

Domestic Debt Restructuring, Central Bank, and Monetary Policy in EMDEs

LESSONS FROM RECENT COUNTRY CASES

 Udaibir S. Das and David A. Grigorian

Abstract

Domestic debt restructuring (DDR) in emerging markets and developing economies is a monetary and financial event as much as a fiscal one. DDR reallocates losses across three interconnected balance sheets—the sovereign, the central bank, and domestic financial institutions—impairing monetary policy through four channels: the central bank balance sheet, government securities markets, bank credit, and policy credibility. Cross-country evidence from 17 DDR episodes shows that the money multiplier falls below its pre-restructuring level in most episodes, with the compression concentrated in multi-year restructurings, and that banks' discretionary reserve buffers thin around the restructuring year. Three recent cases—Jamaica (2010), Barbados (2018–19), and Ghana (2022–24)—show that vulnerability to monetary impairment is shaped, among other factors, by the pre-DDR monetary framework and the degree of prior fiscal dominance, and that recovery of monetary transmission is the most uncertain post-DDR outcome. The design lesson is that DDR is constrained optimization: success requires not only reducing debt service but preserving the monetary and financial system capable of supporting economic recovery.

KEYWORDS

Domestic debt restructuring, monetary policy, central bank recapitalization, Jamaica, Barbados, Ghana

Domestic Debt Restructuring, Central Bank, and Monetary Policy in EMDEs: Lessons from Recent Country Cases

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I. Introduction

Domestic sovereign debt has become a central feature of debt distress in some emerging markets and developing economies (EMDEs). As the share of public debt issued under domestic law has risen, resolving unsustainable debt can no longer be analyzed only through the lens of traditional debt workouts. Nor is domestic debt a new phenomenon; its historical importance has long been understated in sovereign-debt debates (e.g., Reinhart and Rogoff, 2008).¹ IMF (2021) and subsequent research (e.g., Grigorian, 2023; Togo *et al.*, 2025) stress that domestic debt restructurings (DDRs) may become more frequent and that their design has unusually strong macro-financial consequences because domestic banks, pension funds, and central banks hold large shares of the affected claims.

However, most of the sovereign debt literature to date, which largely focuses on external debt, creditor coordination, and market access, treats monetary policy only indirectly (e.g., Das *et al.*, 2012; Cruces and Trebesch, 2013; Asonuma and Trebesch, 2016). Since DDRs often have a direct impact on the very institutions through which monetary policy operates, this impact warrants direct treatment. Explicitly incorporating monetary policy and central banking operations into the design of the restructuring process is therefore essential. Failure to do so may undermine the effectiveness of post-restructuring monetary policy and therefore the outcome of the restructuring.

Among these institutions, the central bank occupies a uniquely pivotal position: it is often both a holder of government paper and the regulator of institutions that also hold it. A restructuring may weaken the central bank's balance sheet, disrupt the government securities market and collateral framework, constrain bank credit, or erode policy credibility, impairing monetary transmission as a result.

Issues discussed in this paper are relevant for low- and middle-income countries that issue debt in their own currency and retain an operational domestic monetary framework. The argument is developed through a structured comparative case study of three recent DDRs. Jamaica's 2010 restructuring offers an example of an orderly stand-alone DDR, with strong built-in safeguards and subsequent monetary policy normalization. Barbados' 2018–19 exchange is an example of a predominantly domestic restructuring, where the central bank took the bulk of the restructuring's burden and had to adopt credibility-enhancing measures to be able to maintain its pegged exchange rate regime. Finally, Ghana's 2022–24 restructuring provides a contrasting case of a DDR executed under acute institutional constraints (as part of a combined DDR and external debt restructuring, EDR) in a more stressed macro-financial environment, where bringing inflation under control required strong effort and was costly.

1 Reinhart and Rogoff (2008) show that domestic debt restructurings have been far more frequent historically than standard databases suggest, precisely because they were often conducted quietly through financial repression, below-market captive financing, or negotiated reprofiling without formal default recognition. The post-2020 wave differs in that it involves open exchanges with explicit participation mechanics, making the monetary-policy consequences both more legible and more tractable to study.

This paper does not estimate causal effects. It connects the nascent DDR literature to the central-bank-balance-sheet literature, where a long-standing question is whether financially weak central banks can deliver price stability and operational independence as effectively as well-capitalized ones (Stella, 1997; Stella and Klueh, 2008; Adler, Castro, and Tovar, 2012; Buiters, 2008). A debt restructuring is considered successful if it helps restore debt sustainability and macroeconomic stability necessary for growth to resume. A DDR that achieves headline debt relief but leaves the central bank unable to run market-based operations or the banking system too weak to provide credit to the economy will likely require a repeat restructuring down the road. This paper uses both normative arguments and positive evidence from cross-country data and case studies to stress the importance of maintaining a well-functioning financial system in a DDR.

Section II explains why DDR is conceptually different from external restructuring from a monetary policy perspective. Section III sets out the channels through which DDR impairs monetary policy. Section IV assembles cross-country evidence from 17 DDR episodes during 2000–20, documenting the typical path of monetary indicators around DDRs and the considerable variation across episodes, and providing empirical context for the case study analysis that follows. It then conducts a thorough examination of the Jamaica (2010), Barbados (2018–19), and Ghana (2022–24) DDRs. Section V uses this evidence to derive implications for DDR design. Section VI concludes.

II. Why DDR is different for monetary policy

A. Loss allocation inside the domestic system

The fundamental distinction between DDR and EDR is the location of losses. In an EDR, much of the loss is absorbed by nonresident creditors and can be understood as a transfer out of the domestic balance sheet system. In a DDR, by contrast, the loss is redistributed mainly among domestic claimants and public institutions, although nonresidents holding domestic-law securities can also be affected. The fiscal authority may obtain cash flow relief (through lower coupons, longer maturities, or principal reductions that reduce debt service), but the corresponding loss frequently appears on the balance sheets of domestic banks, pension funds, households, and the central bank. DDR is not a device for making losses disappear—it is a mechanism that redistributes losses largely inside the domestic financial system.

This distinction carries direct implications for monetary policy. Government securities in EMDEs are not merely fiscal liabilities. They are benchmark instruments, preferred collateral in central bank operations, liquid assets for banks, and in some cases, a substantial share of central bank assets. When those instruments are restructured, the consequences extend beyond public-debt arithmetic. The market that anchors domestic pricing, collateral, and liquidity management is itself being altered. The same debt operation that improves the treasury's near-term cash position can therefore reduce the efficiency of the monetary framework on which macroeconomic stabilization depends.

TABLE 1. Domestic and external restructuring from a monetary policy perspective

Dimension	DDR	EDR
Location of losses	Redistributed among domestic creditors	Mostly transferred to creditors outside of the domestic system
Direct central bank exposure	Central bank's balance sheet will be hit by losses in its government securities portfolio	FX reserves may be affected by capital flight
Monetary transmission	Impaired through four channels: central bank's balance sheet, government securities market, bank credit, and policy credibility	Sovereign risk repricing may take place
Fiscal benefit from the exchange	Net benefits are smaller. Financial costs of recapitalization and stability backstopping partly offset the headline savings	Closer to gross reduction in external obligations; some leakage through trade credit and market access channels is possible
Design constraints	Aggressive haircuts risk banking distress and loss of yield-curve infrastructure; central bank and bank recapitalization needs impose binding constraints	Holdout risk may derail the exchange if the offer fails to generate enough take-up among bondholders to trigger collective action clauses (CACs)
Indicative recovery horizon (monetary)	Substantial repair may take years, even under favorable conditions, especially when central bank capital or credibility is weaker.	Typically shorter for market re-access; the domestic monetary framework is usually less directly impaired.

Source: Authors' framework.

It should be noted that restructuring the central bank's holdings of government securities leaves the debt of the consolidated public sector (government and central bank) unchanged, even though it reduces gross government debt as conventionally measured. This is because a DDR that reduces the government debt also reduces the central bank's capital by an equivalent amount (since the central bank holds government securities as assets), leaving consolidated net liabilities unchanged. If the sovereign then recapitalizes the central bank by issuing new government bonds, gross government debt will rise again, leaving the net position identical to the pre-restructuring level.

B. Three interconnected balance sheets

The analytical core of this paper is a three-balance-sheet framework. The sovereign issues debt. The central bank purchases some of it (through both primary and secondary markets for debt securities) and uses it in liquidity operations, while the domestic financial system (including banks, pension funds, and insurance companies) holds most of the rest, with households and, in some cases, non-residents holding the remainder. A DDR changes the valuation, duration, and liquidity of the same instrument across all three balance sheets simultaneously. The resulting interactions determine whether monetary policy capacity is preserved or degraded.

