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Colombia: Reserve Requirements, GFC[1]

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Abstract

On May 6, 2007, the Bank of the Republic (BR), the central bank of Colombia, introduced countercyclical marginal reserve requirements (RRs) on increases in banks' deposit accounts to constrain leverage and credit risk in the financial system. A month later, the BR also raised the ordinary RR on outstanding deposit balances. The BR kept those requirements in place for more than a year. In June 2008, when the effects of the Global Financial Crisis (GFC) began to temper economic and credit growth, the BR eliminated marginal RRs. Also in June 2008, however, the BR raised the ordinary RR on outstanding deposit balances to sterilize the monetary expansion caused by its purchases of international reserves. In October, as the GFC worsened and the BR switched to an expansive monetary policy, it lowered the ordinary reserve requirement in an effort to free up nearly 1 trillion pesos (USD 430 million) of local currency liquidity. Researchers disagree on the effectiveness of reserve requirement policy in Colombia in both constraining credit growth prior to the GFC and alleviating credit tightening during the GFC.

Keywords: reserve requirements, reserve ratio, marginal reserve requirements, macroprudential policy

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[1] This case study is part of the Yale Program on Financial Stability (YPFS) selection of New Bagehot Project modules considering 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

The central bank of Colombia, the Bank of the Republic (BR), tightened monetary policy in 2006 to curb inflation and excessive credit expansion (Vargas et al. 2010).

Between 2006 and 2007, the BR increased its policy rate from 8.25% to 9%. But the BR faced a trade-off in using interest rate policy to address the credit boom. By increasing its policy rate to curb inflation, the BR risked promoting capital inflows and therefore stimulating further credit growth (Montoro and Moreno 2011).

For that reason, Colombia and other Latin American countries turned to reserve requirements to promote financial stability in the second quarter of 2007 (Montoro and Moreno 2011). In May 2007, the BR introduced high marginal reserve requirements (RRs) on increases in deposit liabilities, based on the level of deposits on May 7, 2007. Initially, it set marginal RRs at 27% for checking accounts, 12.5% for savings accounts, and 5% for time deposits. On June 15, 2007, the BR increased the marginal RR on savings accounts to equal that on checking accounts at 27%. In the same month, the BR equalized the *ordinary* reserve requirement, which applied to a bank's outstanding balance of savings and checking accounts, by raising it from 6.0% to 8.3% (Vargas et al. 2010).

The BR kept the marginal RRs in place until June 2008, when the effects of the Global Financial Crisis (GFC) began to temper economic and credit growth. At that time, the BR announced that it would eliminate the marginal RR, effective in the second half of August 2008.

At the same time, however, it *raised* ordinary RRs to sterilize the monetary expansion caused by its purchases of international reserves (Vargas et al. 2010). It raised ordinary RRs to 11.5% on checking and savings accounts and 6% on time deposits.

Key Terms

Purpose of Adjusting Reserve Requirement (RR): At various times in the 2006–08 period, the Central Bank adjusted RRs "to enhance the transmission of policy interest rates and curb credit growth, to sterilize FX purchases by the Central Bank, and to guarantee the provision of liquidity in periods of potential turmoil" (Vargas et al. 2010, 5)	
Range of RR Ratio (RRR) Peak-to-Trough	40%–11% (checking accounts) 35%–11% (savings accounts) 7.5%–4.5% (time deposits)
RRR Increase Period	May 6, 2007–June 20, 2008
RRR Decrease Period	June 20, 2008–October 24, 2008
Legal Authority	Article 16(a) of the Banking Law (Law 31) of 1992
Interest/ Remuneration on Reserves	Ordinary RR: Yes (2000 – July 24, 2009) Marginal RR: Unremunerated
Notable Features	Not applicable
Outcomes	Improved monetary policy transmission; improved liquidity in money markets

In October, as the GFC worsened and the BR switched to an expansive monetary policy, the BR said it would lower the ordinary RR in an effort to free up nearly 1 trillion pesos (approximately USD 430 million)[4] of local currency liquidity (BR 2008c; Vargas et al. 2010). It lowered the ordinary RR to 11% on checking and savings accounts and 4.5% on time deposits, where they remained throughout the recovery (Vargas et al. 2010). CDs and bonds with maturities longer than 18 months faced no ordinary RR throughout the entire crisis period.

