Bank of Jamaica

Financial Stability Report

2007

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Contents

Preface

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.[1] These components interact with each other as well as with other indirect participants in the system – such as households, non-financial 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 2007 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) domestic macro-financial develop-ments;
iii) global financial developments;
iv) financial system developments;
v) banking system exposures;
vi) risk assessment of the banking sector; and
vii) payment system developments.

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

[1] Financial institutions include *inter alia* banks, securities firms, insurance companies, unit trusts, mutual funds and pension funds. Financial markets include *inter alia* foreign exchange, money and capital markets. Financial infrastructure refers to payment and settlement systems.

1. Financial Stability Overview

Macroeconomic Environment

Despite significant challenges for the Jamaican macro economy, the financial sector remained broadly stable during 2007. Financial sector stability was achieved despite deteriorating conditions in the global financial market and fears of local contagion. Resilience in the financial sector occurred in the context of low exposure to the global credit crunch as well as higher consumer and business confidence for 2007 relative to 2006.

In a context of steady domestic interest rates, yields on Jamaica Dollar-denominated fixed income instruments remained relatively constant for the calendar year. The foreign exchange market was also relatively stable during 2007 when compared to 2006. This stability was engendered despite some bouts of demand pressures due to institutional portfolio realignment, particularly in the second half of the year, as well as increases in world commodity prices. In addition, the local stock market recorded an improvement in its position relative to 2006. The improvement in the index was mainly as a result of an improvement in earnings by listed companies as well as increased investor participation in the second half of the year.

Global Environment

Global financial market conditions were generally uncertain for the 2007 period. The uncertainty was reflected in financial volatility which stemmed from the sub-prime mortgage crisis in the United States as well as increased commodity prices globally. The subprime mortgage crisis was the primary influence on the erosion of global credit conditions. The deteriorating international environment influenced a slow increase in both the yields on GOJ global bonds and Emerging Market Bond Index (EMBI) during the second half of 2007.
The uncertainty in the global market was also highlighted through a deceleration of 0.1 percentage point in global economic growth to 4.9 per cent for 2007, relative to growth levels in 2006. This deceleration was primarily reflective of the outturn of advanced economies, in particular, the United States. Real GDP growth for selected developed economies is estimated to have declined to 2.5 per cent for 2006 relative to 2.9 per cent estimated growth the previous year.[2]

Growth figures for developing economies remained robust at 8.2 per cent, with the only regions registering a deceleration in growth being that of the Middle East and the Caribbean.

Another challenge faced in 2007 emanated from continued inflationary impulses in global commodity prices. Commodity prices, as measured by the IMF's Index of Primary Commodity Prices (IPCP), increased by 11.8 per cent in 2007. The expansion in the Index mainly reflected increases in the price of grains and Brent crude oil.

[2] The selected advanced economies are US, UK, Euro Area, Canada and Japan.

Financial System Developments

Developments in the domestic financial system in 2007 resulted in further deepening in the intermediation process. For deposit-taking institutions (DTIs) there was growth in loans of 27.6 per cent which outstripped growth in securities investments of 2.4 per cent for the review period. This loan expansion was the primary influence of the increase in DTI asset base of 13.7 per cent for 2007 compared to 16.3 per cent growth for 2006.

For much of 2007, interest rates continued the downward trend observed in the previous year. Consequently, net profits for DTIs continued to fall such that growth declined by 4.3 per cent for 2007. Nonetheless, DTIs continued to display balance sheet strength as reflected in capital relative to risk-weighted assets ratio of 15.7 per cent, well above the 10.0 per cent regulatory minimum. This was largely due to the significant growth in the asset base of DTIs even amidst turmoil in international credit markets.

The assets of non-bank financial institutions (NBFIs) increased in 2007 by 7.8 per cent, albeit at a slower rate than the 15.8 per cent growth recorded for 2006. Securities firms continued to dominate, accounting for nearly three quarters of the asset base of NBFIs. Similar to DTIs, net profit growth for NBFIs were constrained for 2007, especially for those institutions heavily invested in GOJ debt instruments.

Banking System Exposures

Despite some instability in the domestic and international environment during 2007, there were continued improvements in the banking system's resilience to shocks affecting corporate and household debt. Household debt held by the banking system increased by 33.4 per cent relative to 29.8 per cent during 2006. Corporate sector debt held by the banking system increased by 28.9 per cent, relative to growth of 19.4 per cent for 2006. Notwithstanding these strong increases, there was continued strengthening in the quality of credit to these sectors relative to 2006. The banking system's resilience to high exposures in corporate and household debt was underpinned by improvements in profitability as well as high levels of banking system capitalization.

There was continued reduction in the banking system's exposure to the public sector in 2007. At end-2007, the ratio of public sector debt to banking system assets declined to 22.5 per cent from 24.9 per cent at end-2006. However, the increased volatility in the domestic and international environment limited Government's efforts to minimize the impact of macroeconomic shocks on the debt portfolio. In particular, Government was unsuccessful in increasing the share of fixed rate instruments relative to variable rate instruments in the domestic debt portfolio. Fixed rate instruments as a share of the debt portfolio declined to 37.9 per cent at end-2007, relative to 44.0 per cent at end-2006. This declining share increased the GOJ's exposure to positive interest rate shocks within a high inflationary environment.

Risk Assessment of the Banking System

During 2007, the balance sheet of the banking system was significantly robust to absorb potential market and credit risk shocks. Core deposits stability as well as buoyant liquid assets bolstered the banking system's capacity to also absorb liquidity shocks. However, at end-2007, banks' liquidity gap profile for assets and liabilities maturing within one year deteriorated relative to 2006 as the banking system balance sheet became more negatively gapped over the short-term.

During 2007, interest rates on various domestic fixed income instruments displayed increased levels of volatility, particularly in the second half of the year, in a context of external shocks as well as deteriorations in domestic macroeconomic performance. In this context, interest rate value-at-risk (VaR) increased for all banking sectors for 2007. Nevertheless, the dollar value of a 100 basis points parallel shift in the GOJ domestic bond yield curve to capital (DVBP/Capital) for the entire banking system declined to an average loss of 0.7 per cent over 2007 relative to a loss of 1.27 per cent at end-2006. This outturn was primarily attributable to the merchant bank sector which reduced its exposure to long-dated domestic currency assets during 2007.

There was a marked increase in the volatility of the foreign exchange rate of the Jamaica Dollar vis-à-vis the US dollar during the second half of 2007 relative to both the first half the year as well as the entire 2006.

The increased volatility in the foreign exchange market coincided with a significant increase in the long net open positions of the banking system, particularly in US dollars, during the second half of 2007. Consequently, the aggregate foreign exchange rate VaR increased to 3.0 per cent of regulatory capital at end-2007 from 2.2 per cent at end-2006. However, foreign exchange risk was not a significant threat to the banking sector's stability due to increases in the level of capitalization over 2007.

Payment System Developments

The role of cash in the level of economic activity continued to increase for 2007. This was reflected in a 14.2 per cent increase the average monthly currency in circulation as a percentage of GDP relative to 2006. However, given strong growth in non-cash payments during 2007, the average monthly currency in circulation as a per cent of M1 declined by 0.2 per cent to 43.7 per cent at end-2007.

POS and ABM average transaction size increased by 14.2 per cent to $4 783.3 for 2007. However, the value of payments by cheque continued to dominate payments using ABM and POS. The average transactions size of cheque payments was $213 329.8 for 2007, an increase of 11.3 per cent over the average value for 2006.

The average transactions size of Customer Inquiry Funds Transfer System (CIFTS) transfers increased significantly to $95.1 million for 2007 relative to $80.3 million for

The continuation of the payment system reform programme in 2008 will ensure that large exposures to credit risk among CIFTS participants are reduced (see **Box 7.1**).

Outlook

Similar to the outlook for 2007, global commodity and financial markets will continue to pose significant risks to financial stability locally in 2008. These include risks to inflation and economic growth as well as greater financial market volatility.

The worsening financial impact of the US sub-prime crisis, the resulting global credit crunch and rising international inflation rates have increased the likelihood of rising international interest rates in 2008. The potential narrowing interest rate differentials between foreign and local currency denominated instruments during 2008 could have adverse balance of payments implications. Moreover, the slowdown in GDP growth internationally, consequent in large part on the sub-prime housing crisis, is anticipated to have an adverse impact on domestic growth. If the BOJ responds to domestic inflationary pressures by increasing rates, there may be limited adverse impact on portfolio flows and, hence the foreign exchange market. However, the combination of high interest rates and low income levels could hamper debt servicing to the banking system in 2008.

The impact of a sustained rise in domestic interest rates on credit demand could be significant during 2008, given the high household and corporate debt levels.

Household debt burden continued to increase robustly during 2007, reflecting strong growth in consumer and mortgage loans as well as a marginal decline in savings held with DTIs and NBFIs. Hence, potential interest rate increases and lower real domestic income for 2008, arising from high inflation, could reverse the trend improvement in household loan quality.

Domestic house prices (as proxied by the ratio of new residential mortgage loans per new mortgagee) increased exponentially in 2007 to $4.6 million relative to $2.4 million at end-2006.[3] This estimated doubling of prices reflected a surge in demand for houses due to lower mortgage rates. Additionally, the increase in access to below-market interest rate loans from the National Housing Trust, during the latter half of 2006, appeared to have triggered a house price boom.

An unfavourable macroeconomic environment during 2008 could set off a sharp housing price decline. However, in Jamaica, mortgage debt has remained relatively low relative to total household debt, despite an increase to approximately 18.0 per cent of disposable income in 2007 relative to 14.8 per cent at end-2006. Notwithstanding this relatively low share of mortgage debt, houses are the predominant source of retail loan collateral. Hence, a housing price 'bust' could still significantly increase overall household credit risk if the value of collateral of the banking system falls.

[3] This proxy also reflects the income effect of housing demand.

The corporate loan portfolio of the banking system continued to be dominated by the tourism sector. Additionally, there was an improvement in the credit quality of loans to tourism despite slowdown in growth for this sector during 2007. In spite of the low level of non-performing loans to the tourism sector, significant risk of deterioration in tourism growth due to the ongoing global economic slowdown could influence higher banking system losses on these loans.

The growth in popularity of several unregulated investments schemes posed a number of risks to the banking system during 2007.[4] These included, deposited funds by investment schemes on the liabilities side of bank balance sheets, as well as credit provision to investors in these schemes on the asset side. Notably, in relation to commercial banks, uncollateralized loans rose sharply by 21.0 per cent to 28.0 per cent of the total loan portfolio of commercial banks at end-2007 relative to end-2006. This growth compares with an annual growth rate of 1.0 per cent for 2006.

However, stress tests conducted by the Bank during 2007, indicated that the capital base of the institutions in the banking system was sufficient to withstand significant credit quality deterioration as well as sudden deposit withdrawals which could emanate from a fall-out in activities of the unregulated schemes (see **Box 6.1**). This result is primarily driven by the low non-performing loans of the banking system, adequate system liquid asset levels as well as a robust system capital base.

Slowdown in domestic GDP growth, high inflation and inflation expectations as well as the possibility of higher interest rates are expected to lead to moderation in credit growth from the banking system during 2008. In addition, if higher interest rates materialize, there could be greater competition for banking system deposits from securities firms; particularly given high concentration levels within the banking system (see **Box 3.1**). This scenario could further dampen DTI net interest income as a share of total income and, hence, net profits, if banks are unable to significantly boost earnings from non-traditional income. On the other hand, the profitability of NBFIs could increase in 2008, consequent on greater income from fixed income investments. Nevertheless, DTIs appear to have more than adequate capital levels to absorb potential losses.

[4] In the event that these schemes encounter financial difficulties, a sudden withdrawal of these funds may adversely impact the banking system.

2. Domestic Macro-Financial Developments

2.1 Overview

*Despite significant challenges for the Jamaican macroeconomy, the financial sector remained broadly stable during 2007 (see **Table 2.1**). This stability was achieved despite deteriorating conditions in the global financial markets and fears of local contagion. Resilience in the financial sector occurred in the context of low exposure to the global credit crunch as well as higher consumer and business confidence for 2007 relative to 2006 (see **Table 2.2**). Despite some episodes of instability in the foreign exchange market and lower domestic bond prices relative to 2006, the performance of the local equities market was credible in a context of favourable corporate earnings.*

Table 2.1
Selected Macroeconomic Indicators

	2004	2005	2006	2007
GDP Growth	1.0	1.4	2.5	1.1
Inflation - % Chng pnt to pnt	13.7	12.6	5.7	16.8
Food & Drink - % Chng	*18.4*	*11.7*	*5.0*	*24.7*
Oil - WTI (ann avg)	41.5	56.5	66.1	72.3
% Chng	*33.1*	*36.2*	*17.0*	*9.4*
CY Fiscal balance/GDP	-4.5	-4.4	-4.4	-5.3
CA /GDP	-5.8	-11.1	-10.6	-16.2[1]
NIR (US$BN)	1.86	2.09	2.32	1.90
NIR (wks of goods imports)	*27.3*	*25.6*	*25.2*	23.0
J$/US$ (ann wght avg)	61.3	62.5	65.9	70.6
% Chng J$/US$	*5.9*	*1.9*	*5.4*	*7.2*
Private Sector Credit - % Chng	19.4	13.4	29.6	31.1
NIR/M2	80.8	85.8	88.6	65.5

1. Provisional

Table 2.2
Indices of Consumer and Business Confidence

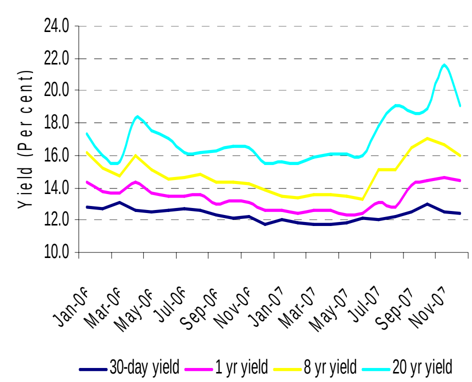
	Indices of Consumer Confidence	Indices of Business Confidence
1st Q 2006	124.0	119.3
2nd Q 2006	130.4	96.0
3rd Q 2006	133.2	110.1
4th Q 2006	132.2	110.5
1st Q 2007	139.9	126.7
2nd Q 2007	135.6	123.9
3rd Q 2007	163.0	134.2
4th Q 2007	147.7	109.8

Source: Jamaica Chamber of Commerce

2.2 Bond Market

During 2007, the BOJ focused on containing Jamaica Dollar liquidity, particularly in the second and third quarters through the use of special instruments and the sale of foreign currency, in order to facilitate orderly operations in the foreign exchange market. In the December quarter, the Government replaced a maturing US dollar indexed bond.[5] The positive response to investors' demand for a foreign exchange hedging instrument assisted in settling market instability.

Figure 2.1
End-Month GOJ Domestic Bond Yields



Source: Bloomberg

[5] This was the first time since November 2003 that the Government had offered this type of bond to the market.

Figure 2.2
GOJ Domestic Debt Zero-Coupon Yield Curve

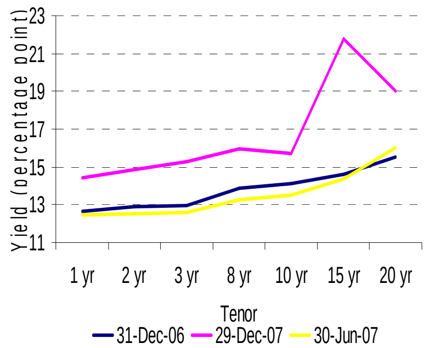


Figure 2.3
99th Percentile 10-day Change in GOJ Domestic Yields Over Prior 252 Trading Days

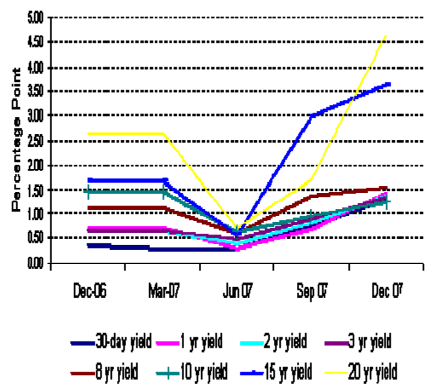
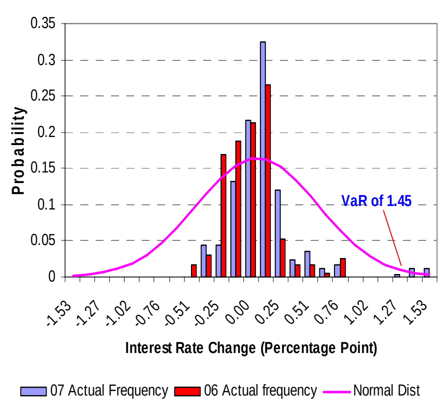


Figure 2.4
Distribution of Changes in 1-Year GOJ Domestic Yield Over 252 Trading days to end-2007



The BOJ was successful in containing Jamaica Dollar liquidity without adjusting domestic interest rates. In a context of steady domestic interest rates, Government of Jamaica (GOJ) bond yields remained relatively constant for the calendar year, with moderate increases in all yields during the last quarter (see Figure 2.1). However, during the December quarter, the yield curve for domestic GOJ debt instruments shifted upwards as a result of an increase in inflationary pressures. There was a significant premium in the long end of the GOJ zero-coupon yield curve, in particular the curve between the 10-year and 15-year tenors (see **Figure 2.2**). Notably, there was a reduction in the yields on all tenors in December, with that of the 20-year tenor being most significant (see **Figure 2.1**).[6]

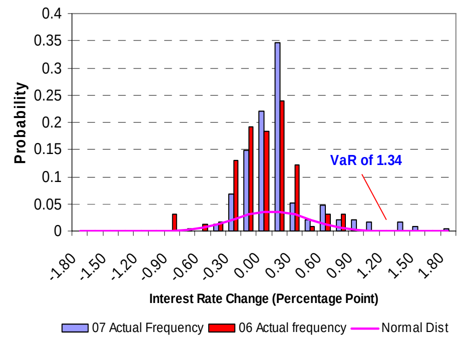
The slope of the yield curve for domestic GOJ debt instruments shifted upwards at end-2007 relative to end-2006.

The risk of loss associated with investment in GOJ instruments, as measured by the 99.0 per cent, 10-day interest rate value-at-risk (VaR), increased significantly at end-2007 relative to end-2006. On an end-quarter basis, the VaRs remained constant for all tenors at end-March 2007, compared to end-December 2006. Subsequently, the VaRs, particularly for the longer tenors, declined at end-June 2007. The VaRs associated with GOJ bonds then increased for all eight tenors at end-September and end-December; particularly in the case of the longer tenor bonds (see **Figure 2.3**).

[6] The increase in the yield on the 20-year tenor in May 2006 may have reflected the limited liquidity in domestic secondary bond market trading which can generate yields that are inconsistent with general investor sentiment.

The higher risk associated with longer tenors was reflected in a greater variance in yield changes for the longer tenor instruments (see **Figures 2.4 - 2.7**).

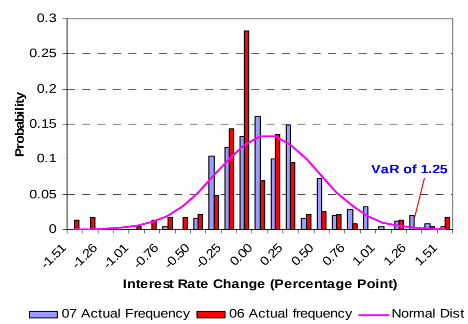
Figure 2.5
Distribution of Changes in 3-Year GOJ Domestic Yield Over 252 Trading Days to End-2007



2.3 Foreign Exchange Market

The foreign exchange market was relatively stable during 2007 when compared to 2006. Notwithstanding the overall relative stability in the market, there was some level of sustained demand pressures due to institutional portfolio realignment as well as increases in world commodity prices.

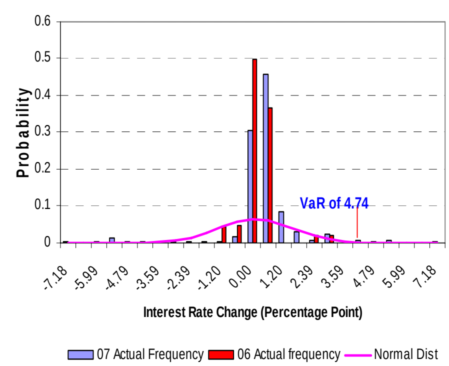
Figure 2.6
Distribution of Changes in 10-Year GOJ Domestic Yield Over 252 Trading Days to End-2007



Marked depreciation in the value of the Jamaica Dollar vis-à-vis the US dollar in the second half of 2007

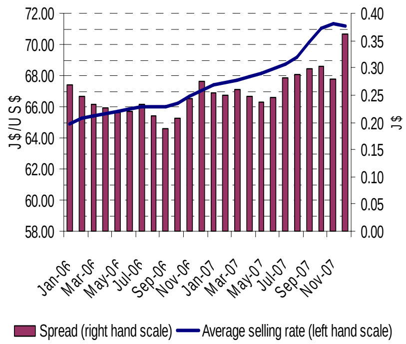
Despite the BOJ maintaining a strong presence in the market, the second half of the year was marked by increased levels of depreciation of the Jamaica Dollar vis-à-vis the US dollar (see **Figure 2.8** and **Figure 2.9**). The periods of instability in the market was to some extent also countered by the widening of the interest rate differentials due to interest rate cuts by the US Federal Reserve.

Figure 2.7
Distribution of Changes in 20-Year GOJ Domestic Yield Over 252 Trading Days to End-2007



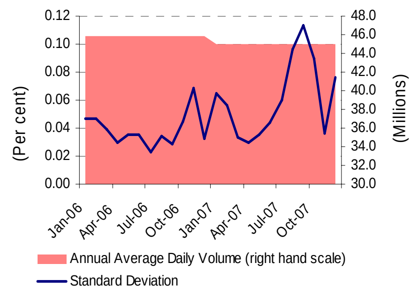
The risk of portfolio losses due to a large hypothetical appreciation in the value of the Jamaica Dollar relative to selected major foreign currencies decreased marginally for the first three quarters of 2007. However, there was a sharp increase in the portfolio risk associated with a hypothetical appreciation for the last quarter of 2007 (see **Figure 2.10**).

Figure 2.8
J$/US$ Foreign Exchange Rate



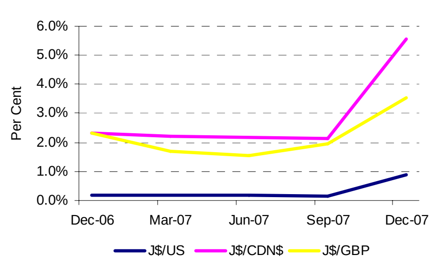
For 2007, the risk of portfolio losses arising from depreciation in the value of the Jamaica Dollar increased for all major trading currencies with the exception of the Great Britain Pound (GBP) (see **Figure 2.11**). The increased risk of loss from depreciation was substantiated by a reduction in the Amihud Index for foreign exchange market depth during the last quarter of the year (see **Figure 2.17**).[7]

Figure 2.9
Monthly Standard Deviation of Daily Changes in J$/US$ Exchange Rate



Volatility in the value of the Jamaica Dollar against the GBP and the Canadian dollar was much higher than that of the US dollar for 2007. This was as a result of continued depreciation of the US dollar against the GBP and the Canadian Dollar over the review year (see **Figure 2.12** - **Figure 2.14**).

