THE UNIVERSITY OF CHICAGO

THE IMPACT OF IMF DEBT SUSTAINABILITY ASSESSMENTS ON SOVEREIGN DEBT RESTRUCTURING OUTCOMES FOR PRIVATE SECTOR CREDITORS

A MASTER THESIS SUBMITTED TO

THE FACULTY OF THE DEPARTMENT OF ECONOMICS

FOR THE DEGREE OF

MASTER OF THE ARTS IN ECONOMICS

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CHICAGO, ILLINOIS

MAY 2025

I dedicate this thesis to my parents, whose unwavering love and support have been a constant source of strength. I am deeply grateful to my academic advisors, Anil Kashyap and Kanit Kuevibulvanich, for their guidance, insight, and encouragement throughout this journey. I would also like to thank Richard Deitz for his invaluable mentorship.

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ABSTRACT

This study examines the International Monetary Fund's (IMF) Debt Sustainability Assessment (DSA) and its influence on sovereign bond debt negotiations, particularly focusing on the impact of the DSA's implicit GDP growth forecasts on private sector creditors during sovereign debt restructurings. This study explores how systematic forecast errors in the DSA may have distorted negotiation outcomes, leading to suboptimal debt rescheduling and forgiveness outcomes with negative economic consequences for private sector creditors. The IMF, as the "lender of last resort," plays a dual role as both a senior creditor and arbitrator in these negotiations, which may create conflicts of interest. This conflict could lead to perceived biases in the DSA's forecasts, influencing both the sovereign debtor and private creditors' strategies. This study highlights the potential risks of such biases, including increased divisiveness in negotiations and the disincentivization of future private sector lending to high-risk sovereign borrowers.

CHAPTER 1

THESIS

1.1 Introduction

This study examines the dynamic of the IMF's Debt Sustainability Assessment (DSA) on the process and dynamics of sovereign bond debt negotiation and restructuring between the sovereign debtor, multilateral lenders and private sector creditors. The study's focus is on the key impact and consequences of the DSA's forecast for Nominal Gross Domestic Product in USD (NGDPD) with regard to its possible direct and indirect effects on the private sector debt restructuring negotiation process. The study also investigates how the IMF's implicit or explicit systematic forecast errors may affect debt negotiation outcomes and lead to potential non-optimal debt rescheduling and forgiveness outcomes with disproportionately negative economic value outcomes for private sector creditors.

The IMF's primary mission is that of the "lender of last resort" to distressed sovereign debtors. As such, the IMF, in essence, becomes the "de facto" preferred senior creditor in any consequent sovereign debt restructuring negotiations. The IMF 's role can be seen as analogous to the "debtor in possession" preferred lender in a private sector bankruptcy case, with absolute priority to repayment and, as such, with the potential to influence recovery outcomes for other more "junior" creditors. However, in the case of sovereign debt restructurings, the IMF also "de facto" serves as arbitrator between the debtor and its other, mostly private sector, lesser priority creditors.

The IMF's key negotiation instrument is its DSA, which sets out the IMF's forecasts of the sovereign debtor's expected future economic performance and hence the country's expected "sustainable" capacity to repay outstanding debts. The DSA's scenario forecasts of future Gross Domestic Product (GDP), therefore, becomes one of the key variables in determining the expected "sustainable debt level" of any subsequent debt restructuring negotiations. The

IMF thus faces an inherent conflict in its role as both preferred senior lender and arbitrator between the sovereign debtor and its private sector creditors. In constructing its forecasts of sustainability, the less potential future competing proportional claims there are from private sector creditors on the debtor's future "free cash flows" the lower the future repayment risks are to the IMF and its fellow multilateral lenders. Lowering private sector repayment raises the odds that the program is ultimately successful.

This potential conflict of interest may lead the potentially affected private sector creditors to question the impartiality of the DSA forecasts and suspect that the DSA forecast has an implicit bias in them that will adversely affect their negotiating position with the creditors and lead to suboptimal recoveries and economic outcomes. Likewise, sovereign debtors could also be incentivized to exaggerate potential economic hardships and downplay potential upsides in order to "game" the DSA forecasts knowing that the IMF would be implicitly sympathetic to such actions as the potential economic costs of any such "pessimistic" DSA forecast would be asymmetrically born by the private sector creditors rather that the IMF itself. The cumulative effect of any such perceived impartiality of the DSA forecast would, thereby, not only introduce and increase greater divisiveness and uncertainty in future debt restructuring negotiations, but could incentivize the affected parties to try and "second guess" and "game" the debt negotiation process and significantly lengthening the negotiation process and resolution timeline. In the longer term, this can potentially disincentivize private sector creditors from future lending to perceived "at risk" borrowers.

1.2 Literature Review

In a typical sovereign debt negotiation, there is a well defined "pecking order," in which the IMF and multilateral, bilateral are private credit have different seniority and influence on the eventual outcomes. Sovereign debtors also often weigh the consequences of defaulting differently, depending on the creditor and their perceived strength and/or importance to the

future of the country. The IMF and other multilateral creditors have a mandate to ensure full repayment before providing financial assistance to sovereigns facing balance of payments or structural issues. As the lender of last resort for most defaulting sovereigns, who often lack alternative funding, the IMF imposes terms on its loans known as conditionality. These include austerity measures, policy reforms, borrowing restrictions, and other requirements aimed at addressing the root causes of the initial default event. These conditions also serve to protect the IMF's senior creditor status. If a country defaults on its IMF debts, they will most likely be prevented from accessing other multilateral lending, and private sector creditors will likely be extremely reluctant to lend. In addition, other future multilateral and bilateral governmental economic aid will likely be limited or curtailed. Private sector debt, in the form of internationally tradable bonds are very visible and may carry substantial reputational and legal risk to the issuing sovereign due to the heterogeneity and unpredictable reactions of the various bond holders to a bond default, particularly when the bonds were issued under foreign legal jurisdiction. Direct debts owed to foreign private sector banks are generally less publically noticeable and the creditor/debtor relationship is more direct and closer, allowing for greater leeway in negotiating mutually acceptable outcomes in the case of a potential debt default (Schlegl et al. [2019]).

Most non-G7 sovereign debt, is most often issued and traded outside the borrowing country. Typically such bonds are issued in the currency and under the laws of an established financial center such as the United States, the United Kingdom, the European Union or Japan. Sovereign bonds are most often held by large, long horizon institutional investors such as banks, insurance companies and pension funds and the bonds must usually adhere to minimum "investment grade" ratings by the major bond rating agencies, although a significant portion of bonds are also actively traded by private investors and market speculators. In the event of a default scenario, many institutional investors may be forced to sell their affected bond holdings due to regulatory restrictions, usually tied to minimum debt rating

levels. Many of these then discounted bonds are purchased in the secondary market by large specialized funds and smaller private creditors, who often specialize the purchase and recovery of distressed or defaulted debt. It is these specialized and experienced "distressed debt" investors who typically lead the private sector debt restructuring negotiations with the defaulting sovereign (Vanderschuren [2023]).