To satisfy the ordinary RR, a financial institution could either have vault cash on hand or hold deposits at the BR (BR 2008a). The BR remunerated ordinary RR until July 24, 2009, at which point remuneration was eliminated. The BR never remunerated marginal RRs (Vargas et al. 2010).

Summary Evaluation

Vargas et al. find that Colombia successfully used ordinary RRs to reinforce monetary policy transmission in late 2008; their results suggest that pass-through improved from monetary policy to lending rates. After the BR lowered ordinary RRs, the spreads between the policy rate and the commercial bank treasury and prime lending rates began to fall in early 2009. The authors also cite the difference between the interbank overnight interest rate and the policy rate as evidence that reduced ordinary RRs increased liquidity in money markets (Vargas et al. 2010).

Montoro and Moreno (2011) find that in Brazil, Colombia, and Peru, adjustments in RRs affected interbank lending rates and moderated capital inflows, while also smoothing credit growth. Gómez-González et al. find that increased RRs curtailed credit growth. The authors also find an outsize effect on riskier financial intermediaries: Tighter RRs decreased credit growth for riskier banks more than for "their more stable peers." However, the authors also find that ordinary RRs, after accounting for remuneration paid by the BR, had no statistically significant effect on loan growth between 2006 and 2009 (Gómez-González et al. 2017).

[4] Per Yahoo Finance, 1 US dollar = approximately 2,300 Colombian pesos in October 2008.

Context: Colombia 2008–2009		
GDP (SAAR, nominal GDP in LCU converted to USD)		$242.2 billion in 2008
		$232.4 billion in 2009
GDP per capita (SAAR, nominal GDP in LCU converted to USD)		$5,473 in 2008
		$5,193 in 2009
Sovereign credit rating (five-year senior debt)	2008	Moody's: Baa3
		S&P: BBB+
		Fitch: BBB-
	2009	Moody's: Baa3
		S&P: BBB+
		Fitch: BBB-
Size of banking system		$97.8 billion in 2008
		$88.9 billion in 2009
Size of banking system as a % of GDP		40.4% in 2008
		38.2% in 2009
Size of banking system as a % of financial system		98.6% in 2008
		58.7% in 2009
Five-bank concentration of banking system		Data not available in 2008
		Data not available in 2009
Foreign involvement in banking system		13% in 2008
		12% 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 BR introduced a marginal reserve requirement in 2007 to limit leverage. Later, as the GFC developed, the BR removed the marginal RR and then lowered the ordinary RR to "ensure the availability of local currency liquidity."**

According to Deputy Governor Hernando Vargas and staff,[5] the BR introduced a marginal reserve requirement in 2007 to "prevent excessive leverage of the private sector and control the credit risk of the financial system" (Vargas et al. 2010, 4). In June 2008, after market conditions had begun to deteriorate in the early stages of the Global Financial Crisis (GFC), the BR removed the marginal RR. However, the BR simultaneously raised ordinary reserve requirements at that time to sterilize the monetary expansion caused by its purchases of international reserves (Vargas et al. 2010).

In the last quarter of 2008, banks showed a slight deterioration in their liquidity profile, with the system showing a growing liquidity mismatch between assets and liabilities. The BR responded by lowering the ordinary reserve requirement to "ensure the availability of local currency liquidity" (Vargas et al. 2010, 5). It also allowed the currency to depreciate (Vargas et al. 2010).

In the September 2008 inflation report, the BR indicated that, in lowering the reserve requirement, the "idea was to free up nearly 1 trillion pesos by December" (BR 2008c).