Figure 2.10
99th Percentile Appreciation in Selected Foreign Exchange Rates Over Prior 252 Trading Days



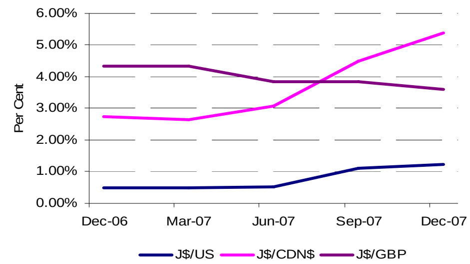
Liquidity conditions in the foreign exchange market declined during 2007 relative to 2006 (see **Figure 2.15**). There was a steady increase in the bid-ask spread for 2007 with a marked acceleration in trend closer to the end of the year, despite constant sales volume. The increase in the bid-ask spread indicated an increase in the cost of doing transactions in US dollars given the increased volatility in foreign exchange rates (see **Figure 2.8 and Figure 2.15**). The deteriorated liquidity conditions was one of the factors responsible for the strain felt in the market. The market was particularly illiquid during the second half of 2007, especially during September and December.

The increase in the JMD/USD bid-ask spread between the second and third quarter of the year occurred despite constant trading volumes.

[7] The Amihud index of market depth is measured by the daily change in asset prices divided by the daily level of trading (turnover).

During those months, gains from foreign currency trading by Authorised Dealers were significantly higher despite relatively constant trading volumes as depicted by strong increases in the Amihud return to volume indicator (see **Figure 2.16**).[8] This was corroborated by an increase in the Amihud index of foreign exchange market depth during the final quarter of 2007 (see **Figure 2.17**).

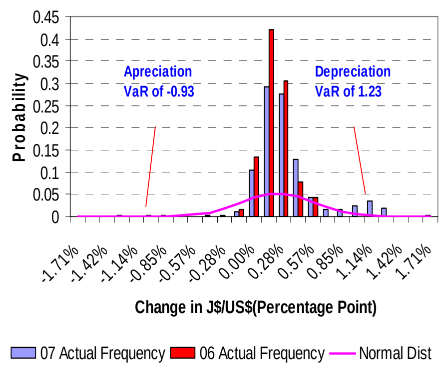
Figure 2.11
99th Percentile Depreciation in Selected Foreign Exchange Rates Over Prior 252 Trading Days



2.4 Stock Market

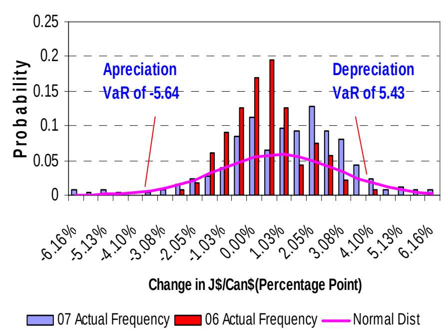
The Main Jamaica Stock Exchange (JSE) Index recorded an improvement relative to 2006. The rebound of the market started to take shape by mid-2007 (see **Figure 2.18**). The improvement in the index was mainly as a result of creditable earnings results by listed companies as well as increased investor participation during the second half of 2007. The growth in the market was, however, slightly tempered by uncertainty about the fiscal balances and instability in the foreign exchange market as well as the passage of Hurricane Dean.

Figure 2.12
Distribution of 10-day Changes in J$/US$ Over 252 Trading Days to End-2007



The Jamaica equities market displayed a greater level of volatility in 2007 relative to 2006. Similar to the foreign exchange market, the highest levels of volatility occurred during the December quarter (see **Figure 2.19**). High volatility levels in local stock prices were particularly pronounced during December and were associated with low liquidity levels in the market (see **Figure 2.20**).

Figure 2.13
Distribution of 10-day Changes in J$/CDN Over 252 Trading Days to End-2007



[8] The return to volume indicator is a measure of market liquidity. That is, the greater the (absolute) change in asset price for a given trading volume is the less liquid the market.

Figure 2.14
Distribution of 10-day Changes in J$/GBP Over 252 Trading Days to end-2007

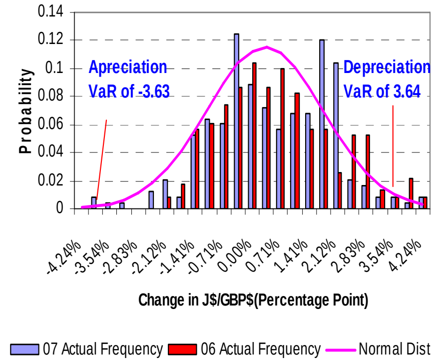


Figure 2.15
Bid-Ask Spreads & Average Daily Sales Volume- J$/US$ Exchange Rate

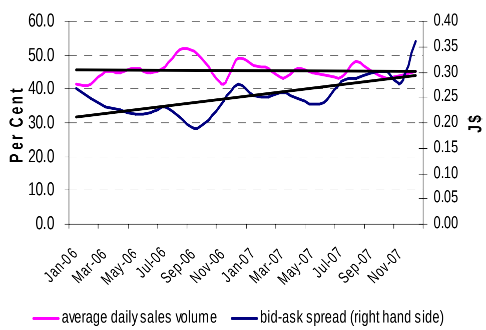
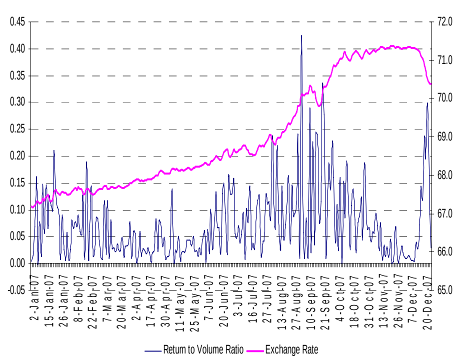


Figure 2.16
Amihud Return to Volume Indicator- J$/US$ Exchange Rate



The volatility and illiquidity in December were mainly associated with a heightened level of demand arising from the announced foreign acquisition of a major listed domestic company. This announcement was one of the main factors influencing a reduction in the average Amihud index of stock market depth for 2007 relative to 2006, indicating a greater level of participation by investors in the equities market (see **Figure 2.21**).

The Sharpe Ratio remained constant for the first half of 2007, improved at end-September (year-on-year) and subsequently worsened at end-December.[9] The negative end-quarter values for the Sharpe Ratio suggest that returns from overall investment in the JSE were not adequate to compensate for risk. Returns on the JSE Main Index were positive for the first three quarters of 2007, with the highest return being registered in the September quarter, which coincided with the best end-quarter Sharpe Ratio (see **Table 2.3**).

The risk of a large loss in the JSE Main Index, as measured by the 10-day VaR, declined to 8.5 per cent in the June 2007 quarter from 8.6 per cent for the March quarter. The VaR declined further to 8.4 per cent for the September quarter and remained constant for the December quarter. The marginal movement in end-quarter VaR over the review period indicated relative stability in the chance of a loss from investing in the stock market (see **Figure 2.19**).

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[9] The Sharpe Ratio describes how much excess return an investor received for the extra volatility endured as a result of holding riskier assets.

Figure 2.17
Amihud Index of Foreign Exchange Market Depth (Average Daily)

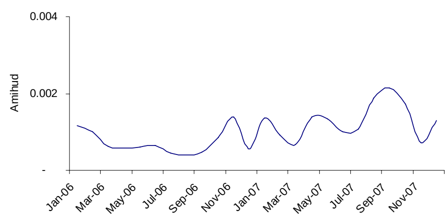


Figure 2.21
Amihud Index of Stock Market Depth

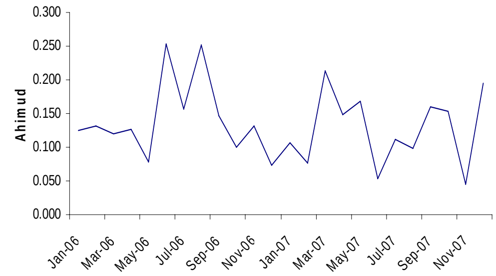


Figure 2.18
Regional Stock Exchange Indices

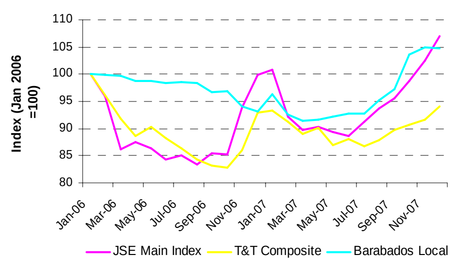


Figure 2.22
Distribution of Changes in JSE Main Index Over 252 Trading Days to End-2007

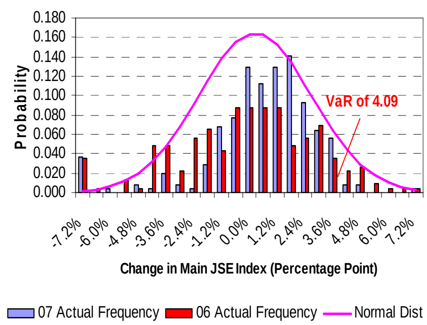


Figure 2.19
Monthly Standard Deviation of Daily Changes in the Main JSE Index

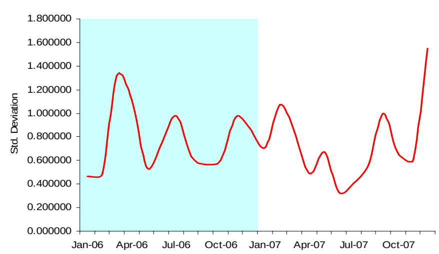


Table 2.3

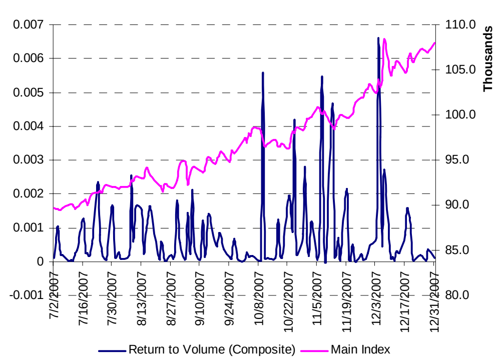
Stock Market Performance for 2007

Stock Performance Measures for 2007				
	Mar-07	Jun-07	Sep-07	Dec-07
Annual Change in JSE Main Index (Per cent)	4.3	5.1	11.7	-0.9
Standard Devaiton of JSE Main Inex (annualized)	16.3	16.0	15.9	12.5
Yield on 1 year GOJ instrument [1/]	12.6	12.4	14.1	14.4
Sharpe ratio of annual return	-0.5	-0.5	-0.1	-1.2
99th percentile of 10-day loss (Per cent) [2/]	-8.6	-8.5	-8.4	-8.4

[1/] Beginning of period yield

[2/] Change over a 10-day trading period, estimated over the prior 252 trading days

Figure 2.20
Amihud Return to Volume Indicator – JSE Main Index



3. International Financial Markets

3.1 Overview

Global financial market conditions were generally uncertain for 2007. Tightness in the international financial markets created from the US sub-prime mortgage crisis led to uncertainties in these markets. The uncertainty was reflected in high market volatility which stemmed from the sub-prime mortgage crisis in the United States and the potential cross-border spill over effects as well as increased commodity prices.

Figure 3.1
Growth rates of Selected Economies

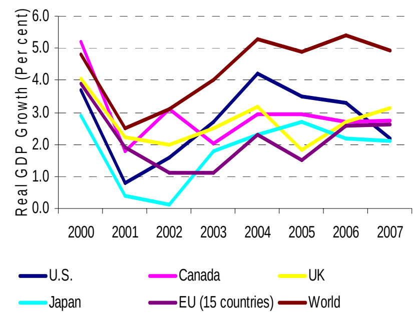
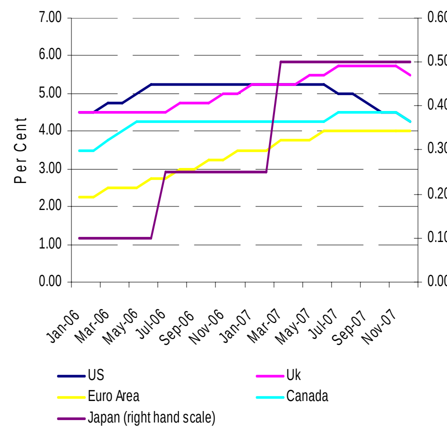


Figure 3.2
Policy Rates in Selected Developed Economies



Global GDP growth rate decelerates in 2007

3.2 Global Financial Markets

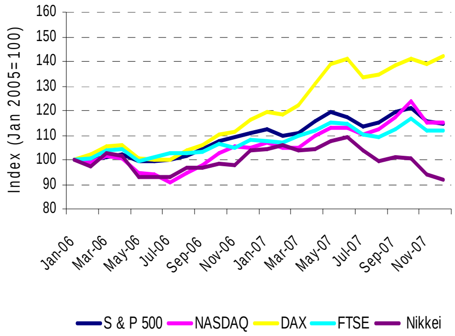
A deceleration of 0.1 percentage point in the growth of the global economy for 2007 to 4.9 per cent relative to 2006 was primarily reflective of the outturn of advanced economies (see **Figure 3.1**). In particular, a sharp decline in the United States' GDP growth rate to 2.2 per cent for 2007 from 3.2 per cent in 2006 had the greatest influence. The decline in US growth rate resulted from the sub-prime mortgage crisis which impacted the entire US housing sector. The crisis had its genesis in mortgage defaults due to increased interest rates which borrowers were unable to sustainably cover.

The sub-prime mortgage crisis had severe repercussions on the global financial market. A number of global financial institutions which held mortgage-backed instruments were exposed and as a result had to declare significant asset write downs.

World equities markets also had a lacklustre performance relative to 2006 as a result of the crisis (see **Figure 3.3**). In particular, the major stock markets, including those in the US, all recorded declines. Notably, the Japanese equities market recorded one of the largest declines.

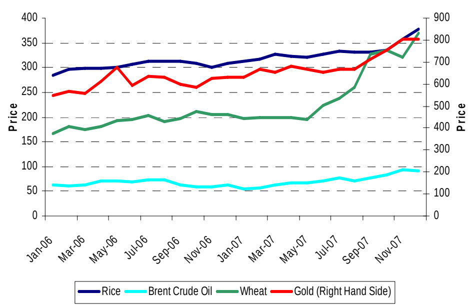
Stock markets perform poorly as a result of global credit crunch

Figure 3.3
Stock Indices of Selected Developed



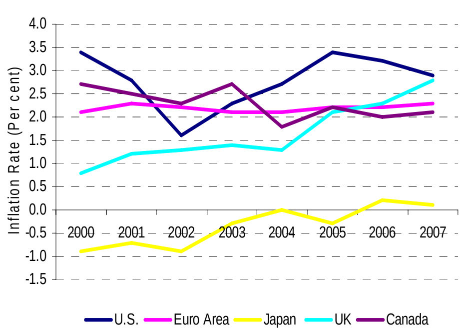
Another challenge faced in 2007 emanated from inflationary impulses in global commodity prices. Commodities such as rice and Brent crude oil experienced significant increases in prices for the review period relative to 2006 (see **Figure 3.4**). Major developed countries experienced increases in local price levels with the exception of the United States (see **Figure 3.5**).

Figure 3.4
Selected Commodity Prices



Despite the sub-prime mortgage crisis, growth figures for developing economies remained robust at 8.2 per cent, with the only regions registering a deceleration in growth being that of the Middle East and the Caribbean. Economic growth in the Caribbean remained robust as strong domestic demand offset higher expenditure on imports.

Figure 3.5
Inflation Rates for Selected Developed Economies



Coordinated central banks' open market operations to improve liquidity conditions, including interest rate cuts, helped to ease the global credit crunch during the review year. Interest rate cuts, although helpful, were dampened by high term premiums which remained elevated in the global financial system at end-2007.

Emerging market bond default risk increases in second half of 2007

There were some fluctuations in both the yields on GOJ global bonds and Emerging Market Bond Index (EMBI) for 2007 (see **Figure 3.6** and **Figure 3.7**). The volatility in emerging market bond prices, aside from the deteriorated credit conditions, was influenced by ongoing inflationary effects of rising commodity prices.

Investors' perception of a default on emerging market sovereign bonds (EMSB) for the first five months of 2007 declined, as credit default swap (CDS) prices for selected emerging markets reached their lowest values for the year in May 2007. Subsequent to May, the perception of risk associated with EMSB default increased for the rest of 2007 as reflected in higher CDS prices. The increased uncertainty surrounding EMSB default occurred in a context of global credit crunch and the perception of a fall in global credit quality (see **Figure 3.8**).

3.3 Foreign Exchange Markets

The US dollar depreciated against the Great Britain Pound and Euro in 2007, continuing the trend from 2006. The depreciation was as a result of the widening interest rate differential between the US and UK and Euro area. The US dollar also recorded a sharp depreciation of 15.8 per cent against the Canadian dollar in 2007, a reversal of the appreciating trend in 2006.

Figure 3.6
Comparative Bond Yields

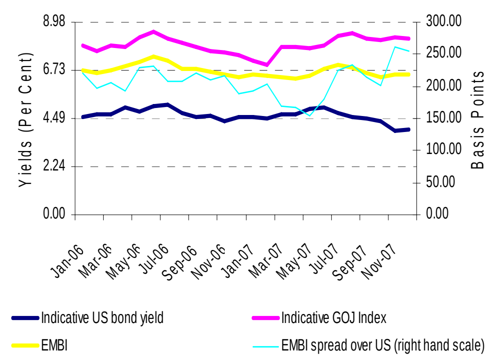


Figure 3.7
Selected Sovereign Bond Yields

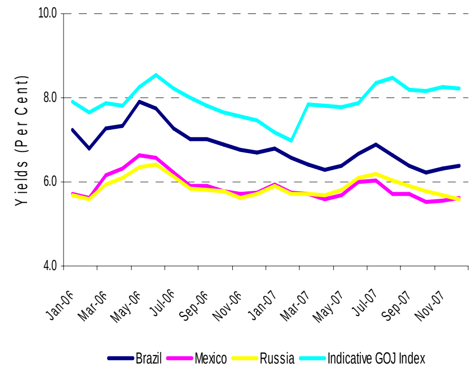
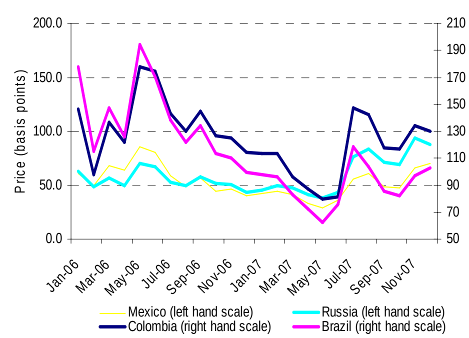


Figure 3.8
Prices of Selected 5-Year Credit Default Swaps



The improvement in the value of the Canadian dollar against the US dollar during 2007 was largely a result of increased demand as well as higher prices for Canada's raw material such as gas, oil, minerals and metals. The majority of this demand emanated from the booming Chinese economy.

Ongoing trade surpluses in China and sustained foreign investments allowed the Yuan to further appreciate against the US dollar. The appreciation of the Yuan against the US dollar was also attributable to expectations of cuts in US interest rates.

The ongoing depreciation of the US dollar against other major currencies continued to highlight the major problems in the US economy including: higher current account deficit, high federal government deficit; as well as the sub-prime mortgage crisis which eroded economic confidence and GDP growth.

3.4 Regional Financial Markets

Stock markets in the Caribbean recorded increases during 2007, despite an estimated decline in overall real GDP growth in the region.

The Trinidad and Tobago Stock Exchange (TTSE) composite index recorded an increase of approximately 1.2 per cent for 2007. This marginal performance occurred in spite of strong annual real GDP growth estimated at 10.0 per cent, albeit lower than the 12.0 per cent real growth estimated for 2006.[10]

Figure 3.9
Selected Major Economy Exchange Rates

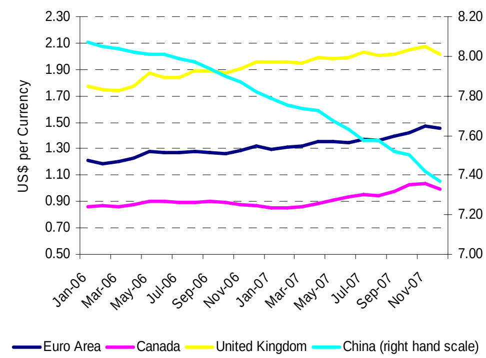
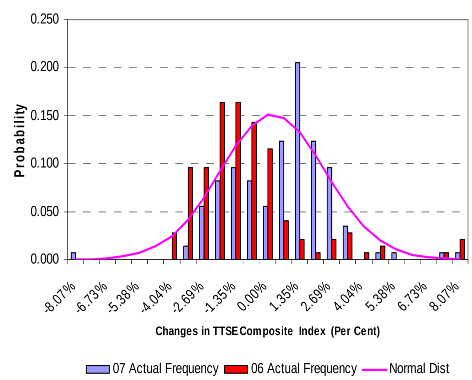


Figure 3.10
Distribution of 10-day Changes in TTSE Composite Index during 2007

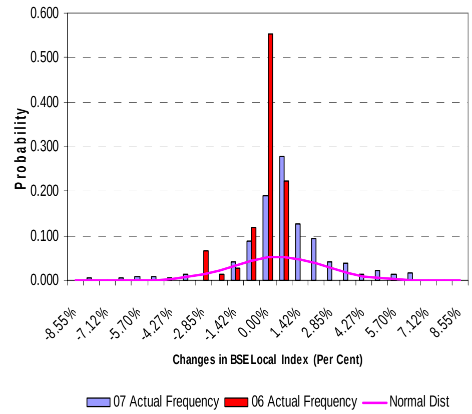


[10] See BOJ Annual Report for 2007.

Barbados equities market was the riskiest in 2007 when compared to Trinidad & Tobago and Jamaica

The Barbados equities market, as measured by the Barbados Stock Exchange (BSE) local index, also recorded an increase in value of approximately 12.6 per cent as at end-December 2007. This outcome was supported by an estimated increase in annual real GDP growth to 4.3 per cent for 2007 compared to 3.9 per cent real growth estimated for 2006. In addition, the strong growth in the equities market in Barbados occurred in a context of a lower interest rate and inflation environment and was also influenced by strong increases in market activity related to a number of announced mergers and acquisitions during the period.

Figure 3.11
Distribution of 10-day Changes in BSE Composite Index during 2007



The VaR results indicate that, at the 5.0 per cent level of significance, the BSE market was riskier than that of both the TTSE and JSE markets for 2007. The high risk level recorded for the BSE in comparison to the JSE and TTSE markets may have been as a result of speculative activities in that market for the period. The speculative activities, which began mid-2007, arose from uncertainties surrounding the merger between two companies in May 2007 (see **Figure 3.10-3.11**).[11]

[11] Barbados Shipping and Trading Co LTD and Neal and Massy Holdings LTD.

BOX 3.1 Trends in Concentration & Performance in Jamaica's Banking Sector[12]

Jamaica's banking sector is moderately concentrated. The Herfindahl-Hirschman index (HHI), a popular measure of concentration, declined gradually over the last three years, to total 0.2 at end 2007.[13] This decline was evidenced specifically in the commercial banking sector. The index for that sub-sector declined to 0.31 points at end 2007 0.30 at end 2005, while the Gini coefficient, another measure of widely used measure of concentration, declined to 0.55 at end-2007 from 0.58 at end 2005 (see **Figure 1**).[14]

The decline in concentration in the commercial banking sector during 2007 was associated with a marked increase in the ROA for the sector during the year (see **Figures 2 & 3**).[15] The reduced level of concentration in the sector was fuelled by declines in the loan portfolio concentration of the commercial banks. This was reflective of increased competition in the market for loanable funds during 2007 (see **Figure 5**). Nonetheless, this did not translate to a reduction in high intermediation margins, which remained in the range of 12.2 to 12.6 percentage points during the year.[16] This suggests the need for increased competition in the sector and price leadership behaviour given the duopolistic nature of the commercial banking sector.