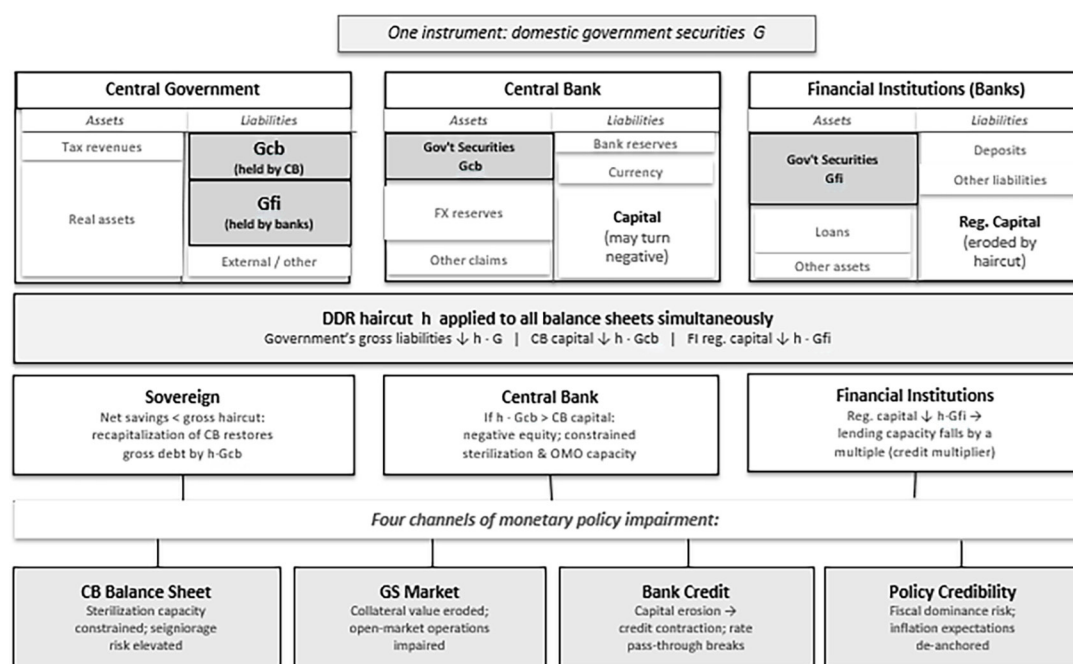
The sovereign–central bank link operates through asset quality, income, and recapitalization risk. If the central bank holds large amounts of government paper, a restructuring can produce an immediate capital loss, a prolonged income loss, or both. The sovereign may then face pressure to recapitalize the central bank, which will then reduce savings from the exchange.

The sovereign–financial system link is equally important. Financial institutions often hold sovereign paper because of regulatory requirements and liquidity management needs, and because it is treated as a riskless asset.² A DDR that cuts deeply into these holdings can weaken bank capital, increase risk aversion, and compress (crowd out) new lending. The result is a reinforced sovereign–bank nexus precisely when the economy needs it to weaken.

The central bank–financial system link is what turns these balance-sheet effects into a monetary policy problem. The central bank conducts operations through the banking system. If banks are capital-impaired, reliant on forbearance, or uncertain how restructured government bonds will be treated for liquidity and prudential purposes, monetary policy signals will pass through less predictably. A central bank seeking to stabilize inflation may find that the operational levers of stabilization have been partially blunted by the debt operation itself. Recapitalization using long-term, non-marketable instruments carrying below-market rates—unfortunately, too common in practice—can leave the central bank with lower income and greater duration exposure than before, even after the formal exchange is complete. Figure 1 summarizes the framework discussed above.

2 Apart from banks, which are often the biggest group within the financial sector of EMDEs, financial institutions with exposure to sovereign debt include pension funds, insurance companies, and other contractual savings institutions. In case studies discussed below, in Jamaica, Securities Dealers (mutual fund-type institutions) were a major holder of government debt. In Barbados, the National Insurance Scheme absorbed principal losses on its holdings of debt securities, alongside the central bank. In Ghana, pension funds were important enough to deserve a separate treatment under the debt exchange. These institutional investor groups lie beyond this paper's primary monetary policy focus but reinforce the central argument that DDR losses redistribute simultaneously across all domestic balance sheets, with consequences that extend well beyond the central bank and commercial banking system. Hakim and Yoon (2026) discuss implications for pension funds (and pensioners) in the context of recent DDRs.

FIGURE 1. The interlocking three-balance-sheet mechanism of a DDR and the shock transmission channels



Notes: Gcb and Gfi are the central bank's and domestic financial system's holdings of government bonds (G). The impacts of a DDR on the three balance sheets occur simultaneously and propagate through the four channels. This interlocking, which makes the sovereign's net savings smaller than the gross haircut implies, distinguishes DDR sharply from external restructuring, where domestic balance sheets are largely insulated from the loss.

C. The central bank's dual role

DDR also differs from external restructuring in that the central bank is often both a participant and a referee. It may be a direct creditor of the sovereign, yet it is also the institution that defines collateral eligibility, emergency liquidity assistance, supervisory treatment, and, in many countries, the day-to-day functioning of the domestic government securities market. This dual role creates difficult trade-offs. Excluding the central bank from the restructuring may preserve operational capacity but provoke objections from other creditors about the lack of burden-sharing. Including the central bank may look equitable, but it could undermine the institution needed to stabilize the post-restructuring economy.

The macroeconomic success of a DDR cannot, therefore, be inferred from participation rates or headline debt relief alone. It must also be assessed by whether the restructuring preserves, or at least quickly restores, the institutions and market infrastructure through which monetary policy works and credit is made available.

III. How DDRs impair monetary policy

Monetary policy impairment, as used in this paper, means a weakening of one or more of the four channels through which the central bank influences financing conditions, credit, and inflation: the central bank's balance sheet, the government securities market and collateral framework, the bank credit channel, and policy credibility.

The most direct channel runs through the central bank's own balance sheet. A face-value haircut immediately reduces the value of the stock of central bank assets, while coupon reductions (and extension in maturities at sub-market rates) compress income over time and lead to a loss in the market value of its debt portfolio. These outcomes do not automatically prevent a central bank from functioning—central banks differ from commercial firms in this respect, and some have operated with negative capital for extended periods. However, experience shows that persistent financial weakness can complicate policy implementation and is, on average, associated with weaker inflation outcomes (Stella, 1997; Stella and Klueh, 2008; Buitier, 2008; Adler *et al.*, 2012). The key issue is not accounting optics but operational autonomy. A central bank with weak earnings and negative net worth may hesitate to sterilize liquidity aggressively if the cost of doing so further impairs its income position.³ It may resist sharp policy rate increases because they raise interest expenses on central bank bills or deposit facilities. In each case, the central bank can still announce a policy stance, but its capacity to implement that stance is less secure. Therefore, the relevant policy question is not whether the central bank can absorb losses in an accounting sense, but whether the treatment of its claims preserves the institution's capacity to run liquidity management, maintain confidence in its liabilities, and resist renewed monetary financing.

The choice among recapitalization instruments—recapitalization bonds, profit-retention arrangements, or direct government transfers—has important monetary implications: non-marketable, non-transferable bonds restore accounting solvency without restoring the income stream or operational flexibility the central bank needs to sterilize liquidity or sustain market-based operations. Archer and Moser-Boehm (2013) survey the international experience with central bank recapitalization and find that the design of the recapitalization instrument matters as much as its size.

Balance sheet weakness at the central bank compounds a second, equally consequential disruption: the impairment of the government securities market that anchors monetary operations. Government securities typically dominate the collateral set used in open-market operations, standing facilities, and emergency liquidity assistance. A DDR interrupts that infrastructure. Old bonds disappear or stop trading. New bonds enter with uncertain pricing, thin liquidity, and sometimes complex step-up coupon or amortization structures. Secondary-market price discovery

3 This is why the mechanics of recapitalizing a central bank—whether via fiscal support or seigniorage—may have implications for its incentives and therefore for the monetary policy.

becomes more difficult, and benchmark yields become less informative. Interest rate transmission depends not only on the policy rate but also on whether changes in that rate propagate along a functioning term structure and through collateralized funding markets; when the government securities market is impaired, this propagation weakens. The central bank may have to rely more on administrative instruments, bilateral operations, or liquidity facilities with relaxed eligibility standards—improvisation that can preserve short-term stability but signals that normal market-based transmission has not yet been restored.

Collateral policy becomes especially delicate in this environment. If the central bank insists on pre-restructuring collateral standards, it risks intensifying funding pressure for institutions that have already absorbed losses on their holdings of sovereign securities. If it relaxes standards excessively, it concentrates additional risk on its own balance sheet and may entrench dependence on central bank liquidity. The DDR design must therefore take into account the post-DDR monetary framework and how quickly the central bank can reconstitute a usable collateral hierarchy and a tradable local-currency curve.