Bilateral lending has become increasingly widespread, much of which came from the traditional lenders and exporters such as the United States, Germany, Japan, the United Kingdom and France. More recently, China and Saudi Arabia have also become large bilateral trade partners and lenders. The incentives of bilateral creditors add a different dimension to the default scenario. The motivation of these lenders is often not to gain financially but to accumulate other forms of geopolitical power or influence. Resolutions of defaulted bilateral debt are most often negotiated directly between the two sovereigns, although the Paris Club is often the preferred forum for debt renegotiation when there are a large number of competing bilateral claims. The Paris Club traditionally defers to the IMF, and its debt resolutions are usually the last to be settled after a sovereign debt renegotiation (Bunte and Kinne [2021]).

Per IMF's Guidance Note On The Financing Assurances And Sovereign Arrears Policies And The Fund's Role In Debt Restructurings, the IMF must strive to maintain a neutral stance throughout the debt restructuring process. The decision to restructure debt must depend solely on the debtor sovereign's capacity and willingness to repay its debts. IMF staff must encourage debtors to stay current on their obligations and avoid actions that could steer the sovereign toward default. Once the sovereign decides to proceed with the debt restructuring process, the parameters of the restructuring framework are defined by the IMF's DSA forecasts, which must, in theory, model "realistic" macroeconomic and financing assumptions and expectations and must take into account how any potential restructuring would impact future sovereign borrowing (IMF [2024b]). If DSA macroeconomic forecasts are too optimistic, they risk becoming the proximate cause for the next default, as the

sovereign may not have the economic capacity to fully service its debt going forward. If the DSA macroeconomic forecasts are overly conservative, they will likely lead to calls for greater debtor concessions, thereby provoking debtor resistance. The resistence can take various forms, including, a prolongation of the negotiation process, a reduced willingness to lend in the future or a demand for greater risk premiums in future lending (Benjamin and Wright [2009]).

Private sector creditors have previously responded to perceived overly conservative DSA projections by demanding as an enhancement to any new renegotiated or rescheduled debt obligations, additional upside instruments such as GDP linked bonds or warrants that would pay additional returns to the creditor based on any over-performance of the sovereign's GDP growth in future above the base DSA growth forecast. The IMF has been very skeptical of such types of GDP or macroeconomic-linked instruments, which are often complex and controversial, and may contribute to delays in any eventual economic recovery by giving a perverse incentive to the debtor nation to limit the pace and strength of its economic recovery in order to limit its future debt repayment burden (Peihani [2023]). Such potential measures are identified as drawbacks in the IMF's Guidance Note on the Financing Assurances and Sovereign Arrears Policies and the Fund's Role in Debt Restructurings, including in Appendix X, titled State-Contingent Features in Restructurings, which discusses the potential effects and risks of these instruments: "high novelty and liquidity premiums demanded by investors in the early stages of market development; design problems that lead to higher payments to creditors in scenarios where the debtor's repayment capacity is worse; adverse selection and moral hazard risks; undesirable pricing effects on conventional debt; pro-cyclical investor demand; migration of excessive risk to the private sector; and adverse political economy incentives" (IMF [2024b]).

For Low Income Countries (LIC), the IMF's goal is to reduce the debt distress indicator to moderate over the medium term, though this can be extended until the end of the IMF

program or three years, whichever is earlier. The most important parameters for debt are the Present Value (PV) of external debt to GDP and exports, and external debt service to exports and revenues, all of which must decrease to debt-carrying capacity within 5 years. For Market Access Countries (MACs), the DSA template is more complex and incorporates more variables. Projections are produced over a 10-year horizon, and debt targets are set, such as the probability of sustainable debt exceeding 50% or 80% in exceptional access scenarios (IMF [2024b]).

The release of a DSA usually is a prerequisite to commence the restructuring process and is the key input into determining the potential need for, or the extent of, debt restructuring or relief to reach a "sustainable" debt level. Given how relevant this document is, the IMF has made great efforts to increase transparency in the sovereign debt renegotiation processes. Given the IMF's simultaneous role as both an interested party and arbitrator in the sovereign debt renegotiation process, market participants have expressed criticisms of the IMF for potentially undermining the integrity of the sovereign debt renegotiation process. Reading private sector creditor comments on some of the recent restructuring cases, one can understand why private creditors often perceive the renegotiation process as being less than impartial and at times unfair to private sector bondholders. In response to such criticism the IMF has published an updated memorandum (IMF [2023]) about the release of information during restructuring negotiations aimed at reducing delays due to impasses between bondholders, governments and the IMF. The IMF has accepted the need to receive feedback and input from private creditors, however it explicitly states that the production of the DSA will remain the sole purview of the IMF and will neither be negotiable or reviewable, and the underlying premises of the report forecasts will not be released to the public until the negotiation process concludes (Hagan [2023]). Although in the 2023 "Staff Guidance Note on Information Sharing in The Context of Sovereign Debt Restructuring," the IMF agreed to receive input from creditors during the restructuring process, it states that once restruc-

turing targets are set, such targets can only be modified in exceptional situations, as buffers are already incorporated in the DSA to account for downside events (IMF [2024b].

Rational expectations imply that forecast errors should be unbiased and not systematically predictable (Muth [1961]). Coibion et al. [2018] illustrate this point using inflation forecasts. They find that forecasts made by households and firms tend to be biased, while those from professionals and central banks are generally closer to being unbiased. Nonetheless, even professional forecasts exhibit some predictable errors. To test for bias and predictability, the authors use a formulation that examines how forecast errors at time t relate to past forecasts and actual outcomes:

$$x_{t+h} - F_t x_{t+h} = c + \beta(F_t x_{t+h} - F_{t-1} x_{t+h}) + \varepsilon_t$$

Where:

- x_{t+h} is the actual value of the variable at time $t + h$.
- $F_t x_{t+h}$ is the forecast of the variable at time $t + h$ made at time t.
- $F_{t-1} x_{t+h}$ is the forecast of the variable at time $t + h$ made at time $t - 1$.
- c is a constant term.
- β is a coefficient that measures the relationship between the forecast at t and $t - 1$.
- ε_t is the error term at time t, which captures any unmodeled influences or random disturbances.

Government forecasts tend to exhibit systematic bias, often more so than those produced by the private sector. Frankel and Schreger [2016] show that this optimism is often strategic, with actual deficits turning out larger than projected and surpluses smaller. While such systematic errors might be of limited concern if forecasts were not used in decision-making,

their influence on policy makes these biases consequential. Frankel [2011] further finds that forecast bias becomes more pronounced over longer three-year horizons. An extensive study by Kessler [2025] compiles a dataset of LIC DSAs from 2014 to 2024. The study finds that for larger debtor countries, IMF forecasts tend to be more optimistic. The primary drivers of forecast errors are overestimation of fiscal expenditures and, to a lesser extent, GDP growth. DSAs published during IMF programs were somewhat more accurate in projecting public debt levels but performed worse in forecasting budget deficits, partly due to insufficient accounting for potential recessionary shocks. Similarly, an analysis of the IMF's World Economic Outlook forecasts by Timmermann [2006] finds a tendency for IMF staff to over-predict real GDP growth and under-predict inflation, while current account forecasts showed no significant bias. According to one of the most influential papers on forecasting methodology Armstrong et al. [2015], the IMF should adopt a conservative approach to macroeconomic forecasts, particularly in the context of sovereign debt restructurings, in order to improve the reliability of its projections. However, it is important to recognize that the DSA is not only a technical forecasting instrument. It also plays a central role in shaping the negotiation process and directly influences the amount of debt relief a sovereign can request and ultimately receive. This dual function creates a fundamental tension. The IMF must produce forecasts that reflect a sovereign's actual repayment capacity while also maintaining the confidence of all stakeholders, including private creditors (IMF [2024b]).

