



An Analysis of Bank Liquidity in The Bahamas: 2001 - June 2012

by

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Introduction

- Typically, Central Banks are concerned with low levels of liquidity in the banking system.
- However, Central Banks' market intervention could lead to a build-up in liquidity, as occurred in the recent global financial crisis.
- When the crisis began to intensify in 2009, many countries witnessed an accumulation in liquidity in the banking system, as Central Banks worldwide initiated a number of measures to support economic activity and boost credit growth.
 - **In the United States, the Federal Reserve implemented a number of “quantitative easing” measures to spur economic activity, which contributed to a surge in liquidity.**
- In the Caribbean, countries such as The Bahamas, Trinidad & Tobago, Jamaica and Barbados reported robust liquidity expansion arising from the economic downturn.

Literature Review

- **Caprio and Honohan (1991)** examined the issues related to excess banking system liquidity and concluded that excess liquidity conditions do not require a tightening of monetary policy, but an examination of the underlying causes and/or information deficiencies, as well as the adoption of more appropriate actions.
- **Khemraj (2009)** conducted a study on nine (9) developing countries with persistent excess liquidity conditions and determined that banks viewed loans and excess liquidity as perfect substitutes at high interest rates.
- **Maynard and Moore (2006)** found that liquidity growth is a function of shocks to the currency-to-deposit-ratio, the business cycle, the interest rate on Treasury bills, and financing to the Government by the banking sector.
- **Ganley (2004)** found that a significant build-up in liquidity could lead to higher inflation as a result of an expansion in domestic consumption.





Liquidity Management: Existing Regulatory Practices in The Caribbean

- Liquidity Management is a crucial part of Central Bank operations globally.
- Central Banks in the region targets may differ, but the common objective is that of financial and monetary stability.
- The Central Banks utilize both direct and indirect monetary policy instruments in an effort to effectively and efficiently manage liquidity levels.

TABLE 1: MONETARY POLICY INSTRUMENTS

	Statutory Reserve Requirements	Interest Rate Controls	Credit Controls	Moral Suasion	Open Market Operations	Repurchase Rate	Intervention in the Foreign Exchange Market	Special Liquidity Facility
Central Bank of The Bahamas	✓	✓	✓	✓	✓			
Central Bank of Barbados	✓	✓		✓				
Eastern Caribbean Central Bank	✓							✓
Bank of Jamaica	✓				✓		✓	
Central Bank of Trinidad & Tobago	✓				✓	✓		✓

Source: Central Banks Websites





Liquidity Management: Existing Regulatory Practices in The Caribbean cont'd

- Countries in the Caribbean have a long history of using the statutory reserve requirement ratio as a liquidity management tool.
- The required ratios are stipulated in all of the Central Banks Act, along with the respective fines that are imposed on commercial banks if they fail to meet the outlined requirement.