These market disruptions compound the direct losses that domestic institutions, especially banks, incur on their holdings of restructured debt securities, creating a third channel of impairment: the bank credit channel. Banks that “survive” a DDR after incurring losses inflicted by the restructuring will likely become more capital-conservative, more liquidity-preferring, and more selective in new lending, thus slowing down the monetary transmission. Even when deposits remain stable, management may choose to rebuild buffers (i.e., build excess reserves) rather than expand credit.⁴ A lower policy rate may then have little near-term effect on private borrowing because balance sheet repair, not funding cost, is the binding constraint. The same logic applies on the tightening side: banks facing DDR-induced asset-quality problems may raise lending spreads or ration credit more sharply than the policy move alone would imply. By such (endogenous) behavior in response to a DDR, banks can undermine (if not completely neutralize) central banks’ policy intent.⁵

Impairment in these three channels ultimately threatens something more fundamental: the credibility on which forward-looking monetary frameworks depend. Modern monetary policy (e.g., inflation targeting) regimes rely on the central bank’s ability to convince households, firms, and financial intermediaries that it will act consistently to deliver price stability (Bernanke and Mishkin, 1997; Svensson, 1997; Mishkin, 2000). A DDR complicates that task in two distinct ways. First, it reveals the extent of prior fiscal stress and, by making the central bank reliant on fiscal transfers to restore a capital base eroded by the DDR, may strengthen perceptions of fiscal dominance in the sense of Sargent and Wallace (1981). Such knowledge and perceptions may impact credibility by

4 For a formal treatment of sovereign–bank feedback dynamics in this setting, see Brunnermeier *et al.* (2016) and Farhi and Tirole (2018).

5 The pass-through of sovereign risk to bank lending is documented empirically among others by Bocola (2016) and Grigorian and Manole (2017), who show that sovereign distress can materially impair bank credit supply independently of aggregate demand conditions.

raising the question whether policy decisions will be guided by the inflation objective or by balance sheet constraints. Second, financial stability is another area where the central bank has a lot at stake: failure to safeguard it will harm credibility.⁶ Credibility, once damaged, depends on repeated policy success rather than a single announcement, and is therefore the channel with the longest recovery horizon of the four.

The four broad mechanisms are applicable across monetary regimes, but how they work differs importantly. Some of the discussion above—particularly of credibility, the policy rate, and interest rate transmission—is most directly applicable to an inflation targeting framework. Under an exchange rate peg, credibility is closely related to reserve adequacy and the sustainability of the peg, the policy rate plays a limited role, and the central bank balance sheet channel operates mainly through the central bank’s capacity to defend the parity. Monetary aggregate regimes put greater weight on liquidity and reserve money control, so that the central bank balance sheet and government securities market channels matter mainly through the central bank’s ability to manage liquidity. This matters for the evidence that follows: most of the 17 episodes in Section IV.A, and two of the three case studies, did not involve an inflation-targeting framework.

How recovery unfolds across these channels matters as much as the initial impairment.

The government securities market and collateral framework may begin to recover once new benchmark issuance resumes and the central bank clarifies eligibility standards. Bank capital and lending appetite often recover more slowly, constrained by asset quality problems that take time to work through. Credibility is slower still, because it depends on repeated policy success rather than a single operational fix. A DDR may be legally complete while monetary policy transmission remains only partially repaired, and the relevant horizon is therefore measured in stages rather than at a single post-restructuring date.

In sum, the existence of these channels could severely undermine the central bank’s ability to function effectively, making it imperative for the design of a DDR to explicitly provide safeguards against the associated risks. While these risks are universal, their impact may differ in magnitude between emerging markets (EMs) and low-income countries (LICs) and depend on pre-existing vulnerabilities (e.g., cases where central banks are already undercapitalized, where financial markets are underdeveloped or highly dollarized, etc.). While the *economic costs* of such impact should be factored into the decision of whether or not to undertake a DDR (per the reasoning outlined in IMF, 2021), any direct *financial costs* of safeguarding stability and maintaining the ability of the

6 In the context of a fixed exchange rate regime, where the peg itself is the credibility anchor, a DDR could undermine central bank’s credibility by triggering a capital outflow and potentially forcing the central bank to abandon the peg. This could be particularly relevant for cases with non-trivial share of non-resident holders of domestic debt. Avoiding such a scenario was one of the reasons why Zambia excluded the non-resident holders of its domestic-law securities from the perimeter of its 2020–24 debt exchange (see Grigorian and Bhayana, 2024, for details). Generally, because DDRs often lead to financial instability when banks are severely hurt, the impact on the central bank’s credibility as custodian of financial stability is contingent on the resolution strategy and its outcomes, including whether backstops such as financial stability funds are in place and used effectively.

central bank to conduct monetary policy (including the costs of recapitalizing the central bank) should be included in the calculations of the net debt relief generated by a DDR (as defined by Grigorian, 2023 and 2025).

IV. Case evidence

This section helps assess the impact of DDRs on monetary conditions (including central banks' balance sheets) and explain central banks' monetary and macroprudential policy responses in the context of some recent restructuring cases. While not necessarily implying causality, the section also ties these policy choices to various monetary, price, and credit market outcomes observed in those cases.

A. Cross-country inference

Before turning to case studies, we review select monetary indicators for countries that carried out DDRs during 2000–20, drawn from the sample analyzed in IMF (2021, Table A-2). We retained episodes for which both base money and broad money data are available around the DDR, a total of 17 episodes (see Appendix). Figure 2 shows, for each indicator, the median and the interquartile range (25th to 75th percentiles) across episodes over the period $[t-3, t+3]$, where t is the starting year of a DDR. Each panel includes only episodes with complete data over this window, so the number of episodes ranges from 13 to 17. Because the levels of the money multiplier and of the reserve ratio differ widely across countries, Panels C and D compare each episode with its own pre-DDR level (the average of $t-3$ to $t-1 = 100$). We use medians and interquartile ranges rather than averages because, with this number of episodes, averages can be driven by a few extreme cases.⁷

7 It should be noted that the four indicators capture the channels set out in Section III only partially. Base money growth (Panel A) reflects the central bank balance sheet and the liquidity it provides around the restructuring. Broad money growth (Panel B) and the money multiplier (Panel C) summarize the bank credit channel—the extent to which banks transform central bank money into deposits and credit. The ratio of total to required reserves (Panel D) measures banks' discretionary liquidity buffers. None of the indicators directly captures the government securities market or credibility channels, which are examined in the case studies. Movements in the money multiplier and the reserve ratio should also be interpreted with care, as they can reflect changes in reserve requirements, shifts between currency and deposits, and movements in base money, in addition to impaired transmission.

FIGURE 2. Monetary indicators around DDRs, 2000–20
(Median and Interquartile Range across Episodes)



Notes: The solid line shows the median and the shaded area the interquartile range (25th–75th percentiles) across episodes with complete data for t–3 to t+3, where t is the starting year of the DDR. Panels C and D are indexed to each episode's average over t–3 to t–1 (= 100). Gaps in the data were filled from IMF staff reports and the World Bank's World Development Indicators (see Appendix).

Sources: IMF, World Economic Outlook; IMF (2021, Table A-2); IMF staff reports; World Bank, World Development Indicators; and authors' calculations.

Median base money growth (Panel A) rises in the restructuring year, from about 10 percent at t–2 and t–1 to 15.5 percent at t, before falling back to about 11 percent at t+1. This is consistent with central banks providing liquidity around the restructuring, for example to relieve funding pressures on banks holding the securities being restructured. The interquartile range is wide, however—roughly 10 to 22 percent at t—indicating that the degree of accommodation varied considerably across episodes.

Broad money growth (Panel B) shows no clear break around the restructuring. Median growth was 12.7 percent at t–1 and 12.8 percent at t, and stayed in a range of about 11–14 percent through t+3. What changes is the dispersion: the interquartile range narrows from about 9–27 percent at t–3 to about 7–16 percent at t, as the episodes with the fastest pre-DDR monetary expansion slow down.

The money multiplier—the ratio of broad to base money (Panel C)—captures the degree to which the banking system amplifies central bank money into deposits and credit. In the typical episode it

compresses moderately after the restructuring: the median falls to 98 percent of its pre-DDR level at t and to 93 percent at $t+2$, before returning to about its pre-DDR level by $t+3$. The compression is widespread—60 percent of episodes are below their pre-DDR level at $t+2$ —and in the lower quarter of episodes the multiplier remains about 10 percent below its pre-DDR level from $t+1$ through $t+3$. While intermediation recovers within three years in the typical case, the shock to bank intermediation appears persistent in a substantial minority of episodes.

The ratio of total to required reserves (Panel D)—a measure of the banking system’s discretionary liquidity buffer—declines around the restructuring. The median falls below its pre-DDR level from $t-1$ onward and remains 2–5 percent below it through $t+3$, and about three quarters of episodes are below their pre-DDR level between $t-1$ and $t+1$. Rather than building up precautionary buffers, as discussed in Section III, banks in the aggregate appear to run down their discretionary liquidity around DDRs. This may reflect funding pressures on banks holding the restructured securities, as well as increases in reserve requirements adopted by some central banks around the restructuring (e.g., Jamaica in early 2009).

Taken together, the patterns in Figure 2 suggest that DDRs are typically accompanied by liquidity provision by the central bank and by some compression of bank intermediation and of banks’ discretionary liquidity buffers, but that the extent of impairment varies widely across episodes. The dispersion shown in Figure 2 itself is informative. Post-DDR monetary outcomes are likely to depend on a range of factors, including the pre-DDR monetary framework, the type of crisis accompanying the restructuring (see Appendix), the depth and form of the domestic haircut, the presence of an IMF-supported program, and whether the DDR was accompanied by a parallel external debt restructuring. A concurrent EDR can boost the confidence of domestic market participants and lessen the haircut required of domestic creditors to achieve a given level of aggregate debt relief. With 17 episodes, the contribution of each factor cannot be isolated. Grouping the episodes by pre-DDR monetary framework (eight with an exchange rate anchor and nine with a domestic monetary anchor; see Appendix) does not yield robust differences, as the group patterns are sensitive to the classification of individual episodes.