Sovereign defaults impose significant costs, including reputational damage, trade exclusion, financial instability, and political fallout. They reduce output and raise borrowing costs, making a prompt resolution in the interest of both the country and its creditors. Although reputational and trade effects are often short-lived, economic recovery cannot begin while a country remains in default (Borensztein and Panizza [2009], Asonuma et al. [2024]).

1.3 Theory

A country entering an IMF Extended Fund Facility (EFF) or Extended Credit Facility (ECF) is typically facing structural economic policy problems, disequilibriums, acute economic shocks or Balance of Payments (BoP) imbalances. These countries are at elevated risk of default, so they seek temporary financing from the IMF. It is the mandate of the IMF to provide such financing rapidly and in full. This is typically not a problem because the IMF benefits from the role of preferred senior lender. Since the IMF is able to provide loans at lower rates and longer maturities, sovereigns prioritize repayment to the IMF, and it is very rare for them to default on loans to the IMF. This status allows the IMF to advise the country on the extent of debt relief needed to ensure debt sustainability.

Table 1.1: Selected IMF Lending Instruments and Their Uses

Instrument	Target Countries	Duration	Typical Use
Extended Fund Facility (EFF)	Middle-income countries	3–4 years	Address structural problems and BoP imbalances
Stand-By Arrangement (SBA)	All members	12–24 months	Short-term BoP needs or precautionary use
Rapid Financing Instrument (RFI)	All members	One-time disbursement	Urgent BoP needs due to shocks or crises
Extended Credit Facility (ECF)	Low-income countries	3–5 years	Concessional version of EFF; supports structural reform
Rapid Credit Facility (RCF)	Low-income countries	One-time or repeated access	Concessional rapid support in emergencies
Flexible Credit Line (FCL)	Countries with strong fundamentals	1–2 years (renewable)	Crisis prevention; boosts market confidence
Precautionary and Liquidity Line (PLL)	Countries with moderate vulnerabilities	6 months to 2 years	Precautionary support with moderate conditionality
Short-Term Liquidity Line (SLL)	Countries with strong policies	3–12 months	Short-term external shocks; liquidity bridge

Entering into a debt sovereign default scenario can be very costly for all parties, and both borrowers and the lenders are therefore incentivized to put in great efforts to ensure that they do not end up in such a situation. In the case of an unsustainable situation, the debtor country approaches the IMF and seeks a EFF or ECF whilst simultaneously

partially or fully pausing the servicing of its own existing debt repayments. The IMF then conducts its own economic review and provides its opinion on the optimal level of sustainable debt for the affected country in the form of a DSA. According to the IMF, the objective of the DSA is to assess the country's current debt situation, identify vulnerabilities in its debt structure and examine the impact of alternative debt-stabilizing policy policies under various economic scenarios and under various stress scenarios. The DSA uses IMF forecasts of various key macroeconomic indicators and their interactions under different economic growth scenarios to reach its forecast conclusions. However, other than providing the DSA to market participants, the IMF does not participate directly in direct negotiations between the parties, and the decision to restructure debt is negotiated exclusively and directly between the sovereign and its creditors.

When a sovereign fails to make payments on its debt, it enters into default and will seek to restructure its debt. Since the defaulting sovereign does not have the current capacity to fulfill all of its obligations, it must determine what it can afford to pay in order to have meaningful discussions with its creditors. A sovereign may be tempted to exaggerate the severity of its economic situation and ask for greater debt relief, but is often constrained by reputational concerns leading to fears about its future ability to access new lending. If investors perceive that the terms of the restructuring as unfair and excessive debt relief was granted, it may complicate the country's reputation as a reliable borrower and affect the ability to return to debt markets in the future or to borrow at reasonable market interest rates. This is why the IMF's production of an impartial DSA plays such an important role in any debt restructuring negotiation, as it is a vital element of building trust and common ground for negotiation between the debtor and its creditors.

When there are not sufficient funds to repay all creditors, sovereigns face the decision of which creditors to prioritize, and how to restructure their defaulted debt burden. In low-income economies, the majority of the credit will usually be provided by the IMF and other

multilateral lenders, such as the World Bank. Middle-income countries typically finance themselves by issuing sovereign bonds, and the amount of outstanding bonds often exceeds the multilateral lending these countries receive. In the first scenario, the IMF can negotiate directly with the country since it holds most of the country's debt. In the latter, the IMF cannot easily intervene directly in negotiations with creditors but, nevertheless the DSA projections will indirectly shape the negotiations. The IMF's priority is to ensure that any renegotiated debt scenario is sustainable and the country will have enough resources to, first and foremost, service its IMF loans and then its other outstanding obligations. The resource capacity of the sovereign to repay will depend on its projected output, exports, and taxation revenue. Exchange rates are thus also an important factor, as most of the borrowing of non G7 countries is denominated in foreign currencies and the exchange rate policy of these countries often determines the amount of foreign currency they will be capable of accumulating in order to service their debt obligations. Given that the IMF is a senior preferred lender, and sovereigns want to avoid losing access to multilateral credit at all costs, they need the IMF's approval before going forward with any restructuring agreement. Private creditors' recoveries in any meaningful sovereign debt negotiation and restructurings are therefore inextricably tied to the veracity and accuracy of the IMF DSA forecasts. Any implicit factors or biases that potentially affect those forecasts have serious consequences.

In negotiating any Facility, the IMF has two important goals to achieve, first to ensure that it gets fully repaid and, second, that the country does not enter a subsequent default due to an unsustainable debt servicing schedule. The IMF does not have to mandate or goal, explicit, or otherwise, to take into account the economic effects or interests of competing private sector creditors in any restructuring negotiation. To prevent downside scenarios for itself, the IMF may be theoretically incentivized to produce overly pessimistic forecasts, thereby indirectly increasing the likelihood that private sector creditors may face excessive economic losses on their debt claims. Disagreements over the extent of debt relief are very

counterproductive in reaching a restructuring agreement. When a sovereign enters default, it is imperative to all parties to reach a restructuring agreement as quickly as possible, since delaying repayment and economic recovery is neither optimal for the sovereign debtor or any class of its creditors.