Deputy Governor Vargas and staff argued in a 2010 report that reserve requirements served multiple goals: (i) enhancing monetary policy transmission, (ii) curbing credit growth, (iii) sterilizing FX purchases, and (iv) guaranteeing liquidity in periods of stress (Vargas et al. 2010).[6]

2. **Part of a Package: In May 2007, the BR announced marginal reserve requirements alongside tight monetary policy and new loan provisioning requirements and reserve requirements for foreign indebtedness; in late 2008, after eliminating marginal RRs, it lowered ordinary RRs as the GFC worsened, while easing monetary policy.**

The BR announced new RRs for foreign debt alongside the announcement of marginal RRs in May 2007 (Vargas et al. 2010). The BR required banks to set aside reserves to cover 40% of their foreign debt, which was priced at the "representative market rate"[7] on the day of deposit, and with a redemption term of six months. Initially, the BR required banks to fulfill

[5] Deputy Governor Vargas and staff members (Carlos Varela, Yanneth R. Betancourt, and Norberto Rodríguez) of the Economic Studies Subdirectorate at the BR wrote a 2010 paper on the effects of reserve requirements in an inflation-targeting regime.

[6] As of 2016, the BR has stated its preference to "avoid the use of" reserve requirements, especially unremunerated reserve requirements (OECD 2016, 40).

[7] Article 80 of Resolution 8 defines the "representative market exchange rate" as the "exchange rate for foreign-currency purchase and sale operations that is calculated and certified by the Banking Superintendency…over-the-counter and derivate operations shall not be taken into account" (BR 2000, sec. 80).

the foreign exchange RR with deposits in Colombian pesos; in November 2007, the BR allowed deposits in US dollars (OECD 2016).

The Superintendence of Financial (SFC) also introduced loan provisioning requirements for commercial loans in July 2007 and for consumer loans in July 2008 (Vargas et al. 2010).

3. **Legal Authority: The BR derived its legal authority from Article 16(a) of the banking law (Law 31 of 1992).**

Article 16(a) of the banking law, passed in 1992, specifies that the BR Board of Directors has discretion to establish and regulate required reserves of all credit establishments that receive demand, term, or savings deposits (Law 31 of 1992). Consistent with this authority, the Board of Directors of the BR updated reserve requirements through circulars, increasing reserves from 2007 to 2008, and decreasing reserve requirements through 2009 (BR n.d.; Vargas et al. 2010).

4. **Administration: The Board of Directors of the BR set reserve requirements, which were communicated through circulars.**

The Board of Directors of the BR set reserve requirements.

5. **Governance: While the BR had sole authority to set reserve requirements, macroprudential policy was the joint responsibility of the BR, the Ministry of Finance, and the SFC.**

While the BR had sole authority to set reserve requirements, macroprudential policy was the joint responsibility of the BR, the Ministry of Finance, and Public Credit and the SFC. The Financial System Coordination Committee (FSCC) coordinated the actions of these three key financial regulators, and was made up of the minister of finance, the governor of the Bank of the Republic, the superintendent of finance, the director of the Deposit Guarantee Fund (FOGAFIN), and the director of the Financial Regulation and Financial Studies Unit (URF). The FSCC met at least quarterly to assess risks to financial stability (OECD 2016).

6. **Communication: The BR communicated changes in the reserve requirement through circulars published on the BR's website.**

The BR updated its website with circulars communicating the reserve requirements (BR n.d.). Deputy Governor Vargas characterized reserve requirements as an unconventional monetary policy tool (Vargas et al. 2010).

7. **Assets Qualifying as Reserves: The BR required that reserves be held in deposits at the BR or in cash.**

As of June 20, 2008, reserves could be held in deposits at the BR or in cash on hand (BR 2008a).

8. Reservable Liabilities: Checking accounts, savings accounts, and CDs and bonds maturing within 18 months were subject to reserve requirements.