Finally, the fact that some restructurings in the sample lasted multiple years (see Appendix) complicates the interpretation of the post- t observations. Splitting the sample by duration is nonetheless instructive: the compression of the money multiplier is concentrated in multi-year restructurings (those spanning more than one calendar year), where the median multiplier falls to about 90 percent of its pre-DDR level at $t+1$ and $t+2$, while in single-year restructurings it remains at or above its pre-DDR level. While not statistically robust, this pattern is consistent with the framework: protracted restructurings keep bank balance sheets and the government securities market under strain for longer. The case studies that follow illustrate some of these interactions.

B. Jamaica 2010 restructuring

On January 14, 2010, to address the rapidly growing debt overhang, the Government of Jamaica announced a debt restructuring, the Jamaica Debt Exchange (JDX). Supported by an IMF program, JDX led to a successful exchange of 99.2 percent of eligible debt securities held by domestic banks and securities dealers, and despite its scale, did not cause financial distress (see Grigorian *et al.*, 2012; Langrin, 2013; and Schmid, 2016, for details of JDX's design and outcomes). At the time, the Bank of Jamaica (BOJ) operated a base money targeting framework, using the interest rate on its 30-day certificates of deposit as its policy rate, alongside a flexible exchange rate; it adopted inflation targeting only in 2017.

Economic and monetary conditions prior to JDX

Jamaica's economic conditions were markedly affected by the global financial crisis. Its main sources of foreign exchange—exports of bauxite and alumina and remittances—declined by 60 and 33 percent, respectively, during the first half of 2009 (IMF, 2010), contributing to a contraction in GDP. To contain inflation (which reached its high of 26.5 percent in August 2008), the policy rate was abruptly increased by 235 basis points (to 17 percent) in December 2008 and held there through June 2009 (see Figure 3), pushing the interest rate on treasury bills to exceed 20 percent. As a result, inflation fell steadily to below 12 percent in December 2009, aided also by weak domestic demand and a decline in global commodity prices.

Despite the increase in interest rates and the BOJ's FX interventions in support of the currency, J\$ depreciated by 22 percent against the U.S. dollar and international reserves fell by nearly US\$1 billion between August 2008 (US\$2.4 billion) and end-2009.⁸ These interventions were accompanied by purchases of BOJ's certificates of deposit (CDs) held by banks to sterilize the (otherwise tightening) impact of reserve sales. As a result, in 2009, base money and broad money grew by 13.5 and 2.7 percent, respectively.

With interest payments on public debt consuming approximately 60 percent of revenue, challenges also mounted “below the line”, where funding the government became expensive and challenging. Issuing longer-dated securities became increasingly difficult, with investors demanding mainly shorter-dated variable rate and exchange-rate-indexed securities (see Grigorian *et al.*, 2012). Given the dire fiscal conditions and inability of the government to meet its gross funding needs, it became clear toward the end of 2009 that a debt restructuring was inevitable.

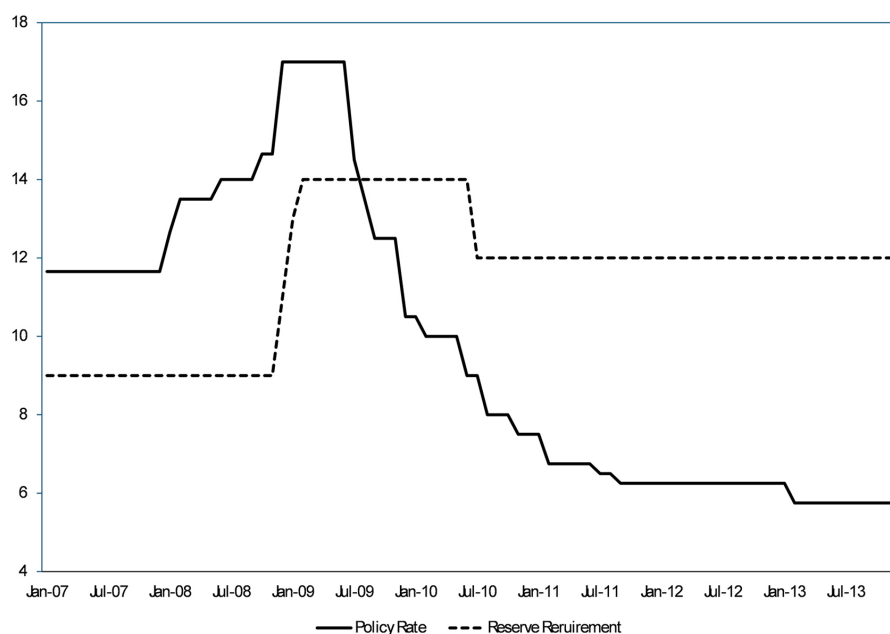
8 There was a significant foreign exchange outflow in the period leading up to the JDX, accompanied by a decline in private inflows (of 62 percent) in 2009 compared to 2008.

BOJ's policy response

In the months leading to and during JDX, BOJ adopted a series of measures to contain financial stability risks and maintain normal operations of money and credit markets. Specifically:

- The policy rate was reduced aggressively starting in July 2009 (from 17 percent to 10 percent in February 2010).⁹ This significantly eased monetary conditions and provided a positive impetus for the banks' operating flows.
- On the macroprudential side, the reserve requirement for commercial banks was reduced in July 2010 (from 14 to 12 percent) to ease conditions and facilitate monetary transmission.
- A foreign exchange reserve target was set up as part of the IMF-supported program "to help safeguard the adequacy of reserve coverage" (IMF, 2010), while allowing for intervention during episodes of excessive exchange rate volatility.
- To safeguard financial stability, in January 2010, the government established a liquidity facility—Financial Sector Support Fund (FSSF)—funded by the IMF, the World Bank, and the Inter-American Development Bank (IDB) for solvency and liquidity needs of eligible financial institutions.
- In the weeks and months following the JDX, financial institutions were allowed to continue applying zero risk-weighting to their holdings of government debt, despite the selective default (SD) rating given to the underlying sovereign by credit rating agencies.

FIGURE 3. Jamaica: Policy rate and reserve requirement, 2007–13 (percent)



Source: Bank of Jamaica.

⁹ The BOJ adopted inflation targeting in September 2017, with a target range of 4 to 6 percent per annum for consumer price inflation.

Monetary outcomes

As a result of these policy measures, monetary and exchange market conditions remained largely stable during and after JDX. Inflation rose slightly, before starting to taper off around January 2011, remaining above 12 percent on average during the 12 months following JDX. Deposit runs and bankruptcies were avoided as deposits re-started their growth three months after JDX, following an initial drop.

JDX had little direct impact on the central bank's capital base. The BOJ held approximately 13 percent of outstanding domestic-law debt securities, and the NPV loss of about 15 percent on these holdings at the time of the exchange was soon offset as the new securities gained market value following interest rate compression.

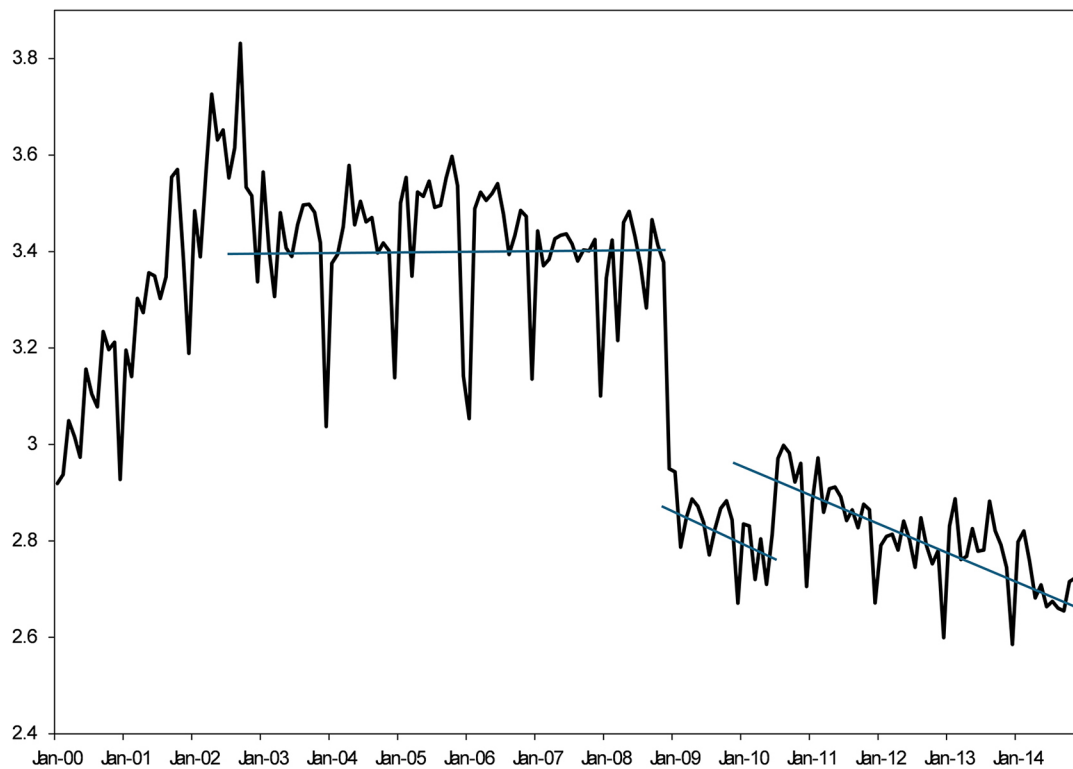
The FSSF received no applications and remained untapped because the financial institutions with exposure to government debt managed the stress on their own (by reducing maturities of their liabilities and introducing temporary fees). The interbank market continued to function properly with no variation between the official interbank rate and OTC rate. Capitalizing on the confidence-boosting effect of the IMF-supported adjustment program, the exchange rate remained broadly stable around the time of JDX, appreciating 4 percent during 12 months after the exchange. JDX resulted in no capital outflows. Capital inflows, however, declined by a further 47 percent in 2010 relative to 2009, before recovering in 2011.