Figure 1
Gini Coefficient for the Commercial Banking sector

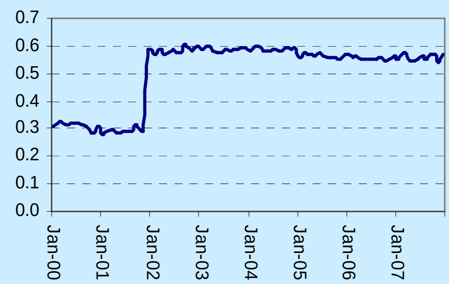
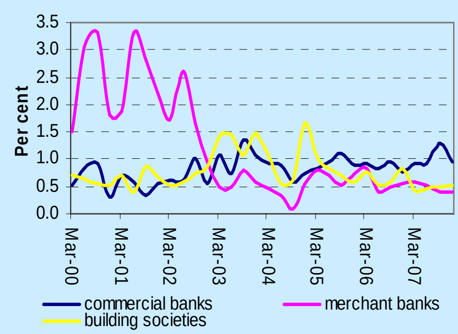


Figure 2
ROA – Banking Sector



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[12] The banking sector is defined as commercial banks, FIAs and building societies.

[13] The HHI is obtained by summing the squared market share of the banks in the industry. An index of 0.1 to 0.18 indicates moderate concentration. The index is defined as:

$$HHI(x) = \sum_{1}^{n} (x_i)^2;\ x_i \text{ is the market share of bank } i$$

[14] Gini coefficients range between zero and one (both inclusive); value of zero reflects that all banks are equal in size, while a value of one indicates complete inequality. The coefficient is computed based on the cumulative share (in ascending order) of banks in the industry portfolio. The coefficient is defined as:

$$Gini = \frac{2}{\mu n^2}\sum_{i=1}^{n} iX_i - \frac{n+1}{n};$$ n is number of observations,

μ is mean of asset share & X_i is cumulative share of bank i

A value of below 0.1 indicates an unconcentrated index, 0.1 – 0.18 indicates a moderate concentration, and above 0.18 indicates high concentration.

[15] Based on the structure conduct-performance (SCP) hypothesis, an increase in concentration should result in an increase in margins and supernormal profits since firms have the capacity to raise prices through monopolistic conduct. This suggests that a fall in concentration should influence a decline in profitability. However, a decline in concentration may be associated with increased profitability and high margins if firms collude and behave monopolistically.

[16] This represents the spread between overall average weighted loan and deposit rates.

The HHI for the building societies sector reflected an increase of 2.6 cent to close 2007 at 0.5 (see **Figure 3**). The increased concentration in the building societies' sector was reflected in the higher concentration in the loan portfolio. This was evidenced by an increase in the HHI for loans for the sector to 0.34 at end-2007 from 0.31 at end-2006 (see **Figure 5**). Despite the increased concentration, there was a marked decline in the intermediation margins and improved ROA for the sector. This is suggestive of increased competition and efficiency in the sector during 2007. There was also lowering of margins in the sector which is indicative of more competitive behaviour by these institutions.

For the merchant banking sector, the HHI increased by 4.7 per cent to close 2007 at 0.3. The increase in concentration during 2007 was associated with a marginal increase in the HHI for loans during the year. The increased concentration in the market for loanable funds was associated with an expansion in the intermediation margins and lower profitability in the sector during the year (see **Figure 4**). This may be indicative of reduced competition and an increase in inefficiency in the sector during the year.

Figure 3
Concentration Indices for the Banking sector

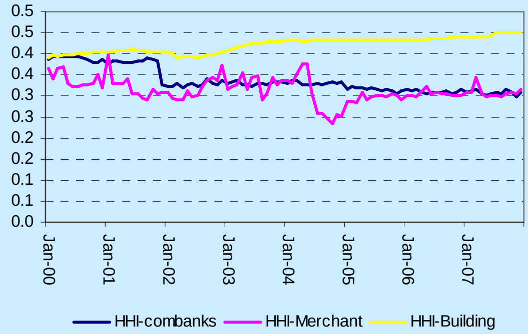


Figure 4
Intermediation Margins – Banking Sector

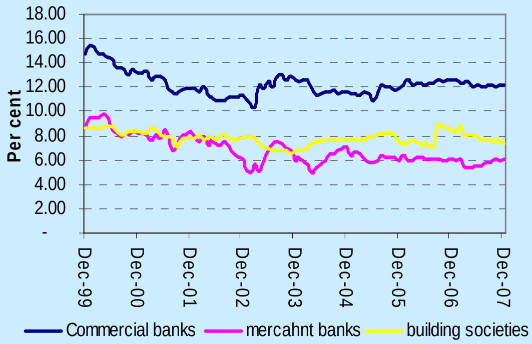
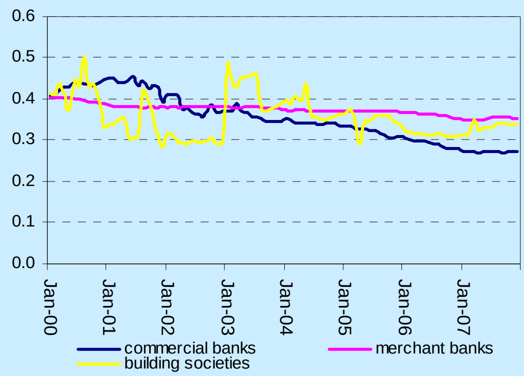


Figure 5
HHI Loans & Advances – Banking Sector



4. Financial System Developments

Figure 4.1
Comparative Asset Base of Deposit Taking Institutions (DTIs)

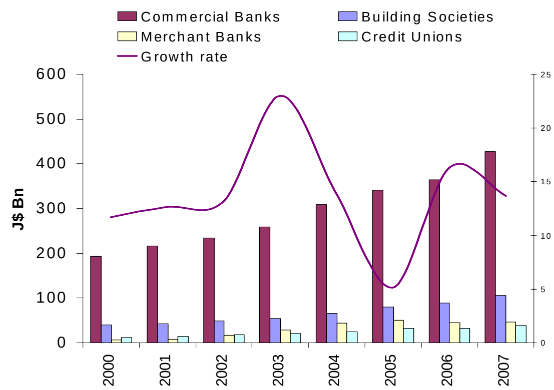


Figure 4.2
Deposit Taking Institutions Market Share (Total Assets)

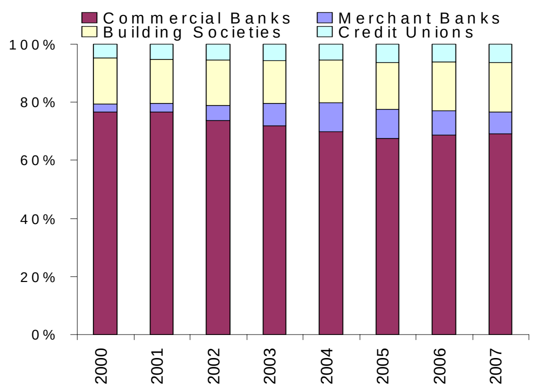
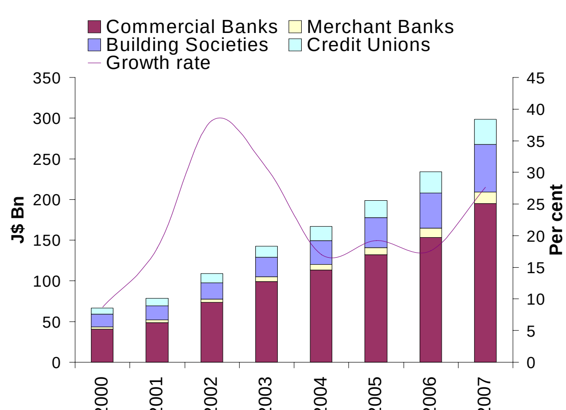


Figure 4.3
Gross Loans by Sector and System Loan Growth Rate



4.1 Overview

Developments in the domestic financial system during 2007 reflected further deepening in the intermediation process and occurred in a context where growth in loans outstripped that of securities investments by deposit-taking institutions (DTIs) for the review period. For much of 2007, interest rates continued the downward trend that started at the end of 2006. Consequently, net profits for the DTIs continued to fall for 2007. Nonetheless, DTIs continued to display balance sheet strength as capitalization was well above the regulatory minimum. This was largely due to the significant growth in the asset base of DTIs even amidst turmoil in the international credit markets. The assets of non-bank financial institutions (NBFIs) also continued to increase in 2007, albeit at a slower rate than in 2006. Securities firms continued to dominate, accounting for nearly 75.0 per cent of the asset base of NBFIs.

4.2 Deposit-Taking Institutions

DTIs recorded strong growth of 13.7 per cent in their asset base during 2007, albeit lower than the expansion of 16.3 per cent for 2006. The slower increase in assets during 2007 was partly due to a significant fall-off in growth of the commercial bank assets. As such, at end-2007, total assets for the DTIs was $701.6 billion, approximately $84.5 billion above the figure recorded at end-2006 (see **Figure 4.1**).

DTI asset base rose by 13.7 per cent for 2007 driven by strong loan portfolio expansion

Despite slower annual growth, commercial banks continued to dominate the asset base of DTIs during 2007, accounting for 69.5 per cent of system assets, approximately

$487.9 billion. Building societies and credit unions recorded the strongest growth in 2007 of 14.8 per cent and 14.6 per cent, respectively. As a result, total assets for these respective institutions amounted to $122.8 billion and $44.3 billion at end-year.

4.2.1 The Asset Position

There was a fall-off in investments in GOJ securities as well as *other investments* during 2007, which contributed to the slow-down in the growth in the asset base for the DTIs to 2.4 per cent relative to 17.8 per cent growth for 2006 (see **Figure 4.2**). However, strong growth in the loan portfolio of DTIs during 2007 of 27.6 per cent relative to 17.6 per cent in 2006 or $298.5 billion partially offset the impact of the weaker growth in investments. Loans which accounted for the bulk of total assets for DTIs in 2007, increased by 42.6 per cent relative to 37.9 per cent in 2006 indicating further deepening of the intermediation process.

During 2007, commercial banks recorded robust expansion in loans of 27.1 per cent or $195.1 billion relative to 15.9 per cent in 2006. Despite the stronger growth in the commercial banks' loan portfolio, these loans only accounted for 65.3 per cent of the loan portfolio of the DTIs in 2007 relative to 65.6 per cent in 2006 (see **Figure 4.3**).

Of the DTIs, building societies recorded the strongest growth in loans during 2007 of 32.3 per cent relative to 20.5 per cent during 2006. Merchant banks' loan portfolio grew by 27.5 per cent in comparison to 28.6 per cent growth at end-2006 (see **Figure 4.4**). The

Figure 4.4
Growth in Gross Loans by Sector

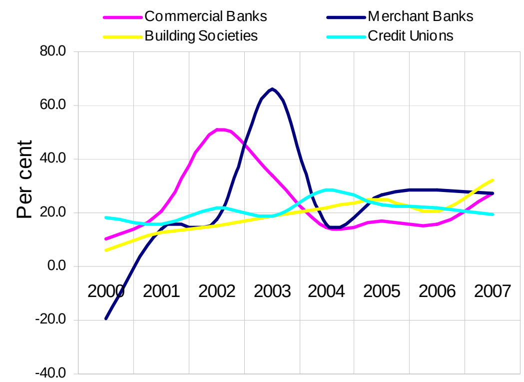


Figure 4.5
Growth in Gross Loans by Type

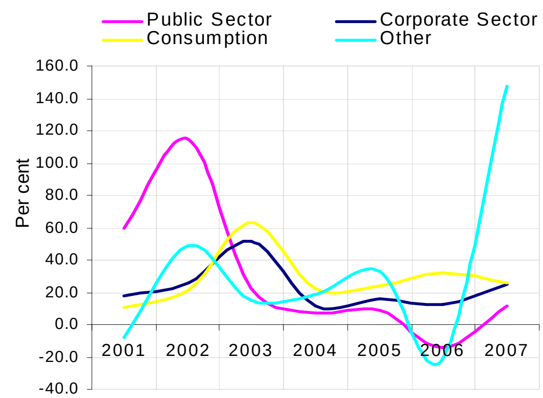


Figure 4.6
Distribution of Gross Loans by Sector

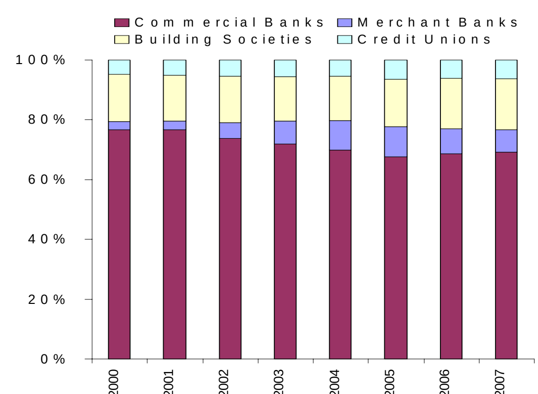


Figure 4.7
DTI Investments and Gross Loans as Percentage of Total Assets

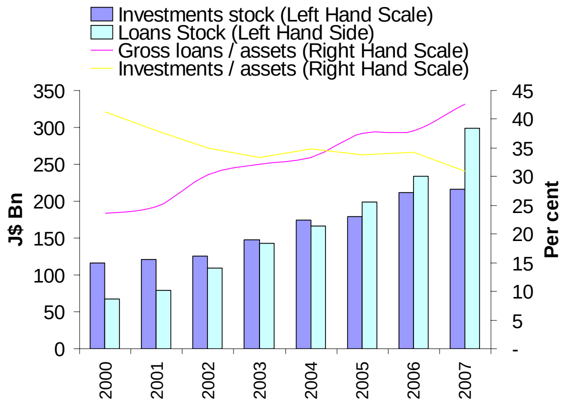


Figure 4.8
Financial Depth – Loan Portfolio/GDP

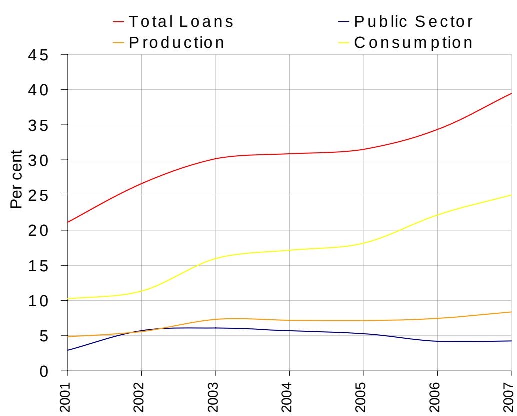
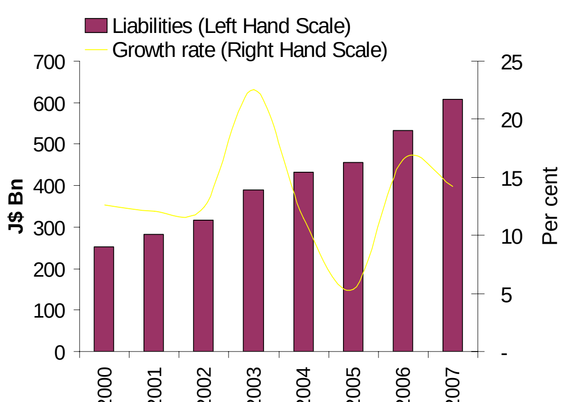


Figure 4.9
DTI – Liabilities and Growth Rate



loan portfolio of credit unions grew by 19.6 per cent during 2007, albeit slower than the 21.9 per cent recorded in 2006.

DTI loans were concentrated in consumption and the productive sectors, with loans to these respective categories totalling $63.5 billion and $189.4 billion for 2007 (see **Figure 4.5**).[17] In addition, production and consumption accounted for respective amounts of 22.0 per cent and 64.4 per cent of total loans to the private sector. Loans extended towards the productive and consumption sectors increased by in excess of 25.0 per cent in 2007. However, loans to 'other sectors' recorded the strongest growth in 2007 of 147.8 per cent, largely attributable to the significant expansion in loans to the electricity sector.[18]

Tourism was the primary recipient of loan funds for 2007

Similar to 2006, most of the loans to the productive sector went into tourism, with the sector accounting for approximately 13.0 per cent of total private sector loans during 2007. On the other hand, the majority of the loans to consumption sector were comprised of personal loans of $126.8 billion or 66.9 per cent of total loans to this sector.

Despite the significant growth in loans, the stock of investments continued to constitute a significant share of the asset portfolio of DTIs during 2007.[19] Moreover, the stock of investment for DTIs at end-2007 was $216.6 billion relative to $211.6

17 The consumption sector includes distribution, professional and other services as well as personal non-business loans to individuals.

18 Loans to *other sectors* include loans to Electricity production, Entertainment and Overseas Residents.

19 This slower rate of growth in 2007 was largely reflected in a fall-off in commercial bank investments in GOJ securities.

billion in 2006 or approximately 30.9 per cent of the share of total assets for the DTIs.

In the same context, DTIs continued to realign asset portfolios towards higher yielding loans. This was evidenced in a lower ratio of investments to total assets compared to loans to total assets. Investments accounted for 30.3 per cent of total assets at end-2007, while gross loans as a proportion of total assets were 42.6 per cent. This resulted in a spread between shares of 12.3 per cent for 2007 compared to 3.6 per cent in 2006 (see **Figure 4.7**).[20]

The financial depth of DTIs expanded during 2007, due to the shift in assets towards loans, reflecting continued strong demand for credit, amidst the low interest rate environment in 2007.[21] At end-2007, the financial depth ratio was 39.4 per cent relative to 34.3 per cent for 2006. The performance in the financial depth indicator was spurred on largely by the increase in loans to the consumption sector (see **Figure 4.8**).

4.2.2 Liability Positions

Deposits, which represent the bulk of the stock of liabilities for DTIs, increased by 14.0 per cent during 2007 relative to growth of 15.2 per cent in 2006. Consequently, the stock of liabilities in DTIs at end-2007 increased to $607.9 billion, or approximately 86.6 per cent of total assets, relative to $532.1 billion or 86.2 per cent of total assets in 2006 (see **Figure 4.9**).

Figure 4.10
DTIs Funding Sources

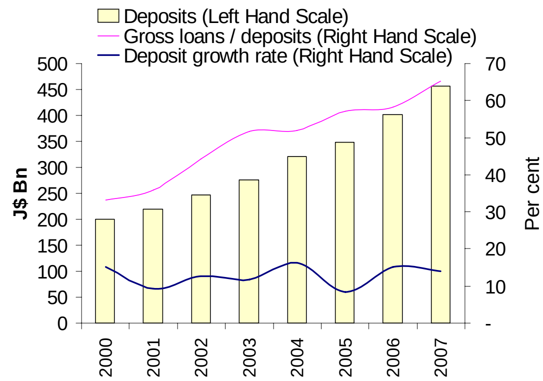


Figure 4.11
Gross Loans to Deposits

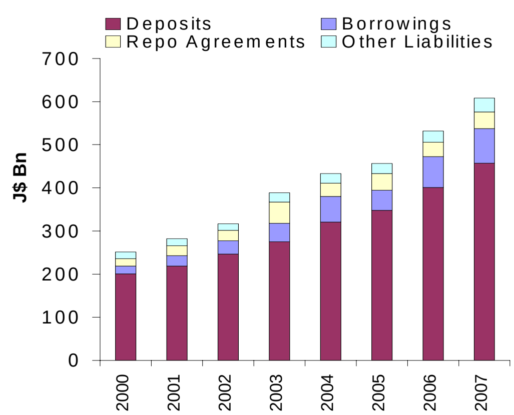
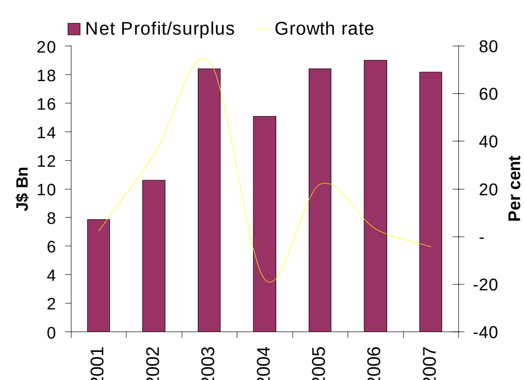


Figure 4.12
DTI Net Profits/Surplus



20 Investment stock is largely comprised of Government of Jamaica securities.
21 Financial depth is measured by the ratio of the loan portfolio to GDP.

Figure 4.13
Interest Income/Expense Ratio of DTIs

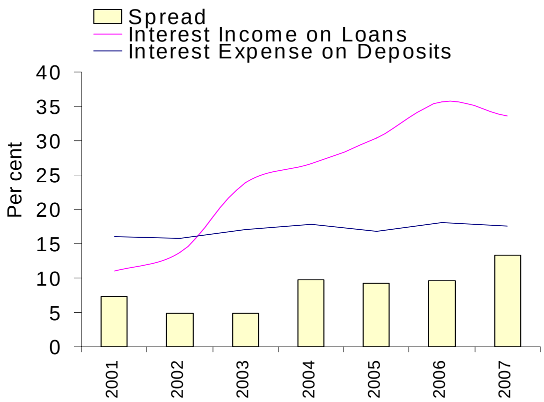
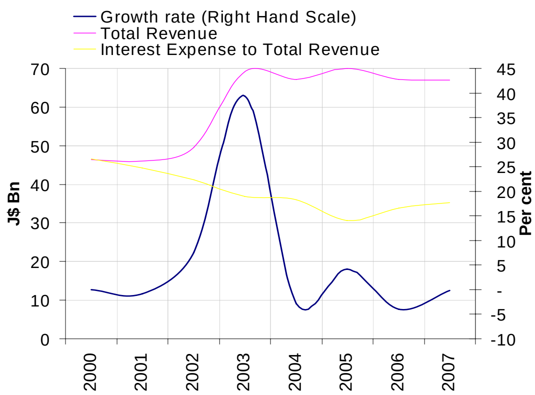


Chart 4.14
Revenue Growth and Interest Expense
to Total Revenue of DTIs



During 2007, deposits funded a larger share of loans relative to 2006. Accordingly, gross loans as a share of total deposits increased to 65.3 per cent at end-2007, compared to 58.4 per cent at end-2006 (see **Figure 4.10**).

At end-2007, deposits accounted for $457.1 billion or 75.1 per cent of total liabilities relative to 75.3 per cent at end-2006 (see **Figure 4.11**). Commercial bank deposits accounted for 70.2 per cent of system deposits relative to 70.6 per cent at end-2006. This was reflected in a reduction in the growth of commercial banks domestic currency deposits to 12.8 per cent in 2007 from 18.1 per cent in 2006. However, foreign currency deposits continued to increase in 2007 to 14.7 per cent from 9.9 per cent recorded end-2007.

The marginal decline in the ratio of deposits to total liabilities in 2007 occurred in the context of an increase in borrowings as a source of financing (see **Figure 4.11**). Similar to 2006, non-traditional sources of financing continued to increase in 2007.[22] However, DTIs borrowings grew by only 12.2 per cent in 2007 relative to 50.8 per cent at in 2006. The slower growth was largely due to the reduction in borrowings of commercial banks and building societies relative to 2006.

DTI net profits decline sharply in 2007

4.2.3 Earnings and Profitability

At end-2007, net profits of the DTIs totalled $18.1 billion, representing a 4.3 per cent decline relative to end-2006

[22] Non-traditional sources of funding are comprised mainly of funds acquired from other financial institutions (domestic and foreign currency).

(see **Figure 4.12**). The reduction in net profits for the period was most evident in credit unions which accounted for the largest decline of 64.8 per cent during 2007 relative to a growth of 13.7 per cent at end-2006. Commercial banks, building societies and merchant banks also recorded declines in net profits of 3.7 per cent, 8.9 per cent and 10.1 per cent, respectively.

