. This marginal deceleration occurred despite lower mortgage rates among building societies and commercial banks during the review period. The performance of mortgage loans was indicative of low demand due to affordability challenges stemming from weak real disposable income and higher unemployment levels (see Table 4.1).⁴

For 2013, DTIs’ exposure to the household sector as measured by household debt to assets grew marginally relative to 2012. This ratio increased to 24.3 per cent, relative to 23.2 per cent at end-2012, mainly reflecting the performance of the commercial banks and FIA licensees. However, the share of household debt to DTIs’ assets for building societies declined, albeit marginally (see Figure 4.2). Notwithstanding the marginal increase in DTIs’ exposure to the household sector, the household loan quality ratio continued its steady trend improvement for 2013. Specifically, household non-performing loans (NPLs) as a share of total household loans for DTIs declined to 4.9 per cent at end-2013 relative to 5.4 per cent at end-2012, reflecting a faster pace of increase in household debt relative to household NPLs. The improvement in the ratio was reflected across all DTI sub-sectors, in particular the building societies & FIA licensees (see Figure 4.3). However, of note is that the ratio at end-2013 was relatively

⁴ Commercial mortgage loan rate declined to 9.89 per cent at end-2013 from 9.90 per cent at end-2012.
higher in comparison to an average ratio of 3.8 per cent for the 2003-2007 pre-crisis period. The decline in the ratio for 2013 was also partly due to the continued net loan charge-offs. Specifically, for 2013, net loan charge-offs amounted to $1.4 billion relative to $3.1 billion for 2012.

Notably, DTIs’ household coverage and capital ratios showed mixed results for 2013 in comparison to 2012. The household coverage ratio deteriorated during 2013, totalling 184.8 per cent at the close of the year, relative to 210.0 per cent at end-2012. This was influenced by a 7.8 per cent decline in provisioning relative to a 5.1 per cent increase in household NPLs (see Figure 4.4). The capacity of banks to withstand losses arising from NPLs, as measured by the ratio of household sector NPLs to regulatory capital, improved to 12.8 per cent at end-2013 relative to 14.7 per cent the previous year. This was due to household NPLs growing at a slower pace in relation to regulatory capital.

4.2.1 Household sector performance
The debt servicing capacity of the household sector, as measured by the ratio of total household debt to disposable income, is estimated to have deteriorated marginally by 1.1 percentage point to 24.0 per cent at end-2013 relative to end-2012 (see Figure 4.5). Additionally, the debt serving ratio was notably well above the pre-crisis level by 5.3 percentage points, consistent with the weak performance of the local economy. The deterioration for the review period was attributed to a faster pace of growth in household sector debt of 13.5 per cent relative to growth of 8.4 per cent in disposable income for the year. However, the increase in household indebtedness was tempered by the impact of declines in borrowing rates (see Table 4.1).

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5. Net loan charge-offs is computed as charge-off loans less bad loans recovered.
6. Coverage ratio is measured as the ratio of loan loss provisions plus prudential provisioning to non-performing household loans.
7. Total household debt is proxied by the sum of residential mortgage loans, consumer loans (which includes credit card receivables) and National Housing Trust loans.
8. Disposable income for 2013 was estimated based on the annual estimated growth rate in nominal GDP.
10. The deterioration in debt servicing capacity occurred in a context where the performance in economic activity has continued to remain weak relative to pre-crisis levels.
4.3 Corporate sector debt and DTIs’ exposure

Similarly to the household sector, the growth in corporate sector debt held by DTIs decelerated to 10.0 per cent for the review period relative to growth of 12.1 per cent for 2012 and an average growth of 22.5 per cent for the pre-crisis period (see Figure 4.6). This slower pace of growth mainly reflected the impact of lending for private commercial purposes as this category represented 95.5 per cent of total corporate sector loans at end-2013. More specifically, the marginal deceleration in growth in corporate sector lending in 2013 was reflected in most economic sectors with the exception of Transport & Communications, Agriculture & Fishing, Construction, Tourism and Professional & Other Services (see Figure 4.7). Additionally, DTIs’ holdings of corporate sector debt to DTIs’ assets remained virtually flat at 18.6 per cent at end-2013, relative to the previous year. By extension, corporate sector debt accounted for 38.4 per cent of total loans at end-2013, increasing marginally by 1.4 per cent when compared to the end of the previous year (see Figure 4.8).

4.3.1 Corporate sector loan quality

There was a moderate improvement in loan quality ratio for the corporate sector for 2013. The ratio of corporate sector NPLs to total corporate sector loans declined to 6.4 per cent at end-2013, relative to 9.9 per cent at end-2012. However, the ratio at end-2013 was well above the pre-crisis level of 3.2 per cent (see Figure 4.9). The improvement in the asset quality ratio for the corporate sector was mainly reflected in the loan portfolio of the commercial banks and FIA licensees which recorded ratios of 6.2 per cent and 0.01 per cent, respectively, at end-2013, relative to respective ratios of 9.4 per cent and 0.4 per cent at end-2012. In examining the delinquency rate by sector, the loan quality ratio for all economic sectors improved for 2013 in comparison to the previous year. Notably, there were strong improvements in the ratios for Construction, Entertainment and Mining Quarrying & Processing (see Figure 4.10).

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11 Corporate sector debt includes loans for commercial purposes, loans to other financial institutions and notes & debenture holdings of DTIs.
4.3.2 Performance of companies listed on the Jamaica Stock Exchange (JSE) for 2013

Consistent with the general uncertainty in the economy which resulted in low investor confidence, the JSE Main Index declined by 12.5 per cent for 2013, the highest annual decline in the JSE Index since the global financial crisis in 2008 (see Figure 4.11). In particular, the performance of the Main JSE Index for 2013 occurred in the context of uncertainty regarding the nature of Jamaica’s future economic reforms and its impact on economic growth. Additionally, the continued depreciation of the Jamaica Dollar resulted in an increase in the average monthly returns on foreign currency investments providing a more attractive investment option to investors. Specifically, the monthly returns on the JSE Index averaged negative 1.1 per cent while those on the money market securities and gains on foreign currency investments were 0.6 per cent and 1.1 per cent, respectively. The weak performance of the JSE Index was reflected in lower market activity indicators for 2013. Of note, the number of transactions declined by 6.3 per cent, while the volume and the value of stocks traded fell by 3.1 per cent and 22.3 per cent, respectively, relative to the previous year.

For 2013, listed corporate sector entities’ financial leverage ratio increased slightly by 0.8 percentage point to 82.8 per cent relative to end-2012. Companies within Communications and Finance remained highly leveraged while companies within Retail and Other recorded the lowest leverage ratios for the review period. Specifically, the ratio for Communications and Finance increased moderately to 159.8 per cent and 85.3 per cent, respectively at end-2013 from 148.7 per cent and 84.6 per cent at end-2012, reflecting a deterioration in the risk profile of these sectors (see Figure 4.12). The ratio for Retail and Other averaged 40.1 per cent at end-2013 relative to 41.0 per cent recorded the prior year.