Despite this relative smoothness, there were signs that monetary transmission was affected around the JDX. Figure 4 shows the money multiplier (the ratio of broad money to base money) for Jamaica using monthly data.¹⁰ The money multiplier, broadly stable over most of the preceding decade, shifted around the exchange (first down, due to the sizable rise in reserve requirement in January–February 2009, and then slightly up, due to a small reduction in July 2010) with an accompanying trend decline (a result of slower growth of deposits relative to cash in circulation during and after JDX).

¹⁰ Definition of the money multiplier is as follows:

$$MM = \text{BroadMoney} / \text{BaseMoney} = [\text{Deposits} + \text{Currency}] / [\text{RequiredRes} + \text{ExcessRes} + \text{Currency}]$$

FIGURE 4. Jamaica: Money multiplier, 2000–14



Sources: Bank of Jamaica; and authors' calculations.

The overall fallout from JDX for financial institutions was limited, reflecting positive market developments and policy efforts to minimize the impact. JDX helped improve investor confidence, contributing to a ratings upgrade from SD to B- (with a stable outlook) by S&P on February 24, 2010, and from Caa1 to B3 by Moody's on March 2, 2010. The government was able to return to the domestic markets within three months of JDX and—benefiting from historically low interest rates—issue new debt at declining rates (Schmid, 2016), allowing bondholders to book capital gains shortly after the exchange.¹¹

C. Barbados 2018–19 restructuring

In 2018–19, Barbados' sovereign debt was restructured for the first time in the country's history, following a decade of growing public debt and dwindling international reserves. The timing of the government's June 2018 announcement to seek debt restructuring was driven by large external debt payments due in early June 2018. What followed was a comprehensive sovereign debt restructuring with a very large domestic component described in detail in Anthony, Impavido, and van Selm (2020).

¹¹ In fact, the market continued to finance the government at lower interest rates even when the IMF-supported program went off track, reflecting the game-changing nature of the JDX (Langrin, 2013).

Barbados has maintained a fixed peg to the US dollar (BDS\$2 = US\$1) since 1975, so monetary policy at the Central Bank of Barbados (CBB) is constrained by the need to defend the peg.

Economic and monetary conditions prior to DDR

With increasing public debt, international investors' confidence in Barbados' macroeconomic management gradually deteriorated. Reflecting this, its credit rating declined in several steps during the decade preceding the restructuring from investment grade (Standard and Poor's BBB+) on the eve of the global financial crisis, to SD on June 6, 2018. Access to international markets gradually dried up and eventually came to a halt.

The pre-crisis period was characterized by heavy monetization of fiscal deficits, with the CBB acquiring a large stock of government debt, held mainly in the form of treasury bills, reaching around 15 percent of GDP on the eve of the debt restructuring.¹² These unsterilized direct purchases of government securities contributed to a steady erosion of foreign exchange reserves. By end-May 2018, reserves had fallen to roughly US\$220 million, equivalent to only 5–6 weeks of import cover, or 39 percent of the IMF's reserve adequacy metric for a country with an exchange rate peg. At the same time, central government debt and total public sector debt reached 137 and 158 percent of GDP, respectively (see Table 1 in Anthony, Impavido, and van Selm, 2020).¹³

On June 1, 2018, the new government (that came into office in May 2018) announced a comprehensive debt restructuring and began discussions with domestic and external creditors. Subsequently, an exchange offer for domestic debt—which constituted 88 percent of debt to be restructured—was launched on September 7, 2018. At the same time, the government also requested IMF support for its Barbados Economic Recovery and Transformation (BERT) plan. An Extended Fund Facility (EFF) for US\$290 million was approved by the IMF's Executive Board on October 1, 2018 (IMF, 2018).

To ensure adequate burden sharing among creditors (external and domestic) and reduce gross financing needs, the exchange also included T-bills (39 percent of GDP prior to the restructuring). To reduce holdout risk in domestic debt restructuring, similar to Greece's 2012 debt restructuring, the authorities retrofitted domestic contracts with collective action clauses (CACs). This required legislative action by Parliament and ultimately helped secure 100 percent participation in the exchange, which was finalized in November 2018.

12 In addition, the CBB held overdraft claims on the central government—an instrument with no secondary market and no standard restructuring precedent.

13 Public sector debt included all debt issued by the central government, all arrears incurred by the central government, and all debt issued by SOEs and guaranteed by the central government.

CBB's policy response

Crucially, unlike commercial banks whose holdings of government securities were exchanged into 15-year bonds in a face-value-neutral fashion, the CBB and the National Insurance Scheme (NIS) accepted losses on principal. As a result, the implied NPV loss on CBB's holding of government debt was 76 percent (using a discount rate of 7 percent),¹⁴ leaving the CBB's capital at negative BDS\$1.6 billion (or 16 percent of GDP). This compared to an average of only 29 percent NPV loss for the private sector holders of government debt (see Table 2 in Anthony *et al.*, 2020, for details).

Such segregated treatment by and large reflected the passive role carried out by a central bank under a pegged exchange rate regime. Nevertheless, the old securities were replaced by a portfolio of equally weighted tradable benchmark treasury notes and debentures with maturities ranging from 5 to 25 years and 6-month T-bills, reflecting CBB's operational requirements. In 2020, a plan to gradually recapitalize the CBB was developed whereby, for seven consecutive years, the CBB will retain its profits instead of transferring them to the central government's Consolidated Fund before undertaking a review of CBB's recapitalization needs (Central Bank of Barbados, 2022).

On policy side, the CBB undertook the following measures:

- As a structural condition of the EFF, the CBB halted direct financing of the government, the primary driver of reserve depletion in prior years, to restore the credibility of the peg.¹⁵
- The BDS\$2 = US\$1 peg was maintained throughout the restructuring, a non-negotiable anchor, to signal monetary policy credibility. Reserve rebuilding was set as a parallel objective. Reflecting this constraint, the CBB held its policy rate—the overnight lending discount rate—at 7 percent from 2010 and throughout the debt exchange.¹⁶
- The CBB maintained its cash reserve requirement at 5 percent throughout the exchange but reduced the securities reserve requirement to 17.5 percent (from 20 percent) in November 2018. No open-market operations were conducted during the exchange period.
- Although extensive stress-testing was conducted by CBB to make sure that NPV losses of commercial banks on their holdings of government securities did not push them below minimum capital requirement, the CBB extended explicit, time-bound regulatory forbearance to selected financial institutions with high concentrations of restructured government debt to allow them to rebuild capital buffers.

14 This exit yield reflected the market's assessment of Barbados' risk after the restructuring and economic reforms.

15 The CBB Act, passed in December 2020, after the debt exchange, (to replace the original 1972 Act), codified limits on monetary financing and enhanced CBB governance and autonomy.

16 The rate was reduced dramatically to 2 percent in April 2020 in response to the COVID-19 outbreak.

Outcome of the debt exchange

The debt restructuring played a key role in restoring debt sustainability and was projected to reduce the stock of public debt to 116 percent of GDP by FY2019/20. On a flow basis, the interest-to-revenue ratio was projected to drop to 10.3 percent in FY2020/21, from 26.9 percent in FY2017/18 (Central Bank of Barbados, 2020). The maturity profile of public debt was lengthened, dramatically reducing government's gross financing needs. Most new debt instruments included natural disaster clauses to allow for capitalization of interest and deferral of amortization falling due over a two-year period following a major event. CBB's foreign reserves recovered from the May 2018 low of US\$220 million to over US\$600 million by end-October 2019, giving the CBB ample ammunition to continue defending the peg.