Both the ordinary and marginal reserve requirements applied to checking accounts, savings accounts, CDs maturing within 18 months, and bonds maturing within 18 months. Liabilities maturing in greater than 18 months did not face any reserve requirements (Vargas et al. 2010).

9. Computation: Reserve Requirements were averaged, lagged, and covered a two-week maintenance period.

The BR based ordinary RRs on the arithmetic average of liabilities in each relevant category—checking accounts, savings accounts, and time deposits—between Wednesday and Tuesday, covering two-week periods, on a lagged basis (BR 2008a).[8]

The BR based marginal RRs on the increases in the balances of deposits since May 6, 2007 (BR 2008b).

10. Eligible Institutions: The reserve requirements applied to all credit institutions.

Credit institutions fall broadly into three categories in Colombia: commercial banks, investment banks, and financing companies (OECD 2016). The reserve requirements applied to all credit institutions (BR 2008a).

11. Timing: The BR lowered reserve requirements between June and October 2008 in response to the GFC.

The BR raised reserve requirements, both the ordinary requirement and the marginal requirement, between June 2007 and June 2008, prior to the GFC, to curtail excessive credit growth. They then lowered them between June and October 2008, in response to the GFC (Vargas et al. 2010).

12. Changes in Reserve Requirement: The BR implemented two types of reserve requirements in the lead-up to the GFC: ordinary or average reserve requirements, and marginal reserve requirements.

Ordinary Reserve Requirement

Ordinary (referred to by the BR as "average") RRs were 13% on checking accounts, 6% on savings accounts, and 2.5% on time deposits between 2000 and 2007 (see Figures 1 and 2). On June 15, 2007, the BR equalized the reserve requirement on savings and checking accounts at 8.3%. Deputy Governor Vargas stated in a 2010 report that the rationale for the

[8] Lagged reserve requirements allow for more certain calculations, so banks don't have to "over-provision in order to meet reserve requirements" (Montoro and Moreno 2011).

change was that "the distinction between these types of deposits in terms of liquidity had been blurred" (Vargas et al. 2010).

Marginal Reserve Requirement

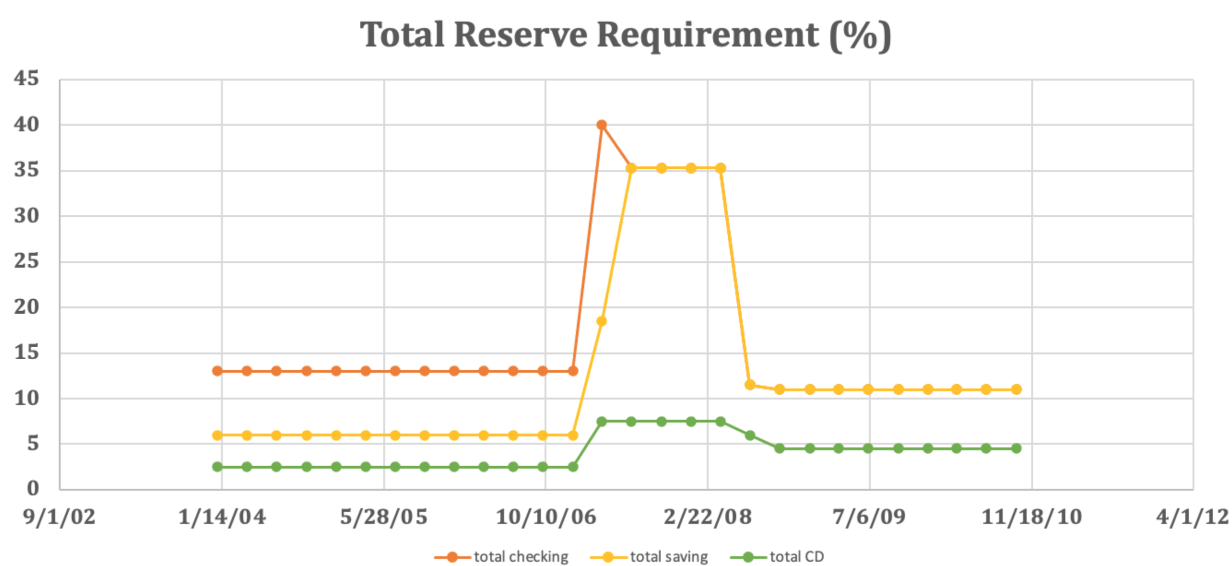
The BR implemented marginal RRs on May 6, 2007, and kept them in place until June 20, 2008 (see Figures 1 and 2). Initially, marginal RRs were set at 27% for checking accounts, 12.5% for savings accounts, and 5% for time deposits. On June 15, 2007, the BR equalized the marginal RR on checking and savings accounts at 27%. On June 20, 2008, the BR eliminated marginal RRs entirely, to ease conditions given the onset of the GFC (Vargas et al. 2010).