Irrespective of weak domestic economic activity and the impact of the NDX, overall profitability of listed companies increased for 2013 relative to the previous year.

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12 Financial leverage ratio is measured as the ratio of total liabilities to total assets. A debt to asset ratio in excess of 65.0 per is typically associated with excessive debt. Notably, the two insurance companies were delisted during 2013.
In particular, the asset utilization ratio for listed companies as measured by average return on assets (ROA) increased to 5.0 per cent at end-2013 from 2.8 per cent at end-2012, reflecting the performance of companies mainly within Retail and Manufacturing (see Figure 4.13). Notably, Finance, Conglomerate and Other recorded lower ROA relative to the previous year. Furthermore, despite posting improved ROA for 2013, Communications continued to record the lowest ROA, primarily as a result of the operation of one entity. In addition, the ratio of net profits to revenues for listed entities grew in 2013 relative to 2012. This ratio increased to 22.1 per cent from 13.3 per cent at end-2012. Retail, Conglomerate and Finance continued to record the highest profit margin ratios while Communications and Manufacturing recorded the lowest ratios (see Figure 4.14).

The weighted price to earnings (P/E) ratio for listed companies improved in 2013 relative to 2012. At end-2013, the weighted P/E ratio across the sectors averaged 1.6 relative to a ratio of 1.0 at end-2012 (see Figure 4.15). With the exception of Finance and Manufacturing, all sectors recorded P/E ratios below 1.0.\(^{13}\) Notably, Communications recorded a negative P/E ratio of 0.04\(^x\) largely due to the operations of two Communications sector entities which recorded negative earnings per share.

The solvency ratio, for listed companies remained relatively high.\(^{14}\) However, at end-2013, the capital to asset ratio declined marginally to 17.2 per cent relative to 18.0 per cent at end-2012, mainly reflecting the delisting of two major insurance companies (see Figure 4.16). Of note Communication recorded a negative ratio and was due to the operations of one entity as this institution’s liabilities exceeded its asset position.

There was a deterioration in the ratio of operating expenses to revenues in 2013. This ratio increased marginally to 67.6 per cent for listed entities in 2013 relative to 66.6 per cent in

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\(^{13}\) Generally, a higher P/E ratio indicates that investors are expecting higher earnings growth in the future.

\(^{14}\) The regulatory capital to asset benchmark for financial sector entities as defined by the Financial Services Commission is 6.0 per cent.
2012. The increase was attributed to declines in revenues (11.4 per cent), as expenses were lower year-on-year (9.8 per cent) due to cost containment by listed entities. Notably, with the exception of Other, all listed sectors recorded lower efficiency ratios relative to end-2012. This was reflected in an increase in median inter-quartile range across listed sectors relative to the previous year (see Figure 4.17).

4.4. Public sector debt & DTIs’ exposure
DTIs’ exposure to public sector debt declined in 2013 relative to 2012. The decline occurred in a context where subsequent to NDX and the signing of the EFF, the GOJ was largely absent from the market during 2013 relative to 2012.\textsuperscript{15,16} Furthermore, the reduction in DTIs’ exposure to public debt was reflected in a decline in the ratio of public sector loans and securities to DTIs’ assets to 15.5 per cent at end-2013, relative to 17.3 per cent at end-2012 (see Figure 4.18).\textsuperscript{17} Additionally, the ratio was well below the previous five year annual average of 19.3 per cent. The performance for 2013 was mainly influenced by a 3.2 per cent decline in DTIs’ holdings of public sector securities for the review period.

4.4.1 Public sector indebtedness & performance
Public sector debt as a share of GDP increased to 135.3 per cent at end-2013 from 130.4 per cent at end-2012, reflecting a faster pace of growth in public sector debt relative to GDP (see Figure 4.19). The deterioration in the ratio was primarily influenced by a sharp increase in the external debt stock. For 2013, the external and domestic debt stock grew by 15.2 per cent and 5.9 per cent respectively, relative to respective growth of 2.8 per cent and 12.7 per cent for 2012 (see Figure 4.20). The uptick in external debt largely reflected loan receipts from the Inter-American Development Bank and the IMF, as well as the impact of depreciation of the exchange rate. Further, growth in the domestic debt primarily reflected

\textsuperscript{15} During 2013, the Government reduced its presence in the market substantially issuing two debt instruments relative to twenty four instruments in 2012.
\textsuperscript{16} The NDX was one of the pre-conditions to the signing of a 48-month EFF with the IMF. The successful completion of the NDX resulted in lower coupons, re-fixed margins and extended maturities on GOJ domestic bonds.
\textsuperscript{17} Exposure to public sector debt is measured by public sector loans and securities as a share of DTIs assets. Public sector comprises Public Entities and Central Government.
the impact of the conversion Clarendon Alumina Partner (CAP) debt, previously recorded as external Government Guaranteed debt.

The fiscal stability (FSR) ratio which captures the stability of government finances improved marginally in 2013. Of note, the FSR stood at 1.1 at the close of the review period, relative to a ratio of 1.2 at end-2012. This performance occurred against the background of curtailment in expenditure which resulted in a lower fiscal deficit relative to the previous year. Additionally, other debt sustainability indicators with the exception of external debt to exports of goods & services improved relative to 2012 (see Figure 4.21).

Notably, the successful completion of the NDX programme and the signing of a four year EFF aided in improving the sustainability of the debt profile of the GOJ during 2013. For 2013, domestic fixed rate instruments as a share of the total debt stock increased by 11.8 percentage point to 67.9 per cent, while the share of variable rate instruments declined to 32.1 per cent at the close the review period (see Figure 4.22). Additionally, the extension of the maturity profile of the domestic debt portfolio arising from the NDX resulted in reduced refinancing risk to the Government. More specifically, the proportion of domestic debt due to mature in 5 years or less declined to 33.4 per cent at end-2013 from 53.2 per cent at end-2012 (see Figure 4.23).

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18 The FSR is computed as the ratio of overall fiscal balance to total revenue less 1 (one). The closer the FSR is to zero indicates more stable government finances.
4.5. Non-bank financial sector exposure

4.5.1 Private sector debt & securities dealers’ exposure
Consistent with the weak economic environment, the exposure of the twelve largest SDs to private sector debt remained low during 2013.\(^{19}\) The ratio of private sector debt to assets for the SDs increased marginally to 2.1 per cent at end-2013 relative to a ratio of 1.8 per cent at end-2012 (see Figure 4.24). Notably, of the twelve SDs, only seven institutions had exposure to private sector debt. Private sector debt held by SDs as a proportion of capital stood at 15.8 per cent at end-2013 which represented an increase of 2.2 percentage points, relative to end-2012. This was due mainly to a larger increase in private sector debt relative to the increase in capital.