In the immediate post-restructuring period, inflation exhibited sizable volatility. CPI came in at 7.2 percent by end-2019, elevated for a country with a US dollar peg undergoing fiscal consolidation, likely reflecting the pass-through of BERT-related tax measures and import price pressures. In 2020, the near-total collapse of tourism driven by COVID-19 sharply compressed aggregate demand resulting in 1.3 percent inflation by end-year, before recovering to above 5 percent in 2021 driven by global supply chain disruptions and rising food and energy prices.

Barbados did not have a meaningful interbank market before the restructuring, and the post-restructuring environment did little to change that reality.¹⁷ The banking system was characterized by substantial structural excess liquidity (held at the CBB), an overhang stemming from years of rapid money supply growth and, paradoxically, from the debt restructuring itself (as debt service relief reduced the government's financing needs and freed up funds within the financial system). With abundant structural excess liquidity in the banking system, the CBB's policy rate had little traction on commercial bank lending rates or credit volumes.¹⁸ The loan-to-deposit ratio of commercial banks stood at approximately 60 percent, well below levels that would signal active intermediation.¹⁹

The debt restructuring exposed and entrenched these weaknesses in Barbados' monetary transmission mechanism. Commercial banks, already risk-averse and holding large legacy portfolios of government debt, extended relatively little new credit: outstanding loans to the non-financial private sector continued to trend downward in the post-restructuring years, and total new lending only began to recover modestly in 2021 (up 3.7 percent year-on-year). COVID-19 likely suppressed both demand for and supply of loanable funds. All in all, while deeply costly to the CBB itself, the exchange did not trigger solvency or liquidity problems for commercial banks, in large part because of the design of the DDR and explicit regulatory forbearance.

¹⁷ The absence of a deep interbank market rendered the interest rate channel ineffective and left the foreign exchange interventions as the only channel for the conduct of monetary policy.

¹⁸ Even the 500 basis point cut in the policy rate in April 2020 had limited pass-through to private borrowers.

¹⁹ Giles Álvarez, and Mooney (2020) report that recent fiscal and macroeconomic stability concerns, as well as increasingly stringent administrative requirements, have negatively affected financial access and inclusion—particularly for smaller firms.

D. Ghana 2022–24 restructuring

Ghana's 2022–24 debt restructuring—one of the first sovereign restructurings coordinated through the G20 Common Framework—occurred against a backdrop of acute macroeconomic instability and a more fragile sovereign–bank–central-bank nexus. Facing this instability, on December 5, 2022, the authorities announced a domestic debt exchange program (DDEP) and two weeks later, on December 19, 2022, a suspension of payments on external debt. Grigorian and Vessereau (2024) provide a detailed account of the economic backdrop and the subsequent debt restructuring. The Bank of Ghana (BoG) has operated an inflation targeting framework since 2007, with a medium-term target of 8 ± 2 percent and a flexible exchange rate, although its effectiveness had been compromised by fiscal dominance in the years preceding the DDEP.

Economic and monetary conditions prior to DDEP

Upended by the COVID-19 pandemic, Ghana's economy faced severe fiscal strain. Public spending increased sharply ahead of the 2020 elections, and a bank recapitalization program cost an estimated 7 percent of GDP during 2017–21. Public debt rose from 57 percent of GDP in 2017 to 92 percent by 2020, while interest payments consumed nearly 47 cents of every dollar of government revenue (IMF, 2023). The weighted-average interest rate on domestic debt stood at 21.2 percent, with real yields on long-term government bonds reaching as high as 12.6 percent in 2020, compressing fiscal space and deepening dependence on short-maturity domestic financing. Inflation had reached 54 percent at end-2022 and remained high despite significant policy tightening by the BoG.

External pressures compounded domestic imbalances. A surge in global energy and food prices proved especially damaging for an economy heavily reliant on imported fuel, food, and fertilizers. The BoG's foreign exchange reserves fell from 3.25 months of prospective imports in 2021 to just 0.7 months by end-2022 (IMF, 2023), and the cedi depreciated from approximately GH¢6 per US dollar in early 2022 to a peak of GH¢13 in November 2022. Years of monetization of fiscal deficits—with direct BoG advances to the government being a recurring feature—had already compromised the BoG's credibility and eroded its balance sheet well before the debt exchange was announced.

BoG's policy response

In response to the financial stability risks posed by the DDEP, the BoG deployed a coordinated package of monetary, prudential, and liquidity measures.

- A memorandum of understanding (MoU) committing the BoG to zero net financing of the budget was signed (Bank of Ghana, 2023a, Box 1). This commitment was a step toward re-building monetary policy credibility and effectiveness.
- The BoG raised its policy rate aggressively during 2022–23 to reach a peak of 30 percent—the highest in the BoG's modern history—on July 24, 2023, and maintained it through January 2024, when it was reduced to 29 percent (Bank of Ghana, 2024a).

- Regulatory capital forbearance was extended to voluntarily participating institutions. The BoG reduced the minimum Capital Adequacy Ratio from 13.0 to 10.0 percent, lowered the Common Equity Tier 1 (CET1) requirement from 6.5 to 5.5 percent, and raised the cap on Tier 2 capital from 2.0 to 3.0 percent of risk-weighted assets (Bank of Ghana, 2023b). Banks were permitted to amortize restructuring-related losses over time rather than recognizing them immediately.
- In April 2023, the government established the Ghana Financial Stability Fund (GFSF), capitalized at US\$750 million (see Grigorian and Vessereau, 2024, for details), to provide solvency and liquidity backstop to affected financial institutions. In addition, emergency liquidity assistance was made available using the new (post-exchange) bonds as eligible collateral.
- As a complementary ‘stick’, the BoG raised the risk weight on old (pre-exchange) government bonds from 0 to 100 percent, sharply raising the capital charge for non-participating institutions. Non-participating banks were also declared ineligible for emergency liquidity assistance and excluded from the GFSF.

Outcome of the DDEP

The exchange was completed in phases across 2023—insurance companies (January), banks (February), pension funds, and US\$-denominated domestic bonds (both September)—with the overall participation rate across all phases reaching 94.8 percent. In total, GH¢203.5 billion of domestic debt was exchanged, reducing the present value of domestic debt-to-GDP by 9 percentage points (Ministry of Finance, Ghana, 2024). The non-marketable debt of GH¢70.98 billion held by BoG was restructured into a single marketable bond of GH¢35.49 billion, maturing in 2038 and paying a 10 percent coupon, halving the nominal value of the BoG’s government debt holdings and implying an NPV loss of approximately 50 percent.

The balance-sheet consequences of DDEP for the BoG were severe. In 2022, the BoG and its subsidiaries incurred losses of GH¢60.86 billion—of which GH¢48.45 billion, or 7.9 percent of GDP, was directly attributable to the DDEP (Bank of Ghana, 2023b, p. 56)—and ended 2024 (the final year of debt restructuring) with a negative capital of GH¢58.62 billion (Bank of Ghana, 2024b and 2025),²⁰ a stark illustration of how the sovereign’s debt relief came at a direct cost to the institution responsible for post-restructuring monetary stabilization. While the discussion is still ongoing at the time of this writing, contrary to the initial MoU envisaging new fiscal funding for recapitalizing BoG, the government now maintains that the central bank should be recapitalized over time through internal measures, such as retained earnings, rather than direct budgetary support (Citi Newsroom, 2026).²¹ Approximately US\$450 million of GFSF resources were deployed in support

20 BoG’s total losses amounted to GH¢13.17 billion and GH¢9.41 billion in 2023 and 2024, respectively.

21 The pressure to have positive income to rebuild capital may have implications for BoG’s behavior and make it less committed in its pursuit of inflation reduction than otherwise, as discussed earlier.

of eight financial institutions to avert regulatory insolvency across the banking sector, partially offsetting the gross debt relief.

Severe monetary tightening eventually brought headline inflation down from its peak of 54.1 percent in December 2022 to single digits by 2025, but not without cost. The recovery of monetary transmission and credit was uneven and protracted. Real private sector credit contracted by 7.3 percent in May 2025 before growing by 13.1 percent through December 2025, due by and large to a slowdown in inflation.²² The non-performing loan ratio rose to 21.8 percent by December 2024 before easing to 18.9 percent in December 2025. These are signs that transmission has begun to recover. However, bank asset quality remains badly strained, suggesting that repair is still under way.²³

The exchange rate stabilized following the December 2022 staff-level agreement on an IMF Extended Credit Facility (ECF) arrangement and the launch of the DDEP. After depreciating to approximately GH¢13 per US dollar in November 2022, the cedi recovered to around GH¢9.9 by January 2023 before resuming a gradual depreciation path, reaching GH¢14.8 by December 2024.²⁴

E. Comparison of domestic debt restructurings

The three restructurings can be compared more systematically across four dimensions that bear most directly on post-DDR monetary performance: the speed of inflation reduction, financial stability outcomes, the recovery of monetary transmission and credit, and exchange rate stability. Table 2 complements this comparison by summarizing what happened to the central bank balance sheet, government securities market, bank credit, and credibility channels in each case, distinguishing pre-existing transmission weaknesses from those created or intensified by the DDR.