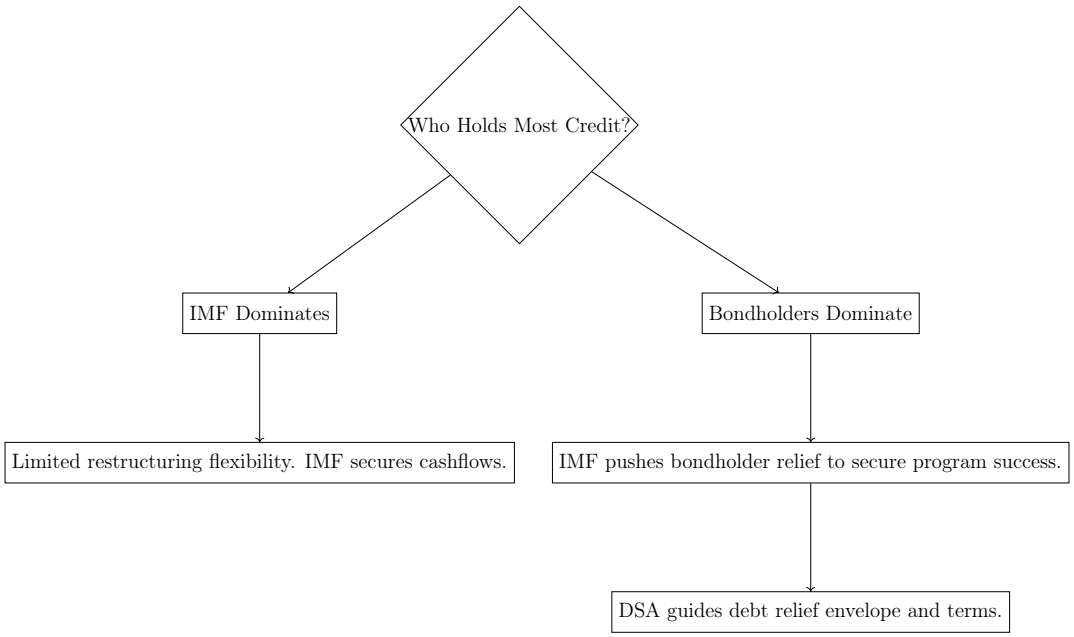

Figure 1.1: Creditor composition determines restructuring outcomes

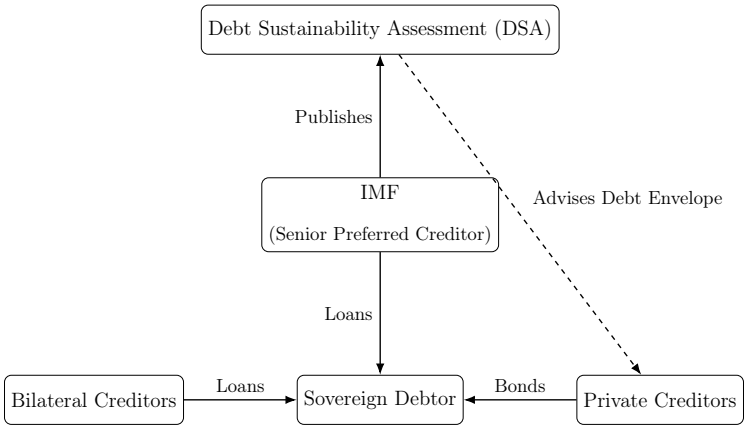

Figure 1.2: Participants in the sovereign debt restructuring negotiations

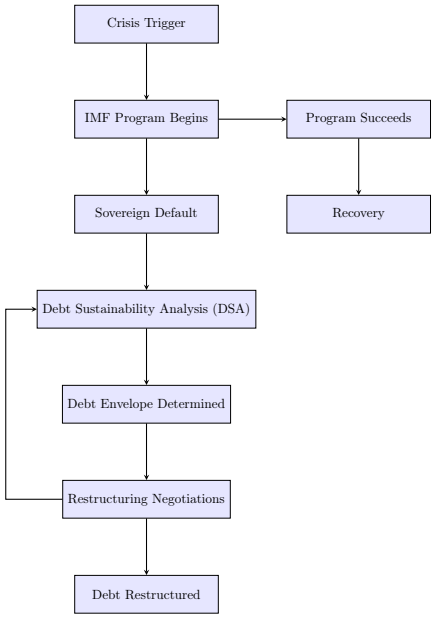

Figure 1.3: Stages of the debt restructructuring process

1.4 Methodology

The primary data base used to calculate the observed outcomes in this study are gathered from official IMF forecasts as set out in the various applicable IMF's World Economic Outlook (WEO) data sets (IMF [2025]) which serve as the IMF's primary forecast inputs to their DSAs. Since 2008, the IMF has published 5 year forward looking forecasts for Nominal GDP in local currency as well as USD. Given that Nominal GDP in USD forecasts may contain inadvertent errors in the GDP or exchange rate cross calculations, this study has also calculated the effective exchange rate by using the following formula:

$$\text{Exchange Rate} = \frac{\text{Nominal GDP}}{\text{Nominal GDP (in USD)}}$$

This study has compared the IMF's World Economic Outlook forecasts with the actual realized values or the IMF's latest published forecasts, (as of April 2025), in order to calculate the observed percentage error in the forecast:

$$\% \text{ Error} = \frac{\text{Realized Value} - \text{Forecasted Value}}{\text{Realized Value}}$$

In the case of an observed underestimation in the DSA forecast, the observed error will be designated as a positive number or percentage, given that the realized value is greater than the forecasted value. It follows that an observed overestimation in the DSA forecast will be designated as a negative number or percentage.

This study defines the ratio of Total Private Sector Bonds to Total Multilateral Credit as:

$$\text{Bonds to Multilateral Credit Ratio} = \frac{\text{DOD Bonds (GG)}}{\text{DOD IMF Credit (GG)} + \text{DOD IMF Multilateral (GG)}}$$

This study uses the data set from the World Bank's International Debt Statistics (IDS) (WB [2025]) in order to extract data on lending by the IMF, multilateral credits, and private sector bonds. In addition, this study gathered information on total debt rescheduled and forgiven within a given year from the same data IDS base. It is important to note that this data encompasses general government debt, which may not necessarily accurately reflect the actual amounts involved in a particular sovereign debt default event. For example, the data set also contains instances of quasi-sovereign default, such as a situation where a discrete state-owned enterprise may have defaulted on its outstanding loans whilst the sovereign itself continues to service it own debt. This distinction is crucial for interpreting the data accurately. To supplement and cross reference the IDS dataset, this study has also referenced the Trebesch Database on Sovereign Defaults (Asonuma and Trebesch [2016], Cruces and Trebesch [2013]) to build a comprehensive and robust default event dataset that identifies whether the IMF DSA forecasts were produced during the period of actual restructuring negotiations. By incorporating this information into this study's regression analysis, this

study aims to provide a more comprehensive and dynamic understanding of the financial situation of the countries in question during the timeline of a sovereign debt default event. This approach enables this study to more accurately identify the exogenous variables that may have contributed to errors in economic forecasts, especially in the context of sovereign or quasi-sovereign debt restructuring.