SDs’ loan quality ratio, as measured by private sector NPLs to private sector loans, increased to 19.2 per cent at end-2013, relative to 9.5 per cent at end-2012 (see Figure 4.25). The deterioration in the loan quality ratio for the top twelve SDs, largely reflected the operations of one institution. Additionally, there was a sharp decline in the coverage ratio for SDs which deteriorated to 55.2 per cent at end-2013 relative to 101.2 per cent at end-2012 (see Figure 4.25). This decline was mainly due to a sharp increase in NPLs relative to loan loss provisioning.

4.5.2 Public sector debt & securities dealers’ exposure
SDs’ exposure to public sector debt declined during 2013.\(^{20}\) The ratio of public sector debt to assets fell to 39.4 per cent at end-2013 from 42.5 per cent at end-2012 (see Figure 4.26). This reduction reflected declines in the holdings of public sector securities. Similarly, public sector debt holdings to capital declined steadily to 298.4 per cent at end-2013 from 317.6 per cent at end-2012. However, the ratio was significantly higher than the ratio of 84.0 per cent for DTIs at end-2012.

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\(^{19}\) Private sector loans include loans to corporate sector entities and personal (household) loans.

\(^{20}\) Public sector debt is measured as the sum of public sector loans and public sector securities, while exposure is defined as public sector debt as a proportion of assets.
4.5.3 Public sector debt & insurance sector exposure

Similar to the SDs, exposure to public sector debt declined for the insurance sector during 2013. The ratio of public sector debt holdings to assets fell to 54.5 per cent at end-2013 relative to 56.3 per cent at end-2012 (see Figure 4.27). Of note, this ratio was 58.5 per cent and 39.7 per cent for the life and general insurance companies, respectively, at end-2013 relative to respective ratios of 60.6 per cent and 40.2 per cent at end-2012. As a proportion of capital, public sector debt holdings for the insurance sector declined to 236.7 per cent at end-2013 relative to a ratio of 246.3 per cent at end-2012, mainly influenced by the life insurance sector (see Figure 4.28).

4.6 Other asset exposures

The insurance sector’s exposure to equities and real estate investments continued to be relatively small compared to their exposure to public sector debt. For 2013, the ratios of equity investments to assets and real estate investments to assets for the insurance sector was 1.4 per cent and 0.9 per cent, respectively, in contrast to ratios of 1.5 per cent and 1.0 per cent for 2012. In comparison, the exposure of SDs to equity investments increased to 1.0 per cent relative to 0.6 per cent at end-2012, reflecting the operations of one major institution. The DTI’s, on the other hand, recorded a decline in their ratio of equities investments to assets to 0.7 per cent from 0.9 per cent the prior year (see Figure 4.29).

4.7 Pension industry exposure to governments securities, equities & real estate

Relative to other investment classes, the pension industry continued to record higher exposures to Investments in Governments Securities as well as Investment Arrangements (see Table 4.2). At end-2013, exposure to Investments in Governments Securities and Investment

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21 The data for the industry represents data for the pension fund as at end-September 2013.
22 Governments securities includes Government of Jamaica securities and other sovereign securities from the US, UK and Canada.
23 Pension industry refers to private pension plans within the regulatory oversight of the Financial Services Commission.
24 Exposure is computed as a per cent of total assets.
25 Investment arrangement includes investments in deposit administration contracts and pooled funds.
Table 4.2 Investment classes as a per cent of total assets (pensions industry)

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<td>283.0</td>
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Notes:
1/ Governments securities includes Government of Jamaica securities and other sovereign securities from the US, UK and Canada.
2/ An investment arrangement describes investments in deposit administration contracts and pooled funds.

Arrangements was 42.5 per cent and 29.0 per cent, respectively. This represented a decline relative to values of 43.9 per cent and 26.9 per cent, respectively, at end-2012. For the same period there was a slight decline in exposure to equities investments to 9.8 per cent from 10.3 per cent at the end-2012. This could be attributed to increased investor uncertainty in the domestic economy during the review period. However, pension fund exposure to real estate remained virtually flat at 5.9 per cent at end-2013 relative to end-2012.
5. Risks Assessment of the Financial Sector

5.1 Overview

Stress test results during 2013 showed that DTIs remained resilient to hypothetical liquidity, market, foreign exchange and credit shocks. Furthermore, exposure to credit risk decreased for 2013 as a result of significant improvement in the loan quality ratios for DTIs. Regarding foreign exchange risk, DTIs net open positions (NOPs) declined sharply for 2013, increasing the sector’s susceptibility to depreciation in the exchange rate. There was also higher exposure to interest rate risk and this occurred in a context where the NDX programme contributed to an increase in domestic bond duration factors during the review period. Furthermore, liquidity risk remained elevated at end-2013 in a context where there was a continued low level of excess reserves relative to end-2012 as well as the relative illiquidity of domestic GOJ bonds subsequent to the NDX.

NBFIs also continued to be robust to a wide range of market and liquidity shocks during 2013. However, based on aggregate stress test results, securities dealers showed increased exposure to foreign exchange, interest rate and liquidity funding risks for the review period.

5.2 Aggregate stress test assessment for DTIs

Aggregate stress test results showed that exposure to credit and market risks for DTIs remained significant during 2013 (see Figure 5.1). Notwithstanding these exposures, DTIs remained resilient to hypothetical liquidity, foreign exchange, market and credit shocks during the year. There were improvements in DTIs’ exposure to credit risks during 2013 and this was reflected in the performance of key credit risk indicators. In contrast, the exposure of DTIs to interest rate risk increased while large declines in NOP contributed to increased vulnerability to depreciation shocks. In addition, DTIs’ exposure to liquidity risks remained heightened relative to end-2012 (see Figure 5.2).

1 In Figure 5.1 the size of each node is scaled in proportion to the total value of exposure arising from the aggregate stress test results at end-2012 and end-2013.

2 In Figure 5.2, a darker shade for an indicator represents a stronger signal (signals range from 0 to 5) and a worsening in indicator performance.
5.3 Liquidity funding risk assessment for DTIs

Liquidity conditions worsened during 2013. This was partly influenced by the movement of GOJ deposits from commercial banks to Central Treasury Management System Accounts at the BOJ as well as the relative illiquidity of domestic GOJ bonds subsequent to the NDX. This contributed to a worsening in the liquidity risk exposure of the DTI sector during 2013, as evidenced by deterioration in several measures of liquidity risk during the year. In particular, the statutory liquidity ratio of the system declined steadily during the year, with the ratio totalling 27.1 per cent at end-2013 relative to 31.4 per cent at end-2012. Furthermore, DTIs supplemented liquidity during 2013 by unwinding foreign exchange positions as well as by accessing the Standard Liquidity Facility which was introduced by the BOJ during the final quarter of the year.3

Additionally, DTIs’ reserves of liquidity in excess of those prescribed by the Bank steadily declined and were below levels recorded in the previous year (see Figure 5.4). Furthermore, there was deterioration in the ratio of short-term assets to short-term liabilities for the commercial bank sub-sector during 2013 relative to the previous year (see Figure 5.5). Specifically, the ratio decreased to 39.8 per cent at end-2013, relative to 43.2 per cent at the close of the previous year.