Speed of inflation reduction

The macroeconomic context entering each restructuring differed sharply, and so did the subsequent inflation trajectories. Jamaica entered the JDX with inflation already on a declining path: it had peaked at 26.5 percent in August 2008 and fallen to below 12 percent by December 2009, aided by weak domestic demand and falling global commodity prices. The JDX imposed little additional inflationary pressure: inflation rose slightly after the exchange and averaged above 12 percent over the following 12 months, before starting to taper off around January 2011. Barbados faced

22 In nominal terms, private sector credit growth slowed to 19.2 percent (year-on-year) in December 2025, from 26.3 percent a year earlier.

23 The BoG reduced its policy rate gradually to 18 percent by December 2025; with inflation in low single digits, real policy rates nonetheless remained high.

24 Ghana thus illustrates that strong official support, regulatory relief, and decisive monetary tightening can re-anchor inflation even after a damaging DDR, but the repair of transmission is slower when the restructuring has materially weakened both banks and the central bank. The policy rate may again matter; yet the channels through which it works are likely to remain impaired until balance sheet repair catches up, pointing to recovery. It also shows why the design of safeguards for the central bank and the banking system must be an integral part of DDR planning rather than an afterthought.

a different challenge: with a fixed exchange rate peg anchoring nominal expectations, inflation was not the primary concern during the restructuring. End-2019 CPI came in at 7.2 percent—elevated for a pegged small open economy, reflecting pass-through from BERT-related tax measures, but not a signal of fundamental monetary instability. Ghana represented the most severe inflationary episode. CPI inflation peaked at 54.1 percent in December 2022, the compound product of pandemic-era fiscal expansion, years of monetary financing of deficits, a sharp currency depreciation, and global commodity price shocks. Returning inflation to single digits required the BoG to raise the policy rate to a historical high of 30 percent, maintain it at 29–30 percent for about a year, bind itself through an explicit zero-financing MoU, and anchor the program to the ECF. Headline inflation fell to single digits by 2025 and reached 3.3 percent by February 2026—a remarkable disinflation, though achieved at considerable economic cost.

Financial stability

All three restructurings were designed with financial stability as an explicit constraint, but they differed markedly in the severity of the risks posed and the adequacy of the backstops deployed. In Jamaica, the direct capital impact on banks and the central bank was limited: the JDX involved interest rate compression and maturity extension rather than principal haircuts, and the FSSF—established just before the exchange—received no applications and remained untapped. In Barbados, the design deliberately differentiated between creditor classes: commercial banks participated on face-value-neutral terms and were protected from solvency stress, while the CBB and NIS absorbed principal reductions, leaving the CBB with negative equity of BDS\$1.6 billion (16 percent of GDP). In Ghana, the financial stability challenge was of a different order entirely. With government securities representing roughly 23 percent of the banking sector's total assets, a 50 percent NPV loss threatened to wipe out bank capital system-wide. The authorities deployed regulatory forbearance (reducing the minimum Capital Adequacy Ratio from 13 to 10 percent), established the GFSF capitalized at US\$750 million, and extended emergency liquidity support using newly issued bonds as eligible collateral. Even so, approximately US\$450 million of GFSF resources had to be deployed to support eight institutions.

Recovery of monetary transmission and credit

The repair of monetary transmission proved the most differentiated outcome across the three cases. In Jamaica, the interbank market functioned normally throughout, credit growth remained positive, and deposit runs were avoided. Monetary transmission via the interest rate channel remained partially intact—the government returned to the domestic market within three months

of the exchange at declining rates (Schmid, 2016)—though full monetary policy credibility took additional years to build. In Barbados, structural weaknesses in monetary transmission predated the restructuring: the banking system carried substantial excess liquidity, and the CBB's policy rate had limited traction on lending rates or credit volumes. The restructuring entrenched rather than created these dysfunctions; outstanding private-sector loans continued to trend downward in the post-restructuring years, with only a modest 3.7 percent recovery in new lending by 2021. In Ghana, transmission impairment was most acute and lasted longest because the restructuring had materially weakened both banks and the central bank. Real private-sector credit contracted 7.3 percent as of May 2025, before recovering to 13.1 percent growth by December 2025. NPL ratios reached 21.8 percent by December 2024. The BoG was forced to maintain an unusually high policy rate—29–30 percent—even as inflation fell, reflecting in part the weakened banking sector's limited responsiveness to rate signals.

Exchange rate stability

Exchange rate outcomes reflected the different monetary frameworks and external vulnerabilities of each economy. Jamaica, operating under a flexible exchange rate, experienced a 22 percent depreciation in the run-up to the JDX but subsequently stabilized: the J\$ appreciated approximately 4 percent during the 12 months following the exchange, supported by the IMF program, rebuilding international reserves, and improving fiscal conditions. Barbados maintained its fixed peg to the US dollar (BDS\$2 = US\$1) throughout without interruption, a policy anchor whose defense was central to demonstrating monetary credibility. International reserves recovered from a low of US\$220 million in May 2018 to over US\$600 million by October 2019, restoring adequate import cover and replenishing peg-defense capacity. Ghana's experience was the most turbulent. The cedi depreciated from approximately GH¢6 per US dollar in early 2022 to a peak of GH¢13 in November 2022, before recovering to around GH¢9.9 in early 2023 following the announcement of the IMF program and the initial completion phases of the DDEP. However, exchange rate pressures persisted: the cedi resumed its depreciation, reaching GH¢14.8 per US dollar by December 2024. This ongoing volatility complicated the BoG's disinflation effort, required repeated FX interventions, and kept imported inflation pressures elevated.

TABLE 2. Comparative analysis of central banks' sovereign exposure and monetary transmission channels in recent DDRs

	Jamaica	Barbados	Ghana
Central bank holdings of government securities	Approx. 13 percent of outstanding domestic-law debt securities	Approx. 14 percent of domestic-law debt securities	Approx. 22 percent of domestic-law debt securities
Pre-DDR monetary framework	Base money targeting using 30-day CD rate; flexible exchange rate	Fixed exchange rate peg (BDS\$2 = US\$1); passive monetary policy constrained by peg	Inflation targeting (8 ± 2 percent) framework, compromised by fiscal dominance
Restructuring treatment of central bank holdings of treasury securities	BOJ's holdings were included; no principal haircut, but lower coupons and extended maturities, resulting in approx. 15 percent NPV haircut at the time of JDX	CBB's holdings received a principal haircut, maturity extension, and lower interest rate, implying NPV haircut of approx. 76 percent	BoG's holdings were exchanged for one bond at half nominal value, implying approx. 50 percent NPV haircut
Impact on central bank's capital position	Positive; BOJ's capital position strengthened as new debt securities gained value post-JDX	Negative; CBB's capital fell to negative BDS\$1.6 billion (16 percent of GDP)	Negative; BoG incurred losses of GH¢48.45 billion (7.9 percent of GDP)
Central bank's recapitalization status	Not required	Starting 2020 and for seven years, CBB has retained its profits to rebuild capital buffer	Under discussion; government favors internal measures (e.g., retained earnings) over direct budgetary support
Central bank balance sheet channel	Not impaired: modest NPV loss, followed by valuation gains on new securities; operational capacity preserved	Impaired by the DDR: 76 percent NPV loss and negative capital of 16 percent of GDP, on top of years of deficit monetization	Impaired by the DDR on top of a balance sheet already eroded by monetization: DDEP-related losses of 7.9 percent of GDP; negative capital by end-2024
Government securities market channel	Brief disruption: market access restored within three months at declining rates; interbank market functioned normally; zero risk-weighting retained	Thin market predated the DDR (no meaningful interbank market); new tradable benchmark notes and debentures issued, reflecting the CBB's operational needs	Disrupted by phased exchange through 2023; new bonds made eligible as ELA collateral; old bonds risk-weighted at 100 percent
Bank credit channel	No DDR-induced impairment: deposits recovered within three months; FSSF untapped; multiplier shifts reflect reserve requirement changes	Weakness predated the DDR (structural excess liquidity, loan-to-deposit ratio near 60 percent); banks' claims exchanged at face value; DDR entrenched rather than created the weakness	Severely disrupted: NPLs at 21.8 percent by end-2024; real credit contraction into 2025; recovery protracted
Credibility channel	Supported: policy rate cut ahead of the exchange; IMF program anchor; rating upgrade within weeks of the exchange	Tied to reserve adequacy under the peg (5–6 weeks of import cover pre-DDR); rebuilt by halting direct financing of the government and EFF support, with reserves above US\$600 million by October 2019	Pre-existing deficit from years of monetization; rebuilt through zero-financing MoU, 30 percent policy rate, and ECF

Sources: Country sections above; and authors' compilation.

V. Policy considerations and design lessons

As highlighted in IMF (2021), safeguarding the viability of the central bank should be one of the main pillars of a DDR design. A DDR is more likely to succeed if in addition to a credible fiscal adjustment, it is accompanied by a supportive post-DDR monetary policy and credit provision. The question for operational design is how much debt relief can be extracted from domestic creditors without incapacitating the institutions needed to stabilize and grow the economy afterward. DDR design is thus best understood as constrained optimization. The objective is not only to reduce debt service pressures but to do so while preserving a functional monetary and financial system.