The decline in net profits for the period reflected a fall-off in the net interest margin by 4.9 per cent relative to an increase of 12.8 per cent during 2006. The lower net interest margin largely reflected a 5.7 per cent reduction in interest income from loans during 2007 relative to a growth of 17.4 per cent in 2006 (see **Figure 4.13**).

The impact of the decline in interest income from loans for the review year was partly offset by a fall-off in interest expense on deposits. As a result, the *ex ante* spread widened by 13.4 per cent relative to a spread of 9.6 per cent for 2006 (see **Figure 4.13**).[23] In addition, the growth in net profits as percentage of surplus declined by 4.3 per cent during 2007 relative to an increase of 3.2 per cent in 2006.

During 2007, total revenue of DTIs continued to decline, albeit marginally, and totalled $67.0 billion at end-year, approximately $0.2 billion less than end-2006. The lower revenue performance during 2007 was in contrast to an increase in interest expense. As such, interest expense as a share

Chart 4.15
Net Interest Income of DTIs

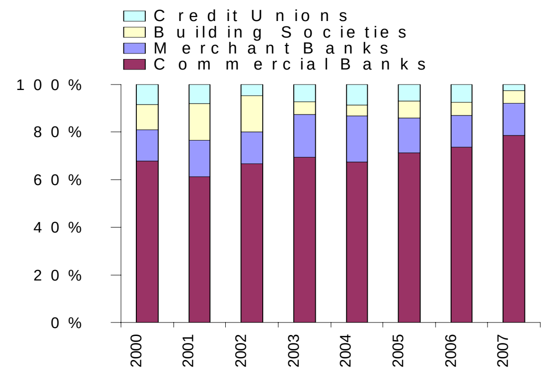


Figure 4.16
DTI Gross Income
(Six-Year Trend in Other Income and Gross Income Composition at end-2007)

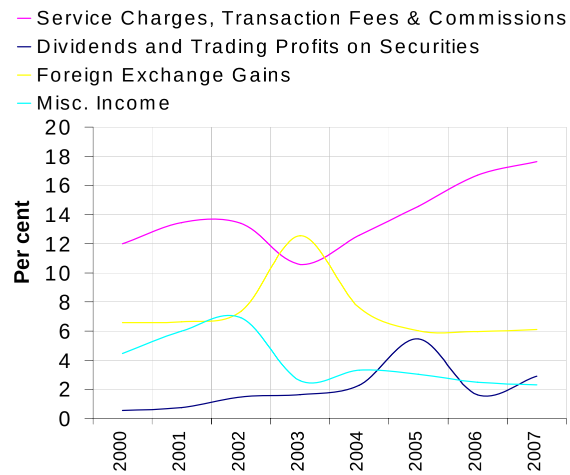
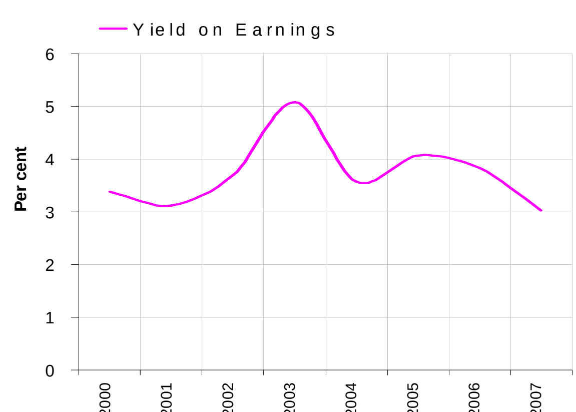


Figure 4.17
DTI Yield on Earning Assets



[23] The ex ante spread is the difference between the DTIs weighted average loan rate and the average weighted deposit rate.

Figure 4.18
DTI Return on Assets

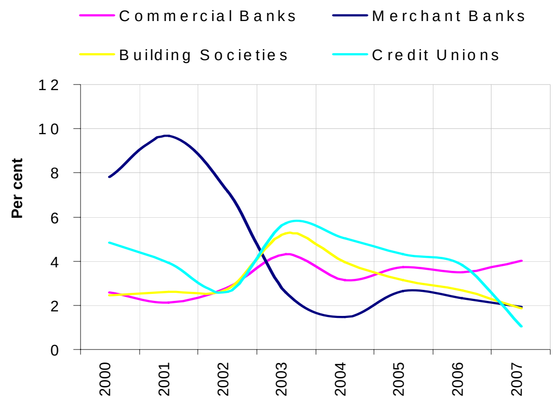


Figure 4.19
Trend in and Decomposition of ROE for Commercial Banks

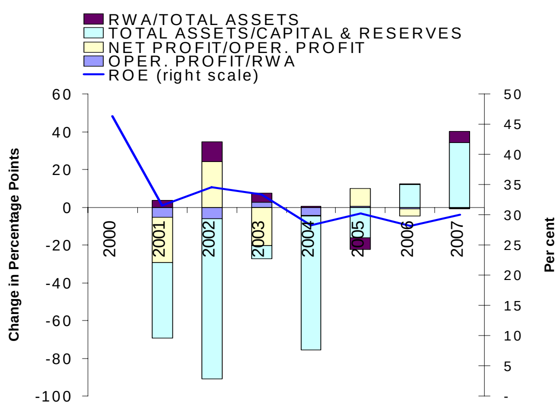
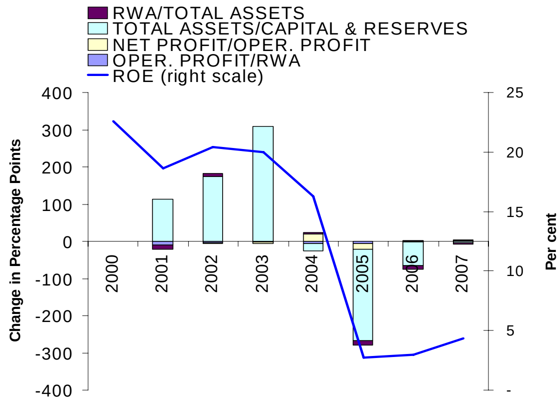


Figure 4.20
Trend in and Decomposition of ROE for Merchant Banks



of total revenue increased to 35.3 per cent compared to 33.9per cent in 2006 (see **Figure 4.14**).

Commercial banks continued to dominate the share of system revenues accounting for 77.4 per cent of DTI revenues relative to 72.0 per cent at end-2006. Building societies, credit unions and merchant banks accounted for 15.2 per cent, 4.2 per cent and 3.3 per cent, respectively (see **Figure 4.15**).

During 2007, *other income* increased by 6.2 per cent relative to 0.4 per cent growth in 2006. This was partly due to the significant growth in dividends and profits of 77.4 per cent during 2007 relative to a decline 67.9 per cent during 2006. *Service charges, transaction fees and commissions* which grew by 3.5 per cent during 2007 relative to 25.1 per cent in 2007 continue to dominate non-traditional sources of income. As such, the shares of *service charges, transaction fees, commissions* and foreign exchange gains, grew by 60.1 and 0.45 per cent respectively, relative to respective increases of 62.4 and 8.23 per cent for 2006 (see **Figure 4.16**). These marginal increases were largely due to a fall-off in the growth of fees on loans and other items.

Continued strong increase in DTI non-interest income from service charges, transaction fees and commissions in 2007

The weak performance in DTI net profits for 2007 were reflected in key profitability measures. The return on assets (ROA) for the DTIs was 2.84 per cent at end-2007, relative to 3.41 per cent at end-2006. Return on equity (ROE) also declined in 2007 to 21.1 per cent from 24.8 per cent at end-2006. These reductions were against the background of a fall-off in yields on earning assets to 3.0 per cent at end-2007, relative to yields of 3.8 per cent for 2006 (see **Figure 4.17**). Commercial banks were the most profitable sector for 2007, with a ROA of 4.04 per cent relative to the 3.5 per cent recorded during 2006. Credit unions, on the other hand, were the least profitable sub-sector during 2007 with ROA of 1.0 per cent, partly due to the fall-off in interest income on loans. This was in comparison to the previous year ROA of 3.8 per cent. Building societies and merchant banks recorded respective ROAs of 1.9 per cent and 1.94 per cent for the review year relative to respective ROAs of 2.7 per cent and 2.3 per cent during 2006 (see **Figure 4.18**).

The ROE for the commercial banking sector increased during 2007 to 30.0 per cent from 28.1 per cent at end-2006, largely reflecting an increase in operating profit margin and risk-adjusted income (see **Figure 4.19**).

There was a marginal increase in the ROE for the merchant banking sector during 2007 to 4.4 per cent from 3.0 per cent at end-2006. This increase stemmed from the growth in risk-adjusted income and pre-tax profit margin. The financial strength of merchant banks continued to develop during 2007 and was supported by improvements in efficiency and net-profits for the sector (see **Figure 4.20**).

The increase in building societies ROE to 25.0 per cent in 2007 from 20.3 per cent in 2006 reflected an increase in pre-tax profit margin, risk-adjusted income, and operating efficiency as well as, a decline in leverage (see **Figure 4.21**).

Figure 4.21
Trend in and Decomposition of ROE for Building Societies

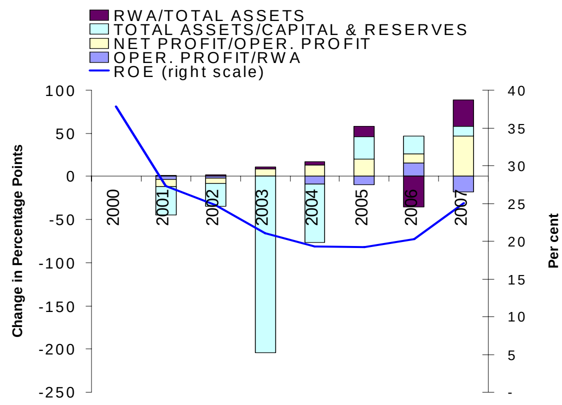


Figure 4.22
Trend in and Decomposition of ROE for Credit Unions

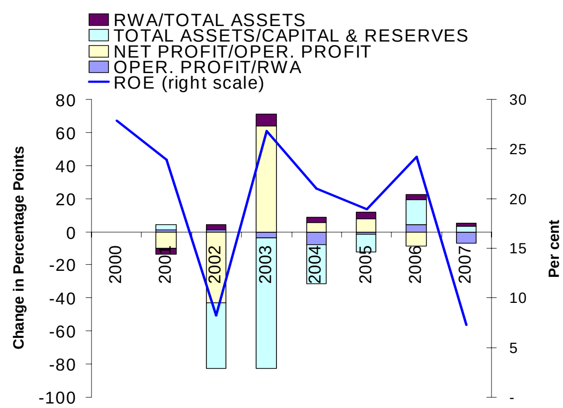


Figure 4.23
Asset Utilization for DTIs

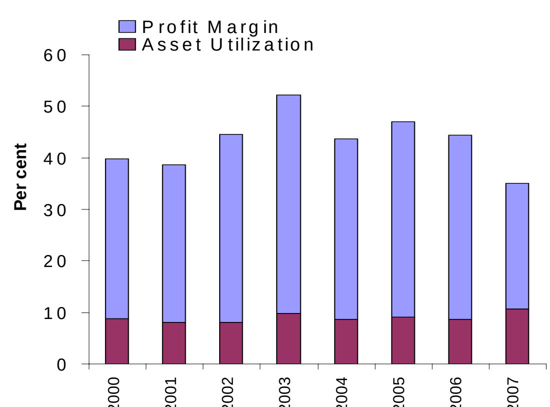


Figure 4.24
DTIs - Net Interest Margin per Sector

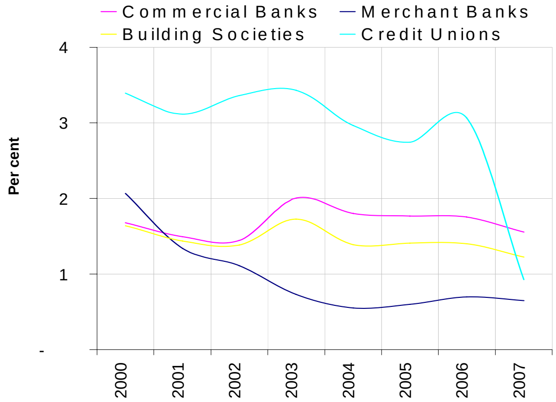


Figure 4.25
Non-Interest Expense to Gross Income for DTIs

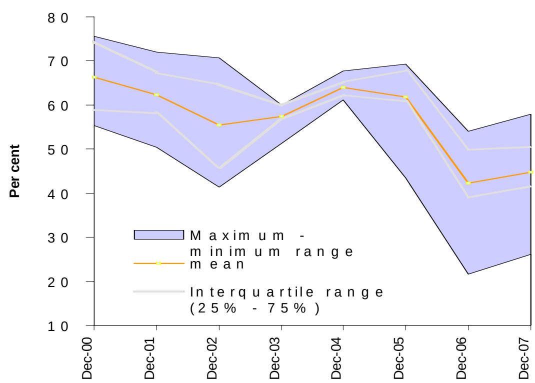
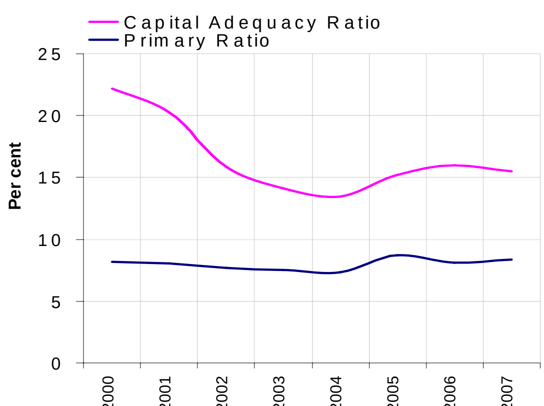


Figure 4.26
Capital Adequacy Ratio



Similar to building societies, there was a decline in the ROE for credit unions by 16.9 percentage points, largely reflecting a fall in risk-adjusted income (see **Figure 4.22**).

Net interest margin continued to be the main component of the asset utilization ratio for DTIs (see **Figure 4.23**). Commercial banks dominated the net interest margin of DTIs, accounting for 77.4 per cent at end-2007. The net interest margin for merchant banks increased by 10.5 per cent in 2007, relative to the 9.1 per cent growth recorded in 2006. Credit unions' net interest margin declined significantly when compared to 2006, while there was a small decrease in the net interest margin of building societies relative to 2006 (see **Figure 4.24**).

DTI non-interest expense as a percentage of gross income fell-off during 2007 to 48.5 per cent relative to 48.7 per cent during 2006, reflecting an improvement in the efficiency of all sectors during the year (see **Figure 4.25**).[24]

Staff costs dominate non-interest expenditure for DTIs in 2007

Non-interest expenses of DTIs during the year were dominated by staff costs, particularly in commercial banks, which increased by 2.4 per cent, relative to the 0.3 per cent growth for 2006.

4.2.4 Capital and Solvency

The balance sheets of DTIs were in good shape during 2007 as evidenced by robustness in their capital adequacy ratios (CARs). At end-2007, the CAR for the banking system was 15.7 per cent, albeit

[24] Operating efficiency is measured by the ratio of non-interest expense to gross income.

lower than the 16.9 per cent at end-2006 (see **Figure 4.26**).

The reduction in the CAR during 2007 was partly due to the increased risk appetite of DTIs during 2007 and was reflected in the significant increase in risk weighted assets (RWA) of the DTIs during the year. Increases in the statutory reserve fund and ordinary shares during 2007 contributed to a steady increase in capital accumulation during the period. Furthermore, the growth in mortgage loans, particularly from the building societies, was the main factor behind much of the growth in RWA during 2007 (see **Figure 4.27**).

The ratio of capital to assets increased during 2007, up to 8.4 per cent from 8.1 per cent recorded in 2006. This was against the background of strong growth in Tier 1 capital and a slowdown in the rate of decline in Tier II capital (see **Figure 4.28**). The decline in Tier II capital was mainly due to the reduction in preference shares in commercial banks.

Asset base of NBFIs grew at slower rate than DTIs asset growth in 2007

4.3 Non-Bank Financial Intermediaries (NBFIs)

The asset base of NBFIs increased by 7.3 per cent during 2007, although at a slower rate relative to the 15.8 per cent growth recorded during 2006. The stock of assets in NBFIs increased to $563.8 billion or approximately 74.5 per cent of GDP at end-2007 in comparison to $525.8 billion or 77.1 per cent of GDP at end-2006.[25]

[25] Non-bank financial intermediaries include life and general insurance companies, securities companies and exclude pension funds.

Table 4.1
Total NBFIs in Jamaica
Source: Financial Services Commission

Year	Securities Dealers	Life Insurance	General Insurance	Total NBFI
2002	33	8	14	55
2003	33	7	13	53
2004	30	7	13	49
2005	30	6	11	47
2006	30	6	11	47
2007	32	6	12	50

Figure 4.27
DTI Growth in Risk Weighted Assets

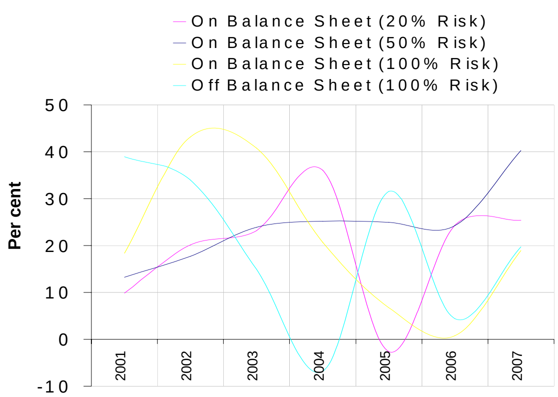


Figure 4.28
Tier 1 Capital and Total Capital Growth Rates

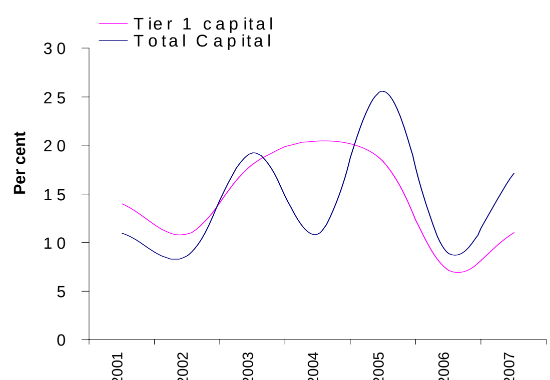
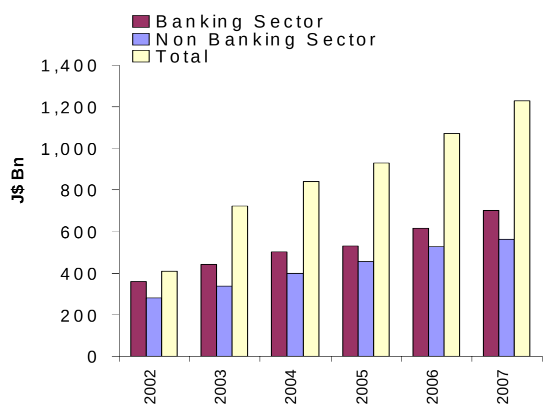


Table 4.2
Savings of Select NBFIs in Jamaica as a Proportion of GDP

Source: Financial Services Commission

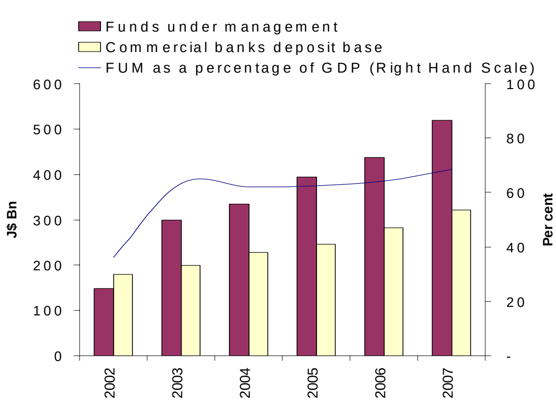
Year	Securities Dealers	Life Insurance	General Insurance	Total NBFI
2002	46.0	1.9	1.4	49.3
2003	58.8	2.5	1.4	62.7
2004	68.2	1.3	2.1	71.6
2005	62.5	1.4	1.9	65.8
2006	64.2	1.7	1.6	67.5
2007	68.6	1.8	1.6	72.0

Figure 4.29
Comparative NBFIs & DTIs
Total Assets



Source: Financial Services Commission

Figure 4.30
Comparative Funds Under Management
and Commercial Banks Deposits



Source: Financial Services Commission

The securities companies accounted for the bulk of the stock of assets in NBFIs, amounting to 73.6 per cent or approximately $415.3billion. However, the growth rate in the asset base of DTIs outstripped that of the NBFIs during 2007. This was partly due to the strong growth in the loan portfolio of DTIs during the year (see **Figure 4.29**). An increase in the number of NBFIs during the year, as well as strong growth in the funds under management (FUM) in the insurance and securities firms, was the main reason behind the performance in the asset base of these institutions during 2007 (see **Table 4.2**).

4.4 Securities Firms

There were two additional securities firms during 2007, which brought the total number of securities firms to 32 (see **Table 4.1**). Moreover, securities dealers' FUM as a percentage of GDP for 2007 increased to 68.6 per cent relative to 64.2 per cent recorded at end-2006, reflecting a deepening of the role of securities dealers in the financial sector. Furthermore, securities firms' FUM continued to exceed commercial banks' deposits in 2007 and amounted to $519.2 billion relative to $321.2 billion in commercial bank deposits (see **Figure 4.30**).

Securities firms' FUM exceed commercial banks' deposits by $198.0 billion

During most of 2007, interest rates were low relative to previous years. In this context, securities firms heavily invested their FUM in investments products, such as, derivatives, promissory notes and "collective investment schemes" to maximise their returns on investments (see **Figure 4.31**).[26]

Securities firms' ROA increase for 2007 in contrast to fall in ROA of DTIs.

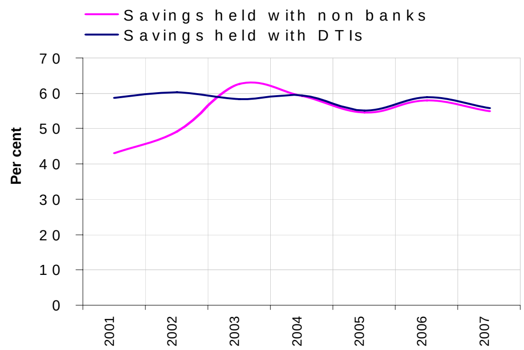
Securities firms' recorded an ROA of 4.6 per cent for 2007, representing a marginal increase over the 4.1 per cent recorded in 2006. This marginal increase was against the background of a sharp decline in investments by securities firms in public sector debt instruments, which was only partially offset by increased investments in alternative sources of investments and foreign securities (see **Figure 4.32**).[27]

4.5 Insurance Companies

There was significant growth in both life and general insurance companies in 2007, resulting in total assets of insurance companies increasing by 14.1 per cent or approximately $148.5 billion relative to an increase of $130.2 billion or 13.8 per cent in 2006. In addition, the insurance sector's share of total NBFIs assets increased to 26.3 per cent at end-2007 from the 23.1 per cent recorded in 2006. As a result, the assets of insurance companies as a proportion GDP increased to 19.6 per cent in 2007, relative to an increase of 19.1 per cent in 2006 (see **Figure 4.33**).