Regarding funding sources, the DTI sector continued to rely primarily on deposits to fund its activities. Deposits as a proportion of total funding remained virtually flat at 82.3 per cent at end-2013 relative to 82.9 per cent at end-2012. However, reliance on other funding sources, such as repos and other funding liabilities, increased marginally at end-2013 relative to the preceding year. In particular, ‘repos’ as a source of total funding and ‘other funding’ liabilities as a share of total funding increased to respective values of 6.6 per cent and 11.2 per cent at end-2013 relative to 6.4 per cent and 10.7, respectively at end-2012.

3 On 16 December 2013, the BOJ introduced the Standard Liquidity Facility to improve the efficiency of its liquidity provision activities through repurchase arrangements.
In addition, there was also an increase in the loans-to-deposit ratio of 4.9 percentage points to 73.1 per cent at end-2013 (see Figure 5.3). The strong increase in this ratio was a result of an increase in the annual growth rate of loans which was partially matched by a slight deceleration the growth rate of deposits. Notwithstanding the tight liquidity conditions, funding risk stress tests results showed that all DTIs were adequately capitalised to absorb losses associated with a hypothetical decline in deposits during 2013. Specifically, following an assumed 10.0 per cent decline in average deposits, the post-shock CARs for all DTIs remained above the regulatory benchmark of 10.0 per cent. Conversely, there was a decline in the median post-shock CAR of the system during 2013, indicative of increased susceptibility of the DTIs to liquidity funding risk (see Figure 5.6).

5.4 Market risk assessment of DTIs

During 2013, all sub-sectors within the DTI system registered an increase in the value of foreign currency securities, largely reflective of revaluations due to the depreciation in the domestic currency (see Figure 5.7). Nonetheless, the composition of the investment portfolio of commercial banks and building societies remained heavily weighted towards Jamaica Dollar denominated securities and equities at the close of the review period. Conversely, the FIA licensees sub-sector held the largest proportion of their portfolio in foreign currency securities.

Perception of DTIs’ stability, as reflected in equity prices, deteriorated during 2013 relative to the previous year. This deterioration was reflected in the trend increase in the median implied volatility of assets for publicly-listed DTIs. In addition, there was a widening of the inter-quartile range for the implied volatility of assets for publicly-listed DTIs relative to end-2012 (see Figure 5.8).

4 The ‘hair cut’ (per cent loss in value) applied in the stress testing framework on liquidating each category of assets are: items in course of collection (10.0 per cent), non-liquid investments (25.0 per cent), accounts receivables (25.0 per cent), loans & advances (25.0 per cent), fixed assets (50.0 per cent) and other assets (50.0 per cent). The resultant losses are written off against the capital buffers first and then statutory capital.
There was a trend increase in the duration on domestic and foreign bonds during 2013, highlighting greater DTI exposure to interest rate risk on these securities relative to the previous year. The duration of domestic bonds held by DTIs increased to 1.7 at end-2013 relative to 0.8 at end-2012, reflective of the impact of the NDX programme on GOJ domestic bonds, while the duration on foreign currency securities increased to 2.6 at end-2013 relative to 2.2 at end-2012 (see Figure 5.9).

During 2013, there was increased volatility in the foreign exchange market particularly during the first half of the year (see Figure 5.10). This increased volatility along with the increased duration of foreign currency securities, resulted in a widening of the inter-quartile range of DTIs’ VaR estimates (see Figure 5.11). Additionally, the deterioration of the VaR estimates was also influenced by the lengthening of the duration on domestic currency securities.

### 5.5 Interest rate risk assessment for DTIs

The domestic dollar value of a percentage point to capital (DDVPC) for DTIs increased to 0.24 per cent at end-2013 from 0.19 per cent at end-2012, largely reflecting the impact of the NDX programme on the investment profile of DTIs (see Figure 5.12). At the same time, the DDVPC for foreign currency securities declined marginally to 0.08 per cent at end-2013 relative to 0.10 at end-2012 (see Figure 5.12).

Furthermore, at end-2013, interest rate risk stress tests indicated that all DTIs were adequately capitalised to absorb losses associated with large but plausible hypothetical increases in interest rates. However, the median quarterly post-shock CAR decreased after a hypothetical increase in interest rates (see Figure 5.13). In addition, DTIs were also robust to hypothetical interest rate declines during 2013, with all DTIs remaining above the 10.0 per cent CAR prudential benchmark.

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5 The DDVPC captures the dollar value loss of a percentage point increase in domestic bond yields as a proportion of the capital base.
5.6 Foreign exchange risk assessment for DTIs
In the context of the relatively tight Jamaica Dollar liquidity conditions, the NOP for DTIs declined substantially during 2013, increasing the sector’s susceptibility to depreciation in the exchange rate. DTIs’ NOP declined by 48.6 per cent to the equivalent of US$98.3 million at end-2013 relative to the equivalent of US$218.7 million end-2012 (see Figure 5.14). The lower NOP during the review period was observed across all sub-sectors, but was most pronounced for the commercial banks. Against this background, the NOP to capital ratio declined to 10.8 per cent at end-2013 relative to 24.2 per cent at end-2012.

DTIs’ foreign currency exposure to non-foreign currency earners increased marginally during the review period relative to the previous year. In particular, loans to non-foreign exchange earners as a proportion of total foreign currency loans increased to a quarterly average of 16.4 per cent compared to an average of 15.9 per cent for 2012. In addition, DTIs loans to non-foreign exchange earners totalled the equivalent of J$21.9 billion at end-2013 relative to $19.5 billion at end-2012 (see Figure 5.15).

Stress test results at end-2013, showed that all DTIs were adequately capitalised to absorb losses associated with significant hypothetical depreciations of the Jamaica Dollar vis-à-vis the U.S. dollar. For instance, subsequent to a hypothetical 30.0 per cent depreciation, the average median post-shock CARs across all DTIs was lower during 2013, relative to the average median post-shock CARs for 2012 (see Figure 5.16). Commercial banks were most impacted by the shock, with the median post-shock CARs for some institutions falling below the 10.0 per cent prudential benchmark during 2013.

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6 Long position in foreign currency assets include all currencies converted to US dollars.
7 Shocks are applied first to the exchange rate between the Jamaica Dollar and the US dollar. The corresponding exchange rates of the Jamaica Dollar vis-à-vis the Euro, the Canadian dollar, and the Pound Sterling are then incorporated based on historical correlations with the selling rate for the US dollar between the January and May 2003 foreign exchange crisis period.
The increased susceptibility of the commercial bank sector to the hypothetical depreciation shock for 2013 largely reflected the impact of short net open positions of a number of these institutions during the year. Building societies were minimally affected by the shocks applied in 2013 and generally exhibited slightly elevated median post-shock CARs relative to 2012. FIA licensees exhibited reduced exposure to the exchange rate depreciation shocks, with the post-shock CARs of these institutions remaining well above the 10.0 per cent prudential benchmark during 2013.