This study uses the following fixed effects modeling equations to examine whether errors in forecasts can be predicted by the examining the interaction between the private sector bonds-to-multilateral credit ratio and discrete sovereign and government debt restructuring events, as defined in the IDS and Trebesch:

$$\text{Error}_{it} = \alpha_i + \lambda_t + \beta_1 \frac{\text{B}}{\text{MC}}_{it} + \beta_2 \,\text{Restructuring}_{it} + \beta_3 \left(\frac{\text{B}}{\text{MC}}_{it} \times \text{Restructuring}_{it} \right) + \varepsilon_{it} \tag{1.1}$$

The statistical databases for debt restructuring events of smaller economies are, due to their limited economic complexity, high levels of economic concentration and the relative undiversified nature of their economies, inherently subject to elevated levels of observed data volatility. In order to decrease the instances of extreme volatility in the overall data sets related to outlier data observations from smaller economies, this study conducted regressions only for countries with above median multilateral debt. In this specification, the dependent variable is the IMF's GDP/Exchange Rate forecast error for country i in year t. The key explanatory variable is $\frac{\text{B}}{\text{MC}}$, which measures the ratio of private sector bond financing to multilateral loans in a country's total external debt. The variable Restructuring is a binary indicator for whether the country was engaged in, or expected to undergo a proximate restructuring. The interaction term allows the effect of debt composition on forecast errors to vary depending on whether a restructuring was taking place. Country fixed effects α_i control for time-invariant characteristics at the country level, while year fixed effects λ_t account for global shocks or changes in the IMF's forecasting framework over time. To

ensure robust inference, this study used weighted least squares (WLS), applying weights based on the total amount of multilateral credit to account for the differing importance of observations in the regression analysis.

1.5 Descriptive Statistics

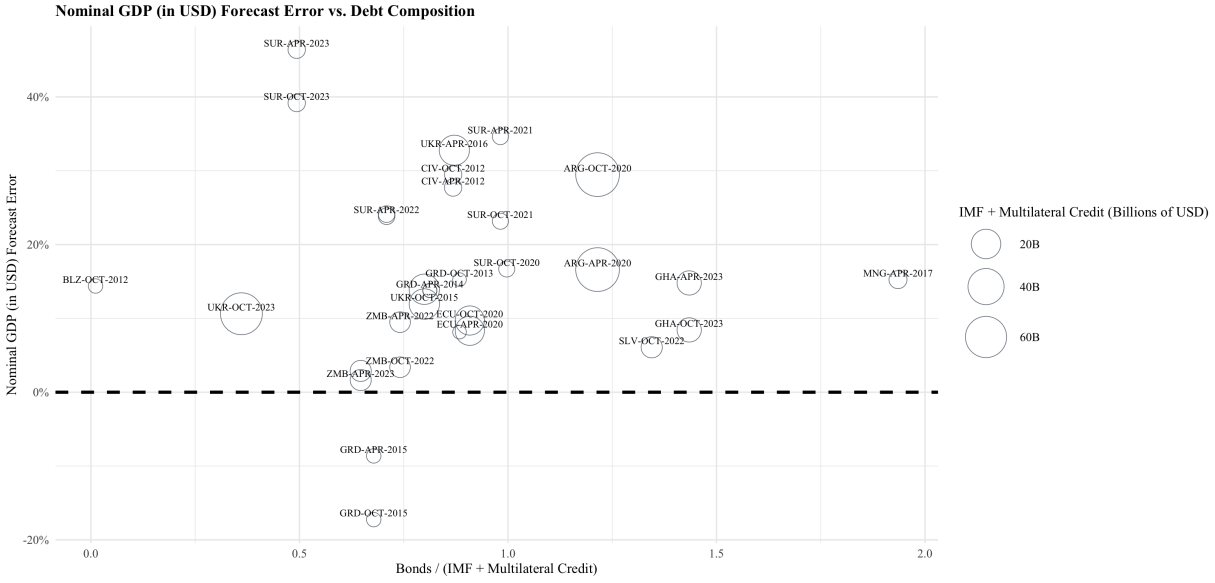

Figure 1.4: Nominal GDP (in USD) forecast error versus the ratio of sector bond bondholders to multilateral creditors during during sovereign debt restructurings, as defined by Trebesch

In Figure 1.4, I plot the nominal GDP forecast errors (in USD) from sovereign debt restructurings since 2008, as defined by Asonuma and Trebesch [2016], against the ratio of private sector bonds to multilateral credit. The data come from IMF World Economic Outlook (WEO) forecasts issued during IMF supported programs, specifically after a sovereign default but before the restructuring agreement was finalized. These projections are compared with the most recent actual values published in the April 2025 WEO. The majority of forecast errors fell within a 40% underestimation range. To visually distinguish between larger and smaller creditors, the size of each data point corresponds to the total stock of multilateral credit, including IMF exposure. The dashed horizontal line at zero indicates perfect

accuracy, and any point above that line represents an underestimation of nominal GDP. Notable omissions include Greece, Mozambique, Sri Lanka, and Ethiopia, where either data were not published during restructuring, or significant issues, such as hidden debt or major revisions, compromised the IMF's forecasting process. In most restructurings, multilateral creditors slightly exceeded bondholders in exposure, although prominent exceptions exist, such as Argentina, Mongolia, Ghana, and El Salvador, where private bondholders were the dominant creditors. While there is no clear relationship between the total size of IMF and multilateral credit and forecast accuracy, one consistent pattern is that nominal GDP was almost always underestimated during restructuring episodes.

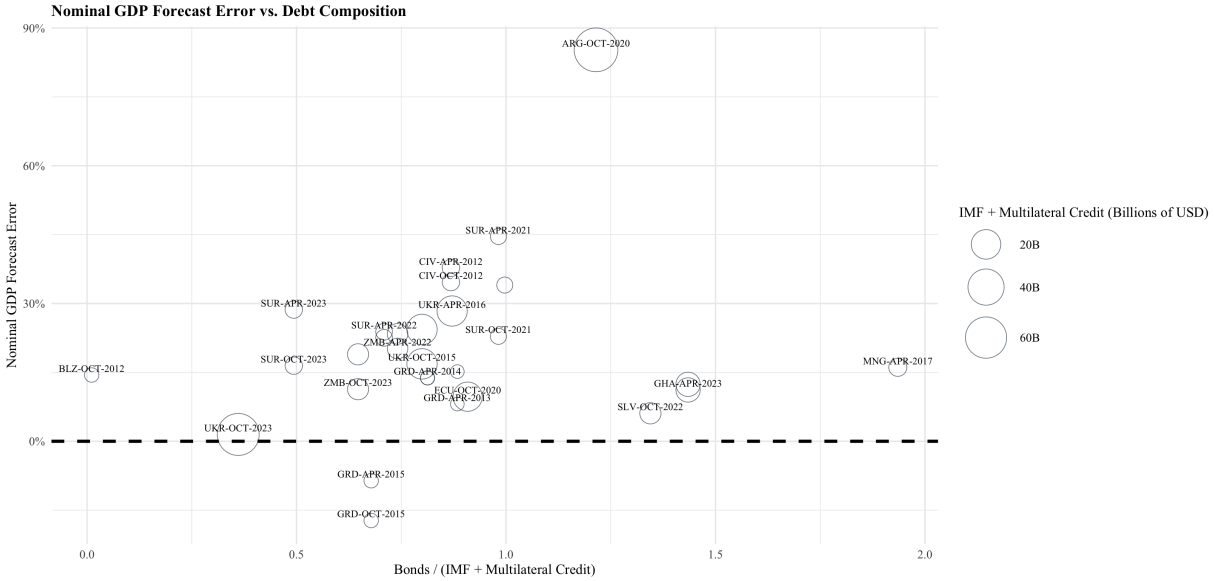

Figure 1.5: Nominal GDP forecast error versus the ratio of private sector bondholders to multilateral creditors during sovereign debt restructurings, as defined by Trebesch