Figure 1: Timeline of Average (Ordinary) and Marginal Reserve Requirements

	Reserve Requirements	
Date(s)	**Average (Ordinary)**	**Marginal**
2000–2007	13% Checking Accounts; 6% Savings Accounts, 2.5% CDs and bonds maturing ≤ 18 months	Nonexistent
May 6, 2007	Unchanged	27% Checking Accounts; 12.5% Savings Accounts; 5% CDs and bonds maturing ≤ 18 months
Jun. 15, 2007	8.3% Checking Accounts; 8.3% Savings Accounts, 2.5% CDs and bonds maturing ≤ 18 months	27% Checking Accounts; 27% Savings Accounts; 5% CDs and bonds maturing ≤ 18 months
Jun. 20, 2008	11.5% Checking Accounts; 11.5% Savings Accounts; 6% CDs and bonds maturing ≤ 18 months	BR eliminates marginal reserve requirement
Oct. 24, 2008	11% Checking Accounts; 11% Savings Accounts; 4.5% CDs and bonds maturing ≤ 18 months	–
Jan. 30, 2009	Unchanged	–
Jul. 24, 2009	Unchanged	–

Source: Vargas et al. 2010.

Figure 2: Total Reserve Requirement in Colombia (%)



Source: Vargas et al. 2010.

13. Changes in Interest/Remuneration: The BR updated its remuneration policy multiple times, ultimately eliminating remuneration on July 24, 2009.