### 5.7 Credit risk assessment of DTIs

During 2013, there was reduced exposure to credit risk relative to the previous year. Nonetheless, credit risk continued to remain the most significant risk to DTIs based on aggregate stress tests results (see Figure 5.17). The NPLs to total loans ratio across all DTI sub-sectors improved during 2013. The ratio for the sector declined to a 5.4 per cent at end-2013 from 6.8 per cent at end-2012. The FIA licensees sub-sector reflected the most dramatic improvement in loan quality, reflective of loan portfolio restructuring within one entity, with the NPLs to total loan ratio declining to 1.7 per cent at end-2013 relative to a ratio of 17.3 per cent at end-2012. This was driven by a substantial decline in NPLs during the year. The commercial bank sub-sector reflected the least improvement in loan quality, with the NPL to total loan ratio declining by 1.6 percentage points to 5.2 at end-2013. At the same time, there was an increase in the loan write-off ratio, measured as loan write-offs as a per cent of total loans, to 1.8 per cent at end-2013 relative to 1.6 per cent end-2012 (see Figure 5.18).

Furthermore, the write-off ratio for the sub-sector also remained elevated relative to a five-year historical average of 1.5 per cent. At the same time, provisioning ratios increased substantially for FIA licensees during 2013. The ratio for the sub-sector increased to 143.2 per cent at end-2013 relative to 106.8 per cent at end-2012, partly driven by the strong decline in NPLs for the sub-sector during the year.

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8 Write-off rate is computed as the ratio of “charged off assets” for the year to “loans, advances & discounts (net of provisions)”
In addition, the ratio of provisioning to NPLs for the building societies sub-sector increased marginally by 1.0 percentage point to 67.2 per cent at end-2013 while the ratio for the commercial bank sub-sector increased to 104.7 at end-2013 from 99.8 at end-2012. The median NPL to capital ratio for DTIs was slightly lower for 2013 relative to 2012 (see Figure 5.19). The end-quarter ratio averaged 22.6 per cent for the review year relative to 27.6 per cent recorded for 2012. In addition, a narrowing of the inter-quartile range for NPLs to capital for DTIs underscored a lower exposure to credit risk. This ratio decreased to within an inter-quartile range of 11.7 per cent to 24.8 per cent at end-2013 relative to higher values of 17.7 per cent to 36.0 per cent at end-2012. Furthermore, the maximum ratio of NPLs to capital recorded across all DTIs also decreased sharply to 126.3 per cent at end-2013 from 159.0 per cent at end-2012.

Against the background of improvements in loan quality across all DTI sub-sectors, stress test results showed that the CARs for each sub-sector was adequate to absorb a hypothetical 30.0 per cent increase in NPLs at end-2013 (see Figure 5.20). More specifically, there was a significant improvement in the FIA licensees’ ability to absorb the hypothetical increase in NPLs during 2013 resulting from significant reduction in NPLs as well as improved capital positions during the year. Furthermore, the building society sub-sector remained the least susceptible to large but plausible hypothetical shocks to NPLs over the review year.

Reverse stress testing exercises conducted for the commercial banking and FIA licensee sub-sectors suggest that it would take a larger increase in the NPLs at end-2013 to cause the most vulnerable institution to have its CAR fall below 10.0 per cent CAR benchmark relative to end-2012 (see Figure 5.21).

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9 Improvement in the loan quality of FIA licensees was attributable to the sale of a portion of one entity’s stock of NPLs to a non-deposit taking affiliate.
10 Reverse stress testing involves identifying the increase in NPLs required to bring the weakest institution’s CAR below the 10.0 per cent minimum benchmark.
In particular, for the FIA licensees sub-sector it would take a significantly higher increase in NPLs of 2 100.0 per cent at end-2013 for the first FIA licensee to breach CAR benchmark relative to an increase of 180.0 per cent at end-2012, while the commercial banks reflected a required increase of 40.0 per cent at end-2013 relative to an increase of 10.0 per cent at end-2012. At end-2013, the building society sub-sector showed increased susceptibility to reverse stress testing assessments, as it would take a smaller increase in NPLs of 170.0 per cent to cause the most vulnerable institution to have its CAR fall below 10.0 per cent, relative to an increase of 180.0 per cent in NPLs at end-2012.

5.8 Liquidity funding risk assessment of SDs

Within the context of prevailing tight liquidity conditions, liquidity funding risk exposure of the SDs sector deteriorated slightly during 2013. The ratio of short-term assets (less than three months) to short-term liabilities declined to 31.7 per cent from 32.7 per cent at end-2012 (see Figure 5.22). In particular, despite an increase in short-term assets of 1.0 per cent, there was a larger increase in short-term liabilities of 4.4 per cent for the review period. Stress test results for the twelve largest SDs showed that these entities would remain resilient subsequent to hypothetical shocks involving a 10.0 per cent reduction in retail repo-liabilities (see Figure 5.23). However, there was a marginal deterioration in the post-shock CAR at end-2013, relative to end-2012. In addition, there was increased exposure to liquidity funding risk reflected in a decline in the quarterly median post-shock CAR which averaged 17.8 per cent for 2013 relative to 19.2 per cent for 2012.

5.9 Market risk assessment of SDs

The composition of the investment portfolio of the SDs sector remained marginally more weighted in Jamaica Dollar denominated securities at end-2013.
Nonetheless, during 2013, there was an increase in the proportion of the investment portfolio in foreign currency securities, largely reflective of revaluations due to the depreciation in the domestic currency. As it relates to the end-quarter foreign currency securities as a share of total investments for 2013, the ratio for SDs averaged 48.5 per cent relative to 43.3 per cent for 2012. Notably, the relative proportions of domestic and foreign currency securities have been converging over the past two years. At end-March 2011, the Jamaica Dollar proportion was 60.0 per cent (see Figure 5.24).

VaR estimates for the SDs increased during 2013. This largely occurred in a context where there was lengthening of the duration of securities dealers’ foreign currency bond portfolios. The foreign currency bond portfolio recorded an increase in duration to 3.2 at end-2013 relative to 2.3 at end-2012 (see Figure 5.25). In addition, there was a marginal increase in the duration on domestic currency bonds relative to end-2012. There was also a sharp increase in the duration on these bonds for the March 2013 quarter, reflective of the impact of the NDX programme on GOJ domestic bonds. Furthermore, SDs’ highest VaR estimate for the year was 2.0 per cent of the investment portfolio, relative to a value of 1.0 per cent for 2012 (see Figure 5.26).