In terms of nominal GDP in local currency (Figure 1.5), the majority of forecast errors fell within a 30% underestimation range. Most projections underestimated nominal GDP, with the notable exception of Grenada. Given Grenada's status as a small island economy heavily reliant on natural resources and highly vulnerable to natural disasters, an overestimation of economic growth in this case may be more understandable. Overall, the pattern

is similar to that observed for nominal GDP in USD, although local currency forecasts appear slightly more accurate. Notable outliers, such as Argentina in October 2020, suggest that discrepancies may stem less from errors in projecting domestic growth and more from misjudging exchange rate dynamics. This implies that exchange rate expectations may have played a key role in inflating USD denominated forecasts.

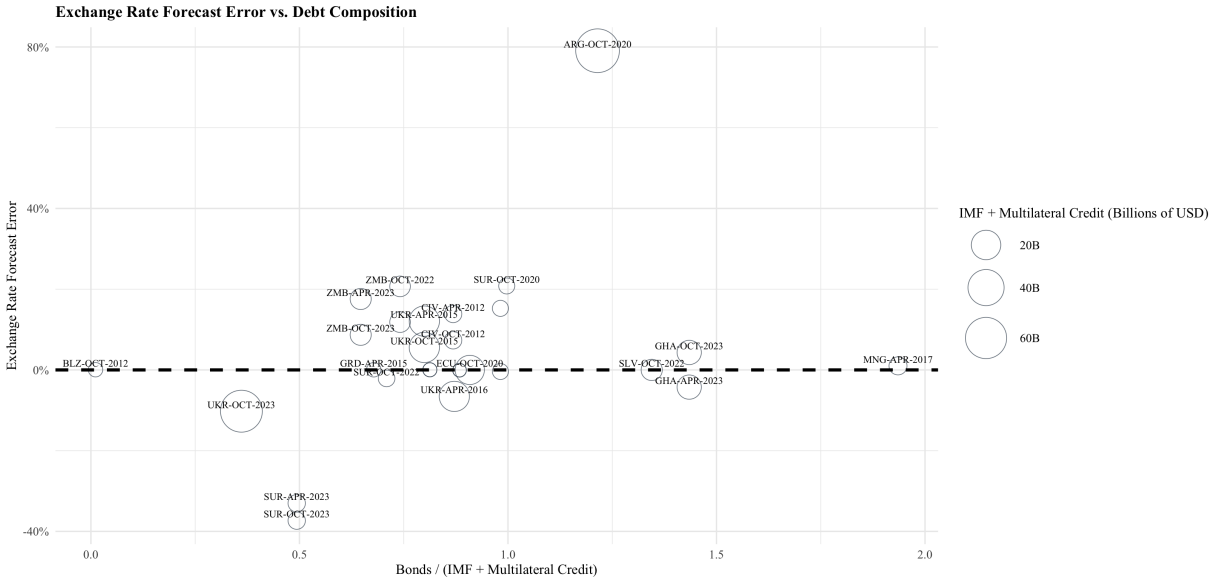

Figure 1.6: Exchange rate forecast error versus the ratio of private sector bondholders to multilateral creditors during during sovereign debt restructurings, as defined by Trebesch

Exchange rate projections (Figure 1.6) played a limited role in forecast errors for countries with dollarized economies, such as Ecuador and El Salvador, where constrained monetary sovereignty reduces the relevance of exchange rate fluctuations. In most other cases, however, exchange rates were overestimated by less than 20%, meaning the IMF anticipated stronger currencies than what ultimately materialized. This overestimation suggests the IMF did not fully anticipate the extent of currency depreciation following sovereign defaults. Since nominal GDP in USD is partially determined by the exchange rate, overly optimistic exchange rate forecasts artificially inflated projected GDP in dollar terms. As a result, the IMF's projections may have portrayed the foreign debt burden as more sustainable than it actually

was, potentially influencing the terms of the restructuring and undermining the perceived credibility of the debt sustainability analysis.

A stronger exchange rate assumption can indirectly affect domestic debt dynamics by signaling lower inflation and tighter monetary conditions, both of which can suppress nominal GDP growth. This highlights a possible link between exchange rate assumptions and the sustainability of local currency debt. Notably, while most countries experienced weaker currencies than the IMF had projected, a few, such as Ghana, Ukraine, and Suriname, actually saw their currencies perform stronger than expected.

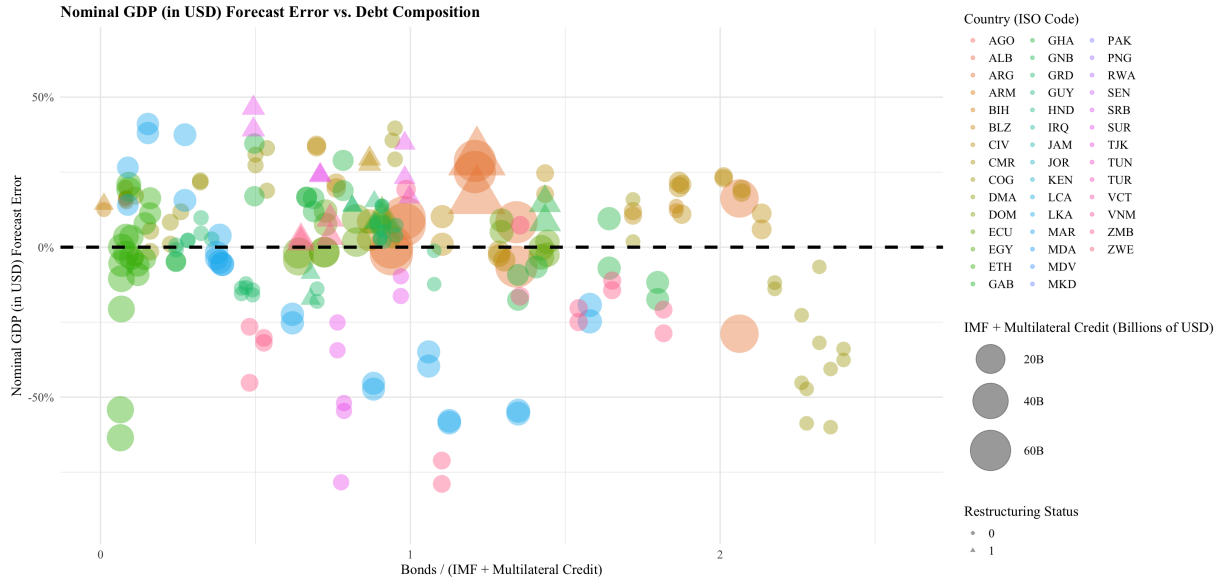

Figure 1.7: Nominal GDP (in USD) forecast error versus the ratio of private sector bondholders to multilateral creditors in years when debt is rescheduled or forgiven during IMF programs, as defined by the IDS