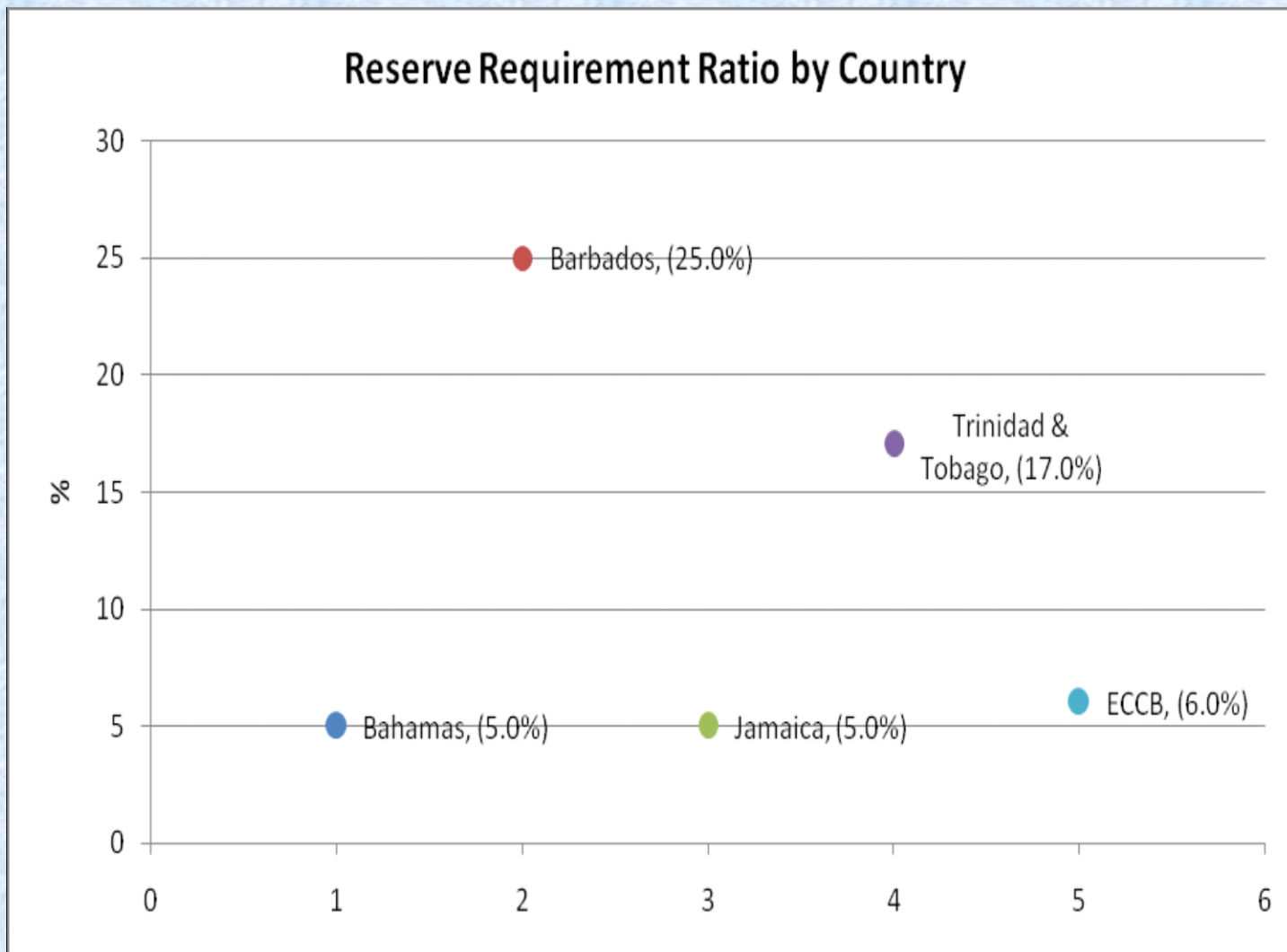
Table 2: Reserve Requirements and Penalties

Country	Reserve Requirement	Penalty
Central Bank of Jamaica	<p>Minimum Reserve Requirement: 5.0% or more</p> <p>Liquid assets on Hand: 15% or more</p>	Fine of 150,000 and \$5,000 for each additional day in breach.
Central Bank of The Bahamas	<p>Minimum Reserve Requirement: 5.0%</p> <p>Minimum required liquid assets:</p> <p>20% of bank demand deposits</p> <p>15% of savings and fixed deposits</p> <p>15% of borrowings due to/from</p>	Fine a maximum of twice the annual discount rate for everyday that a deficit occurs.
Bank of Barbados	Minimum Reserve: 25% of total profits per annum.	Fine an annual rate charge, not exceeding twice the rate fixed at the time of such failure.
Central Bank of Trinidad and Tobago`	<ul style="list-style-type: none"> •Minimum Reserve 17.0% of total prescribed liabilities •Secondary Reserves:2.0% of total liabilities 	Fine: interest on the deficiency 1/10% per day.
Eastern Caribbean Central Bank	Minimum Reserve Requirement: 6.0%	Fine an annual rate not exceeding five percentage points above the highest discount/rediscount rate fixed by the Bank for as long as the deficiency continues.