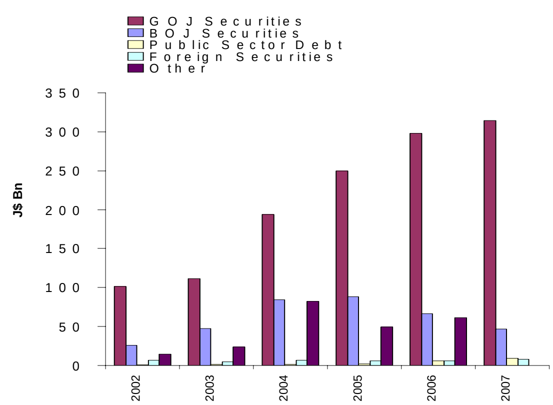
The asset portfolio of general insurance companies grew by 13.2 per cent to $40.4 billion at end-2007 compared to 0.8 per cent growth during 2006, largely reflecting the addition of another company (see **Table 4.1**). However, in spite of the increase in general insurance companies during 2007, life

Figure 4.31
Funds Under Management and Deposit to GDP



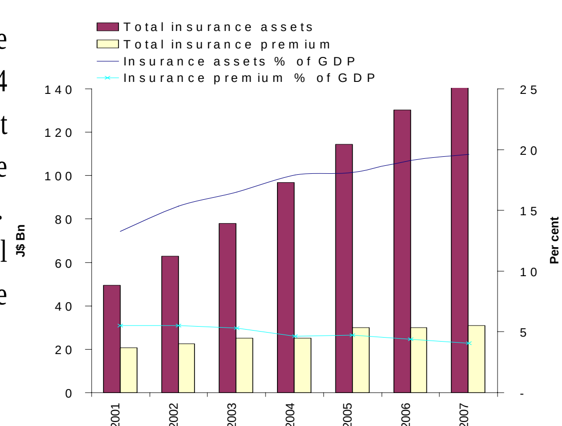
Source: Financial Services Commission

Figure 4.32
Composition of FUM - Securities Firms



Source: Financial Services Commission

Figure 4.33
Life and General Insurance Assets and Premiums as a percentage of GDP



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[26] Collective investments comprises of mutual funds, pension funds and unit trusts.
[27] These other securities largely comprise placements in foreign currency instruments and equities.

Figure 4.34
Life and General Insurance Assets and Premiums

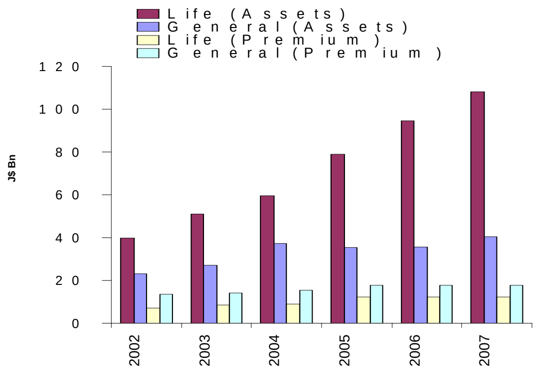
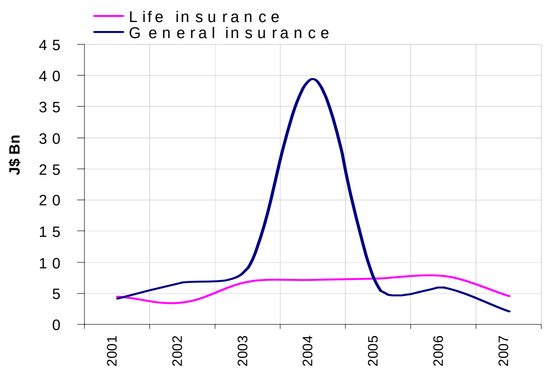


Figure 4.35
Life and General Insurance – Return on Assets



insurance companies continued to dominate the asset base in the insurance sector, accounting for 72.8 per cent of total assets (see **Figure 4.34**).

Furthermore, life insurance companies continued to record strong growth in 2007 with assets increasing by 14.4 per cent to $108.1 billion relative to 20.6 per cent growth during 2006.

At end-2007, total insurance premiums amounted to approximately $40.0 billion representing an increase of 13.5 per cent relative to growth of 15.4 per cent in 2006. General insurance companies increased their share of total gross premiums during 2007 to 55.4 per cent from 52.8 per cent at end-2006. At the same time, motor vehicle and property continued to be the main class of business for general insurance companies during the year (see **Figure 4.34**).

Despite respective reductions in the ROAs for life and general insurance companies during 2007 to 4.3 and 2.1 per cent from 7.7 and 5.9 per cent at end-2006, the insurance sector continued to be profitable. The decline in ROA for insurance companies during the review year was reflected in the reduction in earnings from investments; primarily due to a reduction in interest rates during 2007 (see **Figure 4.35**).

5. Banking Sector Exposures

5. I Overview

Despite greater instability in the international environment during 2007, there were continued improvements in the banking system's resilience to shocks affecting corporate and household debt. This was evidenced in the continued strengthening in the credit quality of these sectors relative to 2006. The banking system's resilience to high exposures in corporate and household debt was underpinned by improvements in profitability as well as high levels of banking system capitalization. There was also continued reduction in the banking system's exposure to public debt in 2007. However, the volatility in the domestic and international environment limited Government's efforts to minimize the impact of macroeconomic shocks on the debt portfolio.

5.2 Household Debt and Banking System Exposure

During 2007, household debt held by the banking system increased by 33.4 per cent relative to 29.8 per cent during 2006. The performance during 2007 represented the strongest growth in household debt since 2003. In this context, household debt held as a share of banking system assets increased to 20.3 per cent at end-2007, relative to 17.3 per cent at end-2006 (see **Figure 5.1**).[28] Moreover, household debt as a share of total loans increased to 49.7 per cent at end-2007 compared to 47.9 per cent at end-2006 (see **Figure 5.1**). The robust growth in household debt reflected strong expansion in consumer and mortgage loans during 2007.

Figure 5.1
Household Debt as a Share of Banking System Loans & Assets

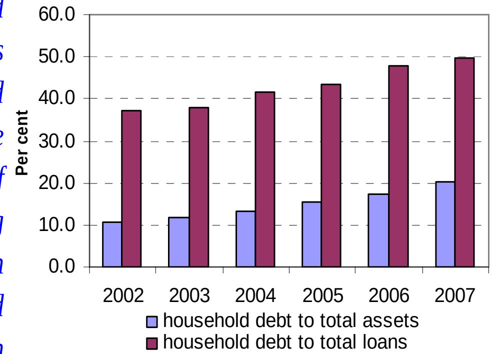


Figure 5.2
Growth in Household Debt

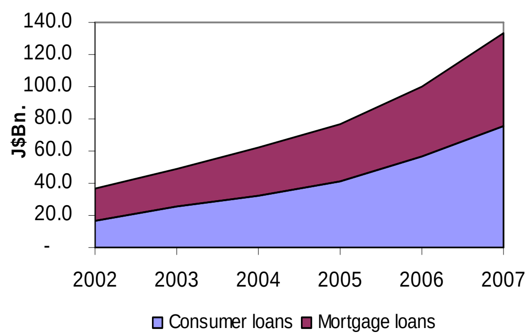
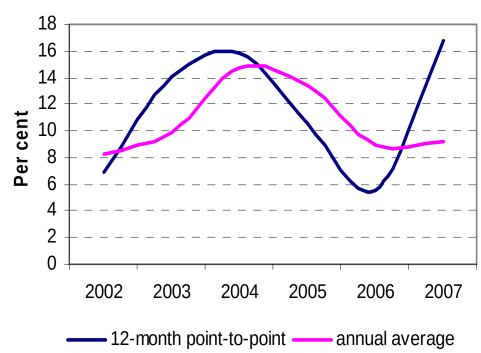


Figure 5.3
Domestic Inflation Rates

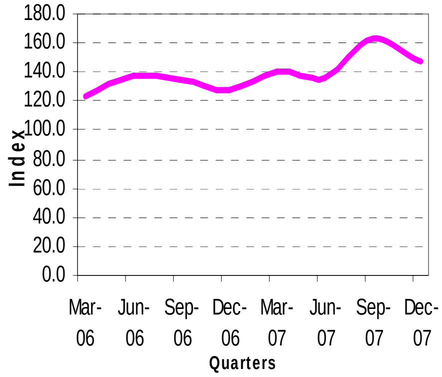


Source: Statistical Institute of Jamaica (STATIN)

[28] Household debt incurred with the banking sector is proxied by the sum of residential mortgage loans and consumer loans (which includes credit card receivables).

Robust growth in household debt driven by strong expansion in consumer and mortgage loans

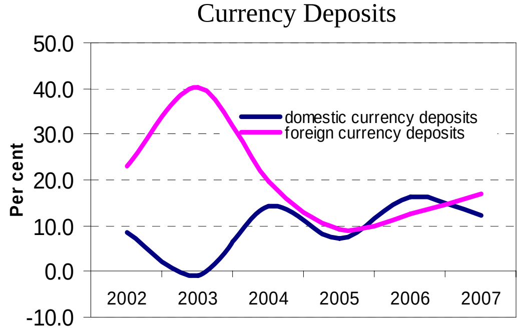
Figure 5.4
Index of Consumer Confidence



Source: Jamaica Conference Board

During the year, mortgage loans grew by 34.0 per cent while consumer loans increased by 32.9 per cent (see **Figure 5.2**). Additionally, there was continued improvement in household sector loan quality during 2007. The ratio of household non-performing loans (NPLs) to household loans declined to 2.5 per cent at end-2007 from 3.3 per cent at end-2006 and represented the largest decline in the ratio since 2003 (see **Figure 5.6**). This performance was largely influenced by the improvement in loan quality for mortgage loans.

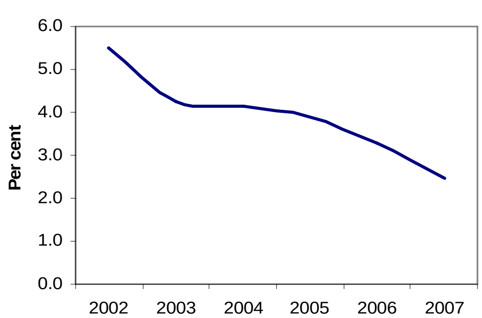
Figure 5.5
Growth in Foreign Currency and Domestic Currency Deposits



During 2007, some householders increased the share of foreign currency denominated assets in their portfolio. This was evidenced in a faster rate of growth in foreign currency savings deposits relative to domestic currency deposits during the year (see **Figure 5.5**). The reduced confidence in holding Jamaica Dollar assets was influenced by the high inflation outturn and increase in inflation expectations during 2007, as investors sought to hedge against further erosion in purchasing power.[29]

Sharp inflation outturn & increased inflation expectations influence increased demand for foreign currency investments

Figure 5.6
Household NPLs as a proportion of Household Loans



5.2.1 Household Sector Performance

Householders' debt servicing capacity declined during 2007.[30]

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[29] Banking system savings deposits were used as a proxy for householders' confidence in holding Jamaica Dollar assets. Growth in domestic currency savings deposits slowed to 12.3 per cent during 2007 relative to 16.3 per cent during the previous year. Inflation increased sharply to 16.8 per cent during 2007 from 5.7 per cent in 2006 largely due to sharp increases in oil and international commodity prices, continued instability in the foreign exchange market and the damage to agricultural supplies due to the passage of Hurricane Dean (see **Figure 5.3**).

[30] Debt servicing capacity is defined as the ratio of household debt held by the banking system to personal disposable income.

Improvements in household sector loan quality was underpinned by stronger loan quality for mortgage loans

The share of household debt as a proportion of disposable income increased to 18.0 per cent at end-2007 relative to 14.9 per cent at end-2006 (see **Figure 5.7**), and was fuelled by the strong growth in mortgage and consumer loans during 2007.[31] Additionally, consumer loans as share of disposable income increased to 10.2 per cent at end-2007 relative 8.4 per cent at end-2006, while mortgage loans as a share of disposable income increased to 7.9 per cent at end-2007 relative to 6.4 per cent end-2006 (see **Figure 5.7**). Growth in mortgage loans was underpinned by continued expansion in residential construction while growth in consumer loans was partly reflected in strong increases in credit card receivables during 2007.[32]

Credit card receivables increased by 26.0 per cent during 2007, consistent with the trend increase that has been observed over the last four years. The strong expansion in credit card receivables during 2007 may have been due to diminishing disposable income as a result of the higher inflation outturn during the year (see **Figure 5.8**).

Notwithstanding the rise in credit card receivables, at end-2007 the ratio of non-performing personal loans to total personal loans remained unchanged at 3.0 per cent relative to the end of the previous year.

Figure 5.7
Household Debt and Consumer Loans as a Share of Income

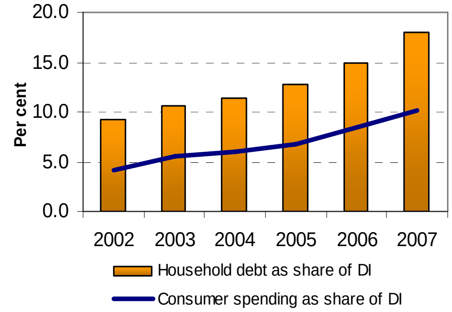


Figure 5.8
Trend in Credit Card Receivables

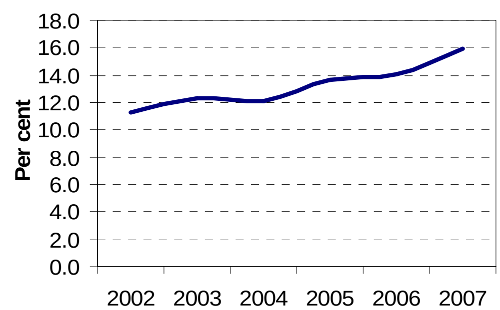


Figure 5.9
Remittance to GDP Ratio

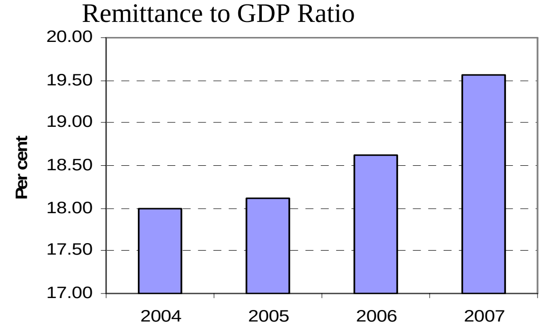
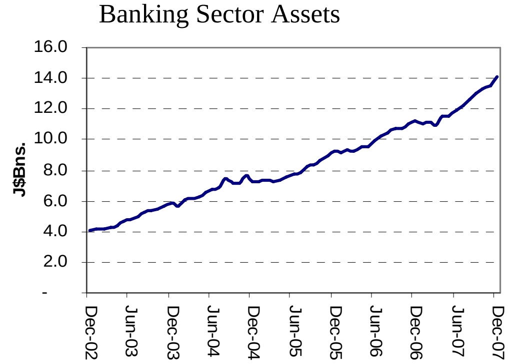


Figure 5.10a
Corporate Sector Debt as a Share of Banking Sector Assets



[31] Due to the unavailability of the data, disposable income for 2006 and 2007 is computed based on the growth in GDP in these two years.

[32] This was inferred from increases of 36.1 per and 1.0 per cent in the National Housing Trust housing completions and starts, respectively (see BOJ Annual Report 2007).

Figure 5.10b
Banking Sector Exposure to Corporate Loans

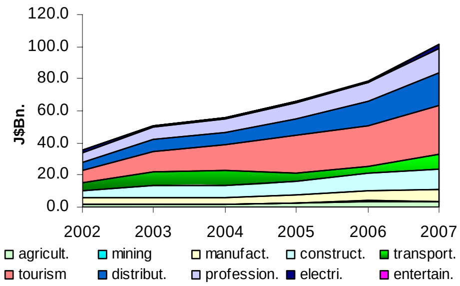


Figure 5.11
Banking Sector Exposure to Corporate Sector as a Share of Assets

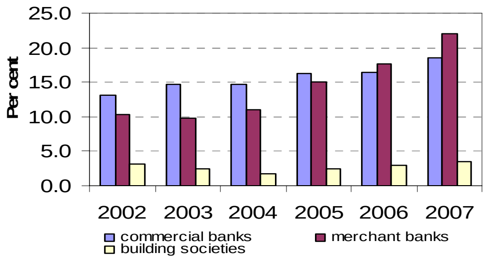


Figure 5.12
Loan Quality – Corporate Loans
Banking Sector

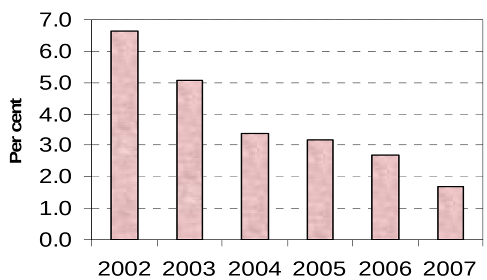
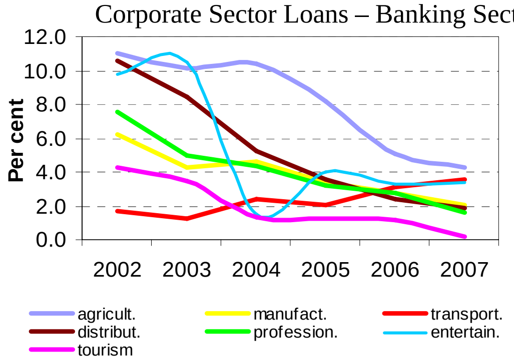


Figure 5.13
Ratio of Corporate Sector NPLs to Corporate Sector Loans – Banking Sector



In addition, householders' disposable income was supplemented by strong inflows of remittances during 2007, which increased by 11.0 per cent during the year. In this context, remittances as a share of GDP increased to 19.6 per cent at end-2007 relative 18.6 per cent at the end of the previous year (see **Figure 5.9**). Nonetheless, householders experienced a decline in real disposable income during 2007. Real disposable income fell by 5.9 per cent during 2007 relative to an increase of 2.7 per cent during the previous year.[33] The fall in real disposable income was largely influenced by the marked increase in the inflation outturn for 2007. In this context, an improvement in real disposable income in the near-term will be dependent on whether there are further shocks to domestic prices.

5.3 Corporate Sector Debt and Banking System Exposure

Corporate sector debt held by the banking system increased by 28.9 per cent, relative to growth of 19.4 per cent for 2006.[34] As a result, corporate sector debt as a proportion of total assets increased to 15.9 per cent at end-2007, relative to 14.0 per cent at end-2006 (see **Figure 5.10a**).

33 The household debt service ratio is an estimate of the ratio of debt payments to disposable personal income.

34 Corporate sector debt is defined as loans for commercial purposes, loans to other financial institutions and notes & debenture holdings of the banking sector.

The expansion in corporate sector debt during 2007 was largely as a result of continued growth in lending to the tourism, construction and distribution sectors (see **Figure 5.10b**). The continued expansion in lending to the construction sector helped to fuel the strong rebound in the sector during 2007.

Growth in corporate debt holdings driven by tourism, construction & distribution sectors

The continued increase in corporate debt holdings by the banking system was largely driven by the commercial banks and merchant banks. For commercial banks, corporate sector debt as a share of assets increased to 18.5 per cent at end-2007 relative to 16.4 per cent at end-2006. With regard to merchant banks, this ratio increased to 22.0 per cent at end-2007 relative to 17.6 per cent at end-2006 (see **Figure 5.11**).

5.3.1 Corporate Sector Debt Quality

There was a continued improvement in corporate sector loan quality during the year. This was reflected in the further decline in the ratio of non-performing corporate sector loans to total corporate sector loans to 1.7 per cent at end-2007 relative to 2.7 per cent at end-2006 (see **Figure 5.12**).

Figure 5.14
Real GDP Growth by Economic Sector

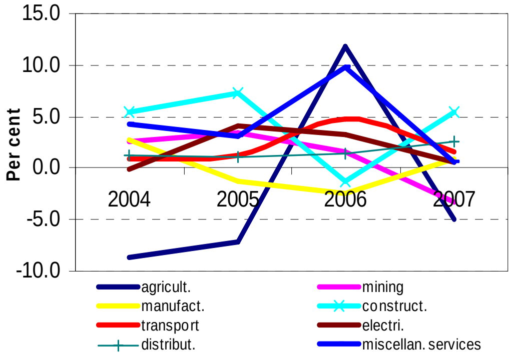


Figure 5.15
Daily Movements in Main JSE Index & Values Traded

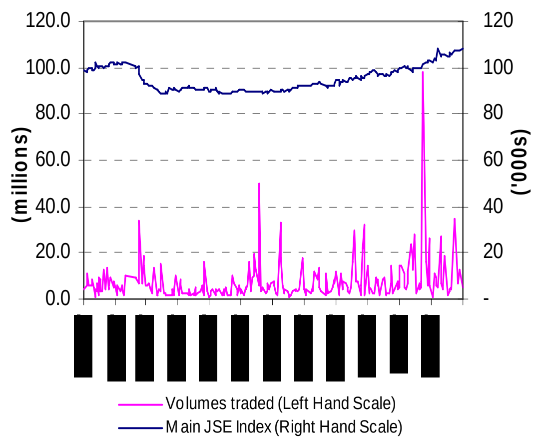


Figure 5.16
Profitability Indicators – Listed Companies in the Manufacturing Sector

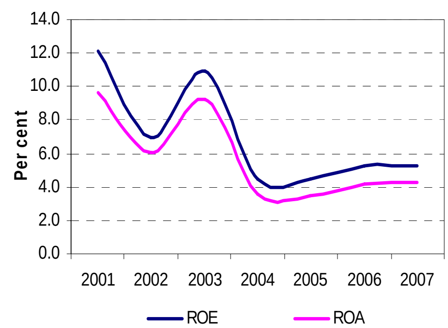
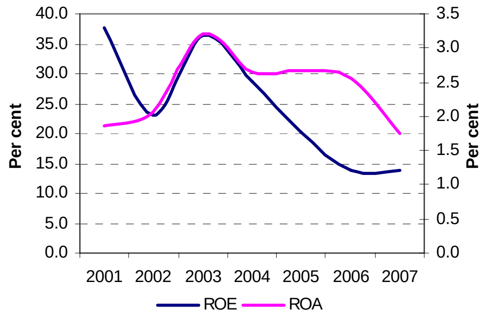


Figure 5.17
Profitability Indicators – Listed Companies in the Financial Sector



Improvement in corporate sector loan quality largely driven by the strong rebound in the construction and distribution sectors relative to 2006

Figure 5.18
Profitability Indicators – Listed Conglomerates

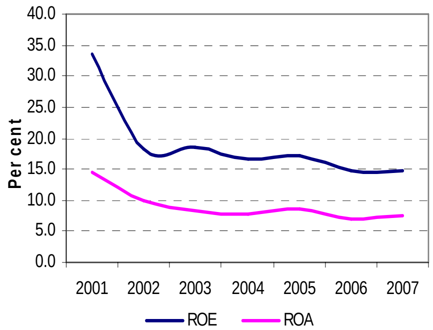


Figure 5.19
Profit Margin – Financial Sector

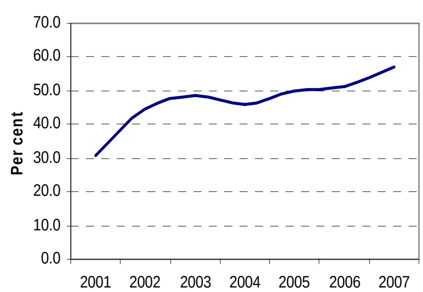
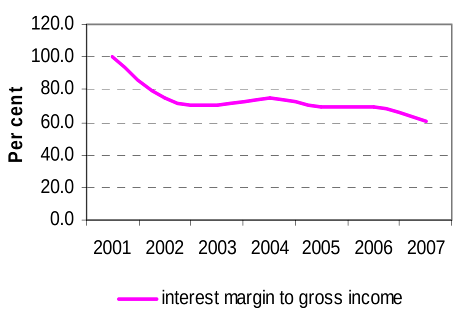


Figure 5.20
Interest Margin to Gross Income – Financial Sector



This performance was influenced by the improvement in loan quality for the agriculture, distribution, tourism and professional services sectors (see **Figure 5.13**).