### 5.10 Interest rate risk assessment of SDs

Interest rate risk stress test results at end-2013 revealed increased susceptibility of SDs to large hypothetical shocks to interest rates relative to end-2012. The twelve largest SDs recorded a median post-shock CAR of 8.4 per cent at end-2013 subsequent to a hypothetical increase of 1100 bps/100 bps & 275 bps/15 bps in interest rates on domestic/foreign rate sensitive assets and liabilities, respectively, relative to a median post-shock CAR of 11.6 per cent at end-2012, following the same shock (see Figure 5.27).

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11 The subsequent decline in domestic bond duration reflected a shift towards shorter term domestic instruments.
5.11 Foreign risk assessment of SDs
During 2013, SDs showed increased susceptibility to depreciation shocks due to declines in the NOP of these institutions during the year. In addition, the median NOP to capital ratio declined to 6.5 per cent at end-2013 relative to 8.8 per cent at end-2012 (see Figure 5.28). Nonetheless, the SDs remained resilient to hypothetical exchange rate shocks during 2013. More specifically, the post-shock CARs of the SDs satisfied the 10.0 per cent benchmark as a result of the contemplated 30.0 per cent depreciation in the exchange rate (see Figure 5.29).

5.12 Liquidity funding risk assessment of ICs
Subsequent to a shock involving a 10.0 per cent loss of liquid liabilities, post-shock minimum continuing capital surplus requirements (MCCSRs) for the life insurance sector remained well above the regulatory benchmark of 150.0 per cent (see Figure 5.30). Similarly, the general insurance sector was also resilient to this contemplated shock with the post-shock MCT of all general insurance companies remaining above the MCT benchmark of 250.0 per cent during the review period.

5.13 Market and interest rate risk assessment of ICs
The exposure of the life insurance sector to market risks improved during 2013. The average quarterly VaR estimate for the sector remained relatively unchanged at 0.7 per cent for 2013 relative to 2012 (see Figure 5.31). In addition, the duration on domestic bonds declined marginally to 1.7 years at end-2013 relative to 1.6 years at end-2012 while the duration on the foreign bond portfolio declined to 4.4 years from duration of 4.8 years at end-2012.
Life insurance companies’ balance sheets remained robust to a large but plausible hypothetical increase of 1100 bps/100 bps & 275 bps/15 bps in interest rates on domestic/foreign rate sensitive assets and liabilities, respectively, in interest rates during 2013 as the post-shock MCCSRs, despite declining, were comfortably above the regulatory benchmark of 150.0 per cent (see Figure 5.32).

5.14 Contagion risk assessment of the domestic financial system

There was a general trend increase in inter-bank rates during 2013, with a faster pace of movement during the second half of the year. Average inter-bank rates increased during 2013 to a value of 5.5 per cent at end-2013 relative to a value of 4.1 per cent at end-2012 (see Figure 5.33). These increases were spurred by increased uncertainty related to counter-party and liquidity risks in this segment of the market. The presence of higher liquidity risk was supported by the fact that there was increased activity in the inter-bank market relative to 2012.

At end-2013, the commercial banks continued to be net borrowers in the inter-bank market, while securities dealers and building societies were generally net lenders (see Figure 5.34). In addition, similar to the prior year, the SDs had the largest net exposure on average over the year; both in dollar value as well as relative to the size of their capital base, indicating greater counter-party exposure (see Figure 5.35). More specifically, SDs’ net credit exposure as a share of capital in relation to the commercial bank sub-sector increased to 13.6 per cent at end-2013 relative to 10.2 per cent at end-2012. Stress testing of counter-party risk exposures for the financial system indicated that during 2013, building societies and SDs showed increased susceptibility to these shocks relative to end-2012.

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12 A large exposure is one that exceeds 10.0 per cent of a lending bank’s regulatory capital at the end of a period.
In particular, at end-2013 the median post-shock CARs for both sub-sectors were well below the post-shock CARs recorded at end-2012. However, commercial banks showed reduced susceptibility to these shocks relative to end-2012. At end-2013, the median post-shock CAR for commercial banks increased to 4.5 per cent from 4.3 per cent at end-2012 (see Figure 5.36).

13 Stress testing of counter-party risk exposures for the financial system involved the assessment of the hypothetical failure of a financial entity which exposed the financial system to the largest counter-party credit risk.
Figure 5.36  Counterparty risk exposures for the financial system at end-2013 (Scenario: Impact on CAR of the failure of institution(s) on financial entity with large net credit exposure)
6. Payments System Developments

6.1 Overview
During 2013, growth in overall average monthly Automated Banking Machine (ABM) and Point-of-Sale (POS) values remained strong, increasing by 11.7 per cent despite contractions in real wages. Conversely, the average value and volume of transactions by cheque declined during the year in the context of the phased reduction of the upper limit on transactions in the Automated Clearing House (ACH).

Despite tight liquidity conditions, activities in the JamClear systems, namely the JamClear-Real Time Gross Settlement (RTGS) and JamClear-Central Securities Depository (CSD), increased in value during 2013. The tight liquidity conditions experienced in 2013 was evidenced by the increase in usage of the Bank of Jamaica (BOJ) intraday liquidity facility, especially in the latter part of the year. These liquidity constraints resulted in the BOJ offering the Standing Liquidity Facility (SLF) in December to mitigate the liquidity risks within the system. Furthermore, the tight liquidity conditions were further compounded by some liquidity concentration risks within the payment system during 2013.

6.2 Traditional means of payment
There was stronger growth in currency in circulation during 2013. For the year, currency in circulation increased by 7.1 per cent to $58.6 billion relative to growth of 3.6 per cent for 2012. The growth in currency occurred against the background of an improvement in real sector activities during 2013. The average monthly level of currency in circulation as a share of GDP, however, decreased marginally to 3.6 per cent at end-2013 relative to 3.7 per cent at end-2012. On the other hand, average currency in circulation as a share of M1\(^1\) slightly increased to 45.2 per cent.

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\(^1\) Currency in circulation plus demand deposits in local currency.
cent relative to 45.0 per cent at end-2012 (see Figure 6.1).

There were lower declines in the average volumes and values of transactions by cheques during 2013 relative to 2012. These declines were in line with the continued reduction of the value threshold on transactions processed in the ACH to $2.0 million in 2013 relative to $3.0 million in 2012, thereby attempting to further improve payment system safety and encourage the use of real-time means of payment during 2013. Average monthly volume and value of transactions by cheque fell marginally by 0.2 per cent and 0.3 per cent to 1.5 million and $207.2 billion, respectively, for 2013. There was an increase in the proportion of inter-bank cheque payments to total cheque payments to 50.8 per cent at end-2013 relative to 48.0 per cent at end-2012 (see Figure 6.2 and Figure 6.3). Furthermore, the volume and value of proprietary or intra-bank cheque payments were lower relative to inter-bank cheque payments during 2013. The average size of intra-bank cheque payments ($123 888.1) was lower than the average size for inter-bank cheque payments ($128 045.3) for the review period.

