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Jamaica: Reserve Requirements, GFC[1]

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Abstract

In October 2008, the Global Financial Crisis (GFC) and liquidity shortages rocked American and European markets, causing investors to exit liquid Jamaican-dollar assets. The Bank of Jamaica (BOJ) feared a "disorderly depreciation" in the Jamaican-dollar (JMD) exchange rate to the US dollar (BOJ 2009, 44). In response, the BOJ raised required reserve ratios for cash and other liquid assets, the first increases since 2002. The BOJ raised reserve ratios three times—in December 2008, January 2009, and February 2009—because the central bank could not change its requirements by more than 200 basis points per month. The BOJ raised the requirement for domestic currency assets to restrict the supply of Jamaican dollars available to trade for foreign currencies. Further, the BOJ said that raising reserve requirements on the domestic currency would also help to ensure that banks had cash on hand when depositors withdrew their funds. The cash reserve ratio increase absorbed JMD 4.7 billion (USD 62.6 million) in the fourth quarter of 2008 and JMD 7.2 billion (USD 96 million) in the first quarter of 2009, according to the BOJ.

Keywords: cash reserve ratio, liquid-assets ratio, Global Financial Crisis, Jamaica, reserve requirements

[1] This case study is part of the Yale Program on Financial Stability (YPFS) selection of New Bagehot Project modules considering the adjustment of reserve requirements. Cases are available from the *Journal of Financial Crises* at
https://elischolar.library.yale.edu/journal-of-financial-crises/.

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Overview

Key Terms

Purpose of Adjusting Reserve Requirement (RR): to avoid "a disorderly depreciation in the foreign exchange market" by increasing domestic currency reserves (BOJ 2009, 44)	
Range of RR Ratio (RRR) Peak-to-Trough	9.0%–14.0% (cash); 23.0%–28.0% (liquid assets)
RRR Increase Period	December 2008–February 2009
RRR Decrease Period	March 2010–July 2010
Legal Authority	Bank of Jamaica Act
Interest/ Remuneration on Reserves	Unremunerated
Notable Features	Higher reserve requirements for domestic currency liabilities to support the exchange rate
Outcomes	December 2008: JMD 4.7 billion (USD 0.07 billion) absorbed January–March 2009: JMD 7.2 billion (USD 0.17 billion) absorbed

Cross-border remittances, exports, and tourism connect Jamaica to the United States. During the Global Financial Crisis (GFC), these linkages transmitted the subprime-induced credit crunch to Jamaica. Creditors revoked Jamaican institutions' credit lines, and credit rating agencies downgraded Jamaican debt, causing margin calls (BOJ 2009). These two forces produced an acute need for US dollars (and, via similar mechanisms, British pounds sterling) while maturing government bonds produced an ample supply of Jamaican dollars (JMD). Understanding that such an imbalance would cause the currency to depreciate, the Bank of Jamaica (BOJ) increased the reserves it required depository institutions to hold against domestic currency liabilities (Latibeaudiere 2008).

Jamaica's reserves-management policy was characterized by two features: separate requirements for domestic and foreign currency liabilities, which had been the same in the decade leading to the crisis; and a liquid-assets ratio that included both government securities and cash as eligible assets (BOJ 1984).