Figure 1



Analysis of Bank Liquidity in The Bahamas

- For banks in the domestic banking system, the narrowest measure of liquidity is net free cash reserves (excess liquidity), which are primarily the cash holdings of banks, either held in till cash or at the Central Bank.
- From these cash holdings, banks are legally required to maintain a portion called “statutory reserves” against their Bahamian dollar deposit liabilities.
- The broader measure of liquidity is liquid assets, which includes notes and coins held in till cash, balances held at the Central Bank, Government securities, net interbank demand/call deposits and other specified assets, such as public financial institutions bonds.

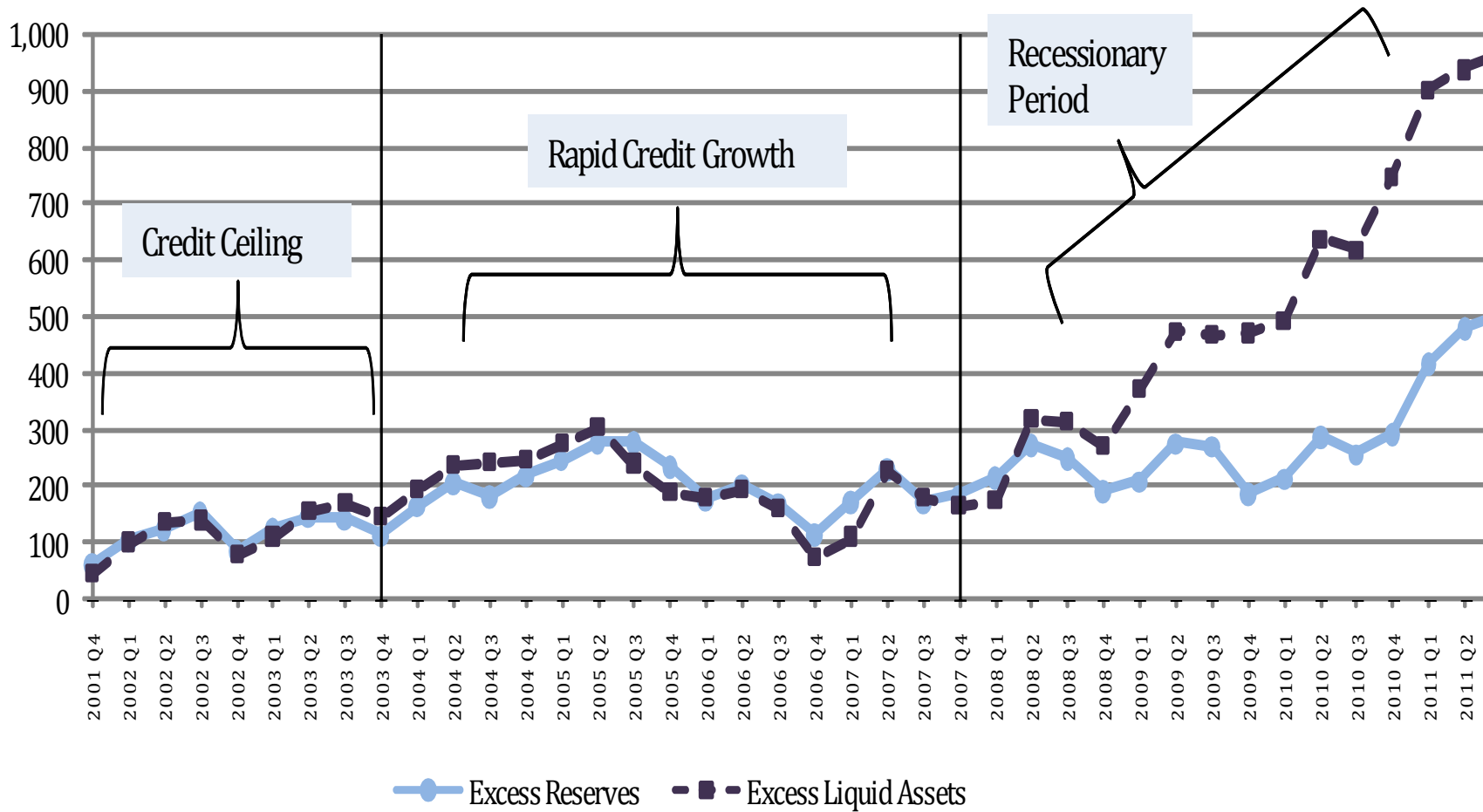




Figure 2

Trends in Excess Reserves and Excess Liquid Assets (2001-2011)