6.3 Electronic payment instruments

In February 2013, the Guidelines for Electronic Retail Payment Service Providers was published by the BOJ in an effort to improve payments services in Jamaica. These guidelines are intended to, in part, boost consumer confidence in electronic means of payment and also promote financial inclusion. Against this background, there was growth in the use of electronic payment instruments during 2013. Average monthly ABM and POS value (combined) increased by 14.0 per cent to $38.0 billion relative to an increase of 11.9 per cent for 2012. There was, however, a marginal increase in ABM and POS volume (combined) to 10.4 per cent relative to growth of 10.3 per cent for 2012. The performance for 2013 occurred amidst higher unemployment levels and lower real disposable income in comparison to 2012 (see Financial System Sectoral Exposures). Furthermore, there was an increase in the number of ABM and POS terminals to 445 and 19 666 at end-2013 relative to 424 and 16 565 at end-2012.
respectively. Within this context, average monthly ABM value increased by 11.5 per cent for 2013 relative to an increase of 10.2 per cent for 2012 (see Figure 6.4). Additionally, average monthly ABM volume increased by 10.6 per cent relative to an increase of 8.4 per cent for 2012. Regarding POS transactions, average monthly value grew by 17.1 per cent for 2013 to $15.1 million (see Figure 6.5). Similarly, average monthly POS volume grew by 10.0 per cent for 2013 relative to growth of 13.6 per cent for 2012. In addition, the performance of measures of payment system safety through these payment instruments deteriorated during 2013. More specifically, ABM and POS intra-bank value and volume as a share of overall value and volume decreased to respective values of 67.0 per cent and 66.0 per cent at end-2013 (see Figure 6.6 and Figure 6.7).

Similar to 2012, an increased usage of credit cards occurred in the context of lower real wages and elevated inflation levels for the period. For 2013, average monthly values of US dollar and Jamaica Dollar-denominated credit card transactions done via the internet increased by 21.9 per cent and 15.1 per cent, respectively. There was a marginal decrease in the average monthly volume of Jamaica Dollar-denominated card transactions by 0.1 per cent. However, this represented an improvement relative to 2012 when there was a decline in usage of 10.6 per cent. Interestingly, there was an increase in the average monthly volume of US dollar transactions despite the continued depreciation in the Jamaican dollar vis-à-vis the US dollar.

The number of Jamaica Dollar denominated debit cards increased to approximately 2.3 million from 2.1 million at end-2012. Similarly, credit cards in circulation increased to 215,084 at end-2013 from 208,774 at end-2012. The increased usage of debit and credit cards during the period is indicative of greater consumer confidence in these payment instruments. At the same time, average monthly credit card receivables of commercial banks increased by 14.8 per cent to J$27,204.9 million at end-2013 relative to an increase of 10.5 per cent at end-2012.
6.4 Central securities depository system

The effects of the National Debt Exchange (NDX) in February 2013 were evident in the outturn for activities within the JamClear-CSD system. This resulted in a sharp uptick in activities within the system for February 2013 for the four types of securities traded (see Figure 6.8). This was especially evident in the movement of the GOJ CPI-indexed notes, reflective of uncertainty and low investor confidence in the domestic economy (see Figure 6.9). The difference in the volume of securities traded during 2013 relative to 2012 also highlighted the lower investor confidence throughout the period. Overall, the average monthly volume of CSD transactions fell by 3.5 per cent to 15,321 for 2013 following a reduction of 6.6 per cent for 2012. On the other hand, the average monthly value of CSD transactions increased to $1,861.9 billion for 2013 from $1,830.0 billion for 2012, largely due to the NDX in February. Essentially, the activities within the JamClear-CSD system reflected an active secondary market for securities.

In the context of the NDX and the signing of an EFF with the IMF, further inspection of the categories of activities within the JamClear-CSD system showed that there was a significant decline in the actual purchase and sale (DvP) of GOJ securities in 2013 (see Figure 6.10). In particular, there was a reduction in the value and volume of DvP activity by 51.0 per cent and 74.6 per cent, respectively, relative to declines of 4.3 per cent and 52.6 per cent for 2012.

6.5 Large value transfer system

During 2013, there was an increase in activities in the JamClear-RTGS system. In particular, the total value of RTGS transactions was $14,188.73 billion, reflecting an increase of 6.4 per cent relative to 2012 (see Figure 6.11). Additionally, RTGS volumes totalled 251,143 for 2013, increasing by approximately 25.0 per cent relative to end-2012 (see Figure 6.12). Consequently, the average RTGS credit transfer totalled $56.5 million, 6.6 per cent below the

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2 Volumes traded and transaction size are net of entitlement proceeds.
3 Refers to full delivery versus payment - outright purchase and sale of securities, that is, where there is the simultaneous exchange of cash and securities.
average RTGS credit transfer of $60.5 million for 2012. Furthermore, the Government became active in the JamClear-RTGS system by settling their accounts via the Accountant General’s Department instead of through commercial banks. This partially accounts for the increase in activity within the system.

RTGS monthly transaction values continued to show that the bulk of funds demanded and supplied were mainly concentrated within three institutions during 2013. The median percentage of funds demanded and supplied also remained relatively low during the year with most institutions being low net demanders and suppliers of funds (see Figure 6.13 and Figure 6.14). However, the net demand for funds increased during the second half of the year as the tight liquidity conditions intensified.

An analysis of the Risk Index for payment system concentration showed that payment concentration remained high for the review year. The Index value for the two most active banks increased to an average of 36.1 per cent for 2013 relative to an average of 33.9 per cent for 2012. The outturn in index value for the two most active banks was also reflective of the liquidity conditions that prevailed during the review period. The average Risk Index value for the other institutions remained at an average of 2.7 per cent for 2013 (see Figure 6.15). The level of concentration risk was also reflected in the Herfindahl index of payment activity. This index averaged 0.2, similar to the previous year thereby signaling some concentration within the large value transfer system in Jamaica (see Figure 6.16).