The loan quality of the tourism sector improved significantly in 2007 in spite of the marginal growth in the sector. Non-performing loans of the sector as a percentage of total loans to tourism declined to 0.1 per cent at end-2007 relative to 1.1 per cent at end-2006. For the construction sector, the improvement in loan quality occurred in the context of a strong rebound in the sector during 2007.[35]

There was also improvement in loan quality for the agricultural sector despite the sharp contraction in the sector during 2007. The ratio of NPLs to total loans for the sector declined to 4.2 per cent at end-2007 from 5.0 per cent at end-2006. The sector contracted by 5.0 per cent in 2007, relative to an expansion of 11.9 per cent in the previous year (see **Figure 5.14**).

The improvement in the manufacturing sector's debt servicing capacity was consistent with the rebound in the growth performance in the sector during 2007. The ratio of NPLs to total loans for the sector declined to 2.1 per cent at end-2007 from 2.8 per cent at end-2006. Notably, the deterioration in growth performance in the transportation sector did not translate to an increase in the ratio of NPLs to total loans. The ratio for the sector declined to 1.8 per cent at end 2007 from 3.6 per cent at the end of the previous year.

[35] The sector grew by 5.4 per cent during the year, relative to a contraction of 1.3 per cent during 2006.

5.3.2 Performance of Companies listed on the Jamaica Stock Exchange (JSE) during 2007

During 2007, the Main JSE Index increased by 7.2 per cent relative to growth of 3.7 per cent during 2006. Growth in the equities market during 2007 was influenced by increased investor participation during the last six months of the year. This was due to improved earnings results during the second half of the year as well as relatively low P/E ratios at the start of this period. The increase in investor participation was also influenced by announced acquisitions during the second half of the year.

For the review year, there was a general improvement in the profit performance for listed entities in the financial, manufacturing and conglomerate categories. For the conglomerates, the return on assets (ROA) increased to 7.6 per cent at end 2007 relative to 7.1 per cent at end 2006 (see **Figure 5.18**). Moreover, the profit margin ratio for the sector increased to 61.3 per cent at end-2007 from 57.8 per cent at end-2006.

Figure 5.21
Profit Margin – Conglomerates

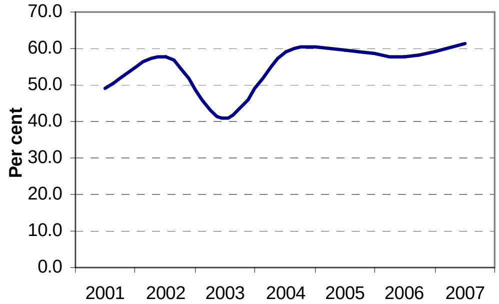


Figure 5.22
ROA – Listed Companies in the Communications, Insurance, Retail & Tourism Sectors

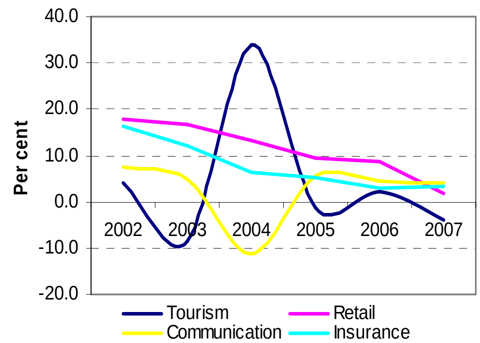


Figure 5.23
Public Sector Loans & Securities to Assets - Banking Sector

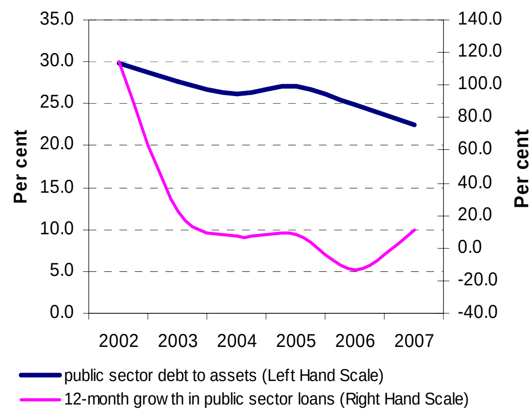


Figure 5.24
Growth in Public Sector Debt Stock

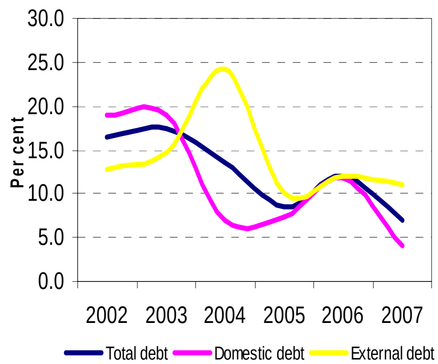


Figure 5.25
Domestic Debt – Maturity Structure

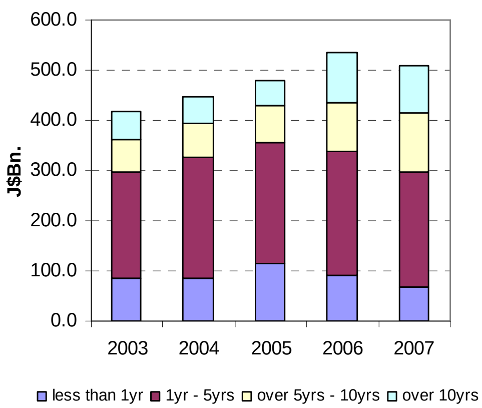
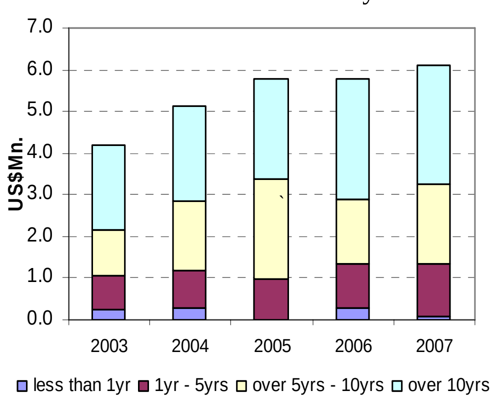


Figure 5.26
External Debt – Maturity Structure



This performance was primarily reflected in the strong price movements for listed companies in the conglomerate sector during 2007.

The ROA for the listed manufacturing companies increased marginally to 4.3 per cent at end-2007 from 4.2 per cent at the end of the previous year, while the profit margin for the sector declined to 23.1 per cent at end-2007 from 26.2 per cent at the end of 2006. Despite the improvement in earnings for many entities in the manufacturing sector, there were generally weak price performances for the listed companies in these sectors. For manufacturing sector companies, the weak price performance may have reflected investor concerns regarding the prospects for company performance due to uncertainties regarding the path of oil and international commodity prices.

For listed companies in the financial sector, which includes both DTIs and NDTIs, there were also weak price performances, which may have been due to investor concerns regarding implications of fallout on the financial system due to the popularity of unregulated financial organisations offering super-normal returns. Nonetheless, there was an improvement in profitability for the sector, largely influenced by the strong growth in the loan portfolio of these companies during 2007. The profit margin ratio for the sector increased substantially to 57.2 per cent at end 2007 from 51.4 per cent at end 2006.

Additionally, liquidity levels remained high despite the decline in the current ratio during 2007. The current ratio declined to 115.8 per cent at end-2007 from 111.4 per cent at end-2006.

Companies in the communication, retail and tourism sectors experienced declines in profitability during 2007. The ROA for the tourism sector reflected the largest decline among the sectors (see **Figure 5.22**). The ratio for the sector fell to negative 3.9 per cent at end-2007 from 2.0 per cent at end-2006.

5.4. Banking System Exposure to Public Sector Debt

There was continued reduction in the banking system's exposure to public sector debt in this review year.[36] At end-2007, the ratio of public sector debt to banking system assets declined to 22.5 per cent from 24.9 per cent at end-2006 (see **Figure 5.23).** Additionally, there was a decline in the banking system's exposure to public sector debt when measured in relation to banking system capital base.

[36] Exposure is measured by public sector loans and securities as a share of banking system assets. Public sector comprises Public Entities and Central Government.

Figure 5.27
Maturity Structure of Public Securities - Commercial Banks

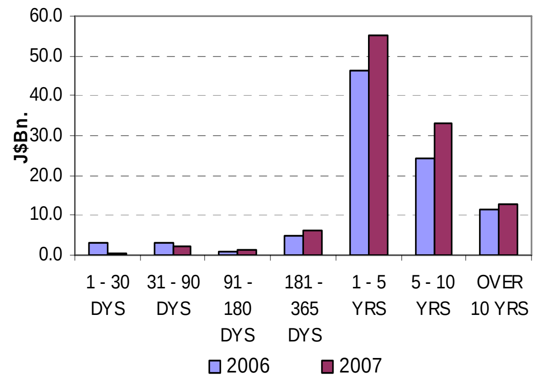


Figure 5.28
Maturity Structure of Public Securities - FIAs

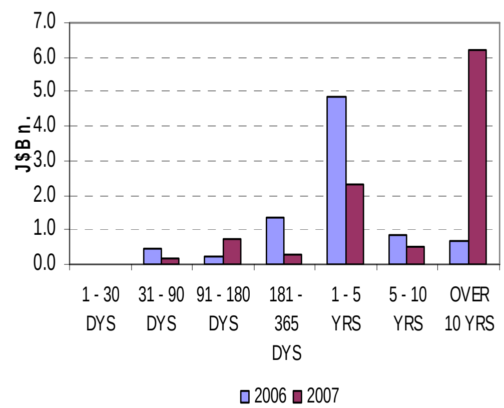


Figure 5.29
GOJ Domestic Debt Interest Rate Composition

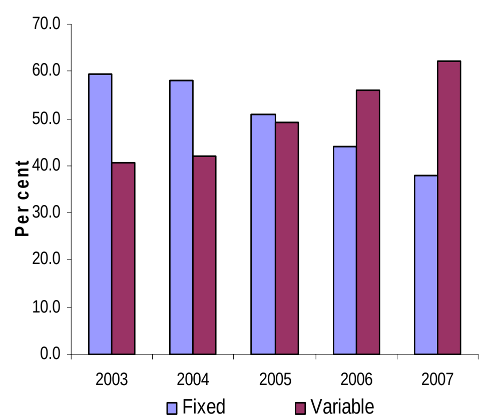


Figure 5.30
Foreign Linked Debt in GOJ Domestic Debt Portfolio

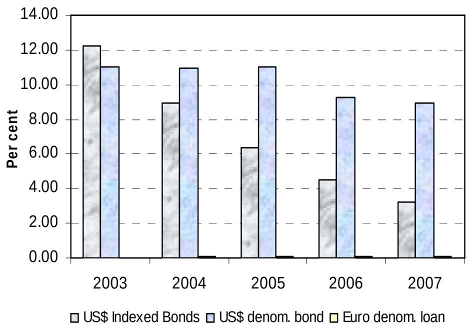


Figure 5.31
GOJ Debt to GDP Ratios

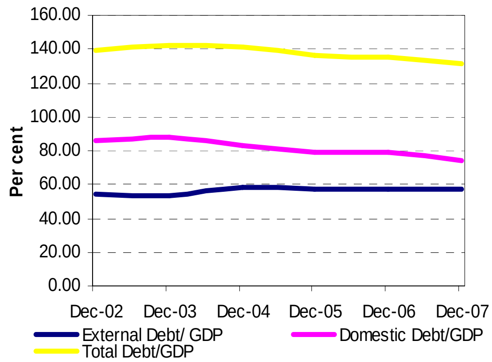
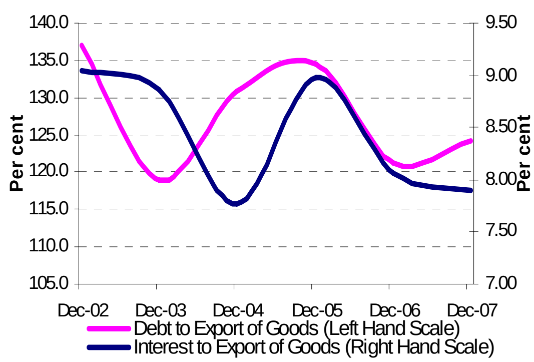


Figure 5.32
External Interest & GOJ External Debt to Exports of Goods & Services



The ratio fell to 152.0 per cent at end-2007, relative to 163.0 per cent at end-2006 (see **Figure 5.23**).

5.4.1 Public Sector Indebtedness & Performance

Public sector debt as a share of GDP declined to 131.2 per cent at end-2007 from 135.8 per cent at end-2006. During the review year, Government was able to raise funds in spite of generally unfavourable conditions in the international capital markets. These adverse conditions were largely related to the sub-prime mortgage crisis in the US and the resulting tightening of credit conditions in the international financial markets. Nonetheless, Government was able to secure long-term financing at fairly low interest rates. During the year, Government raised US$350.0 million on its 30-year Eurobond issue at a coupon rate of 8.0 per cent. [37]

The relatively favourable rate at which the Government was able to raise funds was in the context of a general reduction in international interest rates. In addition, emerging market bonds were relatively unaffected by the increased volatility in the international financial markets.

[37] This amount excludes government guaranteed external debt.

Government achieved limited success in increasing fixed rate component of domestic debt portfolio

With respect to the domestic debt stock, Government achieved limited success in increasing the share of fixed rate instruments in the domestic debt portfolio during the review year (see **Figure 5.29**). Against this background, most of the domestic debt raised during the year was contracted at variable rates. Investors' appetite for variable rate instruments occurred in a context of periods of instability in the foreign exchange market and increased expectations of future rise in interest rates as well as increased inflation expectations. Fixed rate instruments as a share of the debt portfolio declined to 37.9 per cent at end-2007, relative to 44.0 per cent at end-2006.

Regarding the maturity profile of domestic and external debt, there was an increase in external debt in the 'over 10 years' maturity bucket as well as the '5 to 10 years' maturity bucket during 2007 (see **Figures 5.25 & 5.26)**. For domestic debt, while there was increased investment in the '5 to 10 years' maturity bucket, there was a fall in investments in the 'over 10 years' maturity bucket.

For the banking sector, there was continued shifting into long-term public sector securities during 2007. This was largely evident in the lengthening of the average tenor of the public sector securities held by commercial banks and FIAs at end-2007 relative to end-2006 (see **Figures 5.25 to 5.26**). The continued increase in GOJ variable rate issues during 2007 as well as the strong levels of banking system capitalization helped to strengthen the sector's resilience to interest rate risk exposure to GOJ debt.

Government achieved further success in reducing the foreign exchange risk of domestic debt in 2007. At end-2007, US dollar-Indexed bonds were 3.2 per cent of the domestic debt portfolio relative to 4.5 per cent at end-2006, well within the internationally acceptable standard of 10.0 per cent (see **Figure 5.30**).

Jamaica's external debt performance indicators reflected mixed performances during 2007. Jamaica's ability to service external interest payments through export earnings improved in the year, largely reflecting the slower growth in external interest payments. The ratio of external interest payments to exports of goods and services declined to 7.9 per cent in 2007 relative to 8.1 per cent at end-2006 (see **Figure 5.32**). Nonetheless, the ratio of external debt to exports increased to 124.3 per cent at end-2007 from 121.2 per cent at end-2006. The increase in the ratio was largely driven by the slower growth in the exports of goods and services during 2007.

6. Risk Assessment of the Banking Sector

6.1 Overview

During 2007, the aggregate balance sheet of the banking system was sufficiently robust to absorb potential market and credit risk shocks.[38] Stability in core deposits as well as buoyant liquid assets bolstered the banking system's capacity to also absorb liquidity shocks. There was some deterioration in exposures to changes in interest rates and foreign exchange rates in 2007 relative to the previous year. However, BOJ policy actions limited the occurrence of sizeable changes in interest rates or foreign exchange rates during 2007 despite some brief episodes of market volatility.

6.2 Market Risks

6.2.1 Liquidity Funding Risk of the Banking System

The funding structure of the banking system during 2007 reflected a stronger preference towards inter-bank borrowing relative to *other borrowing* as a source of funding. Specifically, inter-bank borrowing as a proportion of total funding increased to an average of 16.4 per cent from the 13.6 per cent average recorded for 2006, while *other borrowing* declined to an average of 7.2 per cent from 8.7 per cent for 2006.

Deposits continued to dominate the funding profile of the banking sector, accounting for an average of 76.4 per cent, reflecting marginal decline of 1.3 percentage points compared to 2006 (see **Figure 6.1a**).

While deposits remained the dominant source of funding for banks there was also a stronger preference for inter-bank borrowing relative to 'other borrowing' during 2007.

Figure 6.1
a) Funding Structure of Banking Activities
(January 2000 – December 2007)

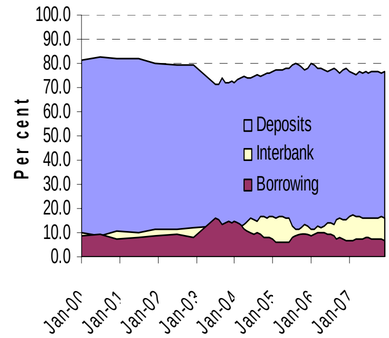


Figure 6.1
b) Weekly Range for Inter-Bank Rates
(December 2005 – December 2006)

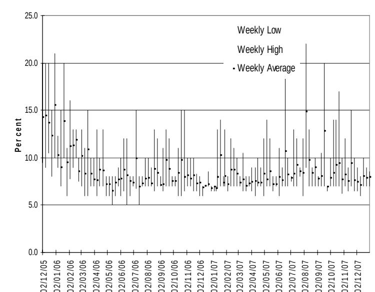
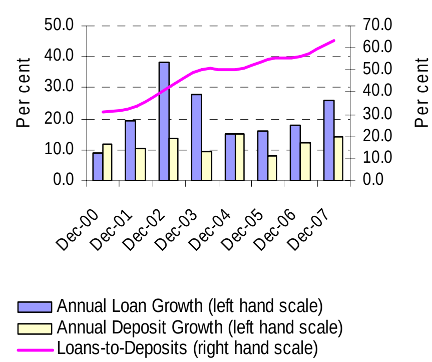


Figure 6.2
Loans to Deposit Ratio
(December 2000 – December 2006)



[38] The banking system in this chapter covers commercial banks, building societies, and merchant banks.

Figure 6.3
Overall Net Funding Positions

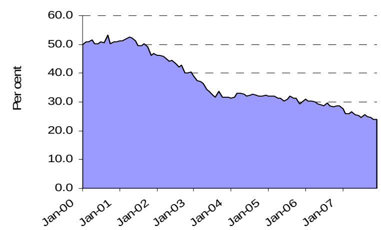


Figure 6.4
Core Liquidity Indicator- Liquid Assets to Total Assets

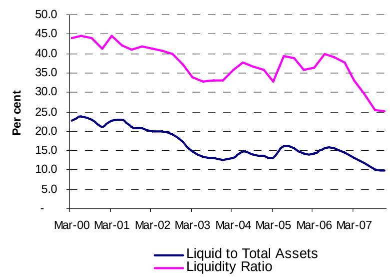


Figure 6.5
Maturity Structure of Assets & Liabilities at End-2007

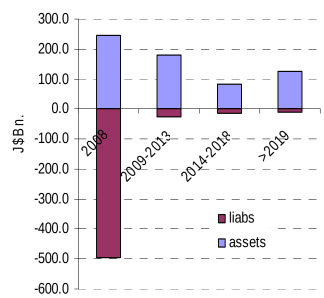
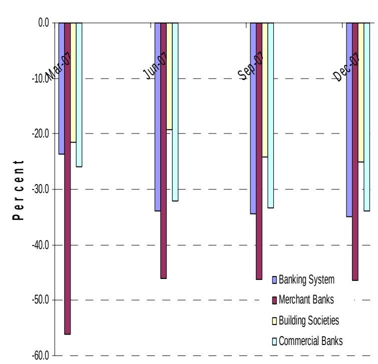


Figure 6.6
Liquidity Gap Ratios (Aggregate)



In 2007, there was an expansion in the total funding base for the banking system with annual growth in deposits, inter-bank borrowing, and other borrowing of 14.1 per cent, 24.1 per cent and 16.1 per cent, respectively. These growth rates compare with a decline in other borrowings of 13.8 per cent and increases in inter-bank funds and deposits of 36.1 per cent and 14.9 per cent, respectively, for 2006 (see **Figure 6.1a** and **Figure 6.1b**). The banking system's loan-to-deposit ratio continued its trend increase during 2007. The loan-to-deposit ratio increased to 63.0 per cent at end-2007 from 56.0 per cent at end-2006 (see **Figure 6.2**). Continued increases in the loans-to-deposit ratio suggest that banks would need to source higher cost funds (relative to deposit rates) to further catalyze the financial intermediation process. This was in fact borne out by the rising dependence on inter-bank borrowing as a source of intermediation financing during 2007. This increased reliance was further supported by the decline in the net funding position of banking institutions to 24.1 per cent at end-2007 relative to 28.6 per cent end-2006 (see **Figure 6.3**).[39] However, the core of the funding for the banking system still emanated from deposits which make up the largest portion of the funding base (cf. **Figure 6.1**). In addition, the liquid assets to total assets and the liquid assets ratio, core liquidity indicators, were adequate in minimising liquidity-funding risk within the banking sector during 2007 (see **Figure 6.4**).[40]

[39] The net funding position is defined as the ratio of the difference between gross loans and deposits to total assets.
[40] The liquid ratio is defined as the ratio of average prescribed liquid assets to average liquid liabilities.

6.2.2 Domestic Interest Rate Risk Exposure

Despite relatively high liquidity levels in the banking system during 2007, liquidity funding risk increased in 2007

At end-2007, banks' liquidity gap profile for assets and liabilities maturing within one year deteriorated relative to 2006 as the banking system balance sheet became more negatively gapped over the short-term (see **Figure 6.5 and Figure 6.6**).

In a context of stable domestic interest rates and the expectation of declines in US Federal Funds rates, banks increased their short-term net liabilities relative to positions held in 2006. The increase in the banking sector's negative gap position during 2007 increased the sector's exposure to positive interest rate shocks.

The exposure of commercial banking sector to liquidity funding risk increased by 5.6 percentage points, relative to end-2006, to record a gap ratio of negative 35.0 per cent. Similarly, the gap ratio for merchant banks deteriorated to negative 46.3 per cent from negative 39.9 per cent at end-2006. In contrast, exposure of building societies to liquidity funding risk declined over 2007 recording to a gap ratio of negative 25.0 per cent relative to negative 29.4 per cent at end-2006 (see **Figure 6.7**).