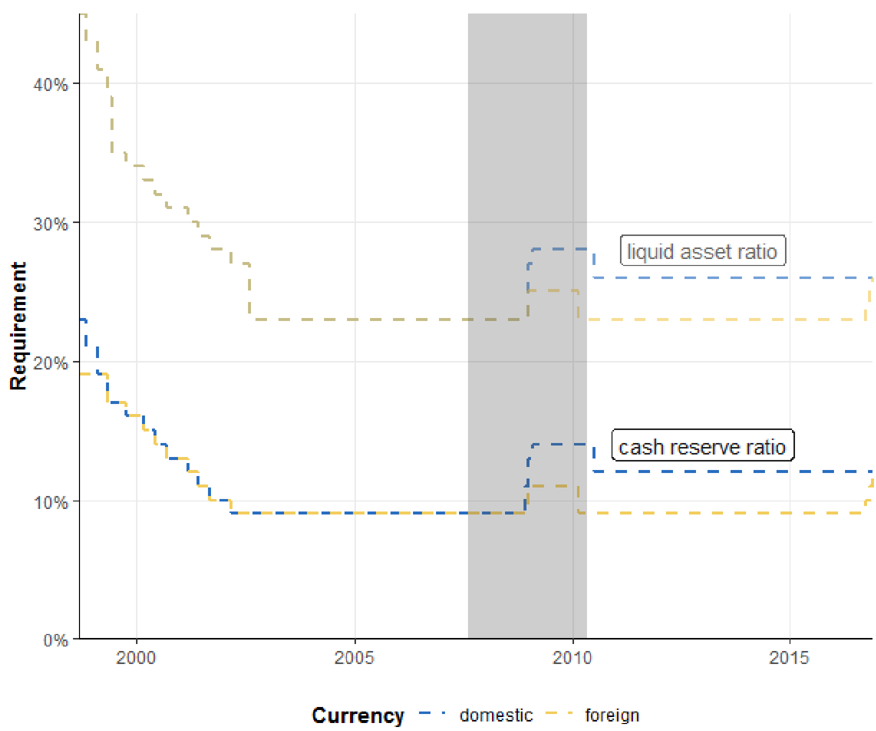
On November 18, 2008, the BOJ announced that it would raise reserve requirements following a legally mandated 15-day notice period. The central bank said it would raise both the cash reserve ratio and liquid-assets ratio by 500 basis points (bps) over several months, with the first 200 bps increase coming in December. The BOJ also announced that it would offer short-term time deposits—its usual monetary policy tool—bearing high interest rates to further absorb Jamaican-dollar liquidity (BOJ 2008c).

By February 2009, the BOJ had raised reserve requirements by 500 bps for domestic currency liabilities and 200 bps for foreign currency liabilities (BOJ 1984; BOJ 2010). The BOJ raised requirements gradually because the Bank of Jamaica Act (1960) limited increases to 200 bps per month.

Commercial banks typically held reserves above the required levels. Since Jamaica's 1998–2000 financial crisis, commercial banks' liquid-assets holdings almost always totaled more than 125% of the requirement and regularly totaled more than 150% of the requirement. Thus, as the BOJ gradually raised the reserve ratio between November 31, 2008, and January 31, 2009, commercial banks increased their cash reserves from 19% to 22% of liabilities and their liquid assets from 36% to 37% of liabilities (BOJ 2021). These changes absorbed JMD 4.7 billion (USD 55.5 million)[3] in 2008 and JMD 7.2 billion in the first quarter of 2009 (BOJ 2009; BOJ 2010).

Reserve requirements for foreign currency liabilities remained at elevated levels until March 1, 2010, as shown in Figure 1. The BOJ lowered domestic reserve requirements four months later, but did not return them to pre-GFC levels, settling the cash reserve requirement at 12% and the liquid-assets requirement at 26% (BOJ 1984).

Figure 1: Cash Reserve and Liquid Asset Ratios Before, During, and After the GFC



Source: BOJ 1984.

Summary Evaluation

As a result of historical holdings of excess reserves, banks were less sensitive to changes in reserve requirements than those Jamaican banks that held reserves closer to the required levels. BOJ quarterly reports credited the increase in reserve requirements with arresting the decline in the JMD-USD exchange rate.

[3] Per Yahoo Finance, USD 1 = JMD 72 on December 1, 2008.

The BOJ estimated that the December 3, 2008, increase in reserve requirements from 9% to 11% contributed to an increase in cash reserves of JMD 4.7 billion, or 27.4% year-over-year by the end of 2008 (BOJ 2009).

The BOJ estimated that the first quarter 2009 reserve requirement increases—on January 2 and February 6—led to a 4.3% year-over-year increase in domestic currency liquid assets held by commercial banks at the end of 2009. This increase in cash reserves was partially offset by a "significant decline" in commercial bank holdings of BOJ securities (see Figure 2). The BOJ also estimated JMD 7.2 billion was absorbed in 2009 (BOJ 2010).