(B\$M)



Analysis of Bank Liquidity in The Bahamas cont'd

- 2001-2004:
 - Economic activity in The Bahamas slowed and the Central Bank implemented a credit ceiling to provide support for the country's external reserves
 - With a restrictive credit policy in place, lending growth moderated from 9.2% in 2001 to 2.1% in 2003.
 - Government issued a combined \$492.3 million in internal debt between 2002 and 2003.
 - As a consequence of these measures, bank liquidity expanded, as excess liquidity advanced from \$56.5 million at end-2001 to \$271.6 million at the close of 2004.
 - The excess liquid assets, increased from \$67.4 million at end-2001 to \$232.5 million at end-2004.





Analysis of Bank Liquidity in The Bahamas cont'd

2004- 2007:

- With the removal of the credit freeze in August 2004, there was a rapid drawdown in liquidity, in the subsequent years, as banks attempted to meet the pent-up demand for credit.
- Credit growth surged to 12.7% in 2005, and advanced by an additional 14.4% and 9.5% in 2006 and 2007, respectively.
- Excess liquidity fell by over half, from \$271.6 million at end-2004 to \$190.1 million at end-2007.
- Banks' surplus liquid assets declined to \$151.9 million at end-2007 from \$232.5 million at end-2004.

Analysis of Bank Liquidity in The Bahamas cont'd

2008- 2011:

- The global economic and financial crisis, which negatively affected the domestic economy in 2008, led to a broad-based, robust build-up in liquidity.
 - increased Government borrowing to fund its deteriorating deficit, as well as one-off foreign currency inflows, the largest of which related to the Government's \$300 million external bond issue.
 - One-offs including: the receipt of approximately \$210.0 million in foreign currency proceeds from the sale of the Govt's 51% interest in the Bahamas Telecommunications Company (BTC).
- The three year period (2008-2011) was also characterized by anemic credit growth, which averaged 1.7%. Credit remained weak into the first half of 2012
- The adoption of conservative lending practices by the banking system, due to the surge in arrears and non-performing loans as a percentage of total loans, from 9.7% and 4.5% at end-2007, to 19.3% and 13.0% at end-2011, respectively.
- Banks' excess reserves more than doubled over the three year period and stood at \$370.6 million or 6.2% of deposit liabilities at end-2011, while surplus liquid assets ballooned by almost six-fold to \$896.4 million.





Empirical Analysis

- Based on the findings of the previous authors, two models of excess liquidity and excess liquid assets in the Bahamian banking system were investigated using the Vector Autoregressive (VAR) methodology over the period 2001 Q1 to 2011 Q4.
- Variables chosen, included several utilized by Maynard and Moore and Anderson-Reid, in order to capture the impact of the macroeconomic environment, Government's financing decisions and the commercial banks' preferences on liquidity in the banking system.
 - Quarterly real GDP series used in both models was obtained from the study by Jordan and Tucker (2012).
- External Reserves was also included in both initial models, to capture the potential impact of significant one-time transactions on liquidity in the banking system.
- A Dummy variable was added to assess the effect of the imposition of a credit ceiling between September 2001 and August 2004 on liquidity.