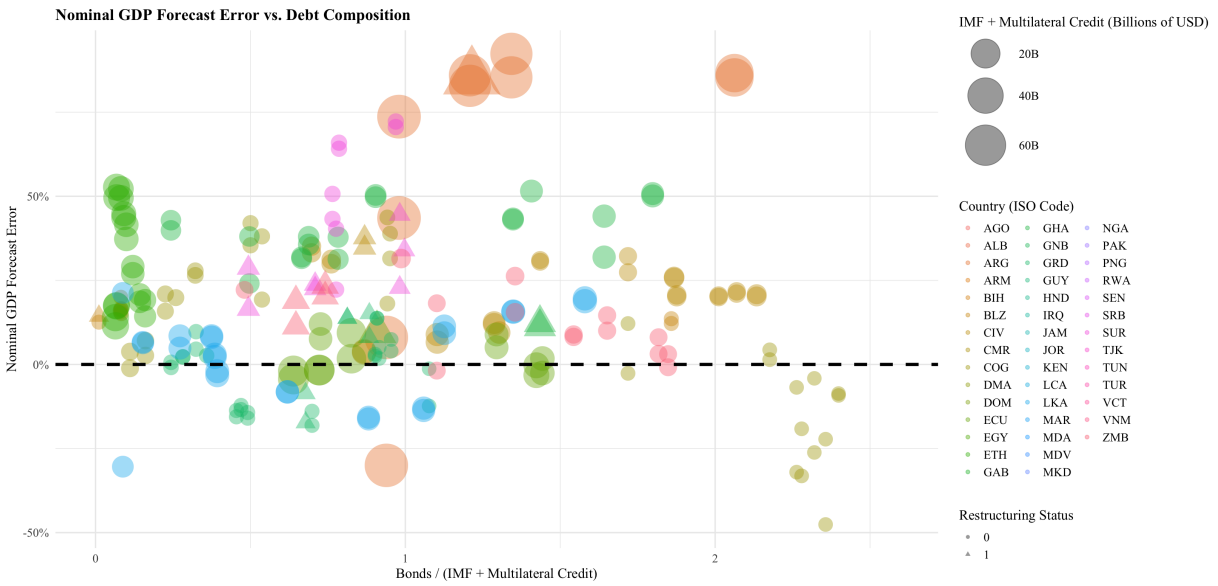

Figure 1.8: Nominal GDP forecast error versus the ratio of private sector bondholders to multilateral creditors in years when debt is rescheduled or forgiven during IMF programs, as defined by the IDS

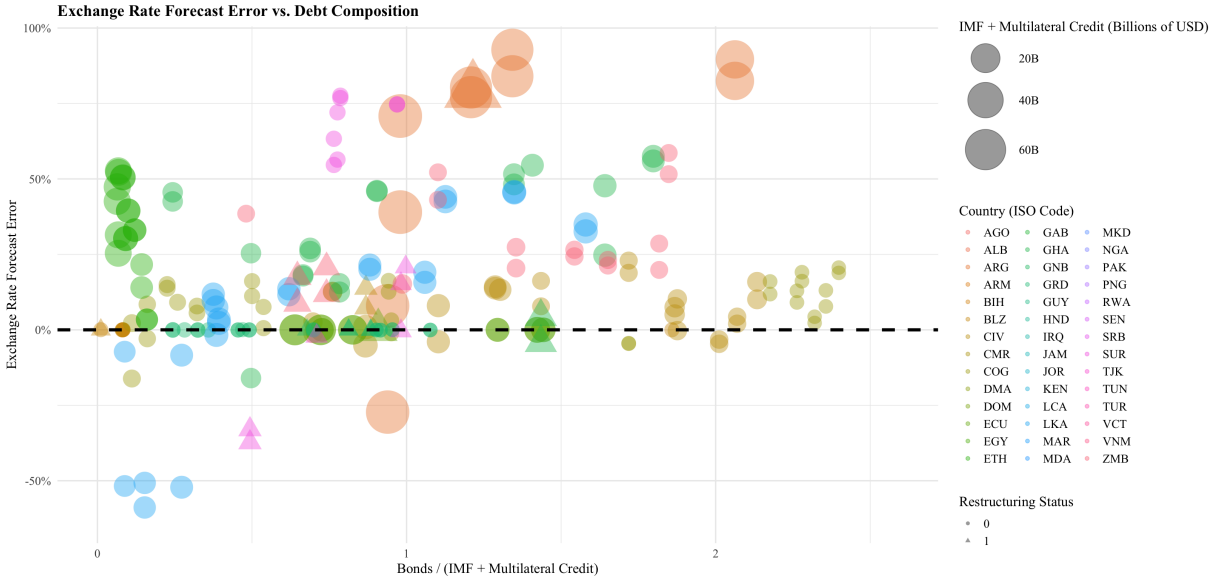

Figure 1.9: Exchange rate forecast error versus the ratio of private sector bondholders to multilateral creditors in years when debt is rescheduled or forgiven during IMF programs, as defined by the IDS

Figures 1.7, 1.8, and 1.9 plot all IMF forecasts for countries that rescheduled or received

debt forgiveness, as defined by WB [2025]. While the general patterns remain consistent, these plots incorporate a broader range of episodes, including not only sovereign defaults but also quasi-sovereign restructurings. Forecasts published in WEO editions during active restructuring periods are marked with triangles. It is important to note that the IDS dataset provides only annual data, which prevents distinguishing between forecasts made in April or October. As a result, the figures present annual observations by country restructuring status (debt rescheduled or forgiven) and total multilateral credit exposure.