Figure 2: Domestic Currency Liquid Assets Held by Jamaican Commercial Banks

	2007	2008	2009			
	Dec	Dec	Mar	Jun	Sep	Dec
Statutory Liquidity (%)						
Cash Reserve Ratio	9.0	11.0	14.0	14.0	14.0	14.0
Liquid Assets Ratio	23.0	25.0	28.0	28.0	28.0	28.0
Average Liquid Assets Holdings (%)	30.0	36.9	39.5	35.8	36.1	36.6
Liquid Assets (J$BN)						
Notes and Coins	6.5	7.0	5.3	5.1	6.0	7.3
Current Account	2.9	1.4	0.5	0.4	0.5	0.7
Cash Reserve	17.3	22.0	28.9	29.4	28.6	29.7
Treasury Bills	2.1	0.8	0.5	0.4	0.5	0.6
Local Registered Stocks*	-1.9	-0.7	1.6	1.0	0.8	-1.2
Other Government Securities	2.2	4.4	2.7	1.9	2.1	6.7
BOJ Open Market Instruments	30.9	34.3	29.6	29.1	24.1	24.3
Other Placements with BOJ	0.9	4.7	9.7	7.2	11.9	7.6
Repo Agreements with counter-parties	1.5	0.2	0.3	0.4	1.1	1.6
Total	62.3	74.1	79.1	74.9	75.6	77.3
Prescribed Liabilities (J$BN)	191.7	199.8	202.6	210.2	203.9	208.5
Excess Reserves	13.5	23.8	22.1	16.3	16.5	17.9

**Net of securities pledged as collateral*

Source: BOJ 2010.

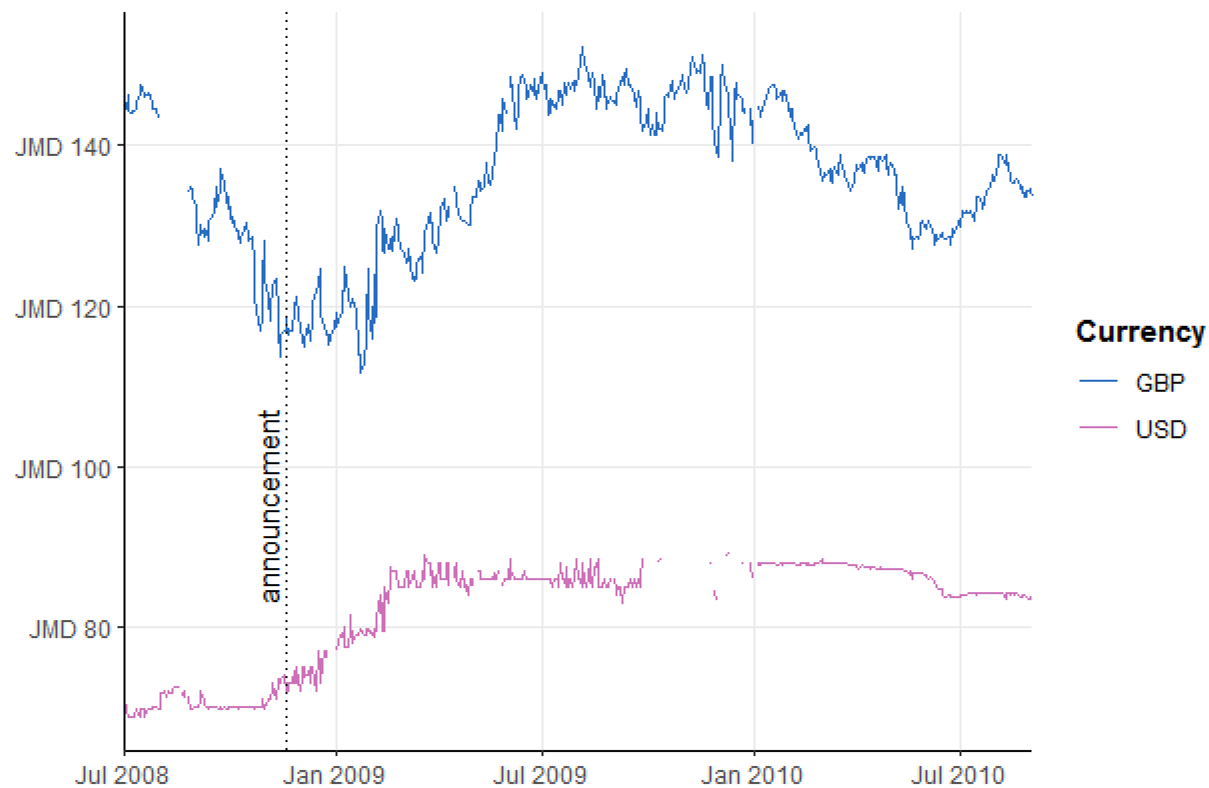
Context: Jamaica 2008–2009		
GDP (SAAR, nominal GDP in LCU converted to USD)		$13.7 billion in 2008
		$12.1 billion in 2009
GDP per capita (SAAR, nominal GDP in LCU converted to USD)		$4,928 in 2008
		$4,335 in 2009
Sovereign credit rating (five-year senior debt)	2008	Moody's: Ba2 *-
		S&P: B
		Fitch: B
	2009	Moody's: Caa1
		S&P: CCC
		Fitch: CCC
Size of banking system		$6.4 billion in 2008
		$5.6 billion in 2009
Size of banking system as a % of GDP		46.9% in 2008
		45.9% in 2009
Size of banking system as a % of financial system		Data not available in 2008
		Data not available in 2009
Five-bank concentration of banking system		Data not available in 2008
		100% in 2009
Foreign involvement in banking system		95% in 2008
		91% in 2009
Existence of deposit insurance		Yes in 2008
		Yes in 2009
Sources: Bloomberg; World Bank Global Financial Development Database; World Bank Deposit Insurance Dataset.		