Figure 6.7
Market Risk Exposure of the Banking System - 2007

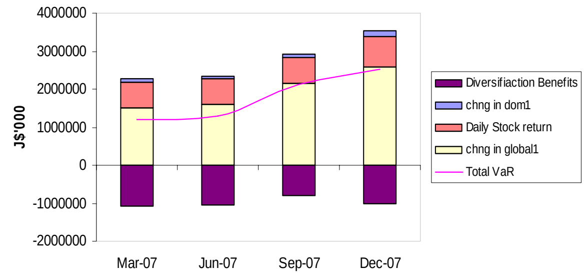
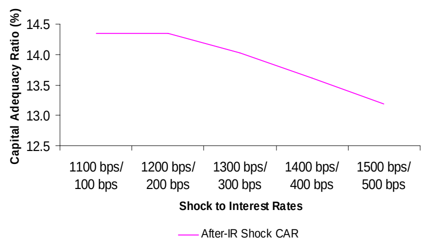
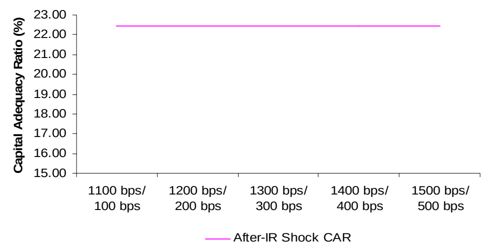


Figure 6.8
a) Capital Adequacy Results of Interest Rate Stress Tests for Commercial Banks



b) Capital Adequacy Results of Interest Rate Stress Tests for Merchant Banks



c) Capital Adequacy Results of Interest Rate Stress Tests for Building Societies

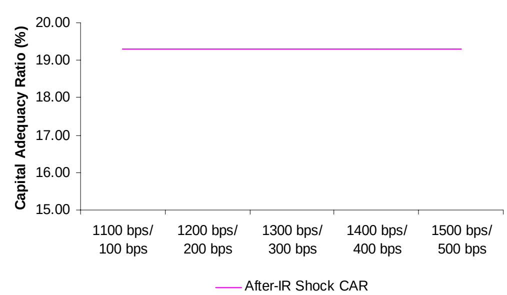
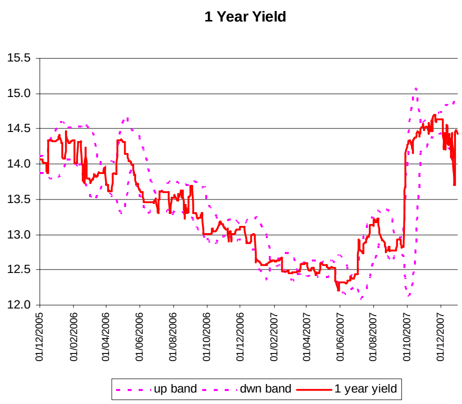


Figure 6.9
a) Spot Rates and 95.0 Per cent Confidence Bands for Selected Yields



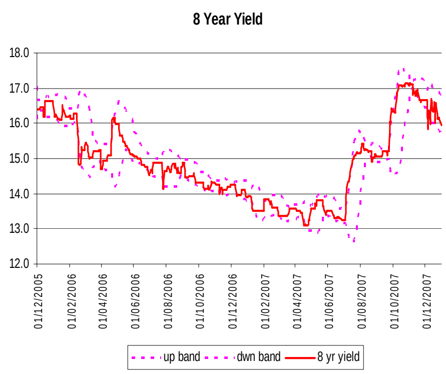
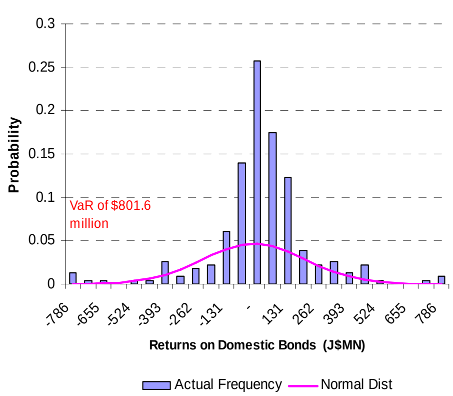


Figure 6.9
b) Distribution of Bond Returns at End-2007 for Commercial Banks



During 2007, interest rates on various domestic fixed income instruments displayed increased levels of volatility, particularly in the second half of the year, in a context of external shocks as well as deteriorations in macroeconomic performance (see **Figure 6.9**). In particular, the volatility of 1-year domestic bond yields increased to 0.81 per cent in 2007 from 0.44 per cent in 2006 and the volatility of 8-year domestic bond yields increased to 1.34 per cent from 0.68 per cent in 2006.

Interest rate VaR increases for all banking sectors against the background of higher interest rate volatility for 2007

As a result of this increased volatility in domestic bond yields, the interest rate value-at-risk (VAR) for commercial banks increased to 0.80 per cent of total investments at end-2007, equivalent to a 10-day dollar VaR of $801.6 million, from 0.18 per cent at end-2006.[41] For merchant banks, the VaR also increased to an average of 1.14 per cent at the 99.0 per cent level from 0.26 per cent at end-2006. This was equivalent to a 10-day dollar VaR of loss of $48.0 million. The building societies sector recorded an increase in their VaR to 1.79 per cent at end-2007, an equivalent dollar VaR of $239.4 million, relative to 0.40 per cent at end 2006 (see **Figure 6. 9b-d**).

Merchant banks had the largest investment to assets ratio of 52.0 per cent when compared to commercial banks and building societies with ratios of 33.4 per cent and 21.8 per cent, respectively. Merchant banks concentrated their investment portfolio in assets re-pricing above two years.

[41] The VaR is computed as the 99th percentile change over a 10 day trading period during the prior 252 trading days.

Specifically, at end-2007, 63.0 per cent of merchant bank investments would re-price in over two years. In contrast, the commercial banks and building societies had 29.0 per cent and 22.0 per cent of their securities portfolio, respectively, re-pricing in more than 2 years (see **Figure 6. 9c**).

The dollar value of a 100 basis points parallel shift in the GOJ domestic bond yield curve to capital (DVBP/Capital) for the entire banking system declined to an average loss of 0.69 per cent over 2007 relative to an average loss of 1.27 per cent at end-2006 (see **Figure 6.11**). This outturn was primarily attributable to the merchant bank sector which reduced its exposure to long-dated domestic currency assets during 2007. Merchant banks continued to immunize their portfolios against increase volatility in bond yields during 2007. Consequently, for the merchant bank sector, the DVBP declined to a loss of 0.07 per cent at end-2007 from a loss of 2.08 per cent at end-2006. In contrast, the building societies sector increased its exposure to interest rate risk to 2.18 per cent at end-2007 relative to 1.2 per cent at end-2006. The increase in exposure was presumably to offset reductions in net interest income due to the competitive mortgage rates in the market during 2007. The DVBP to capital for commercial banks declined to an average loss of 1.3 per cent for 2007 compared to an average loss of 1.7 per cent during 2006.

In the context of the entire banking sector, interest rate risk exposure did not threaten the stability of the banking system as at end-2007.

Figure 6.10
c) Distribution of Bond Returns at End-2007 for Merchant Banks

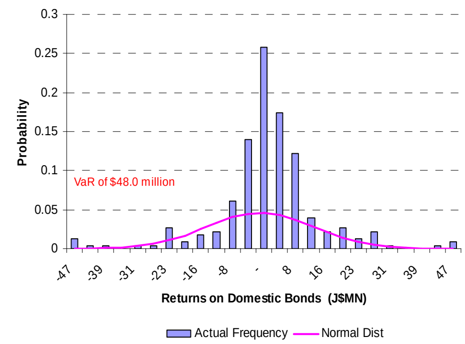


Figure 6.10
d) Distribution of Bond Returns at End-2007 for Building Societies

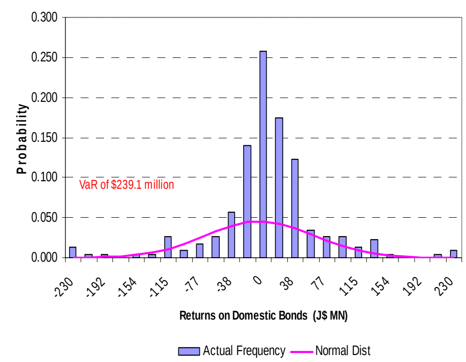


Figure 6.11
Dollar Value of a Basis Point (DVBP) to Capital for the Banking System

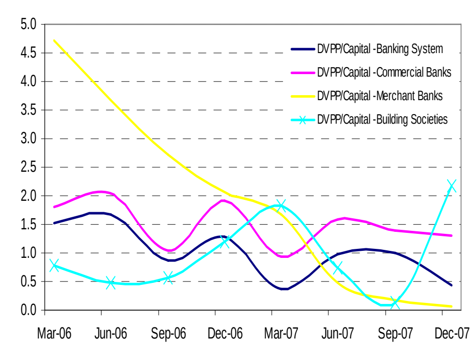
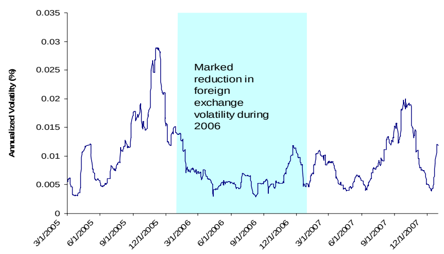
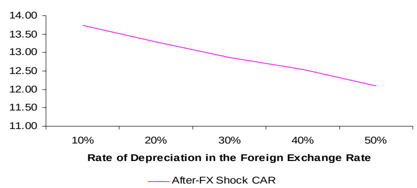


Figure 6.12

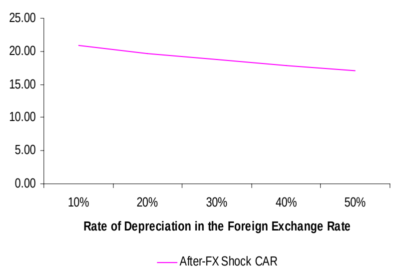
a) Annualized Volatility in Jamaica Dollar to US dollar Exchange Rate (March 2005 – December 2007)



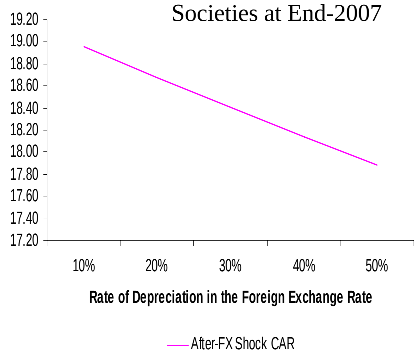
b) Capital Adequacy Results of Foreign Exchange Rate Stress Tests for Commercial Banks at End-2007



c) Capital Adequacy Results of Foreign Exchange Rate Stress Tests for Merchant Banks at End-2007



d) Capital Adequacy Results of Foreign Exchange Rate Stress Tests for Building Societies at End-2007



6.2.2 Foreign Bond and Exchange Rate Risk Exposure

There was a marked increase in the volatility of the foreign exchange rate of the Jamaica Dollar vis-à-vis the US dollar during the second half of 2007 relative to both the first half the year as well as the entire calendar year 2006 (see **Figure 6.12a**). For the most part, the increased volatility was triggered by exogenous factors related to deteriorating global conditions as a result of rising oil and agricultural commodity prices. These factors, among others, contributed to an increased demand for foreign exchange to fund the rising cost of imports and to meet the demand for an inflation hedge by portfolio holders.[42]

The increased volatility in the foreign exchange market coincided with a significant increase in the long net open positions of the banking system, particularly in US dollars, during the second half of 2007. Specifically, the ratio of net open position (NOP) to regulatory capital for the banking system increased substantially to 21.9 per cent at end-2007 from 3.4 per cent at end-2006 (see **Figure 6.13**).

[42] The instability in the foreign exchange market was exacerbated by the uncertainty surrounding the non-reissuance of GOJ indexed Bond in the September quarter.

__Banking system FX VaR rose in 2007 due to high net open positions and increased volatility in foreign exchange rates__

6.2.3 Foreign Exchange Rate Value-at-Risk and Dollar Value of a Basis Point Assessment

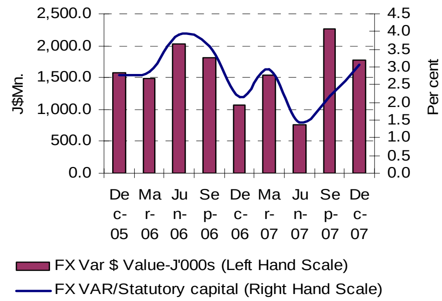
The aggregate foreign exchange rate VaR (FX VaR) increased to 3.0 per cent of regulatory capital at end-2007 from 2.2 per cent at end-2006. This increase mirrored both the increased volatility in the foreign exchange rate in the second half of the year and the increases in long net open positions for the banking system.

However, foreign exchange risk was not a significant threat to the banking sector's stability due to increases in the level of capitalization over 2007. Nevertheless, the FX VaR outturn at end-2007 of 3.0 per cent was above the FX VaR to regulatory capital of 1.7 recorded at end-December 2006.

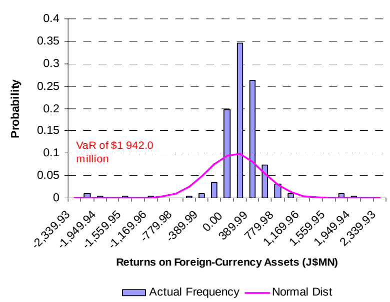
The FX VaR for the commercial banks increased to $1 942.1 million at end-2007 compared to $528.1 million at end-2006. Likewise, there was an increase in the FX VaR for merchant banks to $364.2 million from $356.5 million at end-2006.

Figure 6.13

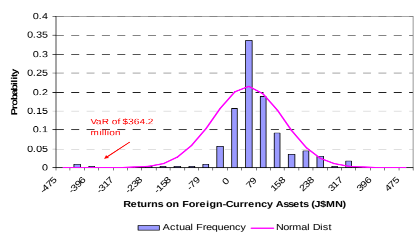
a) FX Value at Risk Expressed as Percentage of Regulatory Capital



b) Distribution of FX Returns at End-2007 for Commercial Banks



c) Distribution of FX Returns at End-2007 for



Merchant Banks

d) Distribution of FX Returns at End-2007 for Building Societies

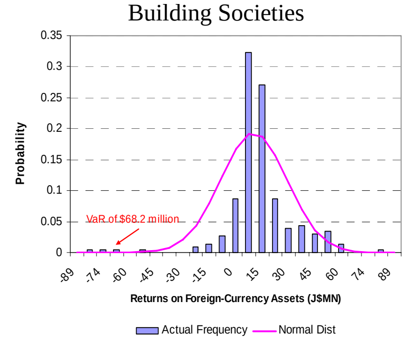


Figure 6.14
Quarterly Ratio of Tiered Capital to Foreign Exchange Exposure

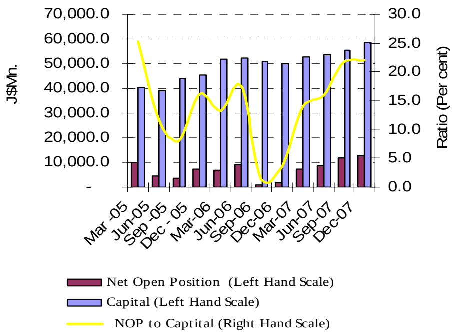
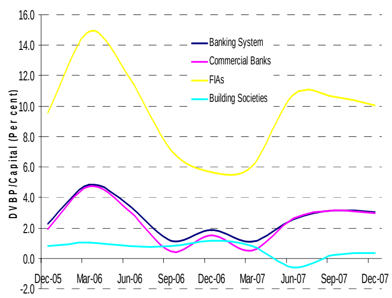


Figure 6.15
Dollar Value of a Basis Point (DVBP) to Capital for Foreign Currency Interest Sensitive Assets & Liabilities



In contrast, the FX VaR for building societies declined to $68.3 million at end-2007 compared to $96.3 million at end-2006, due primarily to a decline in their NOP over the period.

For the banking system, the ratio of DVBP to capital due to 100 bps increase in the GOJ global bond yield curve increased to 3.0 per cent at end-2007 from 1.8 per cent at end-2006.[43] The increase in the DVBP to capital underscored the increase in the interest risk exposure of the foreign currency balance sheet for the banking system, particularly commercial banks and merchant banks, during 2007 (see **Figure 6.15**).

The relatively larger exposure to foreign interest rate risk for both the commercial banks and the merchant banks arose from the longer re-pricing profiles and larger percentage of investments to foreign currency assets relative to building societies as well as the greater use of leverage by merchant banks. Consequently, the DVBP to capital increased to 2.9 per cent and 10.0 per cent at end-2007 relative to 1.9 per cent and 5.9 per cent at end-2006 for commercial banks and merchants banks, respectively.

[43] The DVBP is the absolute value of the price change of a bond portfolio from a 100 basis point change in yield. It is a measure of the interest rate sensitivity and is represented as a percentage of capital for analytical purposes.

6.2.4 Credit Risk Exposure of the Banking System

The expansion of credit to the private sector slowed slightly as reflected in a decrease in the ratio of private sector credit to GDP at end-2007 of 23.2 per cent relative to 26.1 per cent at end-2006 (see **Figure 6.16**). The penetration of loans to the private sector, occurred in spite of the deceleration in GDP growth relative to 2006, was supported by a stable interest rate environment and suggested a continued focus by banks on financial intermediation.

Notwithstanding the continued increase in credit to the private sector, albeit at a slower pace, the banking system's capacity to absorb credit risk shocks remained robust relative to 2006. Specifically, there were continued overall declines in the non-performing loans (NPL) ratio, adequate levels of loan-loss provision and increased access to credit for both households and corporates. Credit quality for the banking system continued to improve with NPLs as a percentage of loans declining to 2.3 per cent at end-2007 from 2.6 per cent in 2006 (see **Figure 6.17**).

Credit spreads, computed as the difference between weighted average loan and deposit rates, declined by 38 bps to 12.1 per cent at end-2007 (see **Figure 6.18** and **Figure 6.19**). Additionally, household loans to disposable income continued its upward trend to 18.0 per cent, a 3.1 percentage point gain over end-2006.

Figure 6.16
Evolution of Credit Risk by Economic Sector for the Banking System

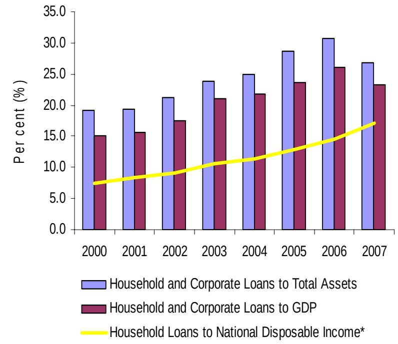


Figure 6.17
The Evolution of Credit Default Risk for Households and Corporates and the Adequacy of Provisioning for Bad Debt

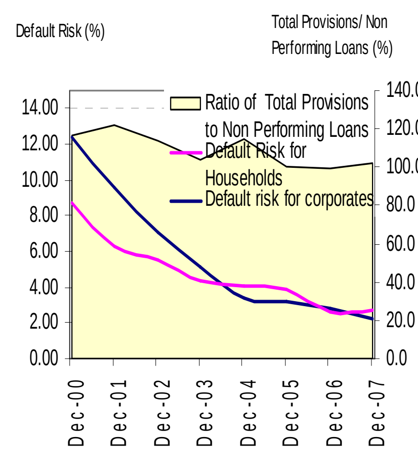


Figure 6.18
Selected Loan Rates and Loan-Deposit Spread of the Commercial Banking Sector

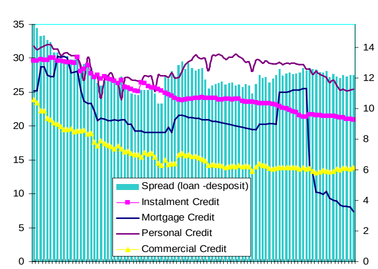


Figure 6.19
Trends in the Composition of the Loan Portfolio of the Banking System

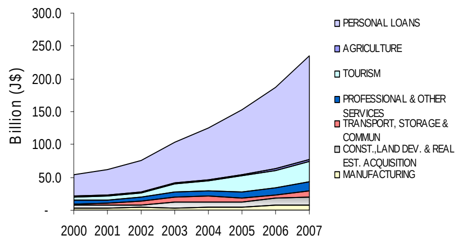
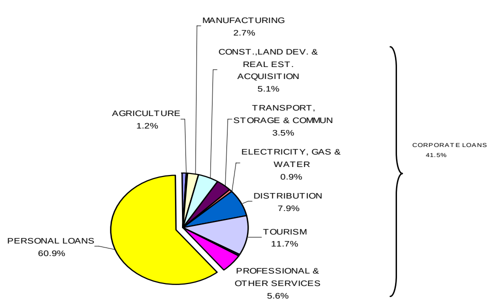
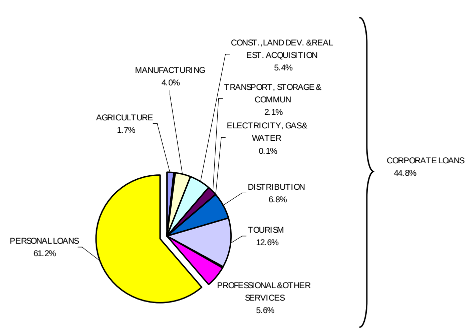


Figure 6.20
a) Composition of the Loan Portfolio of the Banking System at End-2006



b) Composition of the Loan Portfolio of the Banking System at End-2007



The building societies sector showed the most improvement in the credit quality profile of the banking sector. In addition, commercial banks and merchant banks continued to maintain low levels of non-performing loan ratios over the review period. On a sectoral basis, the mining, quarrying and processing and entertainment sectors all experienced mild increases in NPLs the impact of which was offset by credit quality improvements, in among others, construction, agriculture and transportation sectors (see **Figure 6.18**).

The stable credit quality outturn for the review year occurred in spite of the slowdown in domestic economic activity, shocks to international commodity prices and Hurricane Dean, together with the deteriorating macroeconomic conditions that prevailed in the latter half of 2007.

The banking system's robust capacity to absorb losses resulting from borrower default, measured as the ratio of loan-loss provisions to gross NPLs, was 102.3 per cent at end-2007 (see **Figure 6.18**).[44] This outturn attests to adequacy of the self-insurance of the banking system to anticipated credit-related shocks.

[44] That is, every dollar of NPLs was backed by a dollar of provisions within the banking system on the aggregate.

6.2.5 Credit Risk Exposure to the Household Sector

For 2007, the amount of new personal loans issued by the banking system was approximately $18.1 billion representing an increase of 19.2 per cent relative to new loans issued in 2006.[45] Accordingly, the share of the total loan portfolio attributable to households increased to 61.2 per cent at end-2007 from 60.9 per cent at end-2006 (see **Figure 6.21 and Figures 6.22**). The continued strong growth in personal loans occurred against the backdrop of continued stability in domestic interest rates over the review year and the need for the banking system to augment its net interest income from investments with interest income from loans.

The growth in popularity of several unregulated investment schemes posed a number of risks to the banking system during 2007. These included, but were not limited to, the increased possibility of loan defaults as anecdotal evidence suggested that financial intermediaries may have indirectly served as a source of funding for these unregulated schemes via clients investments.[46] Notably, uncollateralized loans made by commercial banks grew by 21.0 per cent in 2007. This growth compares with an annual growth rate of 1.0 per cent at end-2006.

Figure 6.21
Composition of the Loan Portfolio of the Banking System at End-2006

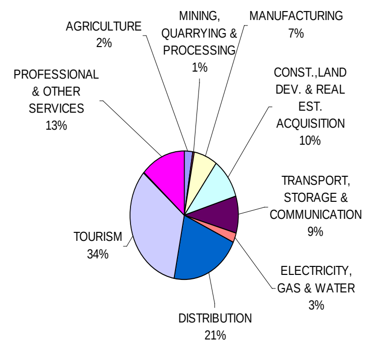


Figure 6.22
Composition of the Loan Portfolio of the Banking System at End-2007

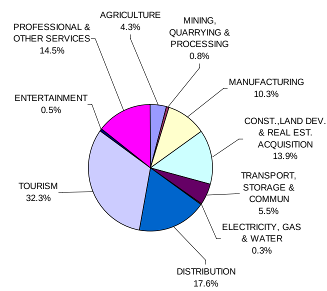
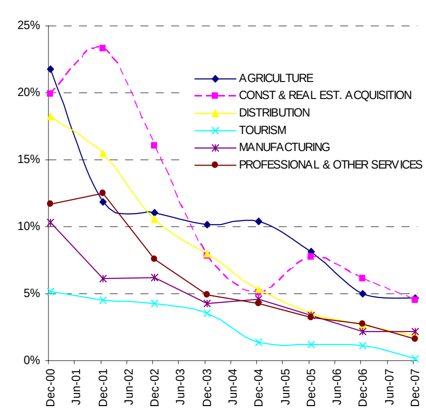


Figure 6.23
Evolution of Sectoral Credit Quality by for the Banking System



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[45] Banking system personal loans represents loans issued by commercial banks and merchant banks.