One implication is that the type of restructuring should be chosen with explicit reference to the absorptive capacity of the affected balance sheets and their ability to deliver on their functions. Including the central bank in the restructuring perimeter does not, in net terms, reduce the consolidated public sector's indebtedness: the sovereign's debt to the central bank is replaced one-for-one by an equivalent—often implicit—recapitalization claim that the central bank holds against the sovereign; in practice, such claims are often not activated or are implemented only gradually, for example through retained earnings (as in Barbados and Ghana). The exercise typically leaves the central bank operationally weaker—its holdings now of lower value, longer duration, or both—without delivering any consolidated balance sheet relief. Exclusion avoids this circularity, at the cost of reducing available gross debt relief and inviting burden-sharing objections from other creditors. Inclusion is therefore justified only when burden-sharing or legal constraints are dominant and the central bank has sufficient financial strength to absorb losses without impairing operations. Exclusion is preferable when the central bank's balance sheet is already weak or its role in monetary transmission is systemically important.

If inclusion is unavoidable, the choice between a face-value haircut and extending maturities and reducing coupons on the old instruments becomes relevant. Where bank capital is thin and the central bank is heavily exposed, a design that seeks cash flow relief through maturity extension and moderate coupon compression may be less damaging than a deep nominal haircut (Grigorian, 2023). Institutional depth conditions these choices; a maturity extension that a deeper local market can absorb may overwhelm a thinner one.

The choice among these options is further conditioned by the pre-DDR monetary policy framework and the degree of fiscal dominance preceding the restructuring. The three cases suggest an ordering of vulnerability: where the monetary framework had already been compromised by sustained fiscal dominance—as in Ghana, where the BoG's protracted monetization of fiscal deficits preceded the DDEP—the restructuring compounded an existing credibility deficit rather than addressing a purely fiscal problem. Jamaica's flexible exchange rate and operationally independent monetary framework, preserved through a restructuring that avoided nominal haircuts, permitted a comparatively rapid normalization of monetary conditions. Barbados, constrained by its fixed exchange rate peg, faced a different difficulty: with few conventional monetary tools available, the large capital losses borne

by the CBB had to be rebuilt from retained profits over several years, and monetary transmission remained impaired for an extended period. The monetary framework was not, however, the only factor at work: the three cases also differ in the perimeter of the restructuring—Jamaica's DDR was a stand-alone operation, while Barbados and Ghana restructured external debt alongside domestic debt—and in the severity of pre-DDR macro-financial stress. With only three cases, the contribution of each factor cannot be disentangled, and the ordering above should be read as illustrative rather than definitive. These contrasts argue for embedding an explicit assessment of monetary framework resilience—including the extent of any pre-existing fiscal dominance—into DDR design before defining the treatment of central bank holdings.

Once the decision to include the central bank and the type of restructuring have been made, recapitalization principles (including the choice of recapitalization tools/instruments) should be announced early and designed to restore operational capacity. The choice of instruments should be inseparable from the decision of how the central bank's claims are handled and should serve the purpose of maintaining operational viability of the central bank. The timing of such announcements matters: where recapitalization arrangements are left to be worked out only after the DDR is completed—as was the case in Barbados and, to a degree, Ghana—the central bank is forced to navigate the critical post-exchange stabilization period carrying unresolved balance sheet losses, which narrows its operational options precisely when they are most needed.

Maintaining financial stability is another important dimension of DDR design. This is crucial because, as shown in IMF (2021), debt restructurings accompanied by banking crises are associated with larger output losses. Since the establishment of Jamaica's FSSF, financial stability funds have become a standard element of liquidity and solvency backstops during DDRs, used subsequently in Ghana. As in a well-crafted contingency plan, in addition to setting up a fund, the authorities should define triggers for accessing and exiting it, outline collateral rules (for the fund and other emergency liquidity facilities), update and test the channels of communication, and, where absolutely necessary, apply temporary regulatory relief, which could prevent DDR-induced losses from triggering an immediate credit crisis or a collapse in intermediation. This relief should be time-bound to avoid moral hazard.²⁵

Finally, the functioning of the government securities market deserves equal attention: it provides the yield curve infrastructure on which private sector borrowing costs are anchored, and its disruption feeds directly into the credit and credibility channels. Practical steps include ensuring continued market-making during the transition, preserving the collateral eligibility of new instruments from the outset, and communicating the terms of exchanged securities promptly so that pricing and risk-weighting can normalize without unnecessary delay.

²⁵ Because credibility is largely about expectations and expectations are managed through communication, often what monetary authorities say is just as important as what they do. Central banks' communication during DDR on important issues, such as balance sheet losses, subsequent recapitalization, the need for regulatory forbearance, and financial stability safeguards being put in place, should complement their actions. It should be noted that, as argued by IMF (2021), maintaining unnecessary secrecy about key details of the impending debt exchange can cause market instability. Blinder *et al.* (2008) is a useful reference on central bank transparency and communication issues.

VI. Conclusion

This paper has advanced a narrow but consequential argument: a DDR is a monetary and financial event as much as it is a fiscal one. Because DDRs reallocate losses across the sovereign, the central bank, and the domestic financial system, their design shapes post-restructuring transmission through four channels: the central bank balance sheet, the government securities market, the commercial bank credit channel, and policy credibility. The importance of the central bank lies in its dual role—creditor and regulator, participant and referee.

It bears emphasis that the results presented in this paper are event-study correlations, not causal estimates. Countries that experienced DDRs were often simultaneously undergoing financial, balance-of-payments, or fiscal crises. The observed monetary compression may therefore partly reflect pre-existing vulnerabilities rather than restructuring alone. That said, the cross-country evidence assembled here provides some grounding for the central bank balance sheet and bank credit channels developed in Section III. The compression of the money multiplier, in particular, is concentrated in multi-year restructurings.

At the individual country level, more rigorous analytical work—beyond the scope of this paper—would be required to pinpoint the degree and direction of any monetary-policy deviation from the norm around the restructuring window. The most useful extension would be a comparative dataset tracking central bank holdings, bank sovereign exposure, regulatory treatment, and time to market repair across recent cases. That would allow the mechanisms identified here to be tested more systematically. Several questions raised by this analysis lend themselves to such further research, some of which is already under way. First, how important is the monetary regime as a driver of post-DDR outcomes? Second, does a parallel external debt restructuring systematically improve post-DDR monetary outcomes? Third, how do the depth and form of the domestic haircut, and the treatment of central bank holdings, affect the speed at which monetary transmission recovers?

The case evidence further indicates that, of the four dimensions compared in Section IV.E, recovery of monetary transmission is the most uncertain and differentiated outcome across restructurings—recovering relatively quickly in Jamaica, entrenched as a structural weakness in Barbados, and severely disrupted in Ghana. Tracking this dimension explicitly, alongside standard debt sustainability metrics, should form part of the post-DDR monitoring framework.

For practitioners, the lesson stemming from this paper is clear: a DDR design that ignores the monetary dimension may replace one macroeconomic problem with another. The test of a well-designed DDR is not only whether it achieves debt sustainability, but whether, after the exchange, the country retains a central bank and a financial system capable of conducting monetary policy and providing credit to the economy.

This will require careful preparation beyond the decision to undertake a DDR. Detailed scenario planning is essential for stress-testing financial stability and post-exchange monetary policy steps *prior to launching a DDR*. In addition, coordination between monetary and debt management authorities would be needed *during DDR* to minimize disruptions to monetary policy, financial sector, as well as treasury operations. Finally, there is an important role for international financial institutions (particularly, the IMF and the World Bank) in safeguarding financial stability during the DDR and providing a credibility backstop in the post-DDR period.

Appendix: Classification of DDR episodes analyzed in Section IV.A

No.	Country	DDR		Crisis			Monetary Policy Regime
		Start	End	R	E	B	
1	Suriname	2000	2001	0	E	0	E
2	Paraguay	2002	2004	R	0	0	M
3	Nicaragua	2003	2004	0	0	B	E
4	Cameroon	2004	2005	0	0	0	E
5	Solomon Islands	2004	2006	R	E	0	E
6	Argentina	2006	2013	0	0	0	M
7	Moldova, Rep. of	2008	2008	0	0	0	M
8	Nicaragua	2008	2008	0	0	0	E
9	Antigua and Barbuda	2009	2013	R	0	0	E
10	Jamaica	2010	2010	R	E	0	M
11	Mali	2012	2012	0	0	0	E
12	Guinea	2013	2013	0	0	0	M
13	Jamaica	2013	2013	R	E	0	M
14	Gambia, The	2016	2017	0	E	0	M
15	Guinea	2016	2016	0	0	0	M
16	El Salvador	2017	2017	0	0	0	E
17	Seychelles	2017	2017	0	0	0	M

Sources: IMF (2021); and authors' classification. Notes: R = real crisis; E = external crisis; B = banking crisis. Monetary policy regime, based on the IMF's de facto classification of exchange rate arrangements: E = exchange rate anchor; M = domestic monetary anchor (monetary aggregate targeting or, for Moldova in 2008, a transition to inflation targeting).

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