Key Design Decisions

1. **Purpose: The Bank of Jamaica raised reserve requirements to remove excess Jamaican dollar liquidity in the banking system and preserve financial stability by slowing depreciation of the Jamaican currency's exchange rate against the US dollar.**

In fall 2008, during the Global Financial Crisis (GFC), investors sold Jamaican-dollar assets in favor of foreign currency assets seen as safe stores of value amid uncertainty and following the downgrades of Jamaican national debt by the three major ratings agencies (BOJ 2010). The sales of Jamaican-dollar assets created "extraordinary foreign exchange needs" for Jamaican financial and non-financial businesses (BOJ 2008c). Around the same time, the maturation of Bank of Jamaica (BOJ) and Government of Jamaica (GOJ) securities yielded further Jamaican-dollar liquidity to bondholders. The BOJ sought to discourage those bondholders from swapping Jamaican dollars for foreign currencies, which would have put further pressure on the value of the Jamaican dollar. To do so, the BOJ raised reserve requirements for banks' holdings of Jamaican-dollar assets on three occasions. It is not clear why the BOJ raised requirements for foreign currency liabilities on one of those occasions. To see daily exchange rates over time, see Figure 3.

Figure 3: Daily Exchange Rates During the Global Financial Crisis



Sources: Yahoo Finance 2008a; Yahoo Finance 2008b.

2. **Part of a Package: In November 2008, the BOJ announced a 15-day open market operation to absorb liquidity until the reserve requirement changes took effect.**

On November 18, 2008, the BOJ announced that it would offer a special, short-term certificate of deposit to primary dealers and commercial banks before the reserve requirement changes took effect. The deposit paid 20.5% per year and absorbed JMD 5 billion before the 15-day notice period ended and higher domestic currency requirements took effect (BOJ 2008a; Latibeaudiere 2008). The Jamaican dollar fell against the US dollar by 1.4% the following week (Yahoo Finance 2008b).

The BOJ took three additional measures to bolster the currency before raising reserve requirements. On October 15, 2008, it began lending US dollars to banks exposed to margin calls on Government of Jamaica bonds, which all three major ratings agencies downgraded in fall 2008 (BOJ 2008b; BOJ 2010). The BOJ also noted another direct intervention in the foreign exchange market—the sale of foreign currency directly to the public sector.