6.6 BOJ liquidity facility
There was a substantial increase in the usage of the BOJ intra-day repo facility during 2013 as a result of the tight liquidity conditions prevailing throughout the economy. The use of the facility increased by 70.6 per cent relative to 54.4

4 This measure is computed based on payments made and received by each bank as a share of overall payments for the system.
5 The calculation excludes the activities of the Accountant’s General Department, BOJ and the Automated Clearing House who are also participants in the RTGS system.
per cent for 2012 in terms of the value of funds provided. Of the sixteen participating institutions utilizing the BOJ intraday repo facility, the percentage of funds demanded by four institutions remained well over 50.0 per cent during most of the review period, indicative of liquidity concentration risks in the payment system (see Figure 6.17). The Bank’s provision of intra-day repos totalled $1 446.7 billion at end-2013 relative to $848.1 billion at end-2012 and was concentrated mainly in four institutions. The median size of funds demanded by institutions was higher in the second half of the year reflecting tighter Jamaica Dollar liquidity conditions during that period. Funds demanded during the second half of the year totalled $821 944.3 million relative to a total of $624 765.1 million up to end-June 2013 (see Figure 6.18). In this context, the BOJ introduced the SLF in December 2013 to improve its provision of liquidity support in order to alleviate the liquidity challenges faced by institutions.
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Asset Utilization</td>
<td>This is a ratio which reflects the overall yield on earning assets.</td>
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<tr>
<td>Automated Clearing House</td>
<td>A facility that computes the payment obligations of participants, vis-à-vis each other based on payment messages transferred over an electronic system.</td>
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<tr>
<td>Central Securities Depository</td>
<td>An institution which provides the service of holding securities and facilitating the processing of securities transactions in a book entry (electronic) form.</td>
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<tr>
<td>Certificate of Participation</td>
<td>A financial instrument in which an investor has a \textit{pro rata} share of lease revenue made by a municipal or government entity over a specified period.</td>
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<tr>
<td>Concentration Risk</td>
<td>The risk associated with the possibility that any single exposure produces losses large enough to adversely affect an institution’s ability to carry out their core operations.</td>
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<tr>
<td>Consumer Confidence Index</td>
<td>An indicator of consumers’ sentiments regarding their current situation and expectations of the future.</td>
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<tr>
<td>Credit Rating</td>
<td>A rating assigned to a borrower, which may be alphabetic or numerical, which indicates the probability associated with the party paying back a loan.</td>
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<td>Term</td>
<td>Definition</td>
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<tr>
<td>Credit Risk</td>
<td>The risk that a counterparty will be unable to settle payment of all obligations when due or in the future.</td>
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<td>Deferred Net Settlement</td>
<td>The settlement of transfer orders netted at designated times between or among counterparties in order to economize on the number and value of transactions.</td>
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<td>Delivery versus Payment</td>
<td>A mechanism which ensures that the transfer of payment from a payment system occurs if and only if the delivery of securities from a securities system occurs.</td>
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<tr>
<td>Disposable Income</td>
<td>The remaining income after taxes has been paid which is available for spending and saving.</td>
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<tr>
<td>Financial Conglomerates</td>
<td>Financial institutions under common ownership which undertake a wide range of activities such as banking, stockbroking, insurance and fund management.</td>
</tr>
<tr>
<td>Financial Intermediation</td>
<td>The process of channelling funds between lenders and borrowers. Financial institutions, by transforming short-term deposits or savings into long-term lending or investments engage in the process of financial intermediation.</td>
</tr>
<tr>
<td>Fiscal Deficit</td>
<td>The excess of government expenditure over revenue for a given period of time.</td>
</tr>
<tr>
<td>Foreign Exchange Risk</td>
<td>The risk of potential losses which arise from adverse movements in the exchange rate incurred by an institution holding foreign currency-denominated instruments.</td>
</tr>
<tr>
<td><strong>Funds Under Management/ Managed Funds</strong></td>
<td>The management of various forms of client investments by a financial institution.</td>
</tr>
<tr>
<td><strong>Gap Ratio</strong></td>
<td>The ratio of cumulative differences between interest bearing assets and liabilities over various time horizons (e.g. less than 1 year, 1-2 years) to total assets.</td>
</tr>
<tr>
<td><strong>Hedging</strong></td>
<td>Strategy designed to reduce investment risk or financial risk. For example, taking positions that offset each other in case of market price movements.</td>
</tr>
<tr>
<td><strong>Interest Margin</strong></td>
<td>The dollar amount of interest earned on assets (interest income) minus the dollar amount of interest paid on liabilities (interest expense), expressed as a percent of total assets.</td>
</tr>
<tr>
<td><strong>Interest Rate Risk</strong></td>
<td>The risk associated with potential losses incurred on various financial instruments due to interest rate movements.</td>
</tr>
<tr>
<td><strong>Intraday Credit</strong></td>
<td>Credit extended to a payment system participant that is to be repaid within the same day.</td>
</tr>
<tr>
<td><strong>Large Value Transfer System</strong></td>
<td>A payment system designated for the transfer of large value and time-critical funds.</td>
</tr>
<tr>
<td><strong>Liquid Ratio</strong></td>
<td>The ratio of average prescribed assets to average prescribed liabilities.</td>
</tr>
<tr>
<td><strong>Liquidity Risk</strong></td>
<td>The risk that a counterparty will be unable to settle payment of all obligations when due.</td>
</tr>
<tr>
<td><strong>Net Open Position</strong></td>
<td>The difference between long positions and short positions in various financial instruments.</td>
</tr>
<tr>
<td><strong>Non-Performing Loans</strong></td>
<td>Loans whose payments of interest and principal are past due by 90 days or more.</td>
</tr>
<tr>
<td><strong>Off-Balance Sheet Items</strong></td>
<td>Contingent assets and debts that are not recorded on the balance sheet of a company. They are usually noteworthy as these items could significantly affect profitability if realized.</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>Payment System</td>
<td>A payment system consist of the mechanisms - including payment instruments, institutions, procedures, and technologies - used to communicate information from payer to payee to settle payment obligations.</td>
</tr>
<tr>
<td>Payment Versus Payment</td>
<td>A mechanism which ensures that the transfer of payment occurs if and only if the final transfer of a counterparty payment is simultaneously received.</td>
</tr>
<tr>
<td>Preferences shares</td>
<td>Capital stock which provides a specific dividend that is paid before any dividends are paid to common stock holders and which takes precedence over common stock in the event of liquidation.</td>
</tr>
<tr>
<td>Prescribed Liabilities</td>
<td>These refer to a) deposit liabilities, b) reservable borrowings and c) interest accrued and payable on a) and b).</td>
</tr>
<tr>
<td>Real-Time Gross Settlement System</td>
<td>A gross settlement system in which payment transfers are settled continuously on a transaction-by-transaction basis at the time they are received (that is, in real-time).</td>
</tr>
<tr>
<td>Repurchase Agreement (Repo)</td>
<td>A contract between a seller and a buyer whereby the seller agrees to repurchase securities sold at an agreed price and at a stated time. Repos are used as a vehicle for money market investments as well as a monetary policy instrument of BOJ.</td>
</tr>
<tr>
<td>Retail Payment System</td>
<td>An interbank payment system designated for small value payments including cheques, direct debits, credit transfers, ABM and POS transactions.</td>
</tr>
<tr>
<td>Stress Test</td>
<td>A quantitative test to determine the loss exposure of an institution using assumptions of abnormal but plausible shocks to market conditions.</td>
</tr>
</tbody>
</table>
**Systemic Risk**

The risk of insolvency of a participant or a group of participants in a system due to spillover effects from the failure of another participant to honour its payment obligations in a timely fashion.

**Value at Risk (VAR)**

A metric or statistical technique that seeks to estimate the loss that an institution will not exceed over a specified time period with a given probability.