Empirical Analysis cont'd

VARIABLES USED IN REGRESSIONS AND EXPECTED SIGNS

Variable		LER_RES	LELA
<i>Net Domestic Assets</i>	LNDA	+	+
<i>Real GDP</i>	LRGDP	-	-
<i>Real GDP/Trend GDP¹</i>	LRGDPH	-	-
<i>Private Sector Credit</i>	LPCREDIT	-	-
<i>External Reserves</i>	LRES	+	+
<i>Treasury Bill Rate</i>	T_BILL	-	-
<i>Credit Ceiling</i>	CEILING	+	+

Source: The Central Bank of the Bahamas and the Department of Statistics. ¹Trend real GDP obtained using the Hodrick-Prescott Filter





Empirical Analysis (OLS Results)

LER_RES

- The results indicate net domestic assets (NDA) have positive effect on excess reserves, i.e. *ceteris paribus*, as the Government's deficits are financed by money creation or overseas borrowing, this raises the level of banks' excess reserves.
- Negative coefficient for private sector credit (PCREDIT) shows that as banks utilize their resources to support lending to their clients, it drains liquidity from the banking system.
- Negative relationship with the Treasury bill rate (T_BILL) shows the potential trade-off between banks decisions to hold reserves at the Central Bank, or short-term securities.
- The imposition of a credit CEILING led to a build-up in excess reserves in the banking system.

LELA

- In model 2 (LELA), the LNDA and T_BILL and CEILING variables were also significant; as well as RGDP;
- PCREDIT was not significant in the model.

Empirical Analysis (OLS Results cont'd)

DETERMINANTS OF EXCESS RESERVES AND EXCESS LIQUID ASSETS (OLS RESULTS)

	<i>LER_RES</i>	<i>LELA</i>
<i>LNDA</i>	7.919403 (0.0004)*	5.011077 (0.0000)*
<i>LRGDP</i>	—	-3.871010 (0.0468)*
<i>LPCREDIT</i>	-4.675056 (0.0232)*	—
<i>T_BILL</i>	-0.223796 (0.0000)*	-0.359196 (0.0000)*
<i>CEILING</i>	0.354178 (0.0051) *	0.727321 (0.0006) *
<i>C</i>	-21.99819 (0.0000) *	-7.620736 (0.5934)
<i>R-squared</i>	0.834966	0.793366
<i>Adjusted R-squared</i>	0.818040	0.772173
<i>F-Statistic</i>	49.32888	37.43488
<i>Durbin-Watson stat</i>	1.300556	1.155644

* indicates significance at the 5% level





Empirical Analysis Co-integration Results

- All variables were first tested for stationarity
 - All of the variables were order $I(1)$.
- The variables were then placed in VAR model and tested for the presence of a long-run cointegrating relationship using the Johansen and Julius technique
- Both models were co-integrated as given by the AIC statistic, which showed that there were three co-integrating equations
- They also had valid error correction models

Empirical Analysis (Short-Run Dynamics)

- The short run dynamics of both models were then investigated using Generalized Impulse Response functions
- The results showed that a one standard deviation positive shock to LNDA results in positive responses for ER_RES,
- A shock to PCREDIT produces a weaker positive response to ER_RES,
- Inverse impact occurs for shocks to the T_BILL variable, although this represents the strongest absolute response of the three variables





Empirical Analysis (Short-Run Dynamics cont'd)

- In contrast to ER_RES model, a one standard deviation shock to NDA produces a negative response to ELA
- A shock to T_BILL produces a negative response profile for ELA,
- Innovations to RGDP causes a positive response to ELA.



Conclusion

- The analysis showed that the patterns witnessed in The Bahamas are similar to those experienced in other Caribbean countries.
- For The Bahamas, the rapid accumulation of excess reserves and excess liquid assets in the banking system was due to a number of factors:
 - the slowdown in credit demand
 - the adoption of more cautious approaches to lending by banks in the face of high delinquencies
 - the decline and subsequent slow growth in output and rise in Government borrowing,

Conclusion cont'd

From a monetary policy perspective, this situation is unlikely to reverse in the near-term given:

- Challenges faced by customers in servicing existing loans and the weak level of consumer demand.
- Potential foreign currency inflows from a number of large-scale foreign investment projects and tourism earnings,
- Limited avenues for banks to invest in foreign assets, given the Exchange Control restrictions ,
- Over the medium to long-term, as economic growth accelerates and employment conditions improve, there will be opportunities for the Central Bank to utilize, in addition to direct, indirect instruments of monetary policy to impact banking sector liquidity.

Thank You !!!