3. **Legal Authority: The Bank of Jamaica Act limited the BOJ to a 200-bps increase of reserve requirements each month.**

Sections 28 and 29 of the Bank of Jamaica Act required the BOJ to set, respectively, the cash reserve and liquid-assets requirements. The act, however, constrained the maximum and minimum values each requirement could take and the timing of increases in requirements. The cash reserve requirement could vary from 5% to 25%, while the liquid-assets requirement could vary from 15% to 50%. The BOJ could not raise the cash requirement by more than 200 bps per 30 days, and the central bank had to give regulated institutions at least 15 days' notice before the increase took effect. For the liquid-assets requirement, the same notice grace period applied, but increases could be as much as 500 bps per 30 days (Bank of Jamaica Act 1960).

4. **Administration: Banks held their cash reserves at the BOJ; banks reported their liquid assets each month.**

The Banking Act (2004) required that cash reserves remain on deposit at the BOJ. Liquid assets included funds held off-site; each bank calculated the cash reserve requirement by averaging its liabilities at the close of each Wednesday. In 2009, one bank failed to comply with the increased requirements, and the BOJ used a tool not specified in the Bank of Jamaica Act—a "special monitoring programme"—to resolve the issue (BOJ 2010, 70). Under the Bank of Jamaica Act (1960), banks that did not report their holdings correctly could be guilty of an offense resulting in an initial fine of no more than JMD 150,000 and JMD 5,000 per day.

5. **Governance: It is not clear how the BOJ changed requirements.**

The BOJ was controlled by a board of directors consisting of the governor, the senior deputy governor, the secretary, and six other directors appointed by the Minister of Finance (MOF). This board controlled the policy of the BOJ.

The Bank of Jamaica Act required the BOJ to publish any changes to reserve requirements in the official government gazette (Bank of Jamaica Act 1960).

6. Communication: The BOJ communicated by press release and conference.

The BOJ issued news releases to announce changes to reserve requirements. The governor of the BOJ also spoke about the crisis before quarterly monetary policy briefings (Latibeaudiere 2008).

In the news release for December 2008, the BOJ said that increases in reserve requirements would "remove" the buildup of liquidity in the banking system and "preserve order in financial markets" (BOJ 2008c). While the central bank said it intended to increase reserve requirements by another 3 percentage points in the future, it also characterized increased reserve requirements as "temporary" (BOJ 2008c).

7. Assets Qualifying as Reserves: The BOJ used cash reserves and a liquid-assets ratio that also included short-term Government of Jamaica (GOJ) securities.

Banks could satisfy the cash reserve solely with deposits held at the BOJ.

Banks could satisfy the liquid-assets requirement with cash reserves, plus:

- Legal tender held outside the BOJ
- Callable loans
- Government of Jamaica Treasury bills
- Local registered stock, a government liability[4]
- Time deposits at the BOJ
- Net balances due from other financial institutions, if positive.

Reserve requirements for foreign currency liabilities could be satisfied with assets denominated in US dollars, Canadian dollars, or British pounds sterling (BOJ 2010). Available documents did not describe the nature of assets the BOJ allowed.

The MOF, after consulting the BOJ governor, could make other assets eligible for the liquid-assets requirement (Banking Act 2004).

[4] Local registered stock were long-term securities issued by the Jamaican government with a remaining period to maturity of nine months or less. By contrast, Treasury bills were short-term government instruments with a 90-day maturity. The liquid assets holdings of the commercial banks generally consisted of cash reserves, Treasury bills, and local registered stock issued by the government (Brown 1991).

8. Reservable Liabilities: Reserve requirements likely covered deposits, borrowed funds, and the interest accrued and payable on these liabilities.

Reserve requirements likely covered time, demand, and savings deposits; funds borrowed from other institutions; and the interest accrued and payable on these liabilities (Anderson-Reid 2011).

9. Computation: The BOJ calculated monthly cash reserve requirements using a four-week averaging period, then added an additional noncash requirement.

The BOJ's required reserves consisted of the cash reserve requirement (CRR) and the liquid-assets, or non-cash, requirement (LAR). To calculate the CRR required in a given month, the BOJ used a four-week averaging period that ended on the third Wednesday of the previous month.[5] The LAR was an additional fraction of deposits or other eligible liabilities required to be held as risk-free liquid assets, typically in the form of bank notes and coins or GOJ or BOJ securities with maturities less than one year (Tyrell 2008).