[46] This is of concern given that the demise of these unregulated investment schemes could trigger a default on these loans and result in a spike non-performing loans in the banking system.

Figure 6.24a
Results of Credit Risk Stress Tests for Commercial Banks at End-2007

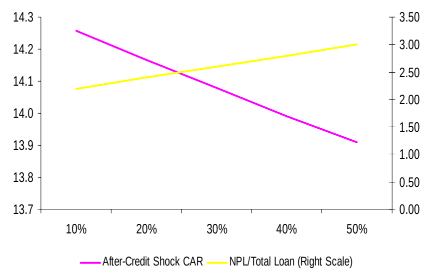


Figure 6.24b
Results of Credit Risk Stress Tests for Merchant Banks at End-2007

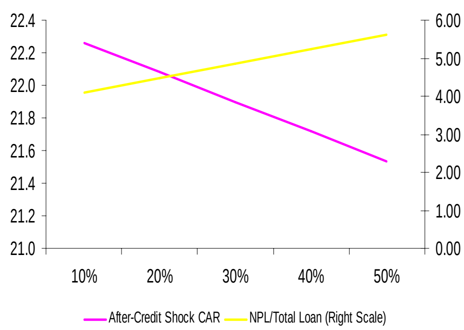
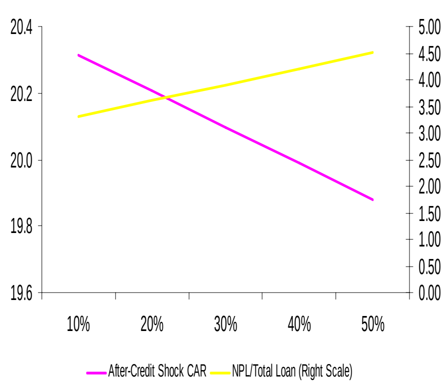


Figure 6.24c
Results of Credit Risk Stress Tests for Building Societies at End-2007



Accordingly, uncollateralized loans accounted for 28.0 per cent of the total loan portfolio of commercial banks at end-2007.

However, stress tests conducted by the Bank during 2007, indicated that the capital base of the institutions in the banking system would be able to withstand significant shocks to credit quality as well as a withdrawal of deposits which could emanate from a fall-out in activities of the unregulated schemes (see **Box 6.1**)

6.2.6 Credit Risk Exposure to the Corporate Sector

The loan portfolio directed towards the corporate sector remained well diversified, albeit, with some biases towards the growth areas of the economy including the tourism, distribution and construction sectors. The concentration of loans in the tourism sector increased to 34.0 per cent at end-2007 from 32.3 per cent at end-2006. Similarly, there was an increase in the share of loans to the distributive sector which represented 21.0 per cent of the corporate loan portfolio from the 18.0 per cent at end-2007. In contrast, there was a decline in the concentration of loans to the construction sector to 10.0 per cent at end-2007 from 13.9 per cent at end-2006 (see **Figure 6.21**).

Continued improvement in the loan quality of the tourism sector bolstered the loan book of the banking sector for corporates. Strong growth of 5.4 per cent in the *Construction & Installation sectors* in 2007 contributed to the improvement in the credit quality of the sector. The recovery of the construction sector following the cement shortage which began in mid-2005 was reflected in the continued reductions in the sectors non-performing loans (see **Figure 6.23**). As a result, non-performing loans to total loans for the sector decreased to 4.4 per cent at end-2007 from 5.9 per cent at end-2006.

The impact of Hurricane Dean was most pronounced on the *Agriculture* sector of the banking system loan book. The Hurricane, however, had very little impact on the credit quality of loans to that sector except for a temporary spike in the third quarter of 2007.

6.2.7 Credit Risk Stress Testing of the Banking System

In terms of routine credit risk stress tests conducted by the Bank, the banking sector was able to withstand the credit shocks which involved the hypothetical conversion of 10.0 to 50.0 per cent of personal loans to non-performing loans.

Specifically, the commercial banks' capital adequacy ratio declined by 0.4 percentage point to 13.9 per cent when 50.0 per cent of existing personal loans were converted to non-performing loans. Merchant banks and building societies recorded post-shock CARs of 21.6 per cent and 19.9 per cent, respectively, when 50.0 per cent of existing loans became non-performing. Further, the evaluation of the resulting post-shock non-performing loans to total loans remained well below the 10.0 per cent international benchmark for each sub-sector (See **Figures 6.24a-c**).

Box 6.1 Unregulated Investment Schemes: Implications for Financial Stability of the Banking Sector

Unregulated Investment Schemes (UIS) became increasingly popular as an alternative means of investing for Jamaicans during 2007.[47] Despite the high risks involved, the appetite for these types of investments increased due to the substantial returns promised. These schemes, however, raise a number of concerns for regulators regarding transparency and sustainability of their operations. The major concern for regulators is the negative impact that the collapse of such schemes could have on the soundness and integrity of the financial system. There is also the added impact of a slowing in the pace of economic growth with the collapse of these schemes, as well as the implications for the process of intermediation within the formal economy.

With reference to the banking system, the potential fall-out from the collapse of UIS poses a number of challenges to the robustness of the sector. There is the possibility of deposit withdrawal risk. A number of UIS could encounter operational difficulties and suddenly withdraw large amounts of funds which may adversely impact the banking system. There is also the risk of a significant increase in the relocation of funds by investors to UIS domiciled outside the country which may increase the rate of currency depreciation. Finally, to the extent that investors may have borrowed funds from the banking system to finance investments in schemes, the demise of these schemes would increase the default risk of loans.

In this context, this box assesses the impact on capital adequacy of the banking system resulting from various shocks associated with the insolvency of UIS. In order to accomplish this objective, an aggregate stress testing framework is employed to assess the impact of a combination of credit and market risk shocks fuelled by the insolvency of these schemes on the banking system.[48] The model simulated the impact on the banking sector from extreme but plausible shocks related to the collapse of most of these UIS.

Stress Test Assessment of Fallout in UIS on Banking System Capital Adequacy

The stress testing process involves the simulated insolvency of 80.0 per cent of all UIS within a three month period. Within the scenario it is assumed that 20.0 per cent of funds invested in UIS were banking system loans. The exercise also incorporated into the process a 10.0 per cent reduction in deposits in the banking system as well as 10.0 per cent quarterly depreciation in the Jamaica Dollar vis-à-vis the US dollar resulting from the shifting of funds to UIS domiciled outside of the country.

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[47] The alternative investment schemes include Cash Plus, USIMO, Overseas Locket International Corporations (OLINT), World Wise Partners, Higgins Warner Limited, F1 Trading, Lewfam Club, May Daisy Deidre Matthews, Inter Trade, Expert Prudential, Write Vision, Keen Exchange, Emerald Proprietors/Emerald Private Club, Wealth Builders, CARIEF, Personal Trading, SGL Holdings, Strategic Alliance Investment Company, A3 Union, Partner Financials, Kingdom Investments Unlimited International (KIUI) and Image Consultants & Services.

[48] **Stress testing** is a form of testing that is used to determine the stability of a given system or entity given large but plausible shocks to credit and market risk factors. It involves testing beyond normal operational capacity, often to an extreme point, in order to observe the results on capital adequacy.

Stress Test Results

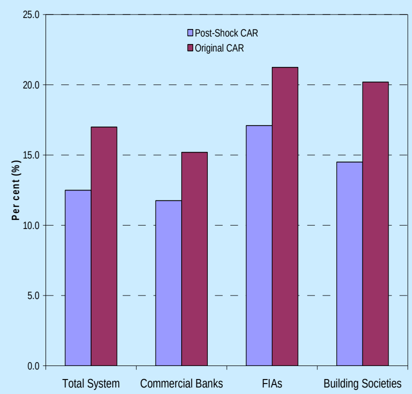
The scenario resulted in a 4.0 percentage point reduction in the CAR of the banking system to 12.82 per cent (see **Figure 1**). The commercial banks and building societies would be most affected by the combination of market and credit risk shocks in the post stress test scenario. The building societies would record the most significant declines in CAR, with an average decline in capital adequacy of 9.5 percentage points.[49] Nevertheless, the post-shock CAR of all sectors would remain above the 10.0 per cent minimum regulatory requirement.

Conclusion

The findings show that although commercial banks and building societies were most vulnerable, the banking sector was resilient to these combinations of shocks. More specifically, the banking sector is adequately capitalized to absorb shocks emanating from the combination of a significant deterioration in credit quality, a substantial depreciation in the exchange rate and a significant drawdown of deposits within the banking system.

Figure 1

Aggregate Stress Test for Banking System as at End- 2007



[49] Further, the credit risk shock for the building societies represented 30.0 per cent of the sector's CAR.

7. Payments System Developments

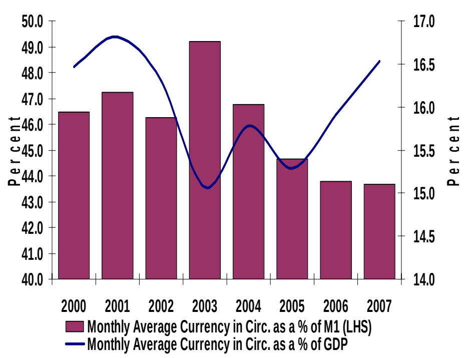
I. Overview

The role of cash in the level of economic activity, as reflected in the monthly average currency in circulation as a percentage of GDP, continued to increase for 2007. However, given strong growth in non-cash deposit payments during 2007, the average level of currency in circulation as a per cent of M1 declined.

Although point-of-sale (POS) and automated banking machine (ABM) average transaction size recorded significant growth in 2007, the value of payments by cheque continued to dominate payments using these alternative means. The average transactions size of Customer Inquiry Funds Transfer System (CIFTS) transfers also increased significantly for 2007, increasing the BOJ's credit risk exposure.

The continuation of the payment system reform programme in 2008 will ensure that large exposures to credit risk among CIFTS participants are reduced.

Figure 7.1
Currency in Circulation



Currency in circulation was approximately $40.7 billion at end-2007, an increase of 13.7 per cent relative to growth of 20.8 per cent for 2006.

The role of cash in the level of economic activity continued to increase for 2007. This was reflected in a 14.2 per cent increase the monthly average currency in circulation as a percentage of GDP, compared to an increase of 10.3 per cent for 2006. However, the average level of currency in circulation as a per cent of M1 declined by 0.24 per cent to 43.7 per cent at end-2007 relative to end-2006. This reflected the continuation of a three year decline in the share of cash transactions relative to non-cash transactions from deposits (see **Figure 7.1**).

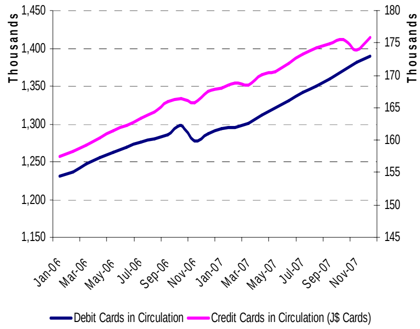
Continued rise in the role of cash in economic activity during 2007

Consistent with the decline in the average level of currency in circulation as a per cent of M1, the number of debit and credit cards in circulation continued to grow during 2007. Debit cards in circulation increased by 8.0 per cent in 2007, along with an increase of 4.9 per cent for credit cards (see **Figure 7.2**).

II. Alternative Means of Payment

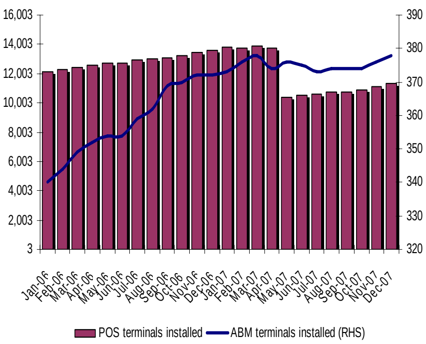
Despite the increases in the number of debit and credit cards in circulation, there were fewer POS

Figure 7.2
Debit and Credit Cards in Circulation



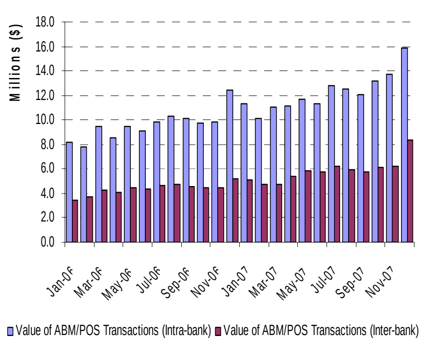
Source: JETS

Figure 7.3
Total ABM and POS Terminals



Source: JETS

Figure 7.4
ABM/POS Values



Source: JETS

terminals installed during 2007, as well as a marked fall in installed ABMs compared to previous years of sustained growth. POS terminals declined by 16.8 per cent to 11 319, while the number of ABM terminals increased only marginally by 1.6 per cent to 378 at end-2007 (see **Figure 7.3**). The sharp decline in POS terminals were due to the decommissioning of 3 610 terminals during May 2007.[50]

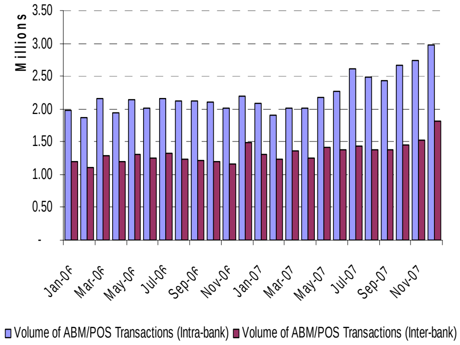
Greater proportion of "on-us" transactions implies increased soundness and efficiency in payments system

Notwithstanding the fall-off in terminals installation, POS and ABM monthly volumes as well as monthly values of transactions increased for 2007 relative to 2006. The average transaction size from these alternative means of payments increased by 14.2 per cent to $4 783.3 for 2007 relative to 2006 (see **Figure 7.4** and **Figure 7.5**).

In spite of the increased value of ABM and POS transactions, 'cheque payments' continued to be the dominant means of payment (see **Figure 7.6** and **Figure 7.7**). The average transactions size of cheque payments was $213 329.8 for 2007, an increase of 11.3 per cent over the average value for 2006. In addition, the share of intra-bank ABM/POS average payment values

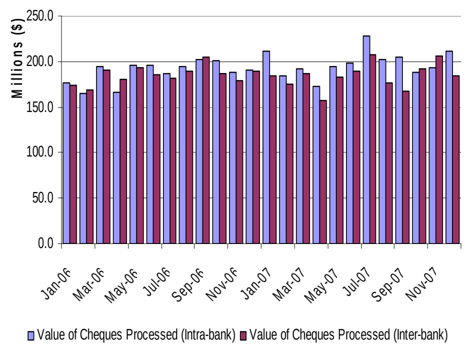
[50] Reflects policy of a large network bank to decommission POS terminals that are unused by merchants for more than 90 days.

Figure 7.5
ABM/POS Volumes



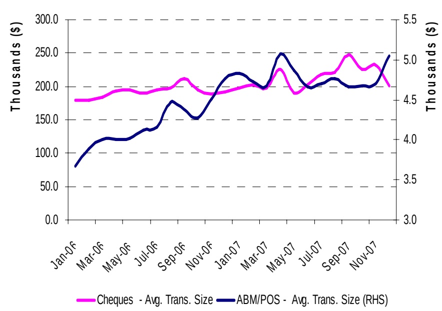
Source: JETS

Figure 7.6
Cheque Values



Source: JETS

Figure 7.7
Average Transactions Size



relative to total intra- and inter-bank values declined slightly by 1.0 percentage point to 68.0 per cent for 2007 compared to 2006. The higher share value of intra-bank ABM/POS transactions relative to ABM/POS inter-bank transactions supports the continuation of relatively low inter-bank credit and liquidity risks (see **Figure 7.4**). Credit and liquidity risks also declined marginally for cheque transactions in the review year. For 2007, the share of intra-bank cheque average payment values relative to total values was 55.0 per cent, an increase of 1.0 percentage point over the value for 2006.

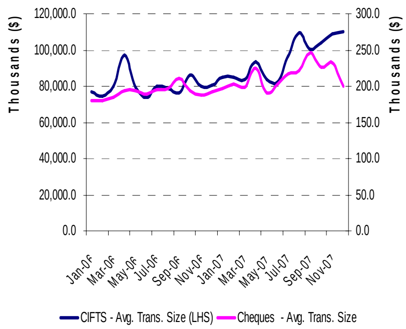
III. Large Value Transfer Systems in Jamaica

Increases in average transactions size of CIFTS transactions heightens exposure to settlement risk

The average transactions size of CIFTS transfers increased significantly to $95.1 million for 2007 relative to $80.3 million for 2006 (see **Figures 7.8**).[51] Hence, the credit risk exposure was greater for the BOJ in 2007. The continuation of the Bank's payment system reform programme in 2007 will ensure that large exposures to credit risk among CIFTS settlement account holders are reduced.

[51] The CIFTS network system is a Deferred Net Settlement System operated by the BOJ that facilitates the electronic transfer of funds in local currency between the accounts of primary dealers, commercial banks, the Jamaica Central Securities Depository (JCSD) and JCSD broker members.

Figure 7.8
Average CIFTS Credit Transfer



The payment system reform programme will encompass the establishment of a real-time gross settlement (RTGS) system in 2008 in which payment transfers will be settled on a transaction-by-transaction basis in real time. RTGS systems are advantageous for large-value transfers and involve minimal disruption to the system in the event of a bank's payment default. Specifically, the RTGS system provides settlement with 'unconditional finality' once the payment instruction arrives at the BOJ. That is, participating banks are able to access cleared funds immediately without the end day delay currently experienced in CIFTS.

The RTGS will require relatively large amounts of intra-day liquidity, compared to the CIFTS, given that obligations must be settled on a transaction-by-transaction basis as they enter the clearing stage. That is, in a RTGS system, participants will require substantial clearing balances on their current accounts in order to cover the value of each outward payment during the day. Intraday liquidity facilities for RTGS participants may be provided in the intra-day, inter-bank market or from the BOJ on a collateralised basis. The linkage of a RTGS and the CSD will ensure 'delivery versus payment' (DvP). That is, payments can only be made simultaneously with the transfer of ownership of collateral securities.

Glossary

Asset Utilization	Measurement of the effectiveness of an institution's investment in earning assets. This ratio calculates the overall yield on earning assets.
Broker-Dealer (Securities)	A person or firm sometimes acting as broker and sometimes as principal intermediary in securities transactions. A broker is a firm that communicates bid and ask levels to potential principals and otherwise arranges transactions as agent for a fee, without acting as counterparty in the transactions.[52]
Automated Clearing House	An electronic clearing system in which payment orders are exchanged among financial institutions, primarily via magnetic media or telecommunications networks, and handled by a data processing centre.[53]
Central Securities Depository	An institution which provides the service of holding securities and facilitating the processing of securities transactions by book entry (electronically).
Certificate of Participation	A financial instrument in which an investor has a *pro rata* share in a specific lease revenue made by a municipal or government entity and is subjected to annual appropriation.
Clearing and Settling Institution	An institution which transmits information and funds through a payment system network. It may operate as an agent or a principal.
Collateral	An asset or third-party commitment that is accepted by the collateral taker to secure an obligation of the collateral provider vis-à-vis the collateral taker.[54]
Concentration Risk	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.

[52] Committee on Payment and Settlement Systems (CPSS), BIS.
[53] CPSS, BIS.
[54] CPSS, BIS.

Consumer Confidence Index	An indicator of consumers' sentiments regarding their current situation and expectations of the future.
Credit Rating	An evaluation of the likelihood of a borrower's default on a loan. Sovereign credit ratings assess the likelihood that a sovereign entity will default on its obligations.
Credit Risk	The risk of losses arising from the inability of a counterparty to settle payment of all obligations when due or in the future.
Deferred Net Settlement	The settlement of transfer orders netted at designated times between or among counterparties in order to economize on the number and value of transactions.
Delivery versus Payment	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.
Disposable Income	The remaining income after taxes has been paid which available for spending and saving.
Financial Conglomerates	Financial institutions which undertake a wide range of activities such as banking, stocking broking, insurance and fund management.
Financial Intermediation	The process of channelling funds between lenders and borrowers. Financial institutions are regarded as financial intermediaries because of their role in transforming long-term lending or investment from shorter-term deposits or savings.
Fiscal Deficit	The excess of government expenditure over revenue for a given period of time.
Foreign Exchange Risk	The risk associated with potential losses incurred by an institution by holding foreign currency-denominated instruments due to adverse movement in the exchange rate.

Funds Under Management/ Managed Funds	The management of various forms of client investments by a financial institution.
GAP Ratio	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.
Hedging	Strategy designed to reduce investment risk or financial risk. For example, taking positions that offset each other in case of market price movements.
Interest Margin	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.
Interest Rate Risk	The risk associated with potential losses incurred on various financial instruments due to interest rate movements.
Intraday Credit	Credit extended to a payment system participant that is to be repaid within the same day.
Large-Value Transfer System	A payment system designated for the transfer of large value and time-critical funds.
Leverage	The proportion of debt to equity built up by borrowing (on-balance-sheet leverage) or with the use of off-balance sheet transactions.
Liquid Ratio	The ratio of average prescribed assets to average prescribed liabilities.
Liquidity Risk	The risk of losses arising from the inability of a counterparty to settle payment of all obligations for full value when due.
Market Risk	The risk of losses in on- and off-balance sheet positions arising from movements in market prices.
Mortgage-Backed Security	A security that derives its cash flows from principal and interest payments on pooled mortgage loans.

Net Open Position	The difference between long positions and short positions in various financial instruments.
Non-Performing Loans	Loans whose payments of interest and principal are past due by 90 days or more.
Off-Balance Sheet Items	Contingent assets and debts that are not recorded on the balance sheet of a company.
Payment System	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.
Payment Versus Payment	A mechanism which ensures that the transfer of payment occurs if and only if the final transfer of a counterparty payment is simultaneously received.
Point-of-Sale	Refers to the use of payment cards at a retail location
Preferences shares	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
Prescribed Liabilities	These refer to a) deposit liabilities, b) reservable borrowings and c) interest accrued and payable on a) and b).
Real-Time Gross Settlement System	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).
Repurchase Agreement (Repo)	A contract between a seller and a buyer whereby the seller agrees to sell and then repurchase securities sold at an agreed price and at a stated date in the future.
Retail Payment System	An interbank payment system designated for small value payments including cheques, direct debits, credit transfers, ABM and POS transactions.

Securities Settlement System

A system which permits the transfer of securities: either free of payment (free delivery), for example in the case of pledge; or against payment. Settlement of securities occurs on securities deposit accounts held with the CSD (both private CSDs or a national central bank acting as a CSD) or with the central bank (safe custody operational accounts).[55]

Settlement Bank

Either a central bank of private entity that maintains accounts with the settlement agent in order to settle payment obligations arising from securities transfers, both on its own behalf and for other market participants.[56]

Settlement Risk

The risk that settlement in a transfer system will not take place as expected. This risk may comprise both credit and liquidity risk.[57]

Stress Test

A quantitative test to determine the loss exposure of an institution using assumptions of extreme but plausible shocks to market, credit or liquidity conditions.

Subprime Mortgage

Mortgage to borrower with impaired or limited credit history, typically reflected in low credit score.

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 when due.

Value at Risk (VAR)

Refers to a quantitative estimate or statistical technique that measures the loss that an institution will not exceed over a specified time period with a given probability.

Yield Curve

The relationship between the interest rates (or yields) and time to maturity for debt securities of equivalent credit risk.

[55] CPSS, BIS.
[56] CPSS, BIS.
[57] CPSS, BIS.