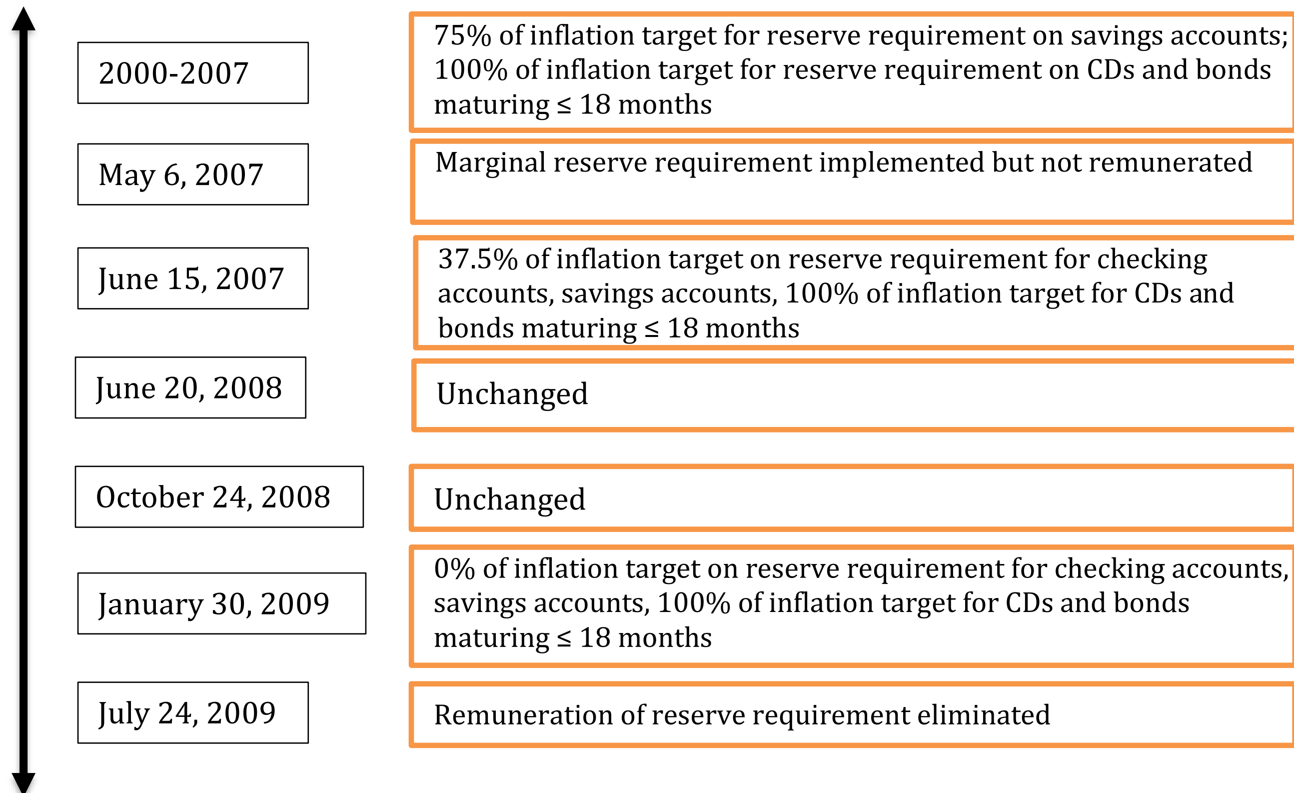
Between 2000 and 2007, the BR paid an interest rate set at 75% of its inflation target for the reserve requirement on savings accounts and 100% of the target for the reserve requirement on time deposits.[9] In June 2007, the central bank set remuneration at 37.5% of the inflation target for reserve requirements on checking accounts and savings accounts. According to Vargas et al., because these types of deposits "had been blurred" in terms of liquidity, it made sense to apply the same remuneration to them (Vargas et al. 2010).

The BR did not remunerate marginal reserves (Vargas et al. 2010).

The BR continued to update its remuneration policy for ordinary reserve requirements, until it eliminated remuneration entirely on July 24, 2009 (BR 2009). In their paper, Deputy Governor Vargas and staff suggest that remuneration's effects on the marginal cost of bank funds influenced the BR's decision to lower and ultimately eliminate remuneration (Vargas et al. 2010). See Figure 3 for a timeline of the BR's remuneration policies.

[9] Full remuneration of reserves is relatively rare. See (OECD 2018).

Figure 3: Timeline of Remuneration



Source: Vargas et al. 2010.

14. Other Restrictions: The BR did not mention any other conditions to the reserve requirements in their public statements.

There do not appear to have been any other conditions attached to reserve requirement adjustments.

15. Impact on Monetary Policy Transmission: In June 2008, the BR increased the average reserve requirement to sterilize international reserve purchases.

Beginning in June 2008, the BR adjusted RRs to sterilize a program of international reserve purchases, by eliminating the marginal RR and raising the average RR. Deputy Vargas and staff found that active use of ordinary reserve requirements reinforced monetary policy transmission; their results suggest that pass-through improved from monetary policy to lending rates. After the BR lowered ordinary reserve requirements, the spreads between the policy rate and the commercial bank treasury and prime lending rates began to fall in early 2009 (Vargas et al. 2010).

16. Duration: The BR did not communicate an end date for changes in its reserve requirement policy.

The BR did not communicate an end date for changes in its reserve requirement policy. The BR eliminated the marginal reserve requirement on June 20, 2008, effective from the second half of August 2008 (Vargas et al. 2010).

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