10. Eligible Institutions: Depository institutions with less than 40% of their assets in mortgages were required to meet the new reserve requirements.

Reserve requirements applied to "deposit-taking institutions" with a ratio of residential mortgage loans to savings deposits of less than 40% (BOJ 2009, 25). These institutions were commercial banks, governed by the Banking Act (2004); merchant banks; or other non-banks, all governed by the Financial Institutions Act (2004). Together, these institutions held 79% of Jamaica's deposits (BOJ 2010). Building societies with a ratio of mortgages to deposits that met or exceeded 40% held the other 21% of deposits. They paid cash reserve and liquid-assets requirements of, respectively, 1% and 5% (BOJ 2019). The BOJ did not revise reserve requirements on building societies during this period.

11. Timing: The BOJ raised reserve requirements during the GFC and after the Jamaican dollar had begun to depreciate against the US dollar.

Changes to the domestic currency cash reserve and liquid-assets requirements followed the collapse of Lehman Brothers during the GFC. For Jamaica, the increases followed a large volume of foreign exchange transactions that pressured the Jamaican dollar (BOJ 2008c). It is unclear why changes to foreign currency reserve requirements trailed domestic currency changes.

[5] If the previous month had five Wednesdays, then the averaging period ended on the fourth Wednesday of the previous month (Tyrell 2008).

12. Changes in Reserve Requirements: The BOJ raised requirements by 500 bps over three months.

Deposit/Savings/Term Rates

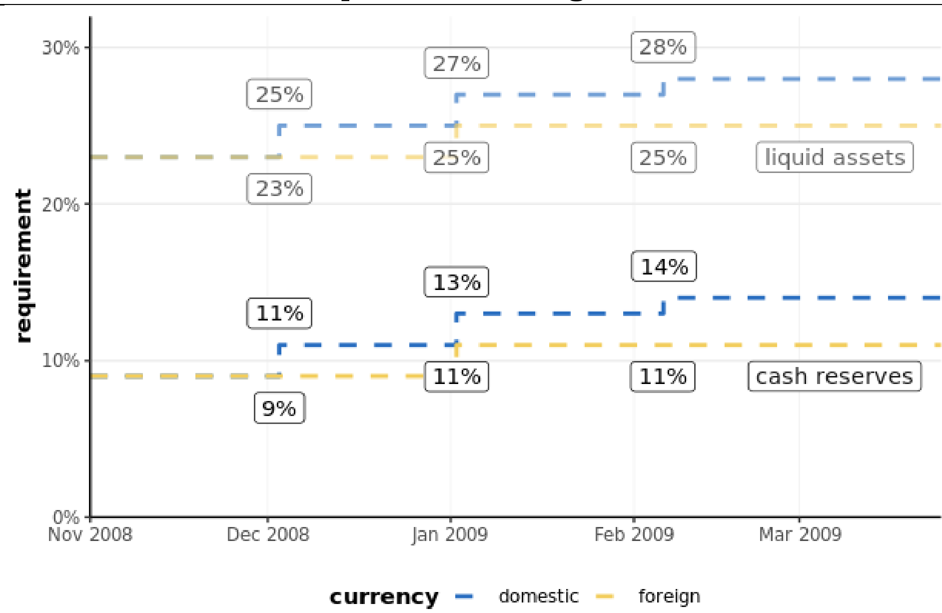
The BOJ did not differentiate between different types of liabilities.

Local/Foreign Currency Rates

On December 3, 2008, the BOJ raised the cash reserve requirement for domestic currency liabilities from 9% to 11% and the liquid-assets requirement from 23% to 25%; it left the reserve requirements for foreign currency liabilities unchanged (BOJ 2008c). On January 2, 2009, 30 days later, the BOJ raised the cash reserve requirement for domestic currency liabilities to 13% and liquid-assets requirement to 27%; it raised the cash reserve requirement for foreign currency liabilities from 9% to 11% and the liquid-assets requirement from 23% to 25%. On February 6, 35 days later, the BOJ raised the cash reserve requirement for domestic currency liabilities to 14% and the liquid-assets requirement to 28%; it left the reserve requirements for foreign currency liabilities unchanged (BOJ 2010). These changes extended a gap between domestic and foreign currency requirements.