1.6 Results

Table 1.2: Regression Results for Countries with Above Median Multilateral Credit That Restructured Sovereign Debt since 2008, as Defined by Trebesch

	Dependent variable:		
	NGDP (USD)	NGDP (LC)	Exchange Rate
Bonds to Multilateral Credit Ratio	0.049	0.302***	0.295***
	(0.079)	(0.058)	(0.064)
Restructuring Sovereign Debt	0.969***	0.067	−0.464*
	(0.234)	(0.176)	(0.193)
Bonds to Multilateral Credit Ratio × Restructuring Sovereign Debt	−0.617**	0.051	0.386
	(0.230)	(0.183)	(0.200)
Observations	140	138	138
R^2	0.088	0.074	0.164
Adjusted R^2	0.010	−0.006	0.091
F Statistic	10.168*** (df = 3; 128)	9.923*** (df = 3; 126)	11.246*** (df = 3; 126)
Note:			*p<0.05; **p<0.01; ***p<0.001

This study analyzed the role of creditor composition in shaping IMF forecast errors for nominal GDP and its components. Specifically, this study measured creditor composition using

the ratio of private sector bondholders to multilateral credit exposure and examine how this interacts with restructuring events to influence forecast accuracy. Table 1.2 presents regression results for countries that restructured sovereign debt during IMF programs since 2008, as identified by von Luckner et al. [2024], focusing on cases with above median multilateral credit exposure. The analysis includes only countries that underwent restructuring. The results indicate that forecasts for nominal GDP in local currency and exchange rates tend to be more pessimistic in countries where bondholders account for a larger share of credit relative to multilateral lenders. During a restructuring, forecasts become more pessimistic, particularly for dollar denominated GDP forecasts aligning with patterns observed in Figure 1.7. The effect appears proportional: a one percent increase in the ratio of private to multilateral credit is associated with a one percent increase in forecast error. Exchange rate forecasts also become more pessimistic, with anticipated devaluations exceeding actual depreciation. As a result, nominal GDP is underestimated, largely due to overly conservative exchange rate assumptions.

Contrary to the initial hypothesis, a higher ratio of private to multilateral creditors is associated with more optimistic IMF forecasts during restructuring episodes. This may reflect an incentive to project stronger growth in countries with greater access to private credit, either to maintain market confidence or because downward revisions are more politically or economically sensitive in these cases. In such contexts, the IMF may face pressure to avoid overly pessimistic projections, particularly when dealing with systemically important economies with large volumes of privately held debt.

Table 1.3: Regression Results for Countries with Above Median Multilateral Credit That Rescheduled or Had Debt Forgiven Since 2008, as Defined by IDS

	Dependent variable:		
	NGDP (USD)	NGDP (LC)	Exchange Rate
Bonds to Multilateral Credit Ratio	-0.104^{***}	0.133^{***}	0.178^{***}
	(0.025)	(0.033)	(0.035)
Debt Rescheduled or Forgiven	-0.0004	0.010	-0.220^{**}
	(0.054)	(0.056)	(0.075)
Bonds to Multilateral Credit Ratio × Debt Rescheduled or Forgiven	-0.019	-0.105^{*}	0.070
	(0.042)	(0.049)	(0.061)
Observations	275	291	254
R^2	0.043	0.010	0.037
Adjusted R^2	-0.045	-0.075	-0.054
F Statistic	6.104^{***} (df = 3; 251)	9.317^{***} (df = 3; 267)	17.216^{***} (df = 3; 231)

Note: *p<0.05; **p<0.01; ***p<0.001

Table 1.3 presents regression results for countries that rescheduled or received debt forgiveness during IMF programs since 2008, as identified by WB [2025], focusing on cases with above-median multilateral credit exposure. The results are consistent with those in Table 1.2, again we observe that nominal GDP forecasts become more optimistic as the ratio of private to multilateral creditors increases during restructuring episodes.

Table 1.4: Regression Results for All WEO Forecasts for Low and Middle Income Countries

	Dependent variable:		
	NGDP (USD)	NGDP (LC)	Exchange Rate
Bonds to Multilateral Credit Ratio	-0.038^{**}	-0.155	-0.055
	(0.014)	(9.672)	(7.766)
Restructuring Sovereign Debt	0.828^{***}	-0.128	-0.568
	(0.223)	(154.138)	(123.577)
Bonds to Multilateral Credit Ratio × Restructuring Sovereign Debt	-0.399	0.230	0.423
	(0.246)	(177.949)	(142.667)
Observations	877	900	831
R^2	0.015	0.00000	0.00000
Adjusted R^2	-0.042	-0.056	-0.059
F Statistic	13.700^{***} (df = 3; 828)	0.0001 (df = 3; 851)	0.00003 (df = 3; 784)

Note: *p<0.05; **p<0.01; ***p<0.001

The final regression expands the analysis to all IMF WEO forecasts for low and middle income countries. In this broader sample, the ratio of private bondholders to multilateral creditors is statistically significant only for nominal GDP in USD and only during restructuring years. The size of the effect is notably smaller than in the restructuring subsample. No significant relationship is observed for nominal GDP in local currency or for exchange rate forecasts. These results suggest that both creditor composition and restructuring status influence the IMF's forecasting behavior, particularly for nominal GDP in foreign currency. The observed relationships likely reflect the interaction of multiple underlying factors and should not be interpreted as strictly causal.

1.7 Conclusions

The statistical evidence presented in this study highlights the case for a clear observable bias in IMF DSA forecasts, particularly in periods directly related to sovereign debt restructuring episodes. Specifically, the IMF's DSA forecasts for nominal GDP (in USD) growth tend to be particularly underestimated during periods of restructuring negotiations, which in turn, likely has had a significant influence on the overall outcomes of these restructuring negotiations and their economic outcomes for private sector creditor recoveries. While it may have been strategically prudent for the IMF to have adopted a conservative approach during such sovereign restructuring episodes, such inherent bias cannot be solely attributed or explained by an "abundance of caution" approach. I propose three potential explanations for this phenomenon:

- The IMF may have deliberately set low DSA forecast expectations in order to enhance the probability of sovereigns' post restructuring economic performance exceeding such forecasts, with the aim of enhancing the IMF's institutional reputation with regards to its forecasting and policy advising credibility. However, this explanation fails to account for the observed influence of creditor composition on forecast outcomes.

- The IMF could be using its DSA forecasts as an institutional strategic negotiation tool, with the aim of establishing a credible expectation amongst private sector bondholders that they should assume and expect to bear a greater share of the debt relief burden. The IMF's likely policy goal being to form expectations amongst private sector creditors that would help to temper their future "moral hazard" bailout expectations and encourage more measured private sector lending practices in future.

- The IMF could simply be following, conscientiously or unconsciously, a policy of opti-

mizing its own, and its fellow multilateral institutions, economic and policy interests and outcomes. In a sovereign debt restructuring event, the IMF's first institutional priority must be to ensure that it can credibly expect repayment from the sovereign debtor whilst ensuring that the sovereign debtor has a viable path to return to economic growth and sustainable debt repayment. As the "senior creditor" in any sovereign restructuring, the IMF's statutory obligation is to protect its own shareholder's interests, and the IMF has no fiduciary or equitable obligations toward any private sector creditor, who, as a "junior creditor", should have no such credible expectations.

Future related research could explore several important areas to further understand these unique market dynamics. For instance, investigating how lending practices are influenced by the risk profiles of countries involved in restructuring, as well as the factors contributing to the duration and complexity of the debt renegotiation processes, would offer valuable insights into how to streamline and enhance future debt renegotiation processes. In addition, examining the role and post-restructuring performance of macro-linked bonds compared to traditional restructuring mechanisms could provide further clarity on their possible future role as an alternative price discovery and/or trust building mechanisms for private sector creditors in future sovereign debt negotiations. To expand this study, I plan to circulate a written survey among a representative sample of private sector sovereign debt market investors and participants in order to better understand their perspectives on these issues and gather more qualitative insights into the private sector's perceptions of the IMF's DSA forecasting and restructuring processes.

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