To track reserve requirement changes over time, see Figure 4.

Figure 4: Timeline of Reserve Requirement Changes



Source: BOJ 1984.

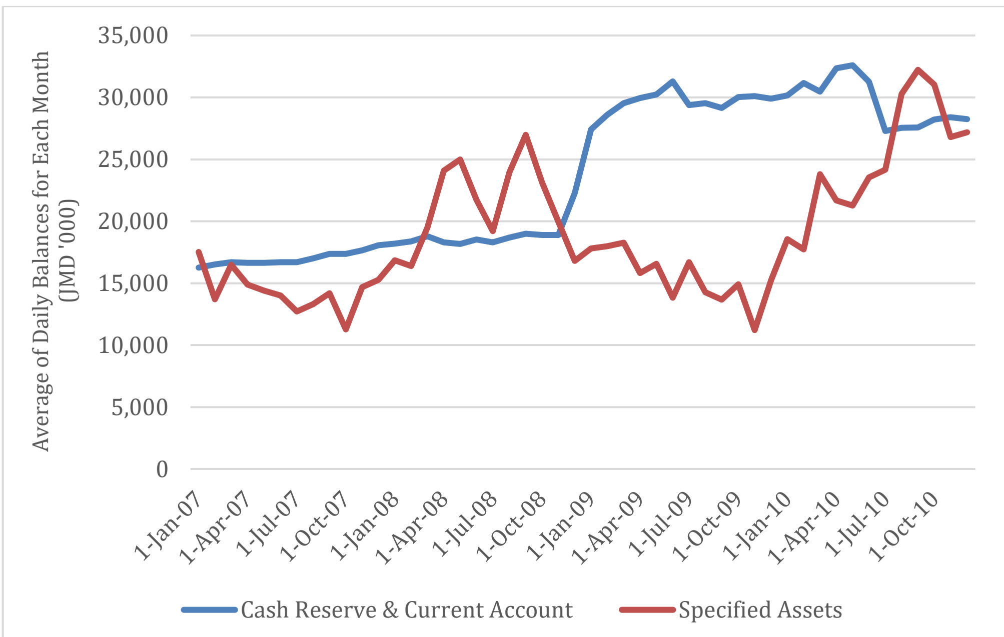
Marginal/Countercyclical Requirement

The BOJ did not have a marginal requirement, though it had the power to institute one (Bank of Jamaica Act 1960).

13. Changes in Interest/Remuneration: The BOJ continued to not remunerate reserves throughout the GFC.

The BOJ did not remunerate cash reserves, including excess reserves (Marks 2022). However, banks could use interest-bearing time deposits at the BOJ to satisfy the liquid-assets requirement (see Figure 5) (Banking Act 2004). These accounts were used more in 2008 than after the BOJ raised reserve requirements.

Figure 5: Commercial Banks' Liquid Holdings



Sources: Author's analysis; BOJ 2021.

14. Other Restrictions: The BOJ placed no other requirements on participants.

Documents surveyed did not suggest that the BOJ imposed other requirements.

15. Impact on Monetary Policy Transmission: The BOJ did not counteract their reserve-requirement increases with other tools.

The BOJ approached increased reserve requirements as part of monetary policy tightening (BOJ 2009). They did not try to counteract their crisis actions with other tools.

16. Duration: Foreign currency reserve requirements returned to pre-crisis levels in 2010, while domestic currency reserve requirements settled between their pre- and mid-crisis levels.

The BOJ did not fix an end date or end conditions on its reserve-requirement increases. It lowered requirements after many of its other crisis facilities ended (BOJ 2010). In March 2010, it lowered the cash and liquid assets requirements for foreign currency liabilities to pre-crisis levels. In July 2010, it lowered the domestic reserve requirements to 12% for cash and 26% for liquid assets, leaving them above pre-GFC levels (BOJ 